

# 2018 Yokogawa Sustainability Report

# Contents

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## Creating value with our stakeholders to make the world a better place for future generations

### Changes in our society that are having an impact on our business

As seen with recent initiatives such as the establishment of the Sustainable Development Goals (SDGs) and the passing of the Paris Agreement, there is a sense of impending crisis and a growing global awareness of the need to build a sustainable society. This is a responsibility that we all bear for future generations. If we are not successful in this, all economic activities will come to a halt. Under such circumstances, companies are being asked to find innovative new ways in which they can contribute more to society through their business activities.



Takashi Nishijima,  
President and Chief Executive Officer

Yokogawa contributes to society by providing solutions to its customers that support the infrastructure and the manufacturing activities that our society depends on. Our mission is to help our customers address whatever business issues they may face and to ensure safe, stable, and efficient operations at their plants. In so doing we are helping them to operate their businesses in a more sustainable fashion, thus contributing toward the realization of a sustainable society.

The SDGs are common goals that provide a clear direction for the global community. Many companies have launched activities to achieve these goals. Yokogawa has also begun communicating with its customers about the SDGs as a starting point for the creation of value. The Paris Agreement is having a major influence on the activities of our customers in the resource and energy fields, and Yokogawa is putting its technology know-how to work to help them save energy and operate more efficiently.

### Yokogawa's Sustainability Goals

To guide its efforts to achieve sustainability, Yokogawa established sustainability goals (Three goals) in 2017 that are aligned with the SDGs and the Paris Agreement. Targeted at the year 2050, Yokogawa has released a statement on its aspirations for sustainability that describes its goals for making the world a better place and sets out how the company will transform itself.



**Statement on Yokogawa's Aspirations for Sustainability**

Yokogawa will work to achieve net-zero emissions, make a transition to a circular economy, and ensure the well-being of all 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.

Our long-term business framework and the Transformation 2020 (TF2020) mid-term business plan that commenced in fiscal year 2018 set the “Three goals” as the basis for our activities. For the year 2030, Yokogawa will focus on and has set aspirational targets for the three business areas of renewable and low-carbon energy, life innovation and safety, and energy saving and resources. Toward the achievement of the 2030 targets, Yokogawa has decided on value creation themes for the year 2020 that specifically indicate how the company will contribute to society, and has set key performance indicators (KPIs) that are incorporated into the TF2020 business plan.

For the human resources and environmental management activities that provide the foundation for our creation of value, mid-term sustainability targets have also been set for the entire Yokogawa Group. Through initiatives focusing on themes such as diversity & inclusion and the reduction of greenhouse gas emissions, we will provide a stronger foundation for the Group’s business activities.

## **Making the world a better place for future generations**

Since its founding in 1915, Yokogawa has adapted time and again in response to great changes in society and its business environment. At the same time, the company has remained steadfastly committed to its founding principles of putting quality first, having a pioneering spirit, and contributing to society, which support a corporate philosophy that states:

*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.*

Today, however, we face a new set of circumstances in which rapid and accelerating environmental changes pose a threat to all of humanity, not just individual enterprises, and it is necessary for each of us to take immediate action, with a sense of crisis.

In the TF2020 plan, the ideal to which Yokogawa aspires is expressed as:

*A company that seeks to build a sustainable society by using its core measurement, control, and information technologies and pursuing digital technology innovation and co-innovation with its customers that revolutionizes productivity in a wide range of business processes.*

Based on the “Three goals” and the initiatives set out in the TF2020 plan, Yokogawa will seek through innovation to create value with its customers and thereby make the world a better place for future generations.



Takashi Nishijima  
President and Chief Executive Officer  
Yokogawa Electric Corporation

This report discloses information on the Yokogawa Group's policy for sustainability and ESG (Environment, Society, and Governance).

The information shown on this report is the Yokogawa's sustainability policy, commitment and records with items to be disclosed with priority (materiality) defined, mainly using for reference the items required by "GRI standards" to be disclosed. The reliability of the information has been enhanced by undergoing guarantee by a third party. In addition, the information has been made easy to be searched as information on environment, society, and governance is separately shown and a GRI standards comparison table is created.

For financial information of the Yokogawa Group and ESG information closely related to its business strategies, refer to the investor relations website or "Yokogawa Report (annual report)".

We hope that readers will gain a better understanding of the Sustainability activities of the Yokogawa Group through this report.

## Period Covered by This Report

April 1, 2017 through March 31, 2018

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. When data having a different scope is provided, that is noted.

## Intended Readership

This information is intended for a wide range of stakeholders including customers, shareholders and investors, business partners, employees, communities, NPOs, NGOs, and government.

## Company Names

In this report, "Yokogawa" and "Yokogawa Group" refer to Yokogawa Electric Corporation and its affiliates, "Yokogawa Electric Corporation" is only used with reference to Yokogawa Electric Corporation.

## Reference Guidelines

- GRI Standards, published by the Global Reporting Initiative
- Environmental Reporting Guidelines (Fiscal year 2012 version), published by the Ministry of the Environment, Japan
- Environmental Accounting Guidelines (Fiscal year 2005 version), published by the Ministry of the Environment, Japan

## Materiality Assessment to Identify Priority Disclosure Items

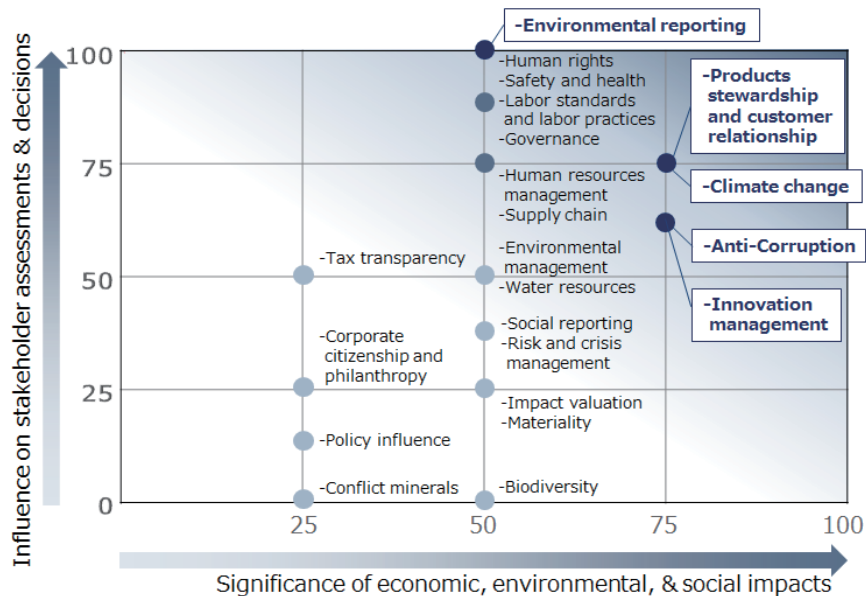
As disclosing the sustainability information of the Yokogawa Group, items to be disclosed with a priority (materiality) are defined using “GRI 101: Foundation” of the GRI Standards for reference.

Sustainability issues were first extracted based on assessment by outsiders such as ESG assessment organizations. The importance of these issues has been assessed on two axes: “impact on assessment or decision making by stakeholders” and “significance of impact on economy, environment, and society”.

“Impact on assessment or decision making by stakeholders” takes into consideration ESG assessment criteria for each industry type, such as “Dow Jones Sustainability Index” and “FTSE Russel ESG Ratings”, as well as assessment by employees, who are important stakeholders. “Significance of impact on economy, environment, and society” takes into account relevance of “Global Risks Report 2018 (World Economic Forum)” with Yokogawa’s business description and customers.

Priority Disclosure Items (Materiality)

Priority disclosure items	GRI	Page
Products stewardship and customer relationship	417,418	Environmentally Friendly Products (P.52) Information Security (P.98)
Climate change	305	Stopping Climate Change / Net-zero emissions (P.19) Global Warming Prevention (P.56)
Environmental reporting	301,302,306	Environmental Practices (P.48)
Anti-corruption	205	Anti-corruption and Compliance (P.93)
Innovation management	–	Research & Development (P.70)



Materiality Matrix



## 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.

Published in January 1988

## Standards of Business Conduct for the Yokogawa Group

### I . Basic Principles of the Yokogawa Group

#### 1. Realizing The Yokogawa Philosophy

This Company Code imparts the principles of good business for the Yokogawa Group members who aspire to fulfill the Yokogawa Philosophy. "As a group, 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."

We, as members of the Yokogawa Group, conduct business activities according to the Yokogawa Philosophy and carry out duties with integrity.

We observe the Standards of Business Conduct.

#### 2. Customer Satisfaction

From the viewpoint of customer satisfaction, we provide valuable products and services that are useful to society.

Winning customer satisfaction is the start to gaining the trust of shareholders and all concerned people in the community and society.

#### 3. Observance of Laws and Regulations

We observe the laws, regulations, and other rules of society, and conduct business activities with ethical conscience.

We accept different cultures and respect the laws and social mores of the international community.

#### 4. Respect for Human Rights

We value and respect the dignity of each individual and all basic human rights.

#### 5. Order and Safety of Community and Society

We do not develop or foster any relationship with any people or groups that threaten the order and safety of the community and society.

## II. Basic Attitude of the Yokogawa Group

### 1. Customers

We conduct activities with integrity to gain the approval and trust of customers.

We provide accurate and ample information to customers so that they can use our products and services in safety and with satisfaction.

### 2. Shareholders

We use, maintain and enhance corporate assets efficiently and effectively to win the trust of our shareholders.

We openly and accurately disclose corporate and management information to our shareholders.

We maintain a sound and clear relationship with our shareholders.

### 3. Community and Society

We strive to achieve the common goals of the community and society, including protection of the global environment and the building of prosperous societies.

We endeavor to be a friendly and cooperating member of society and participate positively in the activities of society.

### 4. Suppliers and Vendors

We work sincerely and soundly with suppliers and vendors and treat them fairly and equally.

We refrain from making any contacts with the suppliers or vendors that may be misinterpreted as abuse of a special relationship, and we maintain sound and open relationships.

### 5. Competitors

We compete fairly, openly and freely with other suppliers.

### 6. Politicians and Governmental Agencies

We maintain sound and open relationships with politicians, public servants and people related to them.

## III. Guideline of Conduct for Yokogawa Group Members

### 1. Workplace

We maintain an active, bright, safe and sound company atmosphere that we can take pride in.

We pay careful attention so that none of us would suffer from harassment, unfair treatment, or infringement of privacy.

### 2. Group Assets

We use the assets of the Yokogawa Group only for Group-related business activities.

### 3. Management of Information

We fully recognize the value of the knowledge within the Yokogawa Group and that of business partners, and maintain strict records and guardianship of this information.

We use information obtained through business activities only for business purposes.



#### 4. Avoidance of Conflict of Interest

We conduct our business activities neither for personal gain nor to take advantages of business positions. Furthermore, we conduct our activities in such a way that the Yokogawa Group suffers no losses or damage.

#### 5. Prudent Personal Activities

We act responsibly, in private and on business, so as not to impair the Yokogawa Group's credibility or reputation or cause any losses or damage to the Group.

## 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 the UN advocates. We are promoting efforts toward materialization of 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.

Yokogawa Electric Corporation  
President and CEO  
Takashi Nishijima



The Standards of Business Conduct for the Yokogawa Group call 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 has participated in the Global Compact Initiative, an international undertaking advocated by the United Nations, since 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 shares the same commitment to these principles.

Looking ahead, every effort will be made to fulfill our corporate responsibilities as a globally operating company.

Below are the ten principles of the UN Global Compact, followed by Yokogawa's efforts in each area:

## Human Rights

### Principle 1:

Businesses should support and respect the protection of internationally proclaimed human rights; and

### Principle 2:

make sure that they are not complicit in human rights abuses.

### Yokogawa's Efforts:

Human Rights  
Supply Chain Management  
Corporate Citizenship

## Labor Standards

### Principle 3:

Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;

### Principle 4:

the elimination of all forms of forced and compulsory labor;

### Principle 5:

the effective abolition of child labor; and

### Principle 6:

the elimination of discrimination in respect of employment and occupation.

### Yokogawa's Efforts:

Human Rights  
Occupational Health and Safety

## Environment

### Principle 7:

Businesses should support a precautionary approach to environmental challenges;

### Principle 8:

undertake initiatives to promote greater environmental responsibility; and

### Principle 9:

encourage the development and diffusion of environmentally friendly technologies.

### Yokogawa's Efforts:

Environmental  
Renewable Energy

## Anti-Corruption

### Principle 10:

Businesses should work against corruption in all its forms, including extortion and bribery

### Yokogawa's Efforts:

Anti-corruption and Compliance

## ISO 26000

ISO 26000, issued by the International Standardization Organization in November 2010, is an international standard for the social responsibilities of corporate entities, 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 uphold 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 programs/ activities designed to contribute to society through business operations, environmental conservation and the assurance of human rights in order to meet our shareholders' expectations.

The core subjects of ISO 26000 and our key efforts in regard to these subjects are explained below.

	Issues	References
6.2 Organizational governance	1. Organizational governance	<ul style="list-style-type: none"> <li>• Corporate Governance</li> <li>• Internal Control System</li> <li>• Risk Management</li> <li>• Our Approach to Sustainability</li> </ul>
6.3 Human rights	<ol style="list-style-type: none"> <li>1. Due diligence</li> <li>2. Human rights risk situations</li> <li>3. Avoidance of complicity</li> <li>4. Resolving grievances</li> <li>5. Discrimination and vulnerable groups</li> <li>6. Civil and political rights</li> <li>7. Economic, social and cultural rights</li> <li>8. Fundamental principles and rights at work</li> </ol>	<ul style="list-style-type: none"> <li>• Human Rights</li> <li>• Diversity and Inclusion</li> <li>• Supply Chain Management</li> <li>• Philosophy and Conduct</li> <li>• Anti-corruption and Compliance</li> </ul>
6.4 Labour practices	<ol style="list-style-type: none"> <li>1. Employment and employment relationships</li> <li>2. Conditions of work and social protection</li> <li>3. Social dialogue</li> <li>4. Health and safety at work</li> <li>5. Human development and training in the workplace</li> </ol>	<ul style="list-style-type: none"> <li>• Human Resources Development</li> <li>• Occupational Health and Safety</li> </ul>
6.5 The environment	<ol style="list-style-type: none"> <li>1. Prevention of pollution</li> <li>2. Sustainable resource use</li> <li>3. Climate change mitigation and adaptation</li> <li>4. Protection of the environment, biodiversity and restoration of natural habitats</li> </ol>	<ul style="list-style-type: none"> <li>• Environmental Management System</li> <li>• Environmental Practices</li> <li>• Environmentally Friendly Products</li> <li>• LCA label</li> <li>• Global Warming Prevention</li> <li>• Chemical Substance Reduction</li> <li>• Water Resource Conservation</li> <li>• Promoting Biodiversity</li> </ul>
6.6 Fair operating practices	<ol style="list-style-type: none"> <li>1. Anti-corruption</li> <li>2. Responsible political Involvement</li> <li>3. Fair competition</li> <li>4. Promoting social responsibility in the value chain</li> <li>5. Respect for property rights</li> </ol>	<ul style="list-style-type: none"> <li>• Philosophy and Conduct</li> <li>• Anti-corruption and Compliance</li> <li>• Supply Chain Management</li> </ul>

<p>6.7 Consumer issues</p>	<ol style="list-style-type: none"> <li>1. Fair marketing, factual and unbiased information and fair contractual practices</li> <li>2. Protecting consumers' health and safety</li> <li>3. Sustainable consumption</li> <li>4. Consumer service, support, and complaint and dispute resolution</li> <li>5. Consumer data protection and privacy</li> <li>6. Access to essential services</li> <li>7. Education and awareness</li> </ol>	<ul style="list-style-type: none"> <li>• Quality Assurance</li> <li>• Risk Management</li> <li>• Information Security</li> <li>• LCA label</li> <li>• Philosophy and Conduct</li> <li>• Contact Us</li> </ul>
<p>6.8 Community involvement and development</p>	<ol style="list-style-type: none"> <li>1. Community involvement</li> <li>2. Education and culture</li> <li>3. Employment creation and skills development</li> <li>4. Technology development and access</li> <li>5. Wealth and income creation</li> <li>6. Health</li> <li>7. Social investment</li> </ol>	<ul style="list-style-type: none"> <li>• Corporate Citizenship</li> <li>• Japan</li> <li>• North and South Americas</li> <li>• Asia</li> <li>• Middle East and Africa</li> <li>• Europe</li> </ul>

Our Approach to Sustainability

Environmental

Social

Governance

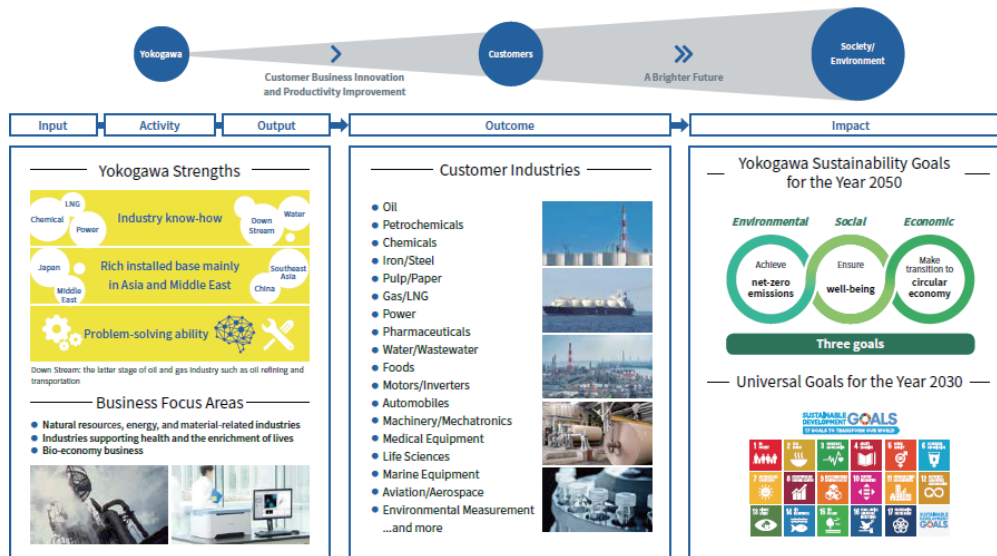
# Our Approach to Sustainability

<b>Three goals</b>	<a href="#"><u>15</u></a>
<b>Sustainability Targets</b>	<a href="#"><u>18</u></a>
<b>Communication with Our Stakeholders</b>	<a href="#"><u>36</u></a>
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# Our Approach to Sustainability

## Building the Future with Our Customers

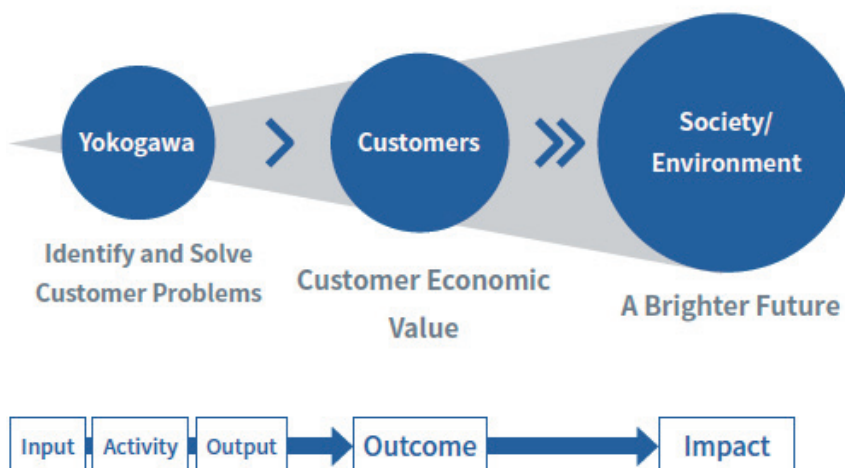
Yokogawa has contributed to solving problems for customers across a wide range of industries. Our initiatives have done more than simply increase economic value generated by our customers. Yokogawa has contributed to solving social and environmental problems, including energy conservation, resource conservation, greenhouse gas reduction, improved safety, and other accomplishments that fall in line with the SDGs\*. We work with customers expanding the view of their business, discovering and resolving issues as we journey to a sustainable future.



## Yokogawa Value Creation Story

Yokogawa works with its customers to identify and solve problems over the entire range of their business activities, thus aiding them in their efforts to innovate and improve productivity. This activity leads ultimately to the creation of an abundant society.

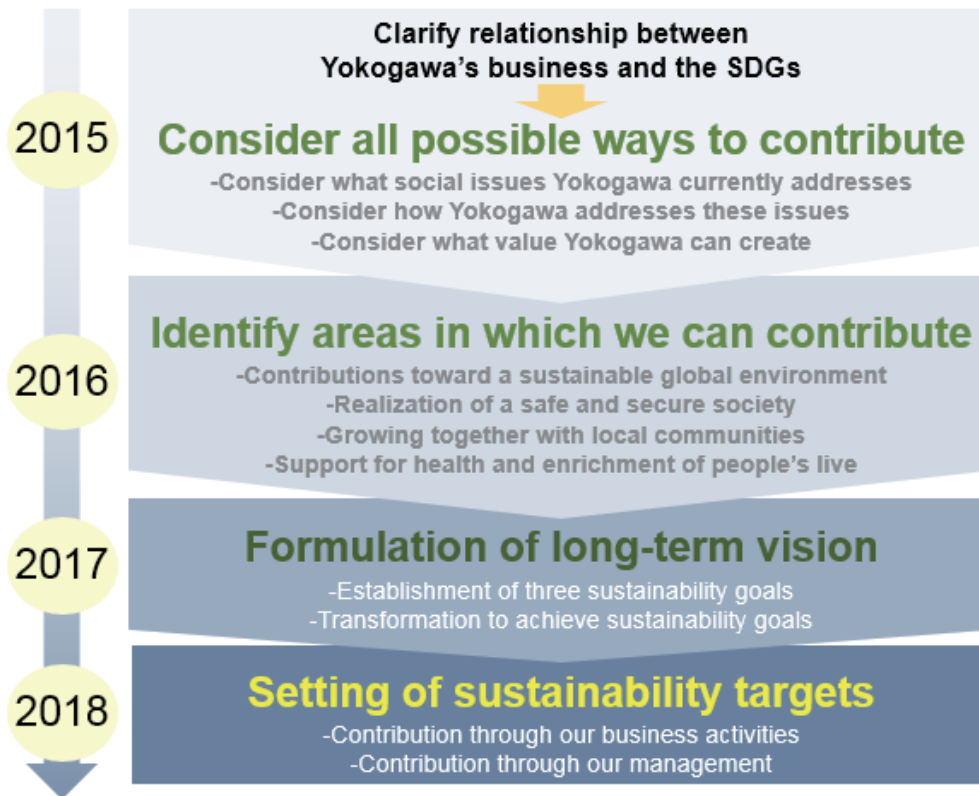
This process (Input → Activity → Output → Outcome → Impact) is what we call our Value Creation Story. We will achieve the Three goals by expanding and building on our Value Creation Story.





