UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

SUSTAINABLE DEVELOPMENT GOALS

# STePP

## Sustainable Technology Promotion Platform

## Technologies from Japan

- Energy Technologies
- Environmental Technologies
- Agribusiness Technologies
- Human Health Technologies

ITPO
UNIDO NETWORK OF INVESTMENT AND TECHNOLOGY PROMOTION OFFICES
TOKYO, JAPAN

As of May 2019

# UNIDO ITPO Tokyo's Sustainable Technology Promotion Platform (STePP) is designed to share information on Japanese technologies that contribute to inclusive and sustainable industrial development.

## Concept

UNIDO ITPO Tokyo promotes selected sound and productive Japanese technologies in order to accelerate the transfer of such technologies to developing and emerging countries.

Technologies registered on STePP tackle many issues and challenges faced by current societies striving for inclusive and sustainable industrial development. This includes energy technologies, environmental technologies, agribusiness technologies and human health technologies, all of which are provided by Japanese companies seeking to implement their technologies in developing and emerging countries.

STePP aims to become a platform where Japanese technology providers and governments/ companies in developing and emerging countries can find partners for collaboration to achieve effective and sustainable technology transfer.

## Criteria for Registration

The technologies are evaluated for registration on STePP by the UNIDO STePP Evaluation Committee based on the following criteria;

1. Applicability in Developing and Emerging Countries
2. Competitive Advantage
3. Conformity with UNIDO's Mandate of Industrial Development
4. Contribution to Sustainability
5. Technical Maturity

Categories of technologies promoted are listed in the next page. Foreign Direct Investment (FDI), Joint Ventures (JV), and licensing of technologies, etc. are some of the ways by which the technologies can be transferred.

Any organizations in developing and emerging countries, such as governmental organizations, private enterprises, institutions or NGOs, are welcome to approach the technology providers on STePP through the contact person listed below each technology.

## Categories of UNIDO ITPO Tokyo's STePP

### Energy Technologies

- Renewable energy (ex: solar, wind, geothermal, small hydro, biomass)
- Energy saving and energy storage (ex: co-generation, storage batteries, energy saving)
- Utilization of unused resources (ex: high-efficiency and low-emission fossil fuel utilization)

### Environmental Technologies

- Pollution prevention and control (ex: pollution prevention of air, water and soil)
- Waste treatment and management (ex: industrial and municipal waste treatment)
- Circular economy (ex: 3R (reduce, reuse, recycle) related technologies)

### Agribusiness Technologies

- Food value chain*1 (ex: processing and quality control of food and drinks)
- Production enhancement (ex: soil conditioner)
- Adaptation to climate change (ex: drip irrigation system)
- Water resource management (ex: desalination, fresh water storage)

### Human Health Technologies*2

- Public health (ex: drinking water supply, prevention of infection, toilets)
- Monitoring and diagnostic equipment (ex: simple equipment for health monitoring in remote areas)

*1: Processing, transportation, preservation or quality control of acceptable, except for real foods and drinks (beverages).
*2: It excludes pharmaceuticals, highly invasive medical devices for the human bodies, and folk remedies, etc.

For the detailed information please access
www.unido.or.jp/en/activities/technology_transfer/technology_db/

## UNIDO ITPO Tokyo

UNIDO's Investment and Technology Promotion Office, Tokyo (UNIDO ITPO Tokyo) was established in March 1981 and is one of 9 offices worldwide belonging to UNIDO's ITPO Network.

UNIDO ITPO Tokyo's mission is to help developing countries and economies in transition in their efforts to achieve inclusive and sustainable economic development by promoting foreign direct investment (FDI) and technology transfer from Japan, through various promotion activities in Japan and also in recipient countries using UNIDO's private and public sector networks.

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

United Nations Industrial Development Organization (UNIDO)
Investment and Technology Promotion Office (ITPO), Tokyo

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## Energy Technologies

- Renewable energy (ex: solar, wind, geothermal, small hydro, biomass)
- Energy saving and energy storage (ex: co-generation, storage batteries, energy saving)
- Utilization of unused resources (ex: high-efficiency and low-emission fossil fuel utilization)

## BGCT JAPAN K.K. and Creative Co., Ltd.

*Renewable energy*
*[Environmental Technologies: Circular Economy]*

# Solid Recovered Fuel 'Green Coal' - RPPWF™

Target Area

Fossil fuels; Carbon dioxide emissions

Technology

"RPPWF™" is a promising alternative fuel resource to coal and oil, produced entirely from waste materials. It is made from non-hazardous, non-recyclable papers, plastics/plants and wood waste, and other household and industrial waste. Because RPPWF™ contains a lot of biomass, $CO_2$ emissions can be mostly reduced to zero. Also the combustion efficiency is much higher than coal and oil.


Sample Projects

Pilot production of RPPWF™ was successfully completed at the company's test plant.

Website: www.bgct.jp
Contact: Mr. Michihiro KIYAMA info@bgct.jp

## Biomaterial in Tokyo Co., Ltd.

*Renewable energy*

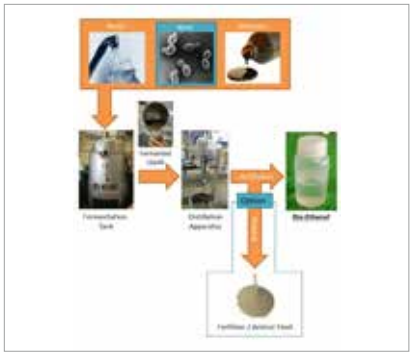
# Ethanol Production through Yeast Fermentation

Target Area

Poor ethanol production

Technology

The company’s strains of yeast used in fermentation process for converting sugars into ethanol have the advantages of being active in high sugar concentrations, low levels of impurities, and resistance to high temperatures. Using these strains of yeast can produce safe ethanol, not only as an alternative fuel, but also as a beverage additive.



Sample Projects

Several studies have been done at various universities in Japan and the tolerance of the yeasts to high temperatures has been tested in collaboration with the Starch Technology Center at the Agency for the Assessment and Application of Technology in Indonesia.

Website: www.biomt.jp/
Contact: Mr. Yosuke KOBAYASHI kobayashi.y@biomt.onmicrosoft.com

## CR-POWER LLC

*Renewable energy*
*[Environmental Technologies: Circular Economy]*

# Biofuel and Waste Management: C-POWER PLANT

Target Area

Waste disposal; Energy production

Technology

C-POWER plant thermally decomposes organic carbon such as municipal solid waste and various biomass to produce fuel gas which can be utilized for electricity generation and chemical feedstock, in a continuous process. It consists of the 'horizontal rotating cylindrical kiln' (U-turn kiln) and the 'spiral cylinder interior horizontally rotating kiln' (Hybrid kiln) which enable high energy efficiency and low output of ash. C-POWER plant can generally treat 20kg of raw materials per hour.

Sample Projects

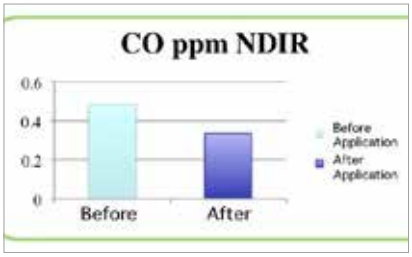
Starting with the development of the U-turn kiln in 2000, CR-POWER LLC proceeded to the construction of the pilot plant in 2004. In addition, the company invented the Hybrid kiln to enforce gasification reaction in 2012. There are three commercial C-POWER plants operating in Japan.

Website: www.cr-power.jp/eng
Contact: Mr. Akimichi HATTA hatta@cr-power.jp

## EiShin Co., Ltd.

*Energy saving and energy storage*
*[Environmental Technologies: Waste treatment and management]*

# Energy Efficient & Eco-Friendly Automobile Filter Spray




Target Area

Emission reduction from vehicles

Technology

"eco-SPRAY," allows cleaner combustion in the car engines which translates into improved power and fuel efficiency as well as reduced emissions. The spray is applied to car air filters every 5,000-6,000 km to reduce harmful emissions and increase gas mileage, typically from 8-20%, while decreasing air pollution.

Sample Projects

Distributed in 15 countries since 2012: China, Thailand, Canada, USA, UAE, Romania, Korea, Cambodia, Vietnam, Iran, Philippines, Bangladesh, Nepal, Taiwan and Japan.

Website: http://eishin-e.jp/en/
Contact: Ms. Chie YASUNAGA & Mr. Daiki HATAKEYAMA info@eishin-e.jp

## FUMIN Co., Ltd.

*Energy saving and energy storage*

# Coating for Ultraviolet and Infrared Ray Shielding

Target Area

Ultraviolet rays; Building and vehicle temperature control

Technology

The ultimate solar control coating technology called FUMIN COATING™ forms an ultra-thin transparent film of 1.5 microns thickness that shuts off about 90% of ultraviolet rays and 70% of infrared rays. It can be applied on any type of curved or bumpy surface glass and polycarbonate. Because 85% of visible light transmission is achieved, the exterior appearance and interior brightness are not affected at all.


Sample Projects

5,000 construction projects have been completed during the past 10 years. This coating was also selected for The National Art Center of Tokyo covering 4,700 square meters glasses. In Singapore, it was verified that this technology reduced the temperature within an elevator by 2 degrees Celsius (20% energy saving).

Website: www.fumin.jp/index_en.html
Contact: Mr. Katsuo YAGISAWA k-yagisawa@fumin.jp

NEW

## GAINA Pro Co., Ltd, Nissin-Sangyo Co., LTD.

*Energy saving and energy storage*

# A Multi-functional Ceramic Coating Material

Target Area

Energy efficiency

Technology

GAINA is a unique paint that can provide strong insulation effect just by painting it. By providing insulation, it helps to reduce energy cost. The product originated from the technology developed at the Japan Aerospace Exploration Agency (JAXA) for H-IIB type rocket development.


Sample Projects

The shipping of GAINA started in 1999, and the cumulative shipping quantity is 627,390 cans in 2018.

Website: www.gaina-pro.com
Contact: NISSIN-SANGYO., LTD. Inquiry@gaina.co.jp

## Hitachi Metals, Ltd.

*Energy saving and energy storage*

# Amorphous Energy Efficiency Distribution Transformer

Target Area

Energy loss in conventional transmission and distribution system

Technology

Metglas® amorphous metal distribution transformers (AMDTs) with up to 80% lower core loss than conventional ones increase efficiency of energy transmission and distribution. They contribute to energy saving of distribution grids and reduction of $CO_2$ emissions.

Sample Projects

This technology was developed in the 1970s, and AMDTs started to be used in the 1980s. They have been used in many countries such as Japan (410,000 units), USA (420,000 units), China (385,000 units), India (800,000 units), Mexico (65,000 units), Brazil (60,000 units) and the Republic of Korea (80,000 units).

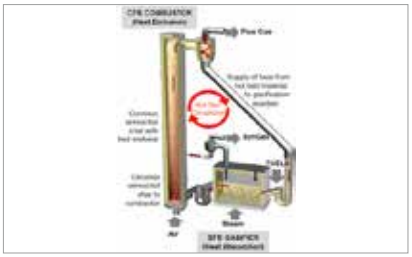
Website: www.hitachi-metals.co.jp/e/index.html
Contact: Mr. Masahiro OKADA masahiro.okada.dp@hitachi-metals.com

NEW

## IHI Corporation

*Renewable energy, Utilization of unused resources*

# Biomass Gasification Plant: TIGAR® (Twin IHI GAsifieR)



Target Area

Application of biomass

Technology

TIGAR® gasifies biomass resources such as wood chip and pellet to produce syngas (synthetic gas: hydrogen, carbon monoxide and other usable gases) by water-gas shift reaction. Syngas can be effectively utilized for various applications such as chemical feedstock and power generation fuel. By converting unutilized resources into a high-value product, TIGAR® reduces a large volume of $CO_2$ emission and provides a new clean energy solution.


