

## 2014 CSR Report

### ▶ Top Message

Yokogawa contributes to building a sustainable society through broad-ranging activities in the areas of measurement, control, and information.

Takashi Nishijima  
President & COO



## YOKOGAWA CSR Policies

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## Responsibility to Stakeholder

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- ▶ Environment
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- ▶ Supplier Relations
- ▶ Employees
- ▶ Community Involvement
- ▶ Investor Relations

## Creating Value for Society and our Customers

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You can read some of our contribution to society and our customers through the use of our measurement, control and information technologies.

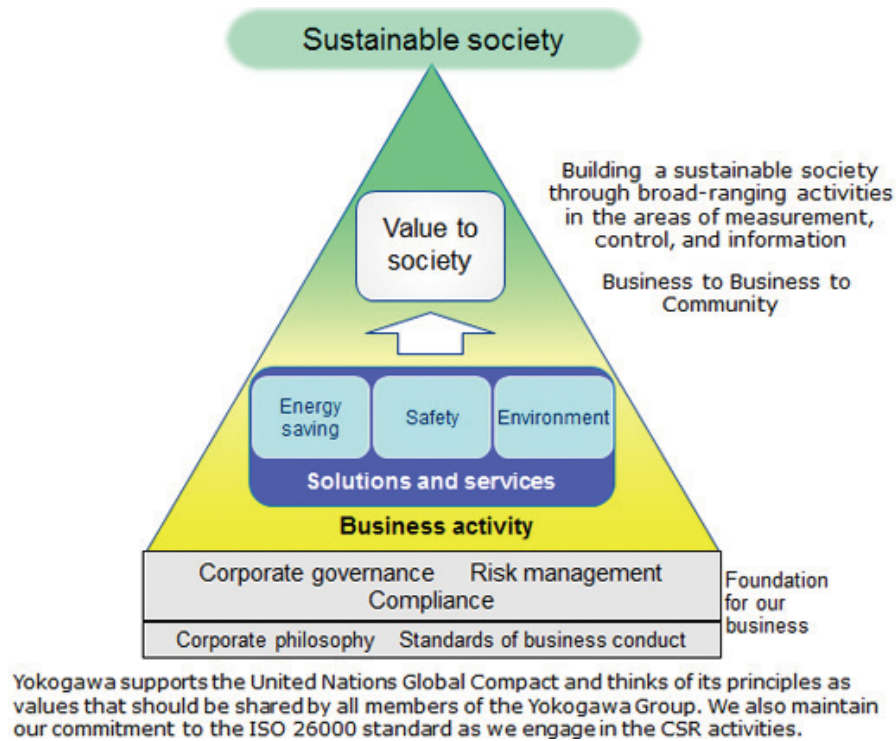
## Corporate Governance and Compliance

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- ▶ Corporate Governance
- ▶ Anti-corruption and Compliance
- ▶ Risk Management
- ▶ Internal Control System
- ▶ Information Security

Yokogawa's mission, since its inception in 1915, has been to provide electrical measuring instruments, electronic measuring devices and industrial control equipment and thereby help society grow and develop.

We believe our most important social responsibility is to help build a sustainable society through our business activities. Yokogawa's CSR concept is shown below.



## CSR Promotion Structure

We have established a dedicated CSR group within the Audit and Compliance Headquarters, whose functional scope also includes overseeing internal controls. With this CSR group, which drives the activities aimed at CSR, environmental conservation, occupational safety and health, and social contribution (citizenship), we have put in place a system for the implementation of more comprehensive CSR activities throughout the entire group.

### ⇒ Internal Control System

## Communication with Our Stakeholders

YOKOGAWA will help solve 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>• Interaction through regular sales activities</li> <li>• Calls to our 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 annual reports</li> <li>• Response to research conducted by SRI rating agencies</li> </ul>
Supplier	<ul style="list-style-type: none"> <li>• Interaction through regular procurement activities</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>

## The United Nations Global Compact

In January 2009, Yokogawa participated in the "United Nations Global Compact," an international initiative that promotes 10 principles concerning human rights, labor standards, environment, and anti-corruption. As of June 2014, 12,401 groups are participating in the world, and Yokogawa is the 76th Japanese company to participate in it. An effort has been ongoing to share the ethos and the standard of the Global Compact with all workers within the Group and all the customers and suppliers connected through its supply chains.

⇒ **Global Initiative**

## 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. The standard serves as a guidance manual instead of defining and requiring conformity assessment or third-party certification such as in the case of ISO 9000 and ISO 14000.

Yokogawa, as a company active in the global marketplace, observes ISO 26000 and upholds corporate governance as a key principle of CSR in running the company. As such, we are committed to CSR activities designed to contribute to society through our business operations, conserve the environment and protect human rights, to meet the expectations of stakeholders.

⇒ **Global Initiative**

## Top Message

Yokogawa contributes to building a sustainable society through broad-ranging activities in the areas of measurement, control, and information

Yokogawa will celebrate its centennial anniversary next year. The company's mission, since its inception, has been to provide the measurement, control and information technologies that are essential to various industries and thereby contribute to the sustainable growth of society. The founding principles of "Quality first," "Pioneering spirit" and "Contributing to society" are reflected in our corporate 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."



Takashi Nishijima  
President and COO

Today, global society faces numerous social issues/challenges affecting our global environment, energy situations and natural resources. As the newly industrialized nations undergo economic growth and population increase, these issues are likely to deepen. Various efforts are made to build a sustainable society, such as global initiatives to reduce CO2 emissions and projects--primarily driven in industrialized nations and regions--to develop renewable energy technologies. Companies are now expected to find solutions through business activities.

Yokogawa continues to do its share by providing products and services of the highest quality and reliability to support and protect the backbone of industry and society while assisting in efforts to save energy, conserve resources and preserve our environment. In fact, one of the objectives spelled out in our "Evolution 2015" mid-term business plan is to help solve the issues faced by different countries and regions, such as emerging/resource-rich countries and Europe/U.S., by drawing on the products and technological solutions we can provide.

Yokogawa's constant mission is to create new values for our customers, as a global solutions and service company that seeks ways to address challenges while supporting industrial and social systems. In fact, we also anticipate social issues that might arise in the communities in which our customers and Yokogawa conduct business. We will implement CSR activities with the concept of what Yokogawa calls "B to B to C (Business to Business to "Community")," through which we work with our customers to build the future of our clients, industries and the earth, and will contribute toward the creation of a sustainable society.

We have also stepped up corporate governance and upheld compliance to ensure our sustainable growth as a member of society. For example, we promote diversity as part of our human-resource strategy, which is reflected in the policy of hiring and promoting talented men and women of different nationalities and ages on a global basis. In 2009 we signed the United Nations Global Compact, and since then we have worked to practice the ten principles with respect to human rights, labor, environment and anti-corruption. We shall never cease to fulfill our responsibilities as a company that conducts business around the world.



Yokogawa will continue to work with our customers to create new values for our sustainable society.

# Corporate Philosophy

## The Yokogawa Philosophy

### **Introduction to Yokogawa's corporate symbol and standards of business conduct**

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 Pries 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.

## Global Initiative

### UN Global Compact

The United Nations has put forward a set of ten principles, The UN Global Compact, relating to human rights, labor, the environment, and anti-corruption. On January 5, 2009, Yokogawa signed on as a participating company.

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.

⇒ **Press release of January 7, 2009, announcing Yokogawa's participation in the UN Global Compact**

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 policies
- ⇒ Extends CSR through the supply chain
- ⇒ Community Involvement

#### 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:**

- ⇒ Employees
- ⇒ Employment of People with Disabilities
- ⇒ Occupational Safety and Health

## Environment

### **Principle 7:**

Businesses should support a precautionary approach to environmental challenges;

### **Principle 8:**

tundertake initiatives to promote greater environmental responsibility; and

### **Principle 9:**

encourage the development and diffusion of environmentally friendly technologies.

### **Yokogawa's Efforts:**

- ⇒ Environmental management
- ⇒ Contribute to a Sustainable Future
- ⇒ Environmental equipment and instruments

## 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

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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.

## Organizational governance

We strive to provide effective corporate governance according to ten internal control systems, including the decision-making system, which is central to our corporate governance.

### **Yokogawa's Efforts:**

- ⇒ Internal control system
- ⇒ Corporate governance



## Human rights

We at Yokogawa have defined "respect for human rights" as the policy/goal of the entire Group, as found in the Standards of Business Conduct and the Yokogawa Group Management Standards. Additionally, we use two of our internal control systems--business ethics and labor management--to promote the assurance of human rights

### **Yokogawa's Efforts:**

- ⇒ Standards of Business Conduct
- ⇒ Human rights policies
- ⇒ Career development and work life balance
- ⇒ Employment of people with disabilities

## Labor practices

Among our internal control systems, we use the labor management system to maintain a proper employment environment.

### **Yokogawa's Efforts:**

- ⇒ Human rights policies

## The environment

### Fair operating practices

We have specified, in the Standards of Business Conduct, the requirements for compliance with laws and rules and the maintenance of fair relationships with customers, suppliers, vendors and competitors. We also use our internal control systems, primarily those of business ethics and financial reporting control, to ensure legal compliance and fair, open business practices.

### **Yokogawa's Efforts:**

- ⇒ Standards of Business Conduct
- ⇒ Anti-corruption and compliance
- ⇒ Supplier relations

### Consumer issues

We are committed to responsible practices with respect to our customers and society. Therefore, we use the internal control systems, primarily those of quality management and information security, as the key elements.

### **Yokogawa's Efforts:**

- ⇒ Customer satisfaction and Quality Assurance
- ⇒ Information Security
- ⇒ LCA Label

### Community involvement and development

According to our corporate philosophy-- "We aim to combine good citizenship with the courage to innovate." --we have vigorously involved in activities and programs designed to address increasingly serious social issues and promote regional revitalization, thereby helping resolve the challenges faced by the communities in which we operate.

### **Yokogawa's Efforts:**

- ⇒ Community Involvement

## External Ratings and Recognitions

### CSR Rating by the Dow Jones Sustainability Indexes

Yokogawa Electric Corporation has been selected to the Dow Jones Sustainability Asia Pacific Index (DJSI Asia Pacific) in September, 2013.



The DJSI is a leading corporate social responsibility index developed jointly by Dow Jones of the United States and RobecoSAM, a Swiss research and rating company. The selection of a company to the DJSI is based on a wide ranging analysis of economic, environmental, and social criteria.

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

Yokogawa Electric Corporation, as of January 2014, is one of 150 companies constituting the MS-SRI (Morningstar Socially Responsible Investment Index), which is an SRI stock index established by Morningstar (Japan).



### Yokogawa's Integrated Production Control System "CENTUM VP" Honored for Product Excellence by the China Instrument and Control Society

Yokogawa's integrated production control system "CENTUM VP" was honored for product excellence by the China Instrument and Control Society. Each year the Society recognizes research organizations, universities and corporations that have made significant contributions to the field of measurement and control technology under five categories, among which are science and technology, scientific and technological innovation, and product excellence. Our CENTUM VP was recognized for its contribution to the growth of the Chinese economy in light of Yokogawa's involvement as a control-system supplier in various large-scale petroleum and petrochemical plant construction projects in China.

### Winning the 2013 Good Design Award (Japan)

Yokogawa's "GX/GP" series of paperless recorders, marketed as part of the family of "SMARTDAC+" data-acquisition control systems, won the Good Design Award given by the Japan Institute of Design Promotion. Additionally, the series won a spot on the "100 Best Designs" list compiled by the Institute.

### Receiving the 2013 Miles Award from the Society of Japanese Value Engineering

Yokogawa and Yokogawa Manufacturing Corporation (Japan) jointly won the 2013 Miles Award given by the Society of Japanese Value Engineering. It is a coveted award established in honor of L. D. Miles, who is widely recognized as the Father of Value Engineering (VE). The Miles Award is given to companies and organizations that have made significant contributions to the furtherance of VE through continuous organizational efforts.



## Winning Frost & Sullivan's Global Enabling Technology Leadership Award

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Yokogawa received the 2014 Global Enabling Technology Leadership Award for its wireless field solution technology from Frost & Sullivan, an international market-research company. The honor is given to corporations that have embodied the most effective technology in the world in their respective fields.



## Awarded for Excellence in Hazardous Materials Management

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Yokogawa Denshikiki's Iruma factory has been honored for excellence in hazardous materials management by the Saitama Prefecture Association for Safety of Hazardous Materials, in recognition of its compliance with regulations related to hazardous materials and the efforts made to maintain, manage and ensure the safety of hazardous materials.

## Independent Opinion



**Mizue Unno**  
**Managing Director, So-Tech Consulting Inc.**

After graduating from Chiba University Graduate School of Horticulture, Ms. Unno worked for various consulting firms including Roland Berger Strategy Consultants until she founded So-Tech Consulting Inc. in 1996. At present she provides Japanese firms advice and support in practical corporate activities in the areas of sustainability and CSR from a global management perspective.

- Outside Director, Brother Industries, LTD. (2007 - 2009)
- CSR & Environmental Affairs Advisory Committee, Mitsubishi Corporation (2008 to present)
- Part-time graduate school lecturer of Frontier Sciences, The University of Tokyo

Publications include "Understanding the Basics of Corporate Social Responsibility (CSR)" (Chuukai Publishing Co.) and "CSR for Realizing Corporate Branding" (Sangyo Henshu Center Co.,Ltd.).

### Business Strategies and CSR

Yokogawa Electric Corporation (Yokogawa), reevaluating the company's CSR system and incorporating CSR into business strategies, has made its stand clear; solving social challenges through its business operations. Yokogawa's business is heading for creating not simply its own value but also social value.

Accordingly the company takes a more proactive approach in its contribution to society.

The energy conservation and safety/environmental management have been realized in the company's core business; measurement, control, and information. Clearly, the company places an emphasis on providing solution services by reaffirming its benefit to community and refocusing on sustainability (i.e. a sustainable community). It is recommended that the company continue to promote such efforts as a pillar of its "Evolution 2015" Midterm Business Plan.

Additionally, through the implementation of CSR under the concept of "B to B to C" (Business to Business to Community), Yokogawa has established a relationship with community as a B to B corporation. Thus the management of the company should aim not only toward the client companies with which it has direct contracts but also the communities (stakeholders) that have earnest needs.

Yokogawa has to date mainly worked on presenting the CSR concept. However, it would be better if the company showed how its business can create value to the communities in the areas of energy, safety and environment by focusing on the communities, and then explained Yokogawa technologies, products, and examples of actual projects it has undertaken.

"B to B to C" also includes community activities and efforts made by individual employees. I would like to know how these activities are helping to create value in the community from the stakeholders' perspectives, who are on the receiving end of the results of such activities.

## Sharing the Results of Its Efforts, and the System on Global Basis

Yokogawa continues to expand its overseas operations, which in turn makes the globalization of its business management a high-priority issue. With respect to CSR, the company has gradually engaged collaborations with the group companies worldwide, but it is still being systematized.

Yokogawa should first establish collaborative relationships within European and Middle Eastern regions where CSR is implemented actively and voluntarily, and then increase its communication with the internal resources in those regions while seeking to establish relationships elsewhere. As for information disclosure, it is important that the Yokogawa headquarters CSR website serves as a liaison to the regional websites to integrate CSR information. I expect all members in charge of CSR from all the Yokogawa group companies worldwide will be able to hold global meetings and share understanding each other on this field.

## Fundamental CSR

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### Human Resources

The respect for human rights has, in recent years, become a growing issue on concern globally. At Yokogawa, the operations outside Japan is on the increase, and consequently the company will be expected to further accord with international movements. Human rights, as recognized globally, encompass not only the rights of the company's employees but also those of various stakeholders of Yokogawa. In other words, many of the things the company is already doing, such as having dialog and holding discussions with residents of the local communities in which the company does business, are also included in human-rights activities. Therefore, terms such as "community involvement" and "labor management" are better, easier-to-understand words to use in a local community/actual site than "human rights" when conducting studies or rolling out programs that pertain to human rights in the broad sense. One example is that, as the company conducts business in the Middle East, Africa or any other region where the social infrastructure is still insufficient, Yokogawa's business operations could be affected by political or social instability, etc., and the company might unintentionally destroy the livelihood of the community as a result. Accordingly, the company must be vigilant, as such circumstances are also of interest to the global community.

This human rights issue extends to supply chains, and Yokogawa, as its business expands into emerging markets, must understand the actual situations surrounding the employment and labor in such markets. It is therefore crucial that Yokogawa implement and practice the company's supply-chain CSR guidelines. I encourage all of Yokogawa to continue and expand the operation of the guidelines step by step.

### Community Development

Yokogawa, in the process of expanding its global operations, has been engaged in various activities that are rooted in local communities. If each of those activities can be effectively explained on its websites, the company will be able to attain greater understanding among its users.

It is also recommended that the areas and topics be sorted out for its community activities a little more in order to determine where Yokogawa should place its primary focus. Based on this, it can then be explained how these activities are carried out in each country. In doing so, it is important to start with explaining the concept of "B to B to C" and convey the characteristics of these activities as Yokogawa's business operations, along with what Yokogawa intends and hopes for. It must be more than an ordinary activity report that could be given by any type of business or company.

## Environment

As more and more products get LCA-labeled, representing the product has been assessed of its environmental impact, Yokogawa is successfully responding to the needs of customers who are becoming increasingly aware of environmental issues. In consideration of concerns among users and communities, customers are more willing to select products explainable about the environmental impact. From this point forward, it would be helpful for Yokogawa to know how its customers perceive the fact that the company is trying to increase LCA-labeled products. It is recommended for Yokogawa to monitor the evaluations by customers and feedback to the development team with the help of the sales or marketing teams.

Yokogawa is actively engaged in fulfilling its corporate social responsibilities in the areas of society and environment, business activities, human resources, and management.

Aiming to be a company that is trusted in the global markets, we have positioned compliance as our number one management priority. We have also strengthened our internal control system and risk management.

## Corporate Governance

Yokogawa's basic system of corporate governance including business execution system, board of directors, board of auditors, and whole structure

⇒ [more](#)

## Internal Control System

Yokogawa's "internal control" is a management process in which business resources are allocated appropriately and moved functionally.

⇒ [more](#)

## Anti-corruption and Compliance

System to promote compliance, compliance training, compliance hotline, and global awareness survey

⇒ [more](#)

## Risk Management

Risk survey, classification of risks, management system, risk reporting, and BCP

⇒ [more](#)

## Information Security

Information security measures to address three aspects: people, equipment, and information technology

⇒ [more](#)

# Corporate Governance

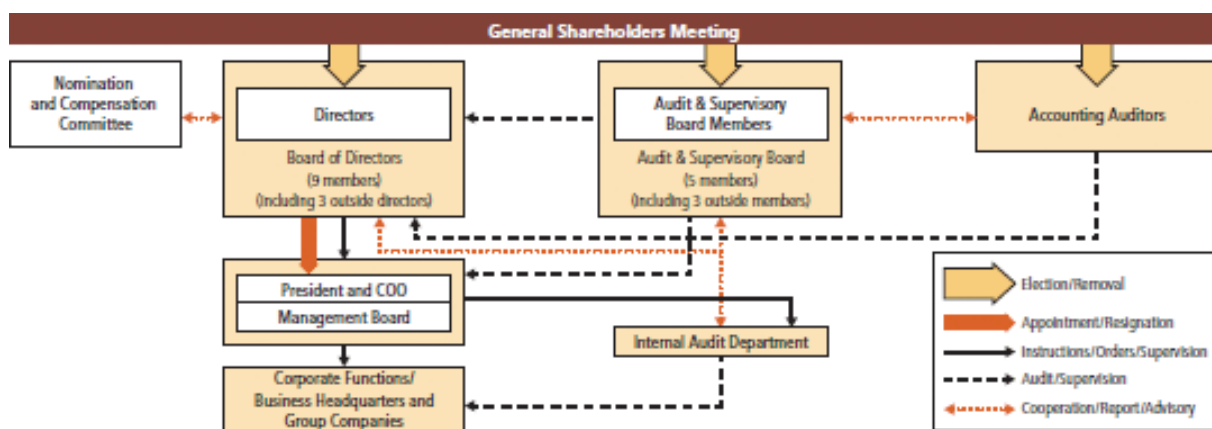
- ▶ Message to Investors    ▶ Corporate Strategy    Corporate Governance
- ▶ Corporate Executives    ▶ Business-related Risks

The Yokogawa Group recognizes that the basic mission of corporate management is to secure sound and sustainable growth, and to earn the trust of its shareholders and other stakeholders. Accordingly, the Group is implementing measures to enhance corporate governance in order to achieve a sound and profitably run organization. The Company employs a corporate auditor system and has a Board of Directors that monitors directors in the execution of their duties and a Board of Corporate Auditors that monitors the Board of Directors. We are enhancing this system by utilizing independent outside directors and corporate auditors. Through these systems, the Company is bolstering the effectiveness of its corporate governance.

Speedy decision making and transparency are ensured through deliberations between directors who are well versed in the Group's business and outside directors who maintain a high degree of independence. Through audits by the corporate auditors, the legality, efficiency, and rationality of the directors' activities and the appropriateness of their decisions are rigorously examined.