## Process of Developing the Three goals and Setting Sustainability Targets

Based on the identification of business fields where Yokogawa is contributing to society and after considering global megatrends, the sustainability goals (Three goals) were developed to realize a sustainable society. To advance toward accomplishment of the goals, we set sustainability targets for 2030 in line with the Transformation 2020 mid-term business plan (TF2020).



### \* The Sustainable Development Goals (SDGs)

In September 2015, the United Nations adopted the 2030 Agenda for sustainable development, which includes a set of the Sustainable Development Goals (SDGs). The SDGs, consisting of 17 goals and 169 targets, are universal development goals for ending poverty and hunger, protecting the planet, and ensuring prosperity that all countries and all stakeholders are encouraged to work toward.



## Sustainability Statement and Goals for the Year 2050

With the adoption of the Paris Agreement at the 21st Framework Convention on Climate Change (COP21) and the Sustainable Development Goals at the United Nations Sustainable Development Summit, momentum is building in the global effort to achieve a sustainable society. In light of these developments, in August 2017 Yokogawa released a statement on its aspiration for sustainability and established Three goals for achieving sustainability based on a low-carbon and circular society for future generations. These aim to make the world a better place by means such as enabling the use of low-carbon energy sources and the recycling of materials. As described below, the company is committed to transforming itself in several key ways to better position itself to achieve these goals.

### Statement on Yokogawa's Aspiration for Sustainability

Yokogawa will work to achieve net-zero emissions, make a transition to a circular economy, and ensure the well-being of all 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.

### Three goals



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

#### Achieve net-zero emissions; stopping climate change

Climate change is an urgent issue that requires a global response. We aim for net-zero emissions, which means that the greenhouse gas concentrations in the atmosphere do not rise due to the balance of emissions and the absorption of greenhouse gases, which can be accomplished through the introduction of renewable energy and efficient use of energy. We are also working to reduce the impact of natural disasters and respond to biodiversity issues.

# Three goals

## Make the transition to a circular economy; circulation of resources and efficiency

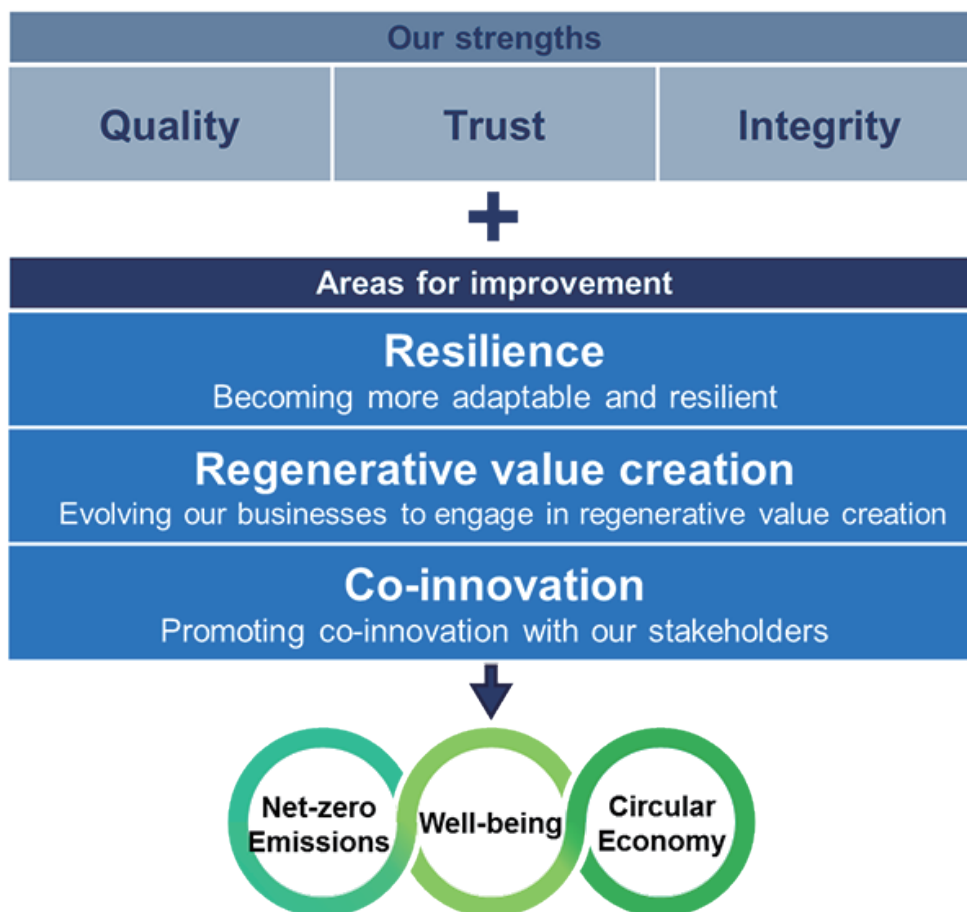
The transformation from a one-way economy based on the take, make, and dispose model to an economy where resources are circulated without waste, and the transition to businesses that emphasize services, are under way. We aim to realize a social framework and ecosystem in which various resources are circulated without waste and assets are utilized effectively. We are also contributing to the efficient use of water resources and the supply of safe drinking water.

## Ensure well-being; quality life for all

With the aim of achieving the physical, mental, and social well-being described in the 2030 Agenda for Sustainable Development adopted by the United Nations in 2015, we support people's health and prosperity through the achievement of safe and comfortable workplaces and our pursuits in such areas as the life sciences and drug discovery. We promote human resource development and employment creation in local communities, and diversity and inclusion.

## 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 needed to achieve our sustainability goals

## **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.

## **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.

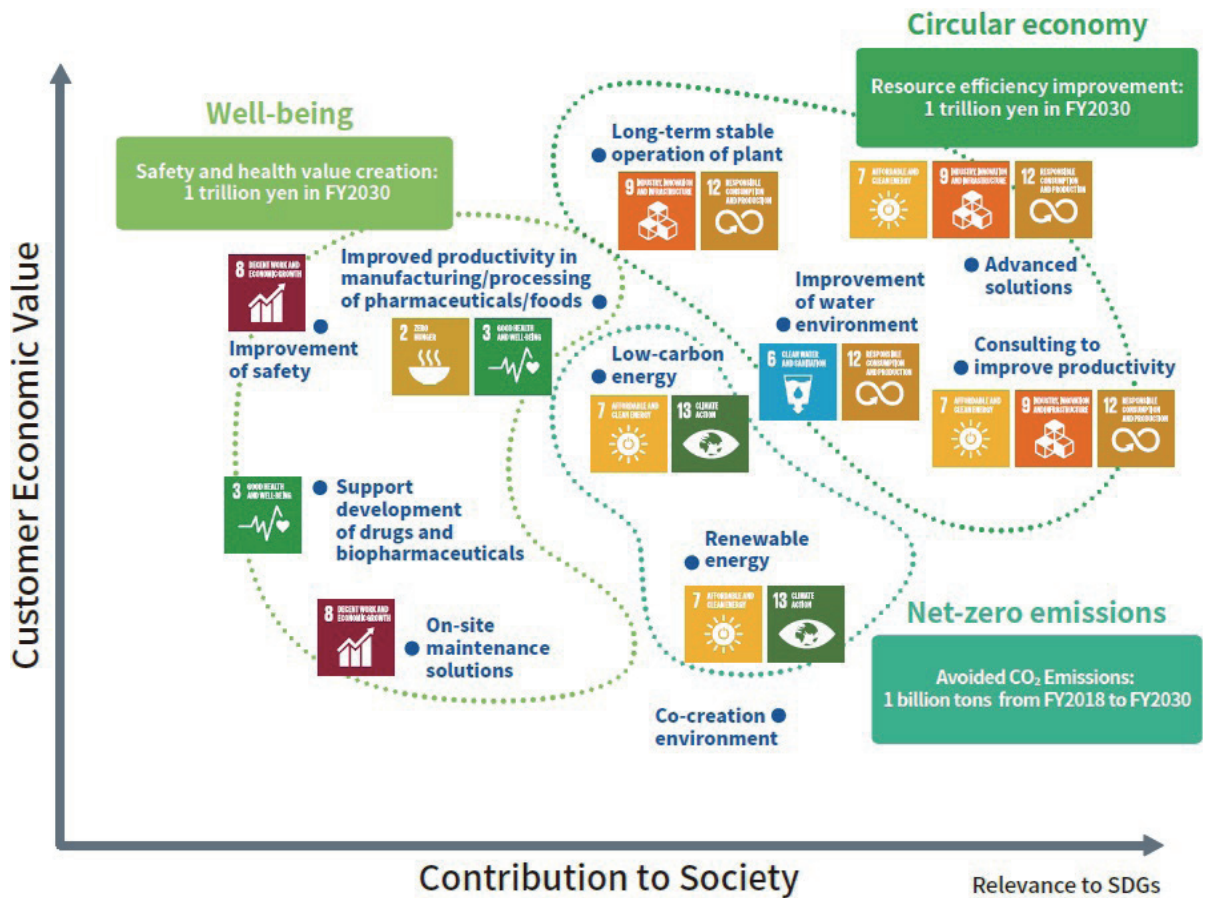
## **Promoting co-innovation with our stakeholders**

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.

## Business Focus Areas and Value Creation Themes

Value Creation Stories of Yokogawa have been collected and categorized into value creation themes according to value creation type from the standpoint of the Three goals and the SDGs. We have evaluated these themes on a scale of customer economic value and contribution to society (social/environmental value).

Based on our evaluations, we set three business focus areas related to Yokogawa Group initiatives and aspirational targets for the year 2030.



## Stopping Climate Change / Net-zero emissions



Yokogawa pursues renewable and low-carbon energy as business focus areas through which to achieve net-zero emissions. We have built long-term relationships of trust with customers in the energy industry based on our numerous successes in this field. We leverage these relationships to offer solutions for renewable energy and safe and highly reliable control systems for greater LNG supply chain efficiency, contributing to reduced greenhouse gas emissions.

### Sustainability Targets

#### KPI for 2030

Related SDGs	Summary of value creation stories	Sustainability KPIs	Targets for FY30
	Contribute to avoid CO <sub>2</sub> emissions through offering of renewable energy and LNG solutions	Avoided CO <sub>2</sub> emissions (Cumulative from 2018)	1 billion tons-CO <sub>2</sub>

Avoided CO<sub>2</sub> emissions; contribution to avoidance compared to average fossil fuel usage

#### KPI for 2020

Related SDGs	Value creation themes	Sustainability KPIs	Results of FY17	Targets for FY20
	Renewable energy/ Low-carbon energy	Avoided CO <sub>2</sub> emissions (Cumulative from 2018)	-	60M t-CO <sub>2</sub>

### Value Creation Themes

#### 1 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.

#### 2 Low-Carbon Energy

Create a safe and efficient LNG 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.



## Case Study: Yamal LNG Project Contributes to a Low-Carbon Society (Russia)

### Yokogawa

Set up a global project structure, provide instrument systems supporting large-scale production plants

### Customer

Conduct safe and efficient LNG plant operations in harsh conditions as low as -50° C

### Society/Environment

Transition to low-carbon by shifting away from oil and coal to natural gas which emits much lower levels of CO<sub>2</sub>

The Yamal LNG Project is one of the largest resource development projects in Russia, located on the eastern shore of the Yamal peninsula in the arctic region of Northwest Russia. Ultimately consisting of three trains, the project will have the capacity to produce an annual total of 16.5 million tons of LNG. Recently completed, Train 1 and 2 began shipping to England and other destinations from December 2017 and August 2018.



Our involvement in the project consists of product and system engineering, installation, testing, and operations training. Our instrument system serving as the brains and nerves of large-scale production plant includes the CENTUM® VP (integrated control system), ProSafe®-RS (safety instrumented system), Exaquantum™ (plant information management system), PRM® (integrated equipment management software package), analyzer shelter (installation and storage for analysis and sampling equipment), training simulators, and more.

We have built a structure to oversee this large-scale project, headed by our regional management company of Europe in the Netherlands and overseeing group companies located in Singapore, India, the Philippines, Russia, and other countries. We worked toward the plant launch through the efforts of employees from many different countries. We assign resident engineering staff to perform 24/7 support for mission critical plants in operation in the Arctic. We also provide remote support from Moscow to monitor system health on an ongoing basis, contributing to the safe and efficient operation of the LNG plant.

Natural gas emits much lower levels of CO<sub>2</sub> compared to coal, oil, or other fossil fuels. Natural gas is not only in demand for electricity production, but also enjoys increasing demand in industry and transport industries where electricity is difficult to use as a source of energy.

By helping Asia and other regions shift to natural gas and away from oil and coal, we work together with our customers to encourage the development of a low-carbon society.

## Message from Employee

It is both a privilege and a challenge to lead a major programme like YAMAL LNG. The size of the project; the extreme geographical location; and the organisational and technical complexity are challenges that we have to overcome. On the other hand, the opportunity to work and collaborate with many of our Yokogawa offices in Europe, Asia and Russia is a noteworthy experience. With the production capacity of YAMAL LNG contracted mostly to consumers in the Far East, I like to think that in some form we are able to contribute in the decades to come towards the low carbon energy transformation of Asia, and in simple terms to improve the quality of life of people in cities like Beijing, Seoul, Tokyo and hopefully Manila (where I'm originally from) – to breath cleaner air.



Marvin Nepomuceno Project Director Yokogawa Europe Solutions B.V.

## Case Study: First 2nd Generation Bioethanol Plant in Southern Hemisphere: One of World's Largest (Brazil)

GranBio, a Brazilian industrial biotech company, started operation of the Sao Miguel dos Campos second-generation bioethanol\* plant, the first plant of its type in the southern hemisphere, in early 2014. This plant has a production capacity of 82 million liters of biofuel per year, which makes it one of the largest such facilities in the world. Materials such as sugarcane bagasse and straw are readily available in Brazil, and it is hoped that these materials can be a stable energy source.

### Yokogawa's contribution

As the main automation contractor (MAC) for this plant, Yokogawa performed basic design and delivery of the control system and field instrumentation. Biofuel manufacturing involves step-by-step processes under appropriate temperature control, consisting of pretreatment of raw materials, enzymatic hydrolysis, fermentation, and distillation/separation. Yokogawa's CENTUM VP integrated production control system automatically controls a series of complex processes according to the preprogrammed conditions for each production process, such as temperature and pressure, thereby contributing to high-quality, stable production. Various Yokogawa field instruments are installed throughout the extensive plant site, including magnetic flowmeters and pressure/differential pressure transmitters. Although some of these instruments are exposed to high temperature processes and other harsh conditions and/or are mounted in high, narrow, and other difficult to access locations, Yokogawa's Plant Resource Manager (PRM) asset management package enables integrated monitoring of the health of all field instruments from the central control room. In this way, Yokogawa is supporting safe and efficient operation of the entire plant.

# Sustainability Targets

## To a sustainable society

Based on its highly reliable products as well as its extensive experience and track record, Yokogawa will continue to contribute to the improvement of production efficiency and safe and reliable operation throughout the lifecycles of customers' plants. In the renewable energy field, the company is committed to contributing to a stable supply of clean energy in order to realize a sustainable global environment in collaboration with customers.

\*Amid concerns about the correlation between greenhouse gases generated from burning fossil fuels, etc. and global warming, as well as food shortages worldwide, second-generation bioethanol made from non-food sources such as woodchips and straw, as opposed to the first-generation bioethanol made from edible resources such as corn, has been attracting attention in recent years as a renewable energy source.



Plant view



Central control room




## Quality Life for All / Well-being



We address well-being mainly through our solutions for life innovation and safety. We have deep experience in process control, as well as a record of successful co-innovation with customers doing business in the medical facilities, food, resources, and other fields. We leverage these experiences and expertise solutions ranging from research and development to production and distribution services, facilitating safe and healthy lifestyles for all.






### Sustainability Targets

#### KPI for 2030

Related SDGs	Summary of value creation stories	Sustainability KPIs	Targets for FY30
  	Support people's health and prosperity through provision of life-innovation solutions and assurance of safe and comfortable workplaces	Safety and health value creation	1 trillion yen

Safety and health value creation; Contribution to customer/social safety and health through the life innovation and safety fields

#### KPIs for 2020

Related SDGs	Value creation themes	Sustainability KPIs	Results of FY17	Targets for FY20
 	Improved productivity in manufacturing/processing of pharmaceuticals/foods	Amount of productivity improvement of pharmaceutical and food customers	(Base year)	Doubled
	Support development of drugs and biopharmaceuticals	Number of provided drug discovery systems	(Base year)	Twenty times
	Improvement of safety	Number of shipped safety instrumented system controller units	2,300	3,200
	On-site maintenance solutions	Number of provided on-site maintenance solutions	250	850

## Value Creation Themes

### 1 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 introduce leaps forward in production throughout the entire value chain, from basic research to logistics and services.

### 2 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.

### 3 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.

### 4 On-site maintenance solutions

We provide facilities management and consulting that result in low-workload, safe and efficient plant management.

## Case Study: Advanced Drug Discovery Solutions (Japan)

### Yokogawa

Support bio antibody and other leading-edge drug development and production through solutions and services

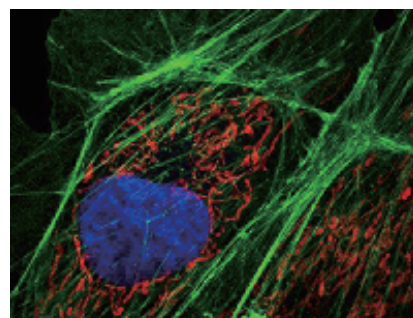
### Customer

Reduce cost of drug discovery significantly and develop highly effective leading-edge pharmaceuticals rapidly

### Society/Environment

Leading-edge pharmaceuticals and treatments available more quickly to more people

Sustainable Development Goal 3 is to “Ensure healthy lives and promote well-being for all at all ages.” This goal emphasizes the importance of research and development leading to creation of innovative drugs. Yokogawa was one of the first companies to be active in this field. The confocal microscope is one example of our contributions. This equipment has made a major contribution to explain the mechanisms behind the mysteries and illnesses of life that have been veiled for so long in basic medical and biological research and development. Today, our confocal microscopes are being used in prominent research projects in the fields of molecular biology and genetic engineering. These research projects are said to be candidates for future Nobel Prize consideration.



### Confocal Microscope Imaging

Technology for observing living cells and tissues in 3D

We have created a drug discovery support system based on confocal microscope imaging technology, image processing technology, and AI technology. This system facilitates the rapid screening of the efficacy and toxicity of an enormous number of sample compounds, dramatically reducing the time and cost involved in drug discovery.

Yokogawa is involved in research and development for single-cell solutions in medical treatments. Single-cell solutions are techniques that use confocal imaging to accurately recover and analyze the constituents of a single target cell. This technology is vital for explaining the diversity and interaction mechanisms of individual cells, and is hoped to be used in simple specific diagnosis of cancer and in individual medical treatments using applications of genetic engineering.

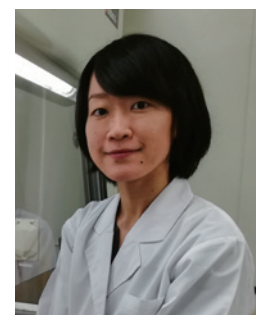
We also plan to enter the fields of biopharmaceuticals (medicines produced by cells) and regenerative medicine (using cells) in the future. We believe applications of Yokogawa measurement, control, and information technologies for cell research and development will improve the productivity of innovative biopharmaceuticals. And, by managing information across the entire value chain, we will be able to generate improvements in quality and efficiency. Many regions across the world, particularly in the emerging countries of Asia, are waiting eagerly for advanced drugs and medical treatments. Yokogawa solutions and services will play an important role in providing advanced drug and medical treatments to more people more rapidly.

## Message from Employee

Single-cell gene analysis is one single-cell solution that makes composite analysis of individual cell morphological information and gene expression possible for the first time. My role is to secure technologies that provide for the stable recovery of genes from extracted cells. I am involved in equipment development and improving sample extraction equipment. At the same time, I conduct experiments in ways to recover trace amounts of genes from a single cell. We believe this technology is effective in uncovering the role of organoids\*1 produced in cancer tissue and iPS cells, as well as other individual cells from within heterogeneous\*2 aggregations. I hope that Yokogawa systems can be useful in people's lives, contributing to the development of cancer treatment and regenerative medicine.

\*1 Organs created in 3D in test tubes, etc.

\*2 Mixture of different types of cells



Tomoko Hirai Bio Solution Center R&D, Life Innovation Business Headquarters, Yokogawa Electric Corporation

## Case Study: Contributing to Society Through Human Resources Development and Job Creation (Saudi Arabia)

Yokogawa concluded a distributor agreement with a local company in Saudi Arabia in 1970s to start cultivating the control system market. Having established Yokogawa Saudi Arabia in 2006 and Yokogawa Services Saudi Arabia in 2007, Yokogawa has accumulated a track record in the key oil and gas sector and has expanded business led by local employees. Yokogawa's customers in Saudi Arabia are mainly state-owned enterprises. As well as contributing to Saudi Arabia's industrial development by helping customers resolve their issues, Yokogawa has been addressing the resolution of the nation's social issue since the inception of these companies. In recent years, a high youth unemployment rate in line with the increase



of foreign workers has become a pressing issue in Saudi Arabia. The Saudi government is implementing a policy to increase employment opportunities by promoting employment of Saudi nationals (Saudization). While expanding business in Saudi Arabia, Yokogawa is supporting human resources development in the country in cooperation with local universities and other educational institutions and providing employment opportunities.