Sample Projects

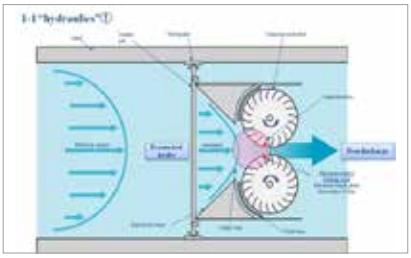
The installation and demonstration project to operate for nearly 6,000 hours completed. IHI Corporation is ready to export TIGAR® for commercial purposes.

Website: www.ihi.co.jp
Contact: Mr. Akira SHIMADA akira_shimada@ihi.co.jp

## JAG SEABELL CO., LTD.

*Renewable energy*

# Micro Hydropower System (ultra-low head)



Target Area

Hydroelectric power generation; Ultra low head environment

Technology

The STREAM is a run-of-river micro-hydropower generating system that can generate electricity especially in ultra-low head situations. Due to its compact size and ease of installation (typically two day installation and commissioning days in Japan), the system is especially suited for de-centralized power generation. Unlike conventional small hydropower schemes, a power channel, a powerhouse and penstock delivery are not necessary.

Sample Projects

Since 2008, the company has installed over 20 units in Japan and a pilot system in northern India.

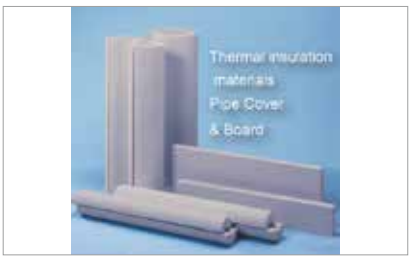
Website: www.jagseabell.jp/english/index.html
Contact: Mr. HIDESAWA hidesawa@jagseabell.jp

NEW

## Japan Insulation Co., Ltd.

*Energy saving and energy storage*
*[Environmental Technologies: Circular Economy]*

# Thermal Insulation Materials Using Biomass




Target Area

Waste reduction

Technology

Japan Insulation has created a technology that uses biomass (rice husks) as a raw material and fuel in order to produce thermal insulation materials.

Sample Projects

The thermal insulator can cover the pipes and equipment contained in industrial plants, such as power, refinery and chemical plants. It keeps heat from escaping, improving the energy efficiency of the plant and helping the environment. Not only is the material non-combustible, it is lightweight and environmentally friendly.

Website: www.jic-bestork.co.jp/
Contact: Mr. Koji ANDO k-andou@jic-bestork.co.jp
Mr. Takashi KAWAMOTO t-kawamoto@jic-bestork.co.jp

NEW

## KITA MACHINERY Co.,Ltd

*Renewable energy*

# Engineering Design, Construction and Installation Method of Micro Hydropower System

Target Area

Regional electrification

Technology

A micro hydropower system developed by KITA MACHINERY is providing not only excellent machines but also the know-how in understanding the site conditions, selection of equipment and parts, design and installation method. Based on the know-how, we can make an optimal suggestion for local needs and conditions. Parts and equipment can be operated with less maintenance, which can help local people to operate by themselves. After installation, operating cost is very low.

Sample Projects

For the past five years, this micro hydropower system was installed in the Philippines (1 unit), Myanmar (5 units) and El Salvador (1 unit, for experimental use)

Website: www.kitakikai.co.jp
Contact: Ms. Tomoko KANAMURA kanamura@kitakikai.co.jp
Ms. Haruka UENISHI haruka.uenishi@kitakikai.co.jp

**Kokusaikan Corporation Japan**
**Japan Nano Coat Co., Ltd.**
**Miyako Roller Industrial Co., Ltd.**
**ef-initials Co., Ltd.**
**Nano-Science Laboratory Corporation**

*Energy saving and energy storage*
*[Human Health Technologies: Public Health]*

# Nanotechnology & Industrial Coatings

Target Area

Excessive temperature stress in building; Accumulation of dirt on roofs, walls and others

Technology

This product will reduce excessive temperature stress for people in buildings, households, and factories and will protect crops in warehouses, goods in containers, and passengers in buses. Heat cutting paint will bring down temperatures by over 10°C on roofs and gas/oil tanks. Dust repelling function coated on painted surfaces will protect the heat cutting function from deterioration or accumulation of dust or dirt.

Sample Projects

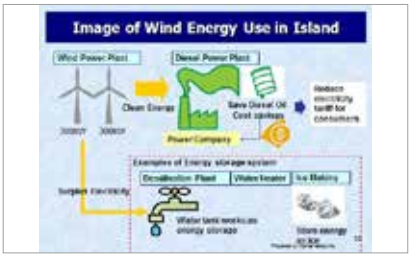
The product has been in the market for 5 years and used by Japan Railways for 3 years.

Website: N/A
Contact: Ms. Setsuko TIMUR aladdintimur@gmail.com

## KOMAIHALTEC Inc.

*Renewable energy*

# Mid-Size Wind Turbine "KWT300" (300kW)




### Target Area

Supply of electricity to power stations and existing facilities

### Technology

The KWT300 is one of the very few high-spec, mid-size wind turbines available in the world. With 6.5m/s of annual average wind speed, one unit of wind turbine generates 600MWh/year, which is equivalent to the annual electricity use of 160 households. The KWT 300 is highly adaptable to the conditions of developing countries because of its flexibility (easy transportation, construction and various applications) and safety conscious design (strong, stable, and resistant to extreme winds, lightening and earthquakes).

### Sample Projects

A prototype was installed in Japan and is operational since 2006. In 2010, one unit and technical training services were provided to the Wind Energy Technology Center in Mexico, established by UNDP and the Electric Research Institution of Mexico. In 2012 and 2013, 3 more units were installed in Japan.

Website: www.komaihaltec.co.jp/english/
Contact: Renewable Energy Business Department renew@komaihaltec.co.jp

## KYOCERA Corporation

*Renewable energy*

# Photovoltaic Module / Solar Hybrid System


### Target Area

Difficulties of managing hybrid renewable energy systems

### Technology

The company provides a solar hybrid system that can integrate photovoltaic solar panels with diesel generators or other renewable energy sources. The key technologies are the reliable and durable photovoltaic modules and electrical control of the hybrid system.

### Sample Projects

Since 2009, Kyocera has supplied photovoltaic power generation systems with a capacity of 3,000kW or more not only within Japan, but also in other countries. The company has introduced the system with a capacity of less than 1MW without batteries to Spain, Thailand, Mongolia, Syria, Palau, Djibouti, Maldives, Marshall Islands, Tajikistan, USA, and Thailand.

Website: https://global.kyocera.com
Contact: Mr. Yusuke SATO yusuke.sato.sd@kyocera.jp

## Nabell Corporation

*Renewable energy*

# Portable Solar Power Charge and Storage System

Target Area

Electricity generation in remote areas

Technology

The nanoGrid is a portable solar power system that can generate and store electric power from sunlight and AC power supply. It features superior weather resistance and is ideal for non-electric power source areas.

Sample Projects

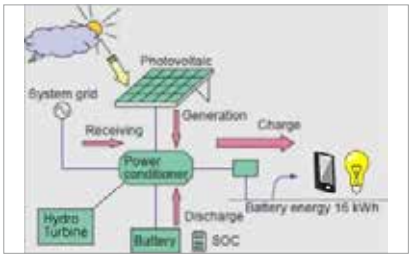
The solar power system which consists of nanoGrid_2 (solar panel) and FSP type1000 (lithium-ion battery) was installed to Japanese Red Cross Society.

Website: http://www.bellows.co.jp/en/
Contact: Mr. Kouji TSUKAMOTO nabell@bellows.co.jp

## Nakayama Iron Works, Ltd.

*Renewable energy*

# Pico and Micro Hydropower Systems




Target Area

Hydroelectric power generation

Technology

The micro turbine is a matured technology. This system features advantages such as low manufacturing cost, a reliable and stable electric control panel system, and reduced power generation cost, in comparison to conventional power generation systems.

Sample Projects

The company implemented small community development projects in Japan in 2012 and 2014. A more affordable technology was established and successfully implemented in collaboration with the Indonesian Small Hydropower Association. Additionally, the company has been proceeding with a small hydropower project in India since 2012 with JAG Seabell Co., Ltd. through OEM to provide turbines for hydropower generation.

Website: www.ncjpn.com/en/
Contact: Mr. Yoshinobu WATANABE overseas@nakayamairon.co.jp
Ms. Sayaka OKA

NEW

## NGK INSULATORS, LTD.

*Renewable energy, Energy saving and energy storage*

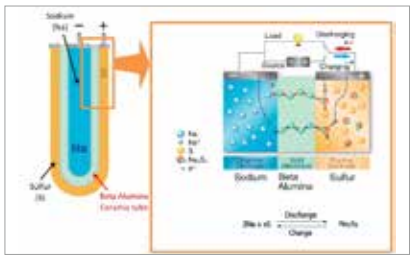
# Sodium Sulfur Battery System

Target Area

Energy storage

Technology

Sodium Sulfur Battery System technology -- NAS® battery -- is currently the only commercially mature, large-scale energy storage technology that can be installed anywhere. It can be used for peak shaving, load leveling, and emissions reductions. From large capacity and high-energy density to long life and small size, there are many advantages to this technology.



Sample Projects

The current total worldwide installed capacity (including under construction) of NGK's NAS battery systems is approx. 525 MW (3,560MWh), as of March 2018, including 360MW in Japan, 37MW in Europe, 20MW in North America and 108MW in UAE.

Website: www.ngk.co.jp/nas/
Contact: Mr. Hironao HAYASHI hayasi@ngk.co.jp
NAS Battery Sales & Marketing Overseas Department nas-battery@ngk.co.jp

## Panasonic Corporation

*Renewable energy*

# Rechargeable Solar LED Lantern


Target Area

Lack of electricity

Technology

This rechargeable solar LED lantern is a multifunctional portable lantern that can be used as lighting, as a battery charger and as a solar panel. It comes with a 3.5W solar photovoltaic panel, which can fully recharge the waterproof lantern in 6 hours in fine weather. The batteries can be recharged more than 1,500 times. The LED lifespan is more than 10 years.


Sample Projects

Recharging system of the lantern is performed by Panasonic's Ni-MH battery, which has been increasingly sold and distributed in Japan since 1990.

Website: www.panasonic.com/global/home.html
Contact: Mr. Junichi NAKAMURA Nakamura.jyunici@jp.panasonic.com

## Persh, Inc.

*Energy saving and energy storage*

# Energy-Saving Ceramic Sheets for Air Conditioners

Target Area

Energy efficiency of air conditioners

Technology

The product, called Reidan-kun, is a ceramic sheet to be placed in the air conditioner. By enhancing the efficiency of heat exchange, it can reduce energy consumption by up to 26%.

Sample Projects

More than 13,000 sheets were installed in the first year from August 2016 in Japan.

| | | |
|---|---|---|
| Website: | http://www.persh.co.jp/ | |
| Contact: | Mr. Takashi SUZUKI | suzuki.takashi@persh.co.jp |
| | Reidankun team | info@persh.co.jp |

## Shinko Tecnos Co., Ltd.

*Renewable energy*
*[Environmental Technologies: Circular Economy]*

# Plastic Changing to Oil Machine

Target Area

Plastic waste; E-waste; Medical waste; Energy needs

Technology

A thermal decomposition plant called the “plastic to oil machine” can manufacture liquid fuel, combustible gas, and carbonized products from plastic wastes, E-wastes, waste tires, waste toners, medical wastes and crude-oil derived products. The machine has the advantages of easy operation, low fuel consumption, and production of high quality heavy and light oils.

Sample Projects

This technology has been adopted by more than 15 plants in Japan and introduced to Vietnam since 2013, Saudi Arabia since 2014, Indonesia since 2014, and China since 2015.

| | | |
|---|---|---|
| Website: | https://shinko-eng1.webnode.jp/ | |
| Contact: | Mr. Kentaro NAGASAWA | info@shinko-mfg.co.jp |

NEW

## Sumino Co., LTD

*Renewable energy*

# Micro Hydraulic Power Unit (Spiral Type Pico-Hydro Unit “PicoPica10”, “PicoPica500”)

Target Area

Renewable Energy

Technology

Spiral PicoPica Hydraulic Power Unit is a promising pico-hydro power generation equipment which has potential for dissemination in non-electrified areas, with its characteristics including low-head generation and dust-resistance. “PicoPica10” is a small 10W unit, and “PicoPica500” is a 500W unit which generates enough energy for an average Japanese household.

