

Step3

Establishment of materialities

• Decision-making by the CSR Committee

The issues thus extracted and identified through the above-described process and specific initiatives and key performance indicators (KPIs) were confirmed by an internal working group and adopted as the Mitsubishi Electric Group's CSR materialities by the CSR Committee.



Decision-making by the CSR Committee

Step4

Review of the materialities

The materialities were then reviewed in consideration of opinions from both inside and outside the company regarding the CSR materialities, initiatives, and key performance indicators (KPIs).



Questionnaire for stakeholders (e.g.: In-house questionnaire on the CSR Report, conducted in and outside of Japan)



Interviews with learned individuals



Dialogues with learned individuals

CSR Committee, CSR Expert Committee, CSR Business Promotion Committee

In fiscal 2017, particular efforts were made to strengthen cooperation with the operations departments and examine key performance indicators (KPIs) for contributing to society through the provision of products and services.

The committees will continue to strengthen their initiatives through continuous reviews and ongoing improvement activities based on the PDCA cycle, in response to changes in the external and business environments.

[Social demands that were particularly taken into consideration in fiscal 2017]

- Sustainable Development Goals (SDGs)
- Global trends in human rights
- Initiatives of the Group as a global company

Management of the CSR Materialities

In fiscal 2016, the Mitsubishi Electric Group identified the CSR materialities, initiatives to fulfill the materialities, and key performance indicators (KPI). In fiscal 2017, it announced its performance in regard to those initiatives and carried out a review of each initiative and KPI.

By upholding the Corporate Mission and Seven Guiding

Principles as its basic CSR policy, the Group will continue to pursue its initiatives for addressing the four materialities in cooperation with business partners along the supply chain, with the aim of becoming a global leading green company that contributes to a diverse society.

Realize a sustainable society

FY2017 initiatives and results

Initiatives		Key performance indicators (KPI) (quantitative targets are shown in brackets)	Results	Scope	Evaluation
Realization of Environmental Vision 2021*1	Contributing to realizing a low-carbon society	Reduce CO ₂ emissions from production (less than 1.37 million tons by FY2018)	1.28 million tons (FY2016) → 1.34 million tons (FY2017)	All Mitsubishi Electric Group companies (Japan, overseas)	○
		Reduce CO ₂ emissions from product usage (35% reduction compared to FY2001 by FY2018)	34% reduction (FY2016) → 35% reduction (FY2017)	All Mitsubishi Electric Group companies (Japan, overseas)	○
	Contributing to creating a recycling society	Reduce resource inputs (40% reduction compared to FY2001 by FY2018)	39% reduction (FY2016) → 38% reduction (FY2017)	All Mitsubishi Electric Group companies (Japan, overseas)	○
		Improve the final disposal rate of waste materials (Mitsubishi Electric and domestic affiliates to maintain a rate of less than 0.1%, and overseas affiliates to halve the rate to less than 0.5% by FY2018)	Less than 0.1% by Mitsubishi Electric and domestic affiliates, 0.67% by overseas affiliates (FY2016) → Less than 0.1% by Mitsubishi Electric and domestic affiliates, 0.69% by overseas affiliates (FY2017)	All Mitsubishi Electric Group companies (Japan, overseas)	○
		Maintain a plastic recycling rate of 70% or higher for home appliances (maintain rate of 70%)	Maintained a rate of 70%	Home appliances	○
	Contributing to realizing a symbiotic society	Increase the numbers of participants in environmental activities (cumulative total of more than 30,000 participants by FY2018)	28,000 participants (FY2016) → 32,600 participants (FY2017)	All Mitsubishi Electric Group companies (Japan, overseas)	○
		Expansion of local species protection activities to offices in Japan (all offices in Japan by FY2018)	7 offices (FY2016) → 17 offices (FY2017)	Mitsubishi Electric	○
	Strengthening the environmental management foundation	Maintain a 100% attendance in environmental e-learning programs (maintain rate of 100%)	Maintained a rate of 100%	Mitsubishi Electric	○
	Contribution through products and services	Expand the range of products and services that contribute to realizing a sustainable society	Contributed to mitigating and adapting to climate change by optimizing energy use through products and services*2	All Mitsubishi Electric Group companies (Japan, overseas)	○
			Contributed to sustainable production and consumption through products and services*3		
Expand the reduction of CO ₂ during product usage (92 million tons by FY2018)*1		69 million tons (FY2016) → 70 million tons (FY2017)	All Mitsubishi Electric Group companies (Japan, overseas)	×	

*1 : Targets of the 8th environmental plan (fiscal 2016–2018)

*2 : Example: 30% energy conservation by introducing e-F@ctory to model plants; using regenerative power by installing an auxiliary power supply in station buildings; release of power semiconductor modules for low power consumption; release of escalators that realize 35% energy savings compared to conventional products; 30% greater energy efficiency in optical communications equipment; storage battery control systems and smart meter systems that contribute to efficient energy use, etc.

*3 : Example: Promotion of home electronics recycling; promotion of escalator and elevator renovation via a new service that allows them to be used even during construction; promotion of paperless operations based on electronic document systems, etc.