### Contributing to human resources development

Based on a memorandum of understanding signed with the King Fahd University of Petroleum and Minerals (KFUPM) and three other universities in Saudi Arabia concerning human resources training programs, Yokogawa provides engineering training and short-term internships for students and new graduates. In the 10 years from 2007, of 275 people who completed the training program, 63 joined the Yokogawa Group.

### Contributing to creation of jobs

As of June 2017, Yokogawa's subsidiaries in Saudi Arabia had 300 employees of whom 135 were Saudi nationals (75 men and 60 women), with a Saudization percentage of 45%. According to the criteria for the ratio of Saudi nationals to the workforce of companies specified by the Ministry of Labor of Saudi Arabia, Yokogawa subsidiaries are in the top level in the six-level ranking.

### Supporting advancement of women in society

Yokogawa is vigorously supporting advancement of Saudi Arabian women and has hired some 150 local women since 2010. Of the current 60 female employees, 50 are engaged in engineering work. Initiatives to resolve social issues of Saudi Arabia have a great significance in the context of Yokogawa's sustainable development of business in the country. Yokogawa continues to address issues of customers in Saudi Arabia and national issues with devotion in order to contribute to the country's industrial development while enhancing Yokogawa's corporate value.



President Nishijima (left) had an audience with Custodian of the Two Holy Mosques King Salman Bin Abdulaziz Al-Saud, King of the Kingdom of Saudi Arabia, at Saudi-Japan Vision 2030 Business Forum in March 2017 during the King's visit to Japan.



At the Business Forum, Yokogawa concluded a MOU with Saudi Arabian Oil Company (Saudi Aramco) concerning cooperation in R&D and human resources development in the measuring and control fields of the oil, petrochemical, and gas sector.

## Circulation of Resources and Efficiency / Circular economy



Solution and services to reduce consumption of energy and resources are a core part of our business to the ultimate goal of a circular economy. We offer digital technology consulting and advanced solutions and supply a range of long-life, environmentally-friendly products designed to ensure operational stability and efficiency throughout the system life cycle. We also aim for transformation into resource recycling business model.

### Sustainability Targets

#### KPI for 2030

Related SDGs	Summary of value creation stories	Sustainability KPIs	Targets for FY30
	Contribute to sustainability and economic growth through stable and efficient operation, and resource regeneration	Resource efficiency improvement	1 trillion yen

Resource efficiency improvement; resource efficiency improvements delivered to clients through consulting and solution services

#### KPIs for 2020

Related SDGs	Value creation themes	Sustainability KPIs	Results of FY17	Targets for FY20
	Improvement of water environment	Number of provided water environment improvement solutions	170	190
	Advanced solutions/ Consulting to improve productivity	Amount of improvement effect proposed to customers	(Base year)	Doubled
	Long-term stable operation of plant	Maintenance service sales amount	(Base year)	1.3 times

## Value Creation Themes

### 1 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.

### 2 Advanced solutions

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

### 3 Consulting to improve productivity

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

### 4 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.

## Case Study: Effective Utilization on Customer Assets Through Long-Term Partnership (Bahrain)

### Yokogawa

Contribute to efficient and stable operation of plant by providing maintenance services of control system for more than 20 years

### Customer

Reduce total cost of ownership (TCO) through life cycle with effective use of large-scale plant facilities

### Society/Environment

Preventing pollution by plant operation considering the environment and providing high quality products to society

The Bahrain Petroleum Company (M/s BAPCO) is the first refinery established in the Arabian Gulf. Since its inception, BAPCO has held a sustainable goal towards health, safety and environmental commitment. BAPCO had the 1st Distributed Control System of Yokogawa supplied in 1994 and over the last 24 years, all the Process Control Systems operating in BAPCO are maintained by Yokogawa. Yokogawa is recognized as a value-added partner in BAPCO's quest for excellence towards environmental responsibilities. Yokogawa maintained BAPCO's Process Control System from 1997 to 2011 under the Annual Maintenance Contract and from 2012 onwards it has done so under Yokogawa's flagship concept of maintenance known as the Life Cycle Agreement (LCA), which will support BAPCO until 2022. As partners, BAPCO and Yokogawa have been successful in managing the large Process Control System installation with due diligence and the Life Cycle



Photo: Bapco Archive

Agreement, which ensures that their equipment & instrument assets are always available, reliable, healthy and up-to-date and helps to reduce TCO (Total Cost of Ownership). With the continuous engagement between Yokogawa and BAPCO through the Life Cycle Agreement, maintaining the Process Control System and resolving any issues related to the system have been immensely helpful in enhancing the skillset of incumbents. The proactive approach towards the joint goal of environmental responsibility has ensured that Yokogawa is accepted more as a service solution partner rather than a mere service provider.

We believe that not only the recycling of resources but also diverse efforts to improve efficiency of the entire lifecycle contribute to a circular economy. Yokogawa with its systematic life cycle plan, obsolescence management and continuous engagement with BAPCO has safeguarded the Process Control System over the years and provided the path forward for upgrade and migration of the systems. BAPCO and Yokogawa aim for a sustainable future as common responsibilities to the industry and society.

### Message from Employee

Yokogawa introduced the concept of a lifecycle agreement to BAPCO, listening to the pain points of the BAPCO maintenance team. Yokogawa Middle East & Africa identified concerns related to training, variable replacement costs, and performance evaluations/analyses of field instruments, providing a comprehensive proposal to BAPCO, which BAPCO management signed for multiple years. Yokogawa performed numerous modification projects and upgrades, resulting in up-to-date automation assets, improved systems efficiency, and increased stability of operations. During the delivery of lifecycle services, BAPCO contracted an additional eight Yokogawa process control systems and one safety system. BAPCO also asked Yokogawa to include these systems in the renewed contracts, as well as add mandatory lifecycle parts replacements in the lifecycle agreement renewal.



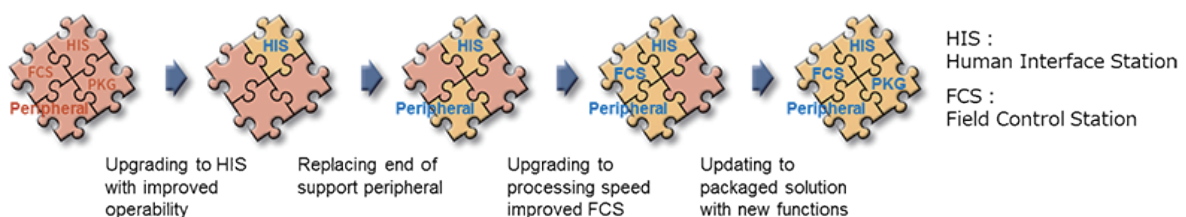
Shamik Dev Assistant Manager, Regional Service Division, Yokogawa Middle East & Africa B.S.C. (c)

### Case Study: Evolving Durability and Multi-Generational Design and Promoting Effective Use of Customer Property (CENTUM VP)

CENTUM VP, a distributed control system which provides customers with an optimized operation and engineering environment, has been developing its reliability and robustness through introducing the latest state-of-the-art technologies. The CENTUM series have been offering a smooth upgrade path from an existing CENTUM system into the latest one. It provides customers with the benefits of using the existing system yet allows them to adopt the latest technologies.

#### Supporting to stable operation of instrumentation systems

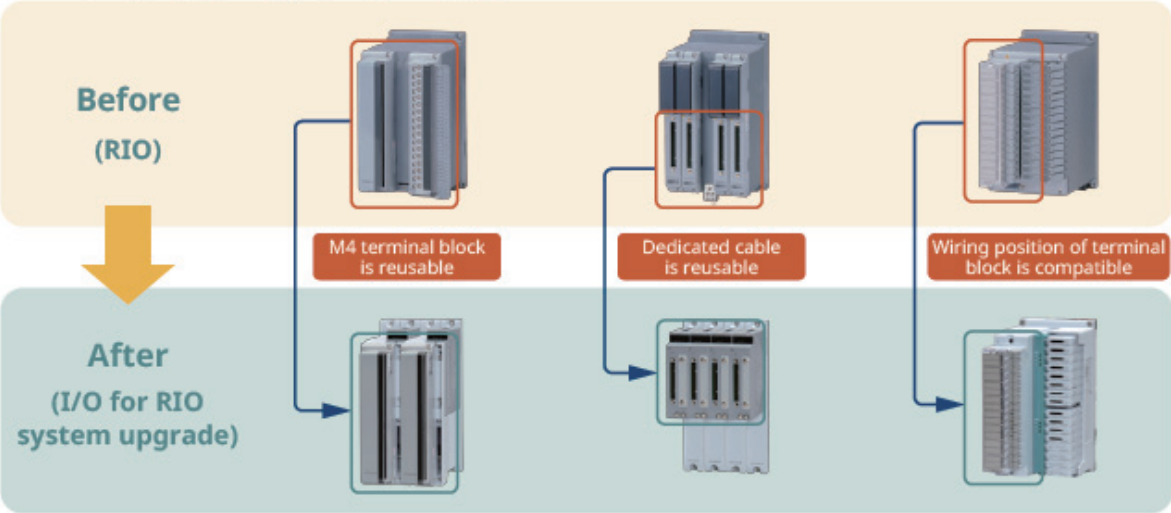
By updating obsolete components to maintain system functionality, transition can be achieved seamlessly.



## RIO (Remote I/O) system upgrade

Realize short turn-around, reliable update to the latest system by fully utilizing existing facility assets. New devices for the RIO system upgrade are compatible with existing RIO in both function and physical form. Existing cabinets and terminal blocks can be re-used as they are; it is not necessary to change the wiring between the I/O device and the sensor or valve.

### Inheritance of signal connection



## Human Resources and Environmental Management





Yokogawa has established sustainability indicators for the following two fields as the foundations for achieving sustainability. One is human resources management to make our transformation within the group and create new value.

The other is environmental management to conserve the global environment, which is essential for the existence of our business.

### Human Resources Management

At Yokogawa, we believe that human resources management is key to our growth. We have established diversity and inclusion and, talent attraction and engagement as themes. We create value through a diverse workforce equipped to adapt to ongoing change. At the same time, we drive transformation aimed at both the individual and organization. Occupational health and safety represents the bedrock of corporate management. We continue to pursue the ultimate goal of zero workplace accidents and incidents.

### Sustainability Targets

Related SDGs	Value creation themes	Sustainability KPIs	Results of FY17	Targets
 	Diversity and inclusion	Female ratio out of total number of managers	9.9%	12.0% by FY20
		Disability employment rate (Japan)	2.1% (As of June 1st)	2.3% by FY20
	Talent attraction and engagement	Engagement survey score	—	Implementation of engagement improvement measures
	Elimination of occupational accidents	Frequency of occupational accidents	0.36 case /million work hour	Reduction

### Value Creation Themes

#### 1 Diversity and inclusion

Yokogawa seeks to attract, cultivate, and engage with people who bring different life experiences, skills and competencies, sensibilities, perspectives, cultures, and value systems to our organization. This is how we adapt and respond effectively to an ever-evolving industry environment, as well as to the varying demands of the marketplace.



## 2 Talent attraction and engagement

Our global talent management program inspires employees to create new forms of value through co-innovation.

We strive to provide a safe and welcoming workplace environment that encourages every employee to be their best.

## 3 Elimination of occupational accidents

Occupational health and safety are important underlying elements of corporate management.




We are committed to ensuring the health, well-being, and safety of all employees in the Yokogawa Group.

## Environmental Management

The Yokogawa environmental management program involves ongoing evaluation of factories and offices throughout the Yokogawa Group according to three key sustainability indicators: (1) water usage efficiency; (2) energy consumption; and (3) greenhouse gas emissions.

We have set a long-term greenhouse gas emissions target for the year 2030 based on the 2° C target defined in the Paris Agreement.

## Sustainability Targets

Related SDGs	Value creation themes	Sustainability KPIs	Results of FY17	Targets
	Promotion of efficient use of water resources	Water consumption amount	615 Km <sup>3</sup>	Strengthen measures to efficiently utilize water resources
	Reduction of energy consumption	Energy consumption amount (compared to FY13)	13.1% reduction	13% reduction by FY20 18% reduction by FY30
	Reduction of greenhouse gas emissions	Greenhouse gas emissions (compared to FY13)	17.9% reduction	20% reduction by FY20 34% reduction by FY30

## Value Creation Themes

### 1 Promotion of efficient use of water resources

We promote efficient use of water resources by monitoring water usage at production facilities and encouraging recycling of water used in production.

### 2 Reduction of energy consumption

We are committed to reducing energy consumption via digitization of administrative procedures and processes and strategies to optimize group-wide production through greater labor productivity.

### 3 Reduction of greenhouse gas emissions

The Yokogawa Group is committed to reducing greenhouse gas emissions in line with the 2° C target set out in the Paris Agreement. We accomplish this goal through strategies designed to reduce energy consumption and our active use of renewable energy sources.

## List of Sustainability Targets



Based on the net-zero emissions, well-being, and circular economy goals that we have set for each of our business focus areas, we have established aspirational targets for fiscal year 2030. Also, for the period up to and including fiscal year 2020, we have selected a number of value creation themes that are based on our business plans, and have established Key Performance Indicators (KPIs).

Regarding human resources management, which provides a basis for all our business activities, we will focus on themes such as diversity and engagement, and will set concrete KPIs for them. Also, taking a long-range perspective, we have set a greenhouse gas emissions target for fiscal year 2030 that is based on the 2°C target covered under the Paris Agreement.

## Contribution Through Business



### Stopping Climate Change (Net-zero emissions); Renewable and low-carbon energy

KPI for 2030

Related SDGs	Summary of value creation stories	Sustainability KPIs	Targets for FY30
 	Contribute to avoid CO <sub>2</sub> emissions through offering of renewable energy and LNG solutions	Avoided CO <sub>2</sub> emissions (Cumulative from 2018)	1 billion tons-CO <sub>2</sub>




Avoided CO<sub>2</sub> emissions; contribution to avoidance compared to average fossil fuel usage

KPI for 2020

Related SDGs	Value creation themes	Sustainability KPIs	Results of FY17	Targets for FY20
 	Renewable energy/ Low-carbon energy	Avoided CO <sub>2</sub> emissions (Cumulative from 2018)	—	60M t-CO <sub>2</sub>

### Quality Life of All (Well-being); Life innovation and safety






KPI for 2030

Related SDGs	Summary of value creation stories	Sustainability KPIs	Targets for FY30
  	Support people's health and prosperity through provision of life-innovation solutions and assurance of safe and comfortable workplaces	Safety and health value creation	1 trillion yen

Safety and health value creation; contribution to customer/social safety and health through the life innovation and safety fields





# Sustainability Targets

KPIs for 2020

Related SDGs	Value creation themes	Sustainability KPIs	Results of FY17	Targets for FY20
 	Improved productivity in manufacturing/processing of pharmaceuticals/foods	Amount of productivity improvement of pharmaceutical and food customers	(Base year)	Doubled
	Support development of drugs and biopharmaceuticals	Number of provided drug discovery systems	(Base year)	Twenty times
	Improvement of safety	Number of shipped safety instrumented system controller units	2,300	3,200
	On-site maintenance solutions	Number of provided on-site maintenance solutions	250	850








## Circulation of Resources and Efficiency (Circular economy); Energy saving and resources

KPI for 2030

Related SDGs	Summary of value creation stories	Sustainability KPIs	Targets for FY30
   	Contribute to sustainability and economic growth through stable and efficient operation, and resource regeneration	Resource efficiency improvement	1 trillion yen

Resource efficiency improvement; resource efficiency improvements delivered to clients through consulting and solution services

KPIs for 2020

Related SDGs	Value creation themes	Sustainability KPIs	Results of FY17	Targets for FY20
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 	Long-term stable operation of plant	Maintenance service sales amount	(Base year)	1.3 times





## Common Platform

KPI for 2020




Related SDGs	Value creation themes	Sustainability KPIs	Results of FY17	Targets for FY20
	Transformation of business model with infrastructure and tools utilizing IIoT	Number of users of Co-creation environment	1,000	1,500

## Contribution Through Our Management

### Human Resources Management

Related SDGs	Value creation themes	Sustainability KPIs	Results of FY17	Targets
 	Diversity and inclusion	Female ratio out of total number of managers	9.9%	12.0% by FY20
		Disability employment rate (Japan)	2.1% (As of June 1st)	2.3% by FY20
	Talent attraction and engagement	Engagement survey score	—	Implementation of engagement improvement measures
	occupational accidents	Frequency of occupational accidents	0.36 case/million work hour	Reduction

### Environmental Management

Related SDGs	Value creation themes	Sustainability KPIs	Results of FY17	Targets
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# Communication with Our Stakeholders

Yokogawa will help solving the unique challenges such as energy conservation, the reduction of environmental impact and improved plant safety by utilizing our solutions. In addition, we are working to strengthen corporate governance, abide by compliance, and promote human resources strategy. In promoting all CSR activities, it is required to incorporate fully the expectations and demands of society as well as promote the business strategy of our mid-term business plan. We therefore value feedback, concerns and other input obtained through communication with our stakeholders.

Customer	<ul style="list-style-type: none"> <li>● Co-innovation through the plant lifecycle</li> <li>● Global Response Center</li> <li>● Conversation/interaction with customers at trade shows and customer meetings</li> <li>● Provision of information via websites</li> </ul>
Shareholders and Investors	<ul style="list-style-type: none"> <li>● Interaction through IR activities such as the General Meeting of Shareholders and presentations to investors</li> <li>● Communication through financial reports and Yokogawa reports (integrated reports)</li> <li>● Response to research conducted by ESG rating agencies</li> </ul>
Supplier	<ul style="list-style-type: none"> <li>● Interaction through the procurement activities conforming to the sales policy</li> <li>● Organization of presentations on our procurement policy</li> </ul>
Employee	<ul style="list-style-type: none"> <li>● Interaction through labor-management consultations</li> <li>● Communication through the company newsletter and intranet</li> <li>● Employee-awareness surveys</li> </ul>
Communities	<ul style="list-style-type: none"> <li>● Conversation/interaction with nearby residents/communities</li> <li>● Participation in community activities</li> </ul>
Governments/ Industry organization	<ul style="list-style-type: none"> <li>● Participation in economics organizations and industry bodies</li> </ul>
NGOs/NPOs	<ul style="list-style-type: none"> <li>● Conversation/interaction through various cooperative activities</li> </ul>

## Inclusion in Stock Indexes

### Dow Jones Sustainability Asia Pacific Index

Yokogawa Electric Corporation has been selected for inclusion in the Dow Jones Sustainability Asia Pacific Index (DJSI Asia Pacific) for the second consecutive year, one of the DJSI family of global stock indices that track stocks based on environmental, social, and governance (ESG) criteria. (September, 2018)

MEMBER OF

**Dow Jones  
Sustainability Indices**

In Collaboration with RobecoSAM

### MSCI ESG Leaders Index, MSCI Japan ESG Select Leaders Index and MSCI Japan Empowering Women Index (WIN)

Yokogawa Electric Corporation has been selected for inclusion in "MSCI ESG Leaders Index" developed by MSCI Inc. (July, 2018)

Yokogawa Electric Corporation has been selected for inclusion in "MSCI Japan ESG Select Leaders Index" and "MSCI Japan Empowering Women Index (WIN)" developed by MSCI Inc. (July, 2018)



### FTSE4Good Index Series and FTSE Blossom Japan Index

Yokogawa Electric Corporation has been selected for inclusion in the FTSE4Good Index Series and the FTSE Blossom Japan Index developed by FTSE Russell. (June, 2018)



## Socially Responsible Investment Stock Index by Morningstar (Japan)

Yokogawa Electric Corporation, as of January 2018, is one of 150 companies constituting the MS-SRI (Morningstar Socially Responsible Investment Index), which is an SRI stock index established by Morningstar. (January, 2018)



## Constituent Stock of the JPX-Nikkei Index 400 (Japan)

Yokogawa Electric Corporation has been selected to the JPX-Nikkei Index 400, a stock price index jointly established by Nikkei Inc., Japan Exchange Group, Inc. (JPX), and Tokyo Stock Exchange, Inc. Stocks in this index are selected as companies that are attractive to investors for their return on investment (ROI), market capitalization, and other attributes. (August, 2016)



## SNAM Sustainability Index

Yokogawa Electric Corporation has been selected for inclusion in the SNAM Sustainability Index, which is an ESG (environmental, social, and governance) index developed by Sompo Japan Nipponkoa Asset Management Co., Ltd. (June, 2018)



## Ratings for Products and Business Activities

### The top Level "leadership", A-, in Evaluation by CDP

Yokogawa Electric Corporation has been certified as the top level "Leadership", A-, in the two fields of "Climate Change" and "Water Security" in CDP 2017 conducted by international NGOs in the UK and evaluated as representing best practice in the field of environmental management. (October, 2017)





## **Frost & Sullivan 2017 Global Customer Value Leadership Award in the Industrial Automation Solutions and Services Industry (USA)**

Yokogawa Electric Corporation has received the Frost & Sullivan Global Customer Value Leadership Award in the automation solutions and services category. (June, 2017)



## **Yokogawa Recognized as Excellent Health and Productivity Management Company (Japan)**

Yokogawa Electric Corporation has been selected by the Ministry of Economy, Trade and Industry (METI) and Nippon Kenko Kaigi (NKK) to the "White 500" list of large companies with excellent health and productivity management practices. (February, 2018)

## **Yokogawa's GC8000 Process Gas Chromatograph Receives CIS Science and Technology Award (China)**

GC8000 process gas chromatograph has received a Science and Technology Award in the Excellent Product category from the China Instrument and Control Society (CIS). (September, 2016)

## **Awarded the Highest Rank of the Superior Enterprise Certification Logo - "Eruboshi" Based on the Act of Promotion of Women's Participation and Advancement in the Workplace (Japan)**

Yokogawa Electric Corporation was given the highest rank of the certification "Eruboshi" by the Ministry of Health, Labour and Welfare as an enterprise with a superior status of women's participation and advancement in the workplace. (July, 2016)

## **Yokogawa's CENTUM® VP R6 Receives the Minister of Economy, Trade and Industry Prize of the 46th Machine Industry Design Awards (Japan)**

CENTUM®VP R6 integrated production control system has received the Minister of Economy, Trade and Industry Prize. (July, 2016)

## **Provision of Outstanding Employee Support (China)**

Yokogawa Electric China(YCS)was one of 10 companies at the Suzhou Industrial Park to receive special recognition for their efforts to establish a firm foundation for their organizations by providing employees with education, healthcare, and other forms of support. (2017)

## Awards for Employees

### **Receipt of Udyog Rattan Award from Institute of Economic Studies (India)**

An employee of Yokogawa IA Technologies India received the Udyog Rattan Award from the Indian government-affiliated Institute of Economic Studies for his industry leadership, influence on other industries and government agencies, and contributions to the economy of India. This award is a great honor and has improved Yokogawa's standing in India. (2017)

### **"Award for Activities to Promote International Standards of the IEC/TC65 Domestic Committees" Was Granted (Japan)**

An employee of Yokogawa Electric Corporation received the "Award for Activities to Promote International Standards of the IEC/TC65 Domestic Committees" at the activity report meeting of the Japan Electric Measuring Instruments Manufacturers' Association (JEMIMA). This award is given to Committee members who contributed greatly to activities of the IEC/TC65 Domestic Committees and are expected to contribute to the activities from now on (2017).

