

**2019  
Yokogawa Sustainability Report**



Since its founding more than a century ago, Yokogawa has aimed to contribute to society.

Our key mission now is to make our beautiful, abundant planet into a better place before passing it on to future generations.

We will continue to work with our many customers all over the world as we hasten our efforts to build a sustainable society.



Dr. Tamisuke Yokogawa, founder

### Founding Principles

- Quality first
- Pioneering spirit
- Contribution to society

### The Yokogawa Philosophy

As a company,  
our goal is to contribute to society  
through broad-ranging activities in  
the areas of measurement, control,  
and information.

Individually,  
we aim to combine good citizenship  
with the courage to innovate.

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# Message from the President



Through energetic and open business management, we will increase Yokogawa's corporate value by providing value to our customers that greatly benefits both society and the environment.

## Pursuing transformation to achieve our "Three goals"

Based on its core competences in the measurement, control, and information fields, Yokogawa is making major contributions to sustainable growth and development in a wide range of industries and society. Recent sustainability initiatives such as the adoption of the Sustainable Development Goals (SDGs) and the Paris Agreement represent a significant opportunity for Yokogawa to expand its efforts in this area. Climate change is an issue that is having a great impact on our world, and Yokogawa is taking a long-term approach as it seeks to face this issue head on. In line with the Transformation 2020 (TF2020) mid-term business plan that commenced in fiscal year 2018, Yokogawa will also be focusing on the renewable energy business. Furthermore, we are working to establish a life innovation business that will help people lead healthier and more productive lives.

A core aim of TF2020 is digital transformation. A transformation at Yokogawa and in our customers' businesses is underway thanks to the use of artificial intelligence, the cloud, and other cutting-edge technology platforms. In February 2019 we endorsed the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). With this transformation, Yokogawa is not going it alone; rather, this is a joint effort at co-innovation with many different stakeholders. Guided by our three sustainability goals for making the world a better place for future generations, we will add value for society and the environment by such means as reducing greenhouse gas emissions and improving health, safety, and resource efficiency. We will accomplish this through our efforts to enhance our customers' corporate value by transforming their businesses and enhancing their productivity.

## Everyone can make a difference.

Yokogawa's strength is its ability to win the trust of and build long-term relationships with its customers by seeing every undertaking through to a satisfactory completion and meeting expectations. Utilizing the know-how that we have cultivated in Japan, we are expanding our businesses in emerging countries and many other parts of the world. Many of our people have global business experience and have been given opportunities to develop these capabilities as our business has grown around the world. We have a diverse workforce, with employees of different races, nationalities, genders, and cultural backgrounds, and the differences in their value systems are often a source of innovation. Our younger employees have a strong interest in making the world a better place, and are not only motivated by immediate personal gain, and their vigor will be an asset in Yokogawa's push to transform itself.

The transformations that Yokogawa has set out in its TF2020 plan can be achieved if everyone takes full responsibility for their achievement and makes full use of all our capabilities. Through our work each day on the job, we will provide industry and society our firm support, earn the trust of the communities in which we operate, and make Yokogawa a company that is valued by all its stakeholders, including our customers. Through energetic and open business management, let's leave no one behind as we work with our stakeholders to make the world a better place for future generations. – That is my firm intention.

President and Chief Executive Officer

# Highlights

## Achieving our “Three goals”

Yokogawa has defined the society it aims to achieve by 2050 in terms of three sustainability goals. In fiscal year 2018 we took the first step toward achieving our Three goals by setting sustainability targets linked to the Sustainable Development Goals (SDGs).

### Yokogawa Sustainability Goals for the Year 2050



**Three goals**

### Universal Goals for the Year 2030



# Three Goals of Sustainability

Our Three goals cover three aspects of sustainability related to the environment, society, and the economy, namely, *net-zero emissions*, *well-being*, and *circular economy*.

## Three goals

Environmental

Social

Economic



### Statement on Yokogawa’s Aspiration for Sustainability

Yokogawa will work to achieve net-zero emissions, ensure the well-being of all, and make a transition to a circular economy by 2050, thus making the world a better place for future generations.

We will undergo the necessary transformation to achieve these goals by 1. becoming more adaptable and resilient, 2. evolving our businesses to engage in regenerative value creation, and 3. promoting co-innovation with our stakeholders.

(Statement released in 2017)

### Net-zero emissions

#### Stopping Climate Change

Climate change is an urgent issue that requires a united global response. Our goal is to reach net-zero emissions through the use of renewable energy and greater energy efficiency. By net-zero emissions, we mean a balance between greenhouse gas emissions and absorption, preventing an increase in the concentration of greenhouse gases in the atmosphere.

### Well-being

#### Quality Life for All

Well-being means a state of physical, mental, and social contentment. Yokogawa supports people's health and prosperity through the achievement of safe and comfortable workplaces and our pursuits in such areas as the pharmaceutical and food industries. We promote diversity and inclusion, providing education, training, and employment in local communities.

### Circular economy

#### Circulation of Resources and Efficiency

We are seeing a movement that rejects the one-way take, make, and dispose economy. This new economy circulates resources and emphasizes services over physical products. Yokogawa aims to make a transition to a circular economy that uses resources without waste and makes effective use of assets.



Net-zero Emissions

# Stopping Climate Change



Under the Paris Agreement adopted at COP21\* in 2015, the signatories agreed to hold the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursue efforts to limit the temperature increase even further to 1.5 °C. To limit the temperature increase even further to 1.5°C, it is thought to be necessary to maintain a balance between greenhouse gas emissions and absorption (net-zero emissions) by the year 2050.

\* The 21st Conference of Parties to the United Nations Framework Convention on Climate Change

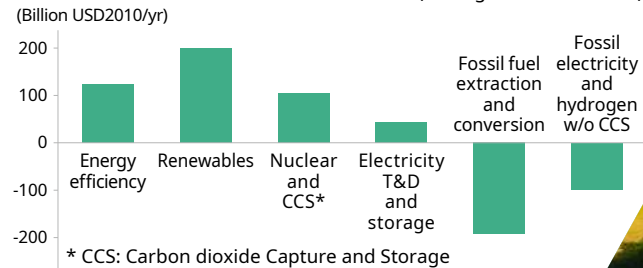
## Global Challenges

- Expand use of renewable energy
- Use energy even more efficiently

# 30 trillion US dollars

Additional energy-related investment necessary by 2050 to meet target of 1.5°C

Impacts on Investment of Targeting an Increase of 1.5°C (Averages for 2016–2030)



Source: Special Report—Global Warming of 1.5°C; IPCC



## Sustainability Target for 2030

CO<sub>2</sub> emissions avoided:

# 1 billion tons (FY2018–2030 cumulative)

In the renewable and low-carbon energy business area, we set the amount of CO<sub>2</sub> emissions we and our customers would avoid as a KPI (key performance indicator) for 2030.

## Yokogawa's Value Creation Themes

### ▶ Renewable energy

Contribute to the growth of renewable energy through solutions for the monitoring, control, data collection, and facilities maintenance for the stable and efficient operation of wind, biomass, and other sources of renewable energy.

### ▶ Low-carbon energy

Create a safe and efficient LNG (liquefied natural gas) supply chain in concert with customers and partners to respond to increasing demand for LNG, a source of low-carbon energy. Here, we will bring our wealth of experience and history of success in the natural gas and LNG instrument industry to bear.



# Stopping Climate Change

# FY2018 Progress and Performance

## Renewable Energy

CO2 emissions avoided

**12.19** million tons-CO2

- ▶ Biomass: 4.86 million tons-CO2
- ▶ Wind: 4.84 million tons-CO2
- ▶ Geothermal: 2.50 million tons-CO2

Renewable energy is a target industry for Yokogawa in which it can leverage its advantages, from power plant control systems to energy management systems including remote monitoring. We are expanding our business portfolio by collaborating with companies that have power generation technologies such as wind, photovoltaic, biomass, and geothermal to contribute to the growth of various forms of renewable energy.

## Low-Carbon Energy

CO2 emissions avoided

**11.78** million tons-CO2

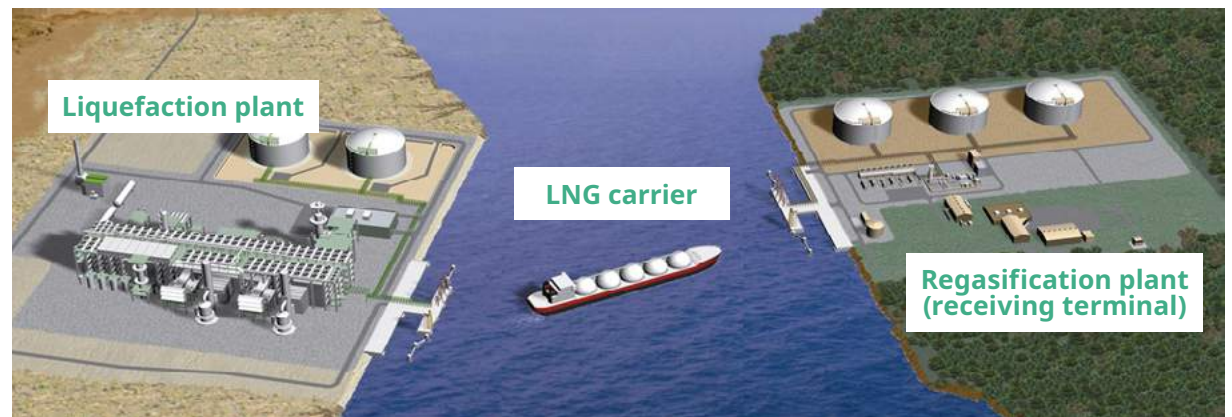
Yokogawa supplies instrument systems that underpin large LNG production plants. One example is its involvement in the Yamal LNG Project, one of the largest natural gas development projects in the world, which increased its shipping volume in August 2018 with the completion of its second train. With new projects planned in North America, Asia, Africa, and elsewhere, we are striving to make an even greater contribution in LNG, which is the lowest-carbon energy source among all fossil fuels.

### Contributing to the LNG Supply Chain

Natural gas is sometimes transported by gas pipeline from the area where it is mined to the area where it will be consumed. Alternatively, it may be liquefied by cooling to minus 162 °C, transported by carrier as LNG, then turned back into gas at its destination. With growth in demand anticipated, particularly in Southeast Asia, LNG projects are planned all over the world.

Yokogawa has been contributing to the development of safe, efficient LNG supply chains

since the 1970s. We have supplied our proprietary products and services including distributed control systems (DCS) and advanced process control (APC) solutions for many liquefaction and regasification plants and LNG carriers. We help to ensure that LNG is supplied safely and efficiently by monitoring and controlling flow, temperature, and pressure during the various processes involved in liquefaction, transportation, and regasification. Even once a supply chain is established, we continue to be involved in a reliable supply of LNG by providing services such as production management, simulations, and optimization of energy use.



#### ▶ Liquefaction plants



#### ▶ LNG carriers



#### ▶ Regasification plants



(Figures above refer to cumulative orders received until fiscal year 2018)





## Stopping Climate Change

## Case Studies of Co-Innovation

### District Heating System for a Forest-Friendly “SDGs Future City”

The town of Shimokawa, around 100km north of the city of Asahikawa on Japan’s northernmost island, Hokkaido, is located in an area of natural beauty benefitting from abundant forest resources. Forest occupies 88% of the town’s total land area of 64,420 ha (equivalent in size to the 23 cities making up the metropolis of Tokyo). Shimokawa’s forest resources have been passed on from previous generations over the past half century; utilizing those resources efficiently has revitalized the town’s key industries of forestry and forest products and supported its economic independence. Shimokawa has established a sustainable, cyclical forest management system of repeated logging and tree planting in 60-year cycles. This has resulted in its designation as one of Japan’s few “environmental future cities.” Since 2016, Yokogawa has been collaborating with the Shimokawa town authority to conduct joint research into a district heating system based on woody biomass at Shimokawa’s Ichinohashi Bio-Village, aiming to supply district heating more efficiently.

#### Development of a Community Energy Management System and Further Efficiency Improvements

Ichinohashi Bio-Village supplies heat to warm rooms and supply hot water to several dozen buildings nearby, including community facilities and homes. The heat is generated by woody biomass boilers using local wood. We introduced a community heating energy management system, and as a result of studying existing issues and potential for improvement, it became apparent that potential existed for improving the supply-demand balance; the seasonal, daily, and hourly operation of the boilers; and the temperature and amount of heat supplied. We realized that implementing these improvements would offer considerable potential for reducing the volume of woodchips required and the electricity costs for the equipment. At the same time, quantification of such issues would clarify the return on investment and payback period, leading to new investment in equipment and more efficient implementation of improvements. We are intending to use these research outcomes to improve the heating systems in other districts in the future.



Ichinohashi Bio-Village (photo supplied by the Shimokawa town)



Monitoring screen for community heating energy management system

#### Voice of Customer

Shimokawa’s challenge was to establish an economically sustainable community heating business, and with the extensive help provided by Yokogawa, I now have high hopes that this can be achieved. I’m sure that the outcomes of this research will help to solve the challenges posed by numerous heating systems within Shimokawa, as well as all over Japan.

Toshio Yamamoto  
Director  
Biomass Industry Strategy Office  
Forest Chamber of Commerce and  
Industry Promotion Section  
Shimokawa Town Authority



### Singapore Energy and Sustainability Hub

KBC/Yokogawa have begun ramping up our Energy and Sustainability Co-Pilot Hub in Singapore, which is supported by a grant from the Singapore Economic Development Board (EDB). The hub provides cloud-based support for Digitalized energy management solutions and R&D innovation activities such as AI and data analytics for energy minimization and the smart-grid. Our energy solutions are expected to save 10-20% CO<sub>2</sub> at industrial plants, a 15% reduction in industrial energy would be equivalent to taking all of Singapore’s cars off the roads.

#### Voice of Employee



Sharon Zhou  
KBC Advanced Technologies Limited

I’ve worked at KBC for 11 years and recently joined the Singapore Co-Pilot Hub as its Business Operations Head. The hub’s ambition of making expertise accessible via digitalisation truly excites me and I am proud to be part of the team driving the creation of the next page of our customers history – bringing together Energy Management expertise, Cloud and analytics, and applying it all to improve energy and sustainability to benefit society as a whole.



**Well-being**

**Quality Life for All**



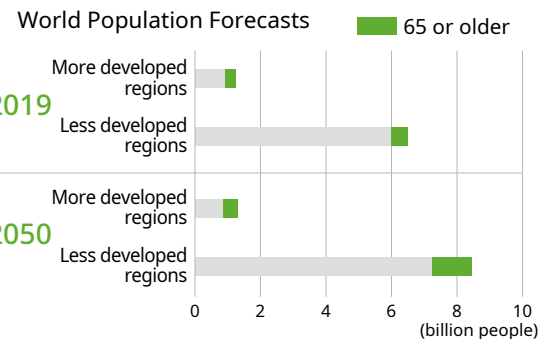
It is predicted that by 2050 the world population will increase to 10 billion, 1.3 times its current level, and the increase in the number of senior citizens will be faster still. In more developed regions, one in four people will be aged 65 or older, while even in less developed regions, one in seven will be in that demographic. To ensure well-being in aging societies such as these, it will be necessary to generate new forms of value aimed at improving safety and health.

**Global Challenges**

- **Dramatically improve productivity in food manufacturing/processing**
- **Develop more advanced medical technologies and produce reasonably priced pharmaceuticals**
- **Make societies safer and less stressful**

**2.2 times**

Ratio of population aged 65 or older (from 2019 to 2050)



Source: World Population Prospects 2019; UN



**Sustainability Target for 2030**

Safety and Health Value Creation:

**1 trillion yen** (FY2030)

In the life innovation and safety business area, we set our contribution to customer/social safety and health as a KPI for 2030.

**Value Creation Themes**

- ▶ **Improved productivity in manufacturing/processing of pharmaceuticals/foods**  
We leverage our technologies in measurement, control, and information, combined with our experience across a range of industries, to enhance productivity throughout the entire value chain, from basic research to logistics and services.
- ▶ **Support development of drugs and biopharmaceuticals**  
We support efficient development and production of highly safe pharmaceuticals through drug discovery support technologies including confocal microscopes, cell image analysis, and bioreactors.
- ▶ **Improvement of safety**  
We contribute to improved safety at customer plants through integrated process control and safety instrumented systems, operating training simulators, cyber security solutions, and other safety solutions.
- ▶ **On-site maintenance solutions**  
We provide facilities management and consulting that result in low-workload, safe, and efficient plant management.



## Quality Life for All

## FY2018 Progress and Performance

### Improved productivity in manufacturing/ processing of pharmaceuticals/ foods

Customer productivity improvement:

**+60%**  
VS. FY2017

Having launched our new life innovation business during fiscal year 2018, we are now increasing the resources available to this business to hasten its development. We increased the number of staff from around 100 to 300, and added NKS Corporation to the Yokogawa Group in November 2018. NKS specializes in the validation of facilities for pharmaceuticals, medical equipment, and food products, and also the calibration of measuring instruments.

### Support development of drugs and biopharmaceuticals

Increase in drug discovery systems provided:

**+70%**  
VS. FY2017

During fiscal year 2018 we progressed with building our infrastructure for product development by installing clean rooms for experiments and increasing staffing levels and other resources. We are also contributing to a diverse range of R&D using single-cell analysis methods in the drug development and life science fields. A notable example is our collaboration with the University of Shizuoka to establish the Single Cellome Co-innovators' Consortium in April 2018.

### Improvement of safety

Safety instrumented systems shipped to date:

**2,543**  
systems

We provide sustainable SIS (safety instrumented system) solutions that maintain and improve the safety of customers' plant across its entire life cycle, contributing to safe operation over the long term. Guided by the concept of approaching safe plant operation systematically, we started providing the relevant services and systems during fiscal year 2017. In December 2018 we followed this up by launching a new risk assessment and consulting service.

### On-site maintenance solutions

On-site maintenance solutions provided:

**339**  
Solutions

In fiscal year 2018 we started holding user events to discuss maintenance of facilities and management of such maintenance work with a view to implementing improvements and transformations. Giving our customers opportunities to share their reasons for adopting our solutions and the benefits experienced has led to more active communication. It also enables us to offer our solutions more widely by rolling out solutions that were successful in Japan on a global scale.

### Solutions for Cell-Based Manufacturing

Recently, the pharmaceutical field has focused on the research and development of biological products such as antibodies and protein drugs made from living cells, in addition to conventional drugs produced by chemical synthesis. Yokogawa is developing products that enable the stable and efficient operation of the cell culture process. The conventional culture process involves constantly monitoring the environment where cell cultures are prepared, including the pH level and oxygen concentration of the culture medium. However, Yokogawa is currently helping to enhance the production efficiency of cell culturing by using its predictive control technology cultivated over the years to predict changes in cell conditions resulting from cell proliferation. This enables nutrients to be provided whenever necessary to keep the culture environment in optimum condition.



Experiment in a clean room



## Quality Life for All

## Case Studies of Co-Innovation

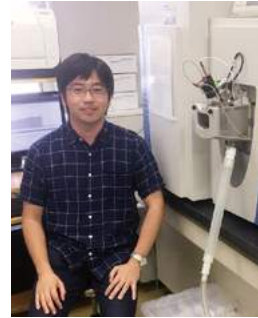
### Single-Cell Analysis Solutions Contributing to Research in the Life Science Field

The life sciences are of use in a great many fields, including in selective breeding of crops and pest control, manufacturing of biofuels and bioplastics, production of drug ingredients derived from cells and microorganisms, and in the substitute foods business. The biopharmaceuticals field, too, is making progress in developing groundbreaking personalized medical care, such as treatment that involves enhancing or activating cell function and repairing cells at the genetic level. Living organisms ingest substances they need and excrete those no longer necessary to them; the substances they need are made, transported, broken down, discarded, and reused as and when necessary. When spatial or temporal variations in such substances occur within a single cell or between cells, such variations interact with other biochemical reactions, affecting the way other cells function. Meanwhile, bacteria and other microorganisms that live within the body also perform crucial roles, helping to create the ecosystem that supports life.

To understand such complex phenomena of life, both a macro perspective and a micro perspective are essential. In the case of drug discovery, for example, in addition to confirming the efficacy of a drug, a macro perspective would require assessment of the constantly changing physical reactions of the subject, such as pulse, blood pressure, and body temperature. Meanwhile, a micro perspective would necessitate tracking the drug as it is ingested and metabolized, monitoring how its concentration in the blood and organs changes over time, and observing the route and timing of its excretion. However, even if drugs appear to behave identically at the micro level, the degree to which they are effective or harmful varies from one person to another. What is more, a single organ is made up of many different types of cells, and even cells of the same type may show different characteristics as time passes or as their surrounding environment changes. As a means to elucidate such differences through individual investigation of the smallest units comprising living organisms, single-cell analysis is now the focus of high expectations.

Yokogawa's confocal microscope technology helps to accurately view and investigate a single cell in a known position and environment. We helped set up the Single Cellome Co-Innovators' Consortium in order to explore single-cell analysis methods using this technology, as well as other applications of the technology. The consortium was established as a collaborative endeavor between industry and academia in the Shonan Health Innovation Park, where companies involved in the pharmaceutical industry have gathered. We will use the knowledge acquired through this consortium to improve our equipment, as well as our measurement and research methods, thereby advancing R&D in the life science field and contributing to quality life for all.

#### Voice of Partner

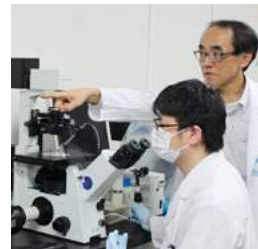


Dr. Hajime Mizuno  
Assistant Professor,  
Laboratory of Analytical and  
Bio-Analytical Chemistry

#### School of Pharmaceutical Sciences, University of Shizuoka

If we could gain an understanding of how the various molecules within a cell move and change at the same time as observing cell phenomena, this would provide important clues for understanding the mechanisms of cell phenomena in detail. Then these could be used as the basis for explaining the phenomena of life and the mechanisms of pathology. Until now, we have been working on the development of single-cell mass spectrometry that enables us to undertake comprehensive molecular analysis using mass spectrometry on samples of cell constituents present at the very moment when we are observing a cell. In recent years, we have also been involved with Yokogawa in developing an automatic cell sampling device. Our aim is to develop unprecedented, revolutionary imaging devices that enable us to conduct various forms of molecular analysis while keeping cells alive.

#### Voice of Partner



Dr. Eiso Hiyama (right)  
Professor, Natural Science  
Center for Basic Research  
and Development/  
Director, Division of  
Life Science

#### Hiroshima University

Yokogawa's automatic cell sampling device is indispensable to single-cell analysis methods for extracting and analyzing a single target cell itself in order to discover details of cancer cells and reproductive mechanisms. We are contributing to advances in high-precision medical care through our joint development with Yokogawa, which has resulted in the successful development of a technology for quickly and accurately extracting a target cell and analyzing it in detail. Such analysis can now be used as an important guide in determining treatment plans according to the type of cancer diagnosed, the malignancy level determined, and the degree of response to the medications administered.

# Circular Economy   Circulation of Resources and Efficiency



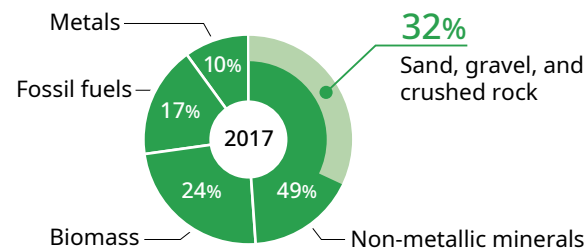
Global material resource needs are predicted to increase 3.5 times by 2060. Even if we take into account improvements facilitated by technological progress, we will still require twice the amount of resources used today, and witness growing calls to establish a circular economy through innovation.

## Global Issues

- Secure safe drinking water
- Switch business focus from products to services
- Further improve resource productivity
- Reduce input of new resources through circular recycling of current resources



Global material resource use



Source: Global Material Resources Outlook to 2060, OECD

## Sustainability Target for 2030

Resource efficiency improvement

# 1 trillion yen /year (FY2030)

We have set a KPI for 2030 to improve the resource efficiency of our customers by offering consulting and solutions in the fields of energy and resource conservation.

## Yokogawa Value Creation Themes

### ▶ Improvement of water environment

We offer water environment technologies and solutions such as leak monitoring and operational systems for water and sewerage networks that ensure the security and efficiency of water supplies while at the same time promoting effective water usage.

### ▶ Advanced solutions

We optimize temperature, flow rate and pressure parameters in complex production processes to maximize product yields while minimizing energy and resource consumption.

