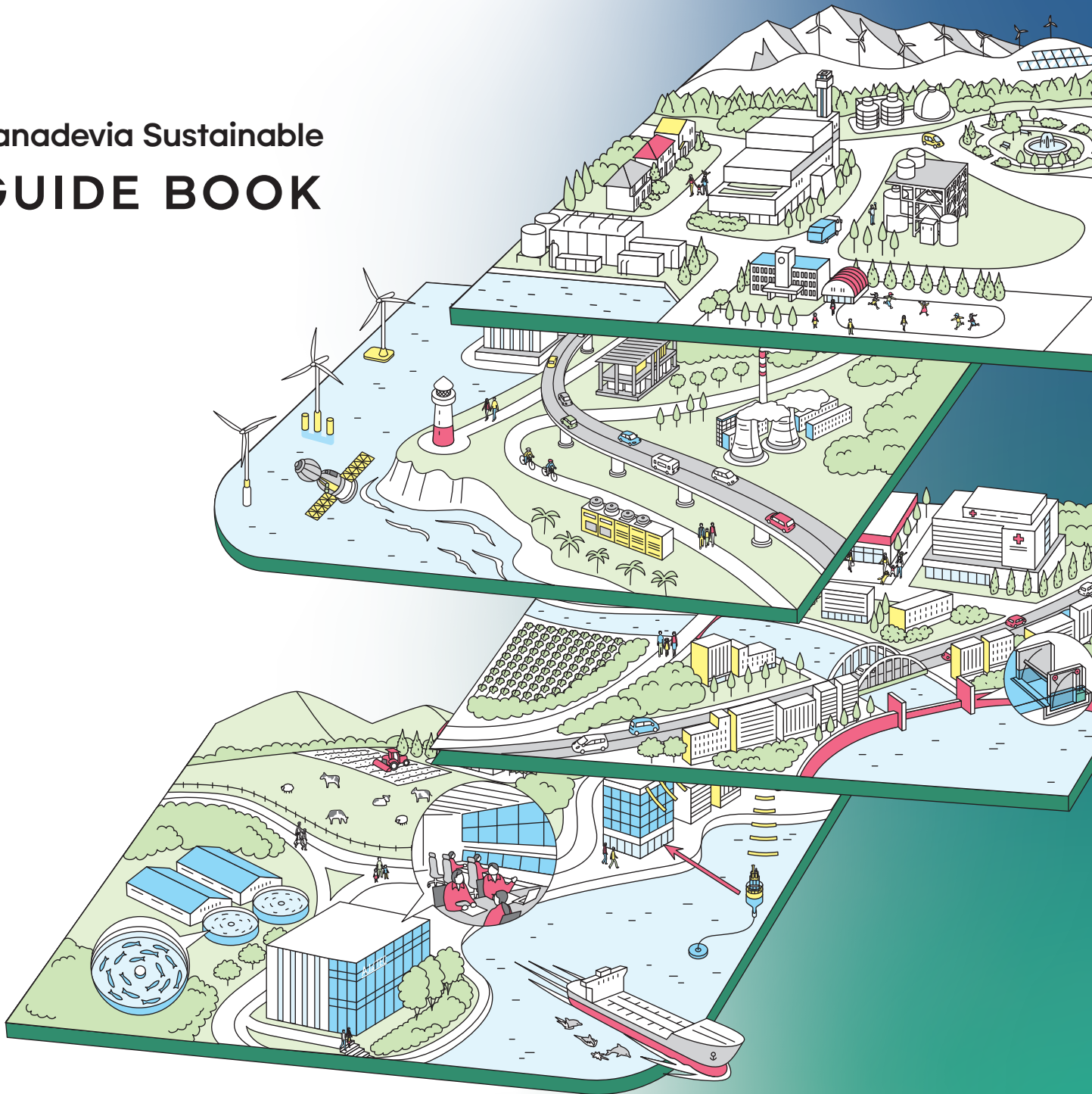


Kanadevia

Technology for people and planet

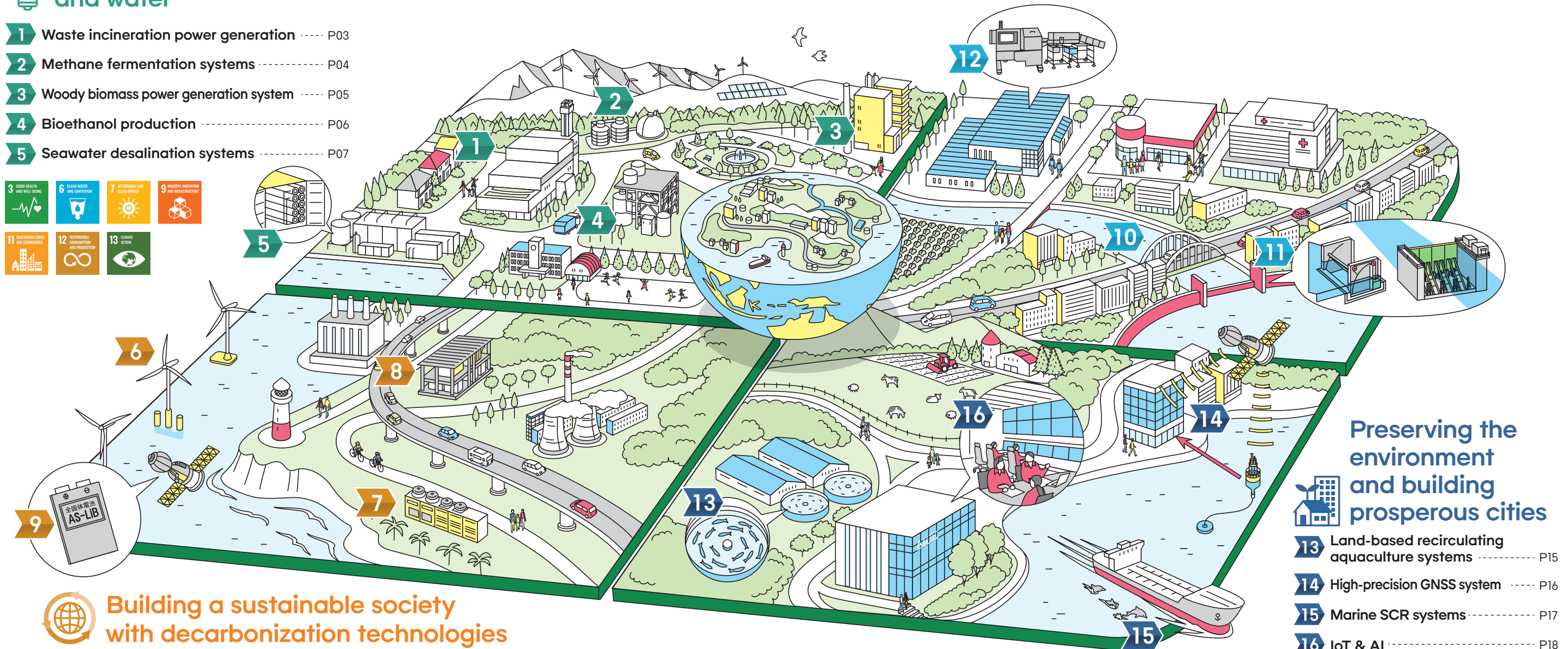
Kanadevia Sustainable GUIDE BOOK



Kanadevia Corporation

To realize our goal of a sustainable society by 2030. We introduce the technologies and systems we have developed around four business themes to generate clean energy and water, build a sustainable society with decarbonization technologies, protect the environment, and contribute to the creation of prosperous and safe cities.

1	Waste incineration power generation	-----	P03
2	Methane fermentation systems	-----	P04
3	Woody biomass power generation system	-----	P05
4	Bioethanol production	-----	P06
5	Seawater desalination systems	-----	P07



- 6 Wind power generation** P08
- 7 Hydrogen generator** P09
- 8 Methanation system** P10
- 9 All-Solid-state Lithium-ion Batteries** ... P11



10	Bridges & water gates	P12
11	Flap-gate type seawalls against flood disasters ...	P13
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- 13** Land-based recirculating aquaculture systems P15
- 14** High-precision GNSS system P16
- 15** Marine SCR systems P17
- 16** IoT & AI P18



1

Generating heat and electricity while cleaning the city and protecting the environment

Waste incineration power generation

While disposing of waste in a sanitary manner, we generate power as an energy resource, and the ash left over after incineration is utilized for materials such as cement ingredients and civil engineering materials. Waste incineration power generation does not emit CO₂ during power generation because waste is a non-fossil power source,* it reduces CO₂ emissions at the supply destination and contributes to the achievement of carbon neutrality.

