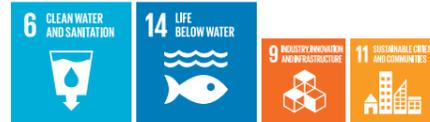
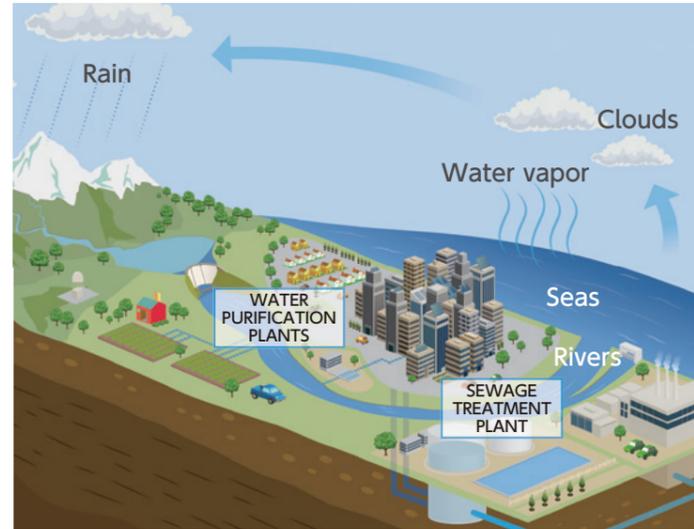


Realize a Sustainable Society



Helping to Create a Sustainable Water-Recycling Society

Water is absolutely indispensable to our lives. Water vapor from rivers and seas forms clouds, turns into rain, and falls to earth. It then becomes the rivers that flow from the mountains into the seas, and then evaporates again to form clouds. Human society could not be sustained without this cycle. Demand for water is rising rapidly worldwide as a result of fast-paced population growth and the increasing size and density of cities. The Mitsubishi Electric Group is making contributions on many fronts to ensure that the water cycle remains sustainable. Our monitoring and control systems provide for the efficient and safe operation of water treatment and waste water treatment plants, while our water treatment systems, with our ozone technology at their core, supply safe drinking water and prevent environmental pollution by processing sewage water and industrial effluent. We will continue to help with keeping this infrastructure resilient as we help to realize a sustainable water-recycling society.



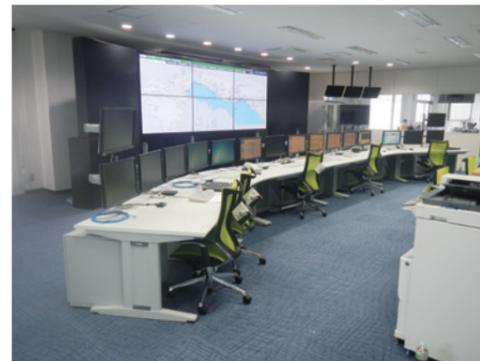
Monitoring and Control Systems

Controlling a city's water as the "brain" of its water management systems

A city's water environment cannot be supported without efficient and stable management of its water. Mitsubishi Electric's monitoring and control systems have been adopted for use in water treatment and waste water treatment plants around Japan (they are in use at approximately 1,000 plants of each type as of 2016).

Our systems ensure comfortable lives for everyone, helping to keep operations efficient and economical when it comes to the stable and optimal distribution of safe and clean drinking water as well as purifying waste water and processing rainwater.

Mitsubishi Electric has cultivated its core monitoring and control system technology in Japan for close to 60 years. We are expanding our services to cover regional water operations, information sharing, remote control, pre-emptive response to torrential rains including our IoT systems. Furthermore, we are also accelerating our efforts to expand overseas operations. We will continue helping to build a resilient and sustainable infrastructure for the cities of the world.



Operation room

Case Study: Fukuoka City Waterworks Bureau

Water Distribution Control Systems for the Fukuoka City Waterworks Bureau

Fukuoka City has always taken its water management seriously, but after a drought in 1978 it became the community's number one concern. The city deemed obtaining a water management system of the highest standard to be a necessity. When they finally adopted a control system in 1981, they decided on one from Mitsubishi Electric. Using our system, they built a framework that linked multiple water treatment plants together to facilitate the sharing of tap water between them to better meet demand. The control technology used was world-class—utilizing the most

cutting-edge technology Mitsubishi Electric had available at the time. In 2013, Fukuoka City renewed its systems for a second time. The technology has steadily advanced over the years, and we have been able to more successfully centralize the response systems by implementing support systems that lighten the work load of the operators, and by providing additional functionality that allows the operators to visualize a variety of observational data such as predicted figures on water supplies.