Sample Projects

Since 2011 to date, 500 sets of PicoPica10 have been sold in Japan. PicoPica500 was released on December 2017 and it has already been placed in Nikko City, Tochigi Prefecture, Japan.

Website: https://suminoseisakusho.jp/index.html
Contact: Mr. Masaya SUMINO m_sumino@suminoseisakusho.jp

## Sumitomo Electric Industries, Ltd.

*Renewable energy*

# Concentrator Photovoltaic (CPV) Power Generation System

Target Area

Solar power generation

Technology

The conversion efficiency for The Concentrator Photovoltaic (CPV) system by Sumitomo Electric Industries, Ltd. is twice that of a standard silicon solar module. This is achieved through tracking of the sun and through the use of special lenses that direct that sunlight into a high intensity.

Sample Projects

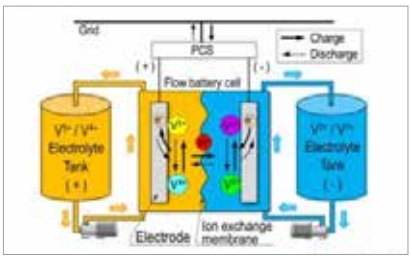
The CPV system has been installed in Japan, Mexico and Morocco.

Website: http://global-sei.com/contact/
Contact: Energy System Division cpv-contact@info.sei.co.jp

## Sumitomo Electric Industries, Ltd.

*Energy saving and energy storage*

# Vanadium Flow Battery System for Energy Efficiency


Target Area

Energy storage

Technology

The vanadium flow battery (redox flow battery), can absorb and stabilize the fluctuations of outputs predicated by renewable energy sources. Essentially, it's a large scale energy storage system featuring a vanadium flow battery that charges and discharges depending on oxidation and reduction of vanadium ions in electrolytes.

Sample Projects

The world's biggest flow battery of 60,000 kWh (15MW*4h) is installed in Hokkaido.
The 8,000kWh (2MW*4h) flow battery demonstration project has started in California in 2017.

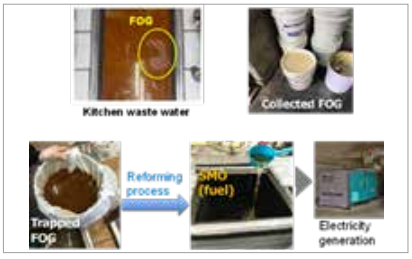
Website: http://global-sei.com/contact/
Contact: Energy System Division cpv-contact@info.sei.co.jp

NEW

## TBM Co., Ltd.

*Renewable energy*
*[Environmental Technlogies: Waste treatment and management]*

# FOG-green Power Generation System




Target Area

Fats/Oil/Grease treatment from wastewater

Technology

Wastewater derived from daily preparation and consumption of foods contains a lot of fats, oils and grease (FOG). TBM Co., Ltd. has two innovative techniques to reuse FOG: 1) Technique for the perfect separation and collection of FOG from wastewater, 2) Reforming technique of collected FOG to produce a new bio fuel for electricity generators.

Sample Projects

Since its opening in April 2017, the FOG-green power generation system's power plant in Saitama prefecture generates 100KW x 24 hours x 365 days. In addition, we are proceeding the installation of our green power plants in various municipalities: Yokohama city, Tokorozawa city and Toshima-ku of metropolitan Tokyo.

Website: http://kankichikun.com/english/
Contact: Mr. Seigo HIGASHI info@kankichikun.com

NEW

## Virtual Harmony Co., Ltd.

*Energy saving and energy storage*

# New Geo-heat Exchanger


Target Area

Energy efficiency of air conditioners

Technology

The company designs and supplies air conditioning systems for buildings and agricultural applications through the use of ground source heat pump technology. The company's latest technology centers around a new geo-heat exchanger that is installed horizontally and close to the surface. This allows the heat to be used secondarily for snow melting and farming applications.


Sample Projects

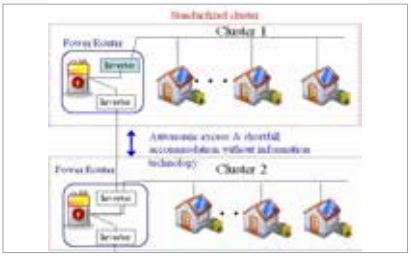
Heat pumps take advantage of the naturally occurring difference between the above-ground air temperature and the subsurface soil temperature to move cool or warm air throughout a structure, depending on the season.

Website: N/A
Contact: Mr. Hisao YAMANOBE yamanobe@3dedusoft.sakura.ne.jp

## VPEC Inc.

*Energy saving and energy storage*

# Power Router for ECONETWORK

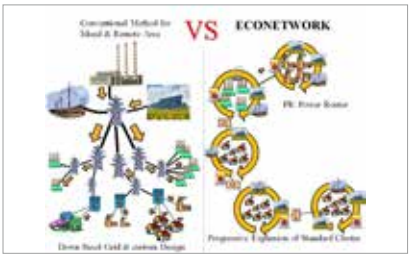



Target Area

Energy loss in conventional electric distribution systems

Technology

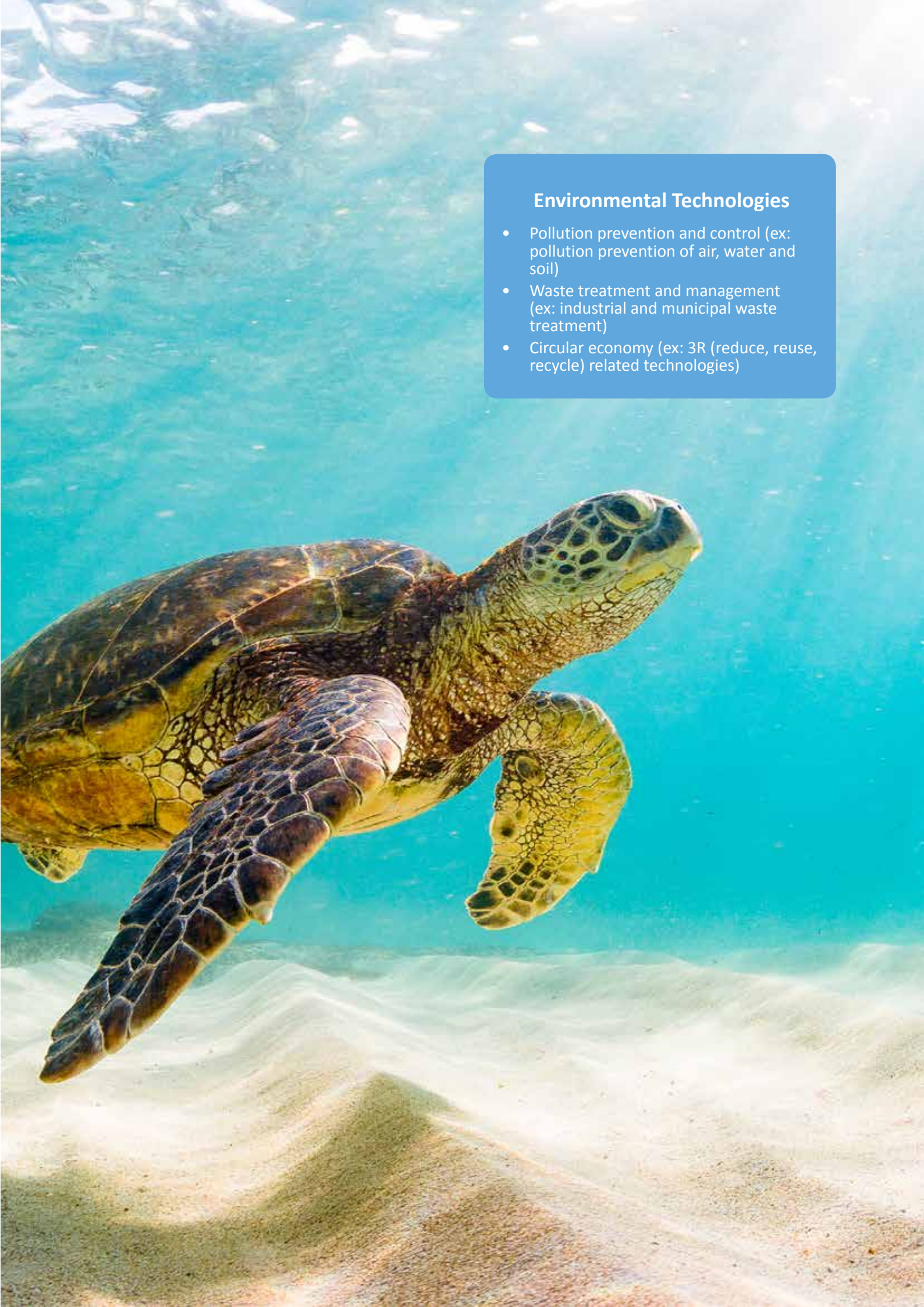
Power Router (PR) controls the electricity flow from one cluster to another cluster autonomously. ECONETWORK, which stands for Electricity Cluster Oriented Network, is a new architecture for electric distribution that makes the massive deployment of renewable energy sources available. PR consists of two inverters and a battery and accommodates the excess and shortfall of electricity transfer among clusters, without expensive telecommunication lines, thus contributing to the reduction of cost and complexity of electrification.




Sample Projects

Computer simulation with Waseda University showed that the concept worked as designed. Laboratory test of the twin inverters function has been conducted with Osaka Gas & Waseda University, and resulted in proving the concept & simulation.

Website: www.vpec.co.jp/index_e.html
Contact: Mr. Satoshi NAGATA s-nagata@vpec.co.jp



## Environmental Technologies

- Pollution prevention and control (ex: pollution prevention of air, water and soil)
- Waste treatment and management (ex: industrial and municipal waste treatment)
- Circular economy (ex: 3R (reduce, reuse, recycle) related technologies)

NEW

## AGC Inc.

*Pollution prevention and control*
*[Agribusiness Technologies: Water resource management]*

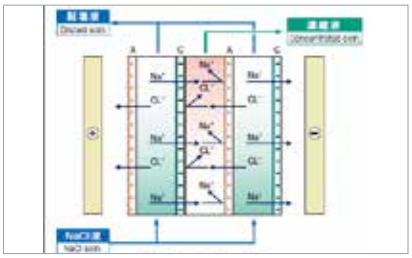
# Electrodialysis using ion exchange membranes

Target Area

Water purification

Technology

AGC Inc. has developed the ion exchange membrane SELEMION™, a FORBLUE™ family product, for electrodialysis. Electrodialysis can separate organic materials from salt efficiently because it only permits ionic materials to pass through the ion exchange membrane. Essentially, the technology provides desalination and nitrate removal from groundwater for generating drinking water.



Sample Projects

In the late 1990's, the system was installed at more than 10 sites in the Middle East.

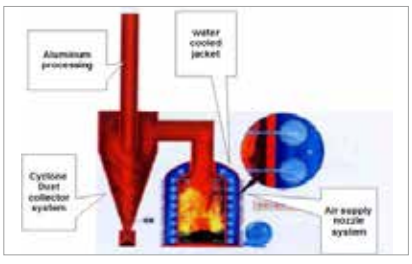
Website: www.agc.com/en/
Contact: Mr. Yuichiro OGATA yuichiro-ogata@agc.com

NEW

## CHUWA INDUSTRIAL Co., LTD. and M.K.D. Corporation

*Waste treatment and management*

# Environment-friendly and Smokeless Incinerator: CHUWASTAR




Target Area

Waste Management

Technology

Chuwa Industrial's "CHUWASTAR" is a highly durable waste incinerator for medical waste. Its durability allows the incinerator to treat waste with high calorific value such as plastic and rubber. Also it does not produce smoke because of the use of forced air supply method. On top of that, the body of the incinerator absorbs heat, which helps to keep the working environment safe.

Sample Projects

460 sets have been exported to 26 countries including the Democratic Republic of Congo and the Kingdom of Morocco.