### ▶ Consulting to improve productivity

Our consulting and solution services optimize production processes to improve overall plant efficiency and operational stability.

### ▶ Long-term stable operation of plant

We provide products and services to maintain ongoing operational stability throughout the plant life cycle, encouraging the efficient use of resources.



## Circulation of Resources and Efficiency

## FY2018 Progress and Performance

### Improvement of water environment

Number of water environment improvement solutions provided

**144**  
solutions

Yokogawa received orders for integrated asset management systems designed to optimize water resources and improve services in Myanmar, as well as control systems for the desalination project in Peru. As demand for water expands and concern over water risks increase, we intend to help secure water and sanitation by providing solutions to ensure stable water supply.

### Advanced solutions/ Consulting to improve productivity

Amount of improvement effect proposed to customers

**Steady**

VS. FY2017

FY2018 generated a similar performance to FY2017. To secure greater future growth, we intend to accelerate our business by combining our problem-solving business, optimization and other advanced solutions, and our energy management systems more deeply than ever before. We also intend to expand our solution range that seeks to unearth and solve issues with a focus on customer value.

### Long-term stable operation of plant

Maintenance service sales amount

**+10%**  
VS. FY2017

Our operations and maintenance services business expanded in Southeast Asia, Europe, and India. We use the data acquired from providing services throughout the entire lifecycle of the plant to help optimize customer business management. We also contribute to the long-term stable operation of customer plants by continuous proposals and support over the long term.

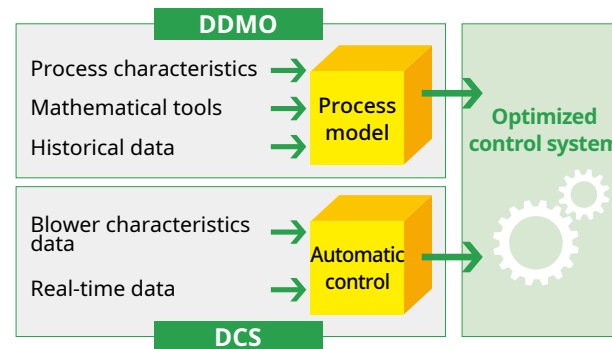
### Industrial Wastewater Treatment and Energy Saving

We helped extend the functionality of a customer's existing system by installing a Yokogawa distributed control system (DCS) in an industrial wastewater treatment facility dealing with daily volumes of 79,000t in the industrial belt of Jiangsu Province in China. We managed to create an optimal treatment process by



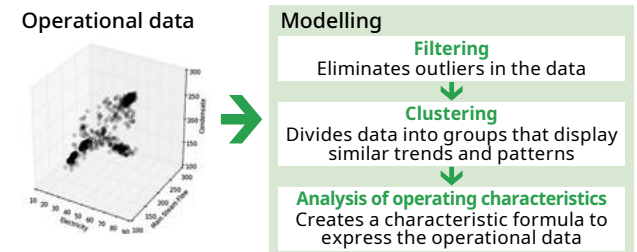
Industrial wastewater treatment facility (Jiangsu, China)

using big data to ascertain the special characteristics of the sewer network process data and pinpoint special operational characteristics to turn into a model for full automation and facilitate advanced control. The model carved new value not only by helping to conserve energy, but also to optimize control, improve operational efficiency, and reduce operational costs. The data accumulated during the evaluation period showed that the new processes both met drainage standards, and achieved an energy saving of 25%.



### Data Driven Modeling for Optimization (DDMO)

It is possible to optimize the operation of a production plant by modeling a customer's facilities for ultimate control. Yokogawa's DDMO technology automatically creates an equipment model to suit customer requirements using data on a plant's operational performance. The technology creates a model by extracting the facility's special characteristics as a comprehensive relational expression from multiple data, including fuel and raw materials flow rates and characteristic values, energy supply and product flow rate, quality, and operational conditions, as well as facility status. One key feature of the DDMO technology is its ability to automatically translate this model into a program that calculates optimal values.





**Circulation of Resources and Efficiency**

**Case Studies of Co-Innovation**

## Facilitates Long-Term, Stable Plant Operation by AI Analysis of Audio Data

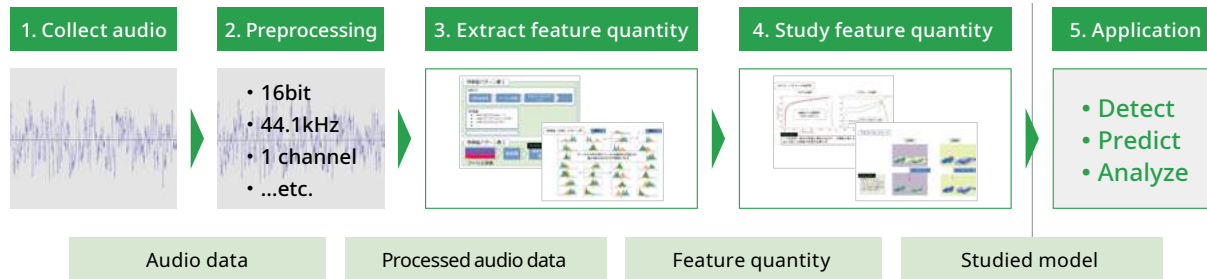
One of the significant problems in chemical plants that needs to be addressed is pipeline blockage. The occurrence of such a blockage represents a large lost opportunity for the plant. Not only does it interrupt the immediately preceding and subsequent processes, but it also halts entire production. There are also times when the blocked pipeline has to be removed and repaired. To date, operators and maintenance personnel applied operating data and on-the-ground information as well as their own experience to judge process conditions and maintain pipelines, but it was difficult to anticipate or foresee potential blockages.

Yokogawa is currently working with the customers to develop a technology that can automate the superior skill of experienced maintenance personnel who judge the state of the pipelines with their ears. How? By focusing afresh on listening to and analyzing the sounds that emerge from the pipelines using AI information technology, and then creating a model that includes operating data using operational technology. Combining IT and OT in this way facilitates efficient maintenance that is not reliant upon the level of skill and experience of operators and maintenance personnel.

For this challenge, Yokogawa Solution Services, ZEON CORPORATION, and Hmcomm Inc. applied jointly to the Industrial Data-sharing Promotion Project. This project, supported by Japan's Ministry of Trade, Economy and Industry, aims to promote the creation of data cooperation and sharing platforms in companies. Our application was selected, and we set about creating our FY2018 Manufacturing Industry Pipeline Blockage Prediction and Pre-diagnosis based on Audio Data Business.

This involved building a new model that digitizes and visualizes the audio data that was previously used by operators to evaluate pipeline health based on their own experiences. It achieves even greater improvements by analyzing the relationship between the audio data and production process data, such as flow rate and pressure, and environmental data such as temperature and vibration. By predicting and sensing blockages caused by different factors, we seek not only to help improve the operation of a customer's production processes, but also to improve quality and optimize those production processes over time.

### Prediction and pre-diagnosis framework using audio data



### Voices of Partners

#### Hmcomm Inc.

By employing our strengths in sound analysis technology, we have been able to evaluate the sounds emerging from the immediate vicinity of industrial plant pipelines and the nearby environmental sounds to a high level of accuracy. We have also been able to correlate the relationship between the pipeline sounds and flow volume and speed, and confirm the difference in sounds before and after pipeline maintenance. Furthermore, we aim to create a highly applicable technology by using the changes in pipe sounds over time to surmise conditions inside the pipes, and predict and preempt blockages. We intend to continue working with Yokogawa Solution Services and ZEON Corporation to promote the utilization of audio data in maintenance operations.

#### ZEON CORPORATION

Being able to detect changes in the pipeline flow through sound analysis means you can surmise when a pipe is starting to get blocked and take appropriate action at a convenient time rather than react to an emergency blockage. Furthermore, by combining information on fluid conditions with other process data, we also hope to apply this technology to quality-related monitoring such as the size of any particles and the viscosity of the fluid, and to analyzing the cause of any changes.



LtoR: Yamamoto, ZEON CORPORATION, Yamamoto, Hmcomm Inc., Matsushita, Yokogawa Solution Service Corporation

# FY2018 Progress on Sustainability Targets

## Net-zero Emissions

FY2030 target CO2 emissions avoided  
**1 billion t-CO2**

**Contribution to SDGs**  
7 RENEWABLE ENERGY   13 CLIMATE ACTION

**Value creation theme**  
Renewable energy  
Low-carbon energy

**KPI**  
CO2 emissions avoided (Cumulative from FY2018)

**FY2020 target**  
60M t-CO2

**FY2018 performance**  
23.98Mt-CO2

## Well-being

Safety and health value creation  
**1 trillion yen**

<p><b>2</b> RISK REDUCTION   <b>3</b> GOOD HEALTH AND WELL-BEING</p> <p><b>Improved productivity in manufacturing/processing of pharmaceuticals/foods</b></p> <p>Customer productivity improvement (VS. FY2017)</p> <p><b>Doubled</b></p> <p>+60%</p>	<p><b>9</b> INDUSTRY, INNOVATION AND INFRASTRUCTURE</p> <p><b>Support development of drugs and biopharmaceuticals</b></p> <p>Drug discovery systems provided (VS. FY2017)</p> <p><b>20 times</b></p> <p>+70%</p>	<p><b>8</b> DECENT WORK AND ECONOMIC GROWTH</p> <p><b>Improvement of safety</b></p> <p>Safety instrumented systems provided to date</p> <p><b>3,200 systems</b></p> <p>2,543 systems</p>	<p><b>8</b> DECENT WORK AND ECONOMIC GROWTH</p> <p><b>On-site maintenance solutions</b></p> <p>On-site maintenance solutions provided to date</p> <p><b>850 solutions</b></p> <p>339 solutions</p>
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## Circular Economy

Resource efficiency improvement  
**1 trillion yen**

<p><b>6</b> CLEAN WATER AND SANITATION   <b>12</b> RESPONSIBLE CONSUMPTION AND PRODUCTION</p> <p><b>Improvement of water environment</b></p> <p>Water environment improvement solutions provided</p> <p><b>190 solutions</b></p> <p>144 solutions</p>	<p><b>7</b> AFFORDABLE AND CLEAN ENERGY   <b>9</b> INDUSTRY, INNOVATION AND INFRASTRUCTURE   <b>12</b> RESPONSIBLE CONSUMPTION AND PRODUCTION</p> <p><b>Advanced solutions/Consulting to improve productivity</b></p> <p>Customer improvement effect (VS. FY2017)</p> <p><b>Doubled</b></p> <p>steady</p>	<p><b>9</b> INDUSTRY, INNOVATION AND INFRASTRUCTURE   <b>12</b> RESPONSIBLE CONSUMPTION AND PRODUCTION</p> <p><b>Long-term stable operation of plant</b></p> <p>Maintenance service sales (VS. FY2017)</p> <p><b>+30%</b></p> <p>+10%</p>
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## Common platform

**Contribution to SDGs**  
17

**Value creation themes**  
Transformation of business model with infrastructure and tools utilizing IIoT

**KPI**  
Co-creation environment users

**FY2020 target**  
1,500 users

**FY2018 performance**  
1,021 users

## Human resources management

<p><b>5</b> GENDER EQUALITY   <b>8</b> DECENT WORK AND ECONOMIC GROWTH</p> <p><b>Diversity and inclusion</b></p> <p>Female ratio out of total number of managers</p> <p><b>12.0%</b></p> <p>9.4%</p> <p>Disability employment ratio (Japan)</p> <p><b>2.3%</b></p> <p>2.27% (June 1, 2019)</p>	<p><b>8</b> DECENT WORK AND ECONOMIC GROWTH</p> <p><b>Talent attraction and engagement</b></p> <p>Engagement survey score</p> <p>Implementation of engagement improvement measures</p> <p>(scheduled for FY2019)</p>	<p><b>8</b> DECENT WORK AND ECONOMIC GROWTH</p> <p><b>Elimination of occupational accidents</b></p> <p>Occurrence of accidents accompanied by lost work time</p> <p><b>Reduce</b></p> <p>0.28 case /million work hours</p>
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## Environmental management

<p><b>6</b> CLEAN WATER AND SANITATION</p> <p><b>Promotion of efficient use of water resources</b></p> <p>Water consumption</p> <p>Strengthen measures to efficiently utilize water resources</p> <p><b>561K m<sup>3</sup></b></p>	<p><b>7</b> AFFORDABLE AND CLEAN ENERGY</p> <p><b>Reduction of energy consumption</b></p> <p>Energy consumption (VS. FY2013)</p> <p><b>13.0% reduction</b></p> <p>11.1% reduction</p>	<p><b>13</b> CLIMATE ACTION</p> <p><b>Reduction of greenhouse gas emissions</b></p> <p>Greenhouse gas emissions (VS. FY2013)</p> <p><b>20.0% reduction</b></p> <p>18.9% reduction</p>
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# Corporate Culture

WELCOME TO  
WORK SPACE INNOVATION

## Yokogawa's Mind

Since its foundation in 1915, Yokogawa has worked hard to develop business in all corners of the globe. Customer partnerships that span many decades, the operation of business with deep local community ties, human resource interaction that transcends national and ethnic borders. These are the font of Yokogawa's unique strength.

# Customer Support

Ensuring safety is the most important issue for industrial plants that handle various chemical substances at high temperatures and high levels of pressure. Yokogawa works with customers to improve plant safety and protect their most precious assets, namely the lives and health of their staff members.

## Global Response Center for 24/7/365 Relief



Global Response Center

The Global Response Center (GRC) is a comprehensive customer service center for all the products and systems that Yokogawa has supplied to its customers. The GRC seeks to protect the control systems, which

are tantamount to the plant's nervous system, and all type of products 24/7/365 throughout a plant's lifecycle. The GRC responds directly to inquiries from customers in Japan, while queries from international customers are first received by regional response centers, and are only referred to the GRC if any issues cannot be solved locally. The GRC has nearly all of the control systems created by Yokogawa right back to its original system retained in the 1970s on standby in its backyard, so that it can recreate the exact same circumstances that a customer is experiencing on actual equipment and solve problems.

### GRC Employee Interview

#### Job responsibility

**Sekiguchi:** I receive the calls from customers and try to get a clear grasp of the situation so that I can pass them onto the appropriate product manager.

**Matsuo:** I respond to calls from customers and group bases. We work shifts so that we can cover the phones 24/7/365 to deal with queries that come in at nighttime, on the weekends and from international markets in different time zones.

**Yamamoto:** As the technology specialist, I support customers maintenance response, and conduct global education and training.

#### Attentive customer care

**Yamamoto:** In order to increase the accuracy of the telephone operation, we work hard to listen carefully what the customer really wants, so that we can develop a swift action plan and solve problems as soon as possible. Also, we place great importance on providing customer with the most superior service, and I want to convey that

### Voices of Employees

attitude to our international bases as well.

**Sekiguchi:** Different people are responsible for different products, so I am always trying to improve my knowledge of various products so that I can assure a swift and accurate response to a customer's first call.

#### Moments of joy

**Matsuo:** I feel really happy when a customer says, "I'm counting on you." and feels comfortable getting in touch with us. I used to work in the Okayama base, and customers there sometimes greet me in a friendly way when they call the GRC.

I feel I can use my experience working closely with customers on the ground to better imagine what is going on there even when I am in the GRC and to maintain a solid bond of trust.



Members of the Yokogawa Solution Services GRC

## Training Center Forges Trust in Yokogawa Personnel and Technology (Singapore)

The Training Solutions Centre in Yokogawa Engineering Asia allows experiences across all channels in customers' ecosystems for a more efficient and safe plant operation and reduced energy usage. The Life Cycle Training with Augmented, Virtual and Mixed Reality enables to save 30 – 40% of training time and budget; reduce start-up and shutdown time by 15 to 20%.



VR-enhanced training

Industrial customers are making significant investments into digital transformation and increasingly adopting Internet of Things (IoT), machine learning and cloud technologies. Many organizations are in the process to consider how to shift employees' day-to-day activities to effectively maximize the usage of new technology and capture the associated ROI (Return of Investment). Training is the key success to operational excellence. When people's training is the focus of an organization – when employees feel included, represented and heard – everything falls in place.

# Community Involvement

Yokogawa proactively employs local staff in all of its regional bases, and seeks to build long-term relationships of trust with local communities. We strive to create comfortable working environments by both respecting local culture and customs, and conveying our own Yokogawa culture.

## Contributing to Education and Economic Development of Local Communities (South Africa)

### Education gap and high unemployment rate

The South African government uses its Broad-Based Black Economic Empowerment (B-BBEE) scheme to strengthen the economic power of the nation's historically disadvantaged black people. South Africa's unemployment rate, which stems from low levels of education, is one of the biggest problem. Yokogawa South Africa has earned B-BBEE certification for its strong employment record and other activities.

#### Educational circumstances

**21%** The percentage of people with university entrance qualifications among 18-year old students who registered for the final exam in their schooling educations.

**The lowest rank** Mathematics and science program levels in 148 countries  
\*World Economic Forum survey

#### Unemployment rate

**55%** Unemployment rate among 15-24 year-olds

**34%** Unemployment rate among 25-34 year-olds

### Yokogawa Internship Program

**89** The number of students participating the internship program

**22** The number of participants employed by Yokogawa after their internship (through end FY2018)

Every year since 2009, Yokogawa South Africa has run an internship program primarily for students from underprivileged families. The one-year long program is accredited by six of the top universities in South Africa, and we hold job interviews with the aim of employing interns every year in May and November. We employ

approximately 10 students as interns every year and assign skilled mentors to teach them engineering to a world-class standard. Many of the students who participate in this program go on to work permanently at Yokogawa.



Internship training

### Donating to Educational Establishments

**\$70,000** Helping renovate elementary schools

Yokogawa supported the renovation of classrooms and sewage systems at the Cothoza primary school in Mpumalanga region to enable children to learn in a safe and sanitary environment.



Classroom renovation



### Supporting Startup Businesses

**\$35,000** Supporting entrepreneur workshops

We supported workshops run by the Ngeqoma authorities for local people launching an embroidery business. Two high-quality embroidery machines were purchased to automate the production line with a volume of high-grade fabrics.

## Local Base Management Incorporates Local Employee Opinion (China)

Ever since setting up one of the Group's major production bases, Yokogawa Electric China, back in 2002, we have sought to create a comfortable environment within the company by respecting the local culture and the opinions of local staff. Local managers participated in the 2008 revision of our human resource systems to ensure local working conditions were taken into greater consideration. The company boasts a low turnover rate, and a system for employing retired staff.

#### Voice of Employee

### Our warm working environment is like a big happy family

I entered Yokogawa Electric China in 2010. It is a wonderful company with strong human relations. My colleagues are kind and we all progress our work as a team. Our bosses not only guide us in our work, but are also attentive to our mental and physical health. When working together with other departments, we also communicate well. Our workplace feels like one big happy family. Every day, I enjoy myself and feel engaged at work. Our union also plans lots of different events, such as sports days, karaoke events, charitable activities, and health-promotion drives, which are all useful ways of encouraging interaction among employees. I enjoy all my life at Yokogawa, not only my job.



Ping Fang  
 Yokogawa Electric China Co., Ltd.

# Diverse Interaction

Our human assets are the font of all value creation at Yokogawa, which works to solve social issues together with customers using advanced control technology. We encourage transformation through interaction between people of different genders, ethnicity and nationalities, and offer various opportunities for forging innovation.

## YOKOGAWA Innovation Fair (Japan)

2,210

Participants

120

Presentations

The Yokogawa Innovation Fair is an annual opportunity for employees to get together and exchange views from a diverse range of perspectives across their organization or job description, based on presentations ranging from the latest technologies and ideas, to process improvements and key customer issues. The FY2018 Innovation Fair started with keynote speeches from Yoshinori Ohsumi, winner of the Nobel Prize in Physiology or Medicine, and Masaki Takeuchi from Shimizu Corporation, who devises future city concepts, which were followed by free employee-led presentations and workshops. We introduced various initiatives designed to encourage vigorous interactive communication, and experiment with setting up our first Talk Together space where presenters and visitors could come and go as they please and chat over drinks. We also held a hackathon in which small teams created prototypes of internal systems in an attempt to solve immediate issues at an event designed to spur competitive short-term development called the Noncoding Hackathon: Formulating New Ideas Using IoT Sensors. The event seeks to encourage personal growth and idea-creation skills by getting teams to concentrate on developing services and applications. Participants enjoyed the event with some saying the interdepartmental communication was refreshing and fueled new discoveries, and a sense of something new.



Noncoding hackathon

## Promoting Understanding of People with Disabilities (Brazil)

Yokogawa South America is working in a partnership with Osasco city town hall in Sao Paulo, to develop a booklet entitled "Live with Difference - Tips for social relationship with the disabled person", with information about autism and mental disorders people, including tips about people with physical, hearing, visual, intellectual and cerebral palsy disabilities. The latest edition of the booklet was launched in June, 2019.

For the company, the idea is sharing the content and educate employees so they know how to deal with people with disabilities, besides to publicizing for society the Yokogawa's support in this kind of matter. Because a lot of difficulties and prejudices, people with some type of disability normally give up looking for a position in the market for lack of opportunities. Information sharing seeks to help social inclusion happen naturally in the work environment for people with disabled can work with quality and respect. This project is part of the company's strategy in providing opportunities for all, regardless of their physical or mental limitations within their abilities, seeking to encourage diversity, combat prejudice and work to eliminate disparities inside and outside Yokogawa.



Distributing the published guides



## Internal Volunteer Initiative: PiCK! (Japan)

18

No. of times

532

Aggregate participants

Our Pioneer's Innovative Challenge and Knowing, or PiCK!, is an internal voluntary activity launched in FY2018, which encourages employees to take the first progressive step by listening to experienced people who have tackled challenges, or the ideas of those who want to attempt a challenge. We hope this activity can help instill the courage to innovate advocated in our corporate philosophy more deeply into our corporate culture and company atmosphere.

At PiCK!, it doesn't matter what the theme is, as long as it comes with a challenge. For instance, we held a debate for mid-careers on What's Strange About Yokogawa as one of corporate transformation challenges. Instigating various activities will help improve visibility of the activity and encourage more employees to participate. It also helps expand the scope of interaction between employees, and the challenges they are prepared to tackle.



The 11th PiCK! session's What's Strange About Yokogawa workshop

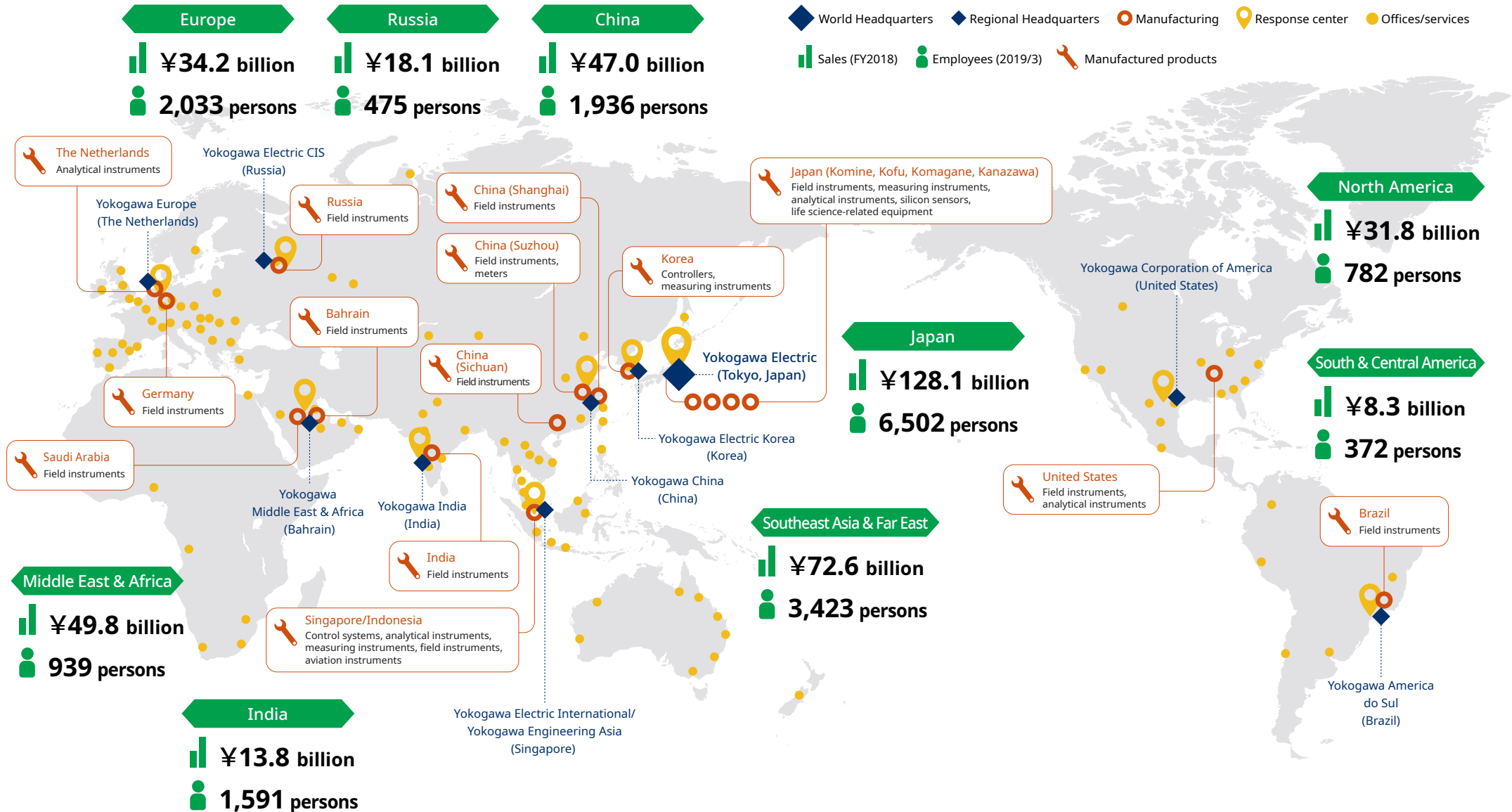
# Global Operations

Global human resources  
**17,848** persons

Subsidiaries and Affiliates  
Japan: **12**, Outside Japan: **100**

Service centers  
**230** in **80** countries

Service engineers  
**2,000** persons





# Goals

We will incorporate sustainability goals into our business plan and make progress a step at a time toward the Three goals. In this chapter, we highlight the processes undertaken to meet our sustainability goals.