### **"Award for Contribution to Energy Conservation Promotion" Awarded by the Energy Conservation Center, Japan (ECCJ) (Japan)**

An employee of Yokogawa Electric Corporation received an award for the contribution to energy conservation in fiscal 2016 from ECCJ. Their contributions to energy conservation promotion through the formulation of a local environmental basic plan, raising awareness of stakeholders including employees toward the environment were appreciated. (2017)

### **"Award for Contribution to Creativeness" Awarded by the Minister of Education, Culture, Sports, Science and Technology in Science and Technology (Japan)**

An employee of Yokogawa Manufacturing Corporation received the "The Prize for Creativity" from the Minister of Education, Culture, Sports and Technology in science and technology in fiscal 2016. This award is given to individuals or groups who contributed to the advancement and improvement of technology in the workplace through excellent creativeness, in the science and technology field. (2016)

### **Receipt of NIR Advance Award from Japan Council for Near-infrared Spectroscopy (Japan)**

In recognition of many years of research in the field of spectroscopic analysis and successes achieved in the development of near-infrared (NIR) spectroscopy and imaging equipment, an employee of Yokogawa Electric Corporation received the NIR Advance Award. His proactive collaboration with external organizations and efforts to co-create solutions with customers have been recognized. (2017)

### **Receipt of Society of Instrument and Control Engineers (SICE) Award: Technology Award (Japan)**

Based on the ISA 100 Wireless international standard, employees of Yokogawa Electric Corporation developed a fully redundant wireless infrastructure, that has the high reliability needed in process automation applications, and won the 2016 SICE Technology Award for their paper on this subject. (2016)

## **Receipt of Society of Instrument and Control Engineers (SICE) International Standardization Award: Achievement Prize (Japan)**

An employee of Yokogawa Electric Corporation won this year's Achievement Prize in recognition of his contributions in establishing several industrial wireless standards. (2017)

## **Receipt of Society of Instrument and Control Engineers (SICE) Outstanding Paper Award (Japan)**

An employee of Yokogawa Electric Corporation received the 2017 Outstanding Paper Award for his paper on the application of Yokogawa's wireless technology in an explosion-proof sensor used in hydrogen leak detection systems. (2017)

## **Winning at Olympics of Abilities (Abilympics 2017) (Japan)**

Employees of Yokogawa Foundry Corporation, which was established with an eye to provide employment to people with intellectual disabilities, receive training for improving their skills and expand their place of activity, challenging many tasks. They participate in the Olympics of Abilities (Abilympics) every year and won the following award at the 2017 games:

### **Osaka Games (July 8, 2017)**

Personal computer input department: Bronze award

Word processor department: Bronze award

# History of Sustainability Practices

Yokogawa Group has implemented various activities based on the spirit of the company's foundation, "Contribution to the Society." Here, we will introduce our previous main activities related to sustainability focusing on recent topics.

2018	September	Yokogawa publishes the Yokogawa Sustainability Book
2018	May	Yokogawa sets Mid-term Sustainability Targets for 2030
2017	October	Yokogawa is certified as Leadership Level, A-, in both fields of climate change and water at CDP
2017	August	Yokogawa establishes sustainability goals for the year 2050
2017	June	Yokogawa is selected for FTSE 4 Good and MSCI ESG Leaders Indexes based on ESG evaluation for the first time
2017	May	Yokogawa joins World Business Council for Sustainable Development (WBCSD)
2017	February	Yokogawa Recognized as Excellent Health and Productivity Management Company
2015	November	Yokogawa establishes Corporate Governance Guidelines
2015	September	Yokogawa celebrates its 100th anniversary
2009	January	Yokogawa participates in the United Nations Global Compact
2008	April	Yokogawa establishes Corporate Social Responsibility (CSR) department
2007	June	Yokogawa publishes Yokogawa Group Corporate Social Responsibility Report 2006
2006	September	Yokogawa publishes Yokogawa Group Sustainability Report 2006
2002	June	Yokogawa establishes Standards of Business Conduct for Yokogawa Group
2001	March	Yokogawa establishes The principles of Yokogawa Group Environmental Management Standards
1999	November	Yokogawa introduces environmental labeling (Type II )
1999	September	Yokogawa publishes Yokogawa Environmental Report 1999. Also the company introduces environmental accounting and makes data available to public
1998	February	Yokogawa Electric Headquarters & Main Factory and the Komine Factory (current Yokogawa Manufacturing Komine Factory) obtain ISO14001 certification
1997	July	The Kofu Office (current Yokogawa Manufacturing Kofu Factory) obtains ISO14001 certification
1994	January	Yokogawa establishes Standards of Business Conduct for Yokogawa Electric Headquarters
1993	July	Yokogawa establishes a voluntary environmental activities plan
1993	February	Yokogawa appoints a Vice President of Environmental Management and forms a Global Environment Committee
1991	April	Yokogawa sets up an organization to promote an Environment management
1971		Yokogawa establishes a pollution prevention organization

# Environmental

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## 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," and recognizing that environmental conservation of the precious earth is a critical issue for the whole of humanity, the Yokogawa Group shall pursue the following environmental activities for realizing sustainable world.

- 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.

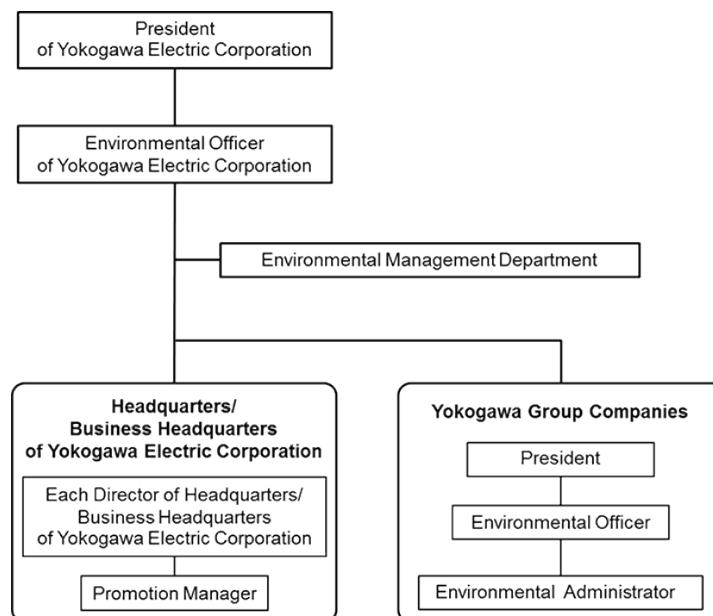
# Environmental Management System

The Yokogawa Group is implementing an Environmental Management System in its group companies in an effort to ensure full compliance with the laws, regulations, agreements, etc., that are designed for the prevention of environmental pollution. Moreover, to conserve energy and reduce environmentally hazardous substances, the Group is encouraging a shift to alternative technologies to the greatest extent possible and is leading an effort to mitigate its environmental impact.

Yokogawa achieved ISO 14001 certification at its major offices and manufacturing sites as part of its effort to improve the Environmental Management System.

## Organization

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





## Compliance with Laws

In 2017 we again endeavored to ensure full compliance with the environmental laws, regulations, agreements, etc., and had no major violations and fines.

## Conserving Water and Soil

The Yokogawa Group has 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.

## Environmental Auditing

### Internal Audits

The environmental internal audits for ISO14001 were conducted at least once a year.

### Annual Surveillance

Regular inspections (renewal inspection or surveillance) were conducted at each of Yokogawa's ISO14001-certified group companies by an ISO14001 certifying organization in order to maintain ISO14001 certification.

# Environmental Management System

## 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.

As of July 2018

Company name	Countries	Certified Year
Yokogawa Electric Corporation	Japan	1997
Yokogawa Manufacturing Corporation	Japan	1997
Yokogawa Test & Measurement Corporation	Japan	1997
Yokogawa Solution Service Corporation	Japan	2000
Yokogawa Denshikiki Co., Ltd.	Japan	2000
Yokogawa Shanghai Instrumentation Co., Ltd.	China	2003
Yokogawa Sichuan Instrument Co., Ltd.	China	2000
Yokogawa Electric China Co., Ltd.	China	2004
Yokogawa Electronics Manufacturing Korea Co., Ltd.	South Korea	2004
Yokogawa Electric International Pte. Ltd.	Singapore	2016
Yokogawa Engineering Asia Pte. Ltd.	Singapore	2001
Yokogawa Electric Asia Pte. Ltd.	Singapore	1998
Yokogawa Philippines, Incorporated	Philippines	2007
P.T. Yokogawa Indonesia	Indonesia	2015
P.T. Yokogawa Manufacturing Batam	Indonesia	2000
Yokogawa (Thailand) Ltd.	Thailand	2015
Rota Yokogawa GmbH & Co.KG	Germany	2011
Yokogawa Corporation of America	USA	2005
Yokogawa Canada, Inc.	Canada	2015
Yokogawa de Mexico, S.A. de C.V.	Mexico	2015
Yokogawa America do Sul Ltda.	Chile	2015
Yokogawa Colombia S.A.S.	Colombia	2015
Yokogawa Middle East & Africa B.S.C.(c)	Bahrain	2013
Yokogawa Engineering Bahrain SPC	Bahrain	2013
Yokogawa Engineering Middle East & Africa FZE	UAE	2013
Yokogawa Saudi Arabia Ltd.	Saudi Arabia	2013
Yokogawa Services Saudi Arabia Ltd.	Saudi Arabia	2013

Yokogawa Electric Corporation and Yokogawa Manufacturing (covered branches: Headquarters, Kofu Factory, Komagane Factory, Kanazawa Factory and Komine Factory) has integrated the ISO14001 certification.

## Goals and Achievements

Environmental Policy of the Yokogawa Group	FY2017 (main sites)		Self Evaluation	Target/Goal for FY2018
	Target/Goal	Results		
<b>Promotion of continuous EMS improvement</b>	Confirm and achieve the environmental conservation action targets that are closely integrated with our business practices	193 themes closely integrated with business operations completed	Good	Confirm and achieve the environmental conservation action targets that are closely integrated with our business practices
<b>Promotion of resource recycling-based management</b>	<b>Reduce energy consumption and CO<sub>2</sub> emissions (domestic group companies)</b> Total CO <sub>2</sub> emissions from 2015 to 2019: 46,379 t-CO <sub>2</sub> /year (Reduce emissions by 18% from the average of reference years from 2005 to 2007)	<b>Reduced energy consumption and CO<sub>2</sub> emissions (domestic group companies)</b> Total CO <sub>2</sub> emissions: 34,425 t-CO <sub>2</sub> /year	Good	<b>Reduce energy consumption and CO<sub>2</sub> emissions (domestic group companies)</b> <ul style="list-style-type: none"> <li>● Total CO<sub>2</sub> emissions from 2015 to 2019: 46,379 t-CO<sub>2</sub>/year (Reduce emissions by 18% from the average of reference years from 2005 to 2007)</li> <li>● 20% reduction by FY20 (45,248 t-CO<sub>2</sub>)</li> </ul>
	<b>Reduce total waste</b> -by 48% compared to fiscal year 2003 (396 t/year in total generation) *1 -1,380t/year *2	<b>Reduce total waste</b> -by 58% compared to fiscal year 2003 (323 t/year in total generation) *1 -1,469t/year *2 * Caused by increased quantity	Fair	<b>Reduce total waste</b> -by 49% compared to fiscal year 2003 (388 t/year in total generation) *1 -Reduction *2
<b>Minimization of environmental pollutants</b>	Reduce toluene and xylene	Promote use of paint with low content of toluene and xylene	Good	Reduce toluene and xylene

<b>Development of environmentally friendly products</b>	Develop and produce products that take into consideration the impacts on environment of material procurement, manufacturing, distribution, use, and disposal, and create products with low environmental load	<ul style="list-style-type: none"> <li>● Preparation for RoHS2</li> <li>● Registered 7 product models to which the assessment standards are applied, and conducted their design reviews according to the respective schedules</li> </ul>	Good	Develop and produce products that take into consideration the impacts on environment of material procurement, manufacturing, distribution, use, and disposal, and create products with low environmental load
<b>Provision of environmental solutions</b>	Increase sales of environmentally friendly products	Achieved as planned	Good	Increase sales of environmentally friendly products
<b>Contribution to society through environmental conservation</b>	Promote contributions to society through participation in nature conservation and social and community activities	<ul style="list-style-type: none"> <li>● Held local wildlife observation tours and seminars as "Yokogawa Green Volunteer" activities</li> <li>● Participated in community clean-up activities, etc.</li> <li>● Introduction of Yokogawa's environmental activities and products for infrastructure for environment through the Kofu factory tour</li> </ul>	Good	Promote contributions to society through participation in nature conservation and social and community activities

Main sites: Yokogawa Electric Corporation Headquarters & Main Factory and Yokogawa Manufacturing Corporation

\*1: Goals of Yokogawa Electric Corporation Headquarters & Main Factory

\*2: Yokogawa Manufacturing Corporation

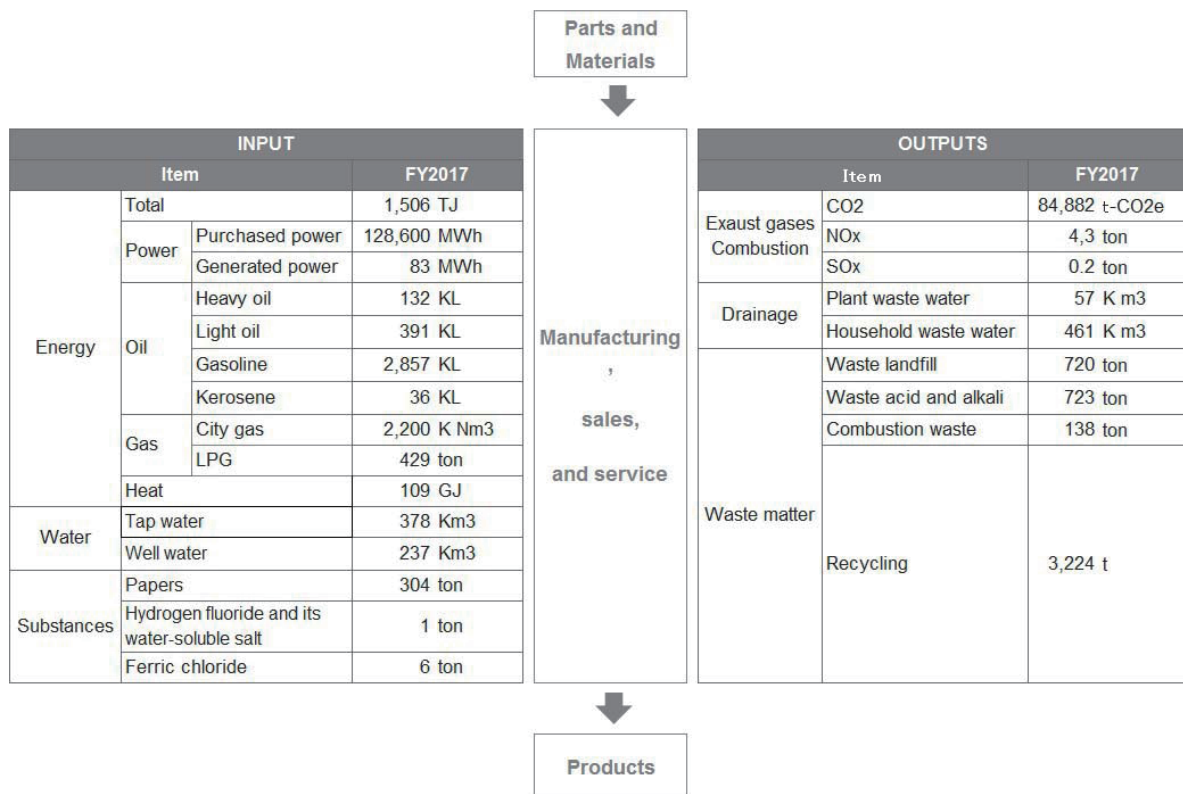
## Enlightenment Activities

For the purpose of increasing our employee's awareness of environment, the Yokogawa Group provided education using e-learning and called for participants who will join a lecture on the environment by Gota Miura, a professional skier and alpinist in fiscal 2017.

## Data of Environmental Practices

### Overview of Environmental Impact (FY2017)

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.



## Environmental Conservation Costs (FY2017)

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.

Category	Item	Main Initiatives	Capital Investment	Related Costs
Costs for reducing environmental impact of factories (areas of operation)	Pollution prevention costs	Monitoring and measurement	11.1	100.8
	Global environmental conservation costs	Energy savings	443.2	450.2
	Resource recycling costs	Minimize generation of waste matter, water conservation.	7.2	87.8
Costs for reducing environmental impact of procurement and logistics		Green procurement	0.0	79.9
Environmental conservation costs in EMS activities		EMS updates, education	0.0	166.8
Environmental conservation costs in community activities		Environmental events	0.0	43.2
Costs for correcting damage to the environment		Soil recovery	0.0	0.0
Total			461.5	928.7

\* Data was taken from ISO14001-certified manufacturing sites.

(Millions of yen)

## Environmental Conservation Effects

Category	Description of Effect (unit)	FY2016	FY2017	Effect
Expenditures	Total amount of energy consumed (TJ)	1,049	1,038	-11
	Total amount of water resources consumed (km <sup>3</sup> )	471	459	-12
Global warming prevention	CO <sub>2</sub> emissions (t)	57,150	54,915	-2,235
Emissions	Total amount of waste emissions (t)	3,048	3,466	+418

\* Data was taken from ISO14001-certified manufacturing sites.

## Economic Effects of Environmental Conservation Measures - Intrinsic Effect (FY2017)

Description of Effect	Amount
Reduction in expenditure due to recycling (sale of valuable resources, etc.)	32.3
Reduction in expenditures, resource and energy savings (power, water, paper, etc.)	8.5
Total	40.8

\* Data was taken from ISO14001-certified manufacturing sites.

(Millions of yen)

Yokogawa actively develops environmentally friendly products through the implementation of its own strict standards of design and assessment for long-term 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".



LCA Label

## Guidelines for Environmentally Friendly Design

### (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

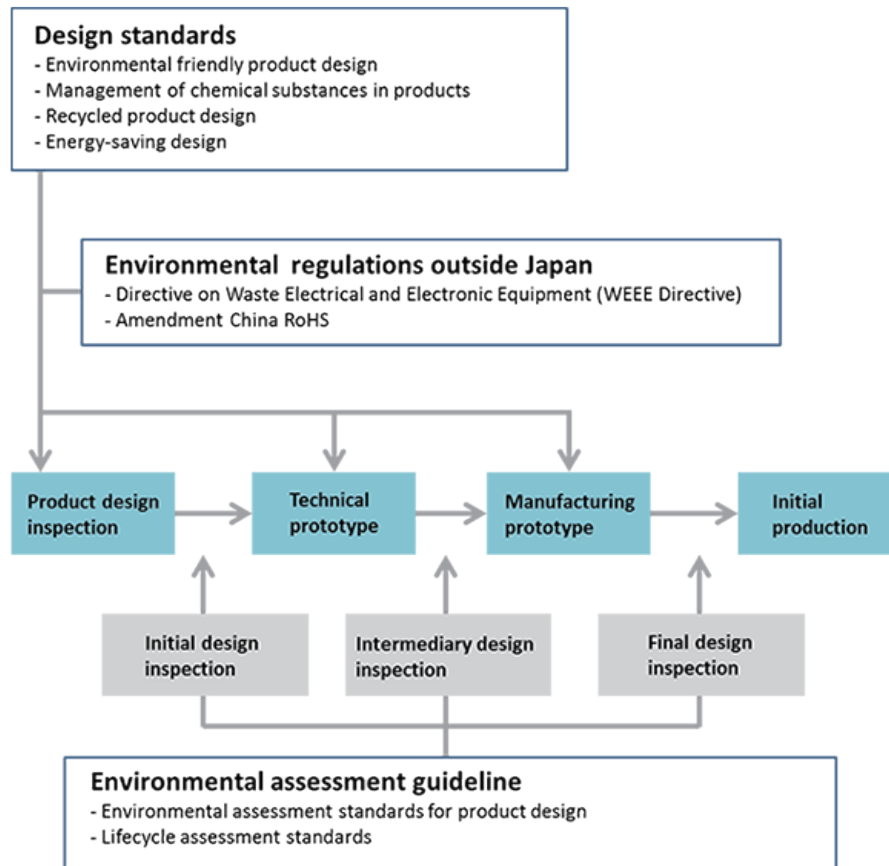
These standards encourage the three Rs: the reduction of waste and the reuse and recycling of used products.

### (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



## Green Procurement

Various laws and regulations have been put in place, such as the Home Appliance Recycling Law and Law for Promotion of Effective Utilization of Resources in Japan, as well as the Waste Electrical and Electronic Equipment (WEEE) and Restriction of Hazardous Substances in EEE (RoHS) Directives outside Japan. With this background, Yokogawa aims at building a sustainable society in various areas of its business activities.

Based on the principle "Resource procurement with less environmental load = Offering environmentally friendly products", Yokogawa proactively promotes green procurement activities that are environmentally friendly.

### Green Procurement Guidelines

Under the philosophy to contribute to building a sustainable society in various areas of business activities, Yokogawa has created the "Green Procurement Guidelines" to promote green procurement activities.



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 .