FY2018 targets

Initiatives		Key performance indicators (KPI) (quantitative targets are shown in brackets)	Scope
Realization of Environmental Vision 2021*1	Contributing to realizing a low-carbon society	Reduce CO ₂ emissions from production (less than 1.37 million tons by FY2018)	All Mitsubishi Electric Group companies (Japan, overseas)
		Reduce CO ₂ emissions from product usage (35% reduction compared to FY2001 by FY2018)	All Mitsubishi Electric Group companies (Japan, overseas)
	Contributing to creating a recycling society	Reduce resource inputs (40% reduction compared to FY2001 by FY2018)	All Mitsubishi Electric Group companies (Japan, overseas)
		Improve the final disposal rate of waste materials (Mitsubishi Electric and domestic affiliates to maintain a rate of less than 0.1%, and overseas affiliates to halve the rate to less than 0.5% by FY2018)	All Mitsubishi Electric Group companies (Japan, overseas)
		Maintain a plastic recycling rate of 70% or higher for home appliances (maintain rate of 70%)	Home appliances (Japan)
	Contributing to realizing a symbiotic society	Increase the number of participants in outdoor classrooms and satoyama preservation activities (cumulative total of more than 30,000 participants by FY2018)	All Mitsubishi Electric Group companies (Japan, overseas)
		Expand local species protection activities to offices in Japan (implementation of activities in a cumulative total of 24 offices by FY2018)	Mitsubishi Electric
	Strengthening the environmental management foundation	Maintain a 100% attendance in environmental e-learning programs (maintain rate of 100%)	Mitsubishi Electric
	Contribution through products and services	Provide products and services that contribute to the mitigation and adaptation to climate change, optimization of energy use, and sustainable production and consumption	All Mitsubishi Electric Group companies (Japan, overseas)
		Maintain the reduction of CO ₂ during product usage (92 million tons by FY2018)*1	All Mitsubishi Electric Group companies (Japan, overseas)

*1 : Targets of the 8th environmental plan (fiscal 2016–2018)

Provide safety, security, and comfort

FY2017 initiatives and results

Initiatives	Key performance indicators (KPI) (quantitative targets are shown in brackets)	Results	Scope	Evaluation
Product development that places top priority on customer safety	Ensure safety through risk assessment	Maintained a 100% rate of implementation of risk assessments of home electronics	All Mitsubishi Electric Group companies (Japan, overseas)	○
Provision of products and services that reflect customers' needs	Develop key persons who are capable of incorporating customers' needs into quality (development of 100% of relevant persons in all departments by FY2021)	Development of 75% of relevant persons (FY2016) → Development of 88% of relevant persons (FY2017)	Mitsubishi Electric Group companies (Japan)	○
	Promote initiatives that aim to increase customer satisfaction	Promoted initiatives across the entire Group. Achieved a 83% rate of response to inquiries concerning home electronic products directed to the Customer Service Center (In Japan)	All Mitsubishi Electric Group companies (Japan, overseas)	○
Continuous implementation of education on quality principles that place top priority on customers	Expand e-learning programs on quality	Achieved a 100% rate of participation in e-learning programs by Mitsubishi Electric employees and employees of domestic affiliates. Expanded the participation of e-learning programs from 12 to 27 overseas affiliates	All Mitsubishi Electric Group companies (Japan, overseas)	○
Contribution through products and services	Expand the range of products and services that contribute to providing safety, security, and comfort	Contributed to creating safe and secure communities through products and services*1	All Mitsubishi Electric Group companies (Japan, overseas)	○
		Contributed to improving health and welfare through products and services*2		

*1 : Example: Tsunami monitoring radar; monitoring of weather conditions and possible disasters by satellite; provision of countermeasures to cyberattacks; development of safe driving assistance systems, etc.

*2 : Example: Particle therapy systems that contribute to cancer treatment; provision of superconducting magnets for MRI; contribution to preventing the administration of incorrect medicine based on an insurance pharmacy system, etc.

FY2018 targets

Initiatives	Key performance indicators (KPI) (quantitative targets are shown in brackets)	Scope
Product development that places top priority on customer safety	Ensure safety through risk assessment (maintain 100% implementation of risk assessments of home electronic products)	All Mitsubishi Electric Group companies (Japan, overseas)
Provision of products and services that reflect customers' needs	Develop key persons who are capable of incorporating customers' needs into quality (development of 100% of relevant persons in all departments by FY2021)	Mitsubishi Electric Group companies (Japan)
	Make Group-wide efforts to investigate the cause of serious malfunctions that have occurred in the past, and implement countermeasures	All Mitsubishi Electric Group companies (Japan, overseas)
Continuous implementation of education on quality principles that place top priority on customers	Maintain 100% rate of participation in quality e-learning programs (maintain rate of 100%)	All Mitsubishi Electric Group companies (Japan, overseas)
Contribution through products and services	Provide products and services that contribute to creating safe and secure communities and improving health and welfare	All Mitsubishi Electric Group companies (Japan, overseas)

Respect human rights and promote the active participation of diverse human resources

