



RYODEN

Sustainability Report **2018**



Message from the President



CEO

The financial statements of the Ryoden Corporation Group for Q3 2018 point to a rise in the profits of the Factory Automation System Division, as weakness in the semiconductor manufacturing equipment business was more than offset by the robust growth of the machine tool, moulder and equipment retailing businesses. The Cooling & Heating System Division also recorded positive growth in profits, driven by the strong performance of projects with major contractors particularly in metropolitan areas and the cryogenic industry, as well as the briskness of business with equipment wholesalers. The ICT Facility System Division experienced a substantial increase in profits, thanks to the strong performance of the communication and medical businesses led by ICT network-related equipment, as did the Building System Division, driven by the robust sales of devices for building equipment against the backdrop of the buoyant construction market, particularly in metropolitan areas. The latter division, however, reported an operating loss largely due to the recognition of sales and general administrative expenses for smart-agriculture projects, for which completion has been delayed. Profits increased in the Electronics Division, thanks to the following: in Japan, the solid performance of air-conditioners and other white goods related business, which more than offset the slowdown in industrial equipment related sales in the second half of the year, particularly the factory automation related business for China including machine tools and semiconductor manufacturing equipment; and in both Japan and Europe, the robust development of automobile-related production and business related to advanced driver assistance systems (ADAS). The profits

of overseas subsidiaries declined due to the sluggish sales of auto-related products in North America, despite brisk sales related to the industrial equipment and air-conditioning industries in China in the first half of the year.

Under these circumstances, our Group is committed to staying close to customers and working with our trusted partner companies to provide the best solutions focused on network and monitoring technologies, recognizing the environment as one of our business priorities.

In an effort to promote unique business activities while integrating environmental actions, we are also seeking to globalize our environmental activities by expanding the scope of ISO14001 certification obtained in Japan to overseas subsidiaries. Our Group's ISO14001 certification has already been extended to the subsidiaries in Singapore, Hong Kong, Thailand, China, Taiwan, Germany and the U.S. Our subsidiary in Korea will follow suit.

According to the Nikkei Environmental Management Survey, an objective measure of corporate environmental activities, we maintained our No. 11 spot for the second year in a row. We also participated in the FY 2017 Environmental Reporting Platform Development Pilot Project, implemented by the Ministry of Environment, which led institutional investors to recognize our efforts to reduce greenhouse gas emissions across the whole supply chain. This praise from society attests to the widespread recognition of our Group's environmental management, which we are committed to pursuing.

Finally, we will continue to share environmental and health values with all employees and work to build an enterprise that promotes these values.

Looking back at the global economy in 2018, the continued robustness of the U.S. economy contrasted with the slowing growth of the Chinese economy due to trade friction, while the economy also slowed in Europe. Going forward, the uncertainties in the world economy may increase further, driven by the expected worsening of the trade conflict between the U.S. and China.

Meanwhile, the Japanese economy has followed a mild recovery path as capital investment increased and employment picked up thanks to buoyant corporate profits, but the impact of the Sino-U.S. trade conflict is looming large.

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Editorial Policy

Our environmental philosophy is to pass on the environment in a better condition to future generations with whom we share the global environment.

This report has been drawn up to inform our stakeholders about the Ryoden Corporation Group's CSR activities, including our environmental programs, which may be difficult to gauge from descriptions of our business activities alone.

This report is designed to be easier to read and to deliver our messages more clearly and precisely, by minimizing the use of jargon and technical terms.

We hope this report helps our stakeholders to better understand the Ryoden Corporation Group.



This report uses easy-to-read fonts based on the concept of universal design (UD).



This report is printed on LIMEX, an eco-friendly new material made with limestone.

Feature

Ryoden Corporation Solutions

The Ryoden Corporation Group is working with our trusted partner companies to offer the best solutions to address customer needs and challenges in the field, which are identified through our close relationships with customers. We are committed to meeting the demands of customers and society and helping to conserve the global environment and promote human health by focusing on five areas: EMS and the environment, safety and security, production facilities, industrial refrigeration/heating, and building instrumentation.

EMS and the Environment

We contribute to the improvement of energy efficiency and conservation of the global environment through proposals for photovoltaics and other renewable energy sources, water, air and other environmental sensing, and next-generation energy utilizing hydrogen.

Safety and Security

With the aim of helping to ensure safety and security for people and society through our business activities, we carry out various initiatives including for improving food safety, supporting disaster prevention and reduction, and effective post-disaster medical services in the field.

Production Facilities

We propose total packages of services ranging from efficiency and labor-saving at production sites to production management, traceability, cost reduction, inspection/safety systems and assessment/testing systems, in line with the business profile and needs of customers.

Industrial Refrigeration/Heating

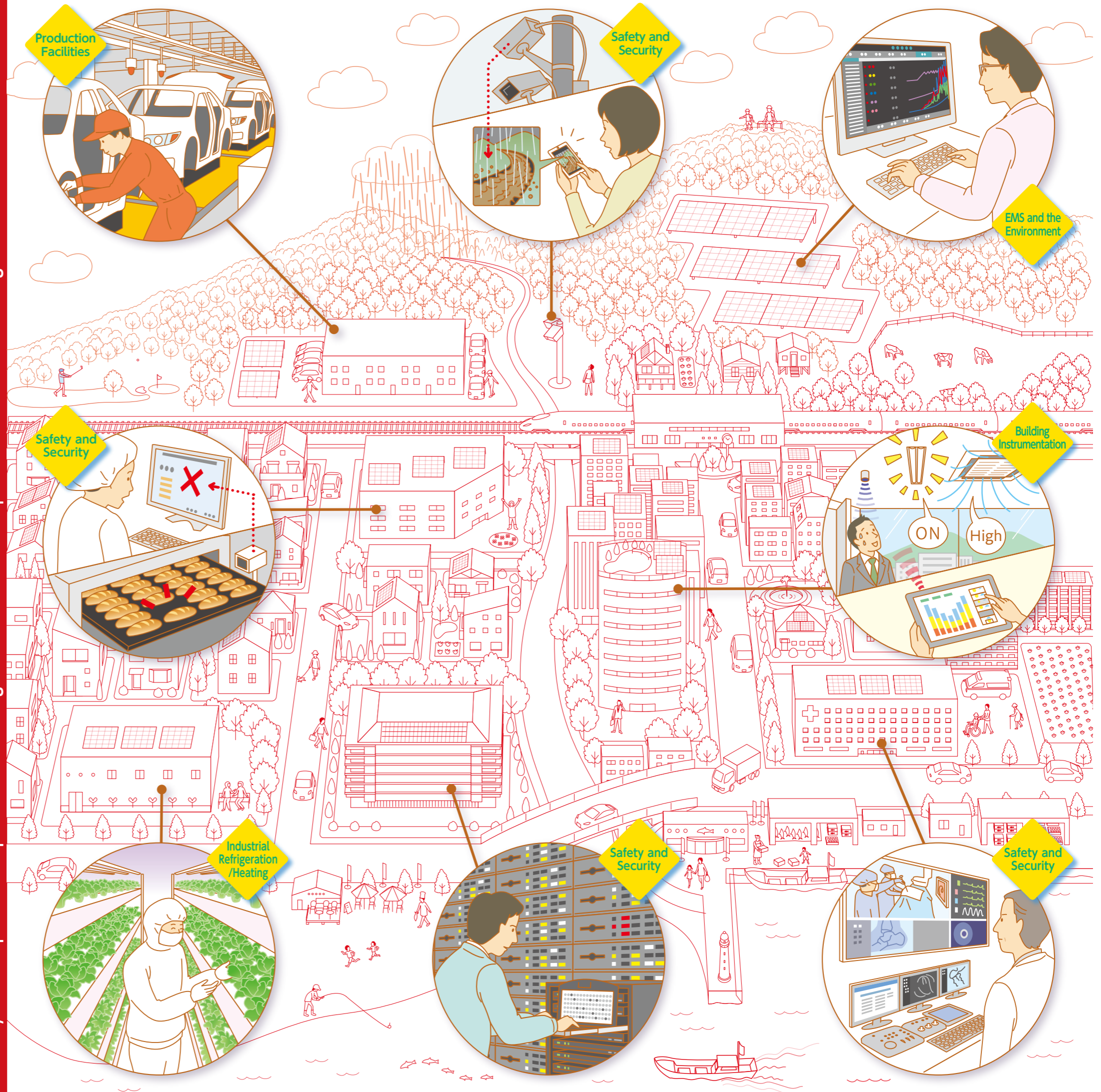
Leveraging our technological prowess and expertise, we propose, design and construct sophisticated air-conditioning systems including for production facilities and testing booths.