Website: www.chuwastar.co.jp/en/
Contact: Mr. Kuniaki IMAO chuwa-kikou@chuwastar.co.jp
Mr. Kyoji SUGIURA

NEW

## COMOTEC Corporation

*Pollution prevention and control*

# Cassette Type Black Smoke Removal Device "MoCobee CT"


Target Area

Diesel engine smoke

Technology

Cassette type Diesel Particular Filter (DPF) "MoCobee CT" is the retrofit device for black smoke removal attached on diesel engine, which can easily remove 99.9% of black smoke regardless of use condition and engine type. "MoCobee CT" can be semipermanently recycled by detaching from scrapped vehicles, versatile to use on various conditions and can be installed on various machineries.

Sample Projects

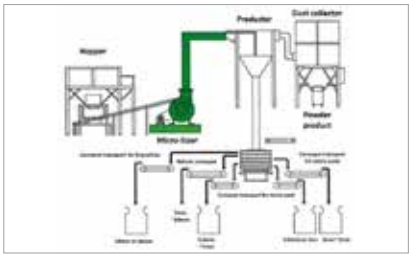
3,500 units have been sold for passenger vehicles, 3,000 units for forklifts, 50 units for construction machines, and 30 units for railway vehicles since 1999. In terms of export, 30 units of DPF for busses have been exported to Mongolia and China, and 30 units of DPF for forklifts have been exported to China, Taiwan and Thailand.

Website: N/A
Contact: Mr. Masanori Komori m-komori@comotec.co.jp

## Donico Inter Co., Ltd.

*Waste treatment and management, Circular Economy*

# Micro-Sizer: Glass Cullet Production Equipment



Target Area

Wasted glass

Technology

The Micro-Sizer is unique and more efficient equipment than the conventional hammer crusher and mill for crushing wasted glass because of its compact dry process, as well as efficient impurity separation process. The Micro-Sizer can produce about 3 tons of glass cullets per hour (up to the powder size of 0.05mm), resulting in glass cullets which can be used for multiple purposes; for example, as alternative materials for natural sand in beach areas suffering from coastal erosion, or as materials for making bricks, ceramics and blocks.

Sample Projects

Since 1995, the company has been successfully developing business especially in the USA and Japan. About 20 Micro-Sizers have been successfully installed in the USA. In the Japanese market, the company sold about 10 Micro-Sizers to various organizations including glass cullet manufacturers, glass-related companies as well as local governments.

Website: www.donico.co.jp
Contact: Mr. Kaneyuki INOKO kaneyukiinoko@donico.co.jp

## Donico Inter Co., Ltd.

*Waste treatment and management*

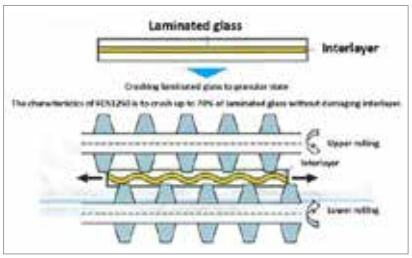
# Efficient Glass Interlayer Separation Equipment

### Target Area

Waste laminated glass

### Technology

The company's glass interlayer separation system consisting of crushing equipment (FDS1250) and exfoliation equipment (NDF1000S) can efficiently separate laminated glass into glass and interlayer, for recycling. The separated interlayer can be reused as recycled interlayer for glass production. The combination of the equipment allows for the efficient recycling of laminated glass, thus contributing to reduce the energy consumption required during operation.




### Sample Projects

Development of the equipment and the dissociation solution was completed in 2008. Since then, the company has successfully installed 10 crushing equipment (FDS1250) and has been improving the sales record.

Website: www.donico.co.jp
Contact: Mr. Kaneyuki INOKO kaneyukiinoko@donico.co.jp

## EcoCycle Corporation

*Pollution prevention and control*

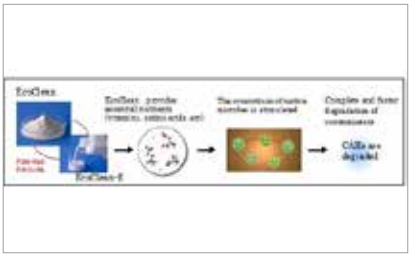
# EcoClean and GreenClean Series for Bioremediation

### Target Area

Soil and groundwater contamination

### Technology

The bioremediation products "EcoClean" and "GreenClean" perform in-situ bioremediation or purification of soil and groundwater contaminated with chlorinated hydrocarbons and heavy metals, and petroleum hydrocarbons cyanide compounds respectively. Both products are diluted in water and injected into sub-surfaces to stimulate native microorganisms in a contaminated site. Most contaminated sites can be cleaned in the span of a few months, which requires low energy and mediation cost.



### Sample Projects

Bioremediation products have been applied for cleaning over 170 sites contaminated with chlorinated aliphatic hydrocarbons, chromium (VI), petroleum hydrocarbons and cyanide in Japan, USA, Taiwan, and other Asian countries.

Website: www.ecocycle.co.jp/e_index.html
Contact: Mr. REDDY reddy@ecocycle.co.jp

NEW

## GUUN Co., Ltd.

*Circular Economy*

# Fluff Fuel Technologies Derived from Waste Plastics


Target Area

Plastic waste

Technology

The company recycles raw plastic materials to produce Fluff Fuels, which provide more eco-friendly, space-saving and affordable options as compared with other types of fossil fuels. Fluff Fuels are most often used as alternatives to coal or heavy oil in paper manufacturers in Japan and cement companies overseas.

Sample Projects

A pilot project to establish a recycling enterprise in Cebu, Philippines started in 2013. In 2015, the project was taken over by Cebu City. A commercial scale plant was completed in May 2017 in Cebu, Philippines with capacity of 50~75 ton per day.

Website: www.guun.co.jp
Contact: Mr. Keitaro IKEDA k_ikeda@guun.co.jp
Mr. Mikitaka HIGUCHI m_higuchi@guun.co.jp

## HINODE SANGYO Co., Ltd.

*Pollution prevention and control, Circular Economy*

# Elbic Series Solutions for Wastewater Treatment


Target Area

Wastewater treatment

Technology

The Elbic series are environmentally friendly microbial products for treating wastewater, especially in the food processing industry. Using microorganisms, the Elbic series can consistently reduce BODs to acceptable levels set forth by laws, assure stabilized and efficient wastewater treatment, and make the operation of wastewater treatment plants easier by reducing running costs.

Sample Projects

The company has supplied seven ElbicNEO System™ (microorganisms with incubator) units in the past.

Website: www.hinodesangyo.com/english/
Contact: Ms. Kaori FUJITA k-fujita@hinodesangyo.com

## HINODE SANGYO Co., Ltd.

*Pollution prevention and control, Circular Economy*

# Hinode Microbubble Generator

### Target Area

Waste water treatment using microorganisms

### Technology

Dispersed-Microbes Process invented by HINODE SANGYO Co., Ltd. is a revolutionary technology that prevents “bulking” of sludge during the waste water treatment process. This process employs a device called Hinode Microbubble Generator (HMB), which generates microbubbles and efficiently dissolves oxygen in the water to enhance the activity of aerobic microorganisms.

### Sample Projects

HMBs have been installed in a food-processing plant and several wastewater treatment plants.

Website: www.hinodesangyo.com/english/
Contact: Ms. Kaori FUJITA k-fujita@hinodesangyo.com

NEW

## JTOP Co.,Ltd.

*Pollution prevention and control*

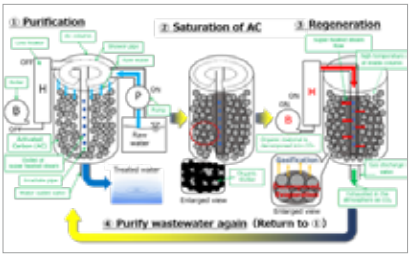
# On-site Regeneration System of Activated Carbon Filtration Unit

### Target Area

Water purification

### Technology

JTOP Co.,Ltd. has developed an activated carbon filtration system equipped with the automatic regeneration device. During the operation, it intermittently regenerates the filtration material (activated carbon) by the injection of superheated steam, without taking out the filtration material from inside the tank. Even if the filtration material is not replaced, wastewater treatment (refractory organic matter treatment, COD treatment, decolorization treatment, etc.) and exhaust gas treatment can be steadily performed without deteriorating operation efficiency.




### Sample Projects

This system has already been sold and delivered in Indonesia, as wastewater recycling equipment which purifies and processes dyed wastewater discharged from textile factories to colorless and odorless water.

Website: www.jtops.com/en/
Contact: Mr. Jiichi NAKAKI nakaki@jtops.com

## KAIHO SANGYO CO., LTD.

*Waste treatment and management, Circular Economy*

# Eco-Friendly ELV Recycling System

Target Area

Recycling of end-of-life vehicles

Technology

The company offers a package solution for waste treatment and managing of ELV (end-of-life vehicles), which include recycling equipment, a business management system and training.

Sample Projects

The system was implemented in 5 countries including Thailand and Kenya. More than 70 foreign trainees were educated in the training center in 10 years.

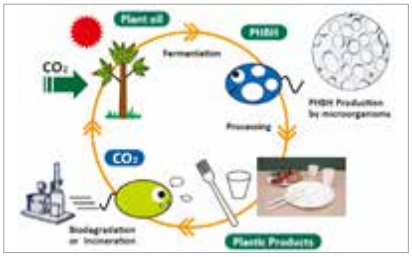
Website: www.kaihosangyo.jp/english
Contact: Mr. Katsuya BAJI baji@kaiho.co.jp

NEW

## KANEKA Corporation

*Pollution prevention and control, Circular Economy*

# KANEKA Biodegradable Plastic PHBH™




Target Area

Marine plastic waste

Technology

PHBH™ is a novel biopolymer produced with sustainable raw materials. It is produced through Kaneka's unique microbial fermentation process and it can be used in a variety of applications. Kaneka's recent research shows that PHBH™ also has excellent biodegradable property in marine environment, which contributes to the reduction of marine plastic waste.

Sample Projects

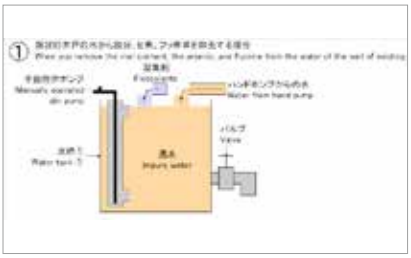
PHBH™ was launched to the market in 2008 and is currently used mainly in France and Germany for fruit & vegetable bags and compostable bags. Yearly sales of PHBH™ reached 1,150 tons in 2018.

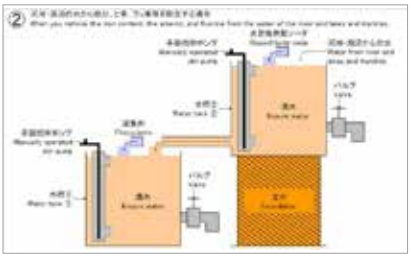
Website: www.kaneka.co.jp/en/
Contact: Mr. Mitsutoshi MORO bdp_phbh@kaneka.co.jp

## KAWATOKU CO., LTD.

*Pollution prevention and control*

# Removing Heavy Metals from Water





Target Area

Water treatment

Technology

The company's flocculating agents can purify turbid water into drinkable water by removing heavy metals, such as iron, arsenic, and fluorine, at low cost. This technology does not require electric power and it can be installed in existing tanks made of any materials. For a small amount of water to be processed, turbid water can be agitated manually by hand. With a manually operated stir pump, it can process up to 5 tons of water in one tank.

Sample Projects

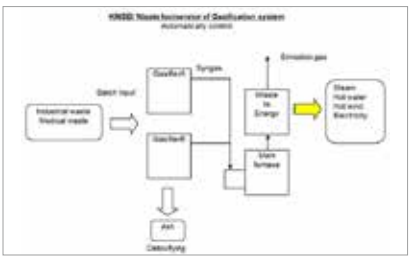
The company has been working to remove fluorine from well water in Tanzania. In Myanmar, the company's flocculating agents have been used in a medical treatment facility to secure safe water for washing hands.