FY2017 initiatives and results

Initiatives	Key performance indicators (KPI) (quantitative targets are shown in brackets)	Results	Scope	Evaluation
Prohibition of discriminatory treatment, and human respect	Provide lectures on human rights awareness and harassment prevention in training programs for new employees and those for newly appointed managers	Provided lectures on human rights awareness and harassment prevention to all participants attending training programs for new employees and newly appointed managers	Mitsubishi Electric	○
Realization of workplace environments conducive to work-life balance	Slim down operations through a reform of working styles, and cultivate an awareness of results and efficiency.	In addition to promoting specific activities in each office, promoted the accelerated reduction of total working hours and proper management of working hours by establishing a working hour optimization committee	Mitsubishi Electric	○
Promotion of diversity through the employment and utilization of diverse human resources	Employ people with disabilities beyond the statutory employment rate (higher than 2.0%)	2.02% (as of March 15, 2017)	Mitsubishi Electric	○
	Increase the ratio of women among new recruits in technical positions (future target of 20%)	9% recruitment record (FY2017) → 13% recruitment plan (FY2018) 11% recruitment record (FY2018) → 14% recruitment plan (FY2019)	Mitsubishi Electric	○
	Systematically dispatch employees to overseas OJT programs and language programs (more than 180 employees/year)	Dispatched 100 employees to overseas OJT programs, 98 employees to overseas language programs	Mitsubishi Electric	○
Promotion of occupational health and mental and physical health	Promote safety and health education, and maintain a rate of lost worktime injuries that falls below the industrial average (below 0.54) * Number of accidents causing lost worktime per 1 million hours	0.06 (as of March 15, 2017)	Mitsubishi Electric	○
	Improve lifestyle habits and realize a health-conscious company by implementing Mitsubishi Electric Group Health Plan 21 (MHP21) activities (rate of 73.0% or higher of employees maintaining proper body weight; rate of 39.0% or higher of employees who exercise regularly; rate of 20.0% or lower of employees who smoke; rate of 25.0% or higher of employees who perform dental care at least three times a day)	Rate of employees maintaining proper body weight: 70.4%; rate of employees who exercise regularly: 24.1%; rate of employees who smoke: 24.7%; rate of employees who perform dental care at least three times a day: 22.5%	Mitsubishi Electric Group companies (Japan)	△

FY2018 targets

Initiatives	Key performance indicators (KPI) (quantitative targets are shown in brackets)	Scope
Prohibition of discriminatory treatment, and human respect	Ensure proper response to international norms related to human rights and dissemination among employees	All Mitsubishi Electric Group companies (Japan, overseas)
	Provide lectures on human rights awareness and harassment prevention in training programs for new employees and those for newly appointed managers	Mitsubishi Electric
Realization of workplace environments conducive to work-life balance	Slim down operations through a reform of working styles, and cultivate an awareness of results and efficiency.	All Mitsubishi Electric Group companies (Japan, overseas)
Promotion of diversity through the employment and utilization of diverse human resources	Promote diversity by employing and utilizing diverse human resources in response to regional and operational circumstances	All Mitsubishi Electric Group companies (Japan, overseas)
	Employ people with disabilities beyond the statutory employment rate (higher than 2.0%)	Mitsubishi Electric Group companies (Japan)
	Increase the ratio of women among new recruits in technical positions (future target of 20%)	Mitsubishi Electric
	Systematically dispatch employees to overseas OJT programs and language programs (more than 180 employees/year)	Mitsubishi Electric
Promotion of occupational health and mental and physical health	Promote safety management and health enhancement activities	All Mitsubishi Electric Group companies (Japan, overseas)
	Promote safety and health education, and maintain a rate of lost worktime injuries that falls below the industrial average (below 0.51) * Number of accidents causing lost worktime per 1 million hours	Mitsubishi Electric
	Improve lifestyle habits and realize a health-conscious company by implementing Mitsubishi Electric Group Health Plan 21 (MHP21) Stage III activities (rate of 73.0% or higher of employees maintaining proper body weight; rate of 39.0% or higher of employees who exercise regularly; rate of 20.0% or lower of employees who smoke; rate of 25.0% or higher of employees who perform dental care at least three times a day; rate of 85% or higher of employees who get enough rest by sleeping properly)	Mitsubishi Electric Group companies (Japan)