The Yokogawa Group has set forth its basic compliance policies in the Standards of Business Conduct for the Yokogawa Group, and directors take the lead in working to see that business ethics are upheld and embraced throughout the Group. In addition, the Yokogawa Group Internal Control Systems, which are intended in part to ensure the reliability of financial statements and the propriety of decision making, guarantee the appropriateness and efficiency of Group operations.

## Corporate Governance Structure





## Risk Management

The Yokogawa Group has in place a risk management system to control the likelihood of events that might prevent its organizational units from achieving their goals, 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

The Yokogawa Group has a risk management system in place for the purpose of controlling the likelihood of events that might prevent its organizational units from achieving their goals. Based on the risk management activities carried out autonomously by the respective organizational units, Yokogawa's management gains a comprehensive understanding of risks surrounding the Group from the two standpoints of "business activities" and "internal control," and thereby deals with such risks.



### Risk Management Procedure

The Yokogawa Group conducts an annual review of the status of risk management efforts made throughout the Group based on the "Basic Principles for Internal Control Systems." The severity of each risk is assessed in terms of its impact (financial, human resources, interruption of operations, and compliance) and likelihood of occurrence. Any risks that the assessment deems to have high severity and are of great importance within the Group will be designated as "priority risks," and the status of management of such risks will be reported to the management on a quarterly basis.

## Priority Risks for Fiscal 2014

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For fiscal 2014, the following five risks have been designated as "priority risks":

- Product regulations
- Crisis management (disasters, pandemics, etc.)
- Information leakage
- Operations and management in emerging countries
- International taxation

## Escalation of Information

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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 Plan (BCP)

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Our control business, which is a core segment of the Company, is deeply tied to social infrastructures such as electricity, gas and water supply. 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) in case of a Major Earthquake in Tokyo Metropolitan Area". We also have business continuity plans (BCPs), which assume the specific risks associated with bird flu and other epidemics of contagious diseases. The details of those BCPs have been communicated to all group companies worldwide as we work together to improve the plans.

Additionally, we conduct company-wide evacuation drills, drills to which the Self-Defense Force is invited, and simulation drills under the supervision of the Crisis Management Committee (including members of the management team), all on a regular basis, to ensure that these plans will function effectively in the event of a disaster.

Subsequent to the Great East Japan Earthquake in March 2011, we revised the emergency/initial action procedure to be followed immediately after an earthquake hits. We readjusted the organizational structure of the crisis management headquarters, and we made various revisions to the existing procedures by adding steps to respond to overseas sites and overseas customers, among others. We at Yokogawa will continue to review the details of our BCPs so as to be more prepared to handle possible disasters and various risks.

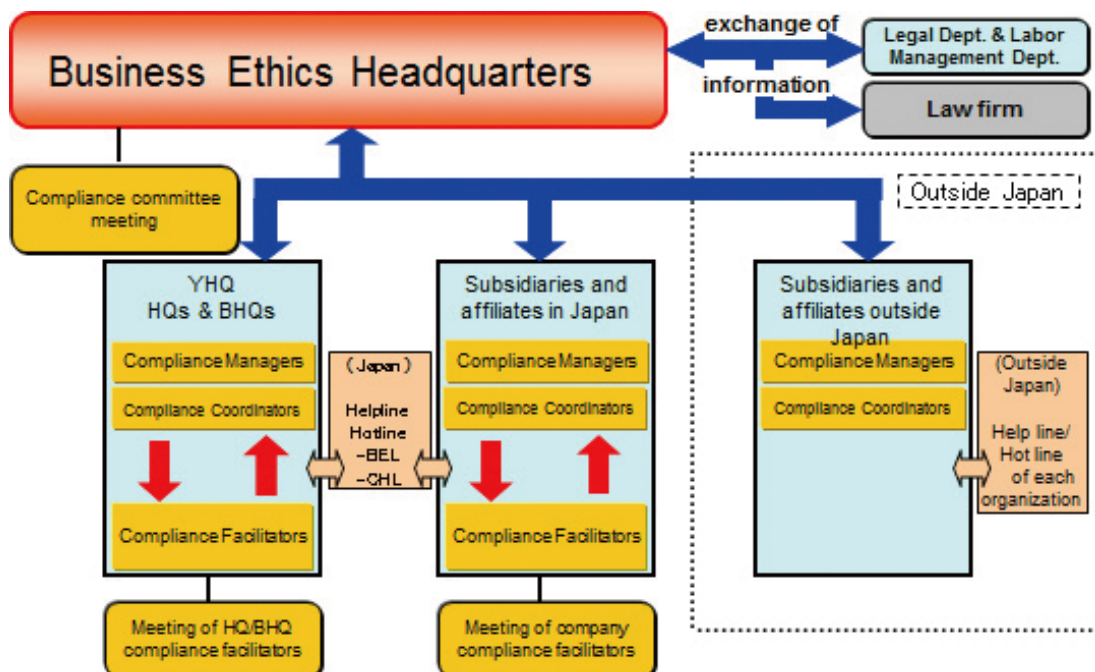
## Anti-corruption and Compliance

Yokogawa promotes compliance management strongly throughout its entire group, with the slogan, "compliance above everything else". It aims to be a healthy and open business with two pillar foundations: "corporate culture that encourages ethical conduct" and "systems to prevent unethical conduct."



### Provision of Compliance Promotion Structure

To build a "corporate culture that encourages ethical conduct" and "systems to prevent unethical conduct," a compliance promotion structure has been set in place globally. In Japan, compliance facilitators, who are advisors in the workplace, drive activities designed to communicate and entrench compliance awareness. Also, representatives from the compliance offices and key compliance facilitators in each organization are required to participate in the regular "Compliance Committee" meetings in order to share information and monitor the progress of activities.



## Enlightenment Activities

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

### Compliance Training/Education

Yokogawa conducted a number of training/education programs again in 2013 in order to imbue all group companies with the concept of compliance awareness. All employees of our group companies inside and outside Japan received compliance training, while Japanese associates were given opportunities to learn about compliance in different circumstances, such as when being promoted to a manager position, before starting a new post as expatriate or upon joining the company.

### Use of the Compliance Guidelines

Our Compliance Guidelines--which spell out the specific requirements for the Standards of Business Conduct and items the employees must observe in carrying out their duties--are currently published in English, Chinese and Portuguese. In 2013, compliance facilitators at our subsidiaries outside Japan again relied on these guidelines to step up their training programs.

### Compliance News Issued

The "Compliance News" is issued bimonthly to all Group employees. It features timely discussions designed to raise awareness of compliance among all employees.

### 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" in which all employees of Group companies throughout Japan participated, was held to help permeate and embed awareness of compliance. Specifically, the special article titled "Be More Compliance-Aware" was featured in our company newsletter and circulated to all employees. Relevant education was also given in the form of e-learning programs, and compliance slogans were recited in chorus at the workplace. Some companies used the Compliance Week to take extra steps toward greater compliance in addition to taking part in the group-wide programs. For example, Yokogawa Solution Service uploaded write-ups for better communications and a simple diagnostic check sheet on workplace openness to their intranet with the goal of "building an open workplace environment."

## Performing of Global Awareness Survey

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An awareness survey regarding compliance is conducted for all Yokogawa Group employees every year. After analyzing the results by workplace and function in order to visually track how the compliance awareness of employees changes over time, the results are then used to facilitate the planning of the following year's activities.

## Use of Consultation and Reporting System

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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. Similar hotlines have been established at our group companies outside Japan, and the cases handled locally are reported to the head office in Japan in order to share the information between the responsible departments at the local operation and the head office.

## Anti-bribery Guideline

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Yokogawa has established and managed a specific guideline, as an internal bylaw, on bribery prevention, not only with respect to public servants but also to private citizens inside and outside Japan. It is intended to ensure compliance with the anti-bribery law in each country where the Yokogawa Group conducts business and prevent bribery while engaging in corporate activities in a fair, appropriate manner.

## Strict Prohibition of Insider Trading

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To prevent insider trading, we have established the "Regulations on 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.

## Actions to be taken to counter anti-social forces

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Yokogawa's policy is to conduct business in compliance with laws, ordinances, commercial and social practices and other social norms while maintaining high moral values in the spirit of the "Standards of Business Conduct for the Yokogawa Group." We are doing the following to achieve this objective:

- We state the specific "Dealing with anti-social forces that pose a threat to safety and order" in the "Yokogawa Group Compliance Guidelines."
- Through the use of compliance training and the company newsletter, we bring home to all employees our basic stance on unreasonable demands and how to deal with such demands.
- We incorporate the provision on exclusion of anti-social forces in the text of our "Master Transaction Agreement" in compliance with the Organized Crime Exclusion Ordinance of Tokyo, and also execute a "Memorandum on Exclusion of Anti-social Forces" with our existing suppliers, contractors and customers.

## Internal Control System

At Yokogawa, "internal control" is a management process in which business resources, such as human resources, assets, and budgets, etc., are allocated appropriately and moved functionally to increase the corporate value. An internal control system is constructed as a means to achieve internal control; this is used to control both the positive and negative aspects. By doing this, Yokogawa aims at improving the corporate value of the entire Group.

### The Structure of the Internal Control System

The internal control system of the Yokogawa Group consists of 10 control systems and 4 subsystems as shown in the table below: Each control system sweeps across all divisions that are conducting business activities.

Internal Control Systems	Subsystems	Primary laws (excerpt)
Business Ethics		General law, Whistleblower Protection Act, etc.
Decision Making		Corporate law etc.
Quality Management		Laws concerning products, such as Product Liability Act and Measurement Act, etc.
Labor Management		Labor Standards Act, Act on Securing, Etc. of Equal Opportunity and Treatment between Men and Women in Employment, etc.
Environment, Safety & Health Management		General environmental laws, Occupational Safety and Health Act, etc.
Information Security Management		Unfair Competition Prevention Act, Act on the Protection of Personal Information, etc.
Export Control		Foreign Exchange Law, etc.
Financial Reporting Control	Sales Management	Financial Instruments and Exchange Act, etc.
	Purchasing Management	Financial Instruments and Exchange Act, Act against Delay in Payment of Subcont
	Prevention of Insider Trading	Financial Instruments and Exchange Law
	Disclosure Management	Corporate law, Financial Instruments and Exchange Law, etc.
Crisis Management		General laws
Corporate Auditing Infrastructure		Corporate law

As for 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.

## Protection of Important Stakeholder Information Information Security

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

An important way to protect information is to raise the security awareness of each employee by training them on how to handle information. To ensure that Yokogawa's employees appreciate on the importance of information security and keep their knowledge up to date, the Yokogawa Group uses an e-learning system to annually provide training to all employees. Based on the belief that "a good beginning makes a good ending," the Group provides training to new employees who are entering straight out of university or in mid-career to familiarize them with the rules of their new workplace. We also review the details and results of the training through information security audits.

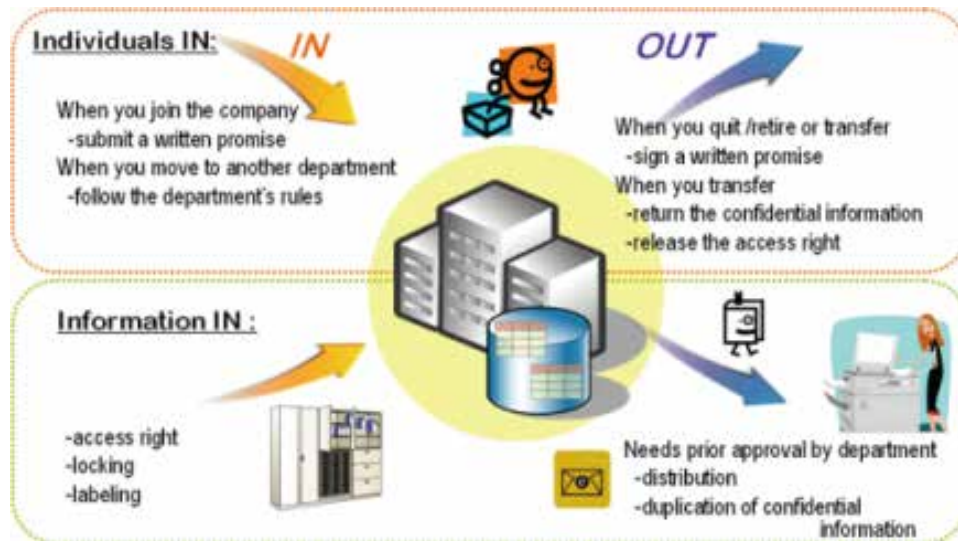


Image from ISMS text

### Equipment: Continuous Improvement

We implement anti-theft, fire-prevention, and other security measures to protect locations where information is stored. Our facilities and equipment are kept under continual surveillance, and efforts are made to replace obsolete facilities and equipment with state-of-the-art ones. For R&D facilities that require advanced security, we implement a variety of security measures including the introduction of iris authentication for facility access control and the use of storage cabinets that can only be unlocked with an employee ID card.



Opening a locked cabinet with an employee ID card

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

The most vulnerable point with regards to information security breaches is people. People can leak information by mistake and misuse information out of ignorance. IT systems provide ways to prevent such human errors.

### 1. Measures to prevent data leakage from PCs

We create a more secure environment by installing antivirus software, implementing biometric authentication, using data encryption, and more.

### 2. Anti-spam measures

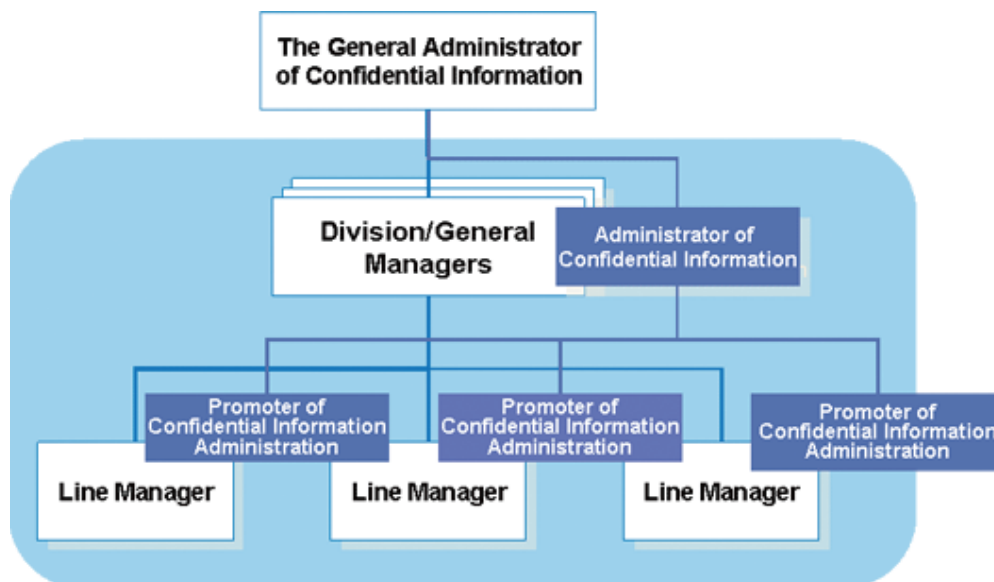
We have implemented an anti-spam filtering system, because spam mail is not only bothersome but also includes malicious mail that may cause data leakage and virus infection.

### 3. Network connection device management

To protect against unauthorized access and data leakage, we prevent unregistered PCs and related devices from being connected to the network.

## Organization

In Yokogawa Group, information security activities have been developed based on the idea of ISO27001, and information security measures and policies are notified to the Group's headquarters, business headquarters and each Group company by the general administrator of confidential information. The head office checks the operations if they follow the rules and implements necessary reforms. In addition, there is an information security department or section for each of the Yokogawa Group's headquarters and business headquarters, as well as for each Group company. A PDCA, or Plan-Do-Check-Act, cycle is implemented to ensure information security activities are implemented smoothly.



Information security organization of Yokogawa Electric Corporation




Yokogawa's control systems and other solutions are in use in major industrial plant facilities around the world, including in emerging countries. Many Yokogawa products are in operation constantly in customers' plants in a broad-range of industries such as urban infrastructure (including electricity, gas and water), petroleum, chemical, iron and steel, pulp and paper, and pharmaceutical, as well as food production.

Yokogawa products not only increase the productivity and quality of plants through automation of field operations, but also provide features which increase safety and automate dangerous work. With these features, we help prevent accidents or trouble from occurring by comprehensively monitoring plants to ensure stable and optimum operations. Also, by utilizing the advanced features of our control systems, Yokogawa products enable the efficient use of energy and resources, reducing environmental impact and preventing air pollution. Many Yokogawa products are also used with vital water resources and the development of natural energy.

Yokogawa provides solution services to customers based on our concept of "B to B to C (Business to Business to 'Community') through which we work with our customers to build a better future for communities, industries and the earth". Through the use of our measurement, control and information technologies, we focus all our efforts as the Yokogawa Group on our commitment to helping build a sustainable society.


The following introduces several ways in which Yokogawa is making these types of contributions. ("Success Stories" on our global website)

**Case 1** Kaneka Corporation, Takasago, Hyogo Prefecture, Japan 

▶ Optimization of control strategy helps BTG plant save energy and operate more efficiently

**Case 2** Skangass AS, Stavanger, Norway 

▶ Yokogawa's Integrated Solutions Contribute to Safe and Steady Production at Gas Liquefaction Plant in Norway

**Case 3** PT PLN, Lahendong, North Sulawesi, Indonesia 

▶ Ensuring Safe and Reliable Operations at PT PLN Lahendong III and IV Geothermal Power Plants

## Optimization of control strategy helps BTG plant save energy and operate more efficiently

Location: Takasago, Hyogo Prefecture, Japan

Order Date: January 2009

Completion: February 2010

Industry: Chemical



## About Kaneka Corporation



Kaneka Corporation,  
Takasago, Hyogo Prefecture, Japan

Spun-off from the Kanegafuchi Spinning Co., Ltd. in 1949, Kaneka Corporation's initial main products were caustic soda, soap, cosmetics, edible oils, and electrical wires. Later the company diversified into polymers, fermentation, biotechnology, and electronics. Its business activities now span a broad spectrum of markets - from plastics, EPS resins, chemicals, and foodstuffs to pharmaceuticals, medical devices, electrical and electronic materials, and synthetic fibers. The company has been a leader among Japanese chemical companies in establishing overseas operations, beginning in 1970 with a subsidiary in Belgium and progressing to the establishment of operations in the United States, Singapore, Malaysia, China, Australia, and Vietnam.

Kaneka Corporation is set on both staying globally competitive and protecting the environment, a stance that is consistent with its corporate philosophy. This states: "With people and technology growing together into creative fusion, we will break fresh ground for the future and tie in to explore New Values. We are also committed to challenge the environmental issues of our planet and contribute to upgrade the quality of life." Specific initiatives undertaken by Kaneka Corporation include the reduction of energy consumption, complying with global environmental standards, reducing industrial waste, and reducing risk through the development of various production technologies.

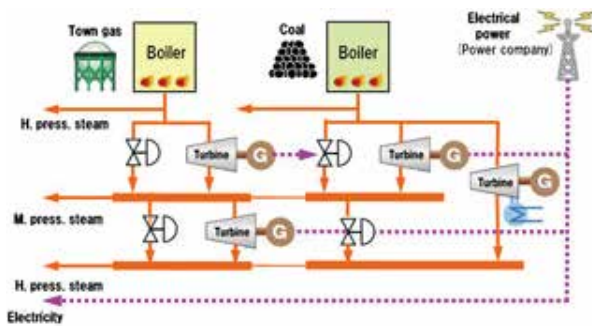
## The Background

In the midst of a global economic downturn precipitated by events such as the bankruptcy of Lehman Brothers, Kaneka Corporation is accelerating its efforts to reduce its operating costs. As the company's Takasago Plant is a large consumer of energy, it currently is engaged in an "Advance 17" initiative to slash its energy costs.

Almost all the fuel and electricity consumed by the Takasago Plant is for its boiler, steam turbine, and generator (BTG) facility. With the rising price of crude oil, Kaneka Corporation has urgently needed to implement countermeasures that would reduce this facility's energy costs. And in keeping with its corporate philosophy, the company is intent on reducing its CO<sub>2</sub> emissions. A further aim of the company is the improvement of efficiency and reduction of labor costs.

## The Challenges

The BTG facility has two boilers and four sets of steam turbines and generators, and this equipment all varies in energy efficiency. In addition, the price of electricity fluctuates depending on the season and the time of day. The operation and maintenance of all this equipment has to be balanced in such a way that cost is minimized and the steam and electricity requirements of the Takasago Plant are fully met. Before this project, the BTG facility's operators were kept busy around the clock monitoring all process values in real time and manually adjusting to load changes. Because the facility had a variety of operation patterns, each of which required different procedures for minimizing costs, operators were required to have very high level skills and their work was very stressful.



BTG facility overview

The table displays various operation patterns for the BTG facility. A central starburst graphic reads "Multiple patterns". The table has columns for "運轉パターン" (Operation Pattern), "ボイラ2機" (Boiler 2 units), "ボイラ1機" (Boiler 1 unit), and "電力" (Electricity). The rows represent different operational states for the turbines and generators, such as "1日" (1 day), "2日" (2 days), "1T" (1 turbine), "1T高圧減圧時" (1T high pressure reduction), "1T中圧減圧時" (1T medium pressure reduction), "2T" (2 turbines), "3T" (3 turbines), and "4T" (4 turbines). The cells contain terms like "停止" (stop), "運転" (operation), and "圧力調整" (pressure adjustment).