Building on our experience, we also propose and support the operation of plant factories, which are attracting global attention as a new crop production system.

Building Instrumentation

Demand for automatic control of buildings is increasing for energy conservation and safety purposes. The Ryoden Corporation Group proposes systems for total management and efficient operation of lighting, air conditioning and security in commercial facilities, factories and office buildings.

Ryoden Corporation helps to conserve the global environment and promote human health through its business activities.



Building a Sustainable Society

Cloud Service "ATLAS-Things"

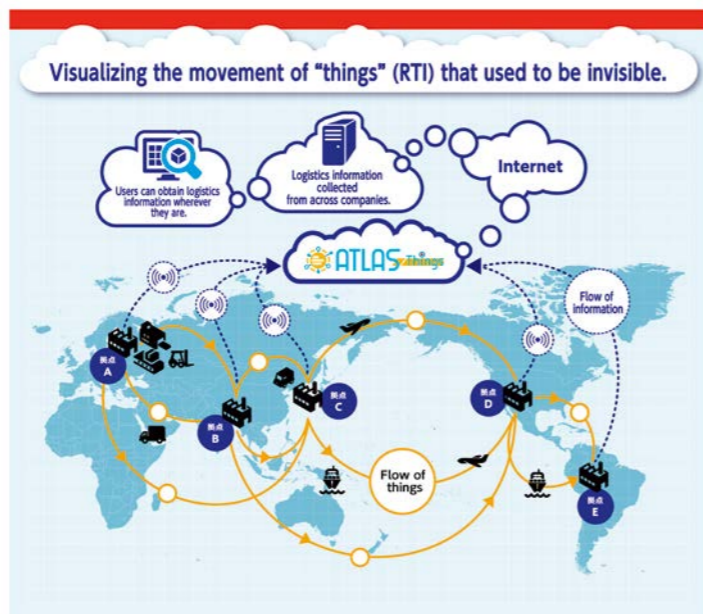


Cloud service leveraging automatic recognition technologies, including RFID and barcode

The manufacturing sector, such as the automobile industry, typically uses a huge volume of returnable containers (pallets, reusable boxes, etc.) for transport between companies and operational sites.

However, the difficulty in identifying the stock and location of returnable containers has resulted in problems including the impossibility of shipments due to unavailability of dedicated containers, and the purchase of extra returnable containers caused by losses or problems.

By using a cloud system, this service allows us to provide a stable environment across the world at all times and to reduce the initial introduction cost by substantially cutting back on the system building cost and operational cost for customers. The RFID and barcode comply with the international standards for the automobile industry (ISO1736x) and the distribution industry (GS1), as well as the original code system.



Service features

1. Conformity to international standards

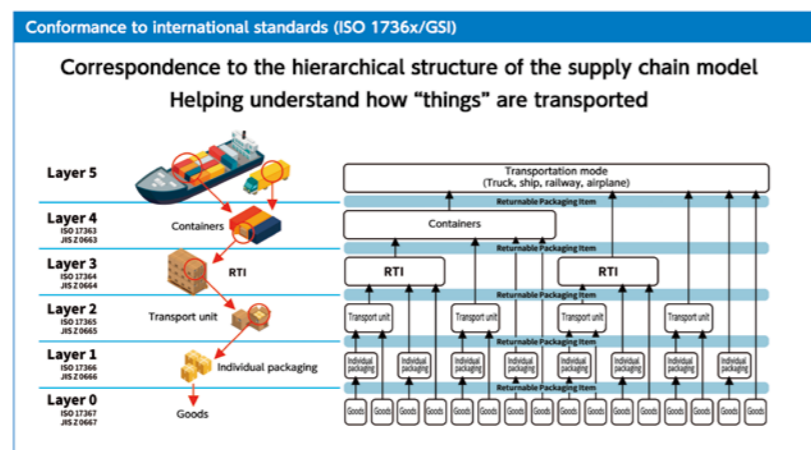
This service corresponds to the hierarchical structure of the supply chain model (ISO1736x). The RFID and barcode conform to the international standards for the automobile (ISO) and distribution (GS1) industries as well as the original code system.

2. Publication of web API

We have made public the API to upload the ID read out by RFID or barcode readers to the ATLAS-Things server. This helps customers effectively utilize their existing assets.

3. Compatibility with BI tools

The service includes a data export function as a standard feature so that customers may import data with BI tools for various analyses. BI tools are compatible with MotionBoard, a service provided by WingArc1st Inc.



Saving Human Lives

Smartphone App for Health Promotion "MySOS forME"



Supporting smooth response to emergencies including first aid

This app helps users respond to an emergency by indicating the action to be taken, providing guidance for first-aid treatment and indicating the location of medical institutions and AEDs in the surrounding area. Linked with a wearable device, it also facilitates health promotion by measuring the user's pulse, steps and amount of activity and indicating the results of previous medical checkups, as well as providing advice and calories based on the input of dietary data.

We are considering the possibility of linking the app with a variety of wearable devices in the future, thereby diversifying the user environments and service forms, including a Health Option to control blood pressure and glucose levels, a Sports Option with GPS to measure acceleration, a Monitoring Option to detect a fall or severe injury, and a Field Option to detect the occurrence of heat stroke or an accident.

[MySOS forME]

- Emergency support for the user**
It takes eight minutes on average for the ambulance to arrive after a 911 call. Subsequent rehabilitation depends on the relevant basic life support measures. It has been found that the probability of survival almost doubles if a bystander takes appropriate life-saving measures while waiting for the ambulance.
This app helps with emergency medical care and offers guidance for basic life support, request for relief, and the search for hospitals and AEDs, among others.
- Emergency support for the user's family**
Emergency guidance for adults and children ▶ Helping the user determine how to respond: whether the symptom or injury warrants urgent attention or a wait-and-see attitude.
First aid guidance ▶ First aid guidance provided by the Japanese Red Cross Society, indicating how to treat a bone fracture, dislocation or burn, as well as precautions to prevent accidents.
- Location of medical institutions and AEDs in the surrounding area**
Search for AEDs/search for medical institutions ▶ You can search a map for AEDs and medical institutions located nearby. The map also indicates the distance from the present location and the name of the medical institution. Detailed information is available by tapping on the list.
AED information: Provided by Japan AED Map
Hospital information: SCUEL database provided by mecompany, Inc.
*The location display service is only available in Japan.
- Display of medical checkup results and amount of activity**
Display of medical checkup results, My Medical Chart and amount of activity ▶ Showing the results of medical checkups (in the form of a historical chart)
※ You can input the required data by yourself, or import an XML file after giving written consent for the use of personal information. You can also input data on pre-existing conditions, regular medication and an oral medicine prescription history. The amount of activity (number of steps and calorie consumption) can be shown on a chart.
- Health support**
Display of calorie intake and advice on diet and exercise ▶ Input dietary data, and the calorie intake appears on the screen. (You can input data by "text," "selection from the menu of major stores" and "photo shoot.") Based on the data, an artificial intelligence nutritional manager gives advice on diet and exercise.