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# Roadmap to Achieving the Three Goals

To achieve the Three goals for the year 2050, which represent the society we are aiming for, Yokogawa has set mid-term sustainability targets in line with our long-term business framework and mid-term business plan, and we are working to reach these targets.

### Business Focus Areas:

- Renewable and low-carbon energy
- Life innovation and safety
- Energy saving and resources

**Targets for 2020**

Set specific value creation themes and targets in line with the Transformation 2020 business plan

**Targets for 2030**

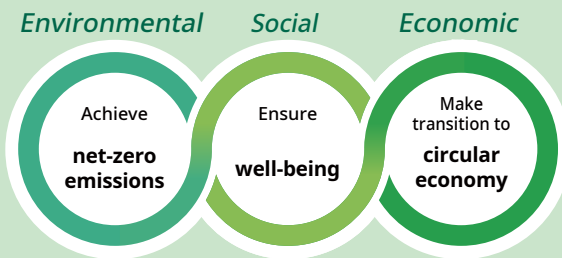
Show the direction of focus, and set aspirational targets based on transformation and growth

2015

2020

2030

2050



Sustainability goals "Three goals"



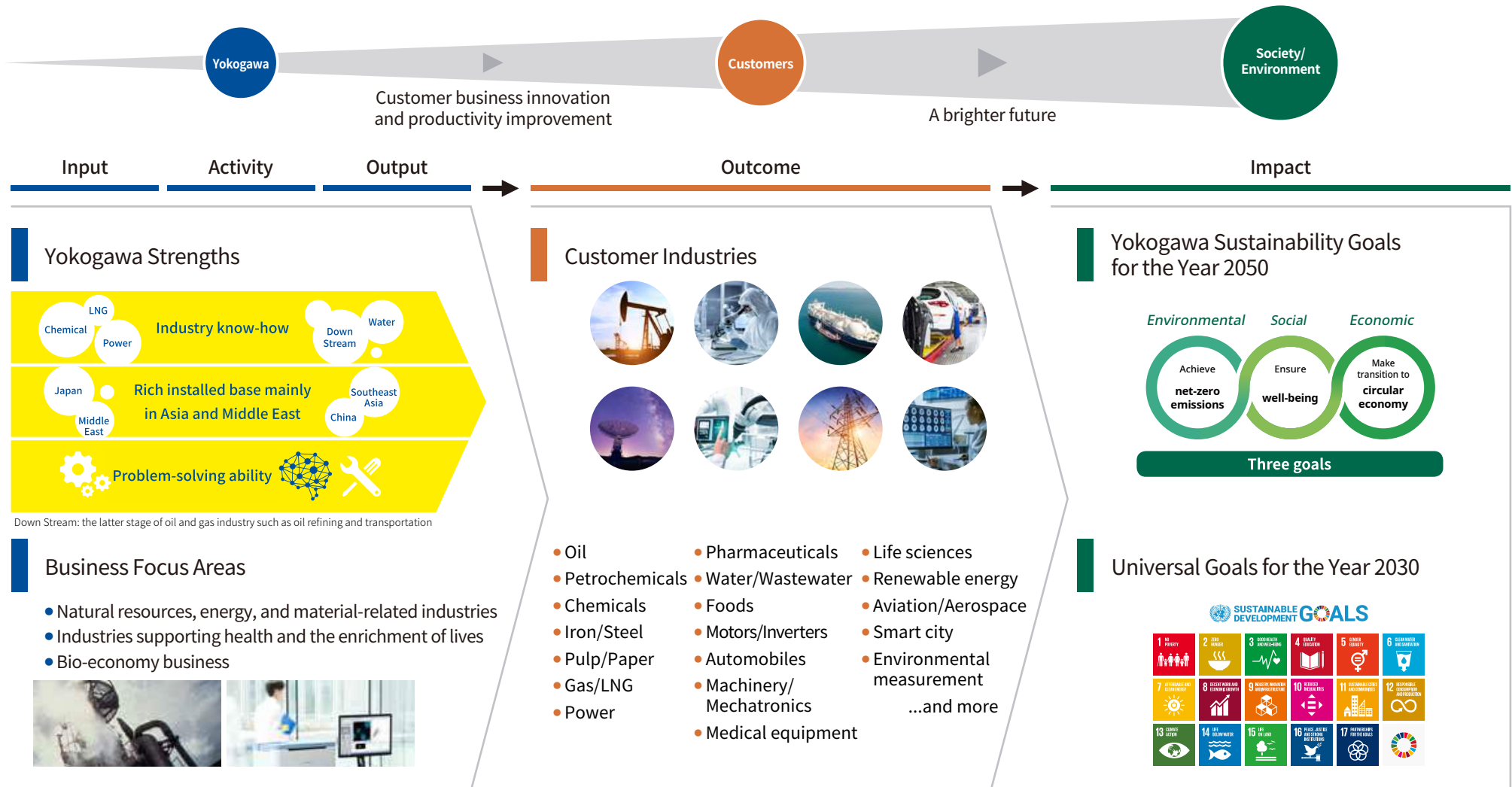
Major SDGs to which Yokogawa contributes

# Value Creation Process

The value creation story at Yokogawa lies in the specific processes that help create a brighter future through the value provided to customers.

We identify the problems of customers spanning a wide range of industries around the world, and then solve those issues to help customers transform their businesses and improve productivity.

As a result, social and environmental value is produced, such as improved safety and reduced resource consumption. By expanding the value creation story, we contribute to the SDGs and strive to achieve our Three goals.

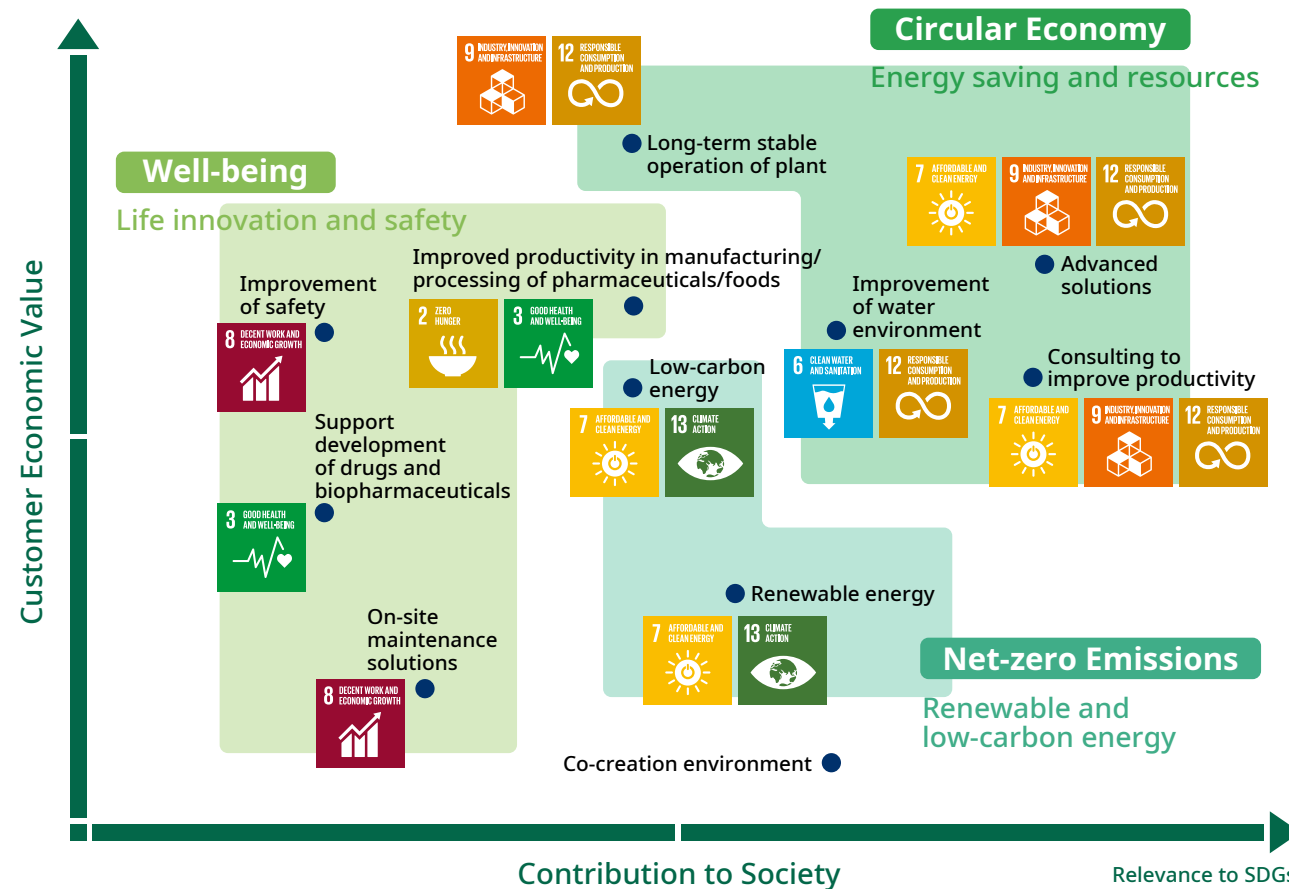




## Value Creation Process

### Business Focus Areas and Value Creation Themes

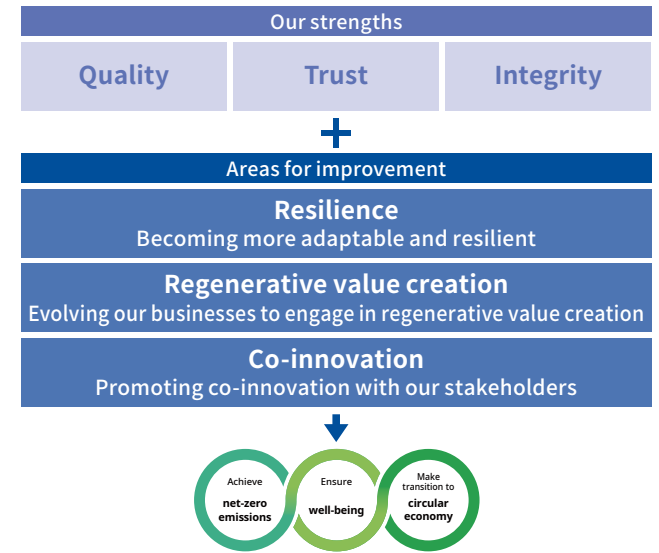
Value Creation Stories of Yokogawa have been categorized and consolidated into several value creation themes. We have evaluated these themes on a scale of customer economic value and contribution to society. Based on our evaluations, we set three business focus areas related to Yokogawa Group initiatives and aspirational targets for the year 2030.



## Transformation to Achieve Sustainability Goals

While continuing to emphasize the quality, trust, and integrity that have long been a source of strength for Yokogawa, the company will undergo the transformation needed to achieve its sustainability goals by becoming more adaptable and resilient, evolving its business to engage in regenerative value creation, and promoting co-innovation with its stakeholders.

### Transformation to Achieve Sustainability Goals



#### Resilience

##### Becoming more adaptable and resilient

Contribute to the realization of safe and sustainable industrial and social infrastructure, respond flexibly to and show resilience in the face of social change, and be determined to overcome the great challenges that this presents, while remaining rooted firmly in an identity that is based on our corporate philosophy and vision.

#### Regenerative value creation

##### Evolving our business to engage in regenerative value creation

Reduce waste, recycle resources, and create robust and durable products by making the needed changes in design, production, logistics, and use. Together with customers and business partners, make maximum use of assets and increase resource efficiency.

#### Co-innovation

##### Promoting co-innovation with our stakeholders

Through engagement with our stakeholders, including customers, suppliers, partners, employees, shareholders, investors, and members of the local community, create the new value needed to realize a sustainable society.

# Sustainability Governance

Yokogawa regards sustainability as one of its key management challenges and is continuously working to improve governance. Moreover, with the aim of enacting the changes shown in the TF2020 mid-term business plan and gaining the trust of all stakeholders, we also monitor sustainability KPIs and critical risks requiring prioritized management, in addition to management indicators.

## Board of Directors

The Board of Directors, which meets once a month in principle, is a decision-making body that aims to achieve sustainable growth and an increase in corporate value of the Group over the medium to long term. To achieve these goals, the Board of Directors improves profit-earning capability and capital efficiency, and determines the general direction of the Group, including corporate strategies. In addition to monitoring and supervising the execution of business by management, including directors and officers, the Board of Directors develops provisions related to the execution of duties by directors, and has established a framework to take responsibility for supervising the execution of business.

## Audit & Supervisory Board

In order to ensure the Group's sustainable growth and corporate soundness, the Audit & Supervisory Board, which meets once a month in principle, makes appropriate decisions and expresses its opinions from an independent and objective standpoint. Audit & Supervisory Board members attend meetings of the Board of Directors and the Management Board, along with other important meetings. They also hold regular meetings with departments in charge of internal audits and legal affairs, as well as the department in charge of business ethics, which promotes the compliance framework. They exchange and share information about the activities of each and proactively offer opinions.

## Management Board

The Board of Directors delegates decision-making related to the execution of business to the Management Board to promote swift decision-making. The Management Board, which meets once a month in principle, is required to report its resolutions and other matters to the Board of Directors.

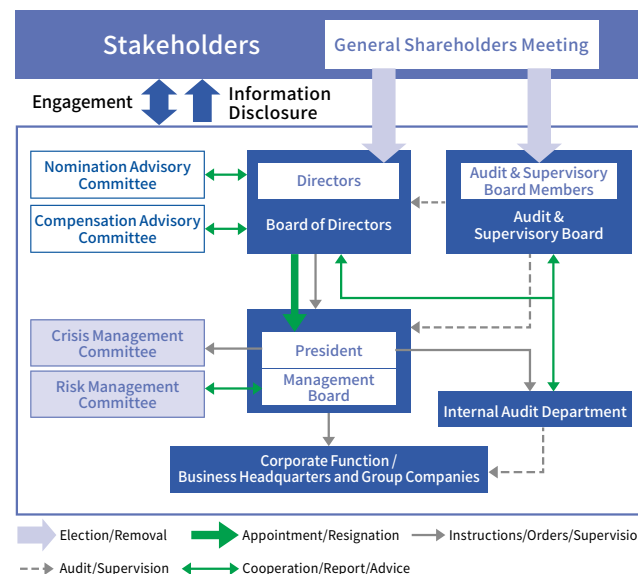
## Internal Control System

In order to increase corporate value, Yokogawa has put an internal control system in place to ensure that business activities are conducted as they should be. To that end, we allocate business resources, such as human resources, financial resources, and other tangible or intangible assets appropriately, and use these effectively. We aim to increase the corporate value of the entire Group by ensuring that we both improve management efficiency and ensure compliant operations.

## Risk Management

The risk management committee selects critical risks that should be managed as priorities, decides the monitoring methods for these risks, and reports on them to the Board of Directors. Each organization of the Group clarifies and assesses risks, and plans and implements countermeasures. The department in charge of internal audit assesses the effectiveness of the Group's risk management process and reports important findings to the Board of Directors and the Audit & Supervisory Board members.

■ Sustainability Governance Structure



# Sustainability Management

Sustainability management is carried out as a part of the company-wide management cycle that includes the mid-term business plan, risk management and the internal control system.

The two major areas of sustainability activities are: 1) activities to increase corporate and social value using sustainability KPIs as indicators; and 2) activities to drive the necessary improvements using ESG (Environmental, Social, Governance) assessment results as indicators. Separate management cycles are defined for each, and both are subject to monitoring and supervision by the Board of Directors.

Non-financial items are reported to the Board of Directors as part of reports on important matters and the implementation of each management cycle, and progress with sustainability activities is also regularly reported. The Board of Directors monitors and supervises sustainability initiatives in light of changing social conditions, progress in sustainability KPIs, feedback from stakeholders including ESG evaluation organizations, and ESG risk assessment results, while incorporating independent views from outside the company.

## Main Agenda Items Addressed by the Board of Directors

- Setting and management of sustainability targets
- Disclosure of sustainability information
- ESG assessment results and improvement measures

■ The Sustainability Management Cycle

	April to September	October to March
Stakeholders	Communication with stakeholders	
	ESG assessment responses	ESG assessment feedback
Monitoring and supervision (Board of Directors)	ESG risk report Sustainability activity report	ESG risk assessment Internal control assessment
Business execution (Management Board)	Mid-term business plan management	
	Sustainability KPIs review (annual)	Sustainability KPIs review (mid-year)
	Implementation of the internal control system	



## People and Society

People and society are important pillars of our business activities. Yokogawa tries to encourage its diverse range of personnel to work energetically, demonstrate their skills, and grow with society.

This chapter focuses on our initiatives relating to human resources and occupational health and safety.

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# Diversity and Inclusion

Yokogawa will actively recruit, develop, and promote people from a variety of backgrounds who differ in terms of experience, knowledge, sensibility, perspective, cultural background, and values, and in so doing will not discriminate based on ethnicity, nationality, gender, religion, age, social position, or disability. By utilizing digital technology and cultivating a safe working environment, we make it possible for every employee to demonstrate his or her full potential and to work comfortably, with a flexible workstyle. Good communication and constructive collaboration based on mutual respect facilitates the co-creation of new value.

## The Diversification of Human Resources

The diversity of human resources is our strength as well as a requirement for Yokogawa to expand its businesses globally. Not only overseas but also in Japan, we encourage active participation of human resources of diverse ethnic backgrounds and nationalities. We are expanding the acceptance of overseas group employees in Japan to promote globalization and build careers for them. Also, we actively recruit global staff who graduated from overseas universities or studied in Japan. In 2018, we sent recruiters to the Indian Institute of Technology Hyderabad (IIT-H), the top education institutions for science and engineering in India and recruited graduates with advanced IT skills. We have prepared the intra-company infrastructures providing company regulations, business notices, cafeteria menus, and internal broadcasts in both Japanese and English, and appropriately offering information to support their livelihood in Japan on the intranet. We have been implementing the training program



IIT-H recruiting session

"Japanese Culture & Communication" to understand cultures and customs from both Japanese and overseas viewpoints. We expect that advancing the diversification and improving the ability to respond will fuse diverse sense of values to create new values.

## Promoting Active Participation by Women



Career development program for female employees

Yokogawa is promoting female employee's empowerment as a part of its diversity promotion activities based on the human asset strategy of the mid-term business plan. In April 2015 Yokogawa established a work section that is dedicated to the promotion of diversity, and this unit is actively helping employees achieve success in their jobs by means such as formulating career development plans for female leader candidates. Moreover, we conduct career development training for female employees as well as seminars to raise awareness among managers concerning the need to empower women. Yokogawa is pursuing its goal of achieving the female manager rate of 7% (non-consolidated) and 12% (global) by fiscal year 2020. In recruitment activities, our target rate for female employees is 30% or more, with the long-term aim of optimizing Yokogawa's workforce gender composition. Women made up 34.5% of the new graduates joining the company in 2019. To create an environment where various types of employees can comfortably work, keep challenging, and grow, Yokogawa is tackling improvement of its corporate system and culture, by introducing a flextime system without core time, a telecommuting system and a time-unit leave system, keeping pace with work-style reform activities. In March 2016, we formulated a General Employer Action Plan based on the Act on the Promotion of Female Participation and Career Advancement in the Workplace and disclosed it on the website of the Ministry of Health, Labour and Welfare. In July 2016, Yokogawa Electric Corporation was recognized by the Minister of Health, Labour and Welfare as a company whose measures for promoting active female participation is excellent (stage 3 (three stars) that satisfies all five items to be evaluated).



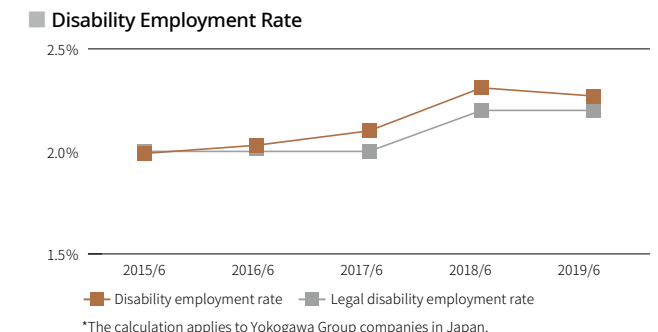
Eruboshi mark

## Promoting Active Participation by People with Disabilities

Since it launched a normalization project in 1992, Yokogawa Electric Corporation has consistently continued its activities to recruit employees with disabilities and encourage them to engage in various fields, such as engineering, sales, and office work. We founded Yokogawa Foundry Corporation in 1999, which was certified in the same year as a special subsidiary company conforming to the Handicapped Person's Employment Promotion Law. The company is promoting employment of people with intellectual disabilities, holding up independence, autonomy, ambition, and challenging spirit as keywords. We were certified in 2002 for "group calculation" of actual employment rate of the disabled in domestic group companies and will continue to promote the active participant of employees with disabilities in cooperation with labor-related organizations.



An employee in charge of the development of new bio equipment for our life innovation business



# Human Resources Development

A diverse workforce is an indispensable resource and a key driver for Yokogawa's growth and creation of value. To achieve the targets of the Transformation 2020 mid-term business plan, whose overall goal is the creation of new value through co-innovation with our customers, Yokogawa is pursuing a human resources strategy that is focused on transformation through the strengthening of human resources, promotion of diversity and inclusion, and management of health and productivity. Moreover, to be a good partner, a good corporate citizen, a going concern, a good brand, and a good employer, we will work to establish a productive, healthy, and rewarding work environment throughout the Yokogawa Group.

## Creating a Corporate Culture in Which The Company and Its Employees Work Continue to Grow Together

### Yokogawa University is Established to Realize a "Learning Company"

With the goal of ensuring Yokogawa can continue to create greater value for our customers and society in a fast-changing world, in October 2018 we established Yokogawa University, an in-house institution, to provide our employees an environment to learn and increase the level of expertise and skills in a broad range of areas. E-learning is the primary method of training to give our employees around the globe an equal opportunity to learn without any limitations from time or locations. Also, we are developing instructors at each region who can deliver the trainings at all our locations. By offering employees opportunities to take up new challenges and supporting motivated employees to learn while cultivating a corporate culture where employees can learn from each other ("Learning Company"), Yokogawa aims to transform itself into an enterprise that is able to achieve sustained growth through employee growth and development. By offering all employees opportunities for professional growth and cultivating a corporate culture in which employees can learn from one another, Yokogawa aims to transform itself into an enterprise that is able to achieve sustained growth.