Operation patterns

## The Solutions



Toshihiko Hayashi, Director of the Energy Department at the Takasago Plant

The engineers at the Takasago Plant had reached the limit of what they could accomplish through hardware modifications, PID control, and sequence control strategy to improve energy efficiency at the BTG facility. After considering the use of an operational support package and a PIMS, they turned to Yokogawa for an advanced process control (APC) solution that could be fully integrated with their existing control strategy.

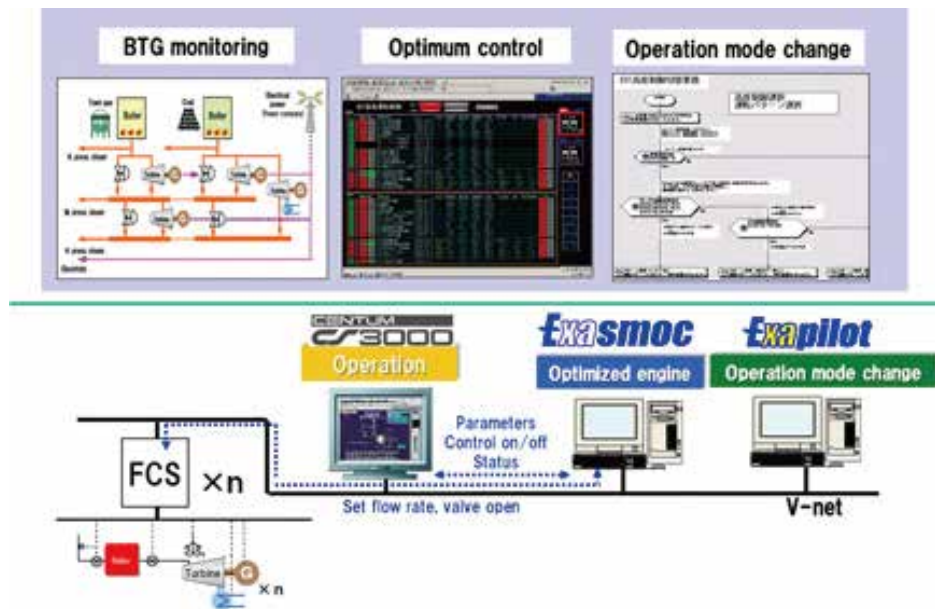
Although the plant's engineers fully understood the benefits that an APC solution could have in automating the BTG facility's operations, they were also well aware of their plant's complexities and knew that they would need an experienced partner that could help them apply this technology and derive its full benefits.

They knew that with Yokogawa, which has a long track record in implementing over 400 APC solutions worldwide in a wide variety of process industries, they would have a tried, tested, and proven partner.



Engineers from Kaneka Corporation's Production Technology and Energy Departments

Working closely with their counterparts at the Takasago Plant, the Yokogawa team assembled for this project installed and integrated the Exasmoc multivariable predictive controller and the Exapilot operation efficiency improvement package with the monitoring, control, and operation functions of the plant's CENTUM CS 3000 DCS. The Exasmoc APC controller uses models to optimize plant behavior by computing sequences of variable adjustments. This has made it possible, for example, to rapidly adjust set points when boilers and turbines are started up or shut down. The Exapilot package enables the automation of operational sequences such as plant start-up, shut-down, and product switchover by storing system procedures based on the expertise of experienced plant operators.



Combination of the CENTUM DCS, Exapilot, and Exasmoc

## The Results

Through the integration of the CENTUM CS 3000 DCS with the Exapilot operational support and Exasmoc APC solutions, the BTG facility's operations could be fully automated, significantly reducing operator workload and achieving an 85% reduction in alarm situations. The plant can now be operated much more smoothly and flexibly. Operational efficiency is up, energy costs have been reduced 0.21%, and CO2 emissions are down 1,000 tons annually. The achieved improvements are exactly on target.

Further improvements in energy efficiency are foreseen in the immediate future at the Takasago Plant. Efforts to secure additional improvements at this plant are ongoing, and range from the improvement of stability at low loads, optimization of control strategy based on alarm analysis, and the reduction of changeover times when the plant switches from daytime to nighttime operation.

## Yokogawa's Integrated Solutions Contribute to Safe and Steady Production at Gas Liquefaction Plant in Norway

Location: Stavanger, Norway  
 Order Date: 2009  
 Completion: 2010  
 Industry: LNG Supply Chain



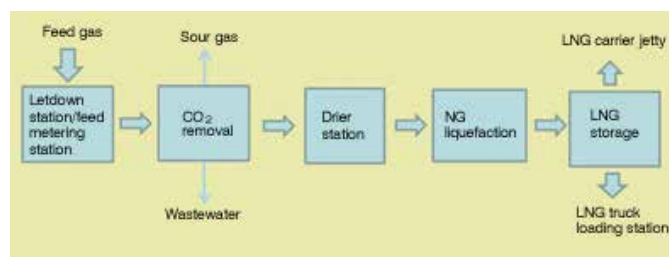
### Executive Summary



Skangass AS, Stavanger, Norway

Skangass AS, 100% owned by Lyse AS, was established in 2007 with the aim of building and operating medium-sized low carbon emission energy plants. The company recently completed construction of a natural gas liquefaction plant at Risavika in Sola municipality that produces 300,000 tons of LNG per annum. The plant receives natural gas from a field in the North Sea via a 50 km high pressure pipeline from Kårstø that was built by Lyse.

This plant has all the facilities necessary for every phase of the natural gas liquefaction process, including CO<sub>2</sub> removal systems, a 30,000 m<sup>3</sup> storage tank, a coil wound heat exchanger is used as main cryogenic heat exchanger, a Linde multi-refrigerant cascade process, and utilities for the generation of electricity and steam. To ensure safe and efficient operations at this new plant, Yokogawa Europe successfully installed an integrated plant process control system consisting of a CENTUM VP distributed control system (DCS), FAST/TOOLS supervisory control and data acquisition system (SCADA), ProSafe-RS safety instrumented system (SIS), and Omegaland operator training simulator (OTS). The plant has been running smoothly since becoming fully operational in 2010.



Plant process overview

### The Challenges and the Solutions

#### 1. OTS for familiarization of liquefaction processes and operator training

Skangass needed to avoid any delays in getting this new plant fully operational, and key to that was having all plant personnel fully trained right from the start of operations. For the first time ever, and in a team effort with Skangass, Yokogawa configured a full stimulation type operator training simulator for a gas liquefaction plant, employing the same safety and automation system (SAS) as the actual plant, with fully identical operational functions. This high fidelity model of the natural gas liquefaction process behaves exactly like the actual plant and allows plant upsets and equipment malfunctions to be simulated in a stimulative training environment. This makes it possible for operators at Skangass to undergo repeat training for a full range of situations.

## 2. System integration optimizes total plant operation

Key to maintaining safe operations is for the operators to know in real time what is happening throughout the plant. This has been made possible through the complete integration by Yokogawa of the plant's CENTUM VP DCS, FAST/TOOLS SCADA system, and ProSafe-RS SIS with other systems such as the tank gauging system. At their control stations, operators can easily call up and view trend chart, plant overview, alarm summary, and operation guide graphics, giving them the right information at the right time on processes throughout the plant.



One operator per shift in the central control room

For example, operators can confirm on screen the status and operating sequence for the plant's two drier absorbers, which alternate on a 24 hour schedule, with one unit operating and the other regenerating. To guard against thermal shocks during startup or shutdown, they also are able to monitor temperatures in the coil-wound heat exchanger, whose operation is key to the natural gas liquefaction process and which has been carefully configured in the CENTUM VP system. In real time, operators can monitor at their terminals remote terminal data that has been transferred via a general packet radio system link to the Yokogawa FAST/TOOLS SCADA system in the main office, contributing to the overall efficiency of the Skangass facility and ensuring increased safety and stable production.

With this integrated system, a single operator per shift can control the entire plant from the central control room.



### GC1000 for LNG analysis

Yokogawa GC1000 gas chromatographs sample the LNG components and transfer their readings to the CENTUM DCS. With this data, operators are able to adjust production specifications to meet the requirements of the company's LNG storage terminal customers throughout Scandinavia.



### ROTAMASS for coolant flow measurement

A Yokogawa ROTAMASS Coriolis mass flowmeter is used to measure flow in the lines that supply coolant to the plant's refrigeration facility. Operators have come to depend on its high accuracy and stability for determining whether sufficient coolant is being provided.

## Customer Satisfaction

Roy Kenneth Skar, Operation Team Leader, said, "Yokogawa has strong experience in LNG processes, and their engineers understand our process. The project execution was done by engineers from Skangass and Yokogawa. The OTS really helped us to know the process. We are very satisfied with Yokogawa's systems for our liquefaction plant. Though our liquefaction rate is still a small portion of total gas supply from the North Sea gas field, we are expanding this LNG business continuously to meet market demand. A constant and steady operation and plant availability are mandatory to expand our business."



Mr. Skar

## Ensuring Safe and Reliable Operations at PT PLN Lahendong III and IV Geothermal Power Plants

Location: Lahendong, North Sulawesi, Indonesia  
 Lahendong III Plant ; Order date: 2007 / Completion: 2009  
 Lahendong IV Plant ; Order date: 2010 / Completion: 2012  
 Industry: Renewable Energy



### Executive Summary



PT PLN, Lahendong, North Sulawesi, Indonesia

PT PLN is a government-owned company that manages the electric power industry in Indonesia. To ensure a stable power supply for North Sulawesi province, PT PLN has built and currently operates four geothermal power plants in Lahendong, which is located 30 km south of Manado, the provincial capital. The two newest plants, Lahendong III and Lahendong IV, each produce 20 MW of electricity, and the financing for their construction was provided by the Japanese government's Official Development Assistance (ODA) program and the Asia Development Bank (ADB), respectively.

Indonesia's economy is growing at a remarkable rate, and the country's demand for electricity far outstrips supply. Despite holding 40 percent of the world's geothermal reserves, enough to produce about 30,000 MW, the country has done relatively little till now to make use of this resource. However, the Indonesian government has signaled a strong intention to begin developing the country's geothermal resources.

Geothermal energy is a clean and renewable power source, and plants of this type produce extremely little CO<sub>2</sub>, which is a major contributor to the greenhouse effect. For this reason, efforts to make use of this resource are gaining momentum, and its development is expected to bring great environmental and economic benefits.

At the Lahendong III geothermal power plant, Yokogawa installed the CENTUM CS 3000 distributed control system (DCS) with redundant controllers, a backup system, and a test system. Based on the success of these installed systems, Yokogawa subsequently received an order to install its CENTUM VP DCS at the Lahendong IV geothermal power plant.

### The Challenges and the Solutions

#### Automated plant and turbine startup and shutdown

Plant and turbine startup and shutdown procedures are very complex and time-consuming, and place great stress on both personnel and equipment. To eliminate operator errors during these critical processes, the CENTUM DCS has automated plant and turbine startup and shutdown procedures. The startup and shutdown sequences are executed in accordance with the logic design, and the DCS human machine interface (HMI) clearly shows the status of the sequence and the facility conditions. It also guides operators in the acknowledgement of messages and alarms

and the triggering of interlock sequences. Operator intervention during the automated plant and turbine startup and shutdown processes is minimized, ensuring safe and smooth startup and shutdown. This greatly reduces operator workload and errors, shortens the startup and shutdown times, and mitigates thermal and physical stress on the turbine.



Automatic turbine startup window



Startup procedure window

### Backup system

Geothermal power plants have less auxiliary equipment and their control loops are not as complex as those at fossil fuel power plants. In addition, they cost less to operate. It is therefore feasible and desirable to run a geothermal power plant nonstop at full load. When a plant is operated in this way, reliability is a key concern. And even when the plant's DCS has redundant controllers and is extremely reliable, there is still a risk that it might fail in a corrosive environment. For this reason, Yokogawa has provided a backup system. This backup system includes the following features:

- Monitors by using a graphical user interface to ensure safety operation while the backup system is engaged
- Handles effective alarms
- Performs emergency operation in the event that the DCS fails

The backup system ensures that the plant can run safely without any interruptions.

### Countermeasures for abnormalities of steam production and reinjection wells

If a sudden well head pressure change, a water imbalance caused by insufficient reinjection, or some other abnormal condition occurs in a steam field, the DCS will display alarms and all necessary other information in graphic windows at the operator stations. If immediate actions are required, the DCS automatically takes countermeasures. If necessary, the turbine will automatically shut down without the operator's intervention.

Because nature can be unpredictable, it is not always easy to anticipate changes in the production and reinjection well conditions. When unstable well conditions lead to an emergency, Yokogawa's controls are able to keep the plant safe by automatically carrying out operator tasks.



Graphic of turbine system

### Sequence-of-events (SOE) station

All events are precisely recorded with millisecond accuracy and displayed in a sequence of events (SOE) window for later analysis. Using this, operators can assess the problem cause and request a fix by maintenance personnel.



Central control room



## Test system

When application software needs to be modified, the revised software must be tested before it can be downloaded to the controller, requiring a plant shutdown. To maximize plant uptime, Yokogawa provided a test system that uses the test functions of the CENTUM CS 3000. This test system accurately replicates the plant control and graphical interfaces, and the software can be easily checked under the same conditions as with the actual plant system. It can be also used to train the operators.

## Customer Satisfaction

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The design and structure of the CENTUM CS 3000 and CENTUM VP systems for these new geothermal power plants exceeded PT PLN's high expectations. The use of the same HMI in both systems allows for complete consistency in the monitoring and control of the power plants and turbines at both plants. PT PLN greatly appreciates having the ability to automatically execute flawless plant and turbine startups and shutdowns, and PT PLN is looking forward to further such technology collaboration with Yokogawa.

### System Details

#### Lahendong III project

- System: CENTUM CS3000 R3
- Field control stations
  - Backup system
  - Operator stations
  - Supervisor station
  - Sequence-of-events (SOE) station
  - Test system
  - Time synchronization with GPS master clock

#### Lahendong IV project

- System: CENTUM VP
- Field control stations
  - Operator stations
  - Supervisor station
  - Sequence-of-events (SOE) station
  - Time synchronization with GPS master clock

The Standards of Business Conduct for the Yokogawa Group call for the realization of the Yokogawa Philosophy, enhancement of customer satisfaction, observation of laws and regulations, respect for human rights, and maintenance of the order and safety of communities and society. We have also outlined our basic stance on environmental conservation and stakeholder relations. Based on these standards, we promote activities to meet to stakeholders expectations, such as employees, customers or shareholders.

We view all Yokogawa employees as valuable assets, and work proactively to maintain a sound work environment and provide opportunities for skill development. We also respond to our customers by putting quality first. Moreover, in accordance with our principle of good citizenship, we interact with the community, encourage employees to participate in volunteer activities, and engage actively in other activities to contribute to society.

## Environment

Yokogawa promote environmental management while providing solutions that will help our customers reduce their energy consumption and protect the environment.

⇒ [more](#)

## Customers and Quality First

We are engaged in activities that maintain high quality in every aspect of our business — from product sales to maintenance — and take the customer perspective to ensure high satisfaction with our products and services.

⇒ [more](#)

## Employees

Employees are a valued Yokogawa resource. We respect human rights and support our diverse workforce by providing career development opportunities and fostering open communication in the workplace.

⇒ [more](#)

## Investor Relations

Our relationship (communication) with shareholders and investors is described in "IR information" and "Annual Report." .

## Occupational Safety and Health

Yokogawa have taken safety and health management to a higher level by constantly carrying out assessments to eliminate or minimize potential risks.

⇒ [more](#)

## Supplier Relations

We have put in place a management system that covers each of our business processes, including purchasing, to ensure that social and environmental concerns are given proper consideration in all our dealings with suppliers.

⇒ [more](#)

## Community Involvement

Around the world, the Yokogawa Group is working to benefit local communities and address specific needs.

⇒ [more](#)

## Environmental Activity Data of the Past 5 years

⇒ [more](#)

## Personnel-related and Social Data of the Past 5 years

⇒ [more](#)

### 【Coverage】

This website covers the activities of Yokogawa as well as those of its domestic and overseas group companies. Individually defined information, such as environmental impact data and environmental accounting, is provided separately at the specified locations.

## Environmental Reporting



We at Yokogawa regard conservation of global environment as an important management issue and strive to implement the environmental management needed to address it.

Specifically, we help our customers be "green" by, for example, developing products that allow for harmonious coexistence of mankind with nature and providing environmental solutions that help analyze/improve environmental impact generated through their business activities, just as we actively endeavor to reduce the environmental impact in our business operations.

### Promoting Environmental Management

- Environmental Policy of the Yokogawa group
- Improving environmental management system
- Environmental Milestones

### Reducing Environmental Impact of Products

- ~ Reducing environmental impact while in use at customer's site ~
- Environmental Friendly Products
  - LCA Label

### Environmental Performance

- 2013 Goals and achievements
- Environmental impact
- Environmental accounting
- Environmental Activity data over the past 5 years (CO2, water, waste, natural energy)

## Reducing Environmental Impact within Yokogawa

~Reducing environmental impact in Yokogawa's factories and offices~

### - Global Warming Prevention

- Increasing Work Efficiency with Improved Cleaning Processes: Reduction in Electricity Consumption
- Improving the Way to Keep Contaminated Air Away from the Control Panel: Effective Use of Clean Room Air Conditioning to Reduce Electricity Use
- Upgrading Steam Lines : Reduced Use of City Gas Through Heat Insulation

### - Chemical Substance Reduction, Waste Reduction and Resource Conservation

- Reducing Chemical Use with the Elimination of Cleaning Processes: Significant Reduction in the Use of Hydrochloric Acid and Water
- Reducing Hydrochloric Acid Use from 60 Tons to 30 Tons Annually with an Improvement for the Etchant Control System
- Replacing Thinner with a Toluene-Free Type: Reduction in Toluene Use
- Reduction of toluene and xylene by changes to the toluene and xylene-free paint

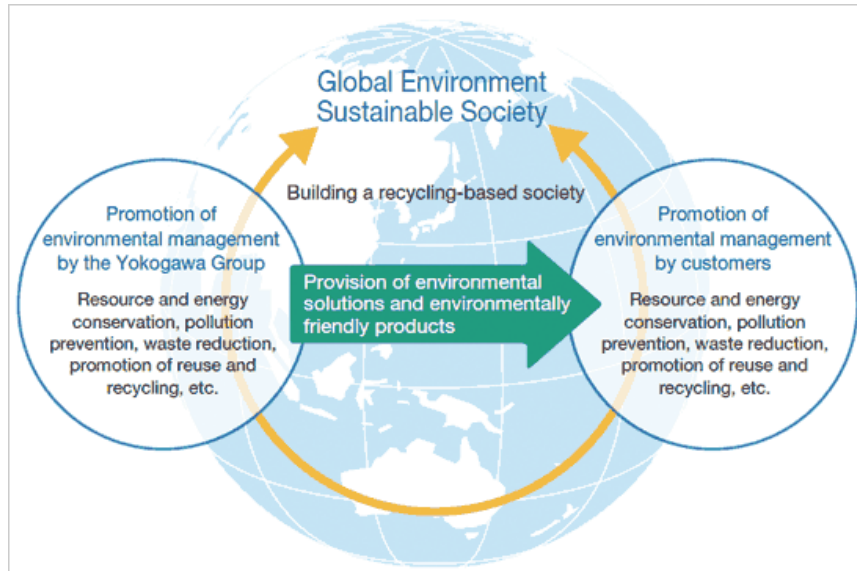
### - Water Resource Conservation

- Reducing Chemical Use with the Elimination of Cleaning Processes: Significant Reduction in the Use of Hydrochloric Acid and Water
- Saving Water in Air-Conditioning and Water-Supply Systems: Reduction in water volume
- Adopting Water-Saving Systems for Office Water Supplies: Reduction in water volume

- Promoting Biodiversity

"Tokyo Greenship Action": A Collaborative effort between local NPO and residents to protect the Woodlands

Participation in the Tenryu River Water Quality Survey



## Environmental Policy of the Yokogawa Group

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, each site of the Group shall strive, in all its activities, to:

**1. Establish, maintain, and improve its environmental management system.**

Each site promotes and continuously improves its global environmental conservation activities, strives to prevent environmental contamination, and establishes an environmental management system. To maintain and improve the system, each site accurately evaluates the burden of its activities on the environment including climate change, biodiversity and water resources, sets environmental objectives and targets that are technically and economically viable, and carries out environmental audits.

**2. Provide environmental training.**

Each site actively provides training for global environmental conservation to ensure that employees understand the Environmental Philosophy, Code of Conduct for Environmental Conservation, and Environmental Policy of the Yokogawa Group to improve their environmental awareness, and to act autonomously with consideration of the environment in both their work and life in the local community.

**3. Abide by legal regulations.**

Each site abides by laws, legal regulations, and other requirements applied to environmental aspects, in order to proactively conserve the global environment.