## 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.

## 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.

## List of LCA-Labeled Products

Model	Products
CENTUM CS3000 Model System	Integrated Production Control System Compared to the reference product CENTUM CS, CO <sub>2</sub> emission was reduced by about 11%.
ProSafe-RS Model System	Safety Instrumented System Compared to the reference product ProSafe-PLC, CO <sub>2</sub> emission was reduced by about 23%.
STARDOM Model System	Network-based Control Systems Compared to the reference product CENTUM CS1000, CO <sub>2</sub> emission was reduced by about 55%.
EJA110E	Pressure Transmitter (DPharp EJA-E Series) Compared to the reference product EJA, CO <sub>2</sub> emission was reduced by about 30%.
CSU-X1	Confocal scanner unit Compared to the reference product CSU22+Filter Wheel, CO <sub>2</sub> emission was reduced by about 40%.
2553A	Precision DC Calibrator Compared to the reference product 2553, CO <sub>2</sub> emission was reduced by about 66%.
2558A	AC Voltage Current Standard Compared to the reference product 2558, CO <sub>2</sub> emission was reduced by about 50%.
2560A	Precision DC Calibrator Compared to the reference product 2560, CO <sub>2</sub> emission was reduced by about 67%.
AQ1000	AQ1000 Entry Level Optical Time Domain Reflectometer Compared to the reference product AQ1200, CO <sub>2</sub> emission was reduced by about 41% .
AQ1200A/B/C	AQ1200 MFT-OTDR Optical Time Domain Reflectometer Compared to the reference product OTDR AQ7270 series, CO <sub>2</sub> emission was reduced by about 40%.
AQ2200-131	AQ2200-131 Grid TLS Module Compared to the reference product AQ2200-111, CO <sub>2</sub> emission was reduced by about 10%.
AQ2200-232	Optical Sensor Head / Interface Module Compared to the reference product AQ2200-201, AQ2200-231, CO <sub>2</sub> emission was reduced by about 39% .
AQ2200-342	AQ2200-342 DUAL ATTN Module Compared to the reference product AQ2200-331, CO <sub>2</sub> emission was reduced by about 45%.
AQ6360	Optical Spectrum Analyzer Compared to the reference product AQ6370D, CO <sub>2</sub> emission was reduced by about 25% .
AQ6370D	AQ6370D OPTICAL SPECTRUM ANALYZER Compared to the reference product AQ6370C, CO <sub>2</sub> emission was reduced by about 17%.
AQ6374	AQ6374 Optical Spectrum Analyzer Compared to the reference product AQ6315A, CO <sub>2</sub> emission was reduced by about 26% .
AQ6375B	AQ6375B OPTICAL SPECTRUM ANALYZER Compared to the reference product AQ6375, CO <sub>2</sub> emission was reduced by about 24%.
AQ7280	AQ7280 series OTDR Compared to the reference product AQ7270, CO <sub>2</sub> emission was reduced by about 25%.
DL350	ScopeCorder Compared to the reference product DL850E, CO <sub>2</sub> emission was reduced by about 70% .
DLM4038/ DLM4058	Mixed Signal Oscilloscope DLM4000 Series Compared to the reference product DL7480, CO <sub>2</sub> emission was reduced by about 25%.
WT310E/ WT310EH	Digital Power Meter WT300E Series Compared to the reference product WT210, CO <sub>2</sub> emission was reduced by about 18%.
WT332E/ WT333E	
WT3000E	

# Global Warming Prevention

The Yokogawa Group has set a long-term greenhouse gas emissions target for the year 2030 based on the 2° C target defined in the Paris Agreement.

Also, for the group companies in Japan, we have set CO<sub>2</sub> emission reduction targets for the phases 2010-2014, 2015-2019 and 2020, and are implementing emission reduction programs to achieve those targets. Our ongoing CO<sub>2</sub> emission reduction programs include the improvement of production lines, the introduction of high-efficiency heating/cooling equipment, the installation of inverter-driven lights, LED lights and the use of green power.

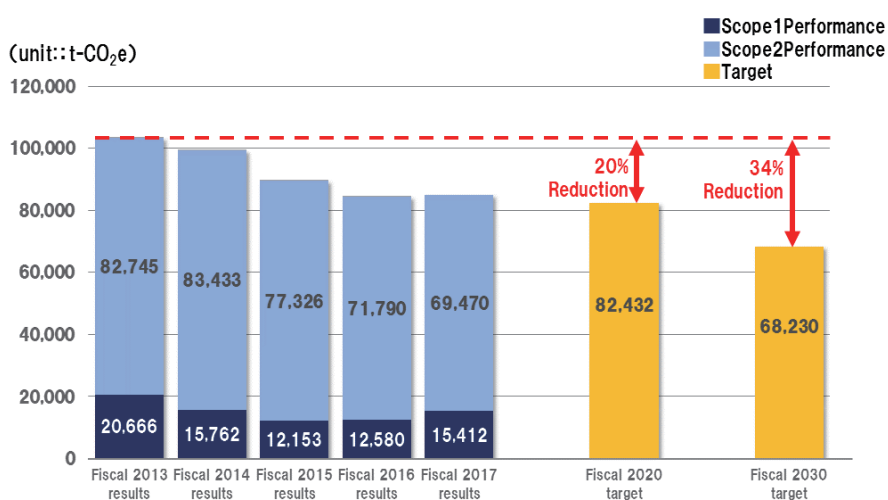
For our offices and factories, we have employed "InfoEnergy," Yokogawa's proprietary energy conservation support system designed to visualize energy data, in order to reduce CO<sub>2</sub> emissions.

Moreover, in order to optimize global distribution, we are making efforts to improve transportation efficiency by changing the design of container boxes to reduce the weight, downsizing them, and revising transportation methods and routes for product shipment.

Yokogawa Electric and Yokogawa Manufacturing participate in the Keidanren's Commitment to a Low-Carbon Society (an industry action policy established subsequent to the first commitment period of the Kyoto Protocol). Specifically, the companies are working on improving their production processes in order to realize greater energy efficiency in production processes, such efficiency being a common goal of the electrical and electronics industry. (Our target is to improve the average annual energy consumption rate by 1% by 2020.)

## Greenhouse Gas Emission Reduction Targets and Performance for Yokogawa Group

Through strategies designed to reduce energy consumption and our active use of renewable energy sources, we aim to accomplish our greenhouse gas emissions target for the year 2030.



Greenhouse gas emission reduction target for 2020 and 2030

## Reduction Targets and Performance for Yokogawa Group (Japan)

The Yokogawa Group (Japan) has set its CO<sub>2</sub> emission reduction targets toward 2020, and is directing its efforts to achieve the targets. By using the annual average of emissions measured over the 2005 to 2007 period as the baseline (56,560 tons of CO<sub>2</sub>), we have set different reduction targets for three phases with the ultimate objective of achieving the goal set for 2020 and are promoting activities for the targets. Specifically, we are implementing a range of activities to achieve the reduction targets described below:

### 2010 to 2014 period: A 7% reduction in total emissions

(263,005 tons of CO<sub>2</sub>, with an annual average of 52,601 tons of CO<sub>2</sub>)

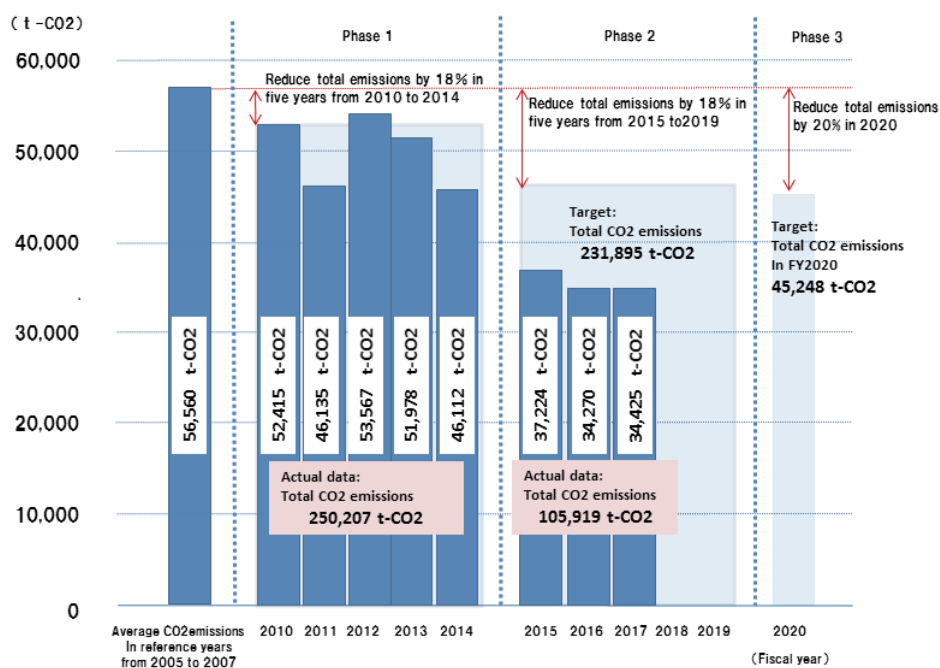
### 2015 to 2019 period: An 18% reduction in total emissions

(231,895 tons of CO<sub>2</sub>, with an annual average of 46,379 tons of CO<sub>2</sub>)

### 2020: 20% reduction

(45,248 tons of CO<sub>2</sub>)

The Yokogawa Group (Japan) produced 34,425t-CO<sub>2</sub> of carbon dioxide emissions in 2017, achieving its CO<sub>2</sub> emission reduction target. The average reduction rate in the second phase was 39% against the target of 18%, achieving the target level evaluation in a single year for the second consecutive year. The target level was achieved as the evaluation of a single year. Overseas, each of our group companies overseas sets its voluntary reduction target and is working to achieve the target.



Graph of CO<sub>2</sub> Emission Reduction Targets and Performance for Yokogawa Group (Japan)

## Scope 3

In addition to the direct CO<sub>2</sub> emissions generated from our use of fuels and manufacturing processes (Scope 1) and indirect CO<sub>2</sub> emissions generated through the use of purchased electricity, heat and other sources of energy (Scope 2), we also track and calculate other indirect CO<sub>2</sub> emissions (Scope 3).

Category			Emissions (t-CO <sub>2</sub> )
Upstream	1	Purchased Goods & Services	185,424
	2	Capital Goods	19,761
	3	Fuel- and Energy-Related Activities Not Included in Scope 1 or 2	7,484
	4	Transportation & Distribution	16,990
	5	Waste Generated in Operations	919
	6	Business Travel	18,995
	7	Employee Commuting	8,700
	8	Leased Assets	-
Downstream	9	Transportation & Distribution	-
	10	Processing of Sold Products	-
	11	Use of Sold Products	517,058
	12	End-of-Life Treatment of Sold Products	863
	13	Leased Assets	-
	14	Franchises	-
	15	Investments	-
Total			776,194

(-) indicates the category is not relevant to Yokogawa.

## Expansion of Waste Heat Management

### Yokogawa Manufacturing Komagane Factory

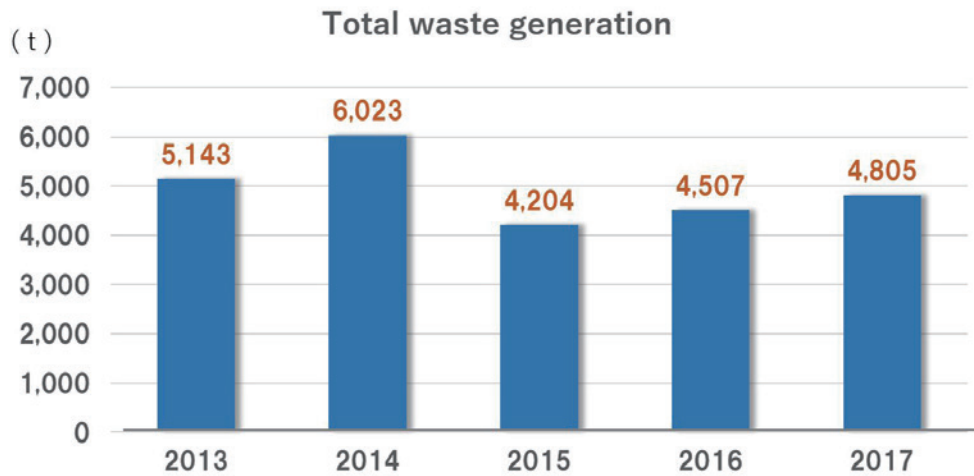
Komagane Factory promotes energy saving using waste heat in an effective manner. Heat is collected from heated water generated in the factory with a heat pump and is used for various other purposes. From 2015, we collect heat from the cooling water for air-conditioning systems and use it to heat raw water for producing ultrapure water. In 2016, we started to collect heat from heated water after cooling manufacturing equipment, and use it in an air reheating process.

With these heat reuse applications, the amount of LPG used decreased significantly compared to that before using waste heat management. The annual reduction is expected to be equivalent of 130 kiloliter oil.

- Use collected heat in the air reheating process that requires heat throughout the year.
- Install heating coils inside a duct between the outdoor air processing units and air conditioners.
- Use temperature controllers of Yokogawa Electric to control temperatures.

# Reduction of Waste

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



## Contribution to Environment Protection through Development of Carton Cabinet

### Yokogawa Solution Service Corporation (YJP)

Yokogawa Solution Service Corporation (YJP) has developed carton cabinets that store control systems for internal inspection or Factory Acceptance Test in projects for system upgrade already delivered to a customer in a bid to reduce waste by establishing a model for recycling carton boxes and packing materials.

One cabinet delivered from a production base comprises about 450 large and small carton boxes containing components, such as a CPU and I/O node, with the total volume reaching to as large as 4 m<sup>3</sup>. Each carton box has space for protecting the equipment and its size is much larger than the components.

The processes of inspection at YJP took a lot of time and effort: opening all carton boxes, taking out, arranging the components on a table, wiring, checking them using the inspection equipment, and repacking each component after the inspection. Space had to be secured for reshipment of the carton boxes that had been once opened. Customers that received a product also had to spend much time and effort securing space for a large number of carton boxes and opening them. Consequently, a large number of empty carton boxes were wasted.



Package from production base



Storage conditions of products delivered in the past



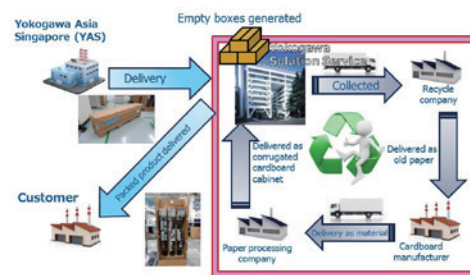
# Reduction of Waste

By using a carton cabinet, YJP has successfully enhanced efficiency, eliminating the need of individually packaging carton boxes for re-shipment. Equipment that has arrived from a production base can be mounted to a cabinet of carton boxes, executed internal inspection and Factory Acceptance Test in that status, packed as is after the inspection, and transported to a site of the customer.

Using carton cabinets contributes to efficient work and use of resources, by simplifying work, saving space, and reducing waste, not only at YJP but also at customers' sites. A recycle model that reuses waste carton boxes is established, which will be a driving force of 3R (reduction, reuse, and recycling). Waste carton boxes are expected to be used to supply food to various facilities in cooperation with transportation companies, making a significant contribution to society.



Carton cabinet



Recycle model of carton cabinet

## Patent

Domestic patent has been obtained for this carton cabinet.

Application example of development of carton cabinet for control equipment for system upgrade 16JP0179 (Patent application claiming for domestic priority based on Patent application 2016-248336)

YJP will promote its business activities, bringing into perspective overseas expansion and global supply of its carton cabinet to group companies.

# 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:

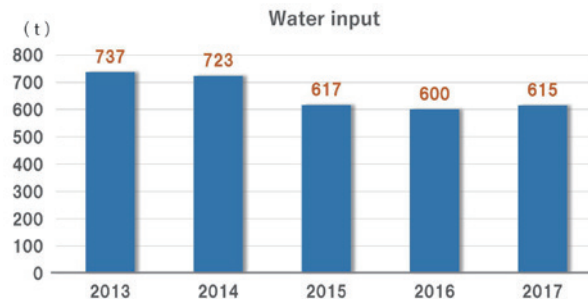
The PRTR, or Pollutant Release and Transfer Register, was established to enable society as a whole to manage chemical substances through the disclosure of toxic chemical emissions data and other information.

### PRTR Data (FY17)

Factory	Factory substance	Amount used (kg)	Amount emitted (kg)				Amount transferred (kg)	
			Air	Public water area	Soil	Landfill	Sewage system	Outside site
Yokogawa Manufacturing Komagane Factory	Hydrogen fluoride and its water-soluble salt	1,267	0	84	0	0	0	1,183
	Ferric chloride	1,048	0	0	0	0	0	0
Yokogawa Manufacturing Kofu Factory	Ferric chloride	5,084	0	0	0	0	0	0

# Water Resource Conservation

The Yokogawa Group implements resource-saving/energy-saving measures and initiatives designed. 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.



## Efforts in the Middle East and Southeast Asia

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 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.

### Yokogawa Electric Asia / Yokogawa Engineering Asia / Yokogawa Electric International (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 Electric Corporation (Japan)

Water-saving systems have been introduced at Yokogawa Electric head office to reduce the amount of water usage.

Diverse links of living organisms can be found on earth, which are maintained with a close balance. Every life has a character, and all lives live by supporting one another both directly and indirectly. Biodiversity is an index that represents the abundance of life on earth. At the same time, it provides various benefits to us humans. Our life, economy and industries are sustained by these blessings of biodiversity.

In 2010, the 10th meeting of the Conference of the Parties (COP10) of the Biodiversity Convention established an individual goal (Aichi Goal) of international society to be achieved in the biodiversity field by 2020. Not only the national government, but also local governments, research institutions, companies and citizen groups are required to take action in order to achieve this goal.

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. In April 2016, a campaign on biodiversity, "Yokogawa Green Volunteer," started at Yokogawa Electric Headquarters, which is operated by volunteers from group employees. Their activities include raising employees' awareness of the biodiversity conservation and holding events for citizens in cooperation with local governments and NPOs. In August 2017, the following policy on biodiversity and action guidelines in Yokogawa Group were formulated. We will expand and promote efforts for the conservation of biodiversity across group companies.

## Biodiversity Policy

Biodiversity is a foundation of sustainability in society. Together with our stakeholders, Yokogawa promotes activities for the conservation of biodiversity taking regional characters into account. We will spare no effort to reduce negative impacts generated in our various business activities, to improve biodiversity and contribute to creating a better environment in local communities.

## Action Guidelines

- **Cooperation with the local community to enhance local values**  
Cooperation with the government and NPOs to acknowledge and enhance local values through efforts
- **Providing employees with educational opportunities and conducting awareness building**  
Try to build awareness of employees through holding seminars and events on biodiversity for employees.
- **Taking biodiversity conservation in business facilities into consideration**  
Operate business facilities taking ecosystem into consideration, such as the management of green areas in facilities.

## Yokogawa Green Volunteer

As an activity for biodiversity conservation, Yokogawa started "Yokogawa Green Volunteer" activities in April 2016, which are operated by volunteers from our group employees.

In fiscal 2017, we held a local wildlife observation tour, a seminar for tips about familiar plants, etc. in the company as activities for awareness building and conservation of biodiversity. We also focus on cooperation with local communities. In cooperation with Musashino City and NPOs, we held a nature observation tour for elementary school students and their parents from the neighborhood at the Tamagawa Waterworks near Yokogawa Electric Headquarters. We held a total of 12 seminars and events in the year, which had a total of about 300 participants.

The headquarters of Yokogawa Electric is located in the heart of Musashino City and is surrounded by an abundant natural environment such as Inokashira Park, Tamagawa Waterworks and Koganei Park. The Basic Policy on Biodiversity that was formulated in Musashino City in 2017 states that the ecosystem network including these large-scale parks and proactive environmental activities of businesses are the strength of Musashino City for biodiversity. We will promote activities that encourage the rediscovery of local values such as abundant nature, history and culture and local biodiversity conservation activities.



Wildlife observation in Inokashira Park  
(Wildlife observation tour at night)



Tree name board placed near trees in the headquarters site  
(Event for setting up tree name boards)



Observation of autumn leaves along Tamagawa Waterworks  
(Event for creating fallen leaf albums)



Picture frame workshop for children and parents  
(Event for residents of Musashino City)



## Protecting Large Trees in the City of Musashino

### Yokogawa Electric Corporation

In the city of Musashino, where Yokogawa Electric's headquarters is located, there are approximately 2,000 large trees in the city designated as "environmentally protected." It is under a program called "2000 Large Trees/Symbolic Trees Plan", which has been in place since 1994. Fifty large trees within the premise of Yokogawa Electric's headquarters have been designated under this program and are protected as such.



Protected Large Trees

## Participation in the Tenryu River Eco Picnic

### Yokogawa Electric Corporation

A total of thirteen employees of Yokogawa's Komagane Factory and their families participated in the cleanup activities along the Tenryu River in Nagano Prefecture, as hosted by the Nagano Techno Foundation (May, 2017).

This event is organized as part of an "environmental beautification campaign" intended to teach the significance and importance of waste sorting, encourage a first-hand view of the current state of the Tenryu River and help achieve a recycling-based society.



Tenryu River Eco Picnic

## Installing Vending Machine to Assist Borneo

### Yokogawa Solution Service Corporation, Semiconductor Service Center in Tachikawa Office

Vending machines are installed in Tachikawa Office to assist Borneo. A part of the money raised through sales from these vending machines are donated to the specified non-profit corporation Borneo Conservation Trust Japan and used for activities to conserve the rain forest and wild animals in Borneo.



Vending machine to assist Borneo

# Social

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<b>Research &amp; Development</b>	<a href="#"><u>70</u></a>
<b>Occupational Health and Safety</b>	<a href="#"><u>73</u></a>
<b>Human Rights</b>	<a href="#"><u>77</u></a>
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<b>Corporate Citizenship</b>	<a href="#"><u>85</u></a>



## Improvement of the Management Structure as Part of Internal Control

As part of the Yokogawa Group's internal control, Yokogawa's management structure governs the overall business processes, including its relationship with customers and suppliers. For the procurement processes in the supply chain, Yokogawa Group's "Group Purchasing Procurement Code" has been defined based on its Corporate Philosophy and Standards of Business Conduct, to ensure fair and equitable transactions. Yokogawa observes the local ordinances of the country and regions with whom we do business, began working on the issue of conflict minerals, and focuses on establishing a supply chain that considers environmental protection and human rights. In order to efficiently and effectively implement supply chain management of environmental and social issues, we are participating in committees of industry groups such as the Materials Committee of JEITA\* and working with other companies.