Safety in Production

Deep Learning Image Processing Software for Manufacturers

“VisionPro ViDi”

Finding solutions to unmet challenges with deep learning

Our Group is actively involved in the geographical expansion of VisionPro ViDi, an image processing software product marketed by Cognex Corporation. With deep learning,*1 a computer is able to understand what appears on which part of the image by learning the pattern of the given image. Traditional machine vision*2 makes judgments based on some change or difference in the image, such as white/black, light/dark and difference in color. It does not understand what the thing that appears on the image is. Thus, many of the tests that appear easy for humans are simply impossible for machine vision.

By leveraging deep learning, VisionPro ViDi can now perform tests with a quasi-human sense, effectively saving or eliminating the labor for tests that cannot be performed by machine vision or by visual checks that essentially require manpower. Moreover, it works by intuitive mouse operation, allowing even those without expertise in machine vision or knowledge of deep learning to handle the process easily.

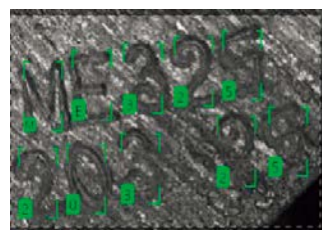
We will continue to provide solutions for our manufacturing customers with testing problems by offering VisionPro ViDi, a user-friendly product with high-speed processing capacity.

- *1 A category of AI. The machine automatically extracts, designs, and makes judgments on characteristics in the image, such as the head and location of eyes.
- *2 Machine vision is a general term used to indicate industrial image processing techniques, such as automatic testing, process control and robot guidance.

Characteristics of VisionPro ViDi

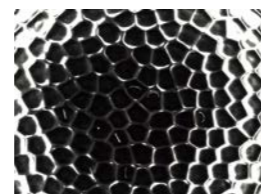
- 1 Elimination of variations in the accuracy of testing depending on the skill level
- 2 Labor saving/elimination for visual checks
- 3 No need to collect a large volume of images; testing can be performed with only several dozen images
- 4 Simple operation to perform sophisticated image processing without expertise

Case 1: Checks for hard-to-read printed letters

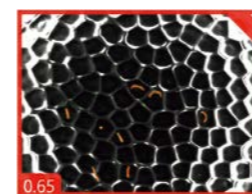


Capable of processing distorted letters directly marked on the work (left figure), as well as blurred or tainted letters

Case 2: Checks for flaws on metal sheets



Before processing



After processing

Capable of precisely detecting flaws despite irregular concavity and convexity or reflection of illuminating light

Building a Prosperous Society for the Next Generation

Business Development for LoRaWAN™ (LPWA) Platform

Faced with issues related to the reduction in working population due to aging and the declining birth rate, improvement of productivity through investment and innovation has become a major challenge in Japan in recent years. To address this challenge, our Group adopted LPWA*1 communication as an IoT/M2M solution to launch a LoRaWAN™*2 platform service.

The new service comprises the LoRa Farming Project, LoRa Cattle Development Management Project and LoRa Environmental Sensing Project.

By leveraging LoRa, the projects allow 24/7 comprehensive remote monitoring for verification of field conditions and information gathering, usually conducted by humans in places affected by poor power supply and communication conditions.

We will continue to provide an enabling environment for building business models to utilize human and data resources effectively and efficiently, by offering the LoRaWAN™ platform.

- *1 LPWA stands for Low Power Wide Area, and refers to labor-saving, wide-area wireless communication to realize energy-efficient, long-distance communication suited to IoT/M2M.
- *2 LoRaWAN™, a registered trademark of Semtech Corporation, refers to common global standards for open network communication technology.

LoRa Farming Project

This project aims to help optimize the cultivation environment by collecting wide-area data on cultivation conditions. It serves to increase added value through homogenization and stabilization of the quality of agricultural products.



LoRa Cattle Development Management Project

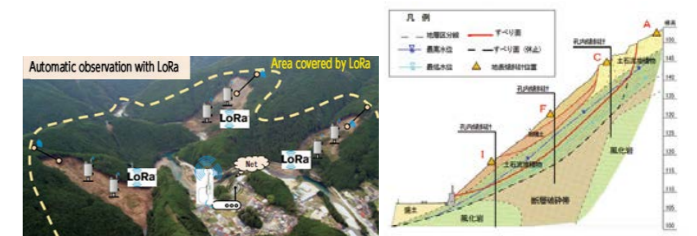
This project aims to instantly assess the health of beef cattle by monitoring any anomaly in the movement of grazing cattle. It provides an understanding of behavioral patterns depending on health by creating an ecological heat map of the beef cattle. It also reduces the daily manpower required, thereby supporting the whole health management practice.



The photo is an image

LoRa Environmental Sensing Projects

With natural disasters becoming more severe due to extreme weather and earthquakes, this project seeks to detect any river swelling or landslides in an environment inaccessible to humans. It serves to prevent road and railway disasters by keeping an eye on the changing conditions of mountain slopes and immediately detecting any anomaly.



Our Responsibility to Employees and Their Families

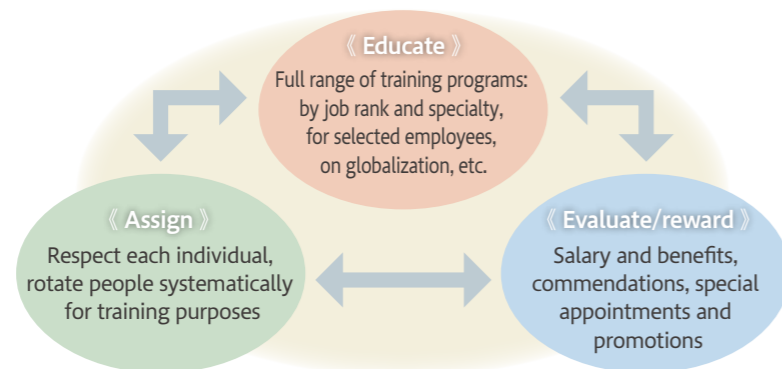
We offer a full range of off-the-job training programs based on education in the workplace through people's work.

These programs start with training for new hires and continue with various other training sessions, including those designed to improve personal and business skills by grade, to impart the expertise and skills required for the relevant position or task, to provide technical education for strengthening the solution business in partnership with the relevant division, and to develop talented personnel capable of working on a global scale through training overseas. In particular, upgrading communication skills is a top priority if we are to become an autonomous decentralized network organization. We are making efforts to that end through practical training and management training workshops.