Website: N/A
Contact: Mr. Hirofumi SUGANO kawatoku@ivy.ocn.ne.jp

## KINSEI SANGYO CO., Ltd.

*Waste treatment and management*

# Waste Incinerator of Gasification System



Target Area

Municipal solid waste; Industrial waste; Medical waste; Air pollution

Technology

This product provides an efficient and safe "waste incinerator of gasification system" and can completely detoxify hazardous industrial waste and medical waste to prevent any air pollution. Also, the system produces hot water, hot air, steam and electricity that can be used for various purposes.

Sample Projects

The company has been selling the KINSEI gasification system since 1980 and sold over 200 units. The product has been delivered in Japan, Korea, China, Taiwan, Thailand, and Indonesia.

Website: www.kinsei-s.co.jp/english/
Contact: Mr. Keiichi KANEKO kinsei@kinsei-s.co.jp

NEW

## KITA MACHINERY Co.,Ltd

*Pollution prevention and control*

# Engineering Design and Installation Method of Water Treatment

Target Area

Water treatment for local people

Technology

KITA MACHINERY offers the engineering service from design to installation of the water treatment system for industrial use and drinking use.
This system is not a packaged product but designed for each site, which makes it possible to optimize piping structure and parameters on site, even in operation. The company also has a design, installation and operating know-how as temporary construction, which can reduce initial cost and it will be more reasonable than other conventional plants.

Sample Projects

KITA MACHINERY installed the water treatment system for producing drinking water from waterfall (aligned with small hydropower generation plant).

Website: www.kitakikai.co.jp
Contact: Ms. Tomoko KANAMURA kanamura@kitakikai.co.jp
Ms. Haruka UENISHI haruka.uenishi@kitakikai.co.jp

## Meiwa Co., Ltd.

*Circular Economy*
*[Agribusiness Technologies: Production enhancement]*

# Converting Organic Waste into Charcoal

Target Area

Wet and dry solid biomass waste

Technology

A biomass carbonization plant converts both wet and dry organic matter into “biochar”, a charcoal which can be used as fuel, soil conditioner or fertilizer. Wide range of capacity from 50kg/day to 25t/day. The technology is energy efficient and cost efficient.

Sample Projects

Since 1999 more than 70 plants have been delivered and 15 of those are overseas including China, Vietnam, Norway, Korea, Taiwan and Thailand.

Website: http://meiwa-ind.co.jp/en/
Contact: Mr. Takeo TOKUNARI info@meiwa-ind.co.jp

NEW

## Merry Corporation

*Waste treatment and management*
*[Agribusiness Technologies: Production enhancement]*

# Community-based Food Waste Composting System



Target Area

Food Waste

Technology

Merry Corporation provides an effective solution to food waste, by constructing a community-based composting system. The composting center equipped with food waste recycling facility operated by Merry Corporation collects food wastes and produces compost in a composting machine. Then the compost is used for cultivation of rice and vegetables in neighboring farmlands.

Sample Projects

Merry Corporation has been operating the composting center in Kitakyushu city since 2015. It produces 80 tons of compost per year and supplies the compost to local farmers.
Other than the one in Kitakyushu, 588 composting machines had been sold until 2018.

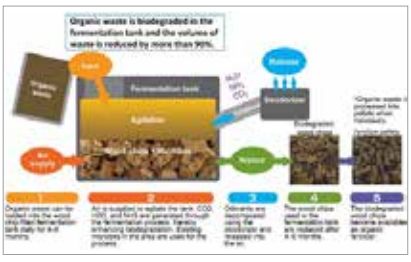
Website: www.fun-c.jp
Contact: Mr. Takaki MATSUO tm@fun-c.jp

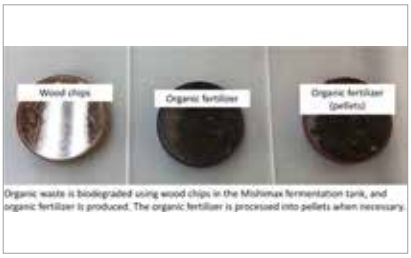
NEW

## Mikuniya Corporation

*Waste treatment and management*

# Mishimax Organic Waste Treatment System




Target Area

Waste Management

Technology

Mishimax reduces the volume of wastewater sludge, food waste, and other forms of organic waste by more than 90% in 24 hours, using high-temperature aerobic biodegradation and the heat from evaporation. The organic waste is biodegraded together with the wood chips in the Mishimax fermentation tank. After six months, biodegraded organic waste becomes available as organic fertilizer.

Sample Projects

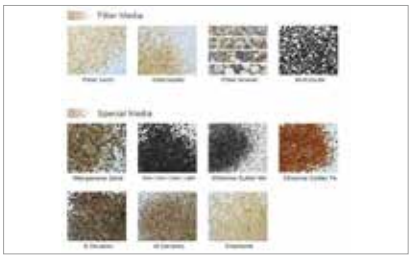
Fifteen Mishimax units have been sold, and all orders were custom-made. So far, the major clients are local governments (food waste treatment facilities, sludge biodegradation facilities, and compost facilities). In Fukushima Prefecture, Mishimax was used for demonstration experiments to reduce the volume of polluted organic wastes.

Website: www.mikuniya.jp/mikuniya_eng/index.html
Contact: Mr. Makoto TOKUOKA tokuoka@mikuniya.co.jp

## Nihon Genryo Co., Ltd.

*Pollution prevention and control*

# Eco-friendly Mobile Sand Filtration Device




### Target Area

Water purification

### Technology

The MOBILE SIPHON TANK (MST) is a mobile sand filtration device that filters raw water and produces high quality water for drinking and industrial use, or for use under emergency situations. The device does not need any replacement of filters, as the built-in filters media can be used semi-permanently. The company's patented technology called "Siphon Washing Technology" embedded in the tank can create twin vertical and horizontal vortices which cause sand particles to be kneaded to each other through a three-dimensional washing action, thus removing hard sludge layers on the surface of particles.

### Sample Projects

Since its invention in 1997, the Siphon Washing Technology has been exhibited in major foreign exhibitions, such as IFAT in Germany, Aquatech in Nederland, WEFTEC in the USA, and The Big 5 in UAE. Also, the company has delivered and installed 3 MSTs in Vietnam, 6 Truck Mounted MSTs in Laos, and 1 MST and 1 Truck Mounted MST in the Philippines.

| | | |
|---|---|---|
| Website: | www.genryo.co.jp/en/ | info@genryo.co.jp |
| Contact: | Ms. Momoko NAGATA | m-nagata@genryo.co.jp |

## Nihon Genryo Co., Ltd.

*Pollution prevention and control*

# Eco-friendly Non-Electric Sand Filtration Device


### Target Area

Water purification

### Technology

The Non-Electric SIPHON TANK (NEST) can be operated manually without need for electricity to filter raw water and produce high quality water for drinking and industrial use, or for use in emergency situations. The built-in filter media can be used semi-permanently, thus filter replacement is not required. The Siphon Washing Technology embedded in the tank creates twin vertical and horizontal vortices that cause sand particles to be kneaded to each other to remove hard sludge layers on the surface of particles.

### Sample Projects

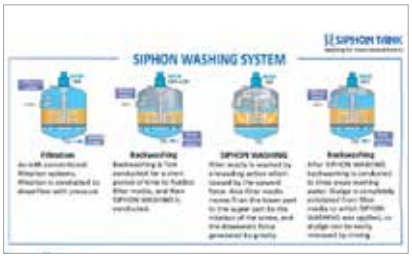
The company conducted a feasibility and demonstration project for installing the NEST in Mozambique in 2013. This project conducted survey investigations in 3 provinces and also conducted pilot demonstrations in 4 locations. The result of the demonstrations shows that the turbidity of lake, river, spring and shallow well waters significantly improved after the treatment by the SIPHON Tank.

| | | |
|---|---|---|
| Website: | www.genryo.co.jp/en/ | info@genryo.co.jp |
| Contact: | Ms. Momoko NAGATA | m-nagata@genryo.co.jp |

## Nihon Genryo Co., Ltd.

*Pollution prevention and control*

# Eco-friendly Sand Filtration Device


Target Area

Water purification

Technology

The MOBILE SIPHON TANK is a sand filtration device that filters raw water for drinking and industrial use, or for use under emergency situations. The device does not need any replacement of filters as the built-in filters media can be used semi-permanently. The company's patented technology called "Siphon Washing Technology" embedded in the tank can create twin vertical and horizontal vortices that cause sand particles to be kneaded each other through a three-dimensional washing action, thus removing hard sludge layers on the surface of particles.

Sample Projects

Currently, more than 100 devices with Siphon Washing Technology have been used in the world including Japan, Germany, Korea, Vietnam, Laos, Philippines and Mozambique.

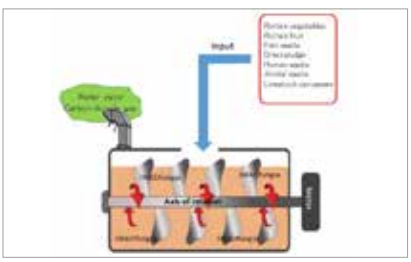
| | | |
|---|---|---|
| Website: | www.genryo.co.jp/en/ | info@genryo.co.jp |
| Contact: | Ms. Momoko NAGATA | m-nagata@genryo.co.jp |

NEW

## NIHONHAKKO Co., Ltd.

*Waste treatment and management, Circular Economy*

# KID System



Target Area

Waste treatment

Technology

NIHONHAKKO Co., Ltd. manufactures and sells garbage disposal machines, decomposition machines, microorganisms, and environmental improvement systems. Its latest advancement is KID System, which is a technology that eliminates garbage, food waste, manure/urine/sludge, as well as dried sludge.

Sample Projects

Through the targeted use of microorganisms and stirrers, the system has the unique ability to decompose and remove more than 99 percent of the material. Also, because no incineration is required, there is no emission of dangerous pollutants like ash or contaminants that can pose a health and safety risk.

| | | |
|---|---|---|
| Website: | https://www.nihonhakko.co.jp/ | |
| Contact: | Mr. Ken IIJIMA | info@nihonhakko.co.jp |
| | Mr. Junichiro TSUNEISHI | k-tsuneishi@nihonhakko.co.jp |

## Nomura Kohsan Co., Ltd.

*Pollution prevention and control,*
*Waste treatment and management*

# Mercury Waste Recycling Technology



Target Area

Mercury pollution

Technology

The company has invented an all-inclusive facility that has the capacity to recycle, treat and process a wide variety of mercury waste from fluorescent lamps, batteries, mercury blood pressure devices, and thermometers. Through a roasting process, mercury is heated at 600°C~800°C, until it vaporizes. Afterwards, the mercury vapor flows through a cooling tower and scrubber where it is recovered. Recovered materials (mercury, glass, metallic base, fluorescent powder, etc.) can be recycled into raw materials to be used again for other products.

Sample Projects

Since its establishment in 1973, the company has specialized in treating, processing and recycling mercury waste. The company treated more than 25,000 tons of mercury waste every year between 2011 and 2013 in Japan. The company has also imported and treated uncrushed lamps from the Philippines from 2002 to 2014 and from Taiwan from 2006 to 2014.

Website: www.nkcl.jp/
Contact: Mr. Yasuyuki YAMAWAKE info@nkcl.jp

## OSMO Co., Ltd.

*Pollution prevention and control*
*[Human Health Technologies: Public Health]*

# Distributed Simple Water Purification Plant System

Target Area

Water purification

Technology

The Distributed Simple Water Purification Plant System is a membrane water system that can purify raw water into safe drinking water. The system adopts a low-pressure high-polymer membrane (reverse osmosis membrane/RO membrane), which can remove arsenic viruses, general bacteria, ions, heavy metals and other harmful substances. It can provide 3m³ - 48m³ of safe drinking water per hour. It can be easily installed in a small space and requires simple maintenance.

Sample Projects

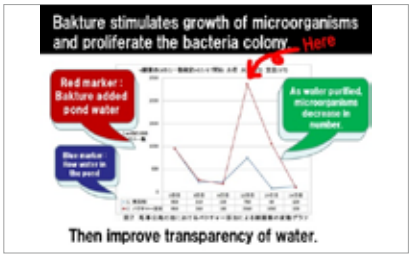
The company has installed the system in semiconductor factories, food factories, pharmaceutical factories, and hospitals.