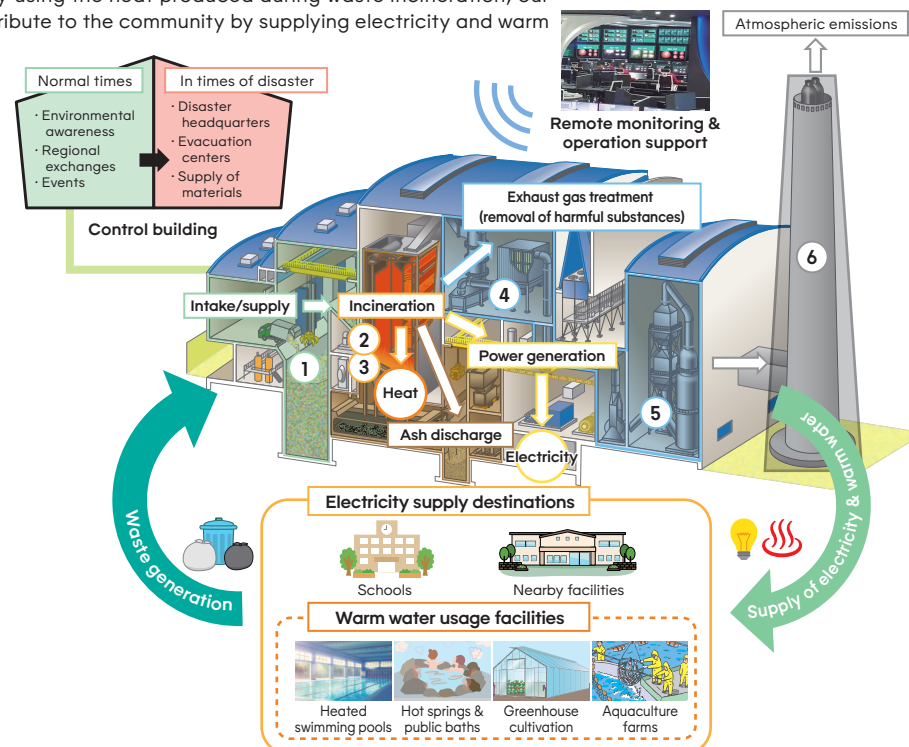
* A power generation method that does not use fossil fuels such as natural gas, coal, and oil

Related SDGs



Kanadevia's waste incineration power generation systems

By effectively using the heat produced during waste incineration, our systems contribute to the community by supplying electricity and warm water.



Unique features of Kanadevia

- 1 Stable combustion achieved through the Waste Crane 3D System (visualizing & homogenizing the state of the waste)
- 2 HiLECT won the Kinki & Osaka Invention Encouragement Award (reduction of environmental impact due to low air ratio stable combustion and suppression of NOx generation)
- 3 Combustion grate (Inova Grate2.0) with superior cooling performance, achieving extended lifespan
- 4 RSorp received the Japan Machinery Federation Chairman's Award (reduction in the amount of chemicals used through effective utilization of unreacted agents, and stable removal of harmful substances while decreasing the volume of generated fly ash)
- 5 Efficiency improvements in the amount of steam used for heating and power generation through gas-gas heat exchanger
- 6 Next-generation smokestack awarded the Good Design Award in fiscal 2018
- 7 Development of technology for the combustion of concentrated waste

Check here for details of ⑦



Spotlight

World's top share* of waste incineration power generation processing capacity

As of March 2024, the number of our waste incineration facilities in use worldwide is 555 in Japan and 947 abroad (including licensees), thus a total of 1,502 facilities. Kanadevia's technology, which generates clean energy, is used around the world.

* Fiscal 2010 to 2019



Waste incineration power facility in Perlen, canton of Lucerne (Switzerland)

2

Using waste to achieve a reduction in environmental impact

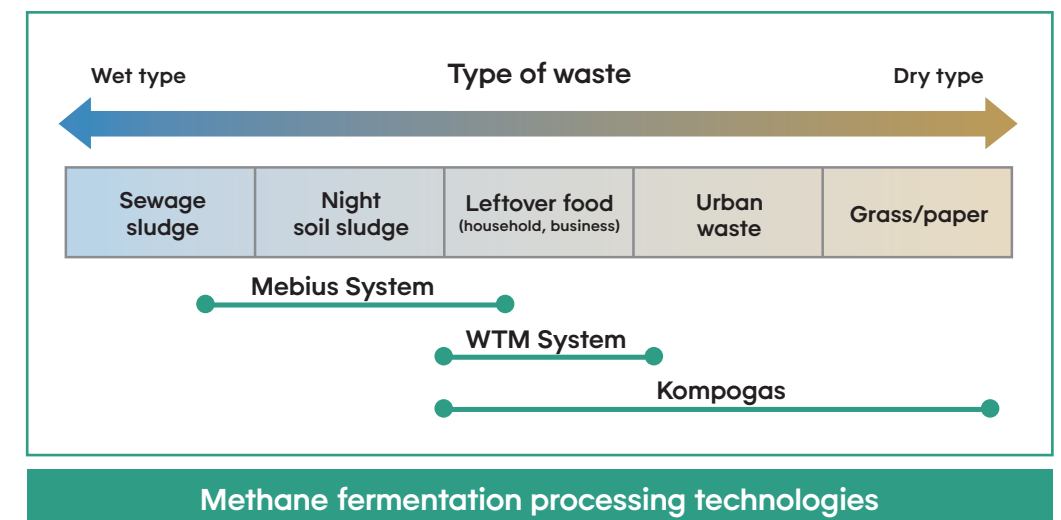
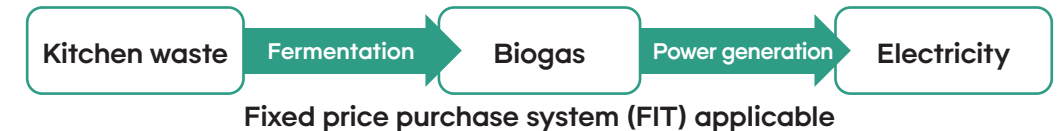
Methane fermentation systems

Our group has both wet and dry types of methane fermentation systems, allowing us to propose various patterns according to the type of waste.

Related SDGs



Kanadevia's two types of methane fermentation systems



Methane fermentation processing technologies

Wet type (Mebius System, WTM System), Dry (Kompogas)

Power generation from business-generated food waste

We have introduced a system where food waste from businesses, which is often incinerated, is collected, subjected to methane fermentation, and the produced biogas is used for power generation. We are working on the recycling and reuse of food circular resources and utilizing a stable regional power source that is not affected by weather or time of day.



Spotlight

Promoting conversion to biofuels using Kompogas

At our plant in Sweden, we utilize the dry methane fermentation technology Kompogas to generate biogas from organic waste collected from surrounding areas. The compressed gas is used as fuel for local buses, while the residue produced during the waste fermentation process is used as compost in farms and the like.



Jönköping City, Sweden

3

Reducing carbon dioxide emissions and preserving forest and satoyama environments

Woody biomass power generation system

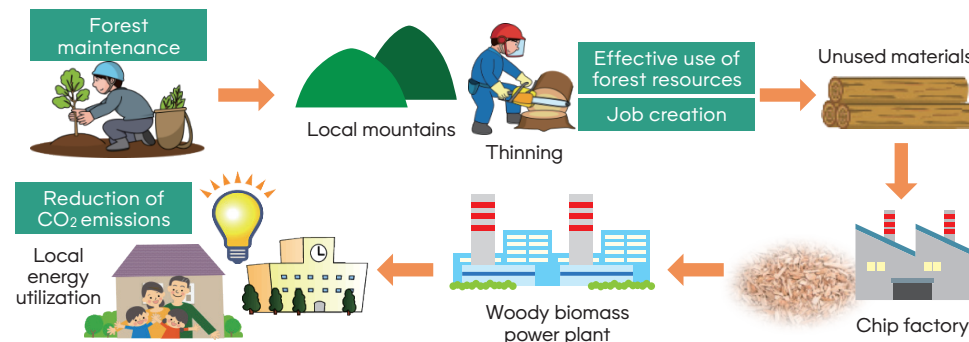
This system utilizes unused materials produced by forest management as energy. It also helps to prevent damage caused by driftwood in rivers by using these waste materials.