**4. Carry out resource recycling-based operations.**

Throughout its activities, each site endeavors to utilize energy and resources efficiently, to prevent global warming, to reduce waste, and to promote the reuse and recycling of resources with the aim of eliminating emissions.

**5. Minimize environmental pollution.**

Each site strives to eliminate the use of substances that adversely impact the environment, such as toxic chemicals, and ozone-destroying substances, by using safe substitutes or employing safe technologies to avoid the risk of environmental pollution.

**6. Create environmentally friendly products.**

Each site develops and produces environmentally friendly "green" products in consideration of the environmental burden throughout the products' lifecycles, from material purchase, manufacture, and distribution to their use and disposal.

**7. Supply society with environmental solutions.**

Each site supplies society with value-added products and services for conserving the earth's environment through measurement, control, and information technologies.

**8. Contribute to local communities.**

Each site encourages its employees to participate in environmental conservation activities under their own initiative as good corporate citizens.

**9. Make environmental information available to the public.**

Each site actively makes environmental information, including its environmental policy and conservation activities, available to the general public.

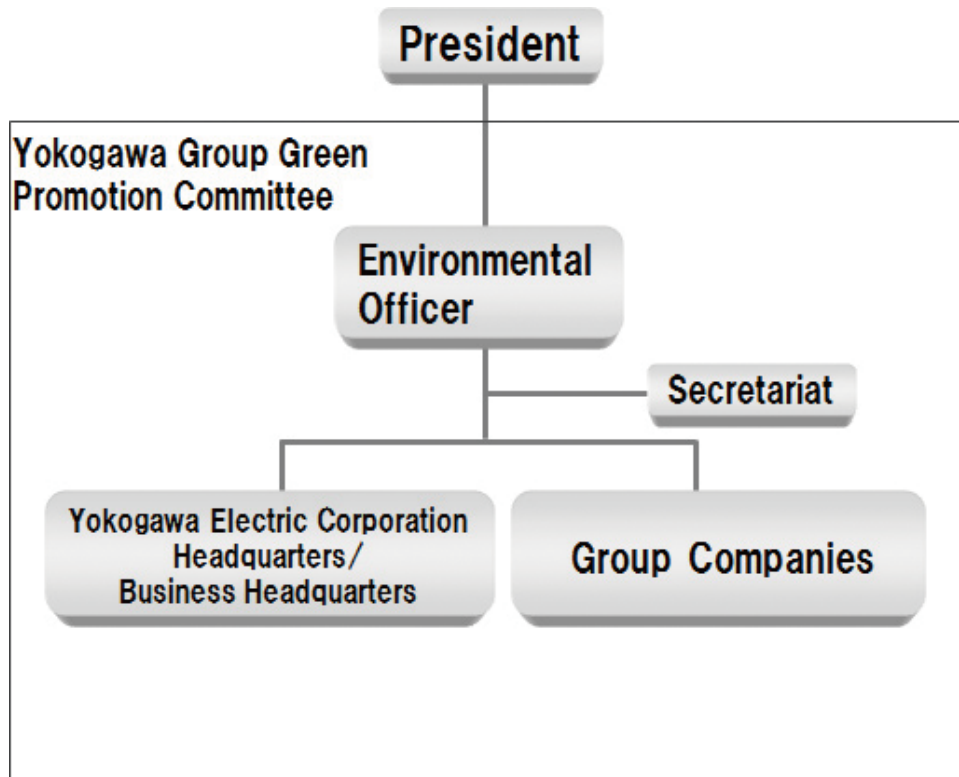
**Hajime Watanabe**

Senior Vice President  
Audit & Compliance Headquarters  
Yokogawa Electric Corporation

## Organization

To promote the environmental management principle of the Yokogawa Group, we established the "Yokogawa Group Green Promotion Committee" with the aim of stepping up group-wide efforts to conserve the global environment and prevent climate change. The Committee, chaired by the Yokogawa Group's Environmental Officer, provides leadership the Yokogawa Group companies throughout inside and outside Japan in order to drive environmental management and implement various measures designed to conserve the global environment and prevent climate change.

### Organization of Environmental Management Promotion



## Environmental milestones

Various global environmental conservation activities had been carried out before Yokogawa Kofu office was certified with the ISO14001 certification in 1997 followed by officially implementing the environmental management system across the entire Yokogawa group. The environmental practices of Yokogawa group since 1971 are listed below in chronological order.

### History of Environmental Practices of Yokogawa (in time series)

- 1971~
- 1980~
- 1990~
- 2000~
- 2010~

1971		Yokogawa establishes a pollution prevention organization
1974	July	Yokogawa completes construction of wastewater treatment facilities to comply with ordinance of Tokyo compliant with municipal bylaws
1987	May	Yokogawa begins environmental assessment studies
1989	October	Yokogawa establishes a chlorofluorocarbon (CFC) reduction committee
1991	April August	Yokogawa sets up an organization to promote an Environment management Yokogawa starts "Save the Earth" campaign
1993	February  July	Yokogawa appoints a Vice President of Environmental Management and forms a Global Environment Committee  Yokogawa establishes a voluntary environmental activities plan
1994	August December	Yokogawa reports the results of voluntary environmental activities in fiscal year 1993 Yokogawa completely eliminates specific CFCs and trichloroethane for cleaning
1995	June  October	Yokogawa Board of Directors decided to obtain ISO14001 certification and merge a voluntary environmental activity plan into ISO14001 plan.  Yokogawa reorganize a Global Environment Committee
1996	March May	Yokogawa establishes corporate rules for environmental management Yokogawa forms a Global Environment Committee at Yokogawa Electric Headquarters & Main Factory, Kofu Office (current Yokogawa Manufacturing Kofu Factory), and Komine Factory (current Yokogawa Manufacturing Komine Factory).  Solar power generators for disaster use installed at Yokogawa Electric Headquarters & Main Factory. Yokogawa signs a disaster prevention accord with Musashino City.
1997	April July	Issued "Green Times", a company newsletter The Kofu Office (current Yokogawa Manufacturing Kofu Factory) obtains ISO14001 certification

1998	February	Yokogawa Electric Headquarters & Main Factory and the Komine Factory (current Yokogawa Manufacturing Komine Factory) obtain ISO14001 certification
	May	Two co-generation power generators (585 kw,2 units) go online at the new main building of Yokogawa Electric Headquarters & Main Factory
	June	Yokogawa begins publishing Yokogawa Environmental Catalogue
1999	September	Yokogawa publishes Yokogawa Environmental Report 1999. Also the company introduces environmental accounting and makes data available to public.
	November	Yokogawa introduces environmental labeling (Type II)
2000	July	Yokogawa Electric Headquarters & Main Factory reached its goal of generating zero landfilled waste
	August	Yokogawa introduces Japan's first returnable container recycling service for customers
	September	Yokogawa publishes Yokogawa Group Environmental Report 2000 and introduces third-party verification system
	November	Suzhou Yokogawa Meter Co. joins the China-Japan 3E (Energy, Environment, and Economy) Research Project and is selected as a model company for environmental accounting study
2001	March	Yokogawa establishes The principles of Yokogawa Group Environmental Management Standards.
	July	Yokogawa publishes Yokogawa Group Environmental Report 2001
	September	Three Yokogawa sites receive comprehensive ISO14001 certification
	November	The Kofu Office (current Yokogawa Manufacturing Kofu Factory) reached its goal of generating zero landfill waste
2002	February	The Yokogawa Manufacturing Akiruno Office (current Yokogawa Manufacturing Komine Factory) accomplishes its goal of generating zero landfill waste. The Kofu Office (current Yokogawa Manufacturing Kofu Factory) installs a light through type solar power generating system
	July	Yokogawa publishes Yokogawa Group Environmental Report 2002
	August	Four Yokogawa sites receive comprehensive ISO14001 certification
2003	February	The Econo-Pilot energy-saving system for water pumps receive the Agency of Natural Resources and Energy Director-General's Award at the Energy Conservation Award ceremony. The Kofu Office (current Yokogawa Manufacturing Kofu Factory) receives award from the Director-General of the Kanto Bureau of Economy, Trade and Industry in recognition of its achievements in reducing energy consumption.
	July	Yokogawa publishes Yokogawa Group Environmental Report 2003
	October	The Plant of newly established Yokogawa Electric China starts operations in Suzhou as an environmentally aware manufacturing site
2004	March	New environmentally optimized facilities at the Yokogawa Manufacturing Komine Factory and Kofu Factory start operations
	June	Yokogawa publishes Yokogawa Group Environmental Management Report 2004
	August	Yokogawa Electric Headquarters & Main Factory obtain a separate ISO14001 certification
2005	March	Energy Conservation Guided Tours start at the Yokogawa Manufacturing Kofu Factory
	April	Yokogawa joins the Team Minus 6% national campaign
	June	Yokogawa publishes Yokogawa Group Environmental Management Report 2005



2006	March	Yokogawa Manufacturing Kofu Factory and Komagane Factory attain zero CO2 emissions
	September	Yokogawa publishes Yokogawa Group Sustainability Report 2006
	October	Yokogawa introduces the Green Power Certification System (300,000kwh) The Kanazawa Office receives the New Office Promotion Award, Environment Award and Good Design Award for architectural design
2007	June	Yokogawa publishes Yokogawa Group Corporate Social Responsibility Report 2006
	September	Yokogawa Group establishes the Energy Conservation and Environment Protection Solution Division in order to promote environmental management solutions to customers
2008	June	Yokogawa publishes Yokogawa Group Corporate Social Responsibility Report 2007
2009	May	Yokogawa completely abolishes the usage of HCFC
	June	Yokogawa publishes Environmental Report 2009 on its website.
	October	The Kofu Office receives "Green IT Award 2009 Minister of Economy, Trade and Industry Award" for its energy-saving activities
2010	February	The ESCO business receives the 2009 Energy Conservation Grand Prize
	September	Yokogawa established the "Yokogawa Group Green Promotion Committee"with the aim of stepping up group-wide efforts to conserve the global environment and prevent climate change.
2013	April	Joined the Keidanren (Japan Federation of Economic Organizations)'s "Commitment to a Low-Carbon Society."

## Improving Environmental Management Systems

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.

### Compliance with laws

In 2013 we again endeavored to ensure full compliance with the environmental laws, regulations, agreements, etc., and had no major violations.

### 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 consist of systems, legal compliance, and performance audits. Internal audits were conducted at all departments at least once during the year. Internal audit findings have been promptly addressed and corrected.

#### Internal Audit Inspection Items

Systems audit	Audit of organizations/systems, target management, education, operations management/corrections, and other data to check whether the system is functioning effectively
Legal compliance audit	Audit of the operation and monitoring of regulated values (qualifications, notice submissions, and measurement data) and other data to check whether legal and other requirements are being followed
Performance audit	Audit of targets and actual results, regulated values, and other data to check whether the self-determined operation items are being implemented properly

#### 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.

## 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.

### ISO14001

As of the end of April 2014

Factories		Date Certified
Yokogawa Electric Corporation Headquarters & Main Factory		July 1997
Yokogawa Manufacturing Corporation (Komine, Kofu, Ome and Headquarters Factories)		July 1997
Yokogawa Meters & Instruments Corporation		July 1997
Yokogawa Solution Service Corporation		February 2000
Yokogawa Denshikiki Co., Ltd.		November 2000
Suzhou Yokogawa Meter Company	China (Suzhou)	May 1998
Yokogawa Shanghai Instrumentation Co., Ltd.	China (Shanghai)	March 2000
Yokogawa Sichuan Instrument Co., Ltd.	China (Chongqing)	December 2000
Yokogawa Electric China Co., Ltd.	China (Suzhou)	May 2004
Yokogawa Electric Asia Pte. Ltd.	Singapore	October 1998
Yokogawa Engineering Asia Pte. Ltd.	Singapore	August 2001
P.T. Yokogawa Manufacturing Batam	Indonesia	April 2000
Yokogawa Corporation of America	USA	June 2005
Yokogawa Electronics Manufacturing Korea Co., Ltd.	South Korea	December 2004
Yokogawa Philippines, Inc.	Philippines	June 2007
Rota Yokogawa GmbH & Co.KG	Germany	August 2011
Yokogawa Middle East & Africa B.S.C. (c)	Bahrain	June 2013

## Environmental Week

### Yokogawa Electric Corporation

The Yokogawa Environmental Week is undertaken in November of each year, during which time environmental events are held in order to increase employee awareness. We have organized events such as an environmental lecture given by the meteorologist Mr. Tsukasa Yoda; a campaign to promote the so-called "Environmental House-keeping Book" s; the "Photographs of Nature Around Us (plants, animals and other living things)" event, in which Yokogawa employees are invited to share their photos of the living things they've found around them; and a cross-word puzzle event with environmental keywords, among others.



Environmental Week Poster

## Participation in "Five Million GPN Members' Green Purchasing Campaign"

### Yokogawa Electric Corporation

Yokogawa Electric took part in the "Five Million GPN Member Action Campaign" sponsored by the Green Purchasing Network, and advertised the campaign on posters and in the environmental newsletter as a means to call on its employees to take action for that cause.



Green Purchasing Campaign Poster

## 2013 Goals and Achievements

### Goals and Achievements in Fiscal Year 2013

Environmental Policy of the Yokogawa Group	Fiscal Year 2013 (main sites)		Self Evaluation
	Target / Goal	Results	
EMS establishment, maintenance, and improvement	Confirm and achieve the environmental conservation action targets that are closely integrated with our business practices. *1	<ul style="list-style-type: none"> <li>• 139 themes closely integrated with business operations</li> <li>• An internal audits conducted and effective environmental system confirmed</li> </ul>	Good
	Promote 28 useful environmental activities in line with existing business. *2	28 useful environmental activities promoted	
Implementation of environmental education	<ul style="list-style-type: none"> <li>• Provide all employees with basic environmental education that can be applied to activities undertaken on their own initiative. *3</li> <li>• Provide specialized environmental education to those who are engaged in business activities that have a particularly significant impact on the environment. *3</li> </ul>	100% achieved	Good
Legal compliance	Continue with the preventive maintenance and management of wastewater treatment facilities. *2	<ul style="list-style-type: none"> <li>• Requirements (inspected once each year) under the revised Water Pollution Control Act are met unfailingly.</li> <li>• Incident simulation training is conducted.</li> </ul>	Good
	Centralize reporting and notification operations, and establish check mechanisms based on internal audit *2	Relevant operations centralized; check mechanisms established on the basis of internal audits	
Promotion of resource recycling-based management	<b>Reduce energy consumption and CO2 emissions (domestic group companies).</b> Total CO2 emissions: 52,601 t-CO2/year (Reduce emissions by 7% from the average of reference years from 2005 to 2007.)	<b>Reduced energy consumption and CO2 emissions (domestic group companies).</b> Total CO2 emissions: 36,231 t-CO2/year	Good
	<b>Reduce total waste</b> <ul style="list-style-type: none"> <li>• by 36% compared to fiscal year 2003 (486 t/year in total generation) *1</li> <li>• Reduced to 2,719 t/year *2</li> </ul>	<b>Reduce total waste</b> <ul style="list-style-type: none"> <li>• 61% reduction compared to fiscal year 2003 (296 t/year in total generation)</li> <li>• Reduced to 2,654 t/year</li> </ul>	Good
	<b>Resource saving</b> Deploy green production lines and make improvements at 7 lines *2	<b>Resource saving</b> Achieved resource-saving improvements, including on manufacturing lines and for equipment, at 7 lines (Waste reduction, power consumption, system improvement, etc.)	Good

Environmental Policy of the Yokogawa Group	Fiscal Year 2013 (main sites)		Self Evaluation
	Target / Goal	Results	
Minimization of environmental pollutants	Reduce toluene and xylene by 2,970 kg. *2	3,019kg reduction	Good
	Promote lead-free soldering and achieve 100% application in planned products. *2	Application to all planned products achieved	
	Study solutions to the irregularity of black chromate on products with large surface areas. *2	Technical evaluation conducted	
Development of environmentally friendly products	Apply the assessment standards to reduce CO2 emissions of developed products by more than 25%. *1	Registered 7 product models to which the assessment standards are applied, and conducted their design reviews according to the respective schedules.	Good
	Conduct survey of and promote green purchasing *2	Second survey on returnable containers and green purchases conducted for data collection	
Provision of environmental solutions	Increase sales of environmentally friendly products *1	Achieved	Good
Contribution to society through environmental conservation	Promote contributions to society through participation in nature conservation and social and community activities. *1	Participated in community clean-up activities etc.	Good
	Carry out at least 13 social contribution activities. *2	A total of 16 social contribution activities carried out by each factory.	
Disclosure of environmental conservation information	Promote information disclosure and enhance efforts to communicate with communities. *1	Published CSR report, Web edition	Good
	Improve the corporate website and intranet. *2	Updated information posted on the corporate website and intranet.	

Main sites:

Yokogawa Electric Corporation Headquarters & Main Factory and Yokogawa Manufacturing Corporation

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

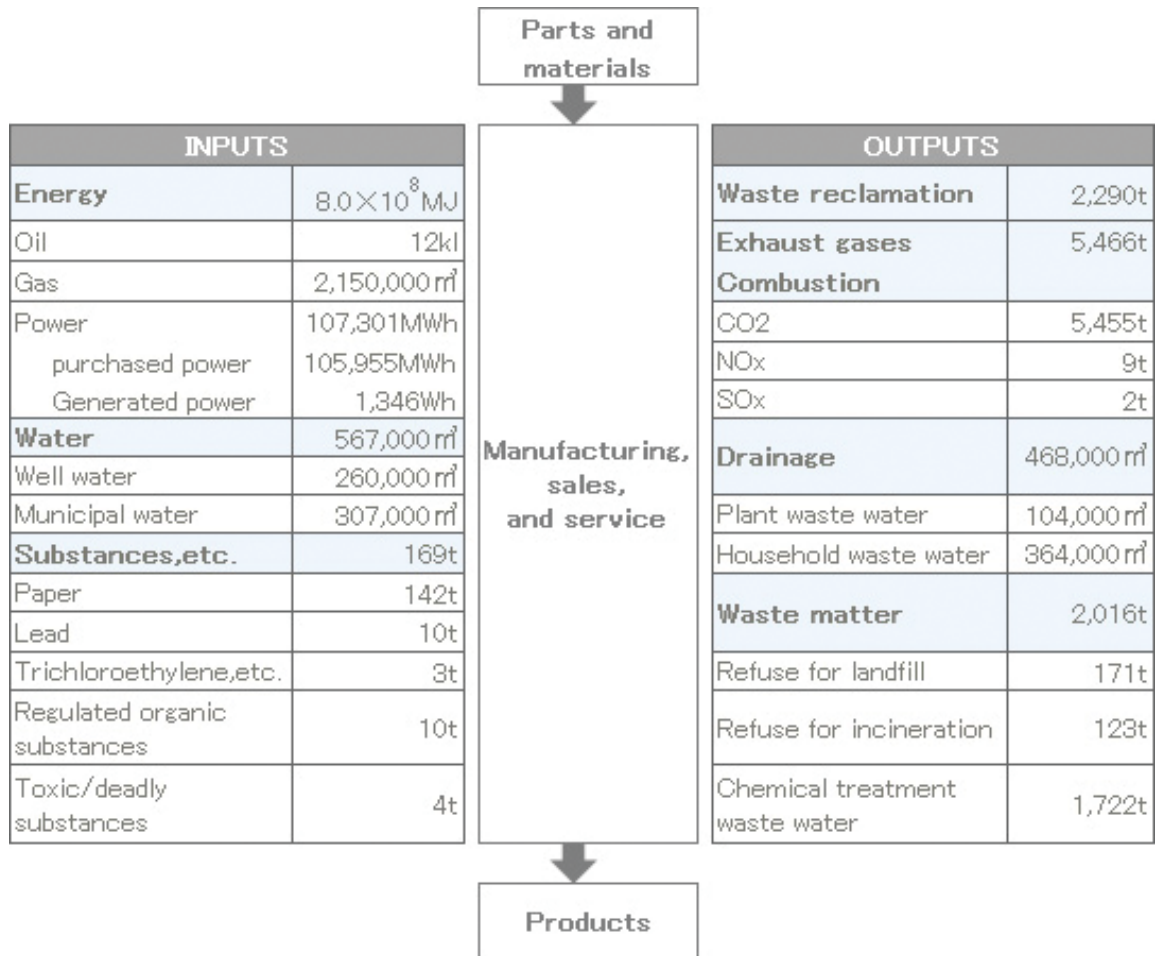
\*2: Yokogawa Manufacturing Corporation

\*3: Common goals

## Environmental Impact

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

### Overview of Environmental Impact



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

## Environmental Accounting

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

### Environmental Conservation Costs

Category	Item	Main Initiatives	Capital Investment	Related Costs
Costs for reducing environmental impact of factories (areas of operation)	Pollution prevention costs	Monitoring and measurement	56.4	71.5
	Global environmental conservation costs	Energy savings	307.8	172.5
	Resource recycling costs	Minimize generation of waste matter	1.6	194.1
Costs for reducing environmental impact of procurement and logistics		Green procurement	0	27.0
Environmental conservation costs in EMS activities		EMS updates, education	0	190.0
Environmental conservation costs in community activities		Environmental events	0	27.3
Costs for correcting damage to the environment		Soil recovery	0	0
Total			365.8	682.8