### Expanding the Program Content with a Focus on Business Contribution

Programs offered at Yokogawa University are divided into three major themes: Business literacy, which is a set of basic skills in leadership, finance, and other areas expected of a professional; themes based on functional areas of business such as sales and services needed to transform existing businesses and to impart knowledge; and themes based on new technologies and other resources needed to create new businesses and transform business models. External e-learning resources have also been incorporated to expand the programs. A cross-departmental steering committee plays a central role in preparing each program while keeping in mind how an employee will be able to contribute to the Company's business by taking the program. While the University started with some 120 programs when it opened in October 2018, the number of programs was increased to about 680 by the end of March 2019, with more on the way. Employees will apply what they learned from the programs to work and generate more value, so as to realize growth for the Company.



Yokogawa University's curriculum



E-Learning course provided by an in-house expert



Our in-house instructor teaches at a training workshop.

## Establishment of a Global Talent Management System

To sustain growth and enhance its corporate value over the medium to long-term, Yokogawa is prioritizing the development of leaders who are capable of achieving success in the global business arena. For this purpose, Yokogawa has established a committee to oversee the development of global human resources and prepare talented individuals for managerial roles. In fiscal 2018, the committee launched an initiative that seeks through the visualization of HR data to identify and develop such talented individuals.

# Decent Work

## Promotion of Work-Life Management

The environment surrounding employees and sense of values are always changing with various life stages. We are supporting the work-life management of our employees by building flexible work systems, such as a flextime system without core time, telecommuting system, and hourly leave system, so that they can concentrate on work with no worries in spite of such changes. For balancing child rearing and work, Yokogawa Electric Corporation has systems that help its workers, such as a child care hour system, which can be used until admission to an elementary school, and a care leave system. In addition, a next-generation rearing support system that supplies 100,000 yen per child once a year can also be used as an economic aid. Many employees, both men or women, use these systems and almost all of those who take a childcare leave come back to the former position after leave, thanks to many support systems after returning from a leave and to workplace culture of mutual understanding and support. To make it easier for them to take childcare leave, employees soon after the birth of their child and their superiors are informed of the availability of our childcare programs. Also, we have developed related systems, such as fully-paid childcare leave for the first week. As a consequence, the percentage of male workers who take a child care leave increased from 1.3% in fiscal 2016 to 7.2% in fiscal 2017. Moreover, Poppins Nursery Musashino, a nursery certified by the Tokyo metropolitan government, was invited onto the premises of our head office to help local residents, as well as employees, balance childcare and work. Yokogawa Electric Corporation was recognized in 2007 by the director-general of the Tokyo Labor Bureau as a company supporting child rearing.



The accreditation mark "Kurumin"

The telecommuting system and time-unit leave system Yokogawa Electric Corporation introduced in 2016 are used by many employees, including those who need child rearing or care support, as a work style with no restriction of time and place. In an effort to create an environment in which it is easier for employees to use these systems, our in-house newsletter covers the work styles of the colleagues effectively using the programs and a message from the president. In this way, we have employed many different media channels to encourage the use of the programs. HataLabo (work style laboratory), an information site that was opened on the intranet to introduce various examples of work styles and work systems. A campaign to encourage all the employees to use telecommuting system was conducted for one month in fiscal 2018. The number of users of the system, which was initially about 30 after it was introduced, rose to more than half of the total number of Yokogawa Electric Corporation's employees during the campaign period. Also, the time-unit leave system was used by 1,192 employees, more than half of the total employees, in 2018 for a total of 11,411 hours. Yokogawa will promote its work-style reform, by providing an environment where each one of our various employees can challenge and grow while balancing work and life, so that they can create new values.



HataLabo mark

## Workplace Reform

From fiscal 2018, we have worked on the introduction and improvement of free work spaces. These spaces are intended for many different purposes. For example, Collaboration Space is designed to facilitate internal collaboration; Relaxation Space helps staff members to come up with ingenious new ideas; and Concentration Space is for individuals to concentrate on their respective tasks. By allowing employees to freely choose where they work in accordance with the given situation, these spaces are made more efficient and comfortable to work in.



Free workspace at the head office of Yokogawa Electric Corporation

## Decent Work

### Management of Health and Productivity

As a policy to maintain and promote the health of our employees, Yokogawa has been working on creating work styles free from time and local restrictions and a comfortable office environment, management of working hours and health development programs. In September 2016, we established the Health Declaration as a common basic policy of the group on health management in order to further accelerate various efforts on employee health from the viewpoint of health and productivity management. Yokogawa Electric Corporation has been included in the “Kenko Keiei (White 500)” list of large companies with excellent health and productivity management practices for three consecutive years.

#### Health Declaration

Yokogawa will support its employees’ proactive efforts to stay mentally and physically healthy and create vigorous and energetic work environment in pursuit of a company to contribute toward a healthy and abundant society.



Kenko Keiei Logo  
Kenko Keiei (management of health and productivity) is a registered trademark of the NPO Kenko Keiei Kenkyukai.

### Health Development Program

In 2015, Yokogawa started a health development program where employees independently check their condition and are encouraged to do self-care and improve their health. The program includes counting the number of steps in a one-week period, doctor’s questions (about exercise, eating, drinking, smoking, sleep and cognitive habits) and the measurement of body composition and physical fitness. In addition, occupational physicians refer to findings from previous checkups and give each employee tips to improve lifestyle. For instance, moderate exercise helps to prevent

lifestyle-related illness and mental diseases, serves as stress relief, and also improves job performance. We provide support so that good practices take root, which enables employees to work in their best condition.



Body composition measurement

One-leg stand test

### Employee Assistance Program (EAP)

#### EAP for a Healthy, Fulfilling Company Life

We offer an Employee Assistance Program (EAP) which is designed to help employees to exhibit continuously high performance while avoiding a state in which they cannot demonstrate their original capacities due to health problems and change of life stage. In EAP, we establish a comfortable working environment while improving the system to suit the current situation and support employees from both sides of mental health (e.g. stress care) and the career (e.g. reinstatement support). It is our goals to ensure that all our employees stay in good health and have a fulfilling company life.

#### Key Activities Under EAP

Education/PR	Utilize e-mail and web pages to provide relevant information that will help employees gain a better understanding of mental health.
Mental health training	Implement training for new employees and managers to strive for mental health prevention and early detection of stress.
Stress check	Based on the results of the stress check, identify causes of stress in the workplace. Implement employee-led programs and activities, with the Company’s support, in order to prevent, contain and remove these causes so as to ensure a more comfortable workplace.
Assistance for returning to work	To care for the employee who suffers from mental health problems or takes a leave of absence for recuperation, and to ensure the smooth reinstatement of those who return to work after recovery so as to prevent them from falling into the same problems again, we have a system to provide proper support for each individual or workplace depending on the seriousness of the condition or situation.

## Harassment Prevention

In order to promote diversity and improve the environment in which diverse human resources can participate, we created the “Corporate Policy for Harassment” and developed the “Harassment Prevention Guidelines” in 2016. We encourage employees of Yokogawa Electric Corporation and domestic group companies to be respectful of one another and inform of the disallowing of any harassment behavior, including sexual harassment, power harassment, harassment behavior that interfere with the use of childcare and nursing care leave, stalking, and discriminative acts against LGBTs, and are making efforts for their compliance and implementation.

We have the “Yokogawa Group General Counseling Desk” in Yokogawa Electric Corporation, where employees of the company and domestic group companies can receive consultations about various matters including harassment. When consulted, we conduct necessary hearings and investigations on workplace conditions based on consultants’ intentions, taking their privacy into consideration. If any harassment case is detected, we take strict actions on the person who committed the harassment and give appropriate guidance such as requesting measures to prevent reoccurrence. We will not provide disadvantageous treatment to consultants and employees who contribute to the verification of facts.

Health development	For the purpose of physical and mental health promotion of employees, we offer health development programs such as improving the living habits and exercise habits. Physical exercise is effective in the prevention of mental disorders as well as physical illness, we are supporting the health promotion of employees so that the employees themselves to check their health status and care the body.
Consultation	We have a system to help our employees seek consultation within the company or from external institutions specialized not only in mental health but also in various areas of human relationships, career issues, sexual harassment, power harassment, and the discrimination including LGBT etc.

## Decent Work

### Occupational Health and Safety

The Yokogawa Group has introduced an Occupational Health and Safety Management System (OHSMS) and is pushing forward continuous improvement of levels of activities related to occupational health and safety and reduction of risks. It is making efforts to improve the level of occupational health and safety, including activities to eliminate and reduce potential risks through risk assessment, as well as periodic evaluation and review of the activities through internal audit. Yokogawa is also enhancing the effectiveness of its mechanism that combines the activities going on from the past, such as analysis of and countermeasures against near-misses and health and safety patrol, with these activities.

### Occupational Health and Safety Policy

In recognition that occupational health and safety are a basis for the management of the Group, Yokogawa shall pursue the following initiatives to promote, create and maintain health and safety for all of its personnel involved.

- Establish and promote an occupational health and safety management system
- Observe the laws and regulations relating to occupational health and safety
- Seek to eliminate or lessen risks to occupational health and safety by first assessing their danger level
- Promote open communications with Yokogawa Group personnel, customers, shareholders, members of the local community, and contractors to maintain occupational health and safety system
- Provide the education and training to all of the Yokogawa Group personnel
- Invest management resources appropriately, perform audits on a regular basis and make continual improvements in the Yokogawa Group occupational health

and safety system.

### Operation of the Occupational Health and Safety Management System (OHSMS)

Improvements are made in phases, with constant assessments to eliminate or minimize potential risks. Regular evaluations and reviews of the activities are also done through audits. The effectiveness of the system has improved by combining conventional activities, such as safety patrols, analysis and countermeasures against occupational incidences and near misses.

### Occupational Health and Safety Objectives

- 1. Elimination or reduction of occupational accidents  
Secure safety and promote health for personnel involved
- 2. Establishment, maintenance and improvement of occupational health and safety management system (OHSMS) is;
  - (1) To make continual improvements in OHS activities, through implementation of PDCA cycle and sharing OHS activities information
  - (2) To conduct risk assessments in all Yokogawa Group Companies, for eliminating or reducing risks
  - (3) To maintain OHS at its current level or improve it by carrying out OHSMS audits
- 3. Observation of laws and regulations  
Observe all OHS-related laws and regulations
- 4. Conduct of OHS activities is;
  - (1) To maintain and/or improve OHS control level
  - (2) To build awareness of traffic safety
  - (3) To provide OHS training
  - (4) To conduct fire and evacuation drills
- 5. Disclosure of OHS information  
Communicate openly with Group personnel and the local community about OHS activities and results

### OHSMS Structure





## Decent Work

### Occupational Health and Safety Education and Training

To maintain and improve standards throughout the entire Group's activities and eliminate occupational accidents, we offer activities targeting all Group employees to raise awareness of health and safety, and we have appointed personnel and a secretariat responsible for health and safety activities. New personnel are offered education and health and safety committee workshops, as well as on-site safety training at customer plants and factories. We also provide first-aid/lifesaving training courses, commuter-accident response drills, and so on.



First-aid/lifesaving training (Yokogawa Electric Corporation)

### Yokogawa Safety Handbook

As one measure to achieve our sustainability target (for elimination of occupational accidents), the Yokogawa Safety Handbook was published in 2019. This handbook, for use throughout the Yokogawa Group, is intended as a reference to help employees ensure safety and behave in a safe manner. It comprises nine safety principles and three tips on occupational health and safety. The nine safety principles focus on reducing the risk of occupational accidents. The three tips introduce topics helpful in building and maintaining a safe workplace environment. The handbook was translated into multiple languages and distributed to all staff members of the Yokogawa Group.

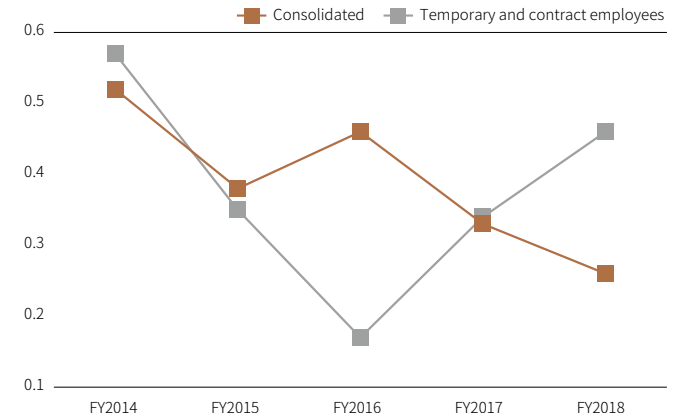


Yokogawa Safety Handbook

### Elimination of Occupational Incidents and Accidents

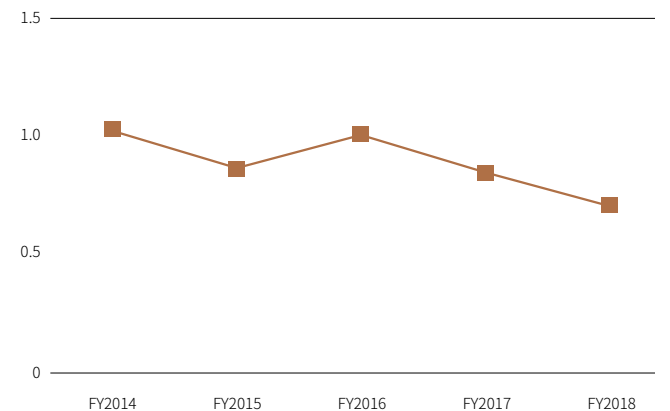
To eliminate/reduce occupational accidents and improve the quality of health and safety activities, the Yokogawa Group gathers and analyzes data and information on occupational accidents on a quarterly basis. The information is provided Group-wide on the intranet to prevent similar accidents.

■ Frequency Rate of Days Lost To Injury



Frequency rate of days lost to injury: (number of occupational accidents with lost days / total working hours) × 1,000,000

■ Frequency Rate of Occupational Accidents



Frequency rate of occupational accidents: (number of occupational accidents / total working hours) × 1,000,000

# Human Rights

Yokogawa has explicitly defined respect for human rights as part of the Group's policies in the Yokogawa Philosophy, the Yokogawa Group Code of Conduct, and the Group Management Standards (GMS). Yokogawa has also declared its support for the UN Global Compact; we pursue initiatives based on respect for the human-rights guidelines proclaimed in the Global Compact, as well as international human-rights standards.

The GMS, which apply throughout the Yokogawa Group, state in writing the basic policies for the Group's management. These standards provide clear rules and guidelines relating to matters including human rights, obedience to the law, and occupational health and safety. Regarding human rights initiatives throughout our supply chain, our Sustainable Procurement Guidelines include provisions prohibiting forced labor, child labor and discrimination. The guidelines also cover appropriate wages, legal compliance regarding work hours, and employees' right to organize. Our suppliers are required to obey these guidelines. Additionally, Yokogawa has set up compliance hotlines for everyone working at the company as a way to proactively avoid human rights violations. The Yokogawa Group Code of Conduct, which provides a basic policy and standards of action to guide the Group and all individuals engaged in Group business to achieve our corporate philosophy, sets the standards regarding human rights shown below and to the right. (The boxes show excerpts from the Yokogawa Group Code of Conduct)

## Chapter 1 Basic policy of the Yokogawa Group

### Respect for human rights

- We support internationally recognized human rights standards and respect the dignity and human rights of all people.
- We strive to ensure that our business activities do not infringe on human rights, and if we discover such situations, we will respond quickly.

## Chapter 2 Yokogawa Group Code of Conduct

### Relationship between the company and employees

- **Prohibition of forced and child labor**  
We do not allow the use of forced or child labor in any workplace, wherever that may be around the world.
- **Eliminating discrimination and creating a comfortable working environment**  
We do not discriminate on the basis of race, color, sex, religion, political opinion, country of origin, social origin, disability, or other circumstances. We also strive to improve the abilities of our employees, foster workstyles that respect individual differences, and provide a pleasant work environment that is healthy and safe.
- **Respect of workers' rights**  
We observe labor laws and agreements and respect the rights of workers, including the freedom to participate in labor unions. We also strive through good communication to maintain and develop a relationship of trust between labor and management.
- **Prohibition of harassment**  
We build a corporate culture that encourages employees to treat each other with respect and does not tolerate sexual, power, and other forms of harassment.

### Relationship with local communities and society

- **Contribution to local development**  
As a good citizen, we build cooperative relationships with local communities, and through the provision of employment and other means, we contribute to the sustainable development of the countries and regions in which we operate.

## International Standards and Guidelines Which We Support

Yokogawa supports the human rights recognized internationally by the following standards and guidelines and works to promote human rights.

- The UN International Bill of Human Rights (Universal Declaration of Human Rights, International Covenant on Economic, Social and Cultural Rights, and International Covenant on Civil and Political Rights)
- The UN Global Compact
- The UNHRC Guiding Principles on Business and Human Rights
- The OECD Guidelines for Multinational Enterprises
- Eight ILO fundamental Conventions (Nos. 87, 98, 29, 105, 138, 182, 100, 111)
- The ILO Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy
- The ILO Declaration on Fundamental Principles and Rights at Work and its Follow-up
- ISO 26000: Guidance on social responsibility

# Involvement with Local Communities

Aware of its responsibilities as a "good citizen," Yokogawa strives for harmonious coexistence with the communities it serves. We not only contribute to society through business activities, but also implement wide-ranging community programs. We at Yokogawa are committed to cooperating with the communities and governments in all countries and regions in which we do business, to thereby achieve their common goals and contribute to their growth.

We also encourage our employees to participate in community programs as "good citizens." Specifically, we run skill-development programs and participate in environmental conservation activities in local communities. We also provide volunteer programs designed to let our employees make use of their various skills and competences for the community.

## Our Corporate Citizenship Policy

Based on the Yokogawa Philosophy and the Yokogawa Group Code of Conduct, we give back to society mainly in the areas related to our core business.

### Focus areas

- Our regions of operation
- Our business fields
- Disaster relief
- Contribution to the development of society



Community education program using Yokogawa products (Goal 4 of the SDGs)

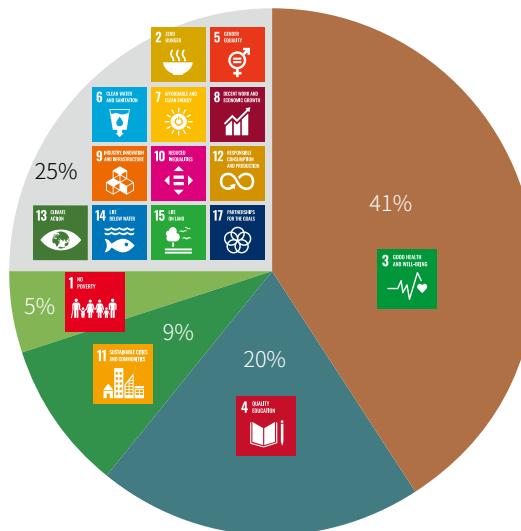
## Guidelines on Corporate Citizenship Expenses

The Yokogawa Group undertakes corporate citizenship activities (initiatives to give back to society), having laid down Guidelines on Corporate Citizenship Expenses. We ensured transparency for activities that involve donations and expenditures by clarifying the procedures and standards for decision-making and approval.

## Corporate Citizenship Activities

Our corporate citizenship activities for fiscal 2018 included financial assistance (194 million yen), donations of goods and the use of facilities (equivalent to 7.4 million yen), and volunteering by our staff members (equivalent to 20 million yen). Classifying our corporate citizenship activities according to the SDGs, Goal 3 (good health and well-being) accounted for the largest number of activities. Out of the 17 goals comprising the SDGs, our activities contributed to 16 goals in total.

■ Our Corporate Citizenship Activities in Fiscal 2018



(Based on the number of projects)

## Major Corporate Citizenship Activities and Contribution to SDGs



### 3. Good health and well-being

Ensure healthy lives and promote well-being for all at all ages

- Supporting sports organizations and events (Japan)
- Supporting mother and child health activities (Japan)
- Blood donation (Japan, United States, Bahrain, Saudi Arabia and Indonesia)
- Visiting and supporting elderly communities (Netherlands, Czech Republic and China)
- Supporting a project for the development of a health-oriented society (Spain)
- Donations to medical institutions (United States, Germany, UK and India)
- Donations to communities' cultural events (Japan)



### 4. Quality education

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

- Outdoor education events (Japan and South Korea)
- Supporting community education programs and activities (Japan, United States, Netherlands, Germany, UK, Tatarstan, Saudi Arabia, South Africa, Singapore, Indonesia, Thailand, India and China)



### 11. Sustainable cities and communities

Make cities and human settlements inclusive, safe, resilient and sustainable

- Supporting disaster-affected areas (Japan and United States)
- Local volunteer activities (Japan, Australia and New Zealand)
- Supporting international exchange (Japan, United States and Bulgaria)



### 1. No poverty

End poverty in all its forms everywhere

- Providing financial support for community centers (South Korea)
- Providing financial support for clothes, living expenses and school supplies (Japan, Indonesia, China and South Korea)



- Providing financial support for meals and living expenses (Spain and South Korea)
- Forestation (Australia, New Zealand and Singapore)
- Supporting biodiversity activities (Singapore, Indonesia, Malaysia, Philippines, Thailand, Vietnam and Taiwan)
- Supporting the empowerment of women (Australia, New Zealand and India) etc.

See our website for information about the Yokogawa Group's community programs.



# Environment

Climate change and resource-related problems are growing concerns that may affect not only the continued existence of business activities but also the continued existence of humankind itself. Companies must make proactive efforts to protect the global environment.

This chapter explains Yokogawa's environmental conservation activities.

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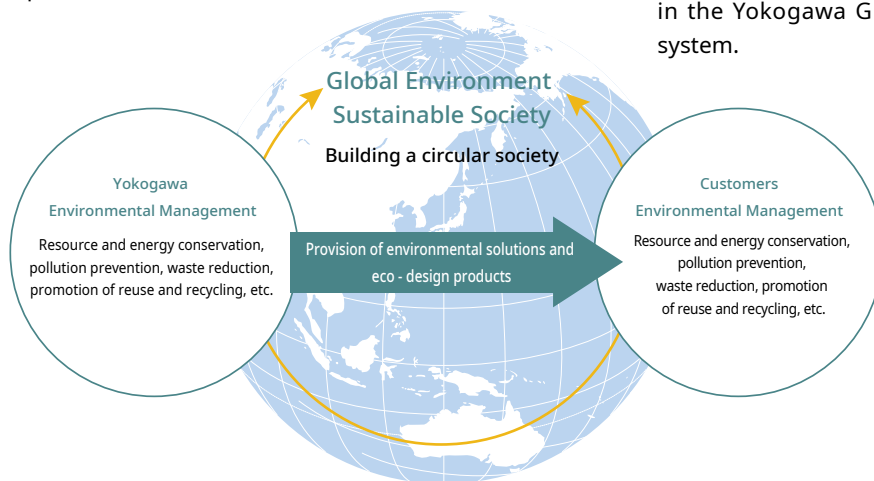
# Environmental Management

## Environmental Policy

Based on the Yokogawa Philosophy which states, "Our goal is to contribute to society through broad-ranging activities in the areas of measurement, control, and information," Yokogawa will pursue the following environmental activities to achieve our Three goals for the year 2050 and realize a sustainable society.

- Establish its environmental management system, clarify its roles, authorities and responsibilities and pursue the environmental activities.
  - Observe the laws and regulations, set voluntary standard if needed and strive to prevent pollution.
  - Promote the prevention of environment by setting environmental objectives about environmental issues such as climate change, biodiversity and use of resources.
- (1) Carry out resource recycling management by endeavoring to reduce, reuse and recycle of resources, conserve energy use and prevent global warming, and minimizing the risks of environmental pollution in all of the operations.

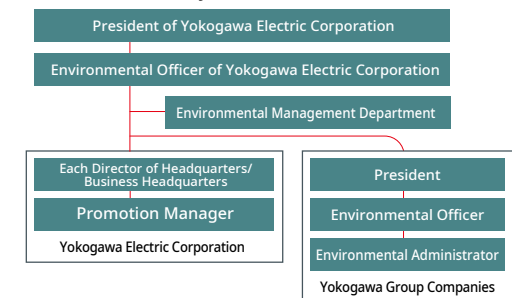
- (2) Develop and produce environmentally friendly "green" products in consideration of the environmental burden throughout the products' lifecycle, from material purchase, manufacturing and distribution, to use and disposal of the products.
- (3) Supply society with value-added solutions and services for conserving the earth's environment through measurement, control, and information technologies.
- (4) Encourage its employees to participate in environmental conservation activities under their own initiative as good corporate citizens.
- Provide all working people in the Yokogawa Group the education and training necessary for promoting environmental conservation activities.
  - Disclose information and promote open communications with all working people in the Yokogawa Group, customers, shareholders, members of the local communities and contractors to deepen and co-create environmental conservation actions and initiatives.
  - Evaluate environmental performance, conduct audits on a regular basis, and make continual improvements in the Yokogawa Group environmental management system.