Related SDGs



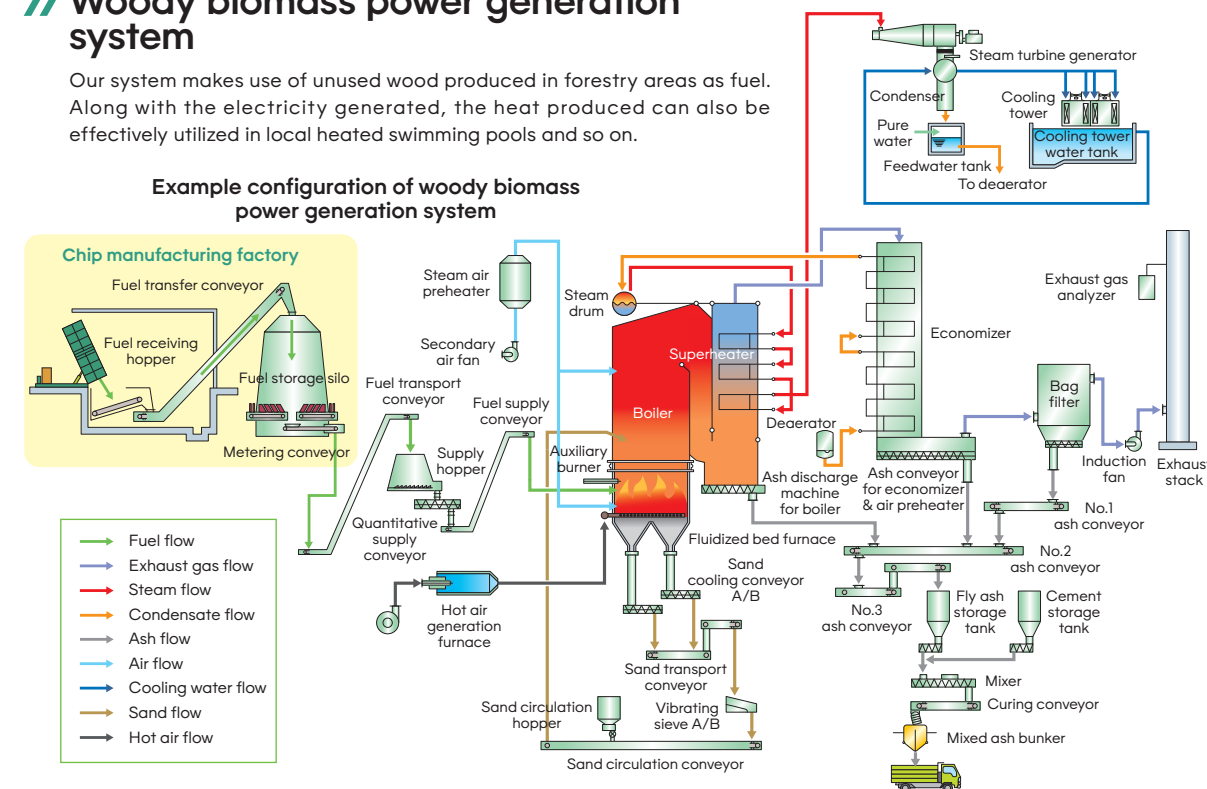
» Biomass energy contributing to local production and consumption

By utilizing local biomass resources, it is possible to reduce CO₂ emissions. This also promotes local forestry activities and job creation.



» Woody biomass power generation system

Our system makes use of unused wood produced in forestry areas as fuel. Along with the electricity generated, the heat produced can also be effectively utilized in local heated swimming pools and so on.



4

Contributes to the prevention of global warming by producing alternative energy

Bioethanol Production

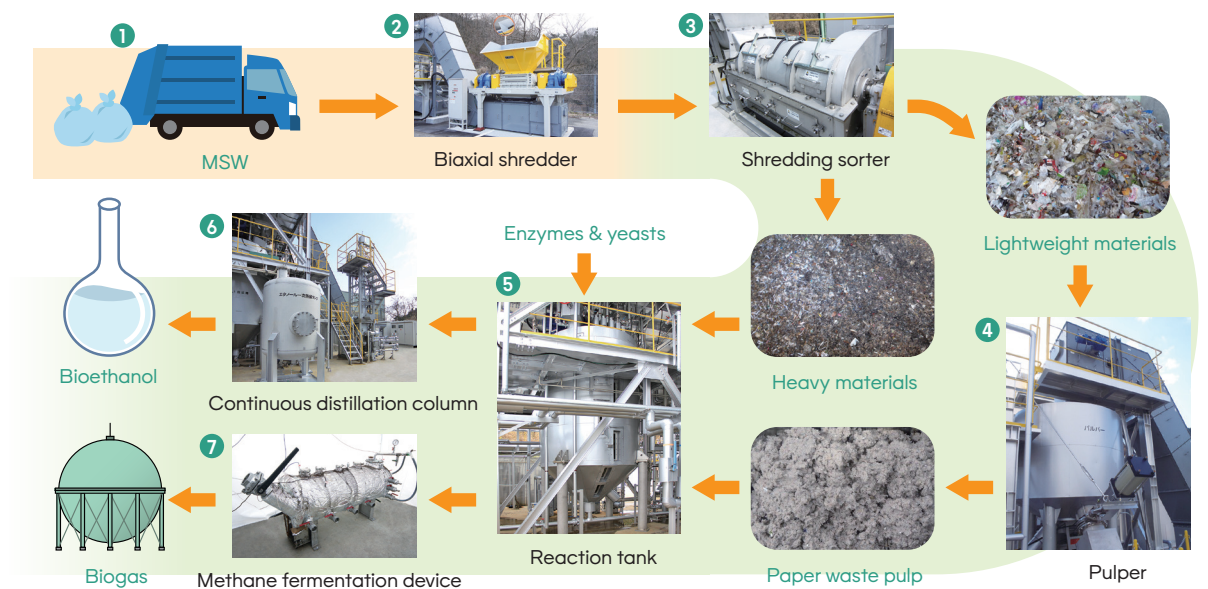
Ethanol, produced from biomass, serves as a carbon-neutral fuel that can replace fossil fuels, contributing to the prevention of global warming.

Related SDGs



» Kanadevia's bioethanol production technology

By mechanically sorting biomass from Municipal Solid Waste (MSW) and biologically converting it to ethanol, energy is maximally recovered in the form of liquid fuel. Remaining petroleum-based plastics in the waste are incinerated and converted to electricity, and the waste heat generated in this process is used as a heat source during bioethanol production. The distillation residue generated during bioethanol production can be used as a raw material for methane fermentation, allowing further energy recovery as a gaseous fuel.



1 Collection & transport

Local governments collect and transport MSW.

2 Crushing

The collected MSW, as is in bags, is crushed to a certain size suitable for processing by the shredding sorter.

3 Sorting

The shredded MSW is separated into heavy materials, which consist of wet food waste and damp paper, and lightweight materials that primarily consist of dry paper and plastic.

4 Pulp recovery

Lightweight materials are mixed and agitated with water, separating the paper into fibrous forms and separating it from plastic. The separated paper is dewatered and collected as paper waste pulp.

5 Saccharification & fermentation

Heavy materials and paper waste pulp are converted into a viscous fermentation mash.

6 Distillation

The fermentation mash is heated, vaporizing the ethanol, which is then concentrated.

7 Methane fermentation

After distillation, biogas is produced from the residue and a portion of the heavy materials.

» Spotlight

Expanding woody biomass business

The Miyanosato Woody Biomass Power Generation Plant, which uses approximately 63,000 tons of fuel annually from only unused domestic wood, is operated under a feed-in tariff (FIT). The aim is to revitalize domestic forestry, expand employment, promote domestic energy, and contribute to the prevention of global warming.



Miyanosato Woody Biomass Power Generation Plant (Hitachiota City, Ibaraki Prefecture)

» Spotlight

Demonstration of bioethanol production

Under the Ministry of the Environment's initiative for Low Carbon Technology Research and Development Program, we conducted demonstration research in collaboration with Kyoto City and Kumamoto University. Biomass, such as food waste and paper waste, is separated from MSW, and ethanol is produced using simultaneous saccharification and fermentation method. Furthermore, a two-step conversion system for producing fossil fuel alternatives was developed to produce biogas from the residue using the methane fermentation method.



Bioethanol production demonstration facility (Kyoto City, Kyoto Prefecture)



5

Conserving water resources using a water treatment system that employs reverse osmosis (RO) membranes

Seawater desalination systems

Offers a system that can desalinate seawater to produce potable or industrial water. A rental service that can be used during emergencies such as natural disasters and during construction periods when there is a temporary need for water, is available. It is also suitable for wastewater recycling and reuse.

Related SDGs



Seawater desalination system rental service

Kanadevia and our subsidiary Osmoflo provide rental services customized for each client utilizing the range of equipment we own.

Features of the rental service

1 Flexible usage

- ▶ Customization available based on water quality, capacity, and duration
- ▶ Can fill both pre-treatment and post-treatment needs

2 Containerized for immediate use on-site

- ▶ Easy to transport and generally doesn't require civil engineering work, ensuring quick delivery
- ▶ Supervisors can be dispatched for installation and commissioning

3 Comprehensive support structure and easy maintenance

- ▶ Proposal of O&M services through a 24-hour remote monitoring system
- ▶ We also offer a variety of chemicals and consumables



Applications

Emergency water needs

- Disasters & droughts
- Population increase
- Rapid increase in water demand

Temporary water needs

- Only required during construction

Backup water provision

- As a backup for existing facilities

Spotlight

Over 50 domestic and international projects, contributing to the elimination of water shortages

During the 2018 drought in Cape Town, South Africa, we provided this service for two years to help alleviate drinking water shortages. We have a track record of more than 50 projects, including for power plants, local municipalities, chemical plants, and refineries.



Check here for details



6

Contributing to carbon dioxide reduction with green power

Wind power generation

Wind power generation is one of the renewable energy sources that boasts large-scale generation and continues to grow globally. Kanadevia is engaged in both onshore and offshore wind power generation.

Related SDGs



About the wind power generation business

Utilizing our extensive experience in waste-to-energy power generation and the construction of marine structures, we are committed to the wind power generation business. We aim to supply green power derived from renewable energy.