(Millions of yen)

### Environmental Conservation Effects

Category	Description of Effect (unit)	FY2012	FY2013	Effect
Resource expenditure	Total amount of energy consumed (10 <sup>8</sup> MJ)	8	8	0
	Total amount of water resources consumed (km <sup>3</sup> )	611	567	-44
Global warming prevention	CO <sub>2</sub> emissions (t)	4,814	5,455	+641
	CO <sub>2</sub> emissions on unit sales (t-CO <sub>2</sub> /100 million yen)	1.6	2.0	+0.4
Air pollution	NO <sub>x</sub> emissions (t)	8	9	+1
	SO <sub>x</sub> emissions (t)	2	2	0



## Economic Effects of Environmental Conservation Measures - Intrinsic Effect

Description of Effect	Amount
Reduction in expenditure due to recycling (sale of valuable resources, etc.)	76.9
Reduction in expenditures due to energy savings (power, etc.)	6.0
Reduction in expenditures due to resource savings (reduced use of paper and water, etc.)	3.2
Total	86.1

(Millions of yen)

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

## Environmental Activity Data of the Past 5 years

### Total CO2 emissions

Total CO2 Emission and unit-sales-basis CO2 emissions for Yokogawa Group  
data coverage: Yokogawa companies in Japan and outside Japan

#### Total CO2 emissions

	2009	2010	2011	2012	2013
In Japan	48,580	48,079	42,044	41,266	36,231
Outside Japan	21,789	23,962	27,122	27,722	28,877
Total	70,369	72,041	69,166	68,988	65,108

(unit: t-CO2)

#### Unit basis (Unit-sales-basis CO2 emissions)

	2009	2010	2011	2012	2013
In Japan	17.65	16.71	14.56	15.37	12.90
Outside Japan	10.79	11.47	11.97	11.07	9.16
Total	14.75	14.5	13.42	13.29	10.92

(unit: t-CO2/100M¥)

### Water consumption volume

Water consumption volume and sales-unit-basis water consumption for Yokogawa group  
data coverage: Yokogawa companies in Japan and outside Japan

#### Amount consumed, Total emissions

		2009	2010	2011	2012	2013
In Japan	Amount consumed	592	599	555	541	444
	Total emissions	536	521	404	355	382
Outside Japan	Amount consumed	147	179	178	228	239
	Total emissions	120	131	90	108	101
Total	Amount consumed	739	778	733	769	683
	Total emissions	656	652	494	463	483

(unit: kilo m<sup>3</sup>)

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

	2009	2010	2011	2012	2013
In Japan	0.22	0.21	0.19	0.20	0.16
Outside Japan	0.07	0.09	0.08	0.09	0.08
Total	0.15	0.16	0.14	0.15	0.11

(unit: kilo m<sup>3</sup>/100M¥)

**Waste emissions**

Total waste emissions and unit-sales-basis waste emissions for Yokogawa group  
data coverage: Yokogawa companies in Japan and outside Japan

**Total waste emissions and final waste volume**

		2009	2010	2011	2012	2013
In Japan	Total emissions	3,927	4,536	4,356	3,796	3,355
	Final waste volume	164	156	170	166	159
Outside Japan	Total emissions	1,302	1,845	2,350	2,547	1,788
	Final waste volume	401	449	405	851	782
Total	Total emissions	5,229	6,381	6,706	6,343	5,143
	Final waste volume	565	605	575	1,017	941

(unit: ton)

**Unit-basis** (Unit-sales-basis total waste emissions)

	2009	2010	2011	2012	2013
In Japan	1.43	1.58	1.51	1.41	1.19
Outside Japan	0.64	0.88	1.04	1.02	0.57
Total	1.1	1.28	1.30	1.22	0.86

(unit: ton/100M¥)

**Natural energy**

Natural energy consumption for Yokogawa group  
data coverage: Yokogawa Electric and Yokogawa manufacturing

	2009	2010	2011	2012	2013
Solar power generation	89,607	81,601	89,066	96,856	86,442
Green electricity certificates	300,000	300,000	300,000	300,000	300,000

(unit: kWh)

## Environmentally Friendly Products

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".

Some of the evaluated products are LCA-labeled, and the LCA results are disclosed. Products carrying the LCA label provide outstanding environmental features that meet various standards and help customers reduce the environmental burden.

⇒ 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 establish design and machining and assembly methods that incorporate long-life design, energy conservation design, resource conservation design, and materials and parts selection guidelines, as well as standards for the recycling and disposal of products.

### (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

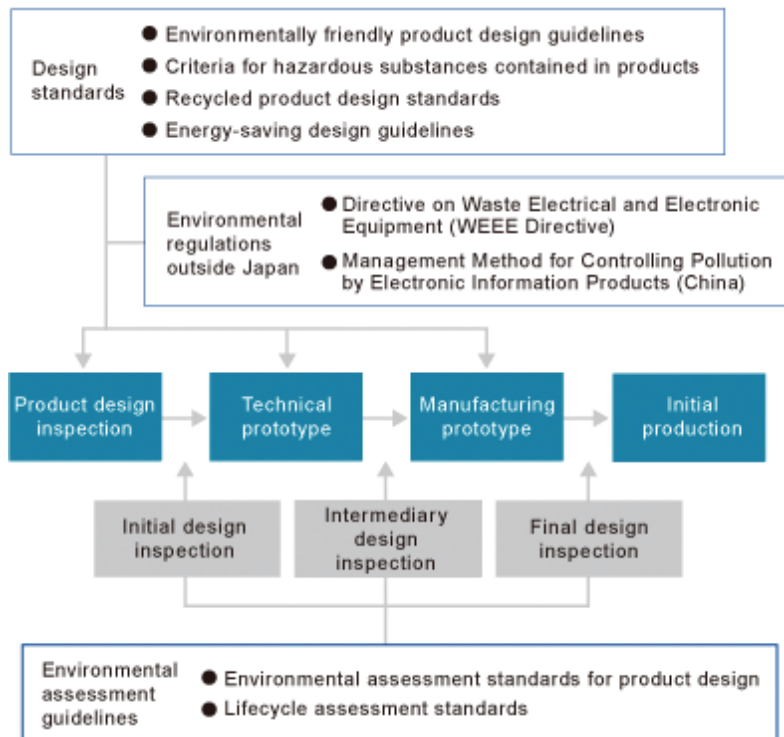
### (5) Recycled Product Design Standards

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 energy is to be conserved in the manufacturing and product use stages. They introduce energy conservation design technologies for products and manufacturing.

## Environmentally Friendly Design and Assessment Standards



## Environmental Assessment Standards for Product Design

(1) When	Initial design inspection/intermediate design inspection/ final design inspection
(2) Assessment items	Twenty-nine items in eight fields; 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.
(3) Evaluation criteria	Score is zero points if legal regulations are not satisfied, four points if legal regulations are satisfied and an improvement of 30% or more is achieved, three points for an improvement of 15% or more, two points for an improvement of 5% or more, and one point for an improvement of less than 5%.
(4) Pass/fail judgment criteria	In order to pass, there must be no assessment items with a score of zero points, and the total score must be greater than that of the old model. A "failed" judgment is given if any of the assessment items has a score of zero points or if the total score is the same as or lower than that of the old model. The improvement guidelines target an improvement of 25% or more, and more than anything seek to incorporate environmental-burden reduction into design.

## 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.

## LCA Label

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



- Reference** The "Environmentally Friendly" label will be attached to our products that meet Yokogawa's environmental assessment standards for product design and that are designed with greater environmental consideration than our previous products or those of competitors.

⇒ **Environmentally Friendly Products**

### 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
Prosafe-RS Model System	Safety Instrumented System
STARDOM Model System	Network-based Control Systems
EJA110E	Pressure Transmitter (DPharp EJA-E Series)
CSU-X1	Confocal scanner unit
AQ 1200A/B/C	AQ1200 MFT-OTDR Optical Time Domain Reflectometer
AQ2200-131	AQ2200-131 Grid TLS Module
DLM4038/DLM4058	Mixed Signal Oscilloscope DLM4000 Series
WT310/WT310HC	WT300 Series Digital Power Meters
WT332/WT333/	
2558A	AC Voltage Current Standard
AQ6370D	AQ6370D OPTICAL SPECTRUM ANALYZER

## Global Warming Prevention

The "Yokogawa Group Green Promotion Committee" was formed to step up our efforts to preserve the global environment and enhance our programs to counter global warming. We have set CO2 emission reduction targets for the Yokogawa Group (Japan) for the phases 2010-2014, 2015-2019 and 2020, and are implementing emission reduction programs to achieve those targets. Our ongoing CO2 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 CO2 emissions.

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.)

### CO2 Emission Reduction Targets and Performance for Yokogawa Group (Japan)

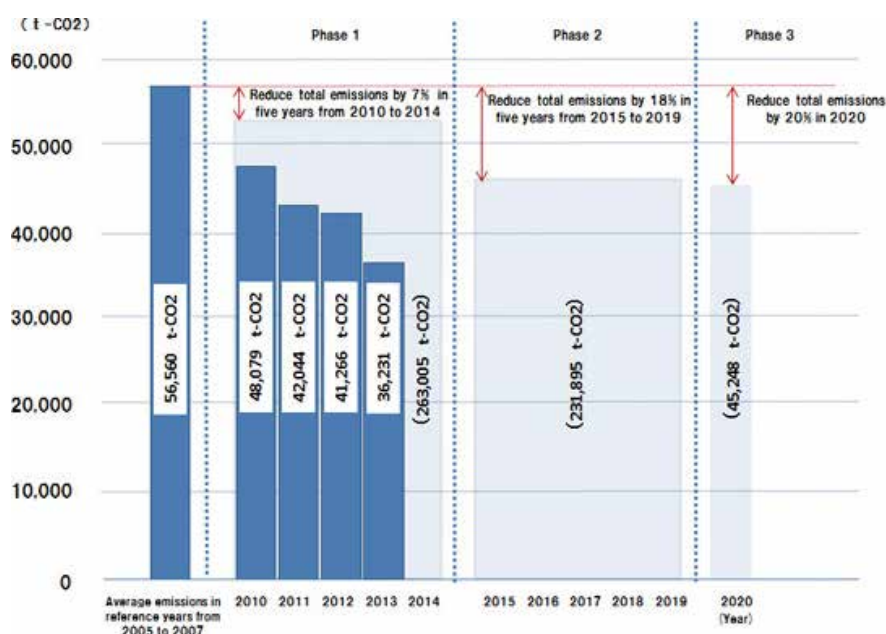
The Yokogawa Group (Japan) has set its CO2 emission reduction targets toward 2020, and is directing its efforts to achieve the targets. By using the annual average of emissions measured over the 2005 to 2007 period as the baseline (56,560 tons of CO2), we have set different reduction targets for three phases with the ultimate objective of achieving the goal set for 2020. 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 CO2, with an annual average of 52,601 tons of CO2)
- 2015 to 2019 period: An 18% reduction in total emissions  
(231,895 tons of CO2, with an annual average of 46,379 tons of CO2)
- 2020: 20% reduction  
(45,248 tons of CO2)

The Yokogawa Group (Japan) produced 36,231t-CO2 of carbon dioxide emissions in 2013, achieving its CO2 emission reduction target. Overseas, each of our group companies overseas sets its voluntary reduction target and is working to achieve the target.



Graph of CO2 Emission Reduction Targets and Performance for Yokogawa Group (Japan)



## Scope 3 CO2 Emissions

In addition to the direct CO2 emissions generated from our use of fuels and manufacturing processes (Scope 1) and indirect CO2 emissions generated through the use of purchased electricity, heat and other sources of energy (Scope 2), we also track and calculate other indirect CO2 emissions (Scope 3).

		Category	Emissions (t-CO2)
Upstream	1	Purchased Goods & Services	—
	2	Capital Goods	—
	3	Fuel- and Energy Related Activities Not Included in Scope 1 or 2	1,218
	4	Transportation & Distribution	—
	5	Waste Generated in Operations	21
	6	Business Travel	4,795
	7	Employee Commuting	2,990
	8	Leased Assets	—
Downstream	9	Transportation & Distribution	—
	10	Processing of Sold Products	—
	11	Use of Sold Products	—
	12	End-of-Life Treatment of Sold Products	—
	13	Leased Assets	—
	14	Franchises	—
	15	Investments	—
<b>Total</b>			<b>9,024</b>

(The above figures apply to Yokogawa Electric and Yokogawa Solution Service.)  
 (-) indicates that the calculation method is still being examined or the figure is not included.

General Guidelines on Supply Chain GHG Emission Accounting  
 (Ministry of Economy, Trade and Industry and the Ministry of the Environment)

## Increasing Work Efficiency with Improved Cleaning Processes: Reduction in Electricity Consumption

### Yokogawa Manufacturing, Kofu Factory

A part manufacturing line includes several cleaning processes in which different chemicals, solvents, pure water and other cleaning fluids are used to remove cutting oil and other greasy materials from the products being manufactured.

Alkaline cleaning fluids were previously used in the cleaning processes, but they could cause foaming and required several rinsing and drying steps. Given the above, only the essential functions were kept in order to improve cleaning quality, increase production, reduce equipment space requirements and cut down on electricity use, etc. Moreover, new equipment has been introduced that uses alkaline ionized water as a cleaning fluid in an effort to improve the cleaning processes.

Alkaline ionized water excels at minimizing the degradation of the cleaning fluid and in degreasing while cleaning. Ultrasonic cleaning in a vacuum state with alkaline ionized water makes it possible to eliminate the multiple cleaning processes that previously had to be repeated prior to finishing. This has resulted in improved cleaning quality and a shorter completion time, thus simplifying the cleaning processes and cutting down on energy use. Specifically, electricity consumption is reduced by 888 Kwh annually. Yokogawa Manufacturing's Kofu Factory will further simplify its multiple cleaning processes in an effort to increase efficiency.



Keiji Ishimori and Tsutomu Okuda  
Manufacturing Engineering Dev. Dept., Kofu Factory  
Yokogawa Manufacturing

#### Comment by a Person in Charge:

Effectiveness evaluation is important in introducing new equipment. We adjust the angle, installation location and other orientation parameters of the product being cleaned, and fabricate special jigs in order to maximize the cleaning effect.

One of the quality requirements for our products is the absence of oil (there should be no or little oil on the surface), which is an essential quality attribute that must be achieved on the manufacturing shop floor. The recent improvements made to the cleaning processes have enabled us to completely eliminate even fine particles, thus helping to improve quality and mitigate our environmental impact.

## Improving the Way to Keep Contaminated Air Away from the Control Panel: Effective Use of Clean Room Air Conditioning to Reduce Electricity Use

### Yokogawa Manufacturing, Ome Factory

The manufacture of printed boards includes surface treatment processes such as the etching line on which hydrochloric acid is used.

Rust could form and spread if the metal parts of the control panels for various surface treatment equipment are exposed to the air containing hydrochloric acid or other types of acid. To stop the air within the factory from entering the control panels and thereby prevent corrosion of the panels, a compressor or similar equipment must be used constantly to feed clean air to the control panels and increase the pressure within them. Air must be supplied 24 hours to the control panels with a compressor, resulting in the consumption of a great amount of electricity.

To address this issue, Yokogawa Manufacturing's Ome Factory has made improvements so that a portion of the conditioned air being used for clean rooms (air being discarded) is fed directly into the control panels. This has eliminated the need to supply air with the use of a compressor, thus achieving an annual reduction of approximately 24 Mwh in electricity use.



Kazuhide Hirose and Hiroshi Murayama  
Ome Factory PWB Manufacturing and  
Mounting Dept. Yokogawa Manufacturing

**Comment by a Person in Charge:**

Because the conditioned air used in clean rooms provides outstanding cleanliness, we plan to use it for other types of equipment as well.

Four compressors are currently in service for the entire factory, but we are trying to reduce the electricity usage to the equivalent of three compressors. Moreover, the use of very clean air has resulted in improved quality.

## Upgrading Steam Lines : Reduced Use of City Gas Through Heat Insulation

### Yokogawa Manufacturing, Ome Factory

Steam from the city gas boiler is used on some production lines, but pipes can radiate and waste heat. As a means of cutting down on the use of city gas, additional insulation has been provided to all steam pipes in order to minimize their heat radiation. This effort will result in an annual reduction of approximately 440m<sup>3</sup> in city gas consumption.



Additional insulation on pipes

## Group Companies' Efforts to Cut Down on Electricity Use with Equipment Introduction and Other Changes

### Yokogawa Electronics Manufacturing Korea (Korea)

Yokogawa Electronics Manufacturing Korea (YMF-K) implemented a power conservation project during fiscal 2013 as part of its corporate-wide effort to conserve energy.

In implementing the project, improvement ideas were proposed by employees. The entire YMF-K staff engaged in a variety of power conservation activities, including the modification and reorganization of facilities. The efforts made by the project members and all other employees for the entire year have resulted in a 10% reduction in annual electricity use.

### Yokogawa Corporation of America (United States)

Yokogawa Corporation of America (YCA) has installed an electric car charging facility for employees at its Newnan office. Moreover, an additional effort has been made to add timers to all lighting in the Sugarland office as part of its corporate-wide effort to cut down on electricity use.

## Rota Yokogawa GmbH & Co. KG (Germany)

In an effort to cut down on electricity use, Rota Yokogawa GmbH & Co. KG (RYG) has introduced a variety of new equipment such as an energy monitoring system, energy-efficient CNC lathe and energy-saving light bulbs.

## On-Site Investigation of Designated Energy Management Factories

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### Yokogawa Electric, Komagane Factory Yokogawa Manufacturing, Kofu Factory

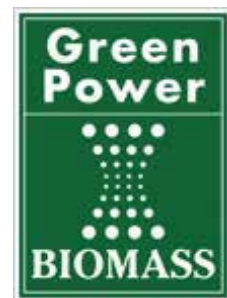
Yokogawa Electric's Komagane Factory and Yokogawa Manufacturing's Kofu Factory are designated under the Energy Saving Act to manage their own energy use. These two factories have undergone the fiscal 2013 on-site investigation conducted for Designated Energy Management Factories. Both factories were highly rated, earning scores of at least 90 points.

## Introduction of the "Green Power Certificate" System

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### Yokogawa Electric

A portion of the electricity used by the headquarters building of Yokogawa Electric come from "Green Power" harnessed through "biomass power generation"(300,000 kWh/year).



Biomass  
power generation

## Chemical Substance Reduction, Waste Reduction and Resource Conservation

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 as well as to conserve resources. 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.

### Reducing Chemical Use with the Elimination of Cleaning Processes: Significant Reduction in the Use of Hydrochloric Acid and Water

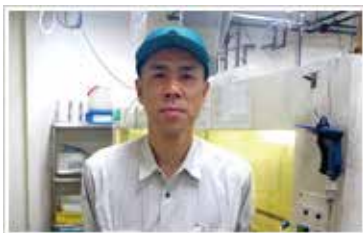
#### Yokogawa Manufacturing Kofu Factory

Cut parts undergo several cleaning processes before moving on to the subsequent manufacturing process.

Yokogawa Manufacturing's Kofu Factory was able to eliminate the cleaning processes that were previously required, doing so by changing the type of cutting oil used at the cutting station, which is followed by the cleaning processes, and by introducing a high-precision, high-pressure steam cleaner. The previous cleaning processes included alkaline cleaning for oil removal, water rinsing and neutralization with hydrochloric acid. Chemicals such as alkaline degreaser and hydrochloric acid as well as pure water for rinsing were used in the above processes. The elimination of these cleaning processes has produced a reduction in the annual use of alkaline degreaser, hydrochloric acid and water by approximately eight tons, three tons and 1,000 tons, respectively.

#### The past cleaning process

Past Cleaning Process								
Alkali cleaning (Oil cleaning)	Collection vessel	Ultrasonic cleaning	Rinsing bath (overflow)	Hydrochloric acid (Neutralization process)	Collection vessel	Collection vessel	Rinsing bath (Overflow)	Hot water cleaning



Yoshihiro Koshimizu  
Kofu Factory Manufacturing Dept. 1  
Yokogawa Manufacturing

#### Comment by a Person in Charge:

We are in charge of various cleaning processes. With the improvement made to the cutting station, which comes before our cleaning processes, we have been able to eliminate the cleaning processes that were previously required. Our initial goal was to reduce hydrochloric acid and other chemicals, but the elimination of the cleaning processes has also made it possible to cut down on the amount of pure water used in the collection vessel and rinsing bath. For other cleaning processes that follow subsequent manufacturing processes, efforts are underway to simplify or eliminate them. The ongoing efforts to increase work efficiency are helping to reduce the use of chemicals and water.

(This initiative is also featured in "Water resource conservation" page.)

## Reducing Hydrochloric Acid Use from 60 Tons to 30 Tons Annually with an Improvement for the Etchant Control System

### Yokogawa Manufacturing Ome Factory

The manufacture of printed boards includes surface treatment processes such as the etching line on which hydrochloric acid is used.