## Organization

The environment management system of Yokogawa Group is managed by the directors of the environment in Yokogawa Electric Corporation. The system promotes the group's global environmental conservation activities and preventive measures against global warming.

### Environment Promotion System



## Environmental Management System

We are implementing an Environmental Management System in its group companies to ensure full compliance with the laws, regulations, agreements for the prevention of environmental pollution. Moreover, to reduce the impact on the environment, we are encouraging energy conservation and a shift to alternative technologies which have lower environmental impact. Yokogawa has acquired ISO 14001 certification at its major offices and manufacturing sites as part of its effort to improve the Environmental Management System.

### Internal Audits

Internal audits for ISO14001 are conducted at least once a year.

### Annual Surveillance

Regular inspections (renewal inspection or surveillance) are conducted at each ISO14001-certified group company by a certifying organization in order to maintain ISO14001 certification.

### ISO 14001 Certification at Yokogawa Group

The Yokogawa Group has achieved ISO 14001 certification primarily at its major offices and manufacturing sites in Japan and abroad. See our website for our certification status.

# Climate Risks and Opportunities

## Response to Climate Change Issues

Climate change due to anthropogenic greenhouse gas (GHG) emissions may present significant risks and opportunities for corporate business activities. The supply chain for energy resources such as petroleum, LNG and electric power greatly influences GHG emissions around the world; however, the Yokogawa Group's business relies on the supply chain's companies as its customers. We help customers reduce GHG emissions through stable operations and improved business efficiency overall, as well as through solutions for saving energy. In the midterm, construction of new coal-fired power generation facilities has stagnated while demand has grown for LNG—a type of clean fossil fuel with lower GHG emissions—for use as a temporary alternative until renewable energy becomes widely available. Accordingly, LNG has started to make a positive contribution to Yokogawa's business. In addition, markets for renewable energy, electricity storage, electric power transmission and energy supply/demand management, among others, are expected to grow dramatically and are where Yokogawa's accumulated expertise in measurement and control can be utilized. Furthermore, in recent years, customers have shifted their business strategies significantly in light of the challenges presented by climate change. These developments are a big business opportunity for Yokogawa. In collaboration with our partner companies, we will actively propose new solutions and work on business expansion.

As can be seen from the carbon efficient indices selected by the Government Pension Investment Fund in Japan, institutional investors are increasingly interested in the carbon efficiency of companies business activities. As we expect GHG management to take on a greater importance that may influence corporate value, we will push ahead with reducing GHG emissions in pursuit of targets consistent with the Paris Agreement.

### Information Disclosure

We are determined to prepare for the future by facing up to the challenges presented by climate change proactively. Accordingly, in February 2019 we expressed our support for the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), established by the Financial Stability Board to encourage financial disclosure relating to climate change. Yokogawa will continue to undertake climate

change-related risk analysis and financial impact assessment and will work toward full information disclosure as follows.

- **FY2018:** Expressed support for the TCFD recommendations
- **FY2019:** Disclose financial information relating to climate change in line with the TCFD recommendations (see the table below)/ Start an analysis of the mid- and long-term risks of climate change
- **FY2020:** Evaluate and disclose the financial impact of climate change on our mid- and long-term business plans

## Climate-Related Financial Information

Governance Governance around climate risks and opportunities	
<p>TCFD's recommended disclosure:</p> <ul style="list-style-type: none"> <li>a) Structure for monitoring and supervision by the Board of Directors</li> <li>b) Management's role</li> </ul>	<p>The Board of Directors formulates basic policies for dealing with climate change and for developing a risk and opportunity management system. The Board also monitors and supervises the effective operation of the system, as well as the setting of sustainability targets and their implementation status. Our executive team manages risk through internal controls with the Management Board functioning as a supreme body. It also sets sustainability targets linked with our mid-term business plan and works toward their achievement, reporting progress regularly to the Board of Directors.</p> <p style="text-align: right;">Related information ► Sustainability governance (P. 25) Risk management (P. 47)</p>
Strategy Impact of climate risks and opportunities on businesses, strategy and financial planning	
<p>TCFD's recommended disclosure:</p> <ul style="list-style-type: none"> <li>a) Short, medium and long term risk</li> <li>b) Impact on businesses, strategy and financial planning</li> <li>c) Resilience of the strategy to climate scenarios</li> </ul>	<p>When formulating our long-term business framework, which defines our vision for the next ten years, and the TF2020 mid-term business plan targeting FY2020, we considered energy resource trends and the pressing need to address social issues as climate change-related shifts in our external environment. In light of the trends, we set the Three goals representing the sustainable, low-carbon, and circular society that we should pursue for future generations. In the mid-term, we will make more use of renewable and low-carbon energy to achieve our sustainability targets of contribution to the overall avoidance of GHG emissions, improvement of customers' resource efficiency, and reduction of GHG emissions resulting from our business activities. The expansion of LNG and renewable energy expected in the mid-term, and the growing need to reduce CO<sub>2</sub> emissions through energy saving, work in favor of our business operations as we pursue business expansion.</p> <p style="text-align: right;">Related information ► Three goals of sustainability (P. 5)</p>
Risk management How we identify, assess and manage climate risks	
<p>TCFD's recommended disclosure:</p> <ul style="list-style-type: none"> <li>a) Processes for identifying and assessing</li> <li>b) Processes for managing risks</li> <li>c) How these processes are integrated into overall risk management</li> </ul>	<p>To control uncertainty affecting our corporate value, we conduct risk management for the entire Group from two perspectives: business opportunities, and compliance and crisis events. The risk management process includes evaluating the risks resulting from climate change for individual fiscal years and over the medium to long term, and implementing measures such as risk reduction. As Yokogawa pursues business expansion under TF2020, we see a big business opportunity in the shift of our customers' business strategies based on the growth of markets relating to renewable energy and the challenges presented by climate change. Furthermore, we are committed to improving the carbon efficiency of our business activities.</p> <p style="text-align: right;">Related information ► Risk management (P. 47)</p>
Metrics and targets Metrics and targets to assess and manage relevant climate risks and opportunities	
<p>TCFD's recommended disclosure:</p> <ul style="list-style-type: none"> <li>a) Metrics used for assessment</li> <li>b) GHG emissions and the related risks</li> <li>c) Targets and performance</li> </ul>	<p>Our target for mitigating climate change is one billion tons of CO<sub>2</sub> emissions avoided in terms of business (FY2018–2030), with a 34% reduction of GHG emissions in terms of operations (from FY2013 to FY2030). Our FY2018 performance is disclosed in this report.</p> <p style="text-align: right;">Related information ► Stopping climate change (P. 6) Global warming prevention (P. 41) Sustainability data (P. 60)</p>

# Environmental Practices

## Data of Environmental Practices

### Overview of Environmental Impact

The Yokogawa Group calculates the annual volume of the energy and material inputs for its business activities (including manufacturing, sales, and service) as well as their annual output of waste and other matter into the air and water. This analysis helps the Group effectively use resources, improve energy efficiency, and improve the waste recycling rate.

### Compliance with Laws

In 2018 Yokogawa again endeavored to ensure full compliance with environmental laws, regulations, agreements, and so on, and had no major violations and fines.

### Eco-Balance (Annual Input and Output)

INPUT				Business activity	OUTPUT				
Item			FY2018		Item			FY2018	
Energy	Total			1,539TJ	Atmosphere	GHG			83,886t-CO <sub>2</sub> e
	Power	Purchased power	131,325MWh	NO <sub>x</sub>		4.2t			
		Renewable energy	131MWh			SO <sub>x</sub>	0.2t		
	Oil	Heavy oil	89kL	Drainage	Plant waste water			68K m <sup>3</sup>	
		Light oil	482kL		General wastewater			430K m <sup>3</sup>	
		Gasoline	2,961kL		Waste	Landfill			784t
		Kerosene	18kL			Acid and alkali			752t
	Natural gas	LNG	2,264K Nm <sup>3</sup>	Combustion			126t		
		LPG	363t	Recycling	3,528t				
	Heat	108GJ							
Water	Utility water	319K m <sup>3</sup>							
	Ground water	242K m <sup>3</sup>							
Substances	Papers	269t							
	Hydrogen fluoride and its water-soluble salt	2t							
	Ferric chloride	6t							
	Hydrazine	1t							

### Conserving Water and Soil

We have conducted soil and water studies at former production sites in accordance with its proprietary control standards, starting before the enactment of Japan's Soil Contamination Countermeasures Law.

### Enlightenment Activities

With the aim of raising employee' awareness about the environment, e-learning courses on quality, the environment, and safety are given, environmental movies are shown, and lectures are held for all employees of the Group.

## Environmental Accounting

In accordance with the Ministry of the Environment's Environmental Accounting Guidelines (2005 edition), Yokogawa calculates the costs of its environmental activities and quantifies their economic impact.

### Environmental Conservation Costs (FY2018) (Unit:¥1M)

Category	Item	Main Initiatives	Capital Investment	Related Costs
Costs for reducing environmental impact of factories (areas of operation)	Pollution prevention costs	Monitoring and measurement	6.0	56.3
	Environmental conservation costs	Energy savings	1,621.4	725.4
	Resource recycling costs	Waste reduction, water conservation	193.0	61.8
Costs for reducing environmental impact of procurement and logistics		Green procurement	0.0	44.0
Environmental conservation costs in EMS activities		EMS updates, education	0.0	180.0
Environmental conservation costs in community activities		Environmental events	0.0	0.8
Costs for correcting damage to the environment		Soil recovery	0.0	49.1
Total			1,820.4	1117.4

\* Data covers ISO14001-certified manufacturing sites.

### Environmental Conservation Effects

Category	Description of Effect	FY2017	FY2018	Increase / decrease
Expenditures	Total amount of energy consumed (TJ)	1,038	1,064	26
	Total amount of water resources consumed (K m <sup>3</sup> )	459	446	-13
Global warming prevention	CO <sub>2</sub> emissions (t)	54,915	54,598	-317
Emissions	Total amount of waste emissions (t)	3,466	3,764	298

\* Data covers ISO14001-certified manufacturing sites.

### Economic Effects of Environmental Conservation Measures (FY2018) (Unit:¥1M)

Segment	Amount
Reduction in expenditure due to recycling (sale of valuable resources, etc.)	30.8
Reduction in expenditures, resource and energy savings (power, water, paper, etc.)	170.2
Total	201.0

\* Data covers ISO14001-certified manufacturing sites.

# Eco-Design

Yokogawa's eco-design products contribute to environmental conservation and energy savings in our customers plants and development of higher efficiency products. In this page, we introduce our analyzers as examples of eco-design products.

## Next Liquid Analyzer Contributing to Environmental Protection

Liquid analyzers such as pH analyzers, dissolved oxygen analyzers and conductivity analyzers are used for water quality management and waste water treatment to ensure compliance with environmental regulations. However, controlling water quality involves issues of, for example, installing multiple analyzers and exchanging and calibrating periodically.

Liquid analyzer FLXA402 reduces installed units by measuring from up to five sensors in one unit and improve work efficiency by a useful color LCD panel and user-friendly Human Machine Interface. With the newly added functions for calibration and device diagnosis, the digital sensors composed of the SA11 SENCOM smart adapter and sensors with ID chips facilitate maintenance without requiring expertise. Enabling the replacement of only sensors leads to a reduction of waste of used parts. Yokogawa will spur the extension of wastewater treatment by reducing the installation cost and improving maintenance efficiency and reducing waste, and contribute to achieving Target 6.3 of the SDGs: halving the proportion of untreated wastewater.



FLXA402/SENCOM smart adapter SA11, liquid analyzer

## Improvement of Combustion Efficiency and Reduction of CO<sub>2</sub> by New Laser Gas Analyzer

To achieve highly efficient operation of combustion furnaces, combustion control based on precise measurement of O<sub>2</sub> and CO concentrations in the exhaust gas is essential.

TDL8100 probe-type tunable diode laser spectrometer does not require a sampling system and measure simultaneously with high accuracy and high reliability with the use of laser light. Measuring NH<sub>3</sub> in the exhaust gas can control the ammonia injection amount of the denitration device that removes harmful components in the exhaust gas to the optimal injection amount. As a result, CO<sub>2</sub>, SO<sub>x</sub> and NO<sub>x</sub> emissions from combustion are reduced and the global environment will be preserved by preventing global warming and air pollution. Monitoring O<sub>2</sub> levels in a plant to prevent fire and explosion accidents can also contribute to occupational health and safety.

Conventional products required installation of the mounting flange on both sides of the furnace. By being installed at one side only, TDL8100 makes measurement easier. Its environmental impact throughout the product lifecycle, including manufacture, use, disposal and other stages, was also evaluated, and it was found that it outperformed conventional products in reducing CO<sub>2</sub> emissions.



TDL8100, probe-type tunable diode laser spectrometer

## High-Precision Power Analyzer Contributing to Power Saving and Higher Efficiency of Next-Generation Vehicles and Renewable Energy Infrastructures

Towards the realization of a sustainable society, development of the next-generation vehicles, EV and PHV/ PHEV, and of renewable energy infrastructure networks is accelerating around the world.

When testing inverters or motors that generate power in place of an engine in the next-generation vehicles, it is required to measure various kinds of data with high accuracy in varying conditions. The WT5000 measures with extremely high accuracy such data as motor rotation speed/ torque output as well as inverter voltage/current/power over a wide range of driving conditions.

In the field of renewable energy such as photovoltaic and wind power generation, developmental efforts to increase the conversion efficiency to the maximum are underway. For that, it is extremely important to measure power energy at various points with high accuracy with power analyzers synchronized with one another. A single WT5000 has measurement capabilities from up to 7 power input elements and multiple WT5000s can be linked and synchronized for measurement. This is an ideal power analyzer for measurement in this field.



WT5000, a high-precision power analyzer



## Eco-Design

### Guidelines for Environmentally Friendly Design

Yokogawa actively develops environmentally friendly products through the implementation of its own strict standards of design and assessment for longterm usability, energy-saving performance and other aspects. New products are evaluated for energy consumption as well as the emission of carbon dioxide (CO<sub>2</sub>), nitrogen oxide (NO<sub>x</sub>) and sulfur oxide (SO<sub>x</sub>) based on our "Lifecycle Assessment (LCA) standards".

#### (1) Environmental Assessment Standards for Product Design

We have established assessment standards in eight areas: ease of recycling and treatment, resource conservation, energy conservation, long-term usability, ease of collection and transport, safety and environmental protectiveness, information disclosure, and packaging. These standards are used in conducting assessments during each inspection (initial design, intermediate design, and final design).

#### (2) Lifecycle Assessment (LCA) Standards

The LCA standards are used for preliminary assessments of energy use, CO<sub>2</sub> emissions, NO<sub>x</sub> emissions, SO<sub>x</sub> emissions, and the like throughout the lifecycle of a product. These standards are used in conducting assessments during each inspection (initial design, intermediary design, and final design).

#### (3) Environmentally Friendly Product Design Guidelines

These guidelines state for long-life design, energy-saving design, resource-saving design, recycling-disposal design and processing as well as the design considered processing and assembly and the guideline for selecting materials and parts.

#### (4) Criteria for hazardous substances contained in products

The following criteria are provided to ensure that environmentally friendly parts and materials are selected during the design phase. Controlled substances are classified into five different levels:

Banned Substance 1: Any substance that is banned from inclusion in a product

Banned Substance 2: Any RoHS command regulated substance

Controlled Substance 1: Any SVHC (substance of very high concern) under the REACH regulation

Controlled Substance 2: Any substance that is banned at certain concentrations, bound by the limited purposes of use or restricted in any way

Controlled Substance 3: Any substance for which the amount contained in a product must be identified

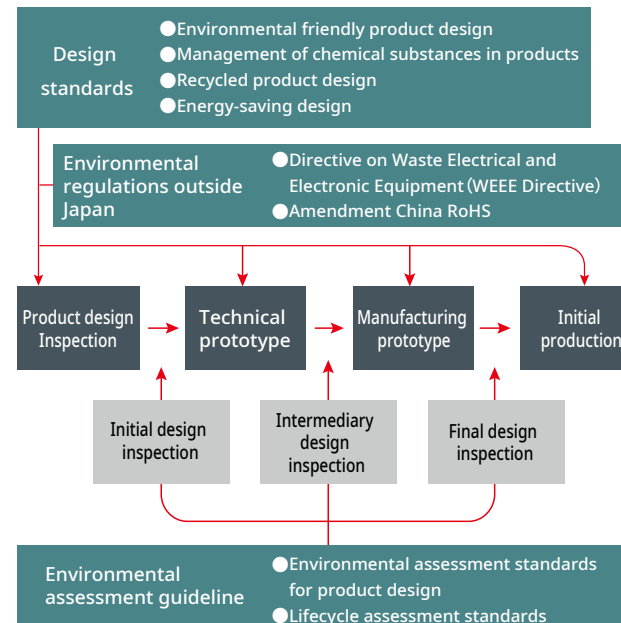
#### (5) Recycled Product Design Standards

These standards encourage the three Rs: the reduction of waste, the reuse, and recycling of used products.

#### (6) Energy-saving Design Guidelines

These guidelines state that the matters to be ensured energy-saving design in product use and manufacturing processes.

#### ■ Environmentally Friendly Design and Assessment Standards



## LCA Label

Yokogawa began to conduct the life cycle assessment (LCA) in 1999 in the design phase of all new products as part of efforts to minimize our products' environmental impact. Some of the results of the LCA are disclosed on our website. When LCA data is disclosed for a product, the applicable product is "LCA labeled" in the product webpage and/or sales brochure.



### Concept/Implementation of the LCA

Yokogawa has set its unique LCA standards based on JIS Q 14040 "Environmental management -- Life cycle assessment -- Principles and framework." We compare a new product with its previous product for assessment purposes. The results of the LCA of the previous product are multiplied by the "functional factor" to compare the environmental impacts based on the equivalent functionality of the new product. When the results of the LCA on the previous products clearly suggest how these products would impact the environment, we may only conduct LCA on the elements significantly affecting the environmental impact.

### Requirements for LCA Labeling

A product will be LCA-labeled if it meets all the requirements described below:

1. Life cycle assessment has been conducted according to Yokogawa's engineering specifications.
2. The results of life cycle assessment are disclosed on the Yokogawa website according to the company's internal rules.

The LCA-labeled products are disclosed on the Yokogawa website.

# Environmental Initiatives at Operating Bases

## Global Warming Prevention

The Yokogawa Group has set a long-term GHG emissions reduction target for the year 2030 based on the 2°C target defined in the Paris Agreement. Aiming to achieve the FY2030 target, we are improving the operation of production lines and introducing high-efficiency air conditioning equipment, inverters and LED lights. In offices and factories, we are saving energy by detecting and reducing wasteful practices through visualizing the use of energy.

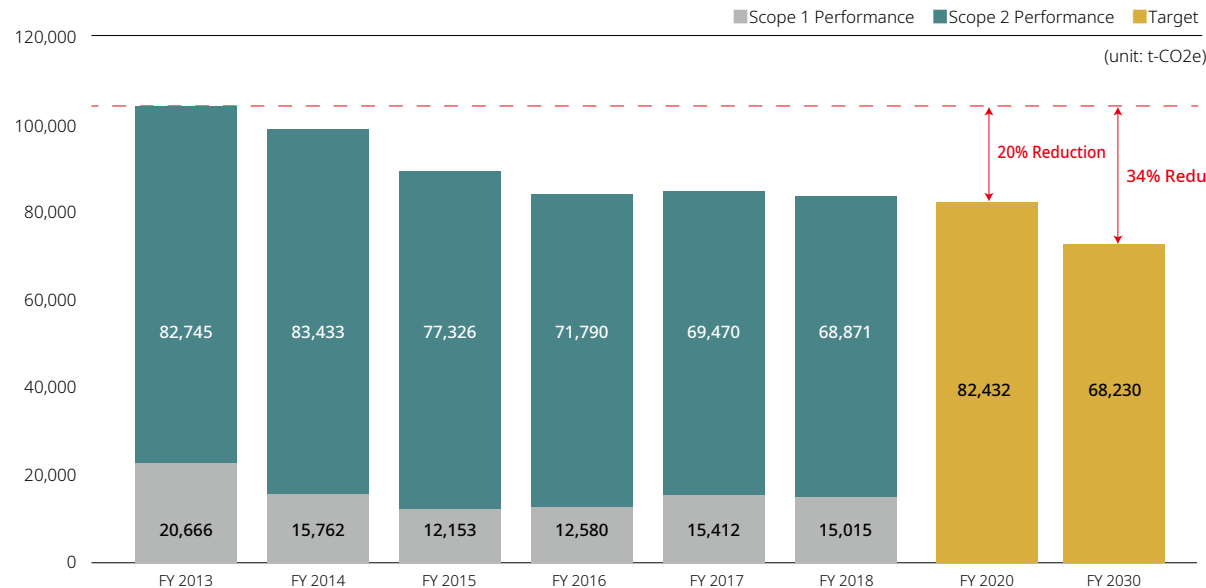
To optimize global logistics, our packaging has been

redesigned and made lighter and smaller. We also review procedures and routes for transporting shipped products in an effort to improve transportation efficiency.

## Yokogawa Group's Target for the Reduction of GHG Emissions and Performance

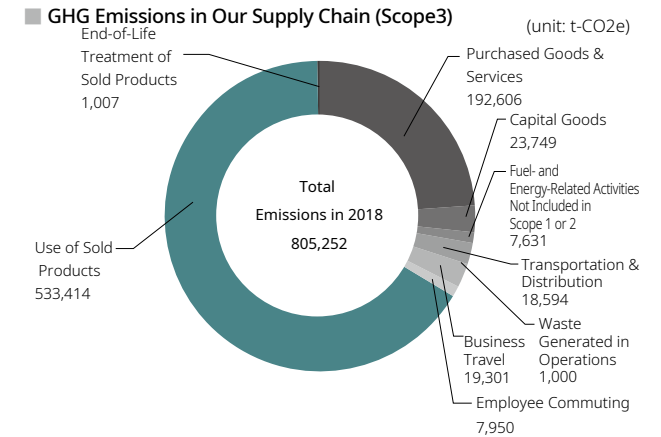
Aiming to achieve the Yokogawa Group's target for 2030 and reduce GHG emissions throughout the Group, we push forward with energy-saving measures and switch to renewable energy.

■ GHG Emission Reduction Target for 2020 and 2030 and Performance



## CO<sub>2</sub> Emissions in Our Supply Chain

We keep updated on and calculate direct emissions from fuel use and industrial processes within the Group (Scope1), indirect emissions from the generation of purchased energy such as electricity and heat (Scope2) and other indirect emissions (Scope3).



## Expansion of use of exhaust heat

### Komagane Factory, Yokogawa Manufacturing Corporation

Komagane Factory saves energy by efficiently using exhaust heat. With the use of a heat pump, heat is recovered from the warm water of the factory and is used for different purposes. For example, heat is collected from air-conditioning cooling water and used to heat the raw water for the production of ultrapure water. Heat is also recovered from warm water that was used to cool manufacturing equipment, and it's used in an air reheating process. Combining both of them, the factory's use of LPG is drastically reduced in comparison with before the use of exhaust heat, successfully reducing its energy consumption.



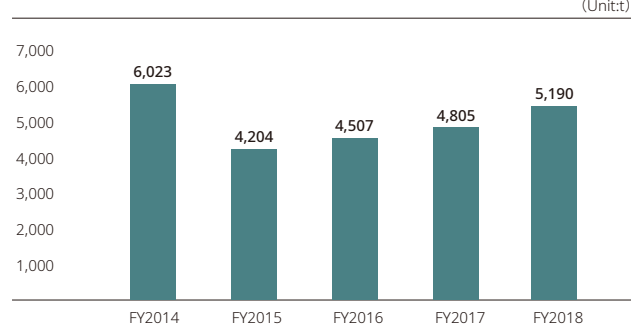
Komagane Factory

## Environmental Initiatives at Operating Bases

### Reduction of Waste

The Yokogawa Group is working to reduce waste by reducing, reusing, and recycling resources in our factories, offices, and transportations.