Features

- 1 For onshore wind power generation, business development and EPC (Engineering, Procurement, and Construction) and O&M (Operations & Maintenance)
- 2 For offshore wind power generation, design and construction of large foundation structures, both bottom-fixed and floating type

Achievements



Onshore wind power (Akita Prefecture)

Our products



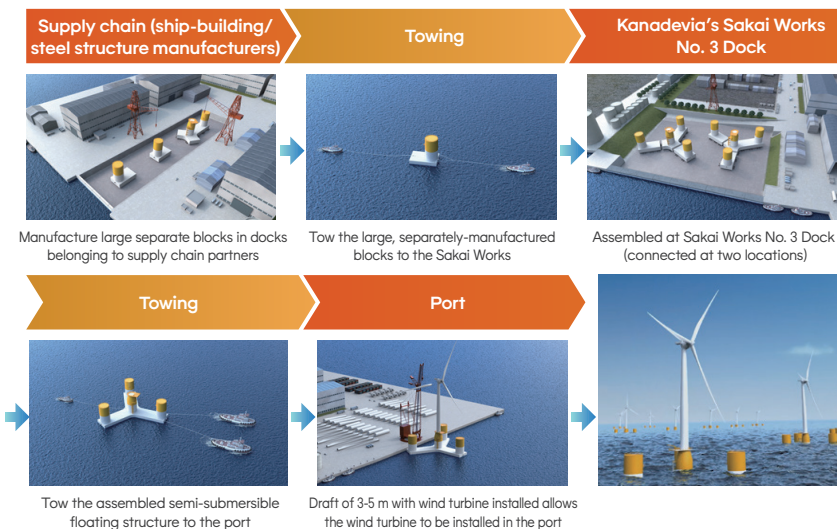
Suction bucket foundation (bottom-fixed)
This is a cylindrical foundation referred to as a "bucket", which is anchored to the seabed. By draining water from within the bucket using a pump, the bucket is made to penetrate the seabed. By following the reverse procedure and filling the bucket with water, the bucket can be removed.

Technology supporting offshore wind power

Our Sakai Plant has a large dock dedicated for marine purposes, capable of manufacturing large foundations for offshore wind power. From design to manufacturing, we support Japan's offshore wind power initiatives as a supplier of large foundation structures.

Initiatives for mass production

Utilizing our domestic supply chain, we can reduce costs through mass production and shortened delivery times.



Semi-submersible floating foundation (floating type)

Made up of copper box-shaped blocks, this foundation floats in the sea. To minimize swaying caused by waves, the floating body is submerged to a certain draft to keep it in a semi-submerged state.

Spotlight

Selected for the Cost Reductions for Offshore Wind Power Generation project

We formed a consortium for the floating body offshore wind farm verification project in the Cost Reductions for Offshore Wind Power Generation project, part of the Green Innovation Fund run by NEDO. Our joint proposal has been selected for the Floating Offshore Wind Turbine Demonstration Project off the Coast of Aichi Prefecture. The semi-submersible technology designed at Kanadevia is combined with the technical skills of the other companies, with a goal of commercialization of offshore wind farms under certain conditions and at internationally competitive pricing by FY2030.



7

Reducing CO₂ emissions with next-generation energy that contributes to environmental conservation

Hydrogen generator

This is an on-site hydrogen generator that generates and supplies high-purity hydrogen gas through water electrolysis. It is expected to be used for green energy in combination with CO₂-free electricity such as renewable energy.

Related SDGs



» About the Power to Gas system

Kanadevia launched the world's first demonstration of Power to Gas (PtG: conversion from electricity to gas) through methanation in 1995, and by the early 2000s, we commercialized our hydrogen generator. We are the only company in Japan capable of developing core catalysts, scaling up hydrogen and methanation equipment, and providing PtG systems.

» On-site hydrogen generator HYDROSPRING

HYDROSPRING is a device that cleanly produces hydrogen on-site through the electrolysis of water, without emitting CO₂ or harmful substances. We offer a broad lineup ranging from small to large capacities to meet various demands for water electrolysis systems such as remote monitoring, unmanned operation, and hydrogen conversion from renewable energy.

● Features

1 High safety and convenience

- ▶ Manufacture hydrogen on-site/on-time using only electricity and water
- ▶ No need to transport, store, or exchange cylinders
- ▶ Available for immediate use by anyone (not subject to the High Pressure Gas Safety Act)

2 High efficiency and load following capability

- ▶ Production of hydrogen with high efficiency by adopting Polymer electrolyte membrane (PEM) type electrolyzers
- ▶ Adaptation to rapid power load fluctuations from sources such as wind power and solar power

3 Production of high-quality hydrogen

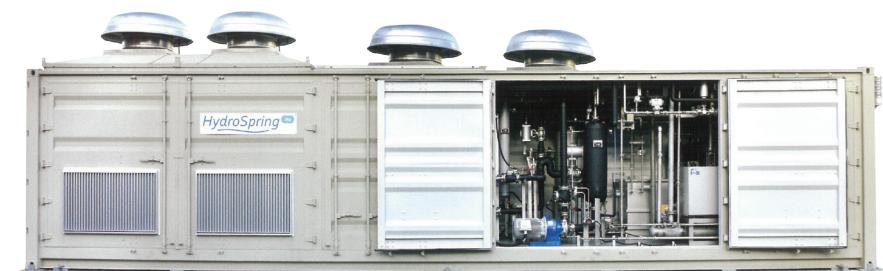
- ▶ Production of hydrogen with a purity of 99.9% to 99.999% and a dew point (atmospheric pressure equivalent) of -15°C to -70°C

4 Easy and secure operability

- ▶ Simple operation with just one button for starting and stopping, and support of automatic operation with a remote monitoring system
- ▶ No need for waste liquid treatment as chemicals (alkaline solution) are not used

5 Self-contained design in transportable container

- ▶ No need to construct a new building, easy outdoor installation
- ▶ Simplification and cost reduction of on-site construction



» Spotlight

Introduction of large-capacity HYDROSPRING

Utilizing our electrolysis technology and filter press technology, we developed an MW class (over 200 Nm³/h) for renewable energy. Due to its self-contained design in a container for outdoor use, there is no need to construct a building, making on-site installation straightforward.



Check here for details



8

Transforming CO₂ into a resource, accelerating our transition into a carbon neutral society

Methanation system

This system converts CO₂, collected from the exhaust gases of industrial facilities, into methane fuel, not only reducing CO₂ emissions but also contributing towards the early realization of a carbon recycling society.

Related SDGs



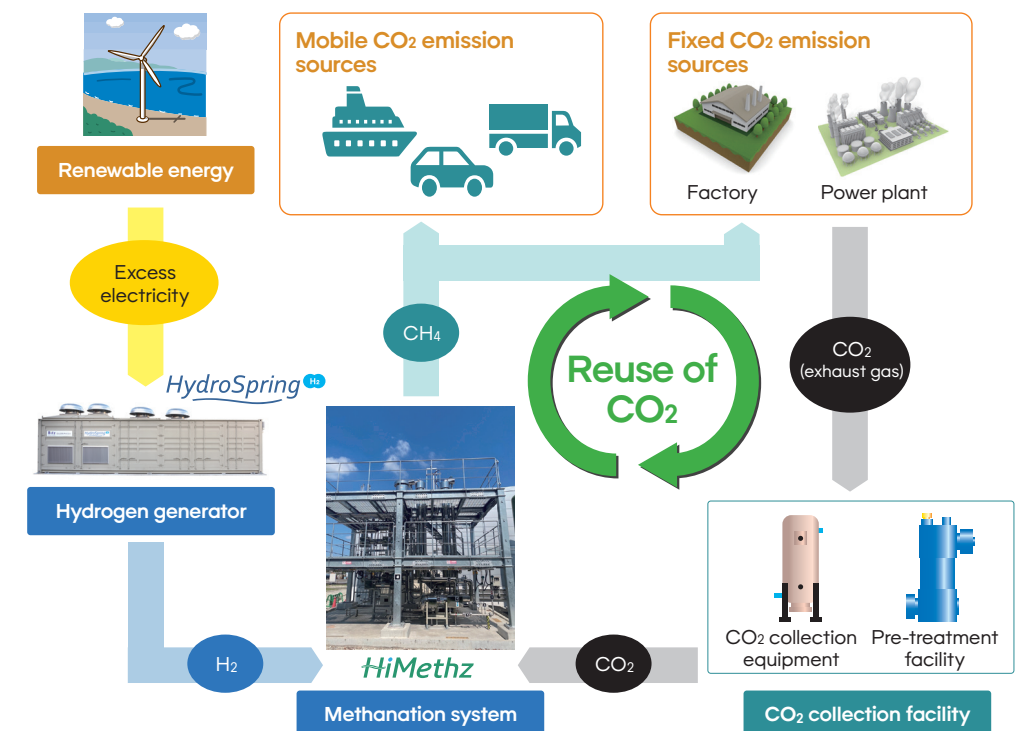
» About our methanation system

We have developed methanation system that generates methane using CO₂ and hydrogen as raw materials.

