Japan's Cutting-Edge Technology Is Keeping A Vital Lifeline Flowing Worldwide

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Worldwide demand for fresh water shows no sign of slowing down, and it is estimated that within 10 years there will be a 40% shortage of fresh water. While companies around the world are taking on the challenge of ensuring a safe, stable supply of water, innovators in Japan, especially small and medium enterprises, have been delivering some of the highest quality products available, developing one-of-a-kind technologies for each stage of the water cycle.

Umezu Yasuhisa, CEO of Nagaoka, demonstrates how the unique Chemiles filtration process converts groundwater into clean, drinkable water without the use of expensive and polluting chemical additives. JAPAN BRANDVOICE

Drawing Clean Water from the Earth without Chemicals

"Less than one percent of earth's water is available for us to drink. Ensuring that fresh water is available and safe is an extremely important mission, which is why, when I joined Nagaoka, I was confident we could make a positive contribution to society," says Umezu Yasuhisa, President and CEO of Nagaoka, on the guiding principle that has led to their company being the first ever to receive three awards from the International Water Association. One of Nagaoka's most important innovations is their Chemiles process, which is the first technology of its kind for removing excess minerals and toxic substances from groundwater without the use of chemical additives. Chemiles relies on oxidation and contaminant-consuming bacteria to remove excess iron, magnesium, and ammonium nitrates, producing none of the chemical waste sludge that needs to be removed from standard treatment methods. This greatly lowers the operating energy use, maintenance costs, and environmental impact, making it highly attractive to public water agencies, as well as private corporations who want to maintain reserve water supplies.

Chemiles has already received a positive response from customers in Southeast Asia, including Malaysia and Vietnam. "It's actually been easier to expand overseas," says Umezu, "Overseas, potential customers are very interested in our one-of-a-kind water innovations. For example, for a brewery customer in Vietnam that needed its own water supply, purity, reliability, and cost performance were all critical concerns, and Chemiles surpassed their expectations." International expansion has also been aided by

Japan's reputation: "Water quality standards in Japan are some of the world's strictest. It sets a very high bar for a company like ours, but demonstrating that we have cleared it makes a deep impression everywhere else. Our location becomes our proof of quality."

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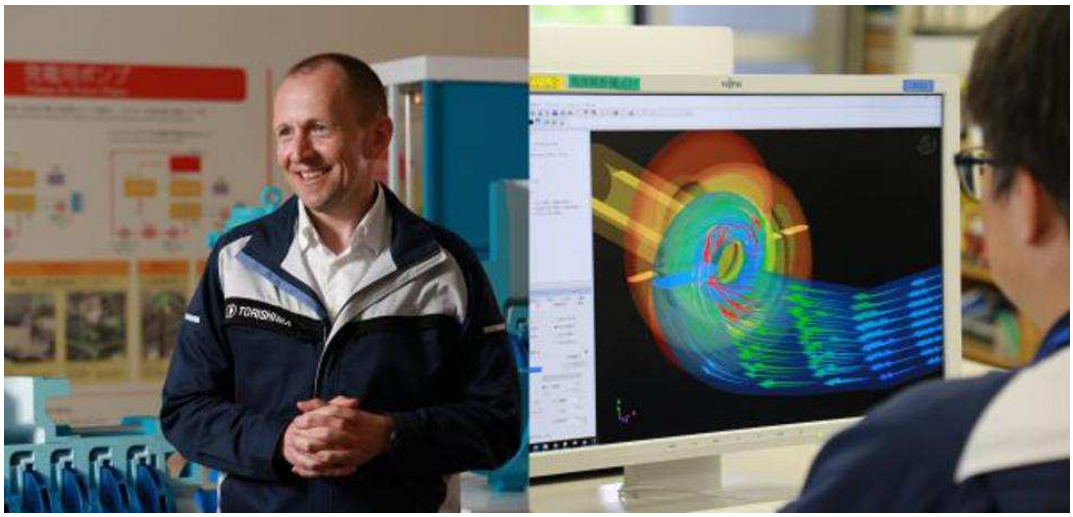
Turning Ocean Water into Drinking Water, for Less Energy and Less Expense