■ Total Waste Generation



Garbage separation at the recycling center



### Chemical Substance Reduction

The Yokogawa Group is thorough in managing chemicals that are harmful to humans and the global environment. Also, Yokogawa is developing and introducing alternative processes in an effort to reduce chemical use and waste. Furthermore, to comply with RoHS directives restricting the use of certain chemicals in electrical and electronic equipment in Europe, as well as with the REACH Regulation (Registration, Evaluation, Authorization and restriction of Chemical substances), we are implementing efforts for the reduction and management of such chemical substances.

### PRTR Substances

The amount of substances reported under PRTR\* requirements (1,000 kg/year or more handled) is shown in the table.

\*PRTR System: The PRTR, or Pollutant Release and Transfer Register, was established to enable society as a whole to manage chemical substances through the disclosure of toxic chemical emissions data and other information.

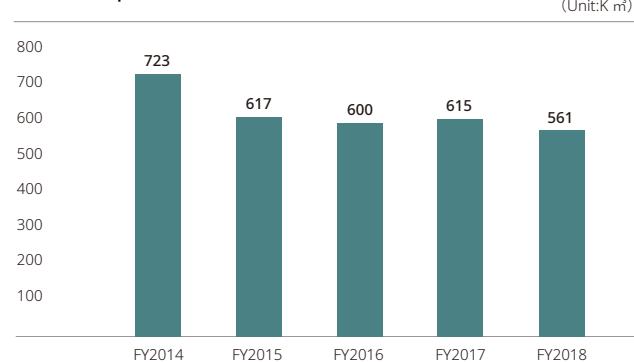
■ PRTR Data (FY2018)

Factory	Factory substance	Amount used (kg)	Amount emitted (kg)				Amount transferred (kg)	
			Air	Public water area	Soil	Landfill	Sewage system	Outside site
Komagane Factory Yokogawa Manufacturing	Hydrogen fluoride and its water-soluble salt	1,500	0	100	0	0	0	1,400
	Hydrazine	1,080	0	230	0	0	0	850
Kofu Factory Yokogawa Manufacturing	Ferric chloride	5,748	0	0	0	0	0	0

### Water Resource Conservation

Specifically, we are working to reduce the amount of water usage by improving our production processes and by introducing water-saving systems to our office water supplies.

■ Water Input



### Response to Water Risks

In regions where securing water resource is a serious challenge, the companies of Yokogawa group are promoting efforts regarding water resource through measures such as monitoring water usage and securing alternative water resource.

#### Yokogawa Electric Asia (Singapore)

To support the measures by the Singaporean government such as maintaining drinking water resource and utilizing alternative water resource, Yokogawa group companies in Singapore implement the following measures:

- Strictly comply with the guideline set by PUB (Public Utilities Board) to avoid excess use of water.
- Use NEWater (recycled water produced from treated used water) for air conditioning systems instead of normal tap water.
- Install water-saving devices to lavatories and water utilities.
- Regularly check water consumption to find water leakage early.

#### Yokogawa Middle East & Africa (Bahrain)

In Middle Eastern countries, shortage of water is a serious problem. Yokogawa Middle East & Africa contributes to the government's water protection measures through efforts as follows:

- Sets the target for reduction in water consumption per employee per year, and manages the progress.
- Use normal tap water for non-drinking purposes.
- Complying with local regulations on water protection including conservation and contamination.
- Imparting awareness on water protection amongst employees.
- Inspecting any water leakages during the HSE (Health, Safety and Environment) inspection tour at all facilities and taking immediate corrective and preventive measures on any detected abnormality in the water supply system.

## Environmental Initiatives at Operating Bases

### Promoting Biodiversity

Yokogawa stipulated that the company tackles biodiversity issues in its Group's environmental policy. Based on the Aichi Goal\*, we also promote activities to conserve biodiversity.

\* An individual goal established by COP10 (10th Conference of Parties to the Convention on Biological Diversity) in 2010 to be achieved by the international community in the field of biodiversity by 2020

#### Biodiversity Policy

Biodiversity is a foundation of sustainability in society. Together with our stakeholders, Yokogawa engages in action to conserve biodiversity, taking regional characteristics into account. We will spare no effort to reduce any negative impacts resulting from our various business activities, to improve biodiversity and to contribute to creating a better environment in local communities.

#### Biodiversity Action Guidelines

- Cooperation with the local community to enhance local value  
Take action in cooperation with the local government and NPOs to acknowledge and enhance local value.
- Providing employees with educational opportunities and raising awareness  
Raise awareness of biodiversity among employees by offering them relevant seminars and events.
- Considering biodiversity conservation within business facilities  
Operate business facilities with consideration for the ecosystem by, for example, managing their green areas.

### Yokogawa Green Volunteer Activities (Japan)

Yokogawa Electric Corporation started Yokogawa Green Volunteer activities run by employee volunteers in 2016. In FY2018, the company organized events to raise employees' awareness of biodiversity, such as a seminar on common plant varieties. With the cooperation of local governments and NPOs, elementary schoolchildren and their parents were invited to the green area adjacent to the head office for nature observation tours. A total of 13 seminars and events were held during the year with a total of about 300 participants. Yokogawa will keep cooperating with local governments, NPOs, and other local community organizations as it engages in activities to rediscover the value of nature and preserve local biodiversity.



Nature observation tour for local elementary schoolchildren

### Supporting a Biodiversity Preservation Activity in Southeast Asia (Singapore)

Yokogawa Electric Asia and its group companies support the activities of the Garden City Fund (GCF), a Singapore-registered charity established by the National Parks Board. In FY2018, Takashi Nishijima, then president of Yokogawa Electric Corporation, led a team of the local senior management to participate in the Plant-A-Tree Program, a platform for organizations and individuals to actively participate in the greening of the city. Under this program, a total of 50 trees were donated by Yokogawa. In addition, Yokogawa contributed to the GCF to set up the Southeast Asia Seed Bank, which enables research to conserve genetic resources in Southeast Asia. Seed banking safeguards plant biodiversity in the region and acts as an insurance against threats such as disease, climate changes and disasters. Stored seeds are a valuable resource for ecosystem restoration and species conservation.



Senior managers participated in the Plant-A-Tree program



# Management

Yokogawa implements management in accordance with our philosophy, and strives to achieve sustained growth and enhance corporate value over the medium to long term.

In this chapter we introduce Yokogawa's code of conduct, risk management and management structure, which form the basis for the Yokogawa Group's corporate activities.

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# Code of Conduct

## Yokogawa Group Code of Conduct

The Yokogawa Group Code of Conduct sets forth the basic principles and standards of conduct for the Group in order to realize our philosophy. In 2019, we completely revised and expanded the content of the existing code of conduct, disclosing the new code of conduct to further enforce the Group's compliance-first policy. The main changes to the content are as follows.

- Respect for international guidelines on conduct was added in light of the SDGs, the UN Guiding Principles on Business and Human Rights, and so on
- Revisions were made to treat respect for human rights as a broader concept and a Basic policy of avoiding involvement in improper conduct such as bribery and corruption was added as a fair business practice
- Contribution to society and the environment was included, and new commitments to achieve the SDGs and a sustainable society and address environmental issues were added
- New content on the relationship between the company and its employees was added, clearly stating that the company will improve the abilities of employees and foster workstyles that respect individual differences. Content clarifying the responsibility of senior management was also added.

### Chapter 1 Basic Principles of the Yokogawa Group

#### 1.1 Realizing the Yokogawa Philosophy

We act in accordance with our corporate philosophy of "As a company, our goal is to contribute to society through broad-ranging activities in the areas of measurement, control and information. Individually, we aim to combine good citizenship with the courage to innovate."

#### 1.2 Compliance with laws and regulations and cooperation with society

- (1) We observe the laws and regulations of each country and region,

respect social norms and international guidelines, and act with high ethical standards.

- (2) We respect the cultures and customs of each country and region.

#### 1.3 Respect for human rights

- (1) We support internationally recognized human rights standards and respect the dignity and human rights of all people.
- (2) We strive to ensure that our business activities do not infringe on human rights, and if we discover such situations, we will respond quickly.

#### 1.4 Fair business practices

- (1) We do not engage in any form of corruption, such as the payment of bribes or kickbacks, and conduct our business in a fair and sincere manner, maintaining sound relationships with all stakeholders.
- (2) We reject unjust and unlawful demands, and we do not engage in activities or organizations that pose a threat to the order and safety of civil society or foster criminal conduct

#### 1.5 Contributing to society and the environment

- (1) We contribute to the realization of a sustainable society through our business activities, including developing and providing safe, socially useful products and service solutions for our customers.
- (2) We understand that realizing a sustainable society is a common concern for all humankind and essential for the continued existence of the company, and act on our own initiative to address this challenge.

#### 1.6 Relationship of mutual trust with all our stakeholders

We disclose information appropriately and fairly to all stakeholders, and build and foster trust-based relationships with them by maintaining a constructive dialogue.

### Chapter 2: Yokogawa Group Standards of Conduct

#### 2.1 Relationship with customers

- (1) Providing safe, high-quality products and services  
By providing safe, high-quality products and service solutions, we aim to build long-term partnerships with our customers and grow together with them.
- (2) Accurately providing essential information  
We accurately and appropriately provide essential information to ensure the safe and satisfactory use of our products and services by our customers.
- (3) Customer entertainment and gifts  
We neither offer nor receive gifts or money to/from customers or sales partners that are in violation of sound business practices and deviate from

societal and international norms.

#### 2.2 Relationship with shareholders

- (1) Timely and appropriate information disclosure  
We actively disclose necessary information to shareholders in a timely and appropriate manner and aim for highly transparent management that wins the trust of the market.
- (2) Prohibition on the provision of unjust benefits  
We provide no incentives whatsoever with regard to the exercise of shareholders' rights, and maintain a sound and transparent relationship with all shareholders.

#### 2.3 Relationship between the company and employees

- (1) Prohibition of forced and child labor  
We do not allow the use of forced or child labor in any workplace, wherever that may be around the world.
- (2) Eliminating discrimination and creating a comfortable working environment  
We do not discriminate on the basis of race, color, sex, religion, political opinion, country of origin, social origin, disability, or other circumstances. We also strive to improve the abilities of our employees, foster workstyles that respect individual differences, and provide a pleasant work environment that is healthy and safe.
- (3) Respect of workers' rights  
We observe labor laws and agreements and respect the rights of workers, including the freedom to participate in labor unions. We also strive through good communication to maintain and develop a relationship of trust between labor and management.
- (4) Prohibition of harassment  
We build a corporate culture that encourages employees to treat each other with respect and does not tolerate sexual, power, and other forms of harassment.

#### 2.4 Community and Society

- (1) Environmental protection  
We work with our customers to protect the environment by reducing the environmental impact of 16 our products and services. We also observe environmental laws and regulations and are guided in our actions by the need to protect the environment.
- (2) Contribution to local development  
As a good citizen, we build cooperative relationships with local communities, and through the provision of employment and other means, we contribute to the sustainable development of the countries and regions in which we operate.

## Code of Conduct

### 2.5 (Relationship with suppliers)

(1) Prohibition of unfair transactions

We engage in fair business transactions based on trust with our suppliers. We do not discriminate against suppliers or use advantages to impose unilateral conditions on them.

(2) Entertainment or gifts from suppliers

We refuse to accept offers of entertainment or gifts from suppliers.

### 2.6 (Relationship with competitors)

(1) Fair and free market competition

We promote fair and free competition by complying with the laws and regulations concerning fair competition and fair trade stipulated in each country and region, and we do not participate in cartels and other anti-competitive arrangements or any type of unfair trade practice.

(2) Respecting intellectual property rights

Just as we protect our own intellectual property from infringement, we respect the intellectual property rights of others, and ensure that our intellectual property rights do not infringe on others.

### 2.7 (Relations with politics and government)

(1) Prohibition on provision of entertainment and gifts to public officials

We maintain sound and transparent relationships with politicians and civil servants and never pay bribes or provide anything of value that could be construed as a bribe.

(2) Regulation of political contributions

We comply with laws and regulations concerning political contributions and do not make contributions that go beyond legally permissible limits.

### 2.8 (Compliance in international transactions)

(1) Security trade controls

We comply with laws and regulations related to security trade control and cooperate in maintaining international peace and security. When exporting or providing goods or technology that may be used or diverted for weapons or the development of weapons, and when exporting or providing regulated goods or technology, we observe the relevant procedures and do not commit any act in violation thereof.

(2) Proper tax payment

We contribute to public finances by complying with tax laws around the world, providing products and services at an appropriate price and properly paying taxes to the tax authorities in each country.

### 2.9 (Proper use and management of Group assets)

(1) Proper use and preservation of Group property

We make proper use of the Yokogawa Group's tangible and intangible assets in our business activities and do not divert them for personal or third-party use.

(2) Thorough information security management

We have the duty to maintain the confidentiality of all confidential information held by the Yokogawa Group, including information belonging to any third party that has come into our possession through the course of our business activities. Confidentiality shall be maintained not only during employment but also after one has retired from a position with the Group. With the use and operation of information devices and other information systems, we comply with the company's security regulations and endeavor to prevent data theft and damage.

(3) Prohibition on conflicts of interest

We do not harm or endanger the company by acting in our own personal interests or the interests of a third party. We conduct all business activities in the best interests of the Yokogawa Group.

### 2.10 (Management responsibility)

The management takes the initiative in conducting sound business operations in accordance with this Code of Conduct. In the event of any violation of this Code of Conduct, the management will promptly take corrective and preventive measures, and strictly punish the offending individuals, regardless of their position within the company.

## The United Nations Global Compact

Yokogawa signed UN Global Compact in 2009 and expressed its support of 10 principles concerning human rights, labor, environment, and corruption prevention. We are promoting efforts to uphold the 10 principles with our stakeholders through such efforts as participation in Global Compact Network Japan, a local network of Japan.

Kofi Annan, former Secretary-General of the UN, first proposed the Global Compact at the World Economic Forum in 1999; the UN officially launched it in 2000. Participating companies are expected to uphold and practice international standards relating to human rights, labor, the environment, and anti-corruption. Today, Yokogawa does business around the world and its actions affect economies,

societies, and the environment. Recognizing its role as a global company, it abides by international norms and actively works to address urgent international issues such as the environment and human rights.

### Top Commitment

The Yokogawa Group Code of Conduct calls for the realization of the Yokogawa Philosophy, enhancement of customer satisfaction, observance of laws and regulations, respect for human rights, and maintenance of the order and safety of communities and society. Yokogawa is committed to fulfilling its various fundamental responsibilities as a company, including maintaining compliance and contributing to society through its businesses. Yokogawa signed the Global Compact, an international undertaking advocated by the United Nations in 2009. Accordingly, the Company endeavors to support and practice the Compact's ten principles relating to human rights, labor, the environment, and anti-corruption. Yokogawa strives to ensure that its global network of Group companies and suppliers share the same commitment to these principles. Looking ahead, every effort will be made to fulfill our corporate responsibilities as a globally operating company.



Hitoshi Nara  
President and Chief Executive Officer

## ISO 26000

ISO 26000, issued by the International Standardization Organization in November 2010, is an international standard for the social responsibilities of organisations, presenting seven core subjects including organizational governance, human rights, labor practices, environment and fair operating practices. We at Yokogawa, as a company active in the global marketplace, adhere to ISO 26000 and regard corporate governance as a key principle of Corporate Social Responsibility (CSR), which forms the foundation of corporate management. As such, we are committed to the implementation of socially responsible activities to contribute to society through business operations, environmental conservation and respect of human rights and meet our shareholders' expectations.

# Risk Management

The Yokogawa Group has in place a risk management system to control uncertainty affecting its corporate value, as well as a crisis management system with which to respond promptly to any event that could have serious impact on the company's operations.

## Risk Management System

We define uncertainty that might affect the Group's corporate value as risk, and categorize and manage this in terms of business objectives, and compliance and crisis events.

In order to realize effective risk management in the Group, we have established the risk management committee chaired by our CEO, who is responsible for risk management. The risk management committee selects critical risks for the Group requiring priority management and regularly checks

the progress of activities.

As part of independent risk management activities, each organization of the Group clarifies and assesses risks, and plans and implements countermeasures. Each organization has a risk manager and a network for the Group's risk management.

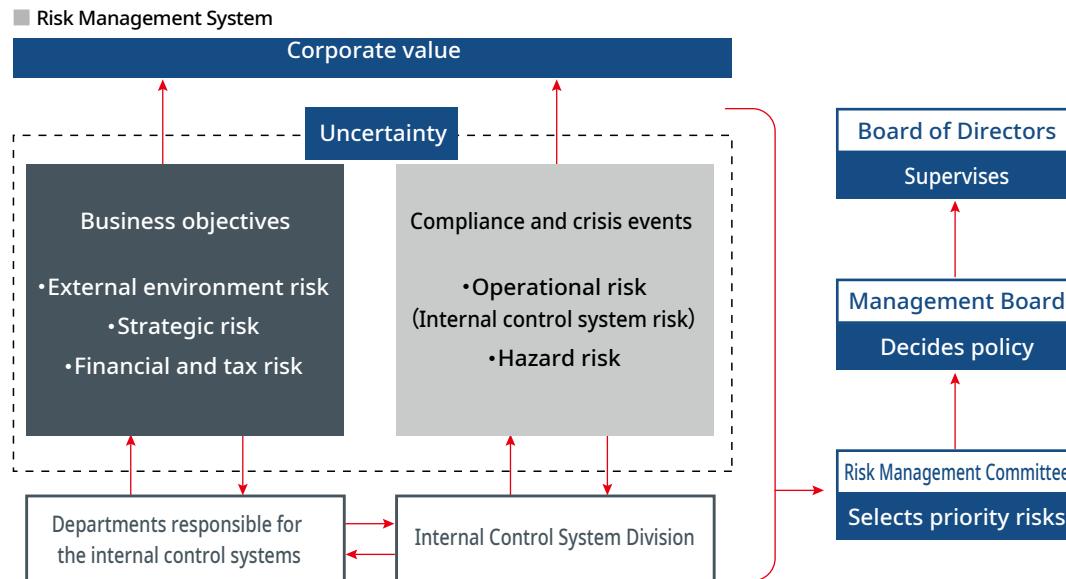
We assess the severity of risks from the perspectives of impact and likelihood of occurrence. Business opportunity risks include our external environment and strategies, and compliance and crisis event risks include product quality, environmental impact, health and safety, labor, risk management and corporate ethics (embezzlement, accounting fraud, data falsification, bribery, harassment, etc.). When we assess impacts of the risks, we take into account social and environmental impacts as well as financial and human aspects.

The department in charge of internal audits assesses the effectiveness of the Group's risk management process and reports important matters to the Board of Directors and the Audit & Supervisory Board members.

## Internal Control System

At Yokogawa, internal control is a management process for ensuring that business activities are conducted as they should be, whereby business resources, such as human resources, financial resources, and other tangible or intangible assets, are allocated appropriately and used effectively to increase corporate value.

We have a system for effective internal control in place to improve management efficiency and ensure compliant operations. Group-wide rules have been established and units have been designated responsible for each of the following systems: business ethics, decision-making, operations management, crisis management, and corporate auditing infrastructure. The individuals responsible for each system perform a system auditing function and work to ensure (i.e., maintain and improve) the effectiveness and efficiency of all Group company systems. Important matters are reported to the Board of Directors and the Audit & Supervisory Board members. When implementing the internal control system, the relevant key result indicators and action indicators are clearly defined and a PDCA cycle is implemented according to assessments of the extent to which indicators have been achieved. In accordance with the Yokogawa Group Management Internal Audit Code, the effectiveness of the internal control system is audited by the department in charge of internal audits. Yokogawa implements the internal control system to ensure the appropriateness of its business activities and increase the corporate value of the entire Group.





## Risk Management

### Escalation of Information

In the event of a disaster, accident, or incident that could seriously impact the Yokogawa Group companies' management or endanger the lives of their employees, the organization involved must minimize the damage by taking prompt initial action and reporting back to the Group's senior management. To address this issue, we have the Rules regarding Crisis Event Reporting and we ensure that all Group employees are made aware of them. These guidelines stipulate details such as the information to be reported, as well as reporting routes and methods. Every year we revise these guidelines and take steps to improve the escalation of information.

### Business Continuity Management (BCM)

Our control business, which is a core segment of the company, is closely tied to social infrastructure such as electricity, gas, water and sewerage. To continue with our business activities in the event of a disaster and take action as quickly as possible to help maintain and restore social infrastructure, we developed the Yokogawa Group Business Continuity Plan (BCP). We developed response plans and guidelines assuming risks that could seriously impact the Group's management, such as a huge earthquake or an epidemic of contagious disease, both of which are considered potential eventualities. We have been collaborating with group companies worldwide to improve these plans and guidelines. Moreover, in order to enhance the effectiveness of our BCP, regular training is provided by members of the risk management organization, including senior management, to identify problems, and BCM activities are undertaken to continuously improve the BCP. We have also introduced a system to promptly check employee safety, and we provide regular training to enhance proficiency in using the system in case of emergency. These activities were utilized to provide a prompt initial response to the successive earthquakes in Kumamoto and Tottori prefectures in 2016. Our company will continue to review its BCP to respond to disaster risks.



BCP training

### Protecting Employees Working Overseas from Crises

To protect its employees working all over the world from crises (such as terrorism, riots, kidnappings, and crimes in general), Yokogawa gathers information on risks in each region of the world and sends alerts directly to employees working in that area. Believing it is important to make all employees understand the situation in the area they deal with during their daily work, Yokogawa periodically delivers international security news to all its employees. Moreover, it provides training on dealing with terrorism overseas to help employees keep themselves safe, as well as seminars to enable them to acquire relevant knowledge. Yokogawa will continuously consider various new measures and improve on existing measures to ensure the safety of its employees.

### Seminars on Overseas Safety and Dealing with Terrorism

Recently we have seen general crime, terrorism, and violence occurring all over the world, as well as overseas travelers falling victim to crimes. In such circumstances, employees traveling overseas on business need to do more to prepare and take appropriate safety measures. Yokogawa invites outside expert instructors to hold seminars on self-protection, including specific steps to take to minimize harm in the event of a terrorist attack, violence or when falling victim to general crime. In FY2018, we held a seminar entitled "Safety and Dealing with Terrorism or Trouble Overseas" that comprised a lecture and practical training. Outside security experts (including former members of the US Special Forces and the Japanese Self-Defense Force) provided instruction and demonstrations both in English and Japanese, and conducted practical training involving the participation of the attendees.



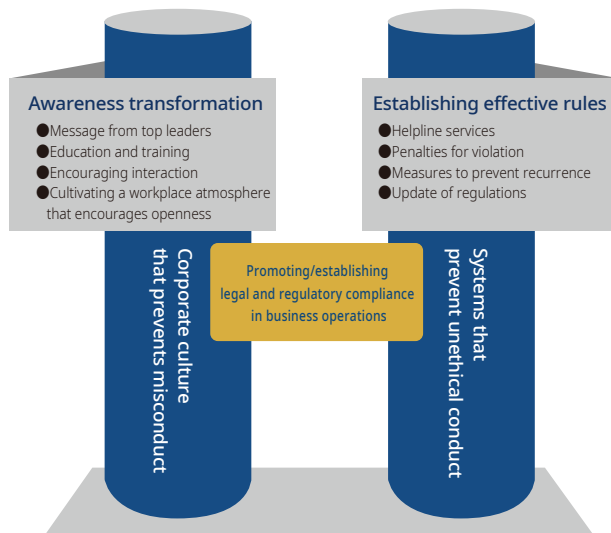
Training on safety measures to deal with terrorism and general crime

# Compliance

## Two Pillars of Activity

Based on the philosophy of “compliance first,” Yokogawa has a basic policy of performing its business activities with high ethical standards, defining the basic principles of compliance in Yokogawa Group Code of Conduct, and following laws, regulations, ordinances, and other social norms. Matters of problems one may face in his/her daily work are defined in The Yokogawa Group Compliance Guideline and thoroughly disseminated to the group companies to observe and spread the corporate ethics of Yokogawa. To prevent wrongdoings and scandals, two pillars, “Corporate culture that prevents misconduct” and “Systems that prevent unethical conduct,” are made up to promote healthy business activities that every employee is encouraged to take part in.