■ Creating a rewarding workplace

Human resources management at Ryoden Corporation is underpinned by one basic principle: pursuing the maximum results for both employee and company. We seek to enable our people to produce results and, through their work, to increase their own worth in their quest for individual self-fulfillment.

The three integrated elements of HR management



■ A system of rewards based on each person's skill level, function, and performance

We value not just quantitative outcomes but also accomplishment of qualitative behavioral process objectives, thereby nurturing a culture that enables employees to set their sights high. We also draw up a separate training and assignment sheet on each employee to facilitate their personal development.

■ A multifaceted approach to education and training

We have a full range of off-the-job training programs based on education in the workplace through people's work.

These start with training for new hires and continue with various other training sessions, including those designed to improve personal and business skills by grade, to impart the expertise and skills required for the relevant position or task, and to provide technical education for strengthening the solution business in partnership with the relevant division. Nurturing people with the ability to work globally is a top priority, and we are accelerating efforts to develop global staff with excellent communication skills by sending employees abroad on training programs and encouraging them to sit the TOEIC exam once a year.



English proficiency training

An off-JT program to improve English proficiency through group work with foreign nationals, thus promoting cross-cultural understanding and global communication skills.



Team-building program for new employees

In a training facility deep in the mountains, new employees learn firsthand the indispensability of teamwork by tackling difficult assignments together while preparing their own meals. They also develop communication skills that will help them understand each other better.

■ Response to changes in working style

We are seeking to energize and ensure the optimal use of human resources by providing opportunities for a wide range of talents and embracing the capabilities, personalities and differences of individual employees. In April 2018, we will launch a new personnel system to transform the working style.

1. Introduction of a new personnel system. We will eliminate the line between the main career track and the clerical career track in order to promote the mobility and flexibility of jobs, expand the fields of occupation and add depth to tasks, without the limitations of the existing framework.

2. Empowerment of women. We will seek to create a corporate culture that links the advancement of women to the development of the workplace by expanding the fields of occupation for women while considering the specific working environment facing female employees.

3. Redesigning of career from 60. In order to encourage the effective reemployment of senior talented staff and leverage their wealth of experience and capabilities, we will develop a system for matching their desire to work with the employment needs of the company.

■ Striking a work-life balance and embracing diversity

We are committed to creating a quality workplace where people at all stages of life, whether they are raising children, caring for family members, or are seniors, can work in security and fulfill their potential in their own way.

1 Creating a pleasant workplace for every kind of employee

Ryoden Corporation seeks to build flexible systems that can accommodate various working styles. For example, we extended the period of parental leave this year to facilitate the admission of children to child-care facilities. We also included three paid holidays in the parental leave period to help male employees take the leave. We intend to improve the system still further so that employees may work with a sense of security, including by increasing the paid leave that may be taken by the hour.

2 Educational program tailored to the employee's stage of life

We hold various seminars on life planning by employees. For example, we hold seminars on sound financial planning and career development for

employees in their 30s. For those in their 50s, we explain post-retirement benefits and pension plans, in addition to life plan seminars to provide advice and support on a meaningful life after retirement at 60, life planning, health promotion, and household finances.



Life-planning seminar for 50-somethings

A seminar on retirement pay and the pension system, living a meaningful life after retirement, post-retirement life planning and financial planning, and improving fitness. Employees, many of whom bring their spouses, find it an enjoyable and fulfilling experience. The photo shows participants having fun doing calisthenics and working up a sweat.

■ Initiatives in response to the Act on Advancement of Measures to Support Raising the Next Generation of Children

The Company has taken the following initiatives above and beyond the statutory requirement so that our employees may reconcile work with child-rearing.

First, employees may take time off from work before and after the birth of a child in the form of paid maternity or paternity leave.

Second, we apply the short working hour scheme for childcare until the child reaches school age.

Third, we allow employees to retain unused annual paid holidays up to a certain limit. The paid holidays thus retained may be used when the employee has used up the childcare leave but cannot find a nursery for the child.

Finally, we currently implement a General Employer Plan of Action under the Act on the Advancement of Measures to Support Raising the Next Generation of Children.

■ Ryoden Corporation Plan of Action

We have prepared the following Plan of Action to develop an enabling working environment for the employees and leverage their potential to the full:

1. Period: April 1, 2018 to March 31, 2021

2. Description Objective: Establish a Committee for Promotion of Working Style Transformation to examine how to develop an environment for the further empowerment of employees.

Action: Launch the Committee for Promotion of Working Style Transformation to develop an enabling environment by taking concrete action and carrying out the PDCA cycle.

Corporate Governance

Under our Management Principles, the Code of Conduct stipulates that all officers and employees of Ryoden Corporation and its Group companies will “promote the development of corporate governance that is beneficial and adequate for business management.” We carry out a wide range of measures to ensure the transparency, ethicality and accountability of our business, information disclosure, compliance with laws, regulations and rules, and the development of a governance system required by the Corporate Governance Code.

1. Board of Directors

With a view to responding appropriately to the surrounding business environment, Ryoden Corporation introduced a Corporate Officer system to clarify job responsibilities by speeding up the process of managerial decision-making and separating the supervisory and execution functions to improve agility of execution. Thus, the annual general meeting held on June 28, 2018 adopted a resolution to modify the Articles of Incorporation to set the number of Board members at twelve or less. As a result, our Board of Directors now consists of seven directors (including three outside directors).

2. Executive Committee

To ensure transparency of management and rapid decision-making, the Executive Committee, comprising key directors and Corporate Officers, deliberates on crucial matters for Ryoden Corporation and its Group from diverse perspectives, with the attendance of the standing corporate auditors to ensure proper discussions.

3. Auditor System

Ryoden Corporation's Audit & Supervisory Board consists of two standing members and two external members. They attend the meetings of the Board of Directors as well as other key meetings under the audit policy and audit plan drawn up by the Audit & Supervisory Board, and they audit and oversee legal compliance by the directors in performing their duties, verifying reports from directors and employees of Ryoden Corporation and its Group and conducting investigations into the business operation and financial standing of each company.

To ensure that audits are conducted adequately, they also regularly exchange information and views with the Company's internal auditing arm and financial auditor.

System of internal controls

In order to enhance and expand the CSR and internal control systems of our Group, Ryoden Corporation has established the following committees, which work with each other to ensure functional operation.

Internal Control Supervisory Committee

As an oversight body, we established the Internal Control Supervisory Committee, chaired by the CEO and made up of the directors with titles, to discuss basic policies on the internal controls of the Ryoden Corporation Group and verify the activities of other committees.

Ethics and Legal Compliance Committee

Recognizing compliance as a key managerial priority, we established the Ethics and Compliance Committee, and appointed a Legal Manager to take regular action to ensure legal compliance, fairness and morality in our activities.