● Features

Low reaction temperature	High durability	High conversion rate	High energy efficiency	Energy saving
Capable of synthesizing methane from a gas temperature of 200°C	Durability of over 20,000 hours (approximately 2 years)	Converts more than 99% of CO ₂ to methane	Energy conversion efficiency is between 75-80%, and over 90% is possible when using waste heat.	Utilizes the heat energy produced by the exothermic reaction; almost no external energy supply is required.

● Illustration of social implementation



» Spotlight

Implementation of a demonstration project to construct a carbon cycle model using CO₂ as a resource

Using our technology, from 2018 we undertook a demonstration project commissioned by the Ministry of the Environment titled "Construction of a Carbon Cycle Model through the Resourceful Use of Carbon Dioxide Collected from Waste Treatment Plants." We separated and collected CO₂ from the exhaust gases of a waste treatment plant in Odawara City and used it to produce methane. The use of CO₂ emitted from waste treatment plants for methanation is a world-first. By constructing a carbon cycle model, we aim to contribute to the reduction of greenhouse gas emissions.



Odawara City waste treatment plant demonstration facility



Creating batteries that can be used safely even in temperature extremes and vacuums

All-Solid-state Lithium-ion Batteries

Utilizing their ability to be used in extreme environments, we are expanding their use to areas such as industrial machinery for semiconductor production equipment, etc. (facilities), aerospace equipment (equipment), and medical equipment.

Related SDGs

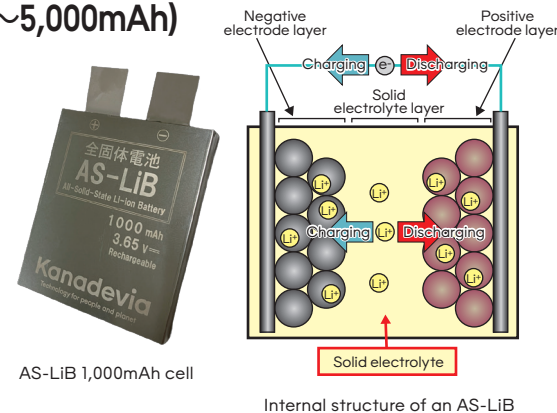


AS-LiB(All-Solid-state Lithium-ion Battery)(~5,000mAh)

The AS-LiB is a battery that use solid substances for all its constituent materials. It is made up of three layers: a positive electrode layer, a solid electrolyte layer, and a negative electrode layer.

The solid electrolyte allows only lithium ions to move, and also acts as a separator to prevent any contact between the positive and negative electrodes.

Our original manufacturing method, which draws on the machining technologies Kanadevia is skilled at, has eliminated the need for the mechanical pressure that is required when charging or discharging general all-solid-state lithium-ion batteries.



Features

1 Safety

- ▶ No need to worry about leakage as no liquid materials are used.
- ▶ While the liquid electrolyte used in conventional lithium-ion batteries is flammable, solid electrolytes are not, making them safer.

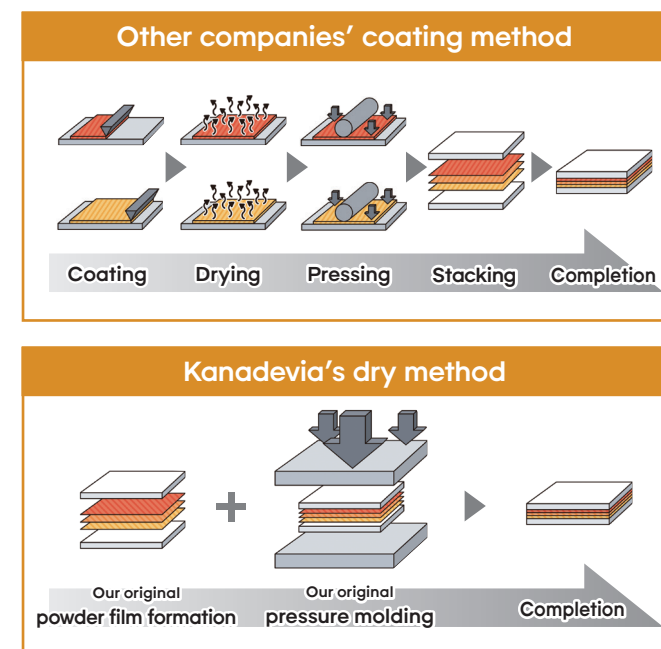
2 Wide range of operating temperatures

- ▶ Can operate even at -40°C as solid electrolytes do not solidify at low temperatures.
- ▶ Can charge and discharge even at 120°C, which is difficult for conventional liquid electrolyte batteries as solid electrolytes do not decompose even at high temperatures.

3 Environmental resistance

- ▶ We have been able to create a battery configuration through miniaturizing volatile components using our original manufacturing technology, allowing for stable operation without significant expansion even in a vacuum environment of 1.0×10^{-2} Pa.

Original manufacturing method

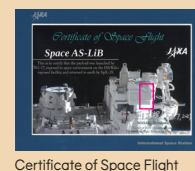


We can achieve a range of features thanks to our original dry method that uses neither solvents nor binders. In addition, we can expect a reduction in VOC (volatile organic compounds) generated during the battery manufacturing process!

Spotlight

Confirm All-Solid-state Lithium-ion Batteries' Charge/Discharge Operation in Space, World First

With the aim of using AS-LiB in space equipment, Kanadevia has been collaborating on development with JAXA (National Research and Development Agency, Japan Aerospace Exploration Agency). In 2022, the Space AS-LiB (all-solid-state lithium-ion battery on-orbit experiment equipment), using an AS-LiB, was launched towards the International Space Station (ISS). Along with being the first anywhere in the world to confirm that all-solid-state batteries could both charge and discharge in space, we were able to achieve a long-term charge/discharge cycle of over a year. Space AS-LiB returned from space to Earth in December 2023, after which it is being disassembled and analyzed at Kanadevia's Chikko Works.



Certificate of Space Flight



Achieving disaster prevention and mitigation through advanced construction technology

Bridges & water gates

Since the start of our business in 1900, we have supported the infrastructure of society while introducing new construction methods. Moving forward, we will continue to address societal needs, such as countermeasures against aging infrastructure.

Related SDGs



Bridges & water gates

Over the past 120 years, we have been involved in the construction of more than 2,500 bridges in Japan and overseas, including the Tokyo Gate Bridge and the Akashi Kaikyo Bridge. We have a history that spans over 100 years as a water gate manufacturer, and we possess the technology not only to establish new water gates but also to add new ones while maintaining and operating existing dams.



Tokyo Gate Bridge (Tokyo)



Dotonbori River Water Gate (Osaka City)



Yumemai Bridge (Osaka City)

Water gate inspection & monitoring system (Shin-emon)

The Shin-emon Water Gate Inspection & Monitoring System is a system that collects data and performs diagnoses for water gates by examining their condition to protect the facilities. By automatically collecting and storing operational data, it simplifies complex data management. The system can be accessed anytime through a web browser. With the market introduction of the Shin-emon diagnostic system using ICT technology, we are working to create a new market by changing the form of inspection work, and performing maintenance work based on this information.

Features of Shin-emon

- 1 Easier management by visualizing the trends of gate equipment
- 2 Enables continuous accumulation of precise measurement data
- 3 Can be used for pinpointing causes when troubles occur
- 4 Predicts equipment renewal timing based on evaluation data
- 5 If data exceeds threshold values, anomalies can be notified to managers via email

Spotlight

Track record of protecting cities from wind and water disasters

In 1975, the Osaka Aji River water gate was installed as the first visor gate in Japan. During Typhoon 21 in 2018, this water gate, among others, functioned effectively, preventing flood damage in Osaka Prefecture.



Aji River Water Gate (Osaka City)

11

Contributing to building disaster-resilient cities with high-safety systems

Flap-gate type seawalls against flood disasters

Rather than relying on electricity or human efforts during an emergency, these use the power of tsunamis or high tides to control flood damage. No one should have to be sacrificed to protect human lives. That is the belief that gave rise to this product.

About flap-gate type seawalls against flood disasters

Contributes to preventing or mitigating water-based disasters using the three types of land lock gates, flood gates, and building water shut-off systems. The flap gates we have developed do not require on-site operation, so can avoid the risks associated with operation. In flood gates, the gate flaps normally lie flat on the seabed, so do not obstruct maritime traffic or affect the landscape.

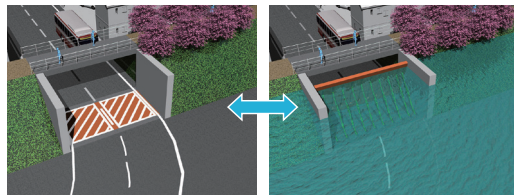
neo RiSe

neo RiSe stands for "no energy no operation Rising Seawall", and is a seawall that rises without any power or manual operation. It is available in both civil engineering and architectural specifications.