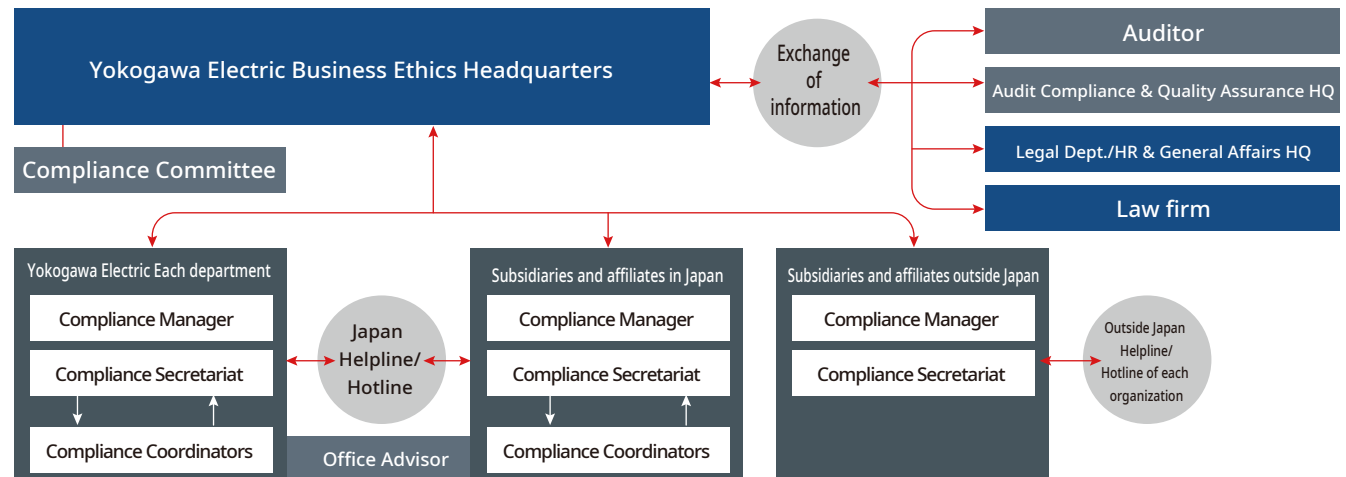
Two Pillars of Activity



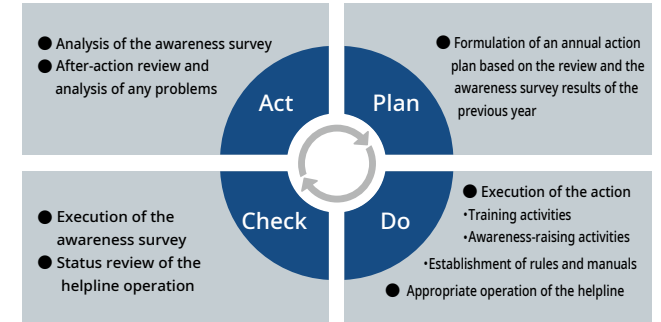
## Provision of Compliance Promotion Structure

To establish “Corporate culture that prevents misconduct” and “Systems that prevent unethical conduct,” Yokogawa group powerfully promotes business management complying with laws and regulations by setting up a department in charge of corporate ethics to prepare a system of compliance and find and work out problems. It also moves forward with creation of a global compliance promotion system that is closely related to work places. On domestic front, a compliance promoter, who also serves as a consultant, is carrying out promotion activities for get all the employees to become aware of compliance and to actually act in compliance with laws and regulations. The compliance secretariat and the representative of the compliance promoter of each organization participate in a periodically held “compliance committee meeting” to share information and manage progress in activities.

Provision of Compliance Promotion Structure



PDCA Cycle for Improvement of Compliance



## Compliance

### Anti-Corruption and Bribery

Yokogawa is grappling with prevention of corruption in any form, including coercion and bribery, in which power is abused to personal interest, by stipulating in the Yokogawa Group Code of Conduct, the relations with suppliers, politicians, and administrators, and prohibiting conflicts of interest. Specifically, rules such as the the Yokogawa Group Compliance Guidelines and the Anti-bribery Guigelines are laid down and operated, and enlightenment activities and surveys into awareness of compliance are conducted as a part of promotion of compliance to spread the awareness and thoroughly follow laws and regulations.

#### Anti-Bribery

Yokogawa follows the bribery prevention law of each country where its group company performs business activities, in order to prevent bribery involving public servants and private citizens both at home and abroad. It also assesses and controls risks of bribery with the group companies. In addition, the Anti-bribery Guigelines are established and disseminated to all the employees to prevent bribery and carry out fair and appropriate business activities. The Sustainable Procurement Guidelines stipulate how to prevent bribery in cooperation with suppliers. No case of bribery, violation of laws, or sanctions was reported in fiscal 2018.

### Measures to Prevent Anti-Competitive Practice

Yokogawa considers that conformance to the competition law is important for management of the group and holds up fair, transparent, and free competition with competitors as a basic policy of the group in the Yokogawa Group Code of Conduct.

To ensure compliance with the competition law, concrete rules are formulated in the Yokogawa Group Compliance Guidelines and the Competition Compliance Code and internal education on the competition law is provided to the employees to improve their

awareness. Yokogawa did not receive any legal action concerning anti-competition or anti-trust conduct, or monopolistic practice in fiscal 2018.

### Strict Prohibition of Insider Trading

To prevent insider trading, we have established the Code of Conduct for the Prevention of Insider Trading as an internal regulation and have included a section on prohibition of insider trading in the Yokogawa Group Compliance Guidelines. Additionally, we have established a group-wide compliance structure and provide education, to strictly prohibit insider trading. The directors or employees in each Yokogawa Group company who buy and sell the stocks of Yokogawa Electric follow the prior confirmation procedure through the "insider trading prevention staff" in each company. Moreover, the following people are uniformly prohibited from the buying and selling during the period from the end of a quarterly accounting term to each date of the release of business results.

- 1.Directors and management in each company of Yokogawa Electric, Yokogawa Solution Service, Yokogawa Manufacturing, and Yokogawa Test & Measurement
- 2.Those who are directly engaged in the preparation and announcement of quarterly account settlement in Yokogawa Electric and its domestic subsidiaries

### Tax Compliance

Yokogawa, due to globalization of our business, shall abide by the following promises in taking tax-related actions in order to satisfy the tax liabilities of the countries and regions where Yokogawa operates, and execute appropriate tax risk management.

- 1.Making tax payment properly in accordance with tax laws and its related regulations of each country.
- 2.Taking appropriate actions in executing tax-related accounting treatment and measures.
- 3.Establishing tax governance structure and raising tax compliance awareness.

- 4.Taking actions in compliance with the international tax standards such as OECD Transfer Pricing Guideline, BEPS (Base Erosion and Profit Shifting) Action Plan.
- 5.Attaining the transactions with foreign affiliates in arm's length price by properly allocating profit for their contributions made in accordance with the function and risk analysis of each affiliate.
- 6.Not utilizing tax planning nor tax heaven aiming for tax avoidance.
- 7.Taking actions in optimizing tax costs by avoidance of double taxation, utilization of tax incentives, etc.
- 8.Reducing tax risk by obtaining advices from the external professionals when application/interpretation of the law is uncertain.
- 9.Building, maintaining and developing sincere and good cooperative relationships with the tax authority in each country.

### Measures to Counter Anti-Social Forces

The whole Yokogawa group is taking action to eliminate anti-social forces, describing in the Yokogawa Group Compliance Guidelines“responses to anti-social forces that threaten social order and safety.” Its employees are also informed of the basic attitude toward and philosophy of responding to unreasonable demand through compliance seminars and a company journal.

In conformance to the Tokyo Metropolitan Ordinance for Eliminating the Organized Crime Groups, business contracts include clauses concerning elimination of anti-social forces and “Memorandum on elimination of anti-social forces” is concluded with the existing suppliers, contractors, and customers.

## Compliance

### Enlightenment Activities

210

No. of Group Training Sessions

8,500

No. of E-Learning Participants

330

No. of Slogan Applied

Yokogawa conducts compliance education and training to foster employees' awareness of compliance and a corporate culture that emphasizes fair, clear and open business conducts.

### Compliance Training/Education

Seminars on compliance were held in domestic and overseas group companies in fiscal 2018 to spread and have awareness of compliance taken root in all the group companies. Domestically, training suitable for the role of each employee is provided when he/she is promoted to a managerial position, travels abroad, and when the newly employed join the company. Moreover, education using e-learning is provided mainly to overseas group companies so that their employees can learn comprehensively and acquire knowledge necessary as group employees.

### Compliance Guidelines

The Yokogawa Group Compliance Guidelines, which concretely describe the Yokogawa Group Code of Conduct and put together matters to follow are laid down and disseminated to the employees. This guidelines are distributed to new employees when they join the company. It is translated into English, Chinese, and Portuguese from Japanese and used in group

companies.

### Compliance News

"Compliance News" is issued once in two months to improve the employees' awareness of compliance, choosing timely topics suitable to the culture of each workplace and recent scandals of other companies.

### Publish of the Misconduct Case Studies

We have a handbook called "Misconduct Case Studies" for the purpose of preventing compliance violations. The handbook is updated each year with the addition of new examples that serve as real-life lessons collected from inside/outside the group and available to all employees.

### Compliance Week

"Compliance Week" campaign was conducted to spread and get compliance mind to take root in all the employees of the domestic group companies and to provide education through e-learning and invite compliance slogans.

### Compliance Awareness Survey

More than  
95%

Survey Response Rate

A survey to check all employees' awareness of compliance is conducted every year. From the result of the questionnaire, awareness of compliance at each work place and position is visualized and reflected on the annual activities at group companies at home and abroad.

## Consultation and Reporting System

95%

Recognition of Consultation and Reporting System

To quickly identify and address compliance issues, a channel for reporting and inquiries has been established. In Japan, two hotlines are available: the internal hotline and the external hotline, which is staffed with lawyers. An employee can contact the internal hotline anonymously or with his/her real name in order to report or consult on a compliance issue. The personal information of the employee who has contacted the external hotline will not be made available to the company. Both the internal and external hotline can be contacted by e-mail, over the phone or in writing. Each case will be investigated by keeping the identity of the reporting employee in strict confidence and in an expedient manner, in compliance with the manual on investigation.

### Voice of Employee

My job is to raise the overall compliance level of the Yokogawa Group. We assign compliance coordinators for overseas sites and Group companies, have them report on the monthly state of compliance and details of reports submitted to the help line, and arrange activity plans and training plans based on their feedback. There was a case in which e-learning was developed across the Group in response to proposals by an overseas site. We conduct more than 200 face-to-face training sessions a year, but we are not just focused on quantity over quality; we believe it is important to have employees look back on their own actions by speaking to them directly in person.

When handling help line reports, we always make a point of remaining neutral and sincere, and protecting the privacy of those who make reports.



Katsuya Yoshino  
Business Ethics Headquarters  
Yokogawa Electric Corporation

# Supply Chain Management

## Management Structure as Part of Internal Control

As part of the Yokogawa Group's internal control, Yokogawa has developed a management structure that governs all business processes, including its relationships with customers and suppliers. For the procurement processes in the supply chain, Yokogawa strives to ensure fair and equitable transactions in accordance with the Group Procurement Management Code based on the Yokogawa Philosophy and the Yokogawa Group Code of Conduct. Yokogawa observes the local laws and regulations of the countries and regions in which it does business, is deploying consideration for environmental protection and human rights throughout its supply chain, and is also working on the issue of conflict minerals. In order to efficiently and effectively implement supply chain-related measures, we are participating in committees of industry groups such as the Materials Committee of JEITA ( Japan Electronics and Information Technology Industries Association) and working with other companies.

In addition to formulating the Principles of Procurement Activities for internal use, Yokogawa created the Sustainable Procurement Guidelines with reference to the RBA Code of Conduct version 6.0. The guidelines are shared with domestic and overseas suppliers; we conduct briefings on the guidelines for our key suppliers and ask them to comply.

The Sustainable Procurement Guidelines are published on the Yokogawa website.

### Sustainability KPIs

To pursue sustainability-oriented procurement throughout the supply chain, the Yokogawa Group established KPIs, which it is addressing.

KPI	Target	Target Year
Ratio of employees undergoing sustainable procurement training	70%	FY2019
No. of suppliers attending explanatory meetings	70	FY2020
No. of suppliers given SAQs*	200	FY2021

\* SAQ: Self-assessment Questionnaire

## Promotion of Green Procurement

Based on an environmental management approach of helping to build a sustainable society in every aspect of its business activities, Yokogawa has created Green Procurement Guidelines. We have a system to promote management of the chemical substances contained in our products, and we also investigate and manage the chemical substances contained in the materials and components we use. We work to raise awareness of this issue by holding briefings for new suppliers.

The Green Procurement Guidelines are published on the Yokogawa website.

## Strengthening of Partnerships with Suppliers

Yokogawa Electric is reinforcing its partnerships by regularly interacting with the management teams at key suppliers. For example, we host regular Supplier Policy Presentation Meetings, at which we explain our management policy, business plan, purchasing strategy and so on to the suppliers. Additionally, the Purchasing Department organizes component exhibitions and technical seminars by individual suppliers in order to introduce suppliers' products—along with market trends, component trends and other relevant information—to the product development teams of the Yokogawa Group.



Supplier Policy Presentation Meeting

## Reinforcement of Compliant Procurement

Yokogawa has established standards for compliance in procurement to serve as Group-wide management rules and strives to enhance compliant procurement across the Group by maintaining close communication with those responsible at Group companies. We specify provisions concerning compliance in the business contracts in an effort to reinforce compliant procurement.

We have set up a help line as a channel for reporting and inquiry that can be contacted by suppliers, should they find an actual or potential violation of compliance.

## Compliance with the Subcontract Act

To ensure compliance with the Act Against Delay in Payment of Subcontract Proceeds, Etc., to Subcontractors (the "Subcontract Act" ), Yokogawa strives to raise awareness by having employees attend outside workshops. In addition, we offer regular opportunities for purchasers to study our own original teaching materials via e-learning, as well as tests to confirm their level of understanding. We also appoint compliance officers in each department to share information regarding the Subcontract Act and build a compliance framework.

## Procurement BCP

Having recognized that ensuring a stable supply of the products our customers need is an important social responsibility, we are taking action in line with our procurement business continuity plan (BCP). We can act promptly in case of emergency because, with the cooperation of our suppliers, we research and manage information on the areas producing the components used in our products. For key components used in major products, we are making efforts to reduce procurement risk by confirming that our suppliers have BCPs and securing safety stock.

## Supply Chain Management

### Initiatives on Conflict Minerals

Certain minerals (tin, tantalum, tungsten and gold) produced in the Democratic Republic of the Congo and nearby nations, and distributed via supply chains might be used to fund armed groups engaged in illicit activities involving human-rights violations, acts of violence, etc., and consequently such materials are referred to as conflict minerals.

Recognizing that cutting off the sources of funds for these armed groups is a challenge that the whole supply chain should tackle, the Yokogawa Group aims to become conflict-free by using no conflict minerals for our products. However, we do not prohibit the procurement of all minerals produced in these countries. We will continue procuring traded minerals refined at refineries recognized by an independent organization as unrelated to such armed groups; we will also procure legitimate products derived from such minerals. To meet the aforementioned challenge, the Yokogawa Group is engaged in the following efforts:

- Since 2011 we have had the appropriate internal structure in place and have continuously taken action.
- As a member of the Responsible Minerals Trade Working Group run by the industry group JEITA (Japan Electronics and Information Technology Industries Association) we coordinate our efforts with those of other corporations and obtain the latest information.
- We have been cooperating with our suppliers to investigate the use of conflict minerals in certain products based on customers' requests etc.
- If an investigation reveals that a mineral procured by Yokogawa is a source of funds for armed groups, we immediately take measures to avoid use of the mineral in question.

The Yokogawa Group will continue making the utmost effort to ensure responsible procurement of minerals.



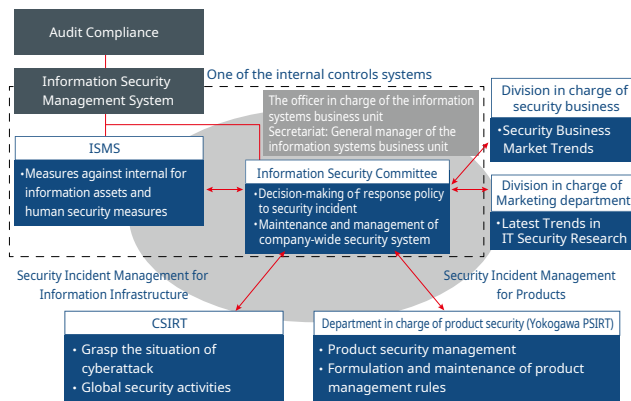
# Information Security

The Yokogawa Group works together with customers to provide solutions. To protect important information entrusted to us by our stakeholders, we implement information security measures to address three aspects: people, equipment, and information technology (IT).

## Management Structure

Yokogawa group conducts information security activities based on the concept of ISO 27001; relevant policies and measures are notified to each business department, division, and affiliated company by the information security supervisors. A secretariat monitors whether operations are performed in line with rules and takes necessary improvement measures. To ensure information security, Yokogawa has set up an information security system at each of its departments, divisions, and affiliated companies. In addition, it implements a PDCA cycle, which serves as the key to smooth information security activities. In conjunction with the above, Yokogawa also has an information security committee so

### Information Security Committee



that responses to cyberattacks will be improved and customers can continue their business activities safely and securely. This committee comprises cybersecurity experts in each field where Yokogawa has products and goes beyond organizational boundaries to share information and grasp the latest trends.

## People: Information Security Training

Every single employee should be aware of information security in order to protect information. Yokogawa provides training using e-learning to all its employees every year to share up-to-date knowledge regarding information security so that employees can think for themselves about how to handle information they receive and take appropriate action. We also offer more practical information in the form of lectures on information security with experts invited as lecturers, as well as education and training on responses to targeted attacks, and education for line managers. Information security audits check whether the results of this training are reflected in day-to-day information security activities.

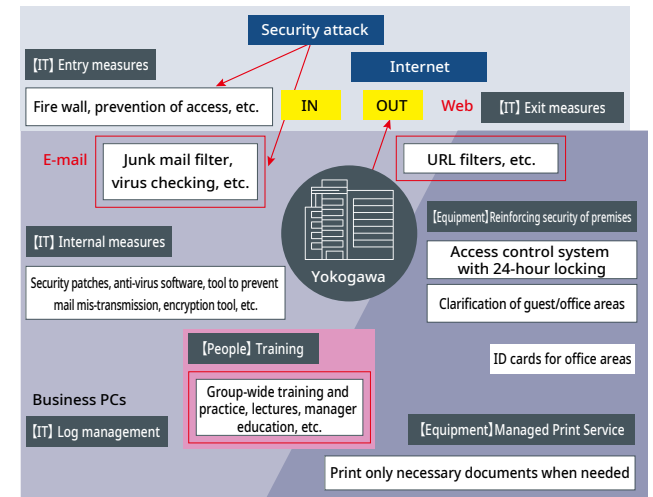
## Equipment: Understandable and Secure (Security of Office Premises)

Information security is required to be understandable. We have clarified the areas that employees and visitors respectively can enter. When a visitor enters areas other than the guest area, the visitor must wear a visitor identification card. We protect property and information assets on head office premises using an access control system that keeps the office area locked 24 hours a day. Moreover, we have introduced a managed print service that requires personal authentication to print only the necessary documents at the required time, preventing documents from being left behind on the printer or mixed with others.

## IT: Protection Behind the Scenes

We use IT to prevent human error such as accidental leaks and inappropriate use of information due to lack of knowledge, and also adopt a multi-tiered approach to preparing against cyberattacks from the outside.

### Yokogawa's Security Management



## Protection of Customer Privacy

Yokogawa has set out a personal information protection policy and rules that its group companies should follow to properly manage and use personal information received from customers. In addition, Yokogawa is making efforts to reduce risks in response to global demand for personal information protection that changes and differs depending on the country. In fiscal 2018, no complaint was filed about breaches of customers' privacy or loss of customer data via Yokogawa's system that aggregates reports from the Group companies.

## Information Security

### Security Management for Products and Services

The Yokogawa Group recognizes ongoing measures to address cyber-threats as an important issue for its customers and society, and is committed to addressing security together with customers through the provision of its products and services. Since the Stuxnet malware attack, cyberattacks targeting important infrastructure have become a common occurrence. In modern society, which is built upon this key infrastructure, these types of cyberattacks may have a profound effect on our daily lives and socio-economic activities. Attacks could even cause social unrest or imperil the environment or human life. Additionally, as the example of the Triton malware showed, there are no signs that the technological advances in attacks have stalled. In response to these circumstances, the Yokogawa Group has pursued various activities to reduce these risks to important infrastructure that originate in cyberspace.

### Key Initiatives

We look at the process from product development to system installation and operation as the system lifecycle. By supporting customers' security activities throughout that lifecycle, we work to reduce risks to important infrastructure that originate in cyberspace.

### Product Development

- We have established a basic policy and standards for security measures. These are incorporated into our development process to eliminate vulnerabilities from products and enhance security.
- To ensure security quality, our main products CENTUM VP and ProSafe-RS have obtained ISASecure EDSA

certification issued by ISCI, an international security certification promotion organization.

### System Installation

- By providing security training to engineers, conducting investigations and research into security technologies primarily through security laboratories, and supporting the introduction of security measures in our systems, we endeavor to consistently implement security in system integration and perform secure integration.

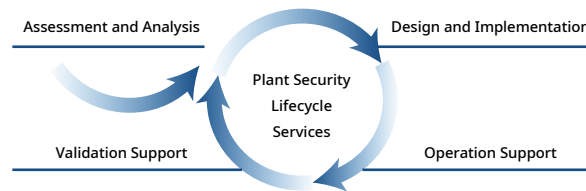


Security Laboratory

### System Operation

- In accordance with industry security standards such as IEC62443, we have developed a security lifecycle approach, and provide security solutions to mitigate the cyberspace risks to customers with controls system security status monitoring services, SOC services specific to control systems, back-up services and so on.

#### ■ Security Lifecycle



### PSIRT (Product Security Incident Response Team)

- We support customers in their security activities by extensively gathering information about vulnerabilities related to our products, disseminating and investigating the information obtained throughout the Yokogawa Group, and disclosing the applicable vulnerability information and any countermeasures to customers.

### Voice of Employee

Product development that places an emphasis on security activities is necessary to reduce the risks of cyberattacks on key infrastructure. Currently I am working on incorporating our basic policy and standards for security measures into the development process to establish a secure development lifecycle and allow us to engage in secure development at an even higher level. By adhering to the secure development lifecycle, we are able to implement security measures during each process, such as specification, design, coding and testing, and eliminate security vulnerabilities from the early stages of the development process. Moving forward, we will continue to contribute to the security activities of our customers by developing high-quality, secure products.



Satomi Miyazaki  
IA-SS Systems  
Development Center  
Yokogawa Electric Corporation



# Research and Development

## ■ Innovation Process

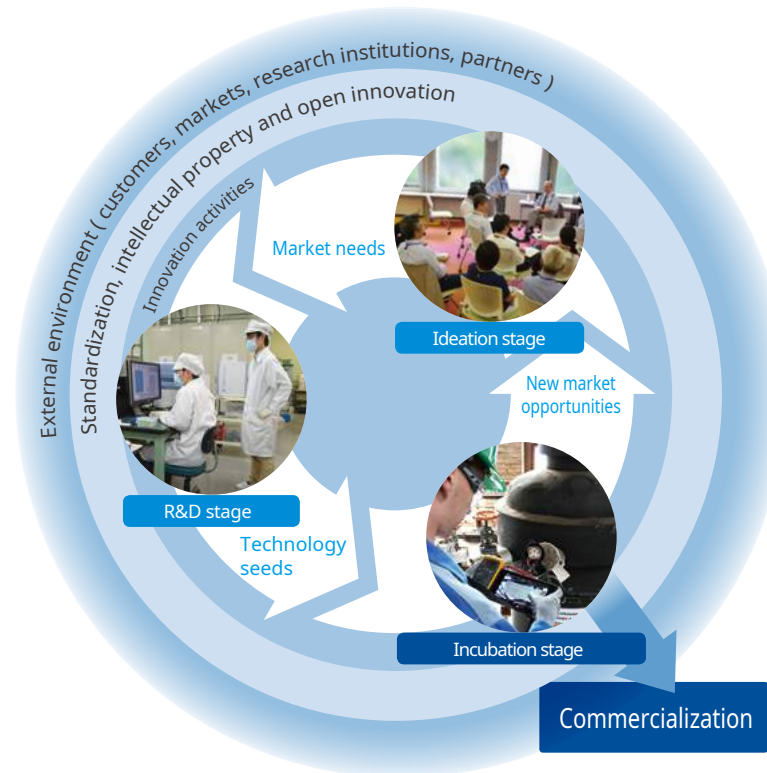
### R&D Structure

R&D activities at Yokogawa are classified into two types. Firstly, product development and applied research activities are geared to meeting customer needs and target a relatively foreseeable future. Secondly, innovation activities are conducted from a longer-term perspective, involve greater uncertainty, and are directed toward the generation of new business opportunities. Whereas business headquarters are mainly responsible for the former, the latter is primarily the task of the Innovation Center.