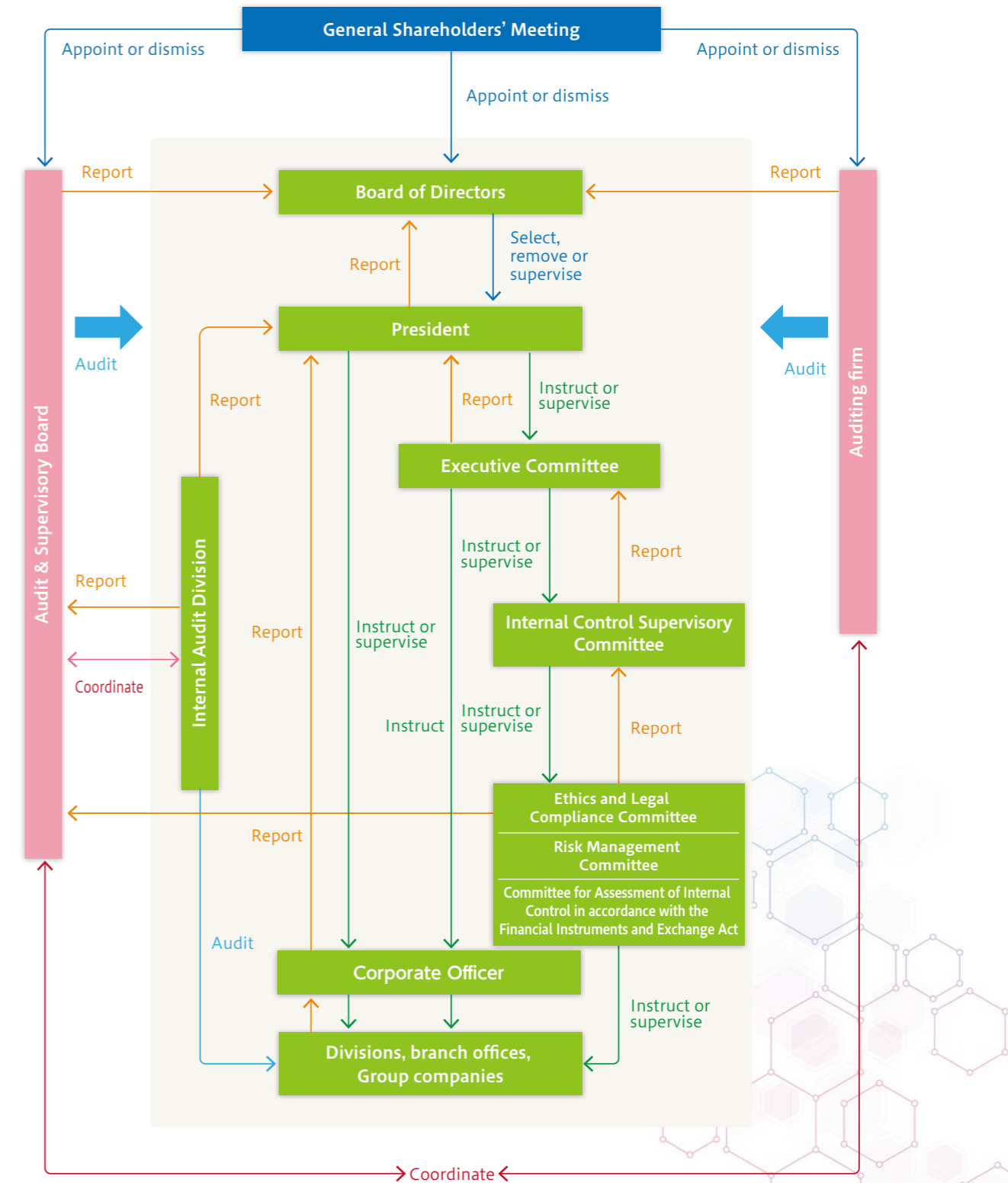
Committee for Assessment of Internal Control in accordance with the Financial Instruments and Exchange Act

For the purpose of implementing internal controls as specified in the Financial Instruments and Exchange Act and ensure the credibility of our financial reporting, we established the Committee for Assessment of Internal Control in accordance with the Financial Instruments and Exchange Act to evaluate our internal controls based on the results of internal audits conducted by the internal auditing and information system divisions regarding our control system and implementation in accordance with relevant criteria.

Risk Management Committee

To ensure the continuity and stable development of our business, we established the Risk Management Committee to conduct Group-wide risk analyses. The Committee plans measures to reduce the risks thus identified, taking into account various factors such as their probability and potential impact, and verifies implementation of the measures.

Corporate Officers



Results in FY 2017

Business performance

Looking at the global economy in the current consolidated fiscal year, the U.S. has continued its robust growth while Europe and China have followed a recovery path, pointing to a strong performance overall including in emerging economies. The future remains highly uncertain, however, as demonstrated by the negative impact and geopolitical risks of protectionism in the U.S. in the latter half of the year.

Although the Japanese economy remains on a mild recovery path with the rising operation rates largely driven by increased exports and the robust capital investment induced by labor shortages, negative factors such as the yen's appreciation might affect corporate performance going forward.

With regard to industries associated with the business transactions of our Group, equipment-related industries are showing signs of recovery, while industries related to factory automation, industrial equipment and energy efficiency continue to perform strongly. Our sales to auto-related industries have also remained robust in Europe and America.

As our Group continues to enhance its business as a global solution provider under these circumstances, we drew up a new business plan called "CE 2018 (Challenge & Evolution 2018)" last year to stay close to customers, build value on customer needs, enhance the presence of our Group among customers and in the market, and improve our profitability. As the current year is the second year of the three-year period covered by the plan, we accelerated our activities to make proposals based on customer needs.

As a result, the financial statements of our Group for the current consolidated fiscal year indicate revenues of ¥236,494 million (up 7.9% on the previous year), operating profit of ¥5,078 million (up 86.0%), ordinary profit of ¥5,055 million (up 107.0%), and current net profit of ¥3,588 million (up 158.5%) vested in parent shareholders.

| FY | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|-----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Sales (¥ million) | 197,016 | 202,723 | 203,730 | 224,766 | 237,877 | 221,990 | 219,225 | 236,494 |
| Ordinary profit (¥ million) | 4,015 | 3,984 | 4,662 | 5,641 | 4,505 | 3,296 | 2,442 | 5,055 |
| Personnel | 1,176 | 1,167 | 1,148 | 1,190 | 1,251 | 1,276 | 1,284 | 1,284 |

Environmental activities

Activities with beneficial aspects for the environment

Among the Company's business activities, we picked up those that are beneficial for the global environment to set environmental targets. (60 targets set for the whole company)

| | Target | Achieved | Not achieved |
|----------------------------|-----------|-----------|--------------|
| Administrative departments | 23 | 22 | 1 |
| Operating departments | 37 | 35 | 2 |
| Total | 60 | 57 | 3 |

Eco-office

| Item | Target | Performance | Result |
|---|--|-------------------------|----------------------|
| Reduction of GHG emissions | 1,824 t-CO ₂ or less | 1,787 t-CO ₂ | Target achieved |
| Reduction of final waste disposal ratio | 0.5% or less | 0.72% | Target not achieved* |
| Continued use of FSC certified paper | Continued use of FSC certified paper as copy paper | 100% at all sites | Target achieved |

* Factor analysis for the target not achieved
The amount of waste disposal in 2017 actually declined by 24.5 kg (▲ 2.3%) on the previous year. We were wrong in setting a target for the final disposal ratio (%).

Chemical Substance Management in Ryoden Corporation Group

With the expansion of efforts in chemical substance management on a global scale, companies are increasingly faced with the challenge of complying with chemical substance management regulations in foreign countries. The Ryoden Corporation Group stays focused on the proper management of information on chemical substances in products and the smooth communication of information.

Over 5,000 inquiries processed under chemSHERPA

The Ryoden Corporation Group signed onto the chemSHERPA scheme developed by the Ministry of Economy, Trade and Industry in April 2017. We responded to only 48 inquiries in the first half of 2017, mainly because we still used AIS data in most cases. However, that number increased to 2,309 in the three months to December 2018, resulting in a total of over 5,000 inquiries processed since April 2017.