\*JEITA: Japan Electronics and Information Technology Industries Association

Yokogawa has drawn a guideline for corporate social responsibility (CSR) of its group supply chain in conformance with the guideline of JEITA and disclosed it to customers at home and abroad. It has also put together three items of basic purchase policy and is using this policy as a guideline for daily work. The policy of our supply chain CSR is explained to major customers from whom Yokogawa and has received understanding and endorsement.

### Three Basic Procurement Principles

1. Create an ethical, clear, and open corporate culture and establish ourselves as a company that can be trusted by society.
2. Promote socially responsible procurement activities throughout the supply chain, including not only the Yokogawa Group, but also the suppliers of Yokogawa.
3. Comprehensively evaluate and select suppliers, giving priority to our commitment to being a good corporate citizen.

## Strengthening of Partnerships with the Suppliers

Yokogawa Electric, in order to reinforce its partnerships, is actively organizing events on a regular basis to promote discussion and deepen trust with key suppliers and their management teams.

For example, each year we host the "Supplier Policy Presentation Meeting," in which we explain our management policy, business plan, purchasing strategy, etc., to the suppliers.



Supplier Policy  
Presentation Meeting

Additionally, we organize "Component Exhibitions" and "Technical Seminars" through the Purchasing Department in order to introduce the products of suppliers, along with market trends, component trends and other relevant information, to the product development teams of companies within the Yokogawa Group.

## Reinforcement of Compliant Procurement

Yokogawa regularly organizes education programs for group companies in Japan so that they can learn about the "Act Against Delay in Payment of Subcontract Proceeds, Etc., to Subcontractors" as it applies to purchasing processes. Furthermore, we have a chapter on compliance to the Master Transaction Agreement in order to reinforce compliant procurement. As part of this effort, we are working to build greater ties/partnerships with the suppliers and prevent the establishment of ties with antisocial forces in order to eliminate such forces from society. We are involved in widely informed activities such as the revision of the guidance for outsource and acceptance of dispatched workers prepared by industry group for prevention of disguise contracting.

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.

## Promotion of Green Procurement

Under the philosophy to contribute to building a sustainable society in various areas of business activities, Yokogawa has created the "Green Procurement Guidelines" to promote green procurement activities. Specifically, we have established a system for promoting the control of chemical substances contained in our products and are also investigating/controlling chemical substances in materials/components.

## Execution of Procurement BCP

We are executing the procurement BCP with the understanding that the stable supply of products that customers need is important social responsibility. We can provide support promptly in case of emergency because, with the cooperation of our business associates, we investigate and manage the information on the areas producing the components to be used for products. For the important parts of major products, we are making efforts to reduce the procurement risk by confirming that the BCP is executed in our business associates and securing the safety stock.

## 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 forces 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 these armed forces' money source 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, not all the minerals are prohibited from procurement even if they are produced from the above countries. We will continue procuring the minerals that are considered to have been traded after refined by the refinery recognized as unrelated to such armed forces by the independent organization, and the proper products derived from such minerals.

To meet the aforementioned challenge, the Yokogawa Group is promoting out the following efforts:

- Since 2011, we have organized our internal structure and have taken continuously appropriate action.
- As a member of the "Responsible Minerals Trade Working Group" run by the 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 customer's requests etc.
- If it has been found out as a result of an investigation that Yokogawa's activities are used as a source of funds for armed insurgents, measures to avoid the use will be immediately taken.

The Yokogawa Group will continue its utmost efforts to ensure the responsible procurement of minerals.

## Slavery and Human Trafficking

Yokogawa Electric is the ultimate parent company of the Yokogawa Group, active in the businesses of industrial automation, control and test & measurement and related consultancy and solution providing. Yokogawa is active globally, through more than 110 subsidiaries and affiliates.

Our supply chains include the sourcing of raw materials, electronic parts, software development, engineering, installation, etc. related to the products and solutions in the above business fields.

Yokogawa's supply chains are organized locally; each organization has its own. The largest group of suppliers is related to manufacturing activities in Japan; these suppliers are practically all located in Japan.

Yokogawa has established Supply Chain Management as part of its Fair Operation Practices. For the procurement processes in the supply chain, Yokogawa has defined its Group Purchasing Procurement Code based on its Corporate Philosophy and Standards of Business Conduct. Its three Basic Procurement Principles are the creation of an ethical, clear and open corporate culture, the promotion of socially responsible procurement activities both in- and outside Yokogawa and comprehensive evaluation and selection of suppliers giving priority to Yokogawa's commitment to being a good corporate citizen.

Yokogawa has issued its Supply Chain CSR Guideline to which all its suppliers are expected to comply, touching upon subjects such as human rights and labor, occupational health and safety, environment, fair trading, product quality and safety, information security and contribution to society. Yokogawa evaluates and selects its suppliers by requesting their agreement with the Yokogawa Group Supply Chain CSR Guideline and business ethics, laws and regulations.

In addition, Yokogawa has specifically defined respect for human rights as part of the Group's overall goals in its Corporate Philosophy, Standards of Business Conduct and Yokogawa Group Compliance Guidelines; Yokogawa Group Compliance Guidelines contain specific statements relating to respect for fundamental human rights, equal opportunity, prohibition of child labor and forced labor, ensuring health and safety and the prohibition of harassment.

We provide business ethics training including human slavery every year to all the employees working for our company.

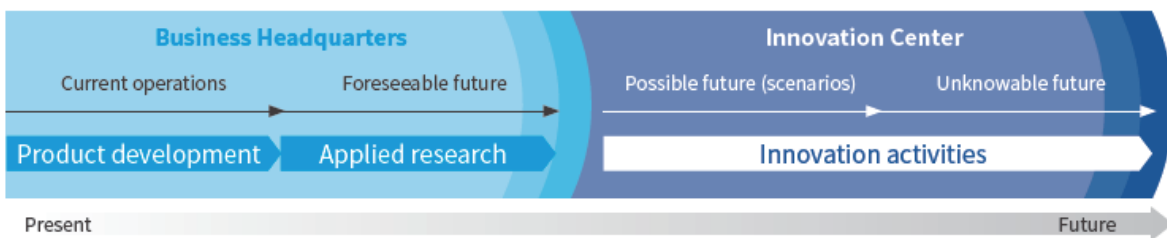
Yokogawa plans to strengthen its procedures by including human rights risk investigation throughout the Yokogawa group in order to verify compliance.

Until then, Yokogawa will address non-compliances with the above policies whenever they are identified and will take appropriate remedial action on a case-by-case basis.

## R&D Structure

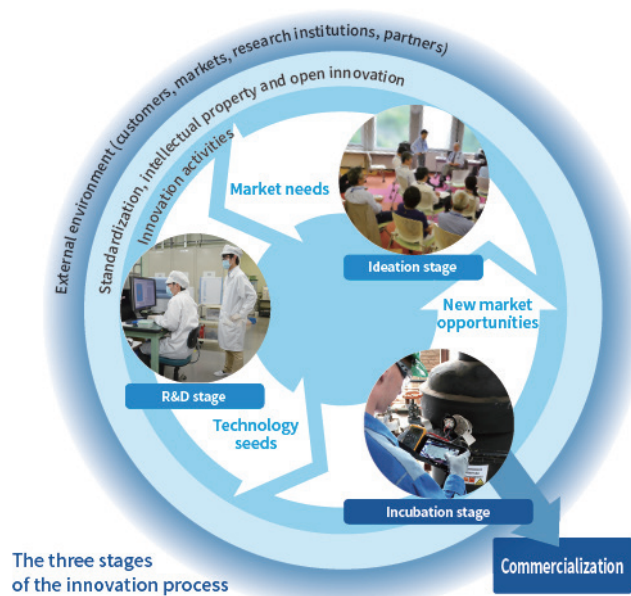
R&D activities at Yokogawa are classified into two types. Firstly, product development and applied research activities are geared to meeting customer needs and target a relatively foreseeable future. Secondly, innovation activities are conducted from a longer-term perspective, involve greater uncertainty, 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.

R&D structure at Yokogawa



## 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 below. 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 generated ideas, refine the technologies to realize the ideas through R&D, and incubate them. A cycle of these three stages is executed repeatedly to achieve commercialization.



## Innovation Center

### Innovation Center

The Innovation Center is an R&D department in Yokogawa mainly responsible for innovation activities that target an uncertain, unpredictable future for which new business opportunities are sought.

The Innovation Center started as the Research and Development Department in 1971 and has led R&D activities in Yokogawa. After being renamed as the Central Research Laboratory, Technology Development Headquarters, and Research and Development Headquarters, the organization changed its name to the Innovation Headquarters in 2012, reflecting its focus on not only basic research but also innovative research toward commercial business. In 2015, the organization was placed under the control of the Marketing Headquarters to strengthen commercialization and other strategies, and was renamed the Innovation Center. The Center has continued not only business-oriented research but also basic research with a view to future possibilities.

### Innovation Center's Mission

The Innovation Center defines its mission as a contribution to creating value for customers by engaging multiple organizations inside and outside the company including customers (co-creation).

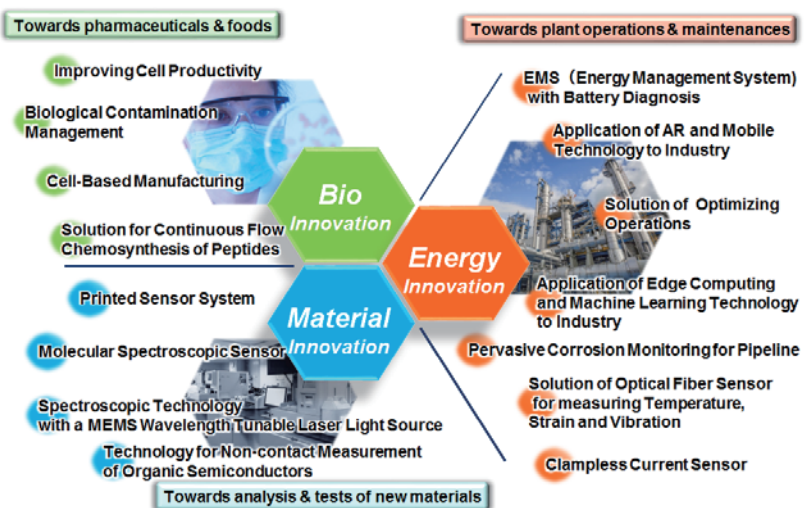
### Innovation Center's Three Operational Policies – Technology planning toward a possible future –

1. Create innovation scenarios through co-creation and reflect them in the R&D activities.
2. Link the R&D activities to the business incubation and acquire necessary technologies.
3. Create a structure that enables continuous R&D and technology acquisition and develop human resources.

### 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

## Innovation Center's Core Process

### Three Sages in Innovation Process

Yokogawa's innovation activities consist of three stages as described in R&D.

### Ideation Stage

Yokogawa carries out future insight activities using scenario planning and scanning techniques. The scenario planning technique continuously creates multiple future scenarios and considers them to ensure that we can flexibly adapt to an unknowable future. To grasp the signs of change in society 10 to 20 years from now, the scanning technique engages a variety of members and experts inside and outside the company in Japan and abroad in dialogs and utilizes the results and direction of the dialogs for the R&D activities. In line with a promotion of co-creation activities both inside and outside the company, the Co-innovation Room (New Co-Innovation Room) set up in our headquarters is a venue for workshops to which participants from around the world are invited to facilitate idea generation as shown in the photo on the right.



### R&D Stage

At the R&D stage, we select promising research subjects from the various possibilities that emerged at the ideation stage and refine them. At this stage, in addition to R&D activities to pursuing the technologies, researchers also conduct a feasibility review and analyze markets, and cultivate the markets as necessary.

### Incubation Stage

When an R&D project progresses and the goal comes into sight, an incubation stage starts. At this stage researchers develop a strategy with support from sales and marketing departments to make R&D projects more viable in the market. In addition, they demonstrate whether the R&D outcomes offer value to the customer in collaboration with the customer. When the value is recognized, the project progress to the commercialization stage.



The Yokogawa Group has introduced an occupational health and safety management system (OHSMS\*1) 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.

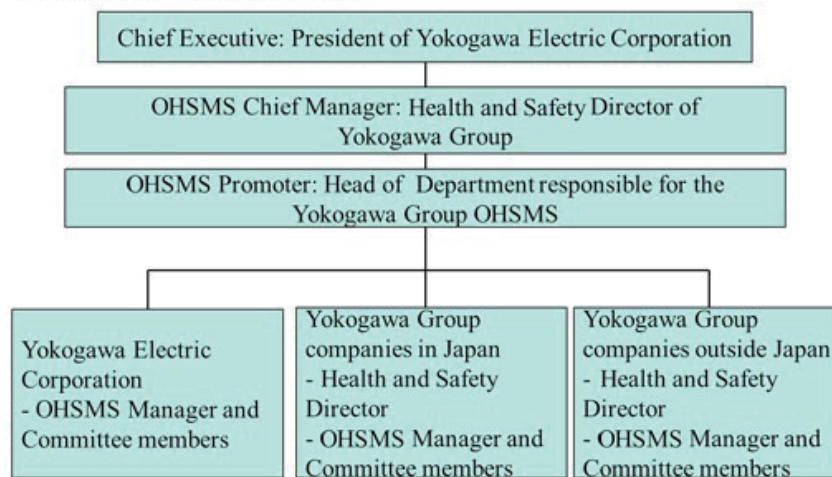
\*1. Occupational Health and Safety Management System

## Yokogawa Group OHS Policy

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

Yokogawa Group OHSMS Structure Chart



OHSMS Structure Chart



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

Recognizing that "occupational health and safety are a basic responsibility of the management," the Yokogawa Group implements OHSMS to ensure the occupational health and safety of all of its employees and its contractors. 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, and countermeasures against occupational incidences and near misses.

### OHS Objectives of Yokogawa Group

#### 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

## Occupational Health and Safety Education and Training

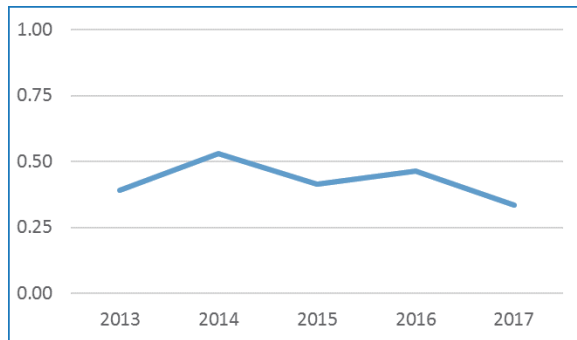
To maintain and improve all levels of activities throughout and eliminate occupational accidents, persons in charge, committee members and newly appointed personnel are educated through health and safety committee workshops, as well as on-site safety training at customer plants and factories. The group companies also conduct first-aid/lifesaving training courses, commuter-accident response drills, etc.



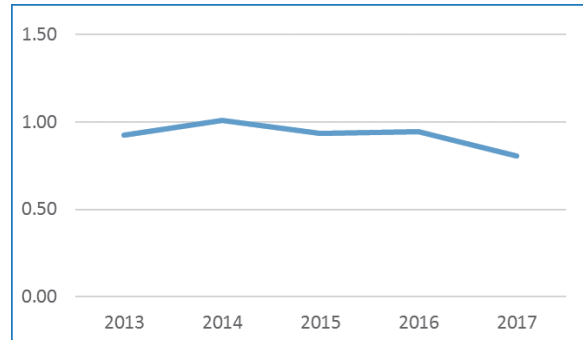
Lifesaving Training (Yokogawa Electric Corporation)

## Occupational Incident and Accident Data

The Yokogawa Group has been globally gathering and analyzing information on occupational accidents experienced by Group companies on a quarterly basis to eliminate/reduce occupational accidents and improve the quality of activities thus implemented. The information is provided group-wide on the intranet to prevent similar accidents.



Frequency rate of days lost to injury\*1



Frequency rate of occupational accidents\*2

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

\*2 Frequency rate of occupational accidents: (number of occupational accidents / total working hours) × 1,000,000

## Health Management

As a policy to maintain and promote the health of our employees, Yokogawa Electric has been working on work styles that are free from time and local restrictions, improvement for 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 management.

Our efforts of existing health maintenance and promotion measures accompanied by the pillar of "health declaration" received a certification of "2017 Certified Health and Productivity Management Organization Recognition Program (White 500)," which was given to large-scale corporations that practice excellent health management by the Ministry of Economy, Trade and Industry and Nippon Kenko Kaigi in coordination with health insurance societies.

We will develop a promotion system for health management and strive for its improvement by evaluating it in a quantitative and qualitative manner. We will also aim to increase the productivity of the whole group, enhance employees' motivation and reduce healthcare expenses by conducting activities throughout group companies.

## Employee Assistance Program (EAP)

### Promotion of EAP for a Healthy, Rewarding Company Life

We introduced "the Employee Assistance Program (EAP)" which is designed to help employees who can avoid a state that cannot be fully exhibited the original capacities due to health problems and change of life stage so that they can exhibit continuously high performance.

In Yokogawa's EAP, we establish a comfortable working environment while performing a review of the system to suit the current situation and support the employees from both sides of the mental-health and the career. It is our goal to ensure a healthy, fulfilling work environment for all our employees.

### 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.
Group training	Training for all employees (voluntary participation) and hierarchy-based training 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 implemented a system to provide proper support for each individual or workplace depending on the seriousness of the condition or situation.
Health Development (Health Promotion)	For the purpose of physical and mental health promotion of employees, it has been implementing the "health development (health promotion)" by improving the living habits and exercise habits. Physical exercise is also 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.

Yokogawa has explicitly defined respect for human rights as part of the group's overall goals, in its Philosophy, Standards of Business Conduct, and Group Management Standards. The company has also set up compliance hotlines for everyone working at Yokogawa as a way to avoid human-rights violations before they happen.

## Group Management Standards

The Yokogawa Group Management Standards, which states in writing the basic policies required of group management, applies to every branch of the Yokogawa group. It gives clear rules and guidelines relating to human rights, obedience to the law, workplace safety, hygiene, etc.

The Yokogawa Group Compliance Guidelines make the following statement regarding human rights.

### **03 Respect for basic human rights**

The Yokogawa Group always respects the basic human rights and personal dignity of every person with whom we are involved.

### **27 Equal Opportunity**

We respect the basic human rights of each and every employee. The basic policy of the Yokogawa Group is not to engage in any kind of discrimination based on factors such as race, skin color, nationality, gender, religion, age, social status, and handicap that have no bearing on the rightful business interests of the Yokogawa Group.

We also observe the laws of the countries and regions in which we do business, as well as individual labor contracts and other agreements, and strive to maintain and develop a relationship of trust between labor and management through ample communication.

### **28 Prohibition of forced labor/child labor**

Forced labor in any form whatsoever is not to be allowed; nor is any person to be made to work against their will; nor is it acceptable for children below the minimum working age of each country to be employed.

Care must be taken to ensure that we do not support inhumane conduct even indirectly, for example through the actions of business partners.

### **29 Ensuring health and safety**

In addition to observing the laws relating to occupational safety and health, we have established our own independent standards and are striving to improve safety and health. We are working on a program of improvements to ensure the safety of every employee working for the Yokogawa Group, promote better health, and create a pleasant working environment. Each and every employee must act to cooperate with the safety and health measures that have been decided upon.

### **30 Prohibition of harassment**

No form of harassment whatsoever is acceptable, whether it be sexual harassment, stalking, or power harassment. We respect each other as individual human beings, and have built up a corporate atmosphere in which harassment is not accepted.

## Philosophy

Yokogawa's corporate philosophy defines "contributing to society" as a corporate mission, and calls for its employees to be good citizens.

Based on this philosophy, Yokogawa uses measurement, control and information as tools to contribute to social infrastructures that support people's daily living such as energy, communications, waterworks, etc., and to contribute to industry infrastructures, to make them run more efficiently and to help people work more safely. This philosophy is practiced by every employee and in all of the countries where Yokogawa operates, its employees have been willing volunteers, helping out when natural disasters occur.

## Standards of Business Conduct

One of the five pillars in our Standards of Business Conduct explicitly states that the company will uphold respect for human rights and respect the dignity of all. Some of the particular courses of action that follow from this are preventing harassment, discrimination, privacy intrusions and maintaining an overall healthy workplace.

## UN Global Compact

Yokogawa has declared its support for the UN Global Compact. The company respects the human-rights guidelines proclaimed in the Global Compact, and upholds international human-rights standards.

## ISO 26000

ISO 26000 is an international standard for an organization's social responsibility which the International Organization for Standardization (ISO) published in November 2010. It provides seven core subjects, such as Organizational Governance, Human Rights, Labor Practices or The Environment.

Yokogawa respects the ISO 26000 guidance in our CSR actions as a global company and pay attention to the human rights in our all business conduct.

## Attention to Human Rights in the Supply Chain

Following its Group Management Standards, Yokogawa upholds their philosophy for human rights throughout its supply chain. The Supply Chain CSR Guidelines include guidelines prohibiting forced labor, inhumane treatment and infringements of human rights, child labor, and discrimination, while ensuring appropriate wages, regulated working hours, and the right to freedom of association, and vendors are asked to follow these guidelines.

## Initiatives on Human Rights

### **Yokogawa Engineering Asia (Singapore)**

Yokogawa Engineering Asia (YEA) has signed the employer's pledge for the Tripartite Alliance for Fair Employment Practices (TAFEP). YEA strives to eliminate discrimination in employment and endeavors to maintain fair employment practices, such as hiring and providing appropriate terms and conditions of employment based on individuals' skills and experiences regardless of their age, race, sex, religion and family status, and offering equal training opportunities.

### **Yokogawa South Africa (South Africa)**

South Africa has adopted Broad-Based Black Economic Empowerment (B-BBEE) as a program to put racial equality into practice, thus encouraging the employment of blacks and other historically disadvantaged South Africans (HDSAs). Yokogawa South Africa (YMA-SA) is compliant in this regard and has striven to promote the employment of blacks and other peoples of color. Yokogawa South Africa (YMA-SA) has received a Level 4 certification in the new code of B-BBEE executed in May 2015. By proceeding with improvements, we are now raising to level 3.