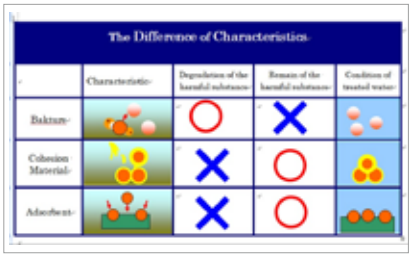
Website: www.osmo.co.jp/
Contact: Ms. Huayu LIN lin_huayu@osmo.co.jp

## RBC Consultant Co., Ltd.

*Pollution prevention and control*
*[Agribusiness Technologies: Production enhancement]*

# Water Treatment with Bakture System




Target Area

Wastewater treatment; Water pollution treatment

Technology

Water treatment with an activator called “Bakture Powder” can be utilized in multiple applications such as river purification, and wastewater treatment for food industries and commercial facilities. Bakture Powder activates existing microbes and the microscopic food chain can be revived in the water. Environmental pollutants are decomposed without any need for power.

Sample Projects

The powder was developed in 1993 and commercialized in 1996. The company has purified more than 200 river and lake locations and about 10 plants for treatment of industrial wastewater in Japan. The company has also disseminated the product to other countries such as Korea, China, Thailand, Laos, USA, Australia, Canada, and England.

Website: www.rbc-kk.co.jp/
Contact: Ms. Chigusa SUGIYAMA infokankyo@rbc-kk.co.jp

## Shinko Tecnos Co., Ltd.

*Waste treatment and management, Circular Economy*

# Hydrothermal Treatment Technology

Target Area

Municipal solid waste; Medical waste; Food waste, household garbage

Technology

This technology causes hydrolytic reaction of injected material with high temperature and high pressure steam (max 230°C/ 3Mph) inside a reactor. Germ free outputs generated after 30 minutes of treatment can be used as solid fuel, solid fertilizer, and liquid fertilizer or livestock feed. Various types of unused resources (waste) can be treated with this technology in a short-time process (2.5 – 3.5 hours for one process).

Sample Projects

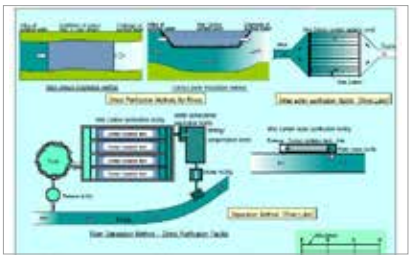
The hydrothermal treatment machine has been installed in Japan in 2007, China in 2010, Thailand in 2013, Sri Lanka in 2014, and Indonesia in 2016.

Website: https://shinko-eng1.webnode.jp
Contact: Mr. Kentaro NAGASAWA info@shinko-mfg.co.jp

## SO-EN CO., LTD.

*Pollution prevention and control*

# Water Treatment with Carbon Fiber

Target Area

Purification of river, lake, marsh and seawater areas

Technology

The Mira Carbon Water Purification is a method of purifying water in rivers and lakes using carbon fibers. Carbon fibers have large surfaces on which microorganisms can live which results in the natural decomposition of contaminants and pollutants in water. The carbon fiber purification method is cost efficient because of low installation costs, easy maintenance, and no running costs.

Sample Projects

This technology was developed in 2000 and commercialized in 2008. The Mira Carbon has been used in more than 300 locations in Japan and more than 20 locations in other countries, such as China, the Republic of Korea and Taiwan.

Website: www.so-en.net/msc-e.html
Contact: Mr. Yukio KOGURE soen.net@gmail.com

## STELLA ENVIRONMENT CORPORATION

*Waste treatment and management*

# Small-Type Medical Waste Incinerator

Target Area

Medical and industrial waste

Technology

Stella Environment Corporation's Radiation Gas-Burning Small-Type Medical Waste Incinerator is ideal for areas where the energy supply is not stable or even available. It is highly efficient and compact, featuring a low running cost and easy maintenance.

Sample Projects

The Incinerator has been installed in several countries including Micronesia, Cambodia, and the Democratic Republic of Congo since 2007.

Website: http://stella-sec.jp/en/
Contact: Mr. Takuya IKEDA takuya.ikeda@stella-sec.jp
Mr. Hisatoshi SHIMASE toshi@stella-sec.jp

NEW

## Tamada Industries, Inc.

*Pollution prevention and control*

# SF Double-Wall Tank

Target Area

Pollution prevention

Technology

The company manufactures SF (steel and fiber reinforced plastic) double-wall tank, which is an underground tank for storing liquid fuel and chemical products. It is designed for installation at gas stations and other facilities that store hazardous materials. Utilizing proprietary technology, this double-wall structure is comprised of a primary steel tank and a secondary FRP tank.

Sample Projects

A number of countries, including Japan, require SF double-wall tanks as a part of their environmental conservation regulations. The technology has been shared in China, Thailand, Malaysia and Vietnam.

Website: https://www.tamada.co.jp/english/
Contact: Mr. Takamitsu AKAIKE takamitsu_akaike@tamada.co.jp
info-overseas@tamada.co.jp

NEW

## TECHNO TAKATSUKI CO., LTD.

*Pollution prevention and control*
*[Energy Technologies: Energy saving and energy storage]*

# Linear Diaphragm Air Pump


Target Area

Wastewater treatment

Technology

Linear diaphragm air pumps are designed for aeration of residential and small commercial wastewater treatment systems. The technology, called the HIBLOW air pump, provides air for household and compact wastewater treatment systems in an effort to activate aerobic bacteria, which in turn can reduce organic matter contained in wastewater.

Sample Projects

Since 1972, more than 15 million units have been sold all over the world including 870,000 in North America & Latin America, 380,000 in Europe & The near and Middle East and 150,000 in Asia & Oceania.

Website: www.hiblow-eu.com
Contact: Mr. Ryosuke KOMORI ryosuke-komori@next.takatsuki.co.jp

## TESNA Energy Co., Ltd.

*Waste treatment and management*

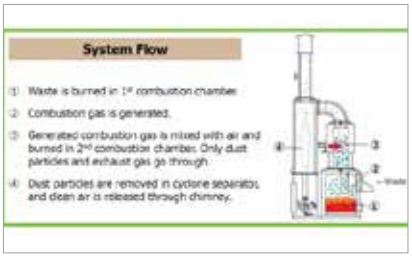
# Compact Waste Incinerator

Target Area

Medical and industrial waste

Technology

It is a compact and dependable waste incinerator designed for the safe and efficient disposal of medical waste, industrial waste, municipal solid waste and wood chips. It is easy to operate and low fuel consumption.




Sample Projects

More than 50 units were installed in Japan. 5 units in Sierra Leone, 1 unit in Pakistan, 1 unit in South Korea.

Website: http://www.tesnaenergy.co.jp/
Contact: Mr. Shuichi KONDOH info@tesnaenergy.com

NEW

## Tsukishima Kankyo Engineering Ltd.

*Waste treatment and management*

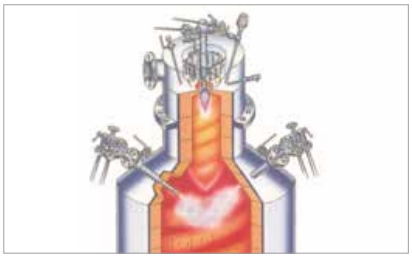
# Waste Liquid Incineration System

Target Area

Waste treatment

Technology

Tsukishima Kankyo Engineering's Waste Liquid Incineration System, also known as Submerged Combustion System treats various liquid forms of waste through incineration. The technology can treat liquid waste discharged from a wide spectrum of production processes pertaining to petrochemical, fine chemical, pharmaceutical, agrochemical, pulp and other industries without secondary pollution.



Sample Projects

Approximately 400 units of Waste Liquid Incineration System have been supplied in various countries since 1973.

Website: https://www.tske.co.jp/english/
Contact: Mr. Hidefumi TOYOTAKE toyotake@tske.co.jp

## Agribusiness Technologies

- Food value chain*[1] (ex: processing and quality control of food and drinks)
- Production enhancement (ex: soil conditioner)
- Adaptation to climate change (ex: drip irrigation system)
- Water resource management (ex: desalination, fresh water storage)

*1: Processing, transportation, preservation or quality control of acceptable, except for real foods and drinks (beverages).

NEW

## AGC Inc.

*Adaptation to climate change*
*[Energy Technologies: Energy saving and energy storage]*

# High durability film "F-CLEAN™" for greenhouse

Target Area
Agriculture

Technology
This product "F-CLEAN™" is a highly durable film for use in greenhouses which allows users to grow high-quality and high value-added crops, within a variety of applications. The film has a low surface tension, allowing dirt to get washed away more readily by rain and snow. Also, there are different types of F-CLEAN™ films for different applications.

Sample Projects
Since 1985, 4,000 ha of "F-CLEAN™" has been sold in total. Projects widely vary in size, from 300 $m^2$ to 200,000 $m^2$. The film has been installed in more than 20 countries including Guatemala, Russia and Egypt.

Website: www.agc.com/en/
Contact: Mr. Yuichiro OGATA yuichiro-ogata@agc.com

*Food value chain*
*[Human Health Technologies: Public health]*

## ef-initials Co., Ltd.

# Multilayer Nanotechnology Coatings

Target Area
Temperature controlled supply chain

Technology
Ef-initials Co., Ltd. applied their technology in industrial coatings to create the “Dream Box”, which is a low-cost and environmentally friendly transportation box with multilayer nanotechnology coating inside to keep food or medicine cool, fresh and contaminant-free.

Sample Projects
N/A

Website: http://ef-initials.com/
Contact: Mr. Katsuhisa Max SHIMIZU ef.initials.jp@gmail.com

NEW

## Fumin Co., Ltd.

*Production enhancement*

# "MR-X" Agricultural Materials for Environmental Protection

Target Area

Agriculture

Technology

MR-X is a ph.2.7 solution extracted from minerals. It activates the phosphoric acid, and enables plants to increase its absorption while reducing crop disease. Consequently, less agricultural chemicals and phosphate fertilizers will be used, leading to improved quality and yields. Moreover, it will solve the widespread ground water contamination, which is caused by excessive usage of less-effective phosphate fertilizers, nitrogen fertilizers, herbicides and agricultural chemicals.

Sample Projects

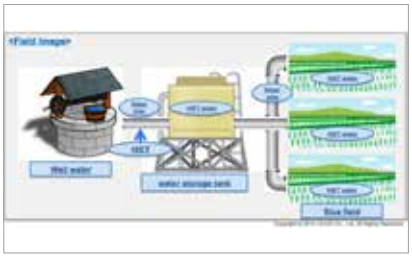
4,000 liters of MR-X have been sold to ZEN-NOH Niigata, 150 liters to ZEN-NOH Yamagata, and 1,000 liters to ZEN-NOH Fukushima in 2018.

Website: www.fumin.jp/index_en.html
Contact: Mr. Katsuo YAGISAWA k-yagisawa@fumin.jp

## JICUW Co., Ltd.

*Production enhancement,*
*Adaptation to climate change*

# Water Molecules Activation Technology



Target Area

Poor agricultural productivity; Chemical fertilizers

Technology

The product “HIET” is an equipment which irradiates high efficiency growth light rays and separates water molecules from each other with a slight vibration, thereby enhancing agricultural and livestock productivity. By simply covering a part of water pipes or hoses with HIET, it enables water molecules to be separated and generate free molecules, which help the growth of crops.

Sample Projects

HIET has been in the market over 20 years and 700 units have been sold to agricultural producers.