Meeting a variety of needs

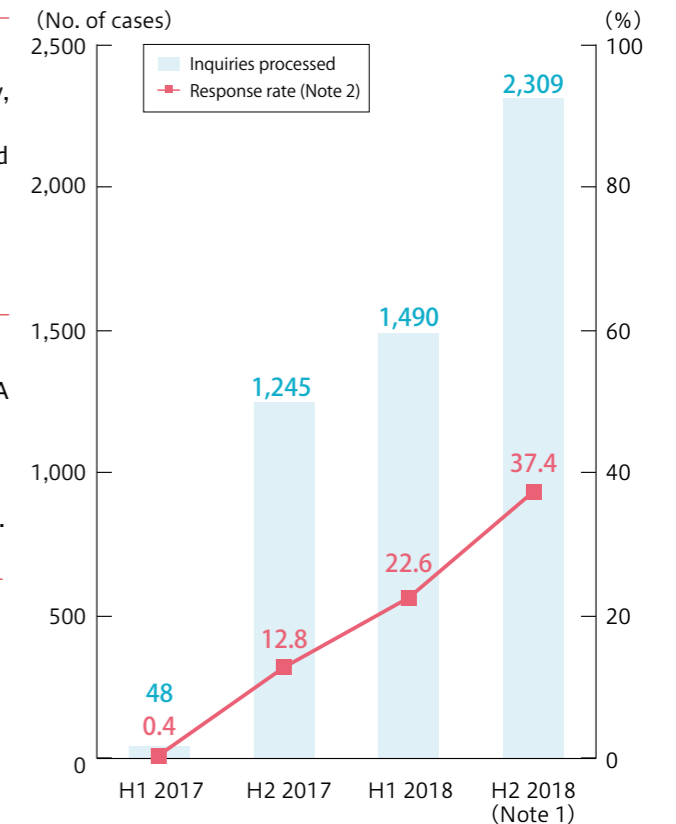
In addition to chemSHERPA, the Ryoden Corporation Group responds to a wide variety of needs including for JAMA sheets, ICP data and non-use guarantees. We also comply with ProChemist/AS (electric machinery and electronics industries) and IMDS (automobile industry), annually providing customers with some 20,000 pieces of information.

Aiming for higher value added

We are seeking to communicate on the management of chemical substances in products with any suppliers who do not fully understand its importance. We also encourage suppliers who have not been able to sign onto chemSHERPA to participate in a seminar and we provide consultation on questions and uncertainties.

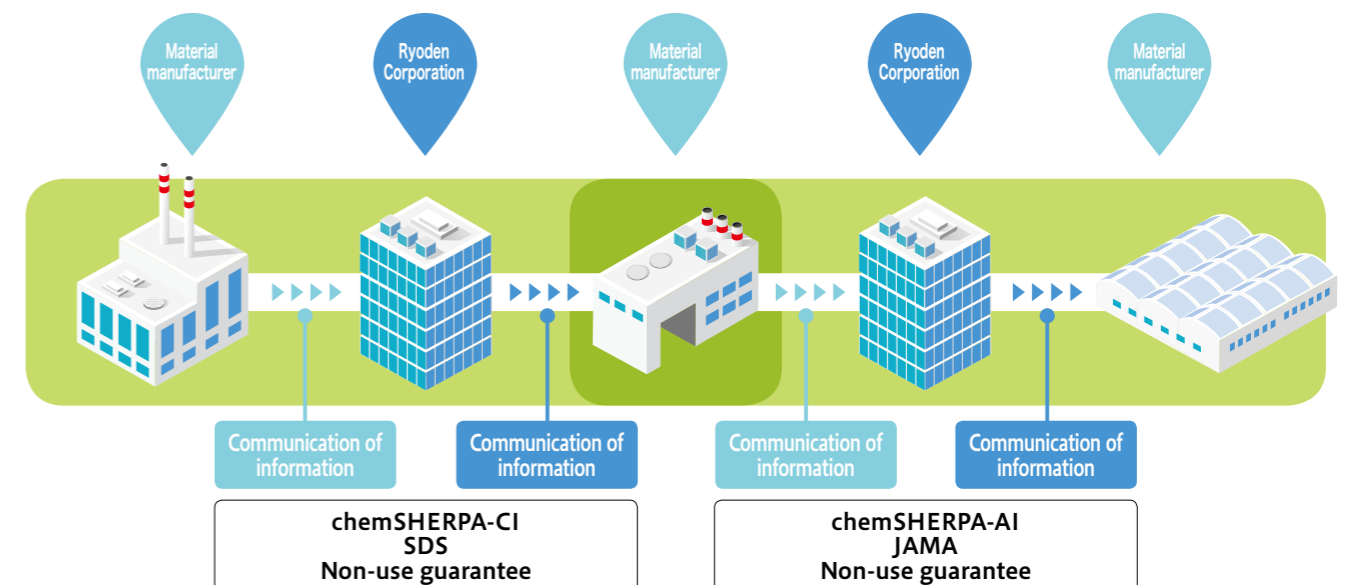
We will continue these activities for the proper management of information on chemical substances in products and the smooth communication of information.

« Response to chemSHERPA inquiries »



Note 1: Three-month data covering October-December 2018
Note 2: Response rate = Inquiries processed under chemSHERPA / Total inquiries processed

Result of Scope 3 Emissions in FY 2017



Result of Scope 3 Emissions in FY 2017

| | | Share in total GHG emissions | GHG emissions (t-CO ₂) |
|---|---|------------------------------|------------------------------------|
| Total GHG emissions (Scope 1, 2 and 3 combined) | | 100.000% | 7,119,536 |
| Scope1,2 | Company cars, offices | 0.025% | 1,787 |
| Scope3 | | 99.975% | 7,117,749 |
| Cat.1 | Products and services purchased | 10.670% | 759,688 |
| Cat.2 | Capital goods | 0.016% | 1,135 |
| Cat.3 | Fuel and energy-related activities not included in Scope 1 or 2 | - | - |
| Cat.4 | Transport, distribution (upstream) | - | - |
| Cat.5 | Waste from business activities | 0.000% | 4 |
| Cat.6 | Travel | 0.007% | 518 |
| Cat.7 | Commuting by employees | 0.004% | 269 |
| Cat.8 | Leased assets (upstream) | - | - |
| Cat.9 | Transport, distribution (downstream) | 0.008% | 579 |
| Cat.10 | Processing of marketed products | - | - |
| Cat.11 | Use of marketed products | 89.269% | 6,355,557 |
| Cat.12 | Disposal of marketed products | - | - |
| Cat.13 | Leased assets (downstream) | - | - |
| Cat.14 | Franchise | - | - |
| Cat.15 | Investment | - | - |