More than two-thirds of the earth is covered in water, but the overwhelming majority of it is undrinkable. To take advantage of the vast reserves of ocean water available, many regions have adopted desalination programs. "Without desalination, there are cities today that simply wouldn't exist," explains Alister Flett, Executive Officer of the Global-Sector Division with Torishima. "With a stable water supply, the economy develops, which leads to a higher standard of living." Torishima was originally involved in energy, but has applied its skill in producing high-pressure pumps to the challenge of reverse-osmosis desalination – in which seawater is pumped at high pressure into membrane chambers that remove the salt. Compared to other methods, reverse-osmosis

has become much more energy-efficient, and the cost of producing desalinated water has been reduced by over 50% thanks in part to the high-power pumps Torishima has developed specifically for desalination. "The pumps we manufacture are capable of lifting water as high as 4,000 m. We could pump all the way to the summit of Mt. Fuji," Flett continues. "Additionally, since we're working with seawater, the pumps need to be specially designed to resist corrosion. Because of our high performance and reliability, we've built up a good deal of customer loyalty, especially in markets like the Middle East."

Demand for desalination is much higher outside Japan, so Torishima has been working to develop globally, gaining a 30% share of the large-scale desalination market for their pumps. "As part of our plan to expand overseas, we've started a global service network, looking toward providing lifetime support and continual improvements," explains Flett, noting that this good relationship overseas has also helped Torishima's R&D: "Building these long-term relationships gives us many more opportunities to improve ourselves. Because of the feedback we gain from our customers, we can better direct our R&D investment and develop product redesigns within 1-2 years instead of decades, putting us well ahead of the competition in terms of performance."



Torishima Global-Sector Division Executive Officer Alister Flett describes how their R&D team continuously works to innovate higher efficiency pumps, which are designed specifically to handle the unique needs of reverse-osmosis desalination. JAPAN BRANDVOICE

Household Wastewater Treatment Earning Top Marks Around the World

Maintaining a clean water supply also depends on what we do with water after we use it. "In many rural areas, it's not feasible to connect every home to a central sewer system. Back when flush toilets first became commonplace in Japan, we developed concrete wastewater treatment systems, which became very popular," says Watanabe Kaichi, chairman of FujiClean. "Now we make lightweight household units for treating sewage. Because the water will eventually go into the rivers, we insist on maintaining the highest treatment standards." FujiClean uses a nutrient removal system in its units, which is more effective at lowering BOD (biochemical oxygen demand) and is capable of removing more than 77% of nitrogen from wastewater, more than 50% the industry average. Their latest model is now the only one in the world to also feature an electrolytic treatment for removing phosphorus, a key element in algae blooms.

As one of the only makers able to keep pace with the Japanese government's high water quality standards at a low cost, FujiClean became the top-selling maker of domestic household systems, after which they began turning their attention overseas. "The process in the US was very different, as our units were tested against those of other makers, and the data made public," says Watanabe. The FujiClean units not only ranked first in these tests for removal of pollutants, they also surpassed the competition in cost-performance, removing nitrogen nearly 25% more cheaply than the average. As a result of this high performance, FujiClean has become the global top seller as well.

Inspired by the need for wastewater treatment for rural households, FujiClean, led by CEO Watanabe Kaichi, developed a system for removing nitrogen and phosphorus more effectively and efficiently than any other available. JAPAN BRANDVOICE

Committed to Building a Better Future Together

For many companies in Japan, their driving inspiration comes from the desire to develop high quality technologies that make a positive influence on the world. In the case of FujiClean, Watanabe speaks of wanting to restore the environment to past levels of health and vitality, a desire which has led them to continually improve even beyond regulatory requirements, and has earned them praise from environmental restoration programs overseas: "The rivers and wetlands used to be places where children would go and play, filled with birds, fish, and animals. This is something I want to see brought back, and it's why we have strived to develop household wastewater treatment systems that are not only the most advanced in the world, but are readily available and cost-effective for the average user." For Umezu, the need is even more urgent: "Where there are problems accessing clean water, there are problems with food, health, and society. Worldwide, about 1.8 million children die each year due to problems stemming from poor water quality. I am convinced that this technology will help to save lives."

Note: All Japanese names in this advertorial are given in the traditional format, with the family name preceding the given name.

To learn more about Nagaoka International Corporation, click here.

To learn more about Torishima Pump Mfg. Co., Ltd., click here.

To learn more about FujiClean Co., Ltd., click here.

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