Strengthen corporate governance and compliance on a continuous basis

FY2017 initiatives and results

Initiatives	Key performance indicators (KPI) (quantitative targets are shown in brackets)	Results	Scope	Evaluation
Active dialogue with stakeholders	Hold a dialogue on CSR with stakeholders more than once a year (more than once/year)	Held interviews with experts regarding CSR issues five times; held a dialogue between experts and management officers on CSR issues	All Mitsubishi Electric Group companies (Japan, overseas)	○
	Hold dialogues with stakeholders through the general meeting of shareholders, corporate strategy presentation meetings, business strategy presentation meetings, and IR activities in Japan and overseas	Held a general meeting of shareholders Held corporate strategy presentation meetings, financial results presentation meetings, and business strategy presentation meetings for institutional investors and analysts, and invited them to Mitsubishi Electric Advanced Solutions 2016	All Mitsubishi Electric Group companies (Japan, overseas)	○
Corporate management with a sound oversight function	Provide proper information to directors at the proper time, conduct a review of the board of directors, and analyze and evaluate the review	Provided information that directors require for the supervision of management, in a timely and proper manner, and created new forums for providing data and exchanging views with outside directors to ensure greater provision of proper and timely information to directors Conducted a review of the board of directors, with the result that the operations of the board of directors and the delegation of authority from the board to executive officers were deemed essentially valid	Mitsubishi Electric	○
	Provide orientation training and other compliance education and training to directors and executive officers as appropriate at the proper time	Provided prior training about the roles, responsibilities and dealings of directors and executive officers to new appointees Provided compliance education to directors and executive officers after their appointment, and distributed the latest training materials	Mitsubishi Electric	○
Compliance training on a continuous basis	Maintain a 100% attendance in e-learning programs on compliance (maintain rate of 100%)	Maintained a 100% attendance rate	Mitsubishi Electric	○
Fair competition (prevention of antimonopoly violations)	Enhance measures for compliance with antimonopoly laws and competition laws	Launched practical training programs based on case studies pertaining to each business	All Mitsubishi Electric Group companies (Japan, overseas)	○
Corruption prevention (prevention of bribery)	Enhance corruption prevention measures	Developed regulations and guidelines that specifically aim to prevent bribery (scheduled to be distributed within the Group within the next fiscal year or later)	All Mitsubishi Electric Group companies (Japan, overseas)	○
CSR procurement (environment, quality, human rights, compliance, etc.)	Promote CSR procurement and provide improvement instructions to parts of the supply chain that pose a risk	Promoted CSR procurement in approximately 1,000 companies. Provided improvement instructions to some 70 companies that were deemed to require improvement (implementation of initiatives also to Group companies)	Mitsubishi Electric Supply chain	○

FY2018 targets

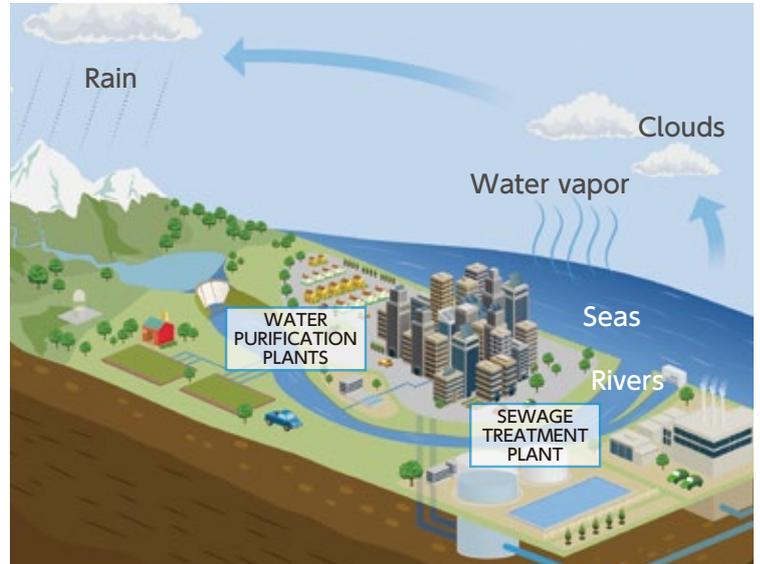
Initiatives	Key performance indicators (KPI) (quantitative targets are shown in brackets)	Scope
Active dialogue with stakeholders	Hold a dialogue on CSR with stakeholders more than once a year (more than once/year)	All Mitsubishi Electric Group companies (Japan, overseas)
	Hold dialogues with stakeholders through the general meeting of shareholders, corporate strategy presentation meetings, business strategy presentation meetings, and IR activities in Japan and overseas	All Mitsubishi Electric Group companies (Japan, overseas)
Corporate management with a sound oversight function	Provide proper information to directors at the proper time, conduct a review of the board of directors, and analyze and evaluate the review	Mitsubishi Electric
	Provide orientation training and other compliance education and training to directors and executive officers as appropriate at the proper time	Mitsubishi Electric
	Establish internal regulations and frameworks needed to ensure proper operations of the Mitsubishi Electric Group, conduct an internal audit of their operational status, and regularly report the results of the audit to the audit committee via the executive officer in charge of auditing	All Mitsubishi Electric Group companies (Japan, overseas)
Compliance training on a continuous basis	Maintain a 100% attendance in e-learning programs on compliance (maintain rate of 100%)	Mitsubishi Electric
Fair competition (prevention of antimonopoly violations)	Enhance measures for compliance with antimonopoly laws and competition laws	All Mitsubishi Electric Group companies (Japan, overseas)
Corruption prevention (prevention of bribery)	Enhance corruption prevention measures	All Mitsubishi Electric Group companies (Japan, overseas)
CSR procurement (environment, quality, human rights, compliance, etc.)	Promote CSR procurement and continue providing instructions to improve businesses along the supply chain that pose a risk (assess the number of suppliers to whom instructions were provided)	Mitsubishi Electric and the supply chain of the Mitsubishi Electric Group (relevant affiliates in Japan and overseas)

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.

Provide Safety, Security, and Comfort

Preparing for disaster with technologies that "watch out" for people's safety every minute, every second

Disaster preparedness is a priority social issue. The Mitsubishi Electric Group contributes to disaster prevention and mitigation efforts in Japan with technologies that interconnect things in the system and accurately monitors them in real time.