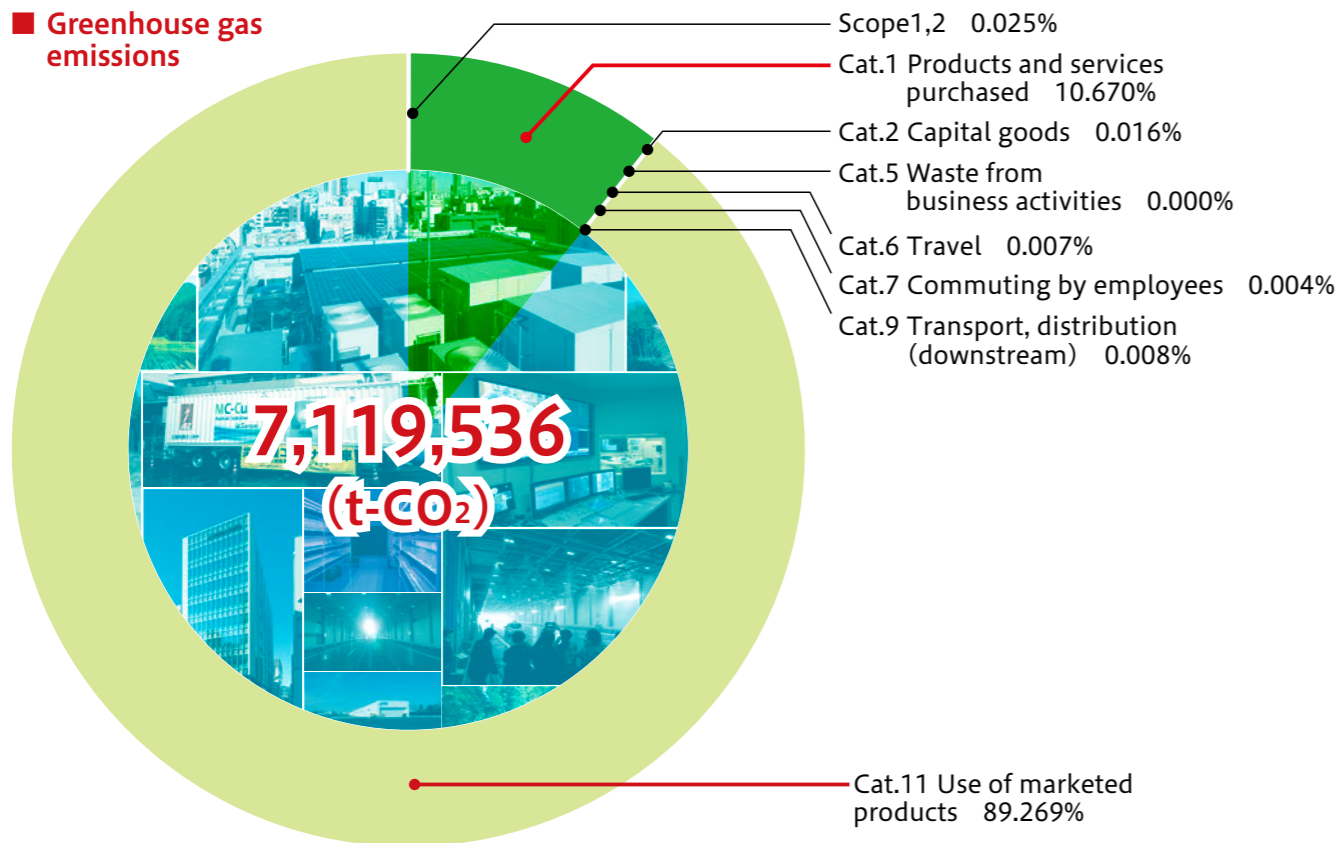
Ministry of Environment website: Green Value Chain Platform
GHG : Greenhouse gas

Scope 3 calculation formula

In reference to the guidelines posted on the Ministry of Environment website, we define the service life of products, operating time, power consumption by products in use, and various intensity measures in order to calculate the emissions.

Scope 3 accounted for 99.975% of the total GHG emissions in FY 2017 by Ryoden Corporation, whereas the share of Scope 1 and 2 combined only amounted to 0.025%. For the whole supply chain, Categories 1 and 11 account for a substantial part of the total GHG emissions. Particularly, we focused on Category 11, which represents almost 90% of the total emissions. In setting our environmental goal for FY 2018, we included the contribution from the products marketed by Ryoden Corporation to the reduction of GHG emissions from products in use as a factor of the environmental goal.

Greenhouse gas emissions



Initiatives in FY 2018

Environmental activities in FY 2018 will focus on the following three core areas.

| | 項目 | 目標 | |
|---|---|---|--|
| 1 | Initiatives for creating a low-carbon society (Total carbon management) | GHG emissions (A) Contribution to reduction in GHG emissions (B) | A < B |
| | 2 | Initiatives for creating a recycling-oriented society | |
| 3 | Promotion of social contribution activities with due consideration for biodiversity | | To be planned and implemented at each operational site |

Introduction of total carbon management (new initiative)

Change in environmental targets (assessment measures)

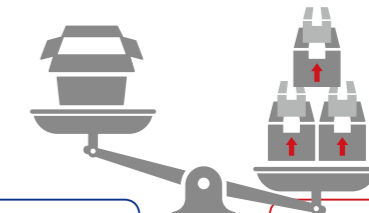
2016
Reduce power consumption and improve fuel efficiency

2017
Reduce GHG emissions in absolute terms

2018
Introduce total carbon management (unique to Ryoden Corporation)

What is total carbon management?

An environmental activity aimed at ensuring that Ryoden Corporation's contribution to the reduction in GHG emissions (B) exceeds the GHG emissions from its business activities (A)



GHG emissions (A)
*Including stock disposal
Actual figure for April-December 2018
1.4 t-CO₂
Burden on the environment (negative impact)

Contribution to the reduction in GHG emissions (B)
Actual figure for April-December 2018
4.6 t-CO₂
Benefit for the environment (positive impact)

*Note: GHG emissions from Ryoden Corporation (Scope 1 and 2) account for only 0.225% of the total emissions from the supply chain (Scope 1, 2 and 3) (actual figure for FY 2017)

Launch of an integrated management system

In 2018, we integrated the existing systems under ISO 9001 (QMS) and ISO 14001 (EMS).

1 Objective of integration

- (A) Improvement of business operations
Leverage ISO mechanisms to eradicate defects and failures
- (B) Reduction of waste
Eliminate duplications and bring down maintenance and administration costs

2 Road to integration

- 2016: Preparation for integration (starting response to ISO 2015 version)
- 2017: Piloting and transition to ISO 2015 version
- 2018: Integrated management system launched

Global Environment Conservation Projects in FY 2017

RYOSHO (THAILAND) CO.,LTD.

Coral planting on Sattahip Beach, Chonburi Province, Thailand

Organized by Royal Thai Marine Corps Held in 11月 Total participants 37

Outline of activity

On Saturday, November 4, 2017, Ryosho (Thailand) Co., Ltd. implemented a coral planting project as part of its ISO environmental conservation activities. Sattahip Beach, the venue of the event, is located within the Royal Thai Marine Corps base at the southern tip of Chonburi Province, 180 km southeast of the capital Bangkok. Still not exploited by the tourism industry, the beach is a natural beauty.

Following last year's mangrove planting project, almost all the staff members from the Bangkok and Sriracha offices, totaling 37 people and their families, participated in this event.

Although this was the first such experience for almost all participants, they succeeded in planting some 300 coral seedlings,



following the instructions of the local facilitators. We hope that the planted coral will decorate the beautiful sea of Thailand in the future.

We will continue with social contribution and environmental conservation activities in Thailand as part of our contribution to regional and social development.