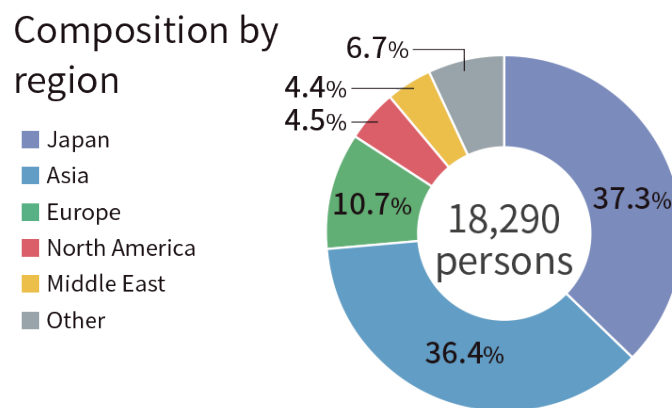
Yokogawa will actively hire, develop, and promote people from a variety of backgrounds who differ in terms of experience, knowledge, sensibility, perspective, cultural background, and values, and in so doing will not discriminate based on ethnicity, nationality, gender, religion, age, social position, 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

One of the strengths - actually a requirement - of Yokogawa is the ability to maintain and utilize a pool of diverse talents as we carry forth our global expansion. We make use of human resources of diverse ethnic backgrounds and nationalities, not only overseas but also in Japan.

The Yokogawa Electric head office is accepting more overseas Group employees into Japan so as to promote globalization and form their careers. We have prepared the intra-company infrastructures providing company regulations, business communications, cafeteria menus, and internal broadcasts in both Japanese and English, and appropriately offering information to support their livelihood in Japan on the intranet. Since 2013, we have been implementing the training programs "Cross Culture & Communication" and "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.

Moreover, by employing more foreign students who graduated from Japanese universities and those who from overseas universities, we will continue to actively diversify our human resources mainly in the Yokogawa Electric head office.



\*Other: Russia, Brazil, Australia, etc.

Full-time employees by region



## Promoting Active Participation by Women

Yokogawa is promoting female employee's empowerment as a part of its diversity promotion activities based on the human assets 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. The female manager rate reached 5.1% on July 1, 2018, and we thus achieved the 5% target (double the percentage in fiscal 2014) set out in Transformation 2017, the previous mid-term business plan. We will continue to carry out initiatives that will increase the female manager rate to 7%, which is our target for fiscal 2020. In recruitment activities, our target rate for female employees is 30%, and our long-term aim is to optimize the gender composition of the Yokogawa workforce. Women made up 42.6% of the new graduates joining the Company in 2018.

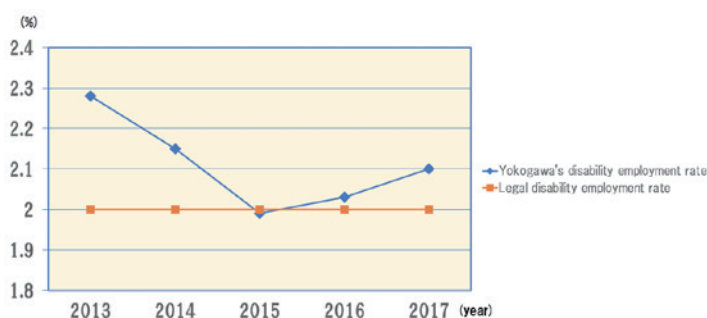
To create an environment where various types of employees can comfortably work, keep challenging, and grow, Yokogawa Electric Corporation is tackling improvement of its corporate system and culture, by introducing a telecommuting system and a time-unit leave system in April 2016, keeping pace with work-style reform activities. 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 good (stage 3 (three stars) that satisfies all five items to be evaluated).

## Promoting Active Participation by People with Disabilities

Since it launched a normalization project in 1992, Yokogawa Electric Corporation has consistently continued its activities to encourage its employees with disabilities to engage in various fields, such as engineering, production, sales, and office work.

We founded Yokogawa Foundry Corporation in fiscal 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 or physical disabilities, holding up independence, autonomy, ambition, and challenging spirit as keywords.

Yokogawa Foundry Corporation was certified in fiscal 2002 for "group calculation" of actual employment rate of the disabled in domestic group companies and is tackling activities to promote employment and empowerment of people with disabilities, such as holding company information sessions, in cooperation with labor-related organizations. The disability employment rate target for 2020 in Japan is 2.1%.



Disability employment rate

## Supporting Work-Life Balance and Raising the Awareness of Employees

The environment and sense of values surrounding employees are always changing with various life stages etc. We are supporting the work-life balance of our employees by building flexible work systems, such as a flextime system, telecommuting system, hourly leave system, and flexible holidays, 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 per child once a year can also be used as an economic aid. Many employees, 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 systems that enable workers to comfortably work after returning from a leave and to workplace culture of mutual understanding and support. We also encourage its male employees to take part in child rearing and the percentage of male workers who take a child care leave increased from 1.3% in fiscal 2016 to 7.2% in fiscal 2017.

Furthermore, Poppins Nursery Musashino, a nursery certified by the Tokyo Metropolitan government, was invited to the premises of the head office to help local residents, as well as employees, balance child rearing 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 telecommuting system and time-unit leave system Yokogawa Electric Corporation introduced in April 2016 are used by many employees, not only those who need child rearing or care support, as a work style not restricted by time and place. As a part of creating culture where people can feel at ease in using these systems, the work styles of the employees currently using these systems and a message from the president were introduced in a company journal. Use of these systems has been encouraged by using various media, HataLabo (work style laboratory), an information site that was opened on the intranet to introduce various examples of work styles and work systems.

A HataLabo campaign, intended for all the employees, was conducted for 1 month to encourage employees to use the telecommuting system. The number of users of the systems, which was initially about 30 after they were introduced, rose to 765 during the 1 month of the campaign period and about 300 employees (10% of the total number of employees) are using the system now. The telecommuting system will be expanded to include teleworking to create an environment where people can work more flexibly.

The time-unit leave system was used by 998 employees, more than half of the total employees, in 2017 for a total of 9,099 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 his/her work and life, so that they can create new values.

## Environmental Improvement to Promote the Success of Diverse Human Resources: 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 December 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 also established the “Yokogawa Group General Counseling Counter” in Yokogawa Electric Corporation, where employees of Yokogawa Electric Corporation and group companies can receive consultations about various matters including harassment. When consulted, we conduct necessary hearings and investigations on workplace conditions based on consulters’ intentions, taking their privacy into consideration. If any harassment case is detected, we will 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 consulters and employees who contribute to the verification of facts.

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.

## Creating a Corporate Culture in which the Company and its Employees Work Together to Sustain Growth

### Transformation Through the Strengthening of Human Resources

Yokogawa University, an in-house institution, is introducing skill development and training programs to develop personnel who have demonstrated the capability to take on high value-added tasks and support individuals who wish to take on new challenges in different business fields. 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.

### Global Human Resources Development

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.

The Yokogawa Group is tackling challenges that affect the global environment and society to contribute toward the realization of a thriving global society.

## Yokogawa's Corporate Citizenship

Yokogawa, with awareness of its responsibilities as a "good citizen", strives for harmonious coexistence with the communities it serves. We not only contribute to society as a whole 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 goals and contribute to growth.

We also encourage our employees to participate in community programs as "good citizens".

Specifically, we drive and participate in skill-development programs and 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.



Finding solutions to social issues,  
Helping build a sustainable society

## Local Activities of the Group Companies

For information about our corporate citizenship activities, refer to our Sustainability website:  
<https://www.yokogawa.com/about/sustainability/social/community/>

# Governance

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## Basic Policy

### Basic View on Corporate Governance

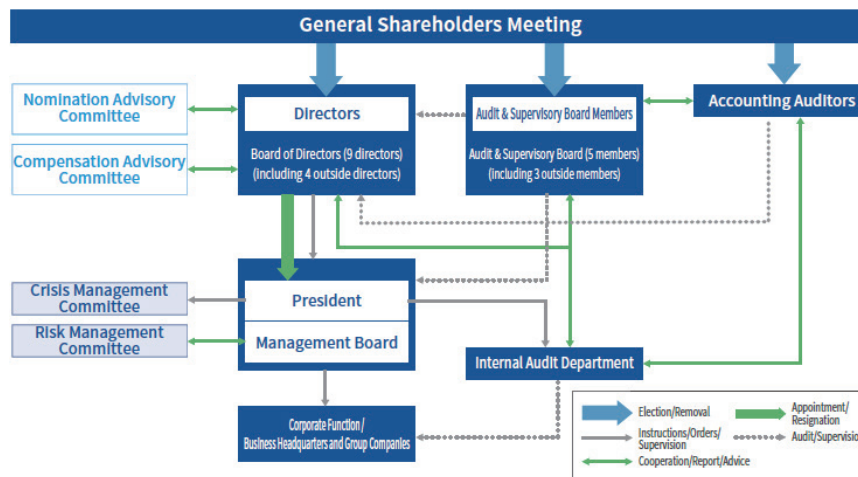
The Group has established a corporate philosophy, the Yokogawa Philosophy, and Standards of Business Conduct for the Yokogawa Group that apply to the entire Group, and strives to have appropriate relationships with all stakeholders as well as aims sustainable corporate growth and increased corporate value over the medium to long-term. In addition, based on the philosophy that “a company is a public entity of society,” the Group positions answering the trust of all stakeholders, including shareholders, customers, business partners, society, and employees, via sound and sustainable growth, as the basic mission of corporate management.

In order to maximize its corporate value, the Group believes that efforts such as thorough compliance, appropriate risk management, and information disclosure in order to ensure constructive dialogue with shareholders and other stakeholders are important.

The Group formulates and discloses these Yokogawa Corporate Governance Guidelines which serve as the basic policy for continually working on corporate governance in line with the above views.

## Corporate Governance Structure

### Corporate Governance Structure





## Decision Making, Business Execution, and Audits

Transparency and the speed of decision-making are improved through deliberations between directors who are well versed in the Company's business and outside directors who maintain a high degree of independence. Through audits by Audit & Supervisory Board, the legality, efficiency, and rationality of the directors' activities and the appropriateness of their decisions are rigorously examined.

Further, in order to increase transparency in the appointment of outside directors and outside Audit & Supervisory Board members, in fiscal year 2014 the Company drew up independence standards for outside directors and Audit & Supervisory Board outside members.

## Board of Directors

The Board of Directors, of which meeting is held once a month in principle, is comprised of ten directors including four independent outside directors, aiming to achieve sustainable growth and increase corporate value of the Group over the medium to long-term as a decision-making body. 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. Also, in addition to monitoring and supervising execution of business by management, including directors and officers, the Board of Directors develops provisions related to the execution of duties by directors, and establishes a framework to take supervision responsibility related to the execution of business.

The Board of Directors has a maximum of 15 members, as specified in the Company's Articles of Incorporation. In order to help ensure that corporate management maintains the trust of shareholders, the term of office for directors is set at one year.

### Third-party Evaluation of the Board of Directors

In fiscal year 2015, the Company's Board of Directors conducted an evaluation of the Board of Directors with support of J-Eurus IR Co., Ltd., an external organization. The Board of Directors held discussions on the outcome of evaluation, and analyzed and assessed the effectiveness of the Board of Directors.

The Board of Directors confirmed that the structure to fulfill the supervisory function for management has been established in terms of the size, composition, operation, attributes of each member, status of committees, and other factors. The Board of Directors also confirmed that each Director and Audit & Supervisory Board Member proactively participated in open, vibrant discussions at the Board of Directors meetings, the proceedings of which the chairman controlled appropriately. Consequently, the Company considers that the Board of Directors functions effectively.

Issues to be addressed that were pointed out were the need for greater focus in discussions on essential subjects to be deliberated at the Board of Directors and strengthening of the succession plan. To address these issues, the Board of Directors Office, an organization to provide support to the Board of Directors, was established.

The Company will continue its efforts to achieve improvement, including screening and prioritization of subjects and enhancement of the Nomination Advisory Committee's activities.

## Management Board

To expedite the decision-making process of the Board of Directors, decisions regarding business execution are delegated to the Management Board. The Management Board consists of the president, officers, subsidiary heads who report directly to the president (including four foreign nationals), and standing members of the Audit & Supervisory Board. It meets once a month in principle. Its decisions are reported to the Board of Directors.

## Audit & Supervisory Board

The Audit & Supervisory Board has four members, two of whom are from outside Yokogawa, and meets once a month in principle. Its members carry out auditing in accordance with an annual plan that specifies priority audit items. Audit & Supervisory Board members also attend meetings of the Board of Directors and the Management Board as well as other important meetings and hold regular meetings with departments involved with internal auditing, legal affairs, and business ethics, the last of which promotes the compliance system. At these meetings, they exchange opinions, share information about the status of their activities, and actively present recommendations. In addition, the Audit & Supervisory Board members deepen mutual cooperation with the accounting auditor and exchange information with the accounting auditor regularly and as needed to improve the quality of audits by both sides and make the audits more efficient.

## Nomination Advisory Committee and Compensation Advisory Committee

The Company has established the Nomination Advisory Committee and the Compensation Advisory Committee as voluntary advisory bodies to give opinions in response to consultations from the Board of Directors regarding nominating directors and determining compensation.

The Nomination Advisory Committee and the Compensation Advisory Committee are each composed of six directors appointed by the Board of Directors, and four of the six members of each committee are outside directors.

### — Nomination Advisory Committee

With respect to the appointment of Director and Audit & Supervisory Board Member candidates, the selection of officers and the next representative director and president as well as the qualities (attributes, track record, etc.) sought after in directors, the Nomination Advisory Committee shall give advice so as to ensure that, from the perspective of all stakeholders, suitable personnel is in place to contribute to the Group's sustainable growth as well as its corporate governance.

### — Compensation Advisory Committee

The Compensation Advisory Committee shall give advice so that the compensation system and compensation for Directors and officers encourage appropriate challenges targeting the Group's growth, help to hire and retain excellent human resources, and which are suitable from the perspective of all stakeholders.

The Compensation Advisory Committee considered and recommended the introduction of a restricted stock compensation plan to provide incentives for directors to achieve sustainable enhancement of the Company's corporate value and to promote shared values among directors and shareholders.

At Yokogawa, "internal control" is a management process in which business resources, such as human resources, financial resources, and other tangible or intangible assets, are allocated appropriately and used effectively to increase the corporate value.

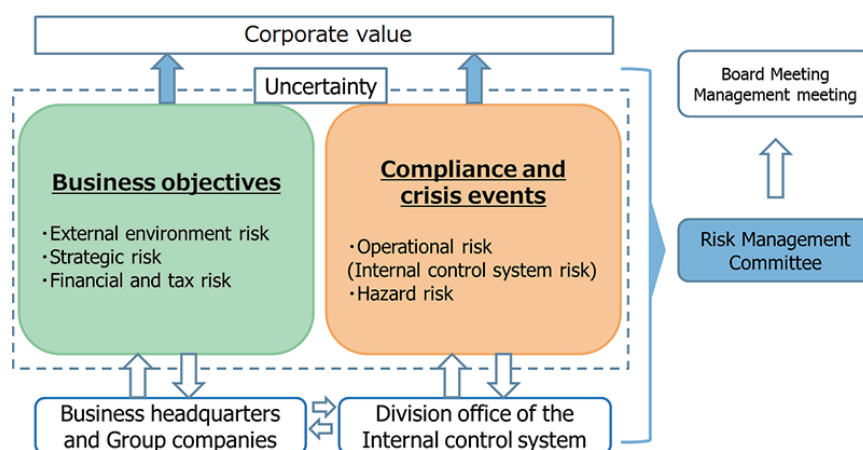
We have a system for an effective internal control in place to improve management efficiency and ensure compliant operations. Groupwide rules have been established and responsible units have been designated for each of the following systems: business ethics, decision making, operations management, crisis management, and corporate auditing infrastructure. The persons responsible for each of the systems have system auditing functions, and work to ensure (maintain and improve) the effectiveness and efficiency of the systems of all Group companies. Important matters are reported to the Board of Directors and the Audit & Supervisory Board members. In each internal control system, the relevant key result indicators and action indicators are clearly defined and the PDCA cycle is applied according to the evaluations of the respective indicators achievement levels. In accordance with the Yokogawa Group Management Internal Audit Code, the department in charge of internal audits shall audit the effectiveness of the internal control system.

Yokogawa implements the internal control system to ensure the appropriateness of its business activities and expand the corporate value of the entire Group.

The Yokogawa Group has in place a risk management system to control the uncertainty affecting the corporate value, as well as a crisis management system with which to respond promptly to any event that could have material 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 opportunities, and compliance and crisis events.



Risk Management System

In order to realize effective risk management in the group, we have established the risk management committee with our CEO as Chairman, who is responsible for the supervision of risk management. The risk management committee selects critical risks (priority management risks) which should be managed as priorities, 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 has established a network for the group's global risk management.

We assess severity of "risks in business opportunities" such as external environment and strategies, and "risks in compliance and crisis events" such as quality, environment, safety and hygiene, labor, corporate ethics (embezzlement, window-dressing, data falsification, bribery, harassment, etc.), and risk management from the viewpoint of influence levels and incidence. When we assess impacts of the risks, we take into account financial and human aspects as well as social and environmental impacts.

Internal Audit Department 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.

## Escalation of Information

In the event of a disaster, accident, or incident that can seriously impact the Yokogawa Group companies' management and/or the lives of their officers and employees, the concerned organization must take prompt action to minimize the damage by gathering information and reporting back to the Group's top management.

To address this issue, we have created the "Guidelines for Reporting Disasters, Accidents, and Incidents." These guidelines have been prepared to advise all departments and affiliates in the Yokogawa Group on the reporting procedures to follow in the event of such disasters.

## Business Continuity Management (BCM)

Our control business, which is a core segment of the Company, is deeply tied to social infrastructures such as electricity, gas, water and sewerage. To continue with our business activities as much as possible in the event of a disaster and quickly help maintain and restore social infrastructure, we developed the "Yokogawa Group Business Continuity Plan (BCP)." We also have developed response plan and guideline which assume the specific risks such as huge earthquake or epidemic of contagious diseases. We have collaborated with each group company worldwide to improve the plans.



BCP training

Moreover, in order to enhance the effectiveness of the formulated BCP, regular training is provided by members of the risk management organization, including upper management, to track down problems, and Business Continuity Management (BCM) activities, which are aimed for continuous improvement of BCP, are carried out. We have also introduced a system to promptly check employee safety and provide regular training to enhance the skill of workers in case of emergency. These activities were utilized for the initial response to the successive earthquakes in Kumamoto and central Tottori prefectures in 2016.

Our company will continue to review BCP contents to respond to disaster risks.

## 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 directly sends alarm information to employees working in that area. Yokogawa believes it is important for all the employees to understand the situation of the area they deal with in their daily work, it periodically delivers to its employees International Security News. Moreover, it also provides training and seminars to counter terrorism when employees are abroad and to acquire knowledge to protect oneself from crises.

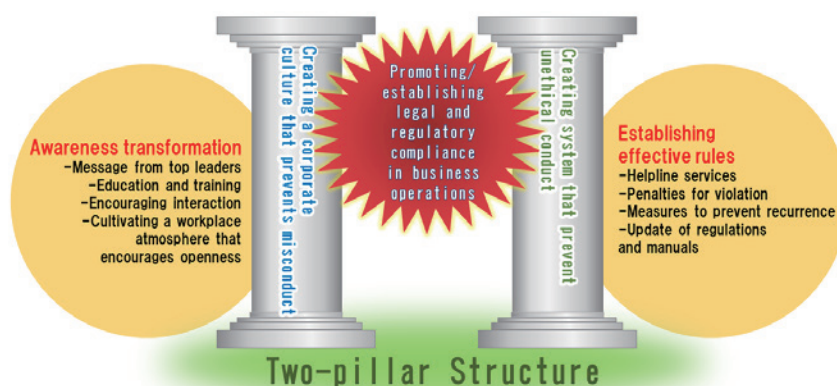
Yokogawa will take and improve various measures every day to ensure the safety of its employees.



Training

# Anti-Corruption and Compliance

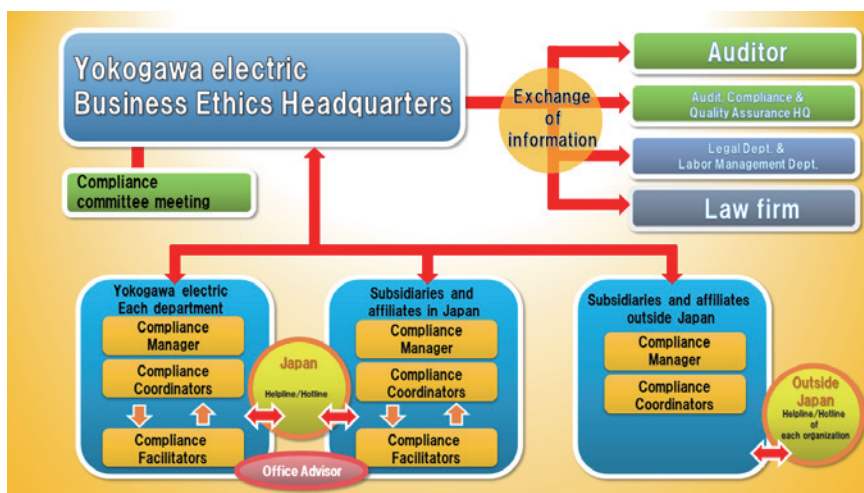
Yokogawa has a basic policy for performing its business activities with high ethical standards, putting the highest priority on “compliance,” defining the basic principles of compliance as “Yokogawa group companies’ code of conduct,” and following laws, regulations, ordinances, and other social norms. Matters of problems one may face in his/her daily work are defined in “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, “Creating a corporate culture that prevents misconduct” and “Creating system that prevent unethical conduct,” are made up to promote healthy business activities that every employee is encouraged to take part in.



## Provision of Compliance Promotion Structure

To create “Creating a corporate culture that prevents misconduct” and “Creating system 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.





## 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 its code of conduct, the relations with suppliers, politicians, and administrators, and prohibiting conflicts of interest. Specifically, rules such as "Yokogawa Group Compliance Guideline" and "Bribery Prevention Guideline" 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, "Anti-Bribery Guideline" is established and disseminated to all the employees to prevent bribery and carry out fair and appropriate business activities. "Supply Chain CSR Guideline" stipulates how to prevent bribery in cooperation with suppliers.

No case of bribery, violation of laws, or sanctions was reported in fiscal 2017.

## 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 "Yokogawa Group Corporate Code of Conduct".

To ensure compliance with the competition law, concrete rules are formulated in "Yokogawa Group Compliance Guideline" and "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 2017.