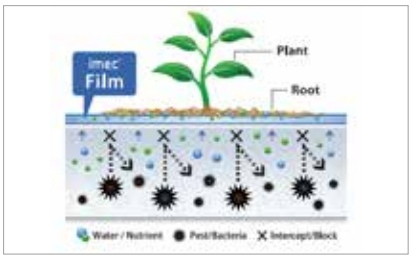
Website: www.welltool.co.jp/jicuw
Contact: Ms. Ayako MATSUMOTO aya@venus8.co.jp

NEW

## Mebiol Inc.

*Production enhancement,*
*Adaptation to climate change*

# Sustainable Agriculture through Film Farming

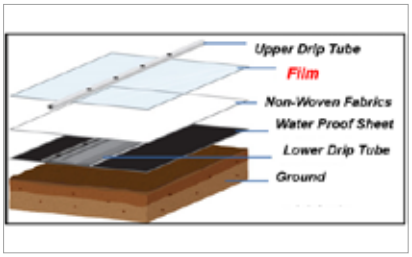



Target Area

Agriculture

Technology

"Imec" is a film made of hydrogel for growing vegetables with less water. Using this method, agriculture can be done virtually anywhere -- even on desert land or concrete. The film eliminates soil contamination that can negatively impact crop productivity and quality.




Sample Projects

Imec was introduced for the first time in Japan in 2008. Over 330,000m$^2$ of Imec is being used is still expanding. Imec is allowing people to produce high-quality tomatoes in difficult environments such as areas devastated by Tsunami in Japan, in the suburbs of Shanghai where concerns of soil contamination exists, and in the Dubai desert areas.

Website: www.mebiol.co.jp/en/
Contact: Dr. Hiroshi YOSHIOKA yoshioka@mebiol.co.jp

NEW

## Meiwa Co., Ltd.

*Production enhancement,*
*Adaptation to climate change*

# Soil conditioner: Biochar for Drought-vulnerable Agriculture

Target Area

Drought-vulnerable agriculture

Technology

Drought Hero is a specially treated biochar which is produced through patented carbonization technology of Meiwa Co., Ltd. It helps to make dryland agriculture more resilient to water deficiency by increasing soil moisture content and nutrient holding capacity, supporting better root growth.


Sample Projects

The sales of Drought Hero are approximately 100 units (30,000kg) per year, and sales of Wood chip biochar are over 20 units (6,000kg) per year. Drought Hero is certified by the Ministry of Agriculture, Forestry and Fisheries of Government of Japan, and it has also won several awards by a local government for its innovative and sustainable nature.

Website: http://meiwa-ind.co.jp/en/
Contact: Ms. Shiho Sakyu s-sakyu@meiwa-ind.co.jp

## Nippon Basic Co., Ltd.

*Water resource management*

# Desalination of Seawater for Drinking


Target Area

Water purification; Lack of water

Technology

The Desaliclean D9000 can produce 500 liters of clean drinking water per hour from seawater or brackish water by use of a gasoline engine. An electrical motor-driven Desaliclean is also available. Its dry weight is 120 kg. It measures W 550 x D 1,500 x H 780 mm. It can be carried by 2 persons, or can be moved by rolling on its casters.

Sample Projects

The Desaliclean has been used in Japan and Bangladesh. A new business is underway in Nigeria.

Website: www.nipponbasic.ecnet.jp/eindex.html
Contact: Mr. Yuichi KATSUURA nipponbasic@ceres.ocn.ne.jp

## Nippon Biodiesel Fuel Co., Ltd.

*Production enhancement*
*[Energy Technologies: Renewable energy]*

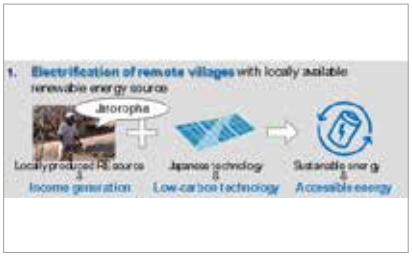
# Rural Energy Supply with Jatropha

Target Area

Poor energy access; Lack of liquid fuel

Technology

The package of technology includes cultivation of energy crops (Jatropha) and fuel production. Jatropha fuel can be a substitute for fossil fuels across multiple applications, such as agricultural machinery and maize mills. The model provides local residents with not only improved access to affordable energy, but also an opportunity to become producers of energy.




Sample Projects

Through the sales of Jatropha seeds and saplings to a major Japanese petroleum company and machinery manufacturers, Nippon Biodiesel Co., Ltd. has achieved revenues of about US$0.8 million. The company has been supplying fuel in Japan for 2 diesel generators at local shops in rural villages, and also for 20 maize mills. A Mozambican mobile phone network operator has also been supplied fuel to conduct combustion tests.

Website: www.nbf-web.com/
Contact: Mr. Makoto GODA Makoto_Goda@nbf-web.com
Ms. Misaki SEKI seki@nbf-web.com

NEW

## Sanso Electric Co., Ltd.

*Water resource management*
*[Human Health Technologies: Public health]*

# Desalion - Small Equipment for Making Seawater into Drinking Water

Target Area

Water Treatment

Technology

Desalion is the desalination apparatus based on RO (Reverse Osomosis) method, which treats sea water to produce clean and drinkable water. The concepts of Desalion meet the guideline of small water supply system by WHO. Desalion is a movable equipment, has high durability and can supply highly reliable drinking water.

Sample Projects

Sanso Electric has sold the equipment to Hyogo Prefecture in 2019 already, and it is expected to sell one unit each in Vietnam and the Philippines.

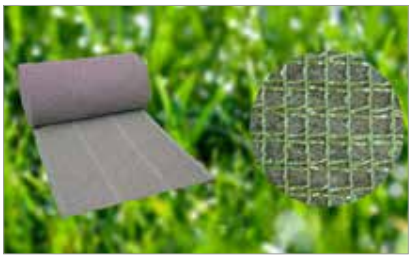
Website: http://www.sanso-elec.co.jp/en/
Contact: Mr. Takehiro Ichinose t-ichinose@sanso-elec.co.jp

NEW

## Takino Filter Inc.

*Adaptation to climate change*

# Production Enhancement: Takino Filter




Target Area

Agriculture

Technology

Greening mats called Takino Filter prevent soil erosion for civil engineering projects aiming to repair and green the bare slopes that are found in public works projects handling natural disasters, resource development and infrastructure maintenance. The mats improve the soil environment which is highly correlated with plant growth while simultaneously preventing soil erosion. This protects the soil and achieves lasting greening.

Sample Projects

Takino Filter was sold in the Philippines (6,600m$^2$), Honduras (2,600m$^2$) and Taiwan (1,250m$^2$). It has also been applied to the foot of the mountain for environmental remediation, in Indonesia.

Website: www.takino.co.jp
Contact: Mr. SHIGA shiga@takino.co.jp
Mr. FUJII fujii@takino.co.jp

NEW

## TERAL INC.

*Water resource management*

# Water Resource Management: Solar Pump System with Direct Current Drive Pump

Target Area

Water pump for unelectrified areas

Technology

TERAL INC. has developed the solar pump which directly utilizes Direct Current (DC) power generated by the solar panel without any intermediate conversion into Alternating Current (AC). The pump offers a built-in automatic control function and protection device, and has unparalleled features due to low cost, high durability, and simplicity of construction work, due to the direct utilization of DC power. Our technology can be used in rural area with low costs.

Sample Projects

TERAL INC. installed two solar pump units in Senegal and conducted operation test. From 2019, this system will be installed to 16 sites in Senegal for further verification survey.

Website: www.teral.co.jp
Contact: Mr. Shigemi MINAGOME minagome00@teral.co.jp

## TOHATSU CORPORATION

*Water resource management*

# Electronically Controlled 4 Stroke Fuel Injection Systems

(Model: VF53AS)

Target Area

Firefighting

Technology

Tohatsu Corporation’s portable fire pump has been developed as a quick & first responder for building and brush fire. The superior portability & transportability also maximum efficiency. It can also be mounted on a truck.

Sample Projects

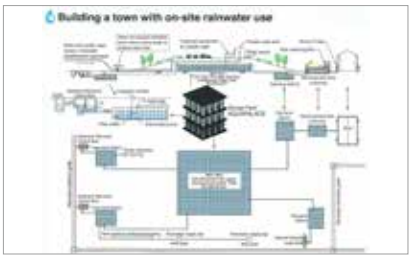
The production started in 2006 and several thousand units were delivered to national fire agencies globally including Japan, China, Russia, Thailand, Singapore, Indonesia, Pakistan, Turkey and others.

Website: https://www.tohatsu.co.jp/en/tabid/299/Default.aspx
Contact: Mr. Genki TAMURA bousaiex@tohatsu.co.jp

## TOTETSU MFG. CO., LTD.

*Water resource management*

# Rainwater Harvesting and Underground Storage




Target Area

Rainwater storage; Water purification

Technology

The system, equipped with a waterproof underground tank that is made of plastic units and waterproof sheet, removes 99.5% contaminants and has excellent resistance to earth pressure and earthquake.


Sample Projects

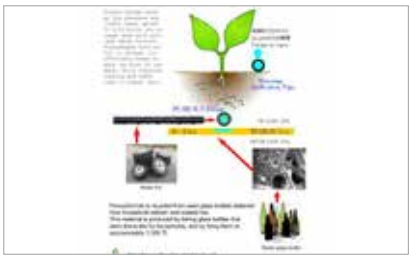
The company has installed 100 underground tank units in the last 3 years, and 30 purification system units in the last 2 years. This system is valued as a reliable technology in Japan.

Website: www.totetu.com/
Contact: Mr. Seiichiro TAKAI seiichiro.takai@totetu.com

## Tottori Resource Recycling Inc.

*Production enhancement*
*[Environmental Technologies: Circular Economy]*

# Porous System



Target Area

Cultivation in arid areas; Lack of water

Technology

The Porous System is a sustainable economic product made from wasted glass bottles and used rubber tires. This system has many pores through which water seeps out directly, and very slowly supplies water to plants by rendering water control very precise and effective. PorousAlpha results in retaining significant water content in soil.


Sample Projects

The effect of porous layers for water preservation in soil has been evaluated by the Tottori University Arid Research Center in Japan. This system has already been implemented successfully by the “Institut Supérieur d'Enseignement Technologique (ISET)” in Mauritania. A project is also implemented in Morocco.

Website: www.t-rrl.jp/en/overview/
Contact: Ms. Maki SAWADA maki.sawada@t-rrl.jp

## Tromso Co., Ltd.

*Adaptation to climate change*
*[Environmental Technologies: Circular Economy]*

# Rice Husk Briquette Machine


Target Area

Lack of fuel; Deforestation

Technology

The rice husk briquette machine can produce useful fuels by using often-underutilized rice husks. The machine grinds and compresses rice husks with heat producing solid briquette fuels without using any binders or adhesives. The rice husk briquettes can be used as substitutes for firewood or charcoal, which contributes to forest preservation.


Sample Projects

The machine can produce 120kg of solid briquette per hour (approximately one ton in eight hours). Tromso has manufactured rice husk briquette machines since 2007 and already sold more than 70 machines since establishment. 15 machines have also been exported to Tanzania, Nigeria, China, and Vietnam.