Tsunami radar monitoring support technologies

Contributing to disaster prevention and mitigation in coastal areas with radar-based tsunami monitoring

In recent years, the occurrence of tsunamis triggered by large earthquakes has become a concern in the coastal areas of Japan. To ensure efficient evacuation and response to such tsunamis, it is necessary to detect them as quickly as possible before they reach the coast. Mitsubishi Electric has developed a tsunami monitoring technology that uses ocean surface radar capable of monitoring tsunamis by observing ocean currents from a distance beyond what a human can see (Fig. 1).

Mitsubishi Electric's ocean surface radar has been in use since around 2000 to monitor currents in the open ocean. However, in the aftermath of the Great East Japan Earthquake of March 2011, studies for its application to tsunami monitoring began, and a commercial radar system was developed in just over three years.

The radar uses shortwave frequencies (3 – 30 MHz), and can monitor long distances ranging from 30 to 200 km from the coast. If, for example, a tsunami in waters at an average depth of 300 m can be detected more than 30 km offshore, that information can be obtained 10 to 15 minutes before the arrival of the tsunami.

One focus in developing the radar was how to visualize the tsunami. Tsunamis caused by an earthquake lose their speed in deep offshore waters, and travel at around 10 cm per second, so it was difficult to distinguish them from regular ocean currents and tides. Therefore, a visualization technology was developed that predicts and eliminates the movement of regular currents, and extracts only the tsunami component (Fig. 2).

In the future, we hope to go beyond the scope of tsunami monitoring and realize/enhance technologies for predicting the arrival of tsunamis, to make an even greater contribution to regional disaster prevention initiatives.



Fig. 1 Image of ocean surface radar transmission and receiving antennas

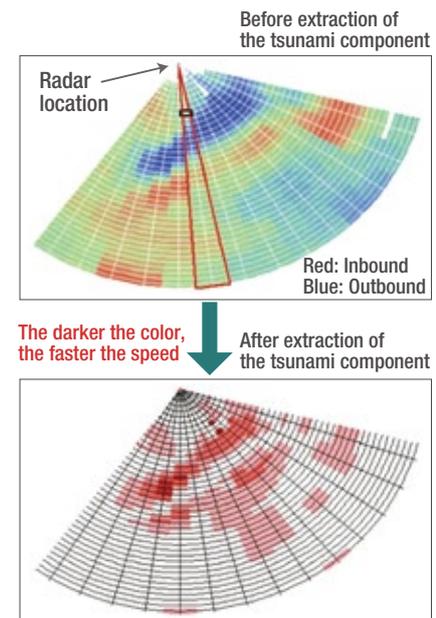


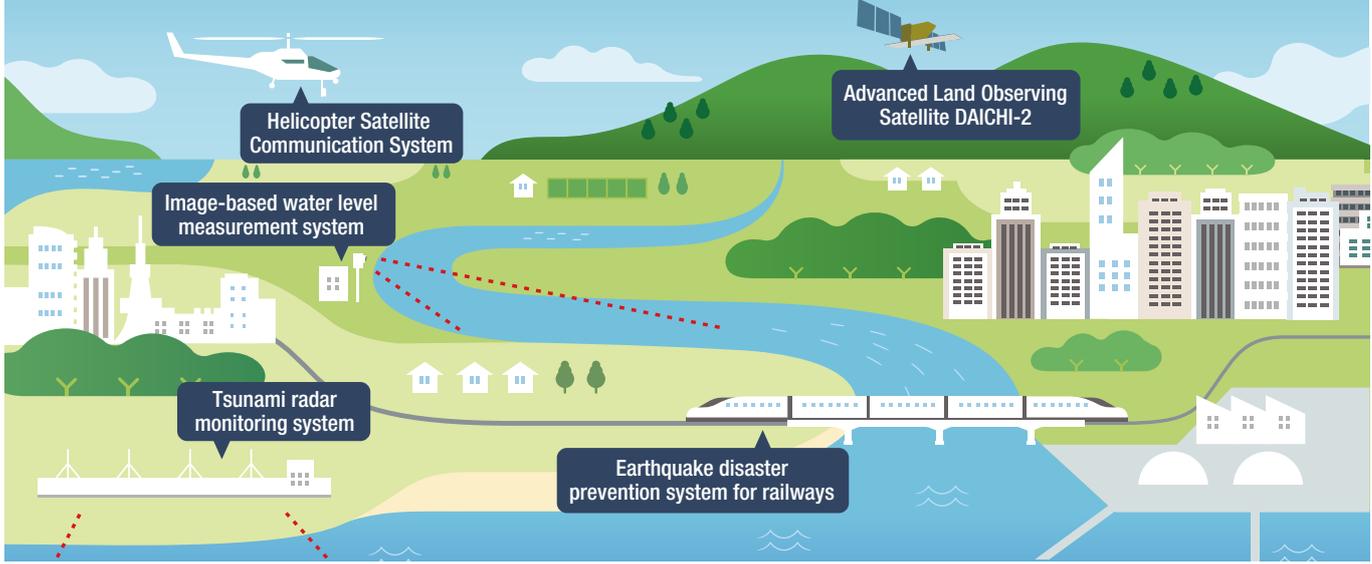
Fig. 2 Visualization scheme

VOICE Developer of the tsunami monitoring technology



Tomoyuki Koyanagi
No. 4 Systems Dept.
Electronic Information Systems Div.
Communication Systems Center
Mitsubishi Electric Corporation

I use my experience in ocean surface radar research to develop the radars and support their operations. We faced many difficulties and there were many technical challenges that had to be cleared as we introduced this radar system. For example, because the radar was to be installed near the sea, we lowered the antenna to prevent it being affected by the sea breeze, and took measures to ensure high earthquake resistance. Both of these are crucial properties of a tsunami monitoring device. Furthermore, even after delivering the device, we provided essential maintenance on a continuous basis to ensure continued precision. When faced with a disaster like a tsunami, disaster countermeasure technologies can have a huge effect on people's lives. I strongly feel that we can play a role in developing these technologies, owing to people's strong trust in and expectations of Mitsubishi Electric's high-precision, high-quality products. To respond to that trust, we will continue to make steady, ongoing efforts to contribute to disaster countermeasures.