Specifications

Civil engineering specifications

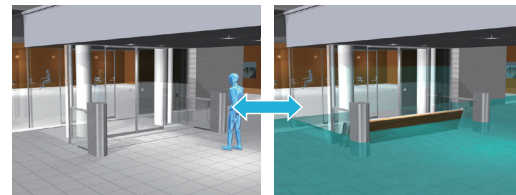
Gate height: Up to 5 m; Wheel load: Up to T-25
Applications: Land locks installed in seawall openings and in box culverts at multi-level intersections



Example of a three-sided watertight opening in a seawall

Architectural specifications

Gate height: Up to about 1.5 m; Crowd load: Up to T-2
Applications: Waterproof doors installed at building or underground street entrances



neo RiSe-A (building entrance)

Features

- Operates without any power or manual operation. Simple equipment configuration**
 - No need for power or control, reducing malfunction risk and making maintenance easy
 - No manual operation required, avoiding related risks
- Quick rising action and shock absorption. Smooth water level following operation**
 - Equipped with counterweights, it can quickly respond to sudden flooding, and absorb and mitigate shocks during rising action.
- Sturdiness against upper loads combined with lightweight**
 - The gate normally lies flat, thereby not obstructing daily activities, and thus can be used as a passageway.
- Prevents the entry of foreign matter with a flat surface**
 - The unique bottom bearing structure achieves a flat surface, minimizing foreign matter intrusion and reducing the risk of obstructions during operation.

Related SDGs



Check here for an illustrative video



12

Contribution to reducing food waste

Equipment for food

We apply our long-standing track record in manufacturing foreign matter sorting equipment for food to reduce food waste.

Related SDGs



Food foreign matter sorting equipment

This equipment helps reduce waste by identifying foreign matter or non-conforming items that get mixed in during food processing. We offer a diverse lineup tailored to various foods and purposes, such as for cut vegetables and dry products.

Features

- Pinpoint removal of foreign matter using an air gun
- Equipment size proposals based on processing volume
- Inspections from both sides possible
- Equipped with a remote maintenance system
- Capable of sorting by color and shape
- Tool-less cleaning possible



Foreign matter sorting equipment for dry products

Check here for details



Good item	Foreign matter
Cabbage Bean sprouts Lettuce	

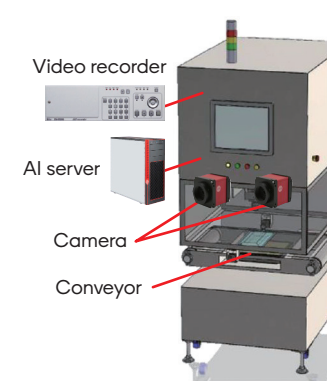
Cut vegetables

AI image inspection unit

We can now use AI and camera images to automate product inspections that used to be done by eye. This contributes to saving labor and manpower, and helps improve uniformity and reduce food loss.

Features

- Can check multiple items at the same time**
 - Can simultaneously check multiple items, such as differences in color, shape, or if it has things stuck on it.
- Simple operation without needing parameters set**
 - No parameters such as color or shape need to be set as pre-learning is used to train the judgment module.
- New unacceptable items can be judged through additional learning**
 - New settings for unacceptable items or the production of new products can be handled through additional learning.



Examples of inspections using AI



Spotlight

Installation of Japan's first seabed-type flap gate

Japan's first seabed-type movable flap-gate type breakwater was completed in Iwate Prefecture, and the second was installed in Hyogo Prefecture. As of 2023, approx. 200 land-type flap gates have been installed.

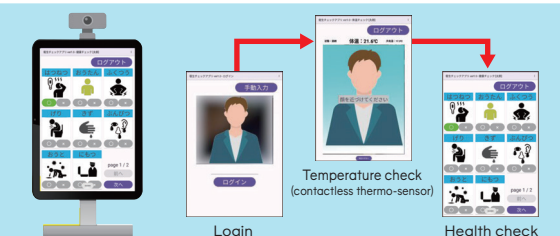


Overall view of seabed-type movable flap-gate (Iwate Prefecture)

Spotlight

Health check management system

By using a tablet to allow employees to take their own temperature and check their health when entering a plant or production site, the data is stored electronically. The data stored on the tablet is immediately sent to the administration PC where it can be checked.





13

Contributing to the stable supply of food and mitigating the issue of resource depletion

Land-based recirculating aquaculture systems

Our advanced water treatment technology allows stable saltwater fish farming on land regardless of the season, contributing to a sustainable and stable supply of marine products.

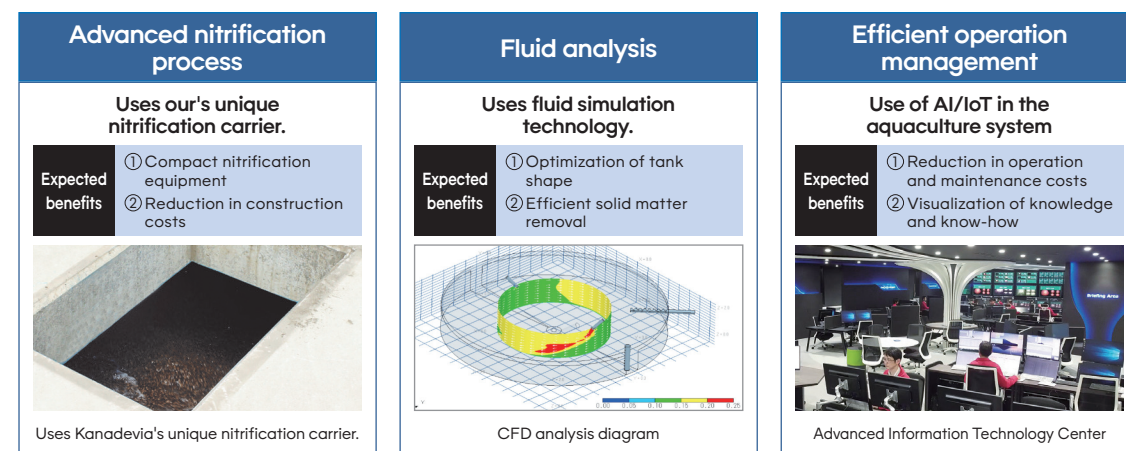
Related SDGs



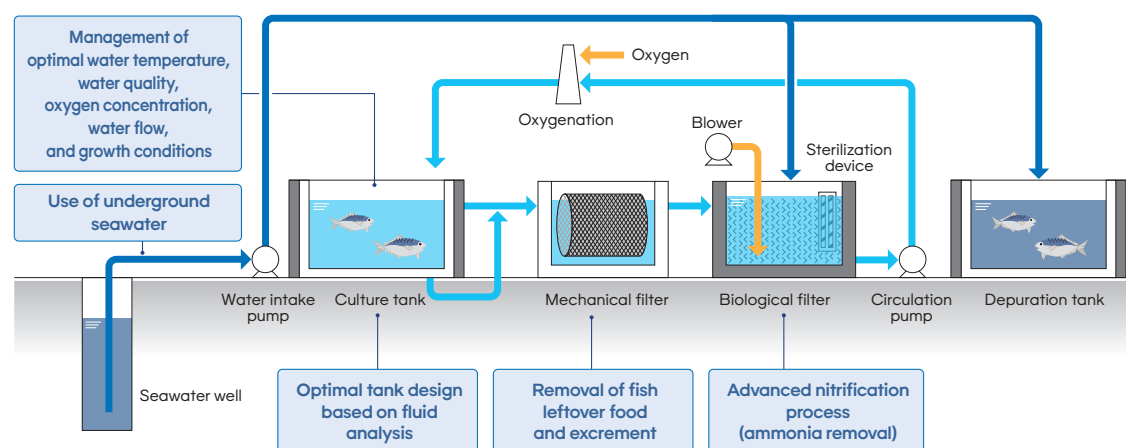
About the land-based aquaculture system

With the introduction of a unique recirculating water treatment system using underground seawater, it is possible to control water temperature and quality, maintaining an optimal environment for fish growth throughout the year.

Features



System flow



Spotlight

Japan's first circulation-type land-based aquaculture for chub mackerel

In 2020, in collaboration with Nissui and Yumigahama Suisan, the first large-scale circulation-type land-based aquaculture for chub mackerel was established in Yonago. The system we propose not only provides stable fishery resources, but also looks at the use of the facility as a base for regional revitalization.



Yumigahama Suisan Kaisha, Ltd.
Yonago Land-Based Aquaculture Center

14

Utilizing GNSS technology for disaster prevention and the advancement of smart agriculture

High-precision GNSS system

GNSS (Global Navigation Satellite System) is utilized for disaster prevention and agricultural efficiency to support better living.

Related SDGs



High-precision GNSS analysis technology

In the logistics, transportation, and manufacturing fields, we provide seamless moving object management solutions using a variety of sensing complex technologies, including high-precision GNSS, RFID, laser, gyro, and matching maps.