Various surface treatment equipment units are controlled based on parameters in the control panel. Chemicals and water are added into the equipment accordingly. Air is fed into the control panel 24 hours in order to prevent corrosion. However, the temperature of the air differs between summer and winter, which could cause an error in the etchant density setting in the control panel and allow more chemical (hydrochloric acid) to be added than needed. To ensure proper control of the air temperature, an improvement was made so that the conditioned air from the room air conditioner is fed into the control panel. This has ensured that the air temperature remains consistent throughout the year, which prevents errors in the etchant density and enables proper control of the solution being added. The above improvement has resulted in an annual reduction of hydrochloric acid use by 50%, from approximately 60 tons to 30 tons.

## Replacing Thinner with a Toluene-Free Type: Reduction in Toluene Use

### Yokogawa Manufacturing Kofu Factory

The amounts of toluene and xylene used throughout Yokogawa Manufacturing's Kofu Factory continue to decline annually, thanks to a range of measures implemented during the respective years. Approximately 1.5 tons of toluene was used during fiscal 2013. The factory uses about 53 types of coatings for application to its products, and has so far replaced at least 30 types of coatings with those with low or no toluene or xylene.

The Kofu Factory has recently worked to replace the thinner used for cleaning jigs/tools with a toluene-free formulation. A type of lubricant that is applied mainly to the threaded portions of products adheres to the brush, table and other jigs/tools. The thinner formerly used to clean and remove such lubricant contains 58% toluene, thus accounting for a large part of toluene use by the Kofu Factory. By replacing the thinner with a toluene-free one, the factory will be able to reduce toluene use by about 1 ton from the annual toluene use of about 1.5 tons during fiscal 2013.



Katsuhiko Ono and Yoshinobu Shimura  
Kofu Factory Manufacturing Dept. 1  
Yokogawa Manufacturing

#### Comment by a Person in Charge:

At the Kofu Factory, we have worked to replace the coatings with those with low or no toluene or xylene.

We have thus far replaced more than half of the coating types, but it is difficult to replace some of the existing coatings with alternative ones while making sure that product quality is maintained. As we look at the whole picture of the issue, we are progressively changing the amounts and types of coatings and replacing the coatings with high toluene/xylene content with alternative ones.

## Reduction of toluene and xylene by changes to the toluene and xylene-free paint

### Yokogawa Manufacturing Komine Factory

The majority of toluene and xylene used in the Komine factory is those contained in the paint used in paint line. We have carried out measures to reduce the amount of toluene and xylene every year. Because we use different paint by products, we have implemented the toluene and xylene-free paint for products of large production volume.

This time, by changing to the toluene and xylene-free paint, we reduced toluene of approximately 190kg and xylene of approximately 12kg contained in the paint which were used more than 1 ton a year.



Eiji Murayama and Masaki Nakamura  
Komine Manufacturing Dept.  
Yokogawa Manufacturing

#### **Comment by a Person in Charge:**

The reduction of toluene and xylene has been our long struggle. Including the switch to powder paint, we are making effort on changes to the paint that does not contain toluene and xylene by products. We have repeated technical assessment on drying and degree of adhesion so that we realized the change of paints. We will continue to expand the change to the low toluene and xylene paint and toluene and xylene-free paint.

## 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.

## Fiscal Year 2013 PRTR Data

Factory	Factory substance	Amount used (kg)	Amount emitted (kg)				Amount transferred (kg)	
			Air	Public water area	Soil	Landfill	Sewage system	Outside site
Yokogawa Electric Komagane Factory	Hydrogen fluoride and its water-soluble salt	1,111	0	110	0	0	0	1,000
	Ferric chloride	2,008	0	0	0	0	0	0
Yokogawa Manufacturing Kofu Factory	Toluene	1,240	1,100	0	0	0	0	120
	Lead	2,043	0	0	0	0	0	0
	Ferric chloride	4,144	0	0	0	0	0	0
Yokogawa Manufacturing Komine Factory	Toluene	1,215	753	0	0	0	0	462
Yokogawa Manufacturing Ome Factory	Ferric Chloride	5,084	0	0	0	0	0	0
	Water-soluble copper salt (except complex salts)	14,091	0	0	0	0	20	14,000
	1,3,5-Tris(2,3-epoxypropyl)-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione	1,561	0	0	0	0	13	920
	Formaldehyde	1,985	340	0	0	0	10	1,300
	2-aminoethanol	1,660	170	0	0	0	10	1,100
	Peroxydisulfuric acid water-soluble salt	4,525	0	0	0	0	15	790



## Water Resource Conservation

The Yokogawa Group is implementing resource-saving/energy-saving measures and initiatives designed to effectively use our limited water resource. 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.

### Reducing Chemical Use with the Elimination of Cleaning Processes: Significant Reduction in the Use of Hydrochloric Acid and Water

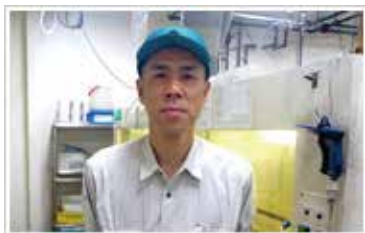
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Yoshihiro Koshimizu  
Kofu Factory Manufacturing Dept. 1  
Yokogawa Manufacturing

#### Comment by a Person in Charge:

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(This initiative is also featured in "Chemical Substance Reduction, Waste Reduction and Resource Conservation" page.)

## Saving Water in Air-Conditioning and Water-Supply Systems

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### Yokogawa Electric Asia Pte. Ltd. (Singapore)

Yokogawa Electric Asia Pte. Ltd. (YAS) uses recycled water for the cooling tower that supplies to the air-conditioning equipment covering the head office building. The water taps in the building are also flow-rate controlled to prevent the excessive use of water and thereby conserve water.

## Adopting Water-Saving Systems for Office Water Supplies

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### Yokogawa Electric Corporation (Japan)

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

## Promoting Biodiversity

In line with the environmental policy of the Yokogawa Group, all group companies are working to preserve biodiversity.

### "Tokyo Greenship Action": A Collaborative Effort Between Local NPO and Residents to Protect the Woodlands

#### Yokogawa Electric

Since 2009, Yokogawa has been a participant in "Tokyo Greenship Action," a collaborative effort among the city of Tokyo, local NPOs, and businesses to conserve and revive the woodlands in the hills of Tokyo, and contribute to their biodiversity.



Tokyo Greenship Action

### Participation in the Tenryu River Water Quality Survey

#### Yokogawa Electric Komagane Factory

At our Komagane factory, situated along the Tenryu River in Nagano Prefecture, employees and their families are participating in the "Family Water Quality Survey" organized by the Nagano Techno Foundation. The survey was initiated under two themes: "Restoring the Tenryu River where we can swim" and "Building a recycling-oriented society". Every participating family uses a simple water quality analyzer called "Pack Test" to study the water quality at a nearby area of the river and submit a report.



Water Quality Survey List

### Protecting Large Trees in the City of Musashino

#### Yokogawa Electric

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

The 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.

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

## Cleanup at the Uchikawa dam

### Yokogawa Electric

The employees of Yokogawa's Kanazawa Office participated in the cleanup activities around the Uchikawa Dam, which were sponsored by the Kanawaza Water and Energy Center. This cleanup event is designed to "preserve water environments" through the cleanup of the Uchikawa Dam, which is an important local water supply and an "area designated for preservation of water source."



Cleanup at the Uchikawa dam

## Activities to protect the woods of the forests in Kanazawa

### Yokogawa Electric

The employees of Yokogawa's Kanazawa Office participated in the activities to protect the woods in Kanazawa City's "Forests of the Kanazawa Techno Park" (approximately 2 hectares) .

The activities are organized as part of the community contribution and environmental preservation programs, in which underbrush is cleared and trees are thinned, paths are maintained, among others.



Activities to protect the woods of the forests

## Occupational Safety and Health

In 2006, the Yokogawa Group established the "Yokogawa Group Safety and Health Policy" and began implementing the Occupational Safety and Health Management System (OSHMS). Since 2007, the Yokogawa Group has implemented the OSHMS in each of its companies to promote a higher level of safety and health by making continual improvements through risk assessment and other methods.

 Yokogawa Group Occupational Safety and Health Policy Statement

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

Recognizing that "occupational safety and health are a basic responsibility of the management," the Yokogawa Group implements OSHMS to ensure the occupational safety and health of all of its employees and its sub-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.

The Yokogawa Group companies in and outside Japan share the same occupational safety and health objectives for all workers, including subcontractors. Moreover, 26 Yokogawa Group companies have acquired certifications in compliance with OHSAS18001\*1, which is internationally recognized.

\*1. Occupational Health and Safety Assessment Series. A certification standard for Occupational Safety and Health Management System.



Safety month at  
Yokogawa Saudi Arabia office



Life-saving Drill at  
Yokogawa Sichuan Instrument

 FY2014 Yokogawa Group Occupational Safety and Health Objectives

### Yokogawa Global QHS (Quality, Health & Safety) Meeting

Yokogawa 3rd Global OSH Meeting was organized with participants from Yokogawa group companies at Yokogawa Tokyo on November 6 & 7, 2013.

In the meeting, responsible section of OSHMS provided OSH status in Yokogawa group companies and expectations.

Then the participated affiliates (in China, Europe, Korea, Middle East, Russia, SE. Asia and US) presented OSH activities in the region and discussed on kinds of OSH KPI status, common OSH training materials and Global Audit Check-sheets.

The meeting was ended successfully.



Discussion at the meeting

## Occupational Safety and Health Education

To ensure that the "Yokogawa Group Occupational Safety and Health Policy" is adhered to across the entire Yokogawa Group, the "Safety and Health Handbook," which contains basic information and day-to-day rules regarding occupational safety and health, has been created and distributed to all staff and engineers at every Yokogawa Group company. To maintain and improve all levels of activities throughout, persons in charge, committee members and newly appointed personnel are educated through safety and health 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.

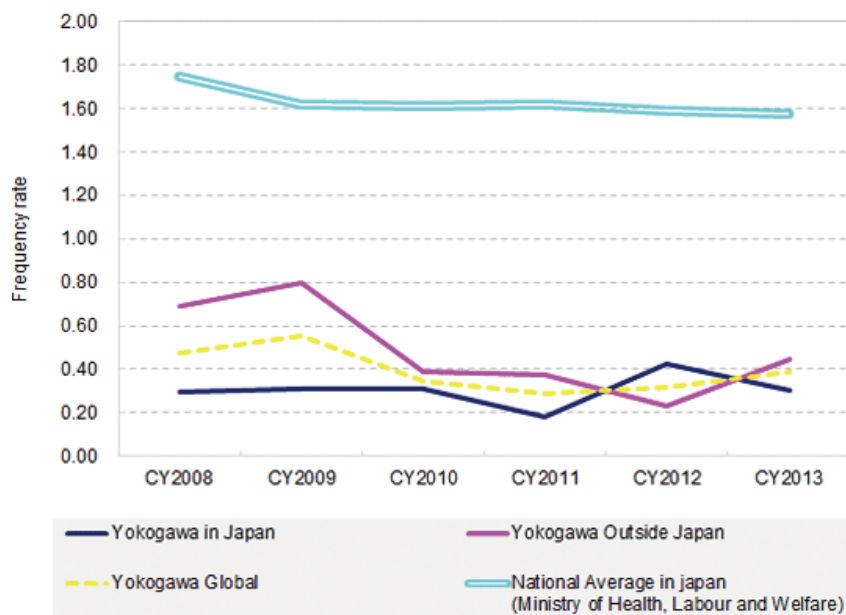
## Occupational Incident and Accident Data

The Yokogawa Group has been gathering and analyzing information on occupational accidents experienced by Group companies in and outside Japan on a quarterly basis since 2007, when it introduced OSHMS, as part of an effort to eliminate/reduce occupational accidents and improve the quality of activities thus implemented.

A few major account customers, globally active, require their vendor OSH monitoring. Yokogawa provides Occupational Incident Index of Yokogawa group companies quarterly for their analysis.

Yokogawa group companies being responsible for their projects, conduct project safety program including Risk Assessments at various milestones of project engineering and services.

Frequency Rate of Occupational Accident



Frequency Rate of Occupational Accident=  
 (No. of workers having occupational accident with lost days / total working hours) × 1,000,000

# Yokogawa Group OSH Policy Statement

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

- Establish and promote an occupational safety and health management system
- Observe the laws and regulations relating to occupational safety and health
- Seek to eliminate or lessen risks to occupational safety and health 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 safety and health 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 safety and health system.

**Hajime Watanabe**

Vice President

Audit & Compliance Headquarters

Yokogawa Electric Corporation

(April 2014)

# FY2014 Yokogawa Group OSH Objectives

## **1. Establishment, Maintenance and Improvement of occupational safety and health management system (OSHMS) is ;**

- (1) To make continual improvements in OSH activities, through implementation of PDCA cycle and sharing OSH activity information
- (2) To conduct risk assessments in all Yokogawa Group companies, for eliminating or reducing risks
- (3) To maintain OSH at its current level or improve it by carrying out OSHMS audits

## **2. Observation of laws and regulations**

Observe all OSH related laws and regulations

## **3. Elimination or reduction of occupational accidents**

## **4. Conduct of OSH activities is ;**

- (1) To maintain and/or improve OSH control level
- (2) To build awareness of traffic safety
- (3) To provide OSH training
- (4) To conduct fire and evacuation drills

## **5. Disclosure of OSH information**

Communicate openly with Group personnel and the local community about OSH activities and results

**Hajime Watanabe**

Vice President

Audit & Compliance Headquarters

Yokogawa Electric Corporation

(April 2014)



## Customers and Quality First

### Activities to Improve Customer Satisfaction

We at Yokogawa strive to achieve greater customer satisfaction at our offices and factories around the world.

Yokogawa Electric (Japan) has conducted a customer satisfaction survey since 2008 on all customers who have received a product seminar at our training centers in Japan. In 2013, 1,229 questionnaires were collected, and the results were compiled and analyzed. Concurrently, a system was put in place to share the survey responses and comments among all employees on the company's intranet in order to help improve product functions and services.

The Group companies are also obtaining feedback from customers through e-mailed surveys, customer visits, mailed questionnaires and conversations at product seminars, so as to provide more satisfactory products and services.

### Quality First Approach

Since the establishment, we have implemented our quality management system across all processes, as we are convinced that Quality First Approach is the basis of customer satisfaction. All the main Group companies have attained ISO9001 certification starting with Yokogawa Electric in 1992 and working on delivery of the same quality worldwide.

We have continuously valued our customers' feedback to develop satisfactory products, and have gained a high level of satisfaction from our customers with respect to the accuracy and functionality of our products.

### 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.

## Supplier Relations

### 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 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.

The Yokogawa Group Supply Chain CSR Guideline, which is compliant with JEITA\*, was created and published. In addition, Yokogawa's basic procurement policy, which is summarized in three points, is used as a set of principles to guide its every day operations. A network of responsible parties of Yokogawa Group's sales and procurement processes was built as a foundation for all supply chain CSR activities.

### 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.

#### ⇒ Yokogawa Group Supply Chain CSR Guideline

### 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

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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 added a new 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 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

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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.

⇒ **Yokogawa Group Green Procurement Guidelines**

## Initiatives on Conflict Minerals

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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.

We at the Yokogawa Group consider it a group-wide challenge to cut off such funding of armed forces at every point and stage in our supply chain, and thus we aim to become conflict-free by not using conflict minerals in any of our products.

To meet the aforementioned challenge, the Yokogawa Group has carried out the following efforts:

- Dedicated structures were put in place in the relevant departments in 2011, through which we took 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.
- As of 2013, we are cooperating with our suppliers to investigate the use of conflictive minerals in certain products. Additionally, our procured gold and tantalum investigated in 2013 has been confirmed as conflict-free.

The Yokogawa Group plans to implement the following initiatives as we move forward:

- Conduct individual investigations on the parts and processed components used in our products by reflecting the requests and other requirements of our customers.
- If the findings of an investigation raise a concern about the investigated mineral as a possible funding source for armed forces, we will take immediate action to stop using the mineral.

In July 2013 we added our requirements on conflict minerals to the "Yokogawa Group Supply Chain CSR Guidelines" and the guidelines are freely available and accessible to the public on our website.

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

\*JEITA: Japan Electronics and Information Technology Industries Association

## Employees

### Developing and Supporting Global-Minded and Diversified Human Resources

Employees are valuable as Yokogawa's "Human Assets".

We at Yokogawa have established a compliance guideline that requires us to comply with the international standards on human rights; consider the different geographical and cultural backgrounds of other employees when working with them; refrain from discrimination on the basis of race, nationality, sex, religion, age or disability of any kind; and drive home these principles to all our Group companies.



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. Thus we capitalize upon the skills of our employees, with their diverse ethnic backgrounds and nationalities, so that we can make decisions from a global perspective.

With the purpose of enhancing business competitiveness, including the creation of new value, we will continue to actively promote the success of female employees through such supporting programs as seminars for female employees to raise their awareness of career development and seminars to change manager's consciousness.

We also provide our employees with various opportunities to help develop their careers, promote a healthful work-life balance, and actively employ persons with disabilities.

⇒ **Human Rights**

⇒ **Career Development and Work Life Balance**

⇒ **Initiatives on Global Talent Development**

⇒ **Employment of People with Disabilities**

### Occupational Safety and Health

In 2006, the Yokogawa Group established the "Yokogawa Group Health and Safety Policy" and began implementing the Occupational Safety and Health Management System (OSHMS). Since 2007, the Yokogawa Group has implemented the OSHMS in each of its companies to promote a higher level of safety and health by making continual improvements through risk assessment and other methods.

⇒ **Occupational Safety and Health**

## Human Rights

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.

### Philosophy

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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.

⇒ **Corporate Philosophy**

### Standards of Business Conduct

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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.

⇒ **Standards of Business Conduct**

### Yokogawa Group Management Standards

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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**

Thanks to our fair and impartial personnel system operating under the basic policy of the Yokogawa Group, each employee is afforded equal opportunities in hiring, placement, promotion, pay rises, training, etc. An employee in a position of management or leadership must have a basic knowledge of the labor laws of the country in question, and must have a thorough knowledge of labor contracts and work regulations. It is important that he or she work on the basis of this knowledge to maintain a workplace free of unfair discrimination, engaging in ample communication with his or her subordinates and ensuring that day-to-day personnel management goes smoothly.

**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.

## 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 Black Economic Empowerment (BEE) 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. YMA-SA has increased the percentage of such employees in these years. (2% increase in 2012 and 1% increase in 2013)

## Attention to human rights in the supply chain

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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.

⇒ **Supply Chain Responsibility**

## UN Global Compact

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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.

⇒ **UN Global Compact Index**

## ISO 26000

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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.



## Career Development and Work Life Balance

Career development for the growth of both employees and organization

Career development support to realize "the right person on the right job"

We carry out HR measures to realize "the right person on the right job" so that each employee is able to perform at their full capacity.

We have created a system where the employees are able to notify their short-term and mid-term career plans to their managers and also promote their acquired skills and experiences to the managers of other department. These systems allow the employees to autonomously build their own careers.

Under the job opportunity system, employees are able to submit their career plans without approval from his/her superiors. Such a system helps to expedite the speedy deployment of the resources especially under the circumstances where there is a manpower requirement due to new business or project.

Additionally, with the goal of providing opportunities for its Japanese employees to develop global competence more quickly, Yokogawa has established a program to send young and mid-career workers to its group companies abroad on expatriate assignments for about a year. We are doing this as part of our effort to enhance human capital development. Furthermore, in order to develop a global mindset within Yokogawa Electric, we are bringing more employees from our group companies abroad to work in our Japanese facilities.

"Refresh & Challenge" Program to Support Employees Work-Life Balance

We provide a program to help the employees design their career and life when they reach a turning point in his or her career. This is an awareness program for managing health and for building future life plan.

As the program name "Refresh & Challenge" suggests, participants are given a fixed number of off days after the training for refreshing themselves physically and mentally. The program provides ideas to support the employees in setting new goals.



"Refresh & Challenge" Seminar at  
Yokogawa Electric

In particular, in the training provided for employees at the age of 45, participants are able to take 15 days of leave from work. They can utilize this leave freely. Some of the participants join the training course to obtain qualifications and others review their future plans on private life and career. These 15 days of leave help the employees to regain their motivation and energy.

Improving Employee Motivation by Promoting Work-Life Balance

We make an effort to provide a work environment where the employees are able to gain satisfaction while maintaining a good balance between their work and private life.

For instance, the employees are able to utilize work hours for child-care and nursing of elderly family members, in additions to the number hours specified under the statutory benefit. We have also introduced a system to provide financial support to our employees who are raising children. Employees under such conditions are able to receive 100,000 yen annually per children.

Many of our employees, both male and female, are making full use of other company supports such as flexible working hours or paid maternal leave. These systems are helping increase employees' motivation.

In September 2006, we opened a day care center near Yokogawa Headquarters.

The center is contributing to the local communities as it can be utilized by both the employees of Yokogawa and the people living in the vicinities.

In fiscal year 2007, Yokogawa was certified by the Chief of the Tokyo Labor Bureau as an Enterprise Supporting Balanced Work and Family life.

## Employee Assistance Program (EAP)

### Promotion of EAP for a healthy, rewarding company life

We have introduced the Employee Assistance Program (EAP), which is designed to help employees more fully demonstrate their skills instead of being too stressed to conduct their work as effectively as possible.