1. Research and develop new technologies that complement those of each business headquarters and address customer issues, leading to expansion of the business scope.
2. Prepare for an uncertain and unpredictable future and open a path to the creation of new businesses by working with customers to uncover latent issues and find ways of addressing them.

### Innovation Activities

By engaging in innovation activities, Yokogawa not only provides systems but also creates technologies and solutions together with customers that prompt them to change their perspectives and approaches. The innovation process consists of three concentric layers as shown in the figure. The outermost layer, consisting of information from the field and signs of change obtained by scanning the external environment, such as markets and customers, is reflected in standardization, intellectual property and open innovation, which constitute the second layer that supports innovation activities, the innermost layer. In innovation activities, we generate ideas, refine them through R&D, and incubate them. Repeated execution of these three stages leads to commercialization.



#### 1. Ideation stage

We acquire insights into the future through the use of methodologies such as scenario planning and scanning. Based on scenarios that assume shortages of food, energy, and water will occur in the near future, the Innovation Center has elected to focus on biology, energy, and materials, and is coming up with ideas for activities that can be carried out in these fields.

#### 2. R&D Stage

We identify and then refine promising research themes from the various possibilities that emerge at the ideation stage. At this stage, researchers whose duties normally

focus on the R&D of new technologies also examine the feasibility of the identified research themes, analyze markets, and, if necessary, engage in cultivation of markets.

#### 3. Incubation Stage

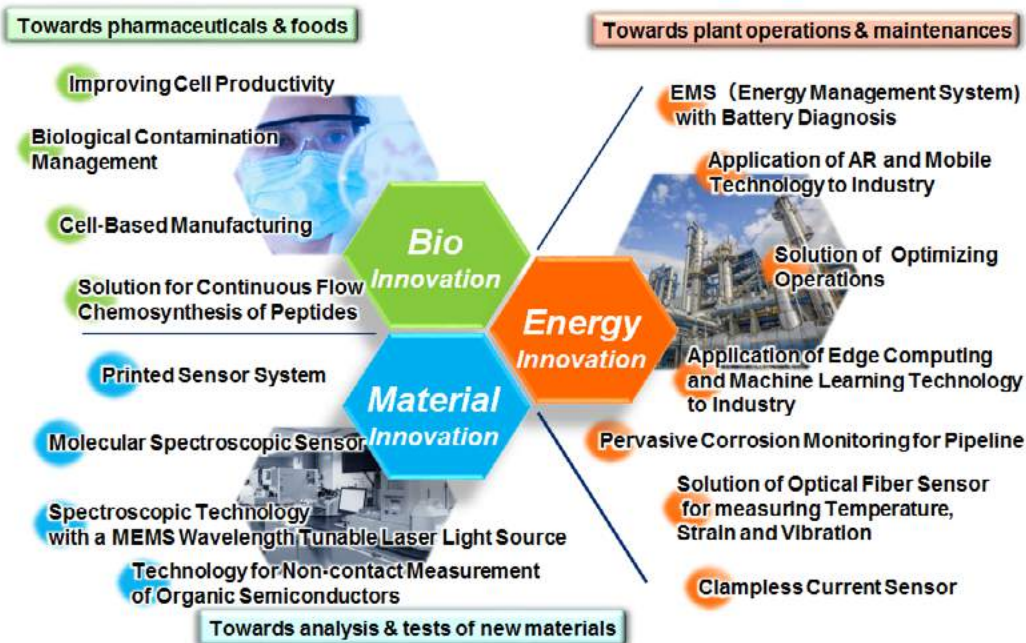
When an R&D project reaches an advanced stage and the goal comes into sight, the incubation stage starts. At the incubation stage, researchers develop a strategy with support from sales and marketing operations for commercialization. Then, a demonstration is conducted in collaboration with the customer to ascertain whether the developed solution offers value. If it does, the project proceeds to the commercialization stage.

## Research and Development

### Innovation Center's Activity Areas and Research Themes

As a future insight activity, Yokogawa has drawn up a future scenario by using the scenario planning technique, which supposes a high possibility of the shortage of food, energy, and water in the near future. Based on this insight, the Innovation Center has defined its main activity areas as biology, energy, and material. These three areas are also defined as the business focus areas in Yokogawa's long-term business framework. The figure below shows the major R&D themes in each area.

■ Innovation Center's Activity Areas and Research Themes



### Activities Supporting the Innovation Process

#### Intellectual Property

Yokogawa positions intellectual property as an essential asset for maintaining the high value of its products and solution services and providing value to all customers. Based on this, we have developed an intellectual property strategy in linked to our business strategies and R&D activities. Yokogawa will acquire rights for and use intellectual properties created at the Company in accordance with the above-mentioned intellectual property strategy. In the context of these activities, Yokogawa positions intellectual property rights not only as legal rights but also as marketable assets. The Company will continue to provide unique and unrivaled products and solution services.

■ Yokogawa's intellectual property rights (as of March 31,2019)

	In Japan			Outside Japan			Total
	Registered	Pending	Subtotal	Registered	Pending	Subtotal	
Patents	1,939	430	2,369	1,111	669	1,780	4,149
Designs	111	22	133	158	91	249	382
Trademarks	339	6	345	722	335	1,057	1,402
Total	2,389	458	2,847	1,991	1,095	3,086	5,933

#### Open Innovation

Yokogawa is vigorously promoting open innovation, the use of external seeds and resources (e.g. advanced technologies, know-how, human resources), and collaboration with other parties for innovation. Instead of relying solely on our own technologies, we are working to deliver superior value to our customers by forming strategic relationships and collaborating with partner all over the world, including universities, research institutes, and start-ups.

#### Standardization

International standards have an important bearing on our business strategy since they have an impact on whether a product or solution service will be able to establish dominance at the global level. International standards are also an important part of the research and development strategy since they determine whether the technology in which the Company has made prior investment will find support in the market.

Yokogawa actively engages in international standardization activities as members of many international standardization organizations such as IEC and ISO in a broad range of fields while linking it activities with the Company's R&D and intellectual property strategies. Due to their inherent nature, however, international standards may conflict with intellectual property and lead to patent disputes. Yokogawa pus priority on enhancing value for its customers and focuses on international standards that set forth requirements on interoperability in telecommunication technologies and software. The Company's policy is to disclose its intellectual property if needed or issue a license through a licensing agreement.

# Quality Assurance

Ever since the foundation of the Company, putting quality first has been the fundamental principle of Yokogawa. Through customer-focused quality management has fueled Yokogawa's development. Guided by the quality-first principle, the Yokogawa Group autonomously implements quality management to ensure uniform quality worldwide responding to changing social demands. Offering products and solutions that achieve customer satisfaction, the Yokogawa Group is making a concerted effort to reinforce the image of Yokogawa brand.

## The Basic Quality Policy

1. We manage product quality in order to achieve a customer focus based on the quality-first mindset that is one of our founding principles, as well as healthy and profitable management through improvements in management quality.
2. We supply products that meet statutory and regulatory requirements as well as customer requirements.
3. We establish and implement appropriate quality management systems conforming to the requirements of the international standard ISO 9001. In addition, we continually improve the effectiveness of those systems.
4. We increase customer satisfaction through the achievements of all organizations and personnel. Accordingly, each employee must adopt a quality-first mindset to perform high-quality work.
5. The head of each organization is directly responsible for the quality of the relevant operations. Responsibilities include ensuring that adequate resources are made available.

## Achieving Uniform Quality Worldwide

The Yokogawa Group has satisfied its customers' expectations by providing products and solutions of uniformly high quality everywhere throughout the world. The impetus behind this is our founding principle of quality-first, which we have followed faithfully for more than 100 years. Our quality management consists of three basic elements: Quality Assurance (QA), Quality Improvement (QI), and Quality mind (Qm).



The Three Elements of Quality Management

### Quality Assurance (QA)

Continually seeking to provide better products to customers based on the concept that quality is given the highest priority

### Quality Improvement (QI)

Establishing a system to provide products and services that are of uniform quality worldwide

### Quality mind (Qm)

Each and every employee having the quality-first mind (or Qm) that is one of the Yokogawa Group's founding principles

We believe that we can satisfy our customers' expectations and build long-lasting bonds of trust only when all of these elements are engaged. Yokogawa sees the quality-first mindset as particularly important in maintaining high levels of quality. All Yokogawa Group employees are aware of the importance of having a quality-first mindset, and quality is built into each operation based on Group-wide rules and approaches.

## Quality Assurance Activities

Since its founding, Yokogawa has built quality management systems in each process from development, planning, design and manufacturing to sales and service, in order to deliver products and solutions that satisfy its customers. Yokogawa first obtained ISO 9001 certification in 1992, and its major domestic and overseas Group companies have also obtained the certification. Specialists stand by 24 hours a day, 365 days a year to swiftly deal with the various issues and trouble encountered by customers. Yokogawa has a service system to continually watch over the safety of customer equipment on a global scale through the Global Response Center. Yokogawa also ensures the traceability of measurement instruments used as part of its quality assurance system. Yokogawa was the first company in Japan to obtain Japan Calibration Service System (JCSS) certification for flow meter calibrators.



A poster for Quality Month

## Yokogawa Quality Months

In Japan, November was set as Quality Month by the Union of Japanese Scientists and Engineers, the Japan Standards Association, the Japan Productivity Center and the Japan Management Association in 1960. Yokogawa has continuously engaged in related activities during November, and has now added June to designate both June and November each year as Yokogawa Quality Months, when it implements quality-improving activities across the Group. To help the quality-first mindset take root, Yokogawa displays posters illustrating the mindset and communicates the importance of quality in the form of mottos. The quality-first mindset is confirmed by having employees recite the mottos each day at production sites.



QA Booklet

## Yokogawa QA Booklet

In order to maintain and improve quality Yokogawa has prepared a QA Booklet that explains the attitude required during daily work in easy-to-understand terms. The booklet has been translated into five languages to facilitate implementation across the Group and workers carry it at all times to ensure they are maintaining a quality-first mindset.

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# Sustainability Data

## Social Data

Item		2014	2015	2016	2017	2018
Number of Employees (people)	Consolidated	19,601	18,646	18,329	18,290	17,848
	Non-consolidated	2,871	2,502	2,537	2,590	2,574
Female Managers Ratio (%)	Consolidated	—	—	—	—	9.4
	Non-consolidated	2.4	3.2	3.5	4.3	5.4
Female Employee Ratio (%)	Consolidated	—	—	—	—	21.9
	Non-consolidated	13.0	13.1	13.3	13.9	14.9
Disability Employment Rate (%)	In Japan	1.99	2.03	2.10	2.31	2.27
		(2015/6)	(2016/6)	(2017/6)	(2018/6)	(2019/6)
Independent Trade Union Coverage (%)	Non-consolidated	74.8	74.2	74.7	74.8	73.7

## Environmental Data

Item		2014	2015	2016	2017	2018
Energy Consumption (GJ)	In Japan	870,183	734,828	684,692	676,375	684,085
	Outside Japan	840,724	818,109	810,126	829,572	854,898
	Total	1,710,907	1,552,937	1,494,818	1,505,947	1,538,983
	Intensity (GJ/¥100M)	422	375	382	370	381
Renewable Energy (kWh)	Solar power generation	85,480	68,817	55,726	83,288	130,915
Greenhouse Gas (GHG) Emissions (t-CO <sub>2</sub> e)	In Japan	47,214	38,695	36,119	35,185	34,447
	Outside Japan	51,981	50,784	48,251	49,697	49,439
	Total	99,195	89,479	84,370	84,882	83,886
	Intensity (t-CO <sub>2</sub> e /¥100M)	24.44	21.63	21.56	20.88	20.78
	Scope 1	15,762	12,153	12,580	15,412	15,015
Scope 2	83,433	77,326	71,790	69,470	68,871	

Item	Category	2017	2018
Supply Chain GHG Emissions Scope 3 (t-CO <sub>2</sub> e) A dash (—) indicates "not applicable."	Upstream 1 Purchased Goods & Services	185,424	192,606
	Upstream 2 Capital Goods	19,761	23,749
	Upstream 3 Fuel- and Energy-Related Activities Not Included in Scope 1 or 2	7,484	7,631
	Upstream 4 Transportation & Distribution	16,990	18,594
	Upstream 5 Waste Generated in Operations	919	1,000
	Upstream 6 Business Travel	18,995	19,301
	Upstream 7 Employee Commuting	8,700	7,950
	Upstream 8 Leased Assets	—	—
	Downstream 9 Transportation & Distribution	—	—
	Downstream 10 Processing of Sold Products	—	—
	Downstream 11 Use of Sold Products	517,058	533,414
	Downstream 12 End-of-Life Treatment of Sold Products	863	1,007
	Downstream 13 Leased Assets	—	—
	Downstream 14 Franchises	—	—
	Downstream 15 Investments	—	—
<b>Total</b>		<b>776,194</b>	<b>805,252</b>

Item		2014	2015	2016	2017	2018
Frequency Rate of Occupational Accidents (%) (Number of accidents resulting in lost workdays / aggregate number of work-hours × 1,000,000)	Consolidated	0.52	0.38	0.46	0.33	0.26
	Temporary and contract employees	0.57	0.35	0.17	0.34	0.46
Fatal Accidents (case)	Consolidated	0	0	0	0	0
	Temporary and contract employees	0	0	0	0	0
Donations and Community Investments (¥100M)	Cash contributions	67.4	97.4	127.8	127.1	194.3
	Time	4.6	3.4	5.6	1.4	1.7
	In-kind giving	25.0	5.7	12.2	14.3	7.4
	Management overheads	18.0	18.0	18.0	18.0	18.0
	<b>Total</b>	<b>115.0</b>	<b>124.5</b>	<b>163.6</b>	<b>160.8</b>	<b>221.4</b>

Item		2014	2015	2016	2017	2018
Water Withdrawal (K m <sup>3</sup> )	In Japan	439	342	314	319	316
	Outside Japan	284	275	285	296	245
	Total	723	617	600	615	561
	Intensity (K m <sup>3</sup> /¥100M)	0.18	0.15	0.15	0.15	0.14
Water Discharges (K m <sup>3</sup> )	In Japan	342	256	235	236	267
	Outside Japan	274	268	277	282	232
	Total	616	525	512	518	499
Waste Generated (t)	In Japan	3,607	1,926	2,321	2,350	2,566
	Outside Japan	2,416	2,278	2,186	2,455	2,624
	Total	6,023	4,204	4,507	4,805	5,190
	Intensity (t/¥100M)	1.48	1.02	1.15	1.18	1.29
Non-Hazardous Waste (t)	Waste recycled	3,414	2,603	2,937	3,224	3,528
	Waste Incinerated	133	133	129	138	126
	Waste landfilled	788	920	888	720	784
	<b>Total</b>	<b>4,335</b>	<b>3,636</b>	<b>3,954</b>	<b>4,082</b>	<b>4,438</b>
Hazardous Waste (t)		1,688	568	553	723	752

# Third-Party Verification

To assure the reliability of sustainability information, Yokogawa has received a guarantee for social and environmental data by a third-party organization (Lloyd's Register Quality Assurance Limited).



## LR Independent Assurance Statement Relating to Yokogawa Electric Corporation's Environmental and Social Data within its Sustainability Report 2019 for the fiscal year 2018

This Assurance Statement has been prepared for Yokogawa Electric Corporation in accordance with our contract but is intended for the readers of this Report.

### Terms of engagement

Lloyd's Register Quality Assurance Limited (LR) was commissioned by Yokogawa Electric Corporation ("the Company") to provide independent assurance on its environmental and social data within its Sustainability Report 2019 ("the Report") for the fiscal year 2018, that is, from 1 April 2018 to 31 March 2019, against the assurance criteria below to a limited level of assurance and professional judgement of the verifier using ISAE 3000 and ISO 14064-3:2006 for greenhouse gas ("GHG") data.

Our assurance engagement covered the Company's operations and activities in Japan and overseas and specifically the following requirements:

- Verifying conformance with the Company's reporting methodologies
- Evaluating the accuracy and reliability of data for only the selected indicators listed below:

#### Environmental indicators:

- o Energy consumption (GJ)
- o Solar power generation (kWh)
- o GHG emissions<sup>1</sup> (Scope 1 and Scope 2 [Market-based]) (tonnes CO<sub>2</sub>)
- o Water withdrawals (m<sup>3</sup>) and Water discharges (m<sup>3</sup>)
- o Total waste generated (tonnes) and Total waste landfilled (tonnes)

#### Social indicators:

- o Frequency rate of occupational accidents<sup>2</sup>
- o Number of employees in the Industrial Automation and Control, Test and Measurement, Aviation, and other businesses
- o The female managers ratio to all managers<sup>3</sup> (%)
- o The ratio of the overseas to total employees (%)
- o Number of registered and pending patents (in Japan and overseas countries)
- o Number of registered and pending designs (in Japan and overseas countries)
- o Number of registered and pending trademarks (in Japan and overseas countries)

Our assurance engagement excluded the data and information of the Company's suppliers, contractors and any third-parties mentioned in the Report.

LR's responsibility is only to the Company. LR disclaims any liability or responsibility to others as explained in the end footnote. The Company's responsibility is for collecting, aggregating, analysing and presenting all the data and information within the Report and for maintaining effective internal controls over the systems from which the Report is derived. Ultimately, the Report has been approved by, and remains the responsibility of the Company.

### LR's Opinion

Based on LR's approach nothing has come to our attention that would cause us to believe the Company has not, in all material respects:

- Met the requirements above
- Disclosed accurate and reliable environmental and social data

The opinion expressed is formed on the basis of a limited level of assurance and at the materiality of the professional judgement of the verifier.

<sup>1</sup> GHG quantification is subject to inherent uncertainty. LR also reviewed the Organisation's 2018 fiscal year against its 2017 to confirm the year-on-year change in Scope 1 and 2 GHG emissions data.

<sup>2</sup> The number of casualties resulting from the occupational accidents in the boundary divided by total working hours (in the unit of million hours).

<sup>3</sup> The reported data only covers Yokogawa Electric Corporation.



**Note:** The extent of evidence-gathering for a limited assurance engagement is less than for a reasonable assurance engagement. Limited assurance engagements focus on aggregated data rather than physically checking source data at sites. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

### LR's approach

LR's assurance engagements are carried out in accordance with ISAE3000 and ISO14064-3. The following tasks though were undertaken as part of the evidence gathering process for this assurance engagement:

- Auditing the Company's data management systems to confirm that there were no significant errors, omissions or mis-statements in the Report. We did this by reviewing the effectiveness of data handling procedures, instructions and systems, including those for internal verification. We also spoke with those key people responsible for compiling the data and drafting the Report.
- Sampling datasets and tracing activity data back to aggregated levels;
- Visiting Kofu plant and Komagane plant of Yokogawa Manufacturing Co., Ltd. in Japan to assess the data collection processes and record management practices.

### Observations

The company has demonstrated improvement in its data management system compared to that of last fiscal year. However, the Company should maintain the reliability of its future environmental and social performance data.

### LR's standards, competence and independence

LR implements and maintains a comprehensive management system that meets accreditation requirements for ISO 14065 *Greenhouse gases – Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition* and ISO/IEC 17021-1 *Conformity assessment – Requirements for bodies providing audit and certification of management systems - Part 1: Requirements that are at least as demanding as the requirements of the International Standard on Quality Control 1 and comply with the Code of Ethics for Professional Accountants* issued by the International Ethics Standards Board for Accountants.

LR ensures the selection of appropriately qualified individuals based on their qualifications, training and experience. The outcome of all verification and certification assessments is then internally reviewed by senior management to ensure that the approach applied is rigorous and transparent.

LR is the Company's certification body for ISO9001. The verification and certification assessments are the only work undertaken by LR for the Company and as such do not compromise our independence or impartiality.

Signed

Dated: 27 June 2019

Norihiko Kinoshita

LR Lead Verifier

On behalf of Lloyd's Register Quality Assurance Limited

Queen's Tower A, 10th Floor, 2-3-1, Minatomirai, Nishi-ku, Yokohama 220-6010, Japan

LR reference: YKA4005469

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# Company Overview

## Corporate Data

- Corporate Name  
Yokogawa Electric Corporation
- President and CEO  
Hitoshi Nara
- Headquarters  
2-9-32 Nakacho, Musashino-shi, Tokyo 180-8750, Japan
- Founded  
September 1, 1915
- Incorporated  
December 1, 1920
- Paid-in Capital  
43,401 million yen
- Number of Employees  
17,848 (consolidated)  
2,574 (non-consolidated)
- Subsidiaries and Affiliates  
100 outside Japan  
12 in Japan  
(As of March 31, 2019)

## External Ratings

We are currently witnessing growth in ESG investment and socially responsible investment, whereby investors evaluate companies not only financially, but also in terms of sustainability including social and environmental aspects. Yokogawa is actively addressing sustainability activities and disclosing information, earning plaudits from outside parties, as exemplified by its inclusion in the major global sustainable stock indexes below.

### Global

- Dow Jones Sustainability Index Asia Pacific  
Selected for inclusion in the sustainability index targeting companies in the Asia Pacific region provided by S&P Dow Jones Indices in USA and RobecoSAM in Switzerland
- FTSE4Good Index Series  
Selected for inclusion in the ESG stock indexes provided by FTSE Russell, which is a group company of the London Stock Exchange in UK
- MSCI World ESG Leaders Index  
Selected for inclusion in the ESG stock index provided by MSCI, which is a group company of Morgan Stanley in the USA
- CDP Climate Change, Water Security 2018  
Obtained Management Level "B" in an assessment by CDP, an international NGO in the UK
- World's 100 Most Sustainable Companies (Global 100)  
Selected for the corporate sustainability rating provided by Corporate Knights in Canada



### Japan

- FTSE Blossom Japan Index  
Selected for inclusion in the ESG stock index provided by FTSE Russell
- MSCI Japan ESG Select Leaders Index  
Selected for inclusion in the ESG stock index provided by MSCI
- MSCI Japan Empowering Women Index  
Selected for inclusion in the diversity-assessed stock index provided by MSCI
- SNAM Sustainability Index  
Selected for inclusion in the ESG stock index provided by Sampo Japan Nipponkoa Asset Management Co., Ltd.
- S&P/JPX Carbon Efficient Index  
Selected for inclusion in the environmental stock index provided by S&P Dow Jones Indices based on carbon emissions performance assessed by Trucost in UK



## Editorial Policy

This report discloses information on the Yokogawa Group's sustainability activities. The information in this report discloses Yokogawa's material information (key issues) in accordance with the core options of the GRI Standards, a set of international guidelines for the disclosure of sustainability information. The report also incorporates feedback from stakeholders. Additionally, the reliability of the information is enhanced by means of third-party verification. This year we revamped the content and design of the report in order to improve readability. In the first half of the report, we included a section highlighting initiatives for achieving the sustainability goals and introducing our corporate culture to facilitate a deeper understanding of Yokogawa. Our approach to the sustainability goals and examples of initiatives are also introduced in the Yokogawa Sustainability Book. For ESG information that is strongly associated with our financial information and business strategy, please refer to our annual report, the Yokogawa Report. The GRI standards index is posted on our website.

- Period Covered by this Report  
FY2018 (April 1, 2018 to March 31, 2019)  
Where appropriate, information on events occurring outside this period may be included.
- Scope of Data  
This report covers Yokogawa Electric Corporation and its Group companies in Japan and overseas.  
A note is provided when data with a different scope is included.
- Timing of Publication  
October 2019 (published annually)
- Intended Readership  
This report is intended for a wide range of stakeholders including customers, shareholders, investors, business partners, employees, local communities, NPOs, NGOs, and local governments.
- Company Names  
In this report, "Yokogawa," "Yokogawa Group" and "consolidated" refer to Yokogawa Electric Corporation and its consolidated affiliates in Japan and overseas.  
"Yokogawa Electric" and "non-consolidated" is used only with reference to Yokogawa Electric Corporation.
- Reference Guidelines  
- The GRI Standards, published by the Global Reporting Initiative  
- Environmental Reporting Guidelines: Fiscal year 2018 version, published by the Ministry of the Environment, Japan

## Yokogawa Electric Corporation

Sustainability Promotion Department, Corporate Administration Headquarters

2-9-32 Nakacho, Musashino-shi, Tokyo 180-8750, Japan

Phone: +81-422-52-7797 Facsimile: +81-422-55-1202

<https://www.yokogawa.com/about/sustainability/>