Use cases

Monitoring crustal deformation

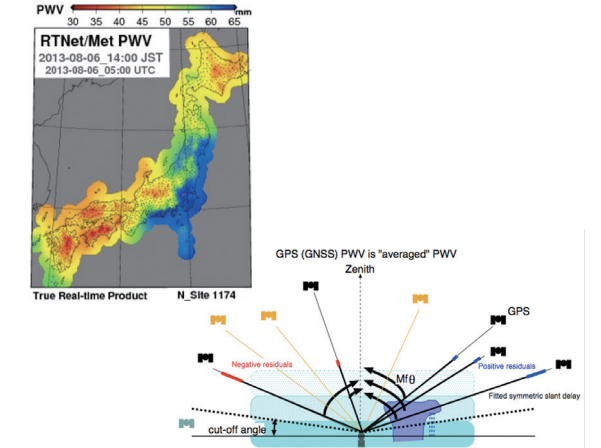
Installation of GNSS electronic base stations for 24-hour continuous observation and monitoring of crustal deformation of the country with millimeter-level accuracy



Source: GNSS CORS, Geospatial Information Authority of Japan

Meteorological observation

Measuring the amount of atmospheric water vapor, which causes errors during precise GNSS observations, and linking it to meteorological observations



Slope disaster prevention monitoring

Constant monitoring of hazardous slopes using simple GNSS receivers



Large structure monitoring

Installation of GNSS receivers on large structures and monitoring of daily fluctuations



Spotlight

Agricultural machine guidance system with automatic steering

This system featuring a rich interface can be installed on tractors. The high GNSS accuracy ensures stable straight travel even at extremely low speeds (0.1 km/h), reducing the overlap width of crops and increasing work area per unit time.



Complies with stringent environmental regulations.
Maritime technology supporting marine transportation

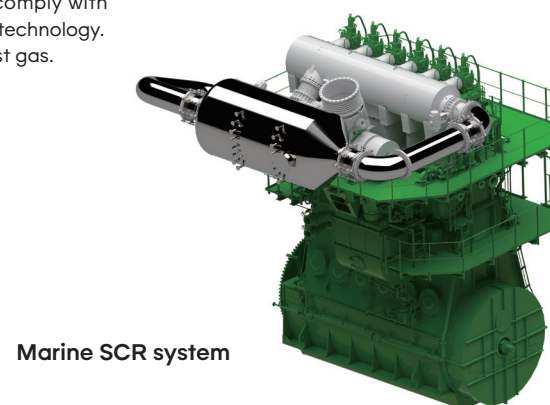
Marine SCR systems

By combining a durable marine diesel engine with the SCR system, nitrogen compounds (NOx) emitted during navigation can be greatly reduced.

» About the Marine SCR System

Kanadevia supplies marine SCR systems, based on catalyst and SCR system technologies cultivated in land-based plants, to domestic and overseas engine manufacturers.

SCR is a reaction that converts NOx contained in engine exhaust gas and urea water into harmless nitrogen and water. "Kanadevia Green SCR" is a system for low-speed engines that comply with NOx tertiary regulation which uses our unique catalyst technology. We will continue to work on the neutralization of exhaust gas.



Marine SCR system

● Features of our system

- 1 Decomposes NOx in exhaust gas through a catalytic reaction, leading to fuel efficiency
- 2 Excellent performance with simple device configuration and compact size
- 3 Broad lineup of products according to displacement, vessel type, etc
- 4 Running costs can be reduced by combining the system with our urea water production system, which produces urea water functions as a reductant onboard the ship

Current NOx regulations

NOx regulations are being strengthened in various regions, including North America, the North Sea, and the Baltic Sea.

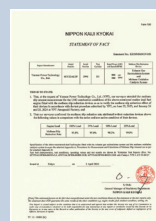
Related SDGs



» Spotlight

Contributing to greenhouse gas (GHG) reductions

We are working on the development of technology to reduce methane slip for LNG-fueled ships and N₂O reactors for ammonia-fueled ships in the Next-generation Ship Development NEDO Green Innovation Fund project. Both these developments make use of our catalyst technologies, and contribute to the reduction of GHG. In the development of technologies to reduce methane slip, the methane slip reduction rate of our technology has been certified by the Nippon Kaiji Kyokai (ClassNK).



Preserving the environment and building prosperous cities

Utilizing advanced technologies such as IoT and AI to boost value

IoT & AI

By incorporating IoT and AI and leveraging the cutting-edge technologies and big data cultivated so far, we effectively maximize customer value.

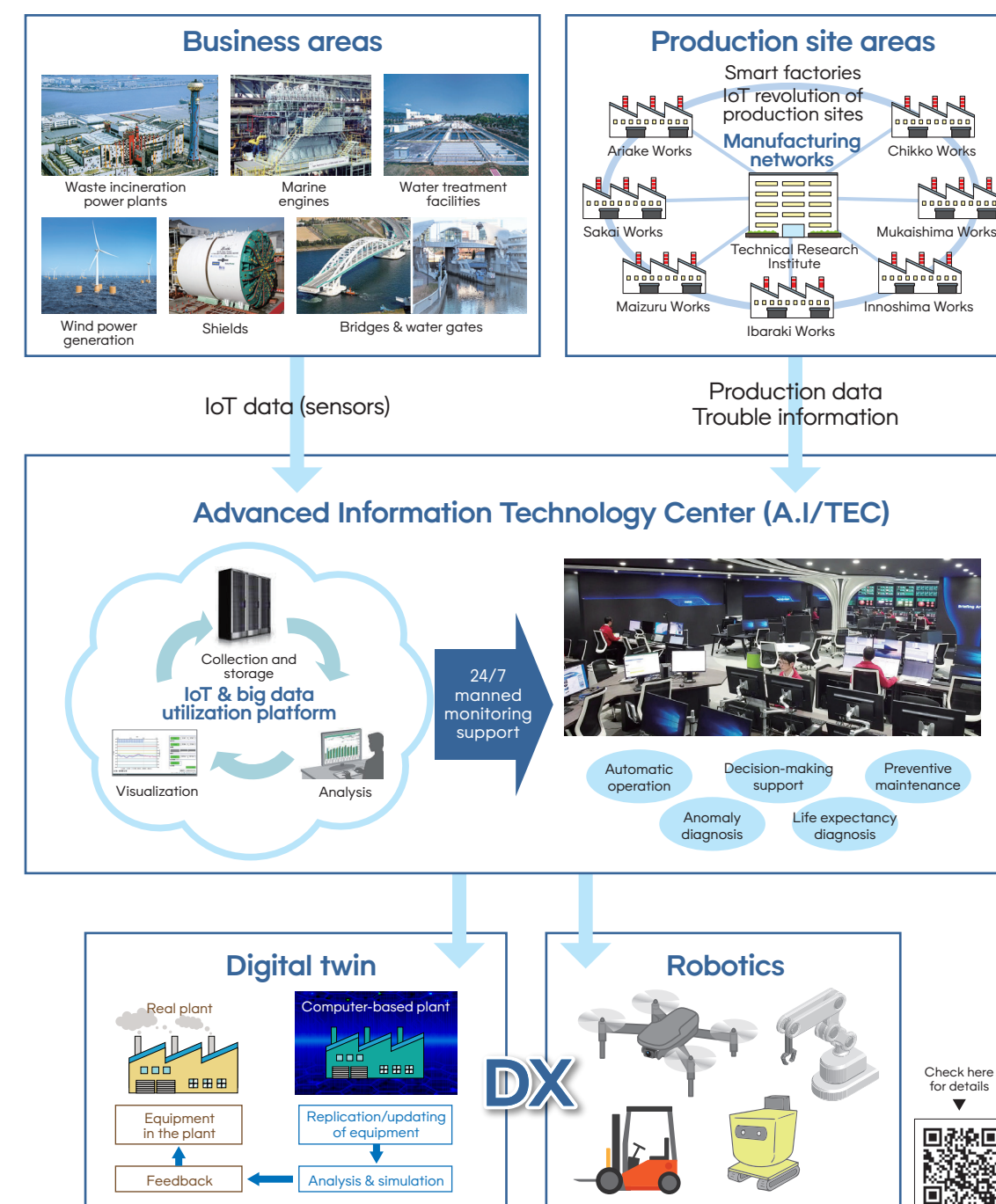
Related SDGs



» About A.I./TEC

The Advanced Information Technology Center "A.I./TEC" started operating in October 2018 as a base for remote monitoring and the use of IoT, big data, AI, and other ICTs. Utilizing the cutting-edge technology and big data accumulated from past projects, we will proactively expand into higher value-added businesses with global competitiveness.