Yokogawa's EAP, in particular, provides a comprehensive set of mental-health support programs, such as those for the prevention and early detection of stress, early care and treatment, and assistance for returning to work after a leave of absence for recuperation. 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	Conduct company-wide training programs (based on voluntary participation) and level-specific training programs to promote the 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.
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 concern including career issues.

## Initiatives on Global Talent Development

### Development as global talent

Yokogawa Electric has launched a variety of programs to empower its employees to become competent individuals who will play vital roles in the global business arena.

Yokogawa Electric has, since 2011, offered the GTDP (Global Talent Development Program GTDP), in which many Japanese employees have participated. GTDP allows the participant to develop the ability to accomplish logical communication, make presentations and negotiate with others, with the use of the English language. The GTDP participants also attend seminars to study what value a Yokogawa employee should have and to equip themselves with the ability to understand historical, cultural and other differences from a global perspective.

Moreover, Yokogawa Electric offers a one-month overseas on-the-job training program for all new employees and a one-year overseas secondment program for the training of young employees in an effort to provide more opportunities for them to acquire international work experience.

The effort to enhance human capital development doesn't stop in Japan but is extended to the group companies outside Japan. The GLDP (Global Leadership Development Program) is designed for employees in managerial and higher positions in Japan and elsewhere. GLDP promotes the leadership development essential for global leaders and enhances the effort to send the employees of the group companies outside Japan to work at Yokogawa Electric in Japan. Such expatriation is expected to give the expatriates from the group companies outside Japan an opportunity to learn new skills. Additionally, it helps improve the practical English language skills of people in the workplaces of Japan that receive expatriates while integrating diverse values and thus bringing about new ideas and methods.

### Enhancing Support for Engineers on Deputation

Yokogawa's increasing volume of global project has been supported by our engineers across our organization. Some engineers leave their home countries on deputation in order to work on-site for long-term as is required for their roles and the length of their involvement in a project. The Engagement Guidelines for Engineers on Deputation-which contain specific points and rules for engineers on deputation-are applied at all group companies.

The guidelines define the shared role and responsibilities of managers at both Home and Host Companies. It also defines avenues for consultation and communication when there are issues and concerns that need to be addressed. Home and Host Managers shall maintain constant communication with an engineer for the purpose of monitoring work progress, the level of induction, adaptability and well-being of the individual engineer. The Home Manager shall also keep engineers posted on events and news of the Home consistently reinforcing close tie between the engineer and the Home Company. A Host Manager must be able to handle grievances and the welfare of the employee by maintaining close communication with the employee. The Host Manager shall also try to make the deputation a learning and growing opportunity for engineers by actively supporting them in their development.

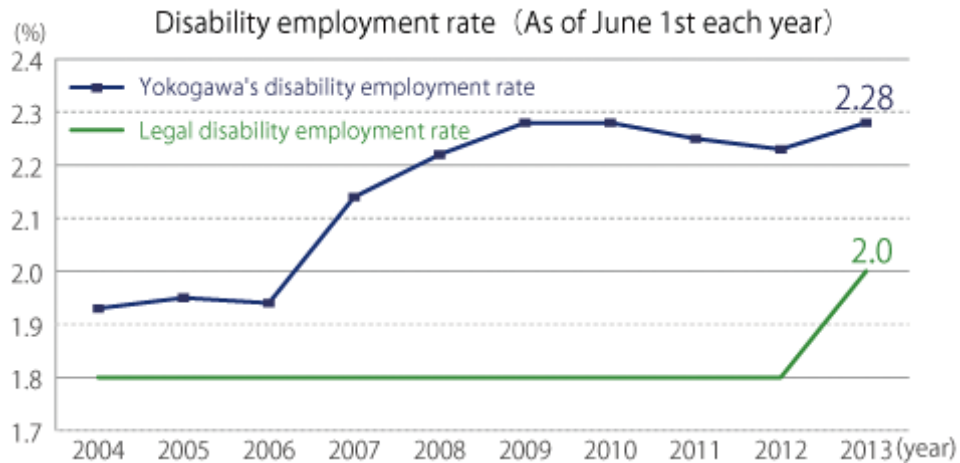
## Employment of People with Disabilities

### Employing and developing people with disabilities

Yokogawa has hired persons with disabilities since the establishment of its Normalization Project in 1992. We continue to meet the legal employment rate for such individuals, and our skilled employees with disabilities are engaged in all areas of our business, from engineering and manufacturing to administration.

The Yokogawa Group promotes the employment of disabled persons, with each company hiring and utilizing people facing different physical and mental challenges who can better contribute to the specific business of the company. Over the past several years, the ratio of employees with disabilities within the Group has, to a significant degree, exceeded the legal requirement.

Yokogawa will continue to provide employment and career opportunities for people with disabilities.



## Community Involvement

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 corporate 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.

⇒ **The Yokogawa Philosophy**

⇒ **Standards of Business Conduct for the Yokogawa Group**



Finding solutions to social issues,  
Helping build a sustainable society

### Corporate citizenship by Yokogawa group companies

The following are some of the community programs in which our group companies are involved:



## Corporate Citizenship in Japan

### Yokogawa Science Classes Help Develop Next-Generation Talent

Yokogawa Science Classes addressing the fundamental technologies that are the basis for Yokogawa's business-optics, electrics, radio, etc.

- ⇒ **Yokogawa Science Classes**
- ⇒ **Musashino Science Festa**

### Collaborative Efforts with External Organizations to Solve Social Issues

Yokogawa is committed to fulfilling its responsibilities as a global company by finding solutions to various social issues.

- ⇒ **An Initiative to Conserve Undeveloped Woodlands**
- ⇒ **Promoting the employment of the people with disabilities**
- ⇒ **Educational Support for Developing Countries through the Recycling of Used Books and CDs**
- ⇒ **Sending School Bags across the Sea**
- ⇒ **Eat Healthy and Donate at the Employee Cafeteria**
- ⇒ **Supporting Vaccination with PET Bottle Caps**
- ⇒ **Collaborating with the Community on Disaster Preparedness**
- ⇒ **Participating in Local Cleanup Drives near Factories**
- ⇒ **Improving the Health of Mothers and Children in Indonesia  
(to Achieve the United Nations Millennium Development Goals)**

### Corporate Citizenship by Employee

As members of their community, our employees are engaged in various programs designed to support school education as well as to help children with disabilities and students to be self-supporting and participate in society.

- ⇒ **Support for Events at a Hospital, Senior Citizens' Nursing Home and Elementary School**
- ⇒ **Support for Classes, Events and Recreational Activities at Special Schools**

## Yokogawa Science Classes Help Develop Next-Generation Talent

Yokogawa Electric offers the Yokogawa Science Classes for fifth and sixth graders as well as their parents and families, with the goal of helping develop next-generation talent who are interested in science and technology. Our curriculum capitalizes on Yokogawa's technology and human resource in the areas of measurement, control and information, and currently includes six programs, which are provided mainly within the facilities of Yokogawa's premises.

### List of Programs

- ▶ **Becoming a Discerner of Light: Let's Make an Illuminance Meter**
- ▶ **Communicating Via Light: Let's Make an Optical Transceiver**
- ▶ **Capturing Radio Waves: Let's Make a Germanium Radio and Catch Radio Waves**
- ▶ **Forming a Temperature Investigation Team: Let's Make a Radiation Thermometer**
- ▶ **Discovering the Secrets of Light: Let's Make a Rainbow Flashlight**
- ▶ **Measuring Electricity with a Magnet: Let's Make a Meter to Check the Battery**

### Becoming a Discerner of Light: Let's Make an Illuminance Meter

In our daily life, we use a variety of light sources such as fluorescent lights, LEDs, not to mention the sun and flames. In this program, the participants will study the brightness of the light sources found around us and learn how the brightness can be compared.

The class instructor will be a Yokogawa employee volunteer. The instructor first presents explanations by using Yokogawa Electric's weather instruments, which work on the same principle as an illuminance meter (sunshine recorder and solarimeter). The employee volunteer then explains the principle of the illuminance meter and how the meter works, and instructs the children individually to make their own illuminance meters with the use of solder.

Once the illuminance meters are completed, the participants will become "discerners" of light and measure the brightness of various light sources around them. Measuring the brightness of a lighting device will not only spark children's interest in the brightness of light sources but will also give them an opportunity to learn that an understanding of brightness is useful for energy conservation.



Making an Illuminance meter

#### Comments by Children

- Before I could only sense the difference in brightness. This device is useful for comparing brightness.
- I'll go home and measure the brightness of my desk lamp.

## Communicating Via Light: Let's Make an Optical Transceiver

This class unveils the mechanism of "optical communication," which has become well known through the Internet.

A Yokogawa employee volunteer first explains how the use of light makes it possible to send a large amount of information accurately and quickly, and then describes how the "optical transceiver" works. The optical transceiver allows for the transfer of light and sound, which are the basic elements in the transfer of information. Children will then make their own "optical transceivers" by soldering light-emitting diodes, phototransistors, earphone and other components to a substrate. The children will run communication experiments with one another and will use an optical fiber to confirm, with their own eyes, that light that doesn't usually bend can actually bend.

Subsequently, using Yokogawa's digital oscilloscope, the class participants will observe the optical transceiver's signal, which is usually invisible, and thus deepen the understanding of how the sound is transmitted. Moreover, the class introduces the participants to some "engineering jobs." By sharing stories about the struggles experienced in product development, the instructor teaches how important it is to be creative while thinking hard and carefully.



Communicating on trial each other

### Comments by Children

- I want to send not just sound but also images in the experiment.
- The instructor was excellent at explaining things, and I really enjoyed the class.

## Capturing Radio Waves: Let's Make a Germanium Radio and Catch Radio Waves

What are radio waves? How can you listen to only one radio station out of so many different radio waves being broadcast? This class zeroes in on discovering the "wonders" of radio waves.

A Yokogawa employee volunteer first explains how radio waves work as well as their frequencies. Then, the children will make their own "germanium radios" that allow them to listen to an AM radio broadcast without the need for batteries. All class participants go out to the ground located next to the classroom and try the radios they've made in order to see if they can really listen to a radio broadcast on them. When they actually hear a radio broadcast, the excitement can be seen on the faces of the children as well as their parents and families.

Subsequently, using Yokogawa's digital oscilloscope, the participants will observe the radio signals being received, which are usually invisible, and thus deepen their understanding of how radio waves work.





Trial listening on the field

#### Comments by Children

- I want to hear larger sound in the experiment.
- I want to make a device that produces radio waves.
- The instructor was nice, and I enjoyed the class.

## Forming a Temperature Investigation Team: Let's Make a Radiation Thermometer

In daily life, we often describe "temperature" by using sensory phrases such as, "It looks hot," or "It looks cold." You might burn yourself with hot water, but needless to say, we need to use a variety of temperature settings when we cook or store food. This class introduces the participants to temperature. While the temperature can be measured with a number of different methods, a Yokogawa employee volunteer explains how "the temperature can be measured without the thermometer even touching the object to be measured."

Children attending the class will make their own "radiation thermometers," which enable contact-free temperature measurement. The employee volunteer instructs the children individually to make their radiation thermometers by soldering to the substrate a semiconductor temperature sensor, an indicator to provide a numerical indication of the "temperature," etc

Once the radiation thermometers are completed, the children will use their thermometers to measure the temperature of hot water bottles of different temperature levels and find out which bottles are hot and cold without touching the bottles .



Radiation Thermometer

#### Comments by Children

- I could really measure the temperature without the thermometer even touching the surface.
- I'll go home and measure the temperature of things in my house.

## Discovering the Secrets of Light: Let's Make a Rainbow Flashlight

What "color" is the sunlight? Why does a rainbow that appears after a rain shower have different "colors?" This class zeroes in on discovering the secrets of "light."

A Yokogawa employee volunteer explains how rainbows work as well as the three primary colors of light, and then instructs the children individually to make their own "rainbow flashlights"--which can produce the three primary colors of light--by soldering the red, blue and green light-emitting diodes to the substrate. The children will carry the flashlights they've made and bring them into a dark room,

where they will see for themselves how the color of the light changes according to different combinations of the intensities of the respective lights being emitted by the diodes of three colors in the light source. The children will try and make specified colors.



Observing display of a note PC

#### Comments by Children

- It was able to make many different colors. It was a lot of fun
- Next time, I want to make a television.
- I learned how to use a soldering iron.

## Measuring Electricity with a Magnet: Let's Make a Meter to Check the Battery

Why does a magnet stick to a metal surface? Based on the theme of "Measuring Electricity with a Magnet," this class zeroes in on discovering the wonders of the magnet.

A Yokogawa employee volunteer first explains how electricity works and describes the properties of an electromagnet. The children will then make their own "meters" that work with the force of an electromagnet. The class will run an experiment in which an electric current is allowed to flow through the coil of an electromagnet to see that the number of staples sticking to the coil varies by the level of electric current. Through this experiment, the children will learn the relationship between the electric current and the force. The meter will be completed by soldering a switch, resistor and other components and clipping the coil to the substrate, respectively. The children will connect their meters to new and old batteries and see for themselves how the needle moves according to the voltage of the battery being measured.



Meter completed by children

#### Comments by Children

- It was fun going through the steps to get different pieces of iron to stick to each other.
- The instructor in our group was great at teaching us what we should learn.
- I want to do this again.

## Comments by Parents/Families

The parents and families of the children who attended the classes made the following comments:

### Comments by Parents/Families:

- What was taught in the class was excellent. I particularly liked the introduction to what they actually do on the job.
- I liked how the class taught us to be creative by taking examples of what they actually do on the job.
- We didn't just make a device. We were also able to learn how the device works and hear first-person accounts, and that was very helpful for parents and families too.
- It's the kind of activity that takes advantage of this company's characteristics. I hope they'll keep doing this.
- The employee volunteer was meticulous and careful in teaching.

## Participation in Musashino Science Festa

Each year Yokogawa participates in the "Musashino Science Festa," an annual event held by the city of Musashino. It's a comprehensive event for scientific experimentation in which elementary and junior high school teachers, businesses, volunteer organizations, etc., in the city set up booths to exhibit their experimentation. There are approximately 1,000 visitors to the event each year.

The theme of Yokogawa's booth was "Let's 'See' the Sound." Visitors to our booth observed what their voices looked like, using a hand-made microphone amplifier and oscilloscope.

The children seemed really interested as they watched the waveform change according to the loudness of their voices and the frequency, or pitch, of the sound. We recorded the musical scale of each visitor's voice for the range of an octave and printed it out so that the visitor could take it home. Yokogawa staff, who participated in the event as volunteer staff, enjoyed themselves as they instructed the visitors how to observe their voices using the oscilloscope.



Observing child's own voice  
on the oscilloscope

## Collaborative Efforts with External Organizations to Solve Social Issues

Yokogawa, in collaboration with external organizations, has made efforts to solve increasing social issues and revitalize community environments.

### "Tokyo Greenship Action": An Initiative to Conserve Undeveloped Woodlands in Collaboration with Regional NPOs and Citizens

Yokogawa has, since 2009, been a member of the "Tokyo Greenship Action," a collaborative initiative by the Tokyo Metropolitan Government, regional NPOs and corporations aimed at conserving/regenerating undeveloped woodlands and copses on the hills of Tokyo and thereby contributing to biodiversity.

One of the areas covered by this initiative is the landscape conservation area in Tatemachi, Hachioji City (spanning 24,392 square meters), a familiar conservation area surrounded by houses on the Tama hills in Hachioji. Fireflies thrive along a clear stream that runs through this conservation area. Local volunteer groups regularly organize weeding and bush-thinning operations in order to regenerate the natural environment.

The area used to be undeveloped woodland, which was richly endowed with nature and well taken care of. However, years of neglect made it an abandoned forest where trees were never planted, thinned or trimmed. Tokyo Greenship Action organizes weeding, dead-tree trimming/organization operations and tree planting on an ongoing basis in order to preserve the beautiful landscape of this hilly copse and nurture the area's rich biodiversity.

Yokogawa participated in a program arranged by Tokyo Greenship Action in 2013 as it did in the previous year. Employees of our group companies, totaling 19 individuals from 10 families, worked with the members of NPO Green Support Hachioji and employees of Ebara Corporation to trim the thickets and cut down large trees to thin the forest. In the evening, the participants attended a lecture given by a local expert on the ecology of fireflies, and then observed fireflies along the stream that runs through the conservation area.



Tokyo Greenship Action

## Promoting the employment of the people with disabilities

Yokogawa, in addition to promoting the employment of the people with disabilities by its group companies, collaborates with NPO Japan SELP Center to engage in the following activities to provide more work opportunities in local communities.

### Kofu Factory Purchasing Waste Cloths (Used for Maintaining Machines) from an Employment Support Service Hiring the People with Disabilities

Yokogawa Manufacturing's Kofu Factory has, since April 2010, purchased 150kg of waste cloths (used to wipe off oil, impurities and other dirt from factory machines) every month from an employment support service that hires disabled persons.

The waste cloths thus purchased consist of material recycled from old clothes and fabrics, which means that their production does not require any resource or energy and does not produce CO2 emissions.

By purchasing reused waste cloths from this service provider, we help people with disabilities to obtain work. Thus, our purchases contribute to the conservation of the global environment.



Purchased waste cloths are used for cleaning in the factory



Producing waste cloths

### Outsourcing the Production of Envelopes for Notices of Annual General Meetings of Shareholders and Resolutions to a Sheltered Workshop

Beginning with the 2010 Annual General Meeting of Shareholders, we have outsourced the production of envelopes for meeting notices and other share-related documents to a sheltered workshop that hires disabled persons.



Produced envelopes for notices of annual general meetings of shareholders



Producing envelope at a workshop

From the 2012 Annual General Meeting of Shareholders, we initiated the distribution of cookies produced by the "A Box of Cookies Makes You Fall in Love with Miyagi" Project--a group formed by seven factories employing disabled persons in Miyagi Prefecture, which was hit by the Great East Japan Earthquake--to the attending shareholders as take-home gifts.



Producing cookies

### Installing Welfare Vending Machines Whose Receipts Are Partially Donated to Help Persons with Disabilities Find Employment

Yokogawa, in September 2008, installed one SELP (Support of Employment, Living and Participation) each on the premises of its Musashino City Facility in Tokyo and a nearby location. Moreover, since 2009 Yokogawa has installed SELP vending machines at the factories of its group companies in Akiruno City, Ome City and Tachikawa City in Tokyo, as well as in Kofu City and Uenohara City in Yamanashi Prefecture. When one purchases a drink from one of these vending machines, a portion of the money goes to NPO Japan SELP Center to help persons with disabilities obtain employment.



Welfare vending machine

Regular vending machines and SELP vending machine are positioned side by side on the premises of the head-office factory. Receipts from the SELP vending machine have increased by approximately 30% compared to the regular vending machines that previously operated in the same place. This is proof that many employees act consciously to contribute to society.

Cumulatively, the donation from the SELP vending machines between 2008 and 2013 amounts to 1,839,820 yen.

### Providing Educational Support for Developing Countries through the Recycling of Used Books and CDs

In November 2009, we joined "Book Magic," a social program designed to utilize books, CDs and DVDs collecting dust for the educational support projects in Afghanistan, Sudan, etc. From the collection boxes installed at 50 locations within the factories in Musashino City, Tokyo and Kofu City, Yamanashi, we have collected 13,880 items and donated 265,942 yen as of March 2013.



Health education for children

### Sending School Bags across the Sea

Yokogawa has, since 2008, contributed to the "Sending School Bags across the Sea" campaign sponsored by Kuraray Co., Ltd. Again in 2013, we collected "memory-packed" used school bags and unwanted stationery from employees and sent them to children in Afghanistan in order to assist in their education. Employees have donated 334 school bags over the past six years.



School bags presented from employees



Children and school bags

## Eat Healthy and Donate at the Employee Cafeteria

Since 2009, the employee cafeteria at Yokogawa Electric's head office has offered a special fund-raising "Hearty Healthy Plate" every Monday. With each plate purchased, 20 yen is donated to NGO JOICFP and sent to developing countries (such as Afghanistan) to help purchase vitamins, seedlings for agricultural crops, etc

Each low-calorie plate is nutritionally balanced to help promote the health of employees as well as to indirectly help the people in developing countries become self-sufficient and self-supporting while promoting the health of pregnant women there.

As of March 2014, we have sold a total of 10,302 Hearty Healthy plates since the start of the program in April 2009, thus donating enough money to purchase 517 orange seedlings as well as folic acid, multi-vitamins and other nutritional supplements for 1,957 pregnant women.



Hearty healthy menu



a woman to receive the medicine at the clinic

## Supporting Vaccination with PET Bottle Caps

Yokogawa's head office and factories have been working on the "Ecocap Movement" since 2008.

Promoted by the Ecocap Movement Association, the program is designed to collect PET bottle caps and sell them as a recyclable resource so that the proceeds can be used to donate vaccines to children worldwide.