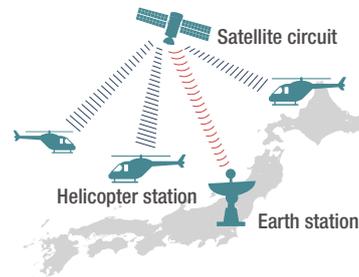
Distribution of real-time disaster information

Helicopter Satellite Communication System

The world's first helicopter satellite communication system, developed by Mitsubishi Electric, transmits aerial images taken from a helicopter in real time. Conventional systems could not connect the helicopter to a satellite, because the blades of the helicopter had gotten in the way. Thus, Mitsubishi Electric developed an intermittent transmission technology synchronized with the rotation of the blades. As a result, it has become possible to transmit real-time information stably, without any disruptions caused by tall objects or buildings.

This system has been delivered to central governmental agencies and local governments since 2013. Today, it plays an important role throughout Japan in providing relief to

disaster-stricken areas in the face of volcanic eruptions, earthquakes, and other disasters.



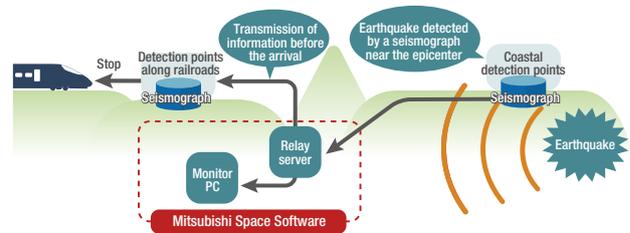
Helicopter Satellite Communication System

Ensuring railway safety in the event of an earthquake

Earthquake disaster prevention system for railways

When an earthquake occurs, a seismograph near the epicenter detects the earthquake and transmits the information about it to a relay server. Within this process, Mitsubishi Space Software Co., Ltd. undertakes an important role in assisting in the determination of the operational control of railways using earthquake data analysis technology. The difference in the propagation speed of earthquake P-waves (small tremors) and S-waves (large tremors) is utilized to provide an instantaneous estimation of the epicenter location and magnitude of the earthquake. By stopping or decelerating moving railcars before a large

earthquake strikes, potential earthquake damage is minimized.



Earthquake disaster prevention system for railways

Early assessment of flooding caused by torrential rains

Image-based water level measurement system

In recent years, torrential rains bringing downpours that overwhelm the sewage system are causing extensive flood damage. Since floods, particularly in cities, have a huge impact on people's lives and properties, technology for the efficient assessment of flooding has been in demand. Seeing this, Mitsubishi Electric has harnessed its strengths in image processing to develop an image-based water level measurement system. The system utilizes image processing technology to simultaneously collect water level data and onsite camera images at practically the same quality level as visual confirmation, night or day.

Through this data and image verification technology, Mitsubishi Electric is committed to helping create more resilient cities.

Playing a role in assessing disaster situations

Second Advanced Land Observing Satellite DAICHI-2

Mitsubishi Electric has undertaken the development of the Japan Aerospace Exploration Agency (JAXA)'s second advanced land observing satellite DAICHI-2. The satellite has a wide-ranging mission, including the creation of maps, regional monitoring, and exploration of resources, but plays a particularly important role in the assessment of disaster situations and prevention.

When a major earthquake or other disaster occurs, DAICHI-2 can immediately assess the situation, the state of damage, and the need for restoration and countermeasures. It is also instrumental in monitoring volcanic activities and sea ice in the Sea of Okhotsk during winter.

Respect Human Rights and Promote the Active Participation of Diverse Human Resources

The Mitsubishi Electric Group respects the human rights of all peoples in countries and regions where it engages in business, based on a conscious awareness of its widespread interaction with people and society. Efforts are also made to ensure employee diversity and occupational health and safety, as well as to promote work style reforms that maximize the potential of diverse human resources.