## 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 our "Compliance Guidelines." Additionally, we have established a group-wide compliance structure and provided education, etc., 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 (the end of June, September, December, or March) 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 (Organization for Economic Cooperation and Development) Transfer Pricing Guideline, BEPS (Base Erosion and Profit Shifting) Action Plan.
5. Building, maintaining and developing sincere and good cooperative relationships with the tax authority in each country.

## Actions to be Taken to Counter Anti-Social Forces

The whole Yokogawa group is taking action to eliminate anti-social forces, describing in "Yokogawa Group Compliance Guideline" "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, "Basic business agreements" 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.

## Enlightenment Activities

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

A seminar on compliance was held in domestic and overseas group companies in fiscal 2017 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 or travels abroad or 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.

### Use of the Compliance Guidelines

A compliance guideline concretely stipulating corporate code of conduct and putting together matters to follow is laid down and disseminated to the employees. This guideline is 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.

### Revision 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. The revised editions are issued and made 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.

## Conducting Survey into Awareness of Compliance

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.

## Use 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.

The Yokogawa Group works together with customers to provide them with 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).

## People: Information Security Training

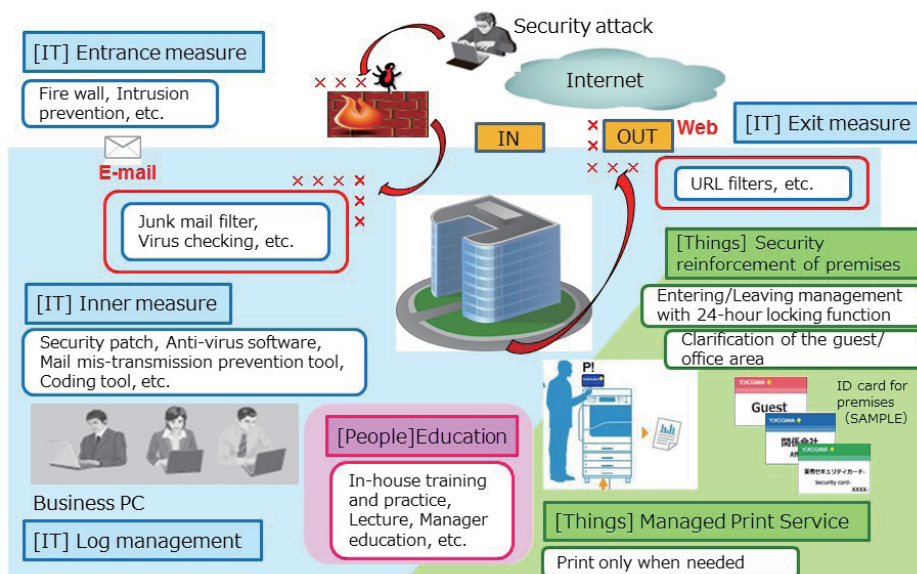
Awareness of each one of employees is important to protect information. Yokogawa provides training using e-learning to all its employees every year to share recognition of information security and update their knowledge so that they can come up with an idea of how to use the information they got and take appropriate action. As a more practical approach, lecture meetings on information security are held with experts invited as lecturers, education and training on responses to targeted attacks are provided, and education using cases of work is provided to line managers. Whether the results of these activities are reflected on daily information security activities is checked through information security audit.

## Things: Clearly and Securely (Premises Security)

Information security is also required to be "clear." We have clarified the areas that each of the employees and visitors can enter. When a visitor enters other areas than the guest area, the visitor must wear a premise entry card. The office area is locked for 24 hours by access control, which will protect the property and information assets on the premises of the head office. Moreover, we have introduced the MPS (Managed Print Service) so that "those who require information can access the required one." This allows only the required one to be printed when personal authentication passes, preventing the printed matter from being left behind or mixed with others.

## Information Technology (IT): Protection Behind the Scenes

When we implement information security measures, "people" is more important than anything. We utilize the IT to protect against human error such as "leakage by mistake" and "misuse due to ignorance," and also adopt the concept of multi-layering to prepare against cyber-attacks from the outside.



Security Management of Yokogawa

## Protection of Customer Privacy

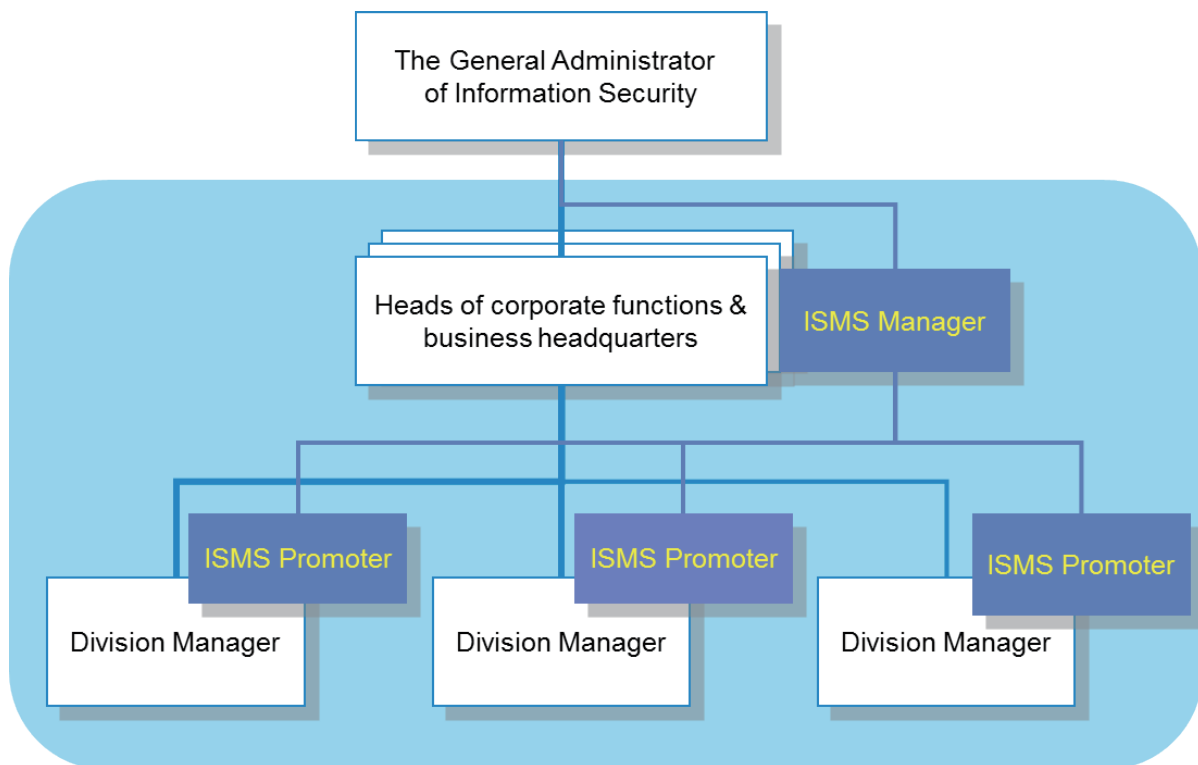
Yokogawa formulates a personal information protection policy and rules that its group companies should follow for proper management and use of the personal information they have received from customers. In addition, Yokogawa is making efforts to reduce risks, in response to personal information protection requirements that differ depending on the country.

In fiscal 2017, no complaint was filed about Yokogawa's system that aggregates reports from the group companies regarding breaches of customers' privacy and loss of customer data.

## Organization

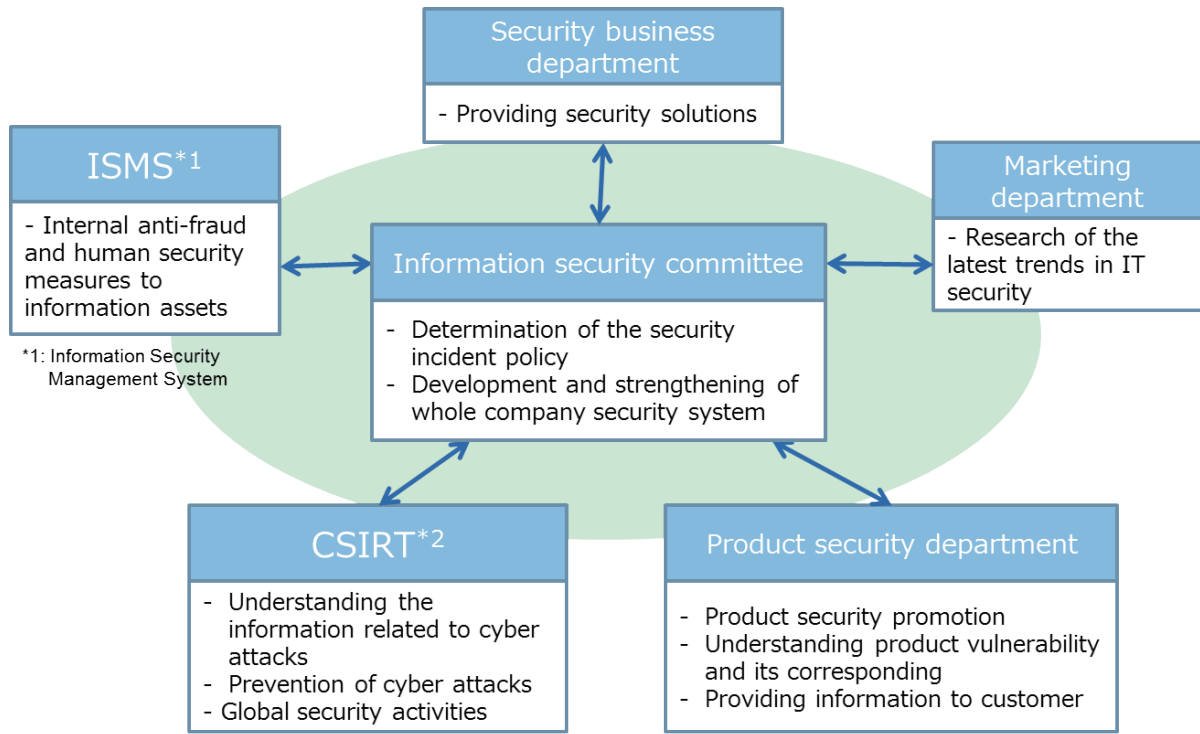
Yokogawa group is promoting security activities based on the concept of ISO27001 and has policies and measures notified from an information security supervisor and manager to each business department, division, and affiliated companies. The secretariat grasps whether operations are performed in line with rules and takes necessary improvement measures.

As an organization that promotes information security on each line, Yokogawa sets up an information security system at each of its departments, divisions, and related companies, to serve as key to smooth information security promotion activities and thereby turn a PDCA cycle.



Information security organization of Yokogawa Electric Corporation

In addition, Yokogawa also created an information security committee so that responses to cyberattacks will be improved and that customers can continue their business activities safely and securely. This committee comprises cybersecurity experts in each field and is trying to share information and grasp the latest trend, going beyond the boundaries of organizations.



\*1: Information Security Management System

\*2: Computer Security Incident Response Team

Information Security Committee

Guided by shared concepts and rules, the Yokogawa Group implements quality management on a daily basis to deliver products and services that meet customer expectations. Every year, the Group establishes quality targets and measures in the Yokogawa Group Quality Plan and implements quality activities on the basis of this plan to ensure high quality.

## The Basic Quality Policy

1. Quality management is carried out in order to implement customer focus based on "Quality First," which is the spirit of foundation, and "Healthy and Profitable Management" through improvements in management quality.
2. Products that meet statutory and regulatory requirements as well as customer requirements are supplied.
3. Appropriate quality management systems conforming to the International Standard ISO 9001 requirements are established and implemented. In addition, the effectiveness of those systems is continually improved.
4. Customer requirements are fulfilled and customer satisfaction is increased through the results of quality activities in all organizations and personnel. For this purpose, each employee must feel that the quality of his or her work has a direct bearing on product quality, and that the company believes in "Quality First."
5. The head of each organization is responsible for the quality of the relevant businesses. The responsibilities include ensuring that adequate resources are made available.

## Putting Quality First to Achieve the Same Quality

The Yokogawa Group has gained its customers' trust by strictly abiding by the motto of "The Yokogawa Group provides the same quality solutions everywhere throughout the world."

The impetus behind this is the Quality First Approach that we have faithfully followed since the Company was established over 90 years ago. Our quality management consists of three basic elements: Quality Assurance (QA), Quality Improvement (QI), and Quality mind (Qm).



### Quality Assurance (QA)

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

### Quality Improvement (QI)

Establishing a system to provide products and services that are of the Same Quality Worldwide

### Quality mind (Qm)

Each and every employee having the quality first mindset (Quality 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.



## Third-Party Verification

Yokogawa has received a guarantee for social and environmental data by a third-party organization (Lloyd's Register Quality Assurance Limited) to improve the reliability of that.



Lloyd's Register  
LRQA

### LRQA Independent Assurance Statement Relating to Yokogawa Electric Corporation's Environmental and Social Data within its Sustainability Report 2018 for the fiscal year 2017

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 (LRQA) was commissioned by Yokogawa Electric Corporation ("Company") to provide independent assurance on its environmental and social data within its Sustainability Report 2018 ("the report") for the fiscal year 2017, that is, from 1 April 2017 to 31 March 2018, against the assurance criteria below to a limited level of assurance and professional judgement of the verifier using "LRQA's verification procedure" and ISO 14064 - Part 3 specifically for greenhouse gas data. LRQA's verification procedure is based on current best practise, is in accordance with ISAE3000.

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 and information for only the selected datasets listed below:

#### Environmental indicators:

- Energy consumption (GJ)
- Solar power generation (kWh)
- GHG emissions<sup>1</sup> (Scope 1 and Scope 2) (tonnes CO<sub>2</sub>)
- Water consumption (m<sup>3</sup>)
- Wastewater effluent volume (m<sup>3</sup>)
- Total waste generated (tonnes)
- Total waste landfilled (tonnes)

#### Social indicators:

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

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

LRQA's responsibility is only to the Company. LRQA 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.

#### LRQA's Opinion

Based on LRQA'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 and information

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. LRQA also reviewed the Company's 2017 fiscal year against its 2016 to confirm the year-on-year change in Scope 1 and 2 emissions data.

<sup>2</sup> Covers the calendar year 2017, that is, 1 January 2017 to 31 December 2017.

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



Lloyd's Register  
LRQA

**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.

### LRQA's approach

LRQA's assurance engagements are carried out in accordance with our verification procedure. 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.
- Visiting the Komine plant, Yokogawa Manufacturing Co., Ltd., and the Kanazawa plants in Japan, and the head office of the Yokogawa Electric Corporation to confirm the data collection processes and record management practices.

### Observations

The Company should further demonstrate the accuracy and reliability of its future reports. This is particular to data relevant to water consumption, wastewater effluent, and waste generated, and to also establishing and maintaining effective internal verification controls and reporting boundaries.

### LRQA's standards, competence and independence

LRQA 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 Conformity assessment – Requirements for bodies providing audit and certification of management systems 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.

LRQA 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.

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

Signed:

Dated: 27 June 2018

Norihiko Kinoshita

LRQA Lead Verifier

On behalf of Lloyd's Register Quality Assurance Limited

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

LRQA reference: YKA4005469

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## Social Data

### Number of Employees

	2013	2014	2015	2016	2017
Consolidated	19,837	19,601	18,646	18,329	18,290
Non-consolidated	2,958	2,871	2,502	2,537	2,590

(Unit: People)

As of the end of each fiscal year

### Female Managers Ratio

	2013	2014	2015	2016	2017
Non-consolidated	2.0	2.4	3.2	3.5	4.3

(Unit: %)

As of the end of each fiscal year

### Female Employee Ratio

	2013	2014	2015	2016	2017
Non-consolidated	13.0	13.0	13.1	13.3	13.9

(Unit: %)

As of the end of each fiscal year

### Disability Employment Rate

	2013	2014	2015	2016	2017
Yokogawa's disability employment rate	2.28	2.15	1.99	2.03	2.10
Legal disability rate	2.00	2.00	2.00	2.00	2.00

(Unit: %)

As of June 1st each year

## Frequency Rate of Occupational Accidents

Frequency rate of occupational accidents = Number of accidents resulting in lost workdays / aggregate number of work-hours × 1,000,000

	2013	2014	2015	2016	2017
Consolidated	0.39	0.53	0.41	0.46	0.33
In Japan	0.31	0.57	0.50	0.28	0.11
Outside Japan	0.45	0.49	0.36	0.58	0.48
Regular employee	0.38	0.52	0.42	0.51	0.36
Temporary and contractor employee	0.46	0.57	0.37	0.17	0.17

## Fatal Accidents

	2013	2014	2015	2016	2017
Consolidated	0	0	0	0	0
Regular employee	0	0	0	0	0
Temporary and contractor employee	0	0	0	0	0

(Unit: case)

## Donations and Community Investments

	2013	2014	2015	2016	2017
In Japan	120.1	81.8	86.6	110.7	106.4
Outside Japan	45.7	33.2	38.0	52.9	54.4
Total	165.8	115.0	124.5	163.6	160.8

(Unit: MYen)

## Environmental Data

### Energy Consumption

Energy consumption and sales-unit-basis energy consumption, and natural energy for Yokogawa group

#### Energy consumption (In Japan, Outside Japan)

	2013	2014	2015	2016	2017
In Japan	899,674	870,183	734,828	684,692	676,375
Outside Japan	832,367	840,724	818,109	810,126	829,572
Total	1,732,042	1,710,907	1,552,937	1,494,818	1,505,947

(Unit: GJ)

#### Unit basis (Unit-sales-basis energy consumption)

	2013	2014	2015	2016	2017
In Japan	697	698	578	535	518
Outside Japan	321	299	285	307	300
Total	446	422	375	382	370

(Unit: GJ/100MYen)

#### Natural energy

	2013	2014	2015	2016	2017
Solar power generation	86,442	85,480	68,817	55,726	83,288
Green electricity certificates	300,000	300,000	300,000	300,000	300,000

(Unit: kWh)

### Greenhouse Gas (GHG) Emissions

Total GHG Emission and unit-sales-basis GHG emissions, and supply chain GHG emissions (Scope 3) for Yokogawa Group

#### Total GHG emissions (In Japan, Outside Japan)

	2013	2014	2015	2016	2017
In Japan	51,978	47,214	38,695	36,119	35,185
Outside Japan	51,433	51,981	50,784	48,251	49,697
Total	103,411	99,195	89,479	84,370	84,882

(Unit: t-CO<sub>2</sub>e)

## Total GHG emissions (Scope 1, 2)

	2013	2014	2015	2016	2017
Scope 1	20,666	15,762	12,153	12,580	15,412
Scope 2	82,745	83,433	77,326	71,790	69,470
Total	103,411	99,195	89,479	84,370	84,882

(Unit: t-CO<sub>2</sub>e)

## Unit basis (Unit-sales-basis GHG emissions)

	2013	2014	2015	2016	2017
In Japan	40.26	37.86	30.44	28.24	26.96
Outside Japan	19.83	18.49	17.72	18.31	18.00
Total	26.62	24.44	21.63	21.56	20.88

(Unit: t-CO<sub>2</sub>e /100MYen)

## Supply chain GHG emissions (Scope 3)

Category			2017
Upstream	1	Purchased Goods & Services	185,424
	2	Capital Goods	19,761
	3	Fuel- and Energy-Related Activities Not Included in Scope 1 or 2	7,484
	4	Transportation & Distribution	16,990
	5	Waste Generated in Operations	919
	6	Business Travel	18,995
	7	Employee Commuting	8,700
	8	Leased Assets	-
Downstream	9	Transportation & Distribution	-
	10	Processing of Sold Products	-
	11	Use of Sold Products	517,058
	12	End-of-Life Treatment of Sold Products	863
	13	Leased Assets	-
	14	Franchises	-
	15	Investments	-
Total			776,194

(Unit: t-CO<sub>2</sub>)

A dash (-) indicates "not applicable."

## Water Consumption Volume

Water consumption volume and sales-unit-basis water consumption for Yokogawa group

### Amount consumed and Total emissions

		2013	2014	2015	2016	2017
In Japan	Amount consumed	444	439	342	314	319
	Total emissions	382	342	256	235	236
Outside Japan	Amount consumed	293	284	275	285	296
	Total emissions	284	274	268	277	282
Total	Amount consumed	737	723	617	600	615
	Total emissions	666	616	525	512	518

(Unit: thousand m<sup>3</sup>)

### Unit basis (Unit-sales-basis water consumption volume)

	2013	2014	2015	2016	2017
In Japan	0.34	0.35	0.27	0.25	0.24
Outside Japan	0.11	0.10	0.10	0.11	0.11
Total	0.19	0.18	0.15	0.15	0.15

(Unit: thousand m<sup>3</sup>/100MYen)



## Waste Emissions

Total waste emissions and unit-sales-basis waste emissions for Yokogawa group

### Total waste emissions and final waste volume

		2013	2014	2015	2016	2017
In Japan	Total emissions	3,355	3,607	1,926	2,321	2,350
	Final waste volume	159	109	91	78	30
Outside Japan	Total emissions	1,788	2,416	2,278	2,186	2,455
	Final waste volume	782	1,139	941	810	690
Total	Total emissions	5,143	6,023	4,204	4,507	4,805
	Final waste volume	941	1,248	1,032	888	720

(Unit: tonne)

### Unit basis (Unit-sales-basis waste emissions)

	2013	2014	2015	2016	2017
In Japan	2.60	2.89	1.52	1.81	1.80
Outside Japan	0.69	0.86	0.79	0.83	0.89
Total	1.32	1.48	1.02	1.15	1.18

(Unit: tonne/100MYen)

## Corporate Data

- **Corporate Name:**  
Yokogawa Electric Corporation
- **President and CEO**  
Takashi Nishijima
- **Headquarters:**  
2-9-32 Nakacho, Musashino-shi, Tokyo 180-8750, Japan
- **Founded:**  
September 1, 1915
- **Incorporated:**  
December 1, 1920
- **Paid-in Capital:**  
43,410 milion yen
- **Number of Employees:**  
18,290 (consolidated) 2,590 (non-consolidated)
- **Subsidiaries and Affiliates:**  
99 outside Japan, 11 in japan

(As of March 31st, 2018)

## Contact

### Yokogawa Electric Corporation

Sustainability Promotion Office, Corporate Administration Headquarters

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

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