● Overall overview diagram of A.I./TEC



Globally expanding network of Kanadevia Group

Date founded April 1, 1881
Date established May 29, 1934

Domestic Offices

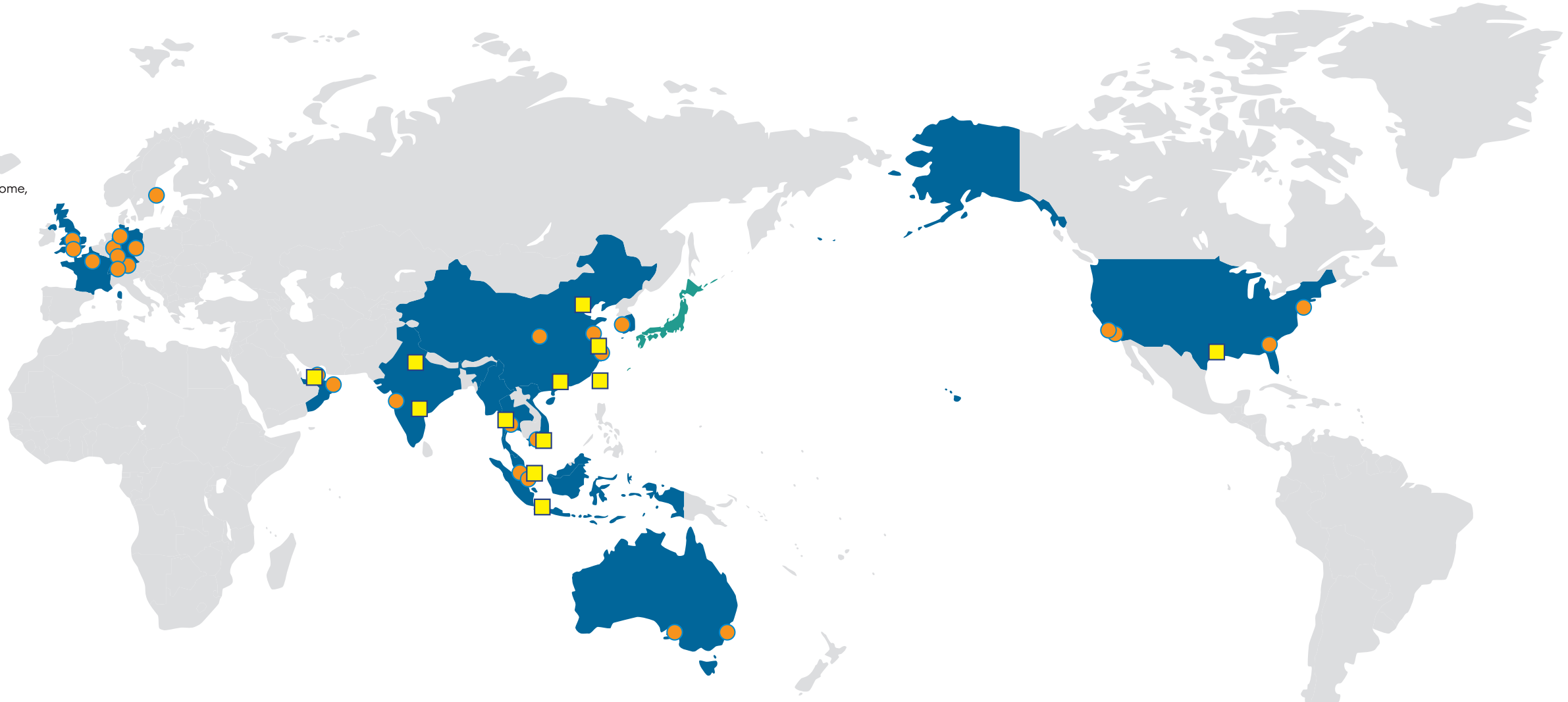
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Phone: +81-6-6569-0001
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Shinagawa-ku, Tokyo 140-0013, Japan
Phone: +81-3-6404-0800
Facsimile: +81-3-6404-0809
- Technical Research Institute
- Sapporo Office
- Sendai Office
- Nagoya Office
- Hiroshima Office
- Fukuoka Office
- Kumamoto Office
- Okinawa Office

Domestic Works

- Ariake Works
- Mukaishima Works
- Innoshima Works
- Chikkou Works
- Sakai Works
- Maizuru Works
- Ibaraki Works

Overseas

- Abu Dhabi Branch
- Taipei Branch
- Singapore Branch
- Kanadevia U.S.A. Ltd.
- Kanadevia India Private Limited
- Kanadevia India Private Limited Hyderabad Branch
- Kanadevia (THAILAND) CO., LTD.
- PT. Kanadevia INDONESIA
- Kanadevia (Shanghai) Trading Co., Ltd.
- Kanadevia (Shanghai) Trading Co., Ltd. Beijing Branch
- Kanadevia (Shanghai) Trading Co., Ltd. Guangzhou Branch



■ Overseas bases
● Overseas group companies

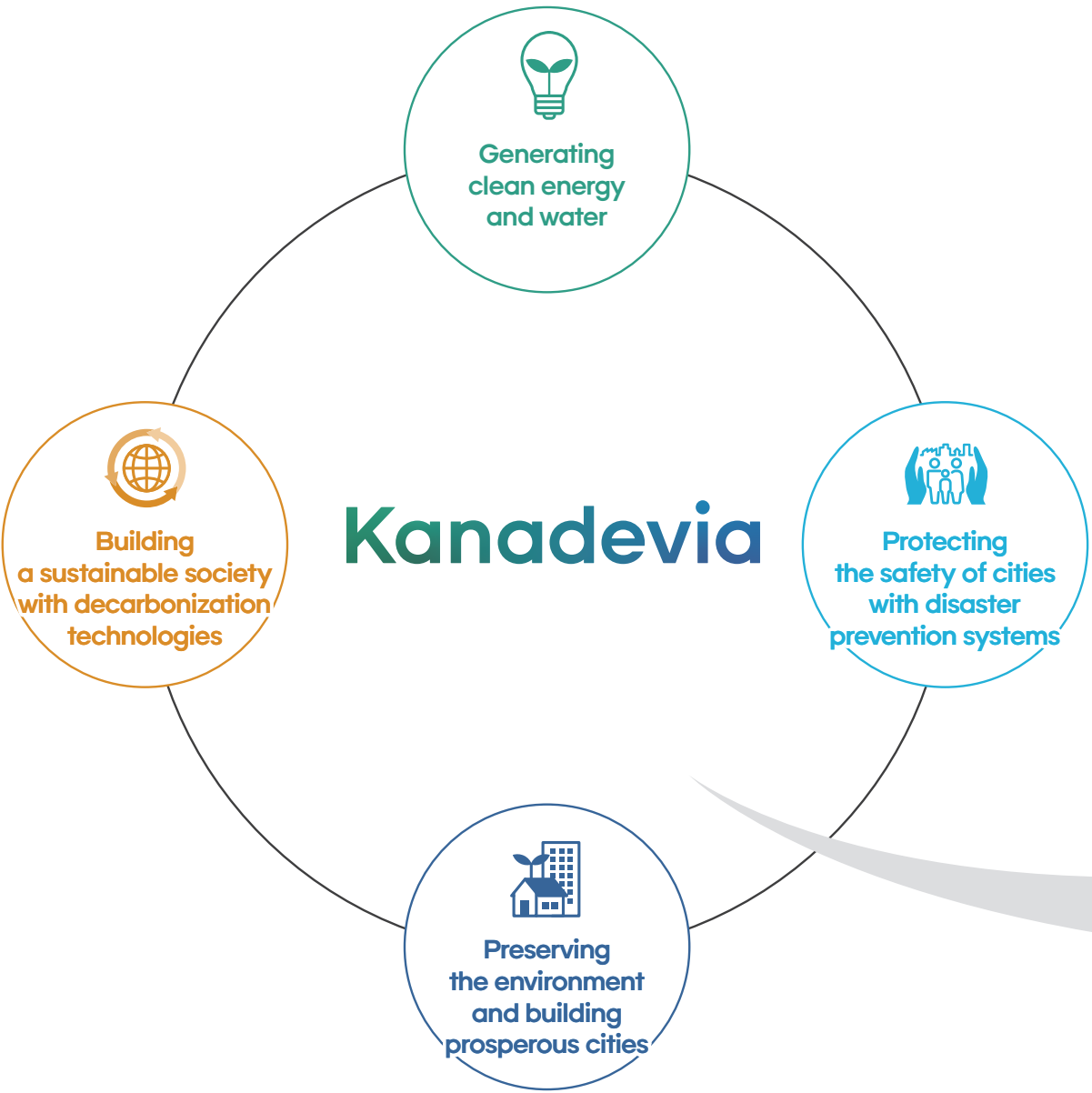
For detailed information
on group companies,
please scan the 2D code.



"SDGs+beyond"

Realizing a sustainable society and going beyond

Each and every one of us living on the earth now faces various challenges in order to realize a sustainable society. To solve these, 17 SDGs have been set to be achieved by 2030. To accelerate the achievement of these SDGs, the "Expo 2025 Osaka, Kansai, Japan", with the theme "Designing a Future Society for Our Lives," is to be held in 2025. Kanadevia shares these aspirations, and we are refining our technological capabilities to promote efforts to achieve the SDGs and propose solutions to contribute to a sustainable society. Going forward, we will continue to take on the challenge of creating a world in which people and nature can live in harmony and with smiles on their faces through the power of technology.



Take on the challenge,
through the power of technology,
to create a world that lives in balance with nature.



2025

Holding of
"Expo 2025 Osaka,
Kansai, Japan"

OSAKA, KANSAI, JAPAN
EXPO
2025

2030

SDGs
Achievement Deadline





Kanadevia

Technology for people and planet

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Kanadevia
Technology for people and planet

BRONZE PARTNER

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Kanadevia Corporation is a Bronze Partner of the "Future Life Expo: Future City", one of the Future Society Showcase Projects at Expo 2025 Osaka, Kansai, Japan.

<https://www.kanadevia.com/english/>