Message from Management



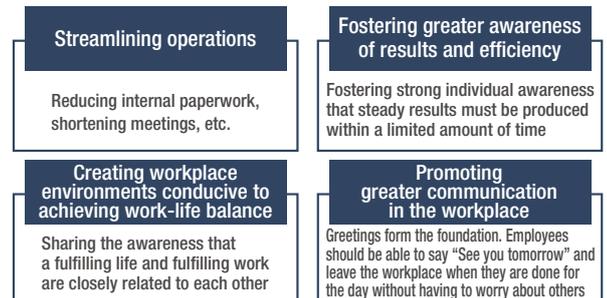
Shinji Harada
General Manager,
Corporate Human Resources
Div., Mitsubishi Electric Corporation

■ Promoting work style reform

The Mitsubishi Electric Group incorporated work style reforms in its management policy in April 2016. We strive to create workplace environments that are conducive to achieving work-life balance, making changes toward a corporate culture that emphasizes results and efficiency, as well as changes in employee attitudes toward work. More specifically, Group-wide efforts are made to reduce total working hours and promote proper working-hour management. Business offices also implement specific activities from the four perspectives of streamlining operations, fostering greater awareness of results and efficiency, creating workplace environments conducive to achieving work-life balance, and promoting greater communication in the workplace. Smooth communication is essential to a high-productivity workplace. It is not a one-way process. Whether between a manager and their workers or a senior employee and a new hire, it is important to mutually consider each other's position and establish firm relationships of trust in the workplace.



4 Perspectives



Respect for Human Rights

The "Respect for Human Rights" section in the Corporate Ethics and Compliance Statement, which was formulated in 2001, pledges "to act consistently with respect for human rights, and to never discriminate against individuals based on nationality, race, religion, gender, or any other such attributes." Additionally, initiatives are taken to ensure respect for human rights in a manner that conforms to the codes of conduct in the Mitsubishi Electric Group Conduct Guidelines.

For example, ongoing training programs regarding human rights are provided to new employees and newly appointed managers, as part of an effort to ensure a healthy workplace environment free of discrimination or harassment and create an organizational culture that embraces diversity.

In fiscal 2017, subsidiaries in the U.K. have taken measures to comply with the U.K. Modern Slavery Act, which was enacted with the aim of eradicating forced labor, human trafficking, and all other forms of modern slavery. Ongoing efforts will be made to similarly ensure information disclosure and strengthen human rights initiatives.

As part of our supply chain management initiatives, suppliers of the Mitsubishi Electric Group are also requested to respect basic human rights in countries and regions where they operate. Survey forms are used to evaluate the status of their initiatives, and instructions for improvement are given to suppliers who have rated low on any of the evaluation items, by establishing ongoing communication.

■ Establishment of a Working Hour Optimization Committee

To reduce total working hours and ensure proper management of them across the company, Mitsubishi Electric has established a Working Hour Optimization Committee directly under the president.

The accelerated reduction and proper management of total working hours are pursued as two sides of the same coin. Under this initiative, sound workplace environments will be created anew in consideration of the mental and physical health of all employees, and a framework will be established to ensure there are no violations of relevant laws and regulations, such as the Labor Standards Act and Industrial Safety and Health Act.



Working Hour Optimization Committee

■ President's Forum in Offices

To further accelerate work style reforms in Mitsubishi Electric offices, a "President's Work Style Reform Forum" has been held sequentially in each area beginning in February 2017. The president makes a personal visit to each office to not only explain the top management's thoughts concerning reforms and the course the company is aiming to take, but to also provide a forum for two-way communication, to hear the frank views of employees and their requests for the company.



Dialogue between the president and employees



Diversity

With today's rapidly changing workforce environment, providing a workplace where employees can work to their full potential regardless of gender or age is essential to business development. Various initiatives are being taken to promote women's active participation in the workplace from a diversified perspective, including measures to promote their recruitment, training, assignment, and institutional roles. For example, a career forum is offered to young female employees to actively inspire them to form a career around life events, and efforts are made to raise awareness of women's participation and strengthen their management capacities, including a mandatory curriculum on women's participation in the training program for newly appointed managers. Furthermore, female students in science are actively recruited, with a target of achieving a more than 20% female ratio in new recruits from engineering fields by FY2021, as stated in the company's Action Plan, pursuant to the Act Concerning Promotion of Women's Careers.

Various other efforts have been made to create an environment where a diverse workforce can actively participate in the business, such as by expanding the number of physically challenged employees (employees with disabilities) through the special subsidiary company Melco Tender Mates Corporation.

Overseas employees account for 38% of the Mitsubishi Electric Group's total head count. By offering training in manufacturing works in Japan, training for overseas executive candidates, and broadly utilizing human resources of national staff in overseas affiliates, Mitsubishi Electric aims to become a global company where human resources throughout the world can work actively.



Employees with disabilities at work



Training for overseas executive candidates

Strengthen Corporate Governance and Compliance on a Continuous Basis

To realize sustained growth and increase corporate value, the Mitsubishi Electric Group works to maintain the flexibility of its operations while promoting management transparency. These endeavors are supported by an efficient corporate governance structure that clearly defines and reinforces the supervisory functions of management while ensuring that the Company is responsive to the expectations of customers, shareholders, and all of its stakeholders.

Additionally, the Mitsubishi Electric Group recognizes that not only ethics and legal compliance, but also compliance in the wider sense of the term that includes the perspective of corporate ethics, are the foundation of the Group's continued existence. Based on this understanding, ongoing efforts are being made to strengthen initiatives related to anti-trust laws, the prevention of corrupt practices and supply chain management, as priority action items.

Corporate Governance

Message from Management



Nobuyuki Okuma

Senior Vice President
Mitsubishi Electric Corporation

In recent years corporate governance in Japan has garnered strong attention, to the point that strengthening and enhancing the efficiency of corporate governance has become a priority issue for all companies.