The Toba Aquarium uses a "Mitsubishi Ozonizer" for its manatee tank



The "Mitsubishi Ozonizer" ozone generator

Water Treatment Systems: Ozonizer

Using Ozone Power to Make Tap Water Safe and Clean and Contributing to the Recycling of Public and Industrial Waste Water Effluent

In Japan, the worsening state of the water environment became an issue in the 1950s during an era of high-speed growth when the country experienced a rapid increase in population and its cities expanded and became increasingly crowded. The water-purification technology at the time had various issues, for example the processed water would still contain microbes that could not be sterilized and they were unable to remove odors. Ozone processing has been the object of much attention as a next-generation water-purification technology as, aside from quickly and efficiently disinfecting the water it also has the effect of removing odors. Mitsubishi Electric has been utilizing its electronics technological know-how to manufacture and market its ozone-producing Ozonizer product since the 1960s.

Over the product's 50-year history, Mitsubishi Electric has improved the product's efficiency and made it more compact. In 2006, the Ozonizer received the fiscal 2007 Japan Institute of Invention and Innovation's "21st Century Invention Award" in the Innovation category of the National Commendation. In 2007 it received the Japan Machinery Federation's President's Award for excellence in energy-related devices. Today, more than 1,700 Mitsubishi Ozonizers have been installed. The product holds the top share in the Japanese water and waste water market at more than 50% (as of April 2016, Mitsubishi Electric research). In addition to water and waste water processing, the Mitsubishi Ozonizer is used in an expanding range of settings including for processing waste water at factories and even for purifying the water in the tanks at aquariums.

Uses outside Japan

The Mitsubishi Ozonizer is also being used outside of Japan. The Ozonizer has been installed at more than 50 sites around North America and Asia, primarily at water purification facilities for water and sewage systems in urban areas. Through these technologies, Mitsubishi Electric will assist

water environments in cities around the world, and by recycling high-quality water with great efficiency and supplying water we will help to support a sustainable water-recycling society.

Case Study: Singapore

Ozone System for a Water Treatment Plant in Singapore

Ensuring water sustainability is key in Singapore, and the government aims to achieve this through collecting every drop of water, reusing water endlessly, and desalinating more seawater. Mitsubishi Ozone System will be introduced at a waterworks managed by PUB, Singapore's national water agency, as our first delivery in Southeast Asia region. Through our technology, we hope to contribute to an efficient, adequate and high quality supply of water in Singapore.

Ozone System Application (EcoMBR®)

Furthermore, proving tests are underway in Singapore on the EcoMBR®, which utilizes Mitsubishi Ozonizer technology. Conventional membrane bioreactors (MBRs) are water-processing devices that use micro-organisms and filtration membranes to remove organic matter, etc. from sewage and effluent. The EcoMBR® adds ozone, making it possible to process the water with even greater efficiency.

VOICE Sales Representative for Singapore



Philip Tang
Mitsubishi Electric
Asia Pte. Ltd. (Singapore)

The adoption of the Ozonizer at a water treatment plant administered by Singapore's Public Utilities Board (PUB) marks the first such endeavor for Mitsubishi Electric's ozone-related business both in the city-state and in the Southeast Asia region as a whole. Accordingly, it required a major effort on our part to convey to the customer the strong points of Mitsubishi Electric's products and technology. Our monitoring and control equipment has already built up a track record in Singapore, however recognition of the Ozonizer remains low. Our approach was to promote Mitsubishi Electric's technologies through its wealth of experience and delivery records in Japan. We also stepped up PR efforts that focused on its energy-conserving aspects, its increased compactness, and improvements in maintainability. These various promotional approaches helped lead to its adoption. Breaking ground in a new market is an extremely challenging task. We've earned our customers' trust through these projects, and I believe we will continue to contribute to the water business in Singapore.