Topic

Tohoku Branch Office

Participation in the Lake Inawashiro Cleanup Project 2017

Organized by Fukushima Central Television, 24-Hour Television Charity Committee

Held in September Total participants 9



Kitakanto Branch Office: Maebashi District

Cutting bamboo grass around the Kakumanbuchi Wetland on Mount Akagi

Organized by Committee for Preserving the Natural Environment of Mount Akagi

Held in November Total participants 30



Kitakanto Branch Office: Utsunomiya District

Maintenance of grounds (mowing) at the Shimotsuke Sanrakuen children's home

Organized by Shimotsuke Sanrakuen, Kitakanto Branch Office

Held in June Total participants 17



Kanagawa Branch Office

Participation in a casual event at the Naka Ward Volunteer Center, City of Yokohama

Organized by Naka Ward Social Welfare Council, Yokohama Municipal Government

Held in March Total participants 12



Shizuoka Branch Office: Shizuoka District

Participation in the Shizuoka Adopt-a-River Program

Organized by Shizuoka Municipal Government

Held in March Total participants 33

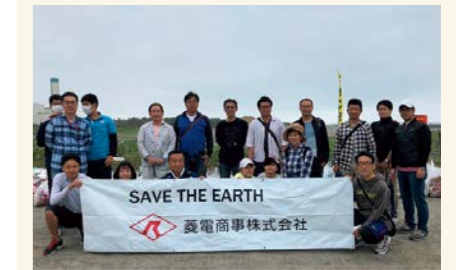


Shizuoka Branch Office: Hamamatsu District

Participation in the Sea Turtle Nesting Beach Cleanup

Organized by Hamamatsu Municipal Government

Held in May Total participants 21



Office-level activities



Head Office/Tokyo Branch Office/Ryosho Techno

Participation in Tokyo Cleanup Action

Organized by Bureau of Environment, Tokyo Metropolitan Government

Held in June, November Total participants 134



Kansai Branch Office: Osaka District

Participation in the Adopt-a-River Program

Organized by Osaka Prefectural Government

Held in June, December, March Total participants 137



Hiroshima Branch Office

Placement of compost for trees and planting of tulip bulbs

Organized by Greenery Policy Section, Greening Promotion Division, Urban Development Department, Municipal Government of Hiroshima

Held in December Total participants 22



Shikoku Branch Office

Weeding and cleanup (waste collection) of an irrigation channel near the office

Organized by Independent project

Held in March Total participants 35



Kyushu Branch Office

Planting of tulip bulbs in the flowerbeds at the Fukuoka Flower Festival Park

Organized by Fukuoka Municipal Government

Held in November Total participants 25



Kansai Branch Office: Kyoto District

Participation in the All-Kyoto Beautification Drive

Organized by Community Beautification Section, Environment Bureau, Kyoto Municipal Government

Held in November Total participants 16



Ryosho Techno Osaka Branch Office

Cleanup of Kawada Park and Access Roads

Organized by Independent project

Held in June, November Total participants 16



Nagoya Branch Office

Participation in the Nagoya Higashiyama Forest Conservation Project

Organized by Nagoya Higashiyama Forest Conservation Group in cooperation with the City of Nagoya

Held in June, December Total participants 148



Ryosho Techno Singapore Pte. Ltd.

Cleanup of the Sungei Tampines coastal area in northern Singapore

Organized by Renesas Electronics Singapore Pte. Ltd.

Held in October Total participants 11



Ryosho Hong Kong Company Limited

Cleanup of Starfish Beach

Organized by Independent project

Held in October Total participants 17



Ryosho Electronics (Shanghai) Co., Ltd.

Cleanup of the Xin Hongqiao Central Garden

Organized by Independent project

Held in March Total participants 31



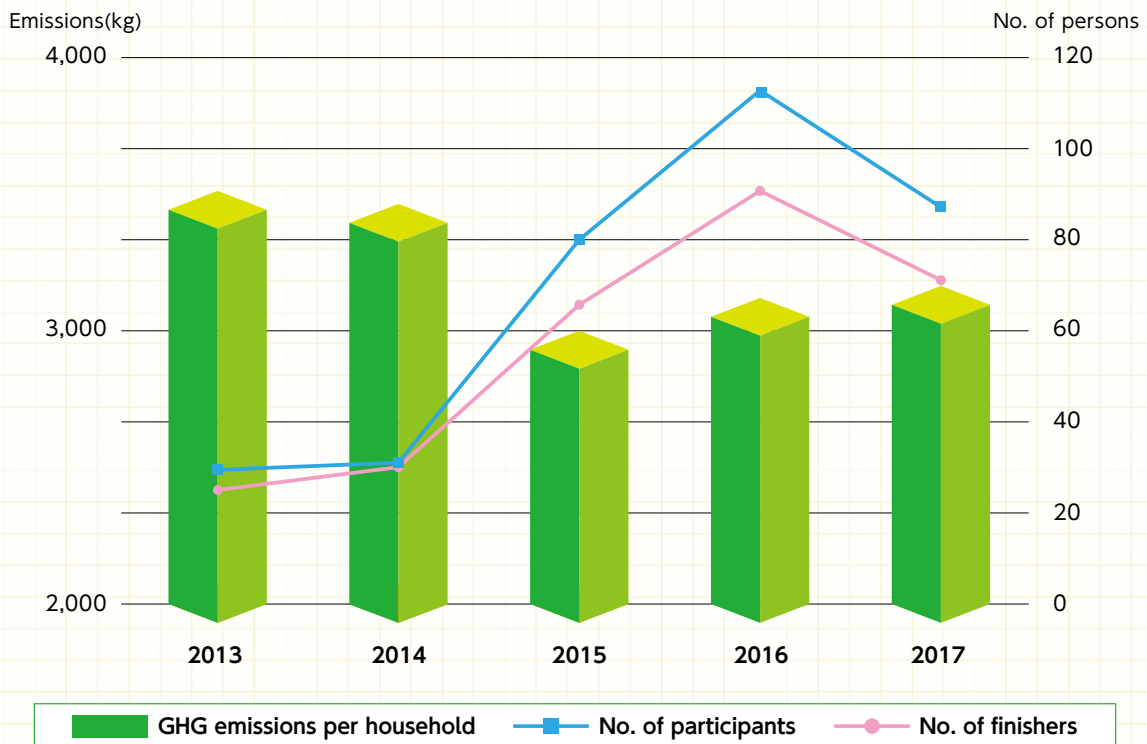
Household Environmental Accounting

As part of our efforts to encourage eco-friendly behavior at home, we invite our employees to participate in an annual exercise to keep track of the total amount of electricity, gas, water, kerosene, and gasoline used at home and to convert it into the equivalent greenhouse gas (GHG) emissions. By identifying the amount of GHG emitted from each household, our “household environmental accounting” exercise, launched in 2006, aims to encourage ecological and economical behavior by constantly reviewing living activities from an environmentally sound perspective.

The chart below shows the trend in GHG emissions per household and the number of participants in the household environmental accounting exercise. With over 80 participants in recent years, employees’ rising awareness of environmental action has been reflected in their proactive efforts toward environmental improvement in their private as well as public life. The year 2017 saw the participation of employees from overseas subsidiaries for the first time since the launch of the initiative.

We will keep up this exercise in the years ahead as an environmental activity to help curb fuel and light expenses in the household sector in an enjoyable way.

GHG emissions per household and participants in “household environmental accounting”



No. 11 among trading firms
in the 21th Nikkei Environmental Management Survey



【 New Material Made with Limestone 】

The present Sustainability Report is printed on LIMEX, a new material made with limestone that is expected to replace paper and plastic. It effectively saves some 12.5 liters of water resources per copy of the report, as compared with ordinary printing paper.



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