Website: www.tromso.co.jp/
Contact: Mr. Masaaki UESUGI info@tromso.co.jp

## Y's Global Vision Inc.

*Water resource management*
*[Human Health Technologies: Public health]*

# Compact-Sized Desalination Device

Target Area

Desalination

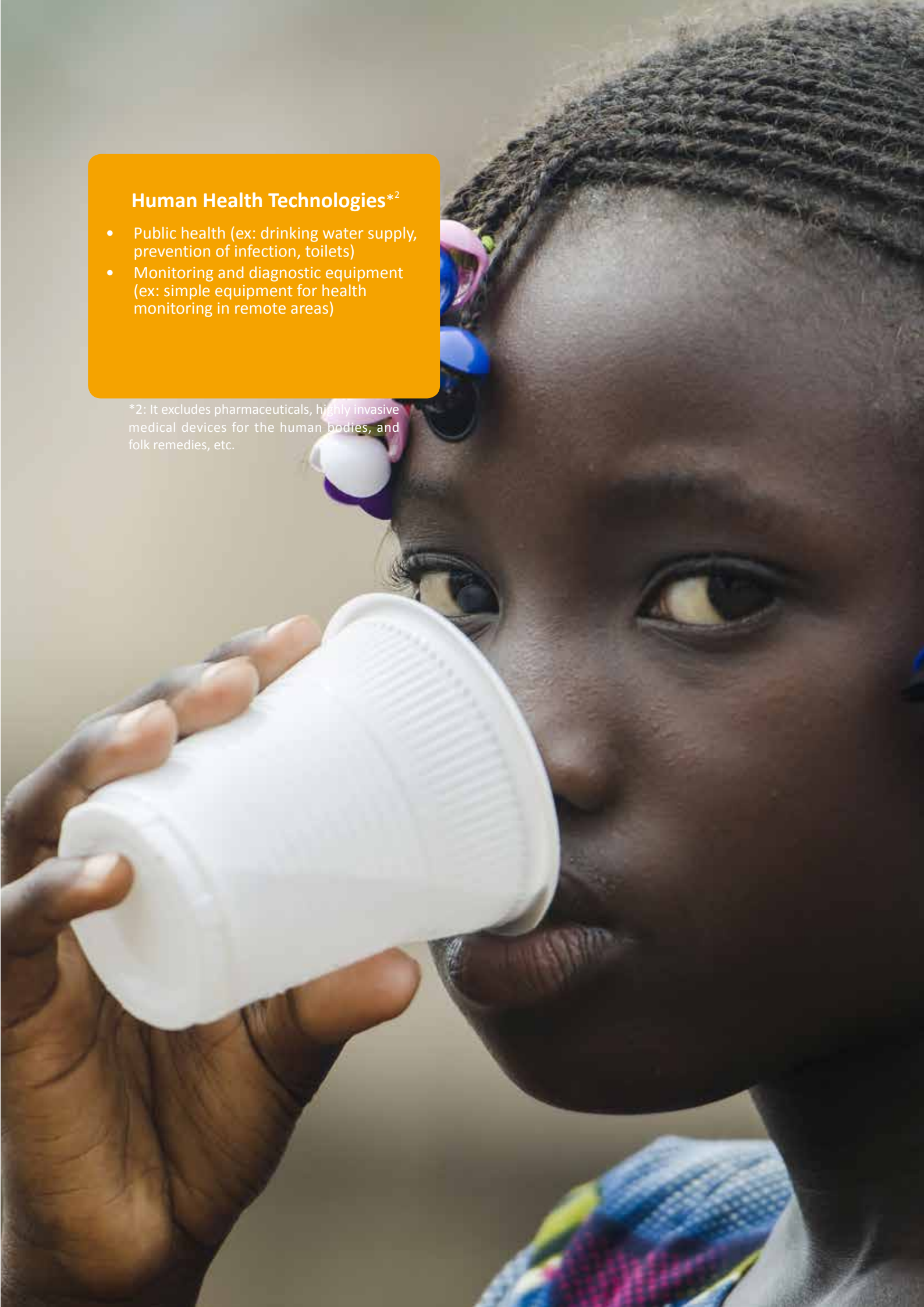
Technology

A compact-sized desalination device called MYZ Series™ that is lightweight, small and portable for use on construction sites and cramped remote areas. It's also ideal for emergency situations.

Sample Projects

Exported to Vietnam, Laos, Thailand, the Philippines, Papua New Guinea, Sri Lanka, Indonesia and South Africa. More than 40 units in total.

Website: http://ysgv.jp/en/corporation-product/op/
Contact: Mr. Yoshifumi YANASE info@ysgv.jp



## Human Health Technologies*2

- Public health (ex: drinking water supply, prevention of infection, toilets)
- Monitoring and diagnostic equipment (ex: simple equipment for health monitoring in remote areas)

*2: It excludes pharmaceuticals, highly invasive medical devices for the human bodies, and folk remedies, etc.

## CIRCULUS Co., Ltd.

*Public health*
*[Environmental Technologies: Pollution prevention and control]*

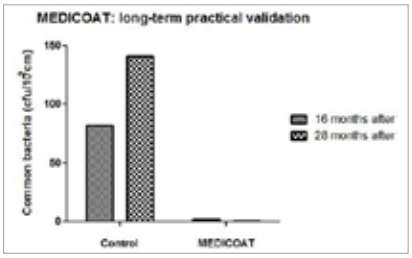
# Photocatalytic Nano-coating Technology

### Target Area

Bacterial infections in public areas

### Technology

The company's nano-coating technology called "MEDICOAT" provides round-the-clock antimicrobial coverage without need for daily maintenance. MEDICOAT provides a preventive solution for combating Hospital Acquired Infections (HAI) and transmission of communicable diseases in public areas. The MEDICOAT consists of two coating solutions. By simply applying the solutions to target surfaces with a clean cloth and then with a spray gun, antibacterial protection can be provided.




### Sample Projects

Since 2010, this technology has been introduced in various locations in Japan, such as the Tokyo and Kansai International Airports, municipal emergency medical treatment centers, city halls, subway transit systems, and food processing plants.

Website: www.medi-coat.com
Contact: Ms. Ihoko TADA tada@nasc-group.com

## Microtech Inc.

*Public health*

# Drinking Water Quality Analysis Technology


### Target Area

Analysis of water quality

### Technology

This technology performs monitoring of water quality to make sure that drinking water treatment systems work properly. It measures and analyzes turbidity, color and residual chlorine contained in potable water. The technology is especially used to monitor fiber membrane technologies as it can detect fiber break leakages that conventional detection methods overlook, and also finds pathogens, such as cryptosporidium. By digitally displaying the processed liquid state in membrane filtration processes, it can contribute to better yields and savings on utilities.

### Sample Projects

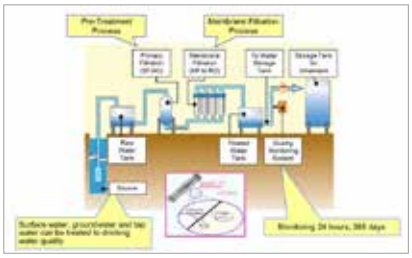
The technology has proven to be effective since 2004. Over 1,000 units are currently operational at public drinking water treatment plants all over Japan.

Website: www.microtech.st/english/
Contact: Mr. Tsutomu KANESHIMA kaneshima@microtech.st

## Mitsubishi Chemical Aqua Solutions Co., Ltd.

*Public health*
*[Environmental Technologies: Pollution prevention and control]*

# On-Site Water Treatment System



### Target Area

Water purification

### Technology

The company's small-scale, on-site water treatment and supply system utilizes existing water resources and treats the water into drinking water which meets drinking water quality standards. This water treatment system combines a pre-treatment process and membrane separation technology, to remove contaminants such as viruses, bacteria, anti-chlorine protozoa, iron, manganese and arsenic.

### Sample Projects

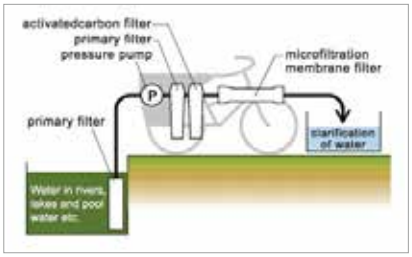
As of June 2015, 1,000 water treatment systems had been installed in Japan and a few pilot systems in Kenya and Vietnam had been operated.

Website: https://www.mcas.co.jp/en/
Contact: Mr. Suguru KUDO kudo.suguru.ma@m-chemical.co.jp

## Nippon Basic Co., Ltd.

*Public health*
*[Environmental Technologies: Pollution prevention and control]*

# Bicycle-Powered Water Purifying Equipment




### Target Area

Water purification; Lack of water

### Technology

This technology can make clean drinking water from raw water, such as water obtained from rivers, lakes and swimming pools, without need for electrical power. A unit made up of a microfiltration membrane, a hybrid carbon filter and a primary filter is fixed at the rear seat of a custom-made stationary bicycle, allowing users to produce clean water by just working the bicycle pedals. The technology can produce 5 liters of water per minute.

### Sample Projects

The company's water purifying bicycle has been sold to condominiums, old age care homes, laboratories and municipal offices in Japan, and also in Bangladesh, Indonesia, Myanmar, the Philippines, China, Thailand and India.

Website: www.nipponbasic.ecnet.jp/eindex.html
Contact: Mr. Yuichi KATSUURA nipponbasic@ceres.ocn.ne.jp

## Old Faithful Japan Co., Ltd.

*Public health*
*[Environmental Technologies: Pollution prevention and control]*

# Clean Move

Target Area

Water contamination from cleaning materials

Technology

Clean Move is an all-natural and multiple-purpose detergent for washing and cleaning a variety of objects such as tableware, clothing, buildings, cars, baby's diapers, baby bottles, etc. It is also cost effective and easy to manufacture.

Sample Projects

The technical transfer costs 15 million yen, which includes the cost for the three-day hands-on training conducted in Japan, one manufacturing machine and a complete set of equipment necessary for the production.

Website: http://of-j.com/index.html
Contact: Mr. Fumiya INOUE f-inoue@kyj.biglobe.ne.jp

## Yamaha Motor Co., Ltd.

*Public health*
*[Environmental Technologies: Pollution prevention and control]*

# Rural Electric Water Sanitary Station


Target Area

Energy & water scarcity; Unsafe drinking water; Poor hygiene

Technology

The Rural Electric Water Sanitary Station consists of 1) renewable energy generator for pumping river/lake water and for charging of cellphones, 2) clean water supply system to supply clean water for local areas, 3) drip irrigation system for water saving and efficient farming, and 4) compost toilet for improving hygiene environment for people in local areas.


Sample Projects

The development model of clean water supply system has been sold since 2003 and so far 8 units have been installed in 6 different countries in Asia. Since 2010, the current model (YCW-008) has been installed in the following countries: Indonesia, Senegal and Mauritania.

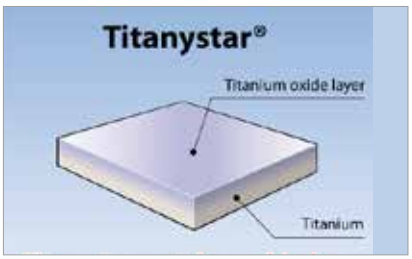
Website: www.global.yamaha-motor.com/
Contact: Mr. Ryosuke NISHIJIMA nishijimar@yamaha-motor.co.jp

NEW

Yield Co., Ltd.

*Public health*
*[Environmental Technologies: Pollution prevention and control]*

# Utility $TiO_2$ catalyst: Photocatalyst Titanystar




## Target Area

Water treatment

## Technology

Yield Co., Ltd. has the technology to clean undrinkable water to make safe drinking water through the use of a photocatalyst. The photocatalyst found in Japan has excellent purification abilities to decompose and remove most harmful substances simply by receiving ultraviolet rays. Disinfectant for water such as chlorine and ozone becomes unnecessary, and chemical-free and clean drinking water can be provided.

## Sample Projects

Number of sales in Japan reaches to a cumulative total about 30,000 pieces or more since the year 2000.
For overseas, a cumulative total of about 2,000 pieces have been sold to France, UK, Russia, New Zealand, Singapore, Malaysia, India and Taiwan since the year 2004.

Website: http://www.yield-kyoto.com/en/
Contact: Mr. Yoshihisa ITOH itoh@yield-kyoto.com

## Energy Technologies

- Renewable energy (ex: solar, wind, geothermal, small hydro, biomass)
- Energy saving and energy storage (ex: co-generation, storage batteries, energy saving)
- Utilization of unused resources (ex: high-efficiency and low-emission fossil fuel utilization)

## Environmental Technologies

- Pollution prevention and control (ex: pollution prevention of air, water and soil)
- Waste treatment and management (ex: industrial and municipal waste treatment)
- Circular economy (ex: 3R (reduce, reuse, recycle) related technologies)

## Agribusiness Technologies

- Food value chain*1 (ex: processing and quality control of food and drinks)
- Production enhancement (ex: soil conditioner)
- Adaptation to climate change (ex: drip irrigation system)
- Water resource management (ex: desalination, fresh water storage)

## Human Health Technologies*2

- Public health (ex: drinking water supply, prevention of infection, toilets)
- Monitoring and diagnostic equipment (ex: simple equipment for health monitoring in remote areas)

*1: Processing, transportation, preservation or quality control of acceptable, except for real foods and drinks (beverages).
*2: It excludes pharmaceuticals, highly invasive medical devices for the human bodies, and folk remedies, etc.

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