At Yokogawa's head office and the factories of group companies in Shibuya Ku, Akiruno City, Ome City and Tachikawa City in Tokyo, Kofu City and Uenohara City in Yamanashi Prefecture, Kamiina County in Nagano, Sagamihara City in Kanagawa Prefecture, Kanazawa City in Ishikawa Prefecture, Kurashiki City in Okayama Prefecture and Hiroshima City in Hiroshima Prefecture, collection boxes for PET bottle caps have been installed and posters and newsletters have been used to urge employee participation. As of March 2014, approximately 3,648,000 caps have been collected and donated to the Ecocap Movement Association. That amount was enough to provide polio vaccines to nearly 6,100 children.

Recycling the bottle caps also helped reduce CO2 emissions by approximately 28,720 kg.

Yokogawa Solution Service has taken the Ecocap Movement nationwide and collected 97,000 caps in 2013 at its factories in addition to those in the locations mentioned above. These caps provided 113 polio vaccines.

## Collaborating with the Community on Disaster Preparedness

Yokogawa and Musashino City, where Yokogawa's head office is located, signed a memorandum in 1996 on cooperation in the event of a major disaster, spelling out the terms under which Yokogawa would cooperate with Musashino City to ensure the safety of citizens. Therefore, in the event of a disaster, Yokogawa will open some areas of its premises to provide water and supplies, among others. In January 2014, Yokogawa Solution Service also signed an agreement with Musashino City on cooperation in the event of a disaster.

In 2006, Yokogawa also signed an agreement with the Musashino Fire Department on support operations in the event of an earthquake. Should an earthquake hit, Yokogawa will cooperate with the Musashino Fire Department to the greatest possible extent in order to help extinguish the fire and rescue the injured. We are also conducting disaster drills with the department on a regular basis.

## Participating in Local Cleanup Drives near Factories

To practice our corporate philosophy of "good corporate citizen," our group companies are regularly participating in the cleanup drives organized by local municipalities and are making voluntary efforts to clean up the areas around their factories. At Yokogawa, we are contributing to the beautification and environmental conservation of the regions in which we operate while fostering deeper friendships and understanding of the communities we serve.

## Blood Donation

Yokogawa Electric Corporation has held blood donation campaigns in its premises to cooperate with Japanese Red Cross Tokyo Metropolitan Blood Center. Since 1966, total of 40,000 volunteer employees have participated in the campaigns actively.



Blood donation at  
Yokogawa Clinical Center



## Improving the Health of Mothers and Children in Indonesia (to Achieve the United Nations Millennium Development Goals)

Yokogawa has, since 2008, worked with Peoples' HOPE Japan (a certified NPO) to improve the health of mothers and children in Serang Regency, Indonesia. Located 80 km west of the capital Jakarta, the province of Serang has many poor villages scattered across its territory. A major problem the region faces is the fact that many pregnant women and babies die as the result of birth complications. Moreover, significant numbers of infants and children under five years of age suffer from malnutrition.

Programs like those organized by Peoples' HOPE Japan are contributing to the achievement of the United Nations Millennium Development Goals.

Millennium Development Goals	
Goal 4 (Reduce child mortality rates)	Reduce to one-thirds, between 1990 and 2015, the under-five mortality rate.
Goal 5 (Improve maternal health)	Reduce to one-fourths, between 1990 and 2015, the maternal mortality rate.

For the specific efforts on improving the health of mothers and children, visit the website of Peoples' HOPE Japan (a certified NPO).

## Corporate Citizenship by Employee

Yokogawa employees engage in a variety of volunteer activities by taking advantage of their special skills and doing what they do as hobbies.

### Support for Events at a Hospital, Senior Citizens' Nursing Home and Elementary School

#### Delightful Basketball Hours

As part of its community contribution program, Yokogawa's basketball team participated in the "Delightful Basketball Hours" event held on April 13, 2013 at the Musashinokan special nursing home for the elderly in the city of Musashino.

#### Concerts at a Hospital and Elementary School

Upon request from a hospital and elementary school, the "Ensemble Yokogawa" orchestra club held concerts for the children, students, patients and nurses.

- A concert was held at the Ome Municipal General Hospital on May 15, 2013.
- A concert was held at the Soyokaze Classroom-  
-Tokyo Metropolitan Komei Special School Annex  
--on February 6, 2014
- A concert was held at Chofu City's Tamagawa Public Elementary School on February 21, 2014.



Concerts at school

### Support for Classes, Events and Recreational Activities at Special Schools

As a member of the "Tokyo Metropolitan Council for Community Education Promotion Network," Yokogawa supports classes provided at special schools and is contracted under the Tokyo Metropolitan Government's "After School Children's Class" program to support recreational activities at special schools, including the "Akiruno Club," which is organized mainly by the PTA of the Tokyo Metropolitan Akiruno Gakuen Special School. The Yokogawa employees work as volunteers and interact with children with disabilities, increasing their awareness as "good citizens."

#### Concert at Special Schools

Upon requests from special schools, the "Ensemble Yokogawa" orchestra club held concerts in front of children, students, parents and families.

- A concert was held at the Tokyo Metropolitan Akiruno Gakuen School on October 29, 2013



### "Let's Play with a Foreign Language!"

Upon request from the "Akiruno Club," Yokogawa employee volunteers held the "Let's Play with a Foreign Language" class on June 15, 2013.



#### Comments by Children

- I knew Halloween, but it was good to be able to know Easter, too.
- I felt happy when I could speak English a little because I have studied English at school.

### "Let's Decorate with Flowers!"

Upon request from the "Akiruno Club," the members of Yokogawa's flower-arranging club held the "Let's Decorate with Flowers" class on July 13, 2013.



#### Comments by Children

- It was my first experience and could enjoy very much.
- Please come again with a beautiful flower next year.

### Tea Ceremony Workshop

Upon request from the "Akiruno Club," the members of Yokogawa's tea ceremony club held the "Enjoy Japanese Culture" class on August 24, 2013.



#### Comments by Children

- I was happy because I could make a tea by myself.
- It was fun and tea was tasty. Please come again.

### Support for the "Opening of Tokyo Metropolitan Nanao Special School's Swimming Pool to the Public"

Upon request from the Tokyo Metropolitan Nanao Special School, Yokogawa's swimming club supported the opening of the school's swimming pool to the public and instructed swimming to students for a total of five days during the period from July 23 through August 27, 2013.



#### Comments by Children

- I got to be able to swim crawl better. It was a fun.
- I got to be able to do flutter kicks vigorously.

## Yokogawa Musashino Football Club's Community Interaction Events for Special Schools

For the second year in a row, the Yokogawa Musashino Football Club (Yokogawa Musashino FC) invited a total of 70 students from Tokyo Metropolitan special schools, through the Association of Tokyo Metropolitan Special School Principals, to the official JFL soccer games, which were held on November 2 and 24, 2013. After each game, a "meet the players" event was held on the soccer field, where the children spent time with the players.



Additionally, upon request from the "Akiruno Club," the Yokogawa Musashino FC held the "Let's Play with Soccer Balls!" event at the Tokyo Metropolitan Akiruno Gakuen Special School on January 25, 2014.



## A Christmas Event Held at a Special School

Yokogawa employee volunteers and the Yokogawa Musashino FC members participated in and helped organize the "Let's All Celebrate Christmas!" event, which was held at the Tokyo Metropolitan Akiruno Gakuen Special School on December 21, 2013. The



Yokogawa Musashino FC helped with the kick-the-target game and with the measurement of shots with a speed gun, while Yokogawa employee volunteers instructed the Akiruno students in hip-hop dance for the event and presented a dance performance with them for the enjoyment of their parents, families and teachers.

## Japanese Calligraphy Workshop

Upon request from the "Akiruno Club," the members of Yokogawa's Japanese calligraphy club held the "Enjoy the Calligraphy!" event on January 25, 2014.



### Comments by Children

- I could draw a portrait of myself.
- It was good because I could draw well.

**"Akiruno Club"**

The "Akiruno Club" is an organization that plans and organizes community and recreational activities designed to help children with disabilities live rich, fulfilling lives and to promote their lifelong learning, and thereby supports such children and their families. The club and its activities were launched in June 2004, primarily by the parents and families of students of Tokyo Metropolitan Akiruno Gakuen School.

The Akiruno Club has, since 2004, been contracted by the Ministry of Education, Culture, Sports, Science and Technology of Japan and the Tokyo Metropolitan Government to sponsor a variety of projects, which are implemented with focus on "providing many programs to choose from," "offering programs not just to the current Akiruno students but also to other children, students and adults in the community" and "creating a community life network."

## Corporate Citizenship in North and South Americas

### Support for the March of Dimes (United States)

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Yokogawa Corporation of America (YCA) participates in the annual charity event, "March for babies," sponsored by the March of Dimes, a nonprofit organization that works to support health care and wellness for mothers and babies. This event is held across the United States in order to help prevent birth defects and other problems.

The YCA employees and their families participated in this charity walk. The funds raised through this event were donated to the March of Dimes.

### Support for Education and Social Welfare (United States)

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Yokogawa Corporation of America (YCA) is making community contributions as a "good corporate citizen" through donations in the areas of education, social welfare and health. Some of these donations have been made under a matching gift program, in which the company matches the employees' charitable contributions.

### Employment of the Disabled and Other Disadvantaged Groups (Brazil)

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Yokogawa America do Sul Ltda. (YSA) has hired young workers and people with disabilities as part of its social inclusion program for the community, and has provided training to help them develop the necessary job skills.

## Corporate Citizenship in Asia

### Sushi-Making Workshop Held to Support Children with Disabilities (Singapore)

Yokogawa Engineering Asia Pte. Ltd. (YEA) has, in partnership with an outside professional party, organized a sushi-making workshop for children who have disabilities and are in need of financial assistance.

Using sushi kits, the children enjoyed making sushi with their families and the volunteer YEA employees who participated in the workshop.

This event has provided the children with an opportunity to experience social activities and learn new things.



### Weekend Foster Family Activity at Social Welfare Home (China)

Yokogawa Electric (Suzhou) dedicated continuously "week-end foster family" activity at the Suzhou Municipal Social Welfare Home. The volunteer employees of Yokogawa Electric (Suzhou) enjoyed with the children at the home, acting as "weekend dads and moms". This activity gave the children, who rarely have a chance to feel the warm affection of parents in their daily lives, an opportunity to enjoy a fun, happy day filled with smiles as a family.



### Visit to a Social Service Facility (China)

Yokogawa Sichuan Instrument (CYS) has visited a social service facility in Liangping County to meet, talk with and boost the spirits of the residents.



### Assistance to the Sichuan earthquake disaster area (China)

Yokogawa Sichuan Instrument (CYS) donated for the rehabilitation and reconstruction assistance to the disaster area of Sichuan earthquake that occurred in April 2013.



## Assistance to the Super Typhoon disaster area (Philippine)

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Yokogawa Engineering Asia Pte. Ltd. (YEA) , Yokogawa Electric International Pte. Ltd. (YEI) and Yokogawa Philippines Inc. (YPI) donated for the rehabilitation and reconstruction assistance to the disaster area of Super typhoon Haiyan that occurred in November 2013.



## Corporate Citizenship in the Middle East and Africa

### Supported human resources development and employment in the community (Bahrain, Saudi Arabia)

Yokogawa Middle East & Africa B.S.C.(C) (YMA) believes the most meaningful activity under CSR is to make a difference at the grassroots level and has collaborated very closely with 8 universities/institutes in the region. Activities range from participating in Career Days, Symposia, Workshops, Seminars and supplementing the University curriculum through practical courses. Summer internship programs are offered to the students. 63 students attended such programs across YMA in 2013.

- Development of the local national workforce is one of the top priorities of the governments in the YMA territory, and YMA has been actively supporting such initiatives. More than 20 such beneficiaries have been enrolled on intensive 1 year/2 year training programs in FY13. Such initiatives to develop local national workforces in Saudi Arabia, U.A.E., Oman and Bahrain were very successful.
- YMA participated in the Career Day events held at several colleges and universities throughout the region. YMA explained the job descriptions of different positions at Yokogawa to thousands of students, who paid great attention to the information covering a variety of career options and professional training programs.
- Yokogawa Saudi Arabia Ltd. (YKSA) participated in a special career day for women in Saudi Arabia along with other companies selected for the privilege from among hundreds of thousands of establishments in Saudi Arabia.
- YMA has maintained a healthy balance and diversity amongst the workforce with much higher ratios than those stipulated by the authorities. A major challenge is to achieve a gender-balance in some of the countries in the region, and YMA overcame this challenge by recruiting 50 Lady Graphic Designers in 2013 which was a major achievement.



### Corporate Social Investment contributed to solve social issues (South Africa)

Yokogawa South Africa (Pty) Ltd. (YMA-SA) donates an amount equal to 1% of net profit after tax each year, doing so in order to help solve issues primarily for historically disadvantaged individuals. The beneficiaries of each such donation are determined so that the money will be spent to assist organizations that support the schooling of black students, relevant events and the growth of businesses in the region.

### Supported Toastmasters (Bahrain)

YMA sponsored the Bahrain Annual Toastmasters Conference which helps members to develop their communication and leadership skills which lead to realization of their potential.

## Attended environmental conservation initiatives in the community (Bahrain, Saudi Arabia, UAE)

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Employees of YMA and its region companies attended the events in which the key message on the importance of not polluting our environment was highlighted.

- "Nature Camp at the Desert" (February 7, 2014)
- "Beach Cleaning at Bahrain" (March 15, 2014)
- "Beach Cleaning at Saudi Arabia" (March 22, 2014)
- "Beach Cleaning at Abu Dhabi" (March 29, 2014)



## Corporate Citizenship in Europe

### Supported education of technical students in community (Germany)

Rota Yokogawa GmbH & Co. KG (RYG) works in cooperation with its neighboring engineering schools to provide technical guidance to their students. RYG offers a variety of programs including manufacturing site tours and vocational training courses, which are guided or instructed by RYG engineers. These programs are attended by many students of the universities, colleges, high schools, vocational technical schools, etc., in the communities, who learn and gain hands-on experience in practical techniques for application to their future careers. Students who demonstrate outstanding performance in the training are then invited to work as interns at RYG and actually engage in the manufacture of products at its plant.

RYG helps educate engineering students through such training.

### Supported Solar Car Team (The Netherlands)

The Solar Team Eindhoven is a solar car team comprising students of the Eindhoven University of Technology (Netherlands). It has developed Stella, the world's first solar-powered, four-seater family car. Yokogawa Europe B.V. (YEF), as a supporting sponsor of Solar Team Eindhoven offers its power analyzer, Scope Corder and mixed signal oscilloscope to help the team develop and improve the performance of the Stella.

### Supported STEM event (Science, Technology, Engineering and Mathematics) (The United Kingdom)

Yokogawa United Kingdom Limited (YEF-GB) has endorsed a STEM (Science, Technology, Engineering and Mathematics) event under the U.K.'s National Science Week program. STEM is one of various science education programs implemented by the United Kingdom. By supporting the STEM event, YEF-GB is helping to develop talent in science, mathematics, technology and engineering.

### Contributed field instruments for training/education of students (Belgium)

Yokogawa Belgium N.V./S.A. (YEF-B) donated field instruments to the Karel de Grote College in Antwerp to assist in the education of its students.

### Supported a Charity Running (The Netherlands)

Yokogawa Europe B.V. (YEF) supports Businessloop Amersfoort, a charitable event in which many citizen runners participate and have fun running. Twenty-three YEF employees participated in the 2013 event, ran 5 to 10 kilometers and assisted in raising funds for cancer treatment foundations.

### Supported United Nations Road Safety Week (Belgium)

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Yokogawa Belgium N.V./S.A. (YEF-B) took part in the "UN Road Safety Week" in May 2013, which is a United Nations initiative to raise the awareness of pedestrian safety and reduce traffic-accident deaths/injuries.

### Supported a Red Cross project intended to reduce infant deaths (The Netherlands)

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Yokogawa Europe B.V. (YEF) made a donation to the "3FM Serious Request" Christmas charity activities hosted by the 3FM radio station. The money raised will be used to support Red Cross projects intended to reduce infant deaths.

### Supported "Fight Against Cancer" (Belgium)

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Yokogawa Belgium N.V./S.A. (YEF-B) made a donation to the "Fight Against Cancer" campaign, a good cause for research against cancer called "Kom op tegen kanker 2014" (for the Dutch speaking part of Belgium) and "Télévie 2013" (for the French speaking part of Belgium)".

## Personnel-related and Social Data of the Past 5 years

### Personnel-related data

#### Number of employees

	2009	2010	2011	2012	2013
Consolidated	19,574	19,334	19,437	19,685	19,837
Non-consolidated	5,713	4,723	4,211	4,928	2,958

As of the end of each fiscal year

#### Disability employment rate

	2009	2010	2011	2012	2013
Yokogawa's disability employment rate	2.28	2.28	2.25	2.23	2.28
Legal disability rate	1.80	1.80	1.80	1.80	2.00

⇒ **Employment of People with Disabilities**

(%)  
As of June 1st each year

#### Frequency rate of occupational accident

Frequency Rate of Occupational Accident = (No. of workers having occupational accident with lost days / total working hours) × 1,000,000

	2009	2010	2011	2012	2013
In Japan	0.31	0.31	0.18	0.42	0.31
Outside Japan	0.80	0.39	0.38	0.23	0.45
Total	0.55	0.35	0.29	0.32	0.39

(%)

### Social data

#### Yokogawa Science Classes

	2009	2010	2011	2012	2012
Number of classes	6	5	5	6	4
Number of children	153	129	115	129	73

⇒ **Yokogawa science classes**

### Visitors for Yokogawa Foundry (special subsidiary for the employment of disabled persons)

	2009	2010	2011	2012	2013
Number of visitors	325 ppl 44 org	371 ppl 51 org	365 ppl 76 org	272 ppl 64 org	259 ppl 42 org

⇒ **Employment of People with Disabilities**

### Welfare vending machine

By purchasing a drink in this vending machine, a part of proceeds is utilized to support employment of people with disabilities through SELP, a Non-profit organization.

	2009	2010	2011	2012	2013
Number of drinks sold from welfare vending machine (bottles)	57,563	105,573	123,732	115,775	97,489
Amounts contributed by welfare vending machine (Yen)	165,500	344,016	462,252	430,304	357,952

In cooperation with Japan SELP center, specified non-profit corporation

### Participants in "Tokyo Greenship Action"

Tokyo metropolitan government has conducted nature conservation activities in cooperation with companies, non-profit organization, etc. in some areas. Companies use these occasion as social contribution activities of companies.

	2009	2010	2011	2012	2013
Participants from Yokogawa	13 ppl 7 family	32 ppl 16 family	27 ppl 12 family	26 ppl 12 family	19 ppl 10 family

Promoted by Environmental Bureau of the Tokyo Metropolitan Government  
In cooperation with Midori Support Hachioji, non-profit organization

### Donation by "Book Magic"

Book Magic is a program that JEN, a non-profit organization, operates. JEN sells book, CD, DVD, etc., donated by companies' employees, to a used book shop and utilize the sales fund to support the education in developing countries.

	2009	2010	2011	2012	2013
Number of CD and book contributed	2,530	5,675	2,386	1,505	1,239
Donation from selling of CD and books (Yen)	54,087	98,717	47,122	28,193	23,467

In cooperation with JEN, specified non-profit corporation

### ■ Donation to "Sending School Bags across the Sea"

"Sending School Bags across the Sea" is a program of international cooperation under which Kuraray Co.,Ltd. send school bags once used by Japanese elementary school students along with letters to children in Afghanistan and other countries.

	2009	2010	2011	2012	2013
Number of donated school bags	41	100	55	39	27

Promoted by Kuraray Co.,Ltd.

### ■ Donation by "Heartfelt Healthy Menu"

In the canteen of Yokogawa Electric headquarters, a special menu with fundraising, "Heartfelt Healthy Menu" is offered every Monday. Per meal, donation of ¥ 20 is presented to developing countries, such as Afghanistan through JOICFP, international cooperation organization. It becomes the money to buy vitamins or seedling crop. Menu is friendly nutritional balance and calories. As well as help to promote health of our employees, we support independence and food self-sufficiency in developing countries, and the promotion of health of expectant mothers.

	2009	2010	2011	2012	2013
Number of "Heartfelt Healthy Menu" eaten at Yokogawa's cafeteria	1,159	1,711	1,851	2,455	2,893
Number of orange seedling contributed by donation	193	285	-	-	-
Number of expectant mother we could contribute to their nutritional support	-	-	370	491	579

In cooperation with Japanese Organization for International Cooperation in Family Planning (JOICFP), international NGO

### ■ Bottle caps to fund vaccines for children in developing world

Used bottle caps collected by companies are brought to designated organizations. The Ecocap Movement office receives the caps when a certain amount has been accumulated, and sells them to recyclers. The money is donated to the Japan Committee for Vaccines for the World's Children (JCV). 800 caps earn 20 yen, which covers, for example, the polio vaccination of one child.

	2009	2010	2011	2012	2013
Number of bottle caps collected	793,984	681,270	742,384	636,650	682,210
Number of polio vaccines contributed	1,273	1,245	1,114	1,032	1,186
Reduced CO2 emissions (kg)	6,245	5,846	5,364	5,013	5,371

In cooperation with Ecocap Movement, non-profit organization, and the Japan Committee for Vaccines for the World's Children (JCV), non-profit organization