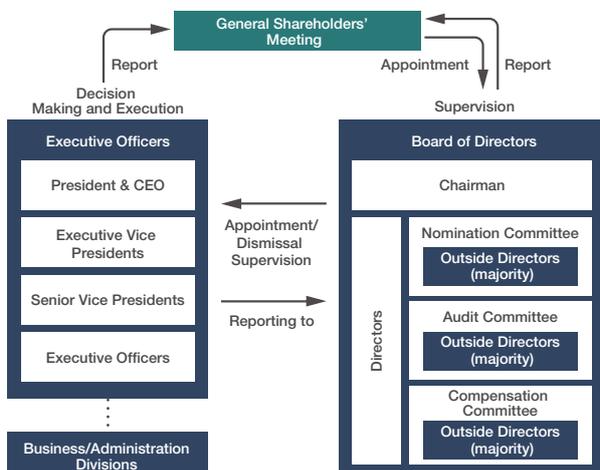
Mitsubishi Electric has adopted a committee system, with the separation of the management supervisory functions from the execution of business being one of its core principles. Based on this principle, the Chairman, who oversees the management supervisory functions, is separate from the President & CEO, who is head of all executive officers. And neither is a member of the nomination or compensation committees. By clearly separating the two functions, Mitsubishi Electric ensures the effectiveness of its corporate governance.

As also stated in the CSR materiality, Mitsubishi Electric's drive to strengthen its corporate governance is a continuous process.

After the FY2016 review of the Board of Directors, the venues were established for supplying information to, and exchanging views with, outside directors to further enhance the board's business supervisory function. Through this venues, management-related information was provided more properly and timely to the Board of Directors in FY2017.

The review of the Board of Directors, which is held every year to strengthen the performance of the Board of Directors, was also held in FY2017. While the review results are essentially valid as evaluations of company's practices in terms of running the Board of Directors and for delegating authority from the Board of Directors to executive officers, Mitsubishi Electric is working to further enhance its supply of management-related information to the Board of Directors itself to further improve its capacity to supervise management.

Mitsubishi Electric will continue to build an even stronger corporate governance framework, to ensure corporate management is soundly supervised by a proper oversight mechanism.



Corporate Governance Framework



Board of Directors

View from an Outside Director



Mitoji Yabunaka

Outside Director
Mitsubishi Electric Corporation

Mitsubishi Electric engages in a wide variety of businesses on a global scale. In order for the Board of Directors to oversee whether these businesses are executed properly, it is extremely important for information about management to be provided to us directors in a timely and appropriate manner.

At the Board of Directors, considerably and adequately detailed information is provided for directors to supervise the management. A forum has been set up with the main objective of providing the outside directors with more information about management, so I feel the information we directors receive is extremely extensive. Furthermore, we get frequent opportunities to visit various offices and plants, and to get more raw management information from employees.

The performance of the Board of the Directors is evaluated, and efforts are made to improve it. The review of all members is conducted every year, and all directors share their views about the operations of the Board and about how information is shared, etc.

As directors, we feel these opportunities are highly beneficial to understand the current state of Mitsubishi Electric's business, and to engage us in discussions. We hope this timely and appropriate provision of management information will continue to improve, so that the management supervisory functions of the Board of Directors may be further strengthened.

Continually Strengthening Compliance

The Mitsubishi Electric Group abides by the Corporate Ethics and Compliance Statement formulated in 2001 as its basic guideline for compliance, and recognizes the importance of ethics and legal compliance as a fundamental precondition for the Group's continued existence.

Based on this awareness, efforts are directed at strengthening the compliance system, maintenance of facilities, and employee education program, to broadly promote compliance that not only encompasses legal compliance, but also includes the perspective of corporate ethics.

In particular, the Mitsubishi Electric Group treats preventing the violation of anti-trust laws and corruption prevention (preventing bribery) as important issues. We have established a set of internal company regulations, strengthened education and awareness, and are in the process of working on other prevention initiatives. Reflecting on mistakes made in the past, we are establishing rules for contacting companies in our industry, holding continual training divided by level and business headquarters, and engaging in other measures keep the prevention of antitrust violations clear in people's minds and prevent recurrences. For the prevention of bribery, we have enacted the Mitsubishi Electric Group Anti-Bribery Policy in April 2017 and spread it both inside and outside the company, as well as built internal policies for dealing with public officials and other figures, held e-learning geared toward bribery prevention and interview-based practical training with case studies included, and taken other measures to strengthen our policies.

We have also distributed the Mitsubishi Electric Group Standard for Ethics and Regulatory Compliance, a summary of our company's principal approach to compliance, to all employees and are holding continual training related to the standard.

Various learning programs on laws and regulations related to procurement are also provided to employees in charge of procurement activities as one aspect of supply chain management. In Japan, a course on material procurement laws provides guidance and education on the Anti-Monopoly Act, the Act against Delay in Payment of Subcontract Proceeds, Etc. to Subcontractors, the Construction Contractors Law, and our systems of internal checks and balances. In overseas offices, compliance education related to procurement is provided to ensure no employee becomes involved in bribery, embezzlement, or anything else that goes against the principle of fair trade. In addition to the above, CSR education is also provided to employees in procurement departments to further strengthen CSR initiatives along the supply chain.



Compliance workshop



Procurement compliance education in Thailand