

Towards the Realization of a Resource-Recycling Society

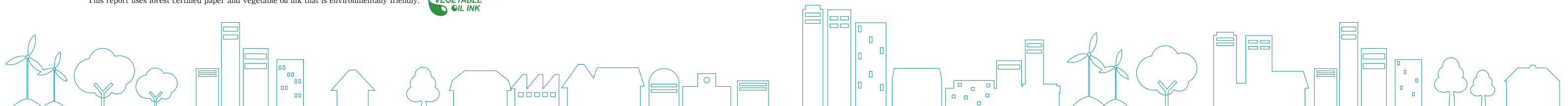
CSR REPORT 2018



DOWA
DOWA HOLDINGS CO.,LTD.
<http://www.dowa.co.jp>



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Corporate Philosophy

DOWA helps to create an affluent, recycling-oriented society through its business activities worldwide.

Based on this corporate philosophy, we work on solving various social issues through our business activities, together with seriously meeting the expectations of all our stakeholders, including customers, shareholders, investors, suppliers, local communities and employees.



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Editorial Policy

(1) Areas covered in this report
■Target Organizations
 DOWA Holdings and subsidiaries (both in Japan and other countries) that are included in our consolidated accounting are selected in these reports. Data on some of our efforts are only associated to DOWA Holdings and other major companies of the group. From FY 2017, the Toyota factory of DOWA Thermotech Co., Ltd. is excluded, and DOWA Techno Research Co., Ltd. is newly added.
■Target Areas of the Report
 The report consists of four areas of DOWA's CSR policies: Governance, Safety, Environment, and Society. It covers each of these policies, current implementation status of its major issues and the activities by the above-mentioned organizations.
■Target Audience
 This report is intended for our customers, stockholders, investors, clients, local communities, researchers, students, employees, rating & evaluation agencies, governmental agencies, NGO's, NPO's and all stakeholders of the DOWA group's business activities.

■Target Period
 We mainly report on the activities of FY 2017 (April 2017 to March 2018), but in order to convey more accurate information, we also report about some of our previous initiatives or most recent activities.
■Reference Guidelines
 The UN Global Compact
 ISO 26000
 Environmental Reporting Guidelines (2018 version) by Japan's Ministry of the Environment

(2) Publishing of the Website Version
 This report highlights and reports CSR activities of the DOWA group, focusing on some important points, to provide an overview of those activities in an easy-to-understand way. For more details, visit our website (to be posted in November 2018). Check our website for detailed information about the topics with below mark.

WEB

If mistakes are found after publication of the CSR report, they will be reported on our website with errata notes.

(3) Basic Information
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Message from the Company President

We will continue to stably supply high-quality materials, and will contribute to the solving of social issues.

The DOWA Group was founded in 1884 at the Kosaka Mine in Akita Prefecture. Presently, we are developing recycling-oriented business from the production of metals to the manufacturing of high value-added products, waste treatment and recycling.

In the company's smelting and recycling complex, we recover metals with high efficiency from by-products or auxiliary materials, and supply it to the market. Not limited to metal resources, our products and services broadly contribute to the creation of a resource-recycling and low-carbon society as component materials indispensable for the utilization of natural energy, as elements of high efficiency for electric utilization, and as processing services that enhance the durability of automotive parts.

It goes without saying that stably supplying products and services is the social mission of our company. In order to continue supplying, we recognize that securing raw materials and securing & training human resources are the two points that are important issues for our company.

With regards to securing raw materials, not only are we focused on recycling auxiliary materials, but also on acquiring mines overseas. As the competition to secure resources intensifies due to oligopolization by major resource companies and so-called resource nationalism, we are not relying on procurement that just buys the necessary amount of resources at the necessary time, and we are trying to stabilize procurement over the long term by increasing our own mining. However, such mine development cannot be done overnight. It takes more than ten years from exploration to operation, as well as consideration to the local residents, ecosystems and cultural heritage, and preventing the environmental pollution of such things as air, water and

soil. In addition, sufficient consideration is required for the human rights and safety of workers. One by one, we are steadily implementing these initiatives together with partner companies.

With regards to securing human resources and strengthening their training, it is no exception for us at our business base in Japan when it comes to the declining trend of the working population due to the drop in the birthrate and the aging population. It is very important to develop an environment that allows employees with certain restrictions on their jobs, such as childcare and nursing care, to demonstrate their abilities, and get them to play an active role with various ways of working. We must consider not only increasing the options for working styles, but also such initiatives as educational support to improve workplace abilities, and more efficiency by expanding the IT infrastructure. Furthermore, by continuing to be a company that has a sense of trust and security from society through the promotion of CSR, we think that it will lead to a boost in the pride, self-confidence and motivation of our employees, which will lead to an improvement in organizational strength.

Companies need to change in response to the diversification of values among workers and changes in communication styles. In the Midterm Plan 2020 that started from FY 2018, we aim not only to strengthen the organizational foundation that supports our business, but also to build a long-term growth foundation in the areas of human resources and organization. We are also proactively investing in educational opportunities.

We aim for human resource training that keeps what is good, incorporates what is new and becomes a driver of change.

We signed the UN Global Compact in 2009, and we have worked on corporate activities that comply with the 10 principles in the four fields of human rights, labor, environment and anti-corruption. As the leader of the DOWA Group I again declare that we will continue to support the UN Global Compact in the future. In order to contribute to the sustainable development of society, the DOWA Group will implement these 10 principles through all our business activities.

In addition, the UN Sustainable Development Goals (SDGs) started in January 2016. They require companies around the world to fulfill the practical role of problem solving in the main course of their businesses. Of course, we also intend to play a part. Because our company has a wide area of business, for the SDGs goals that we can contribute to, we think that several apply. However, for our company that has put into practice over many years the formation of a recycling-oriented society, the area where we can demonstrate the most leadership and make a big contribution through our business is goal number 12 of the SDGs, "sustainable consumption and production". Merely implementing the goals for our operations is not the end. There are further business opportunities in the surrounding issues, and while taking one step after another, we will accelerate our efforts to solve common global problems and develop our business.

We will continue to steadily implement policies aimed at sustainable growth in the future, and we will do our utmost to meet the expectations of our stakeholders.

We appreciate your continued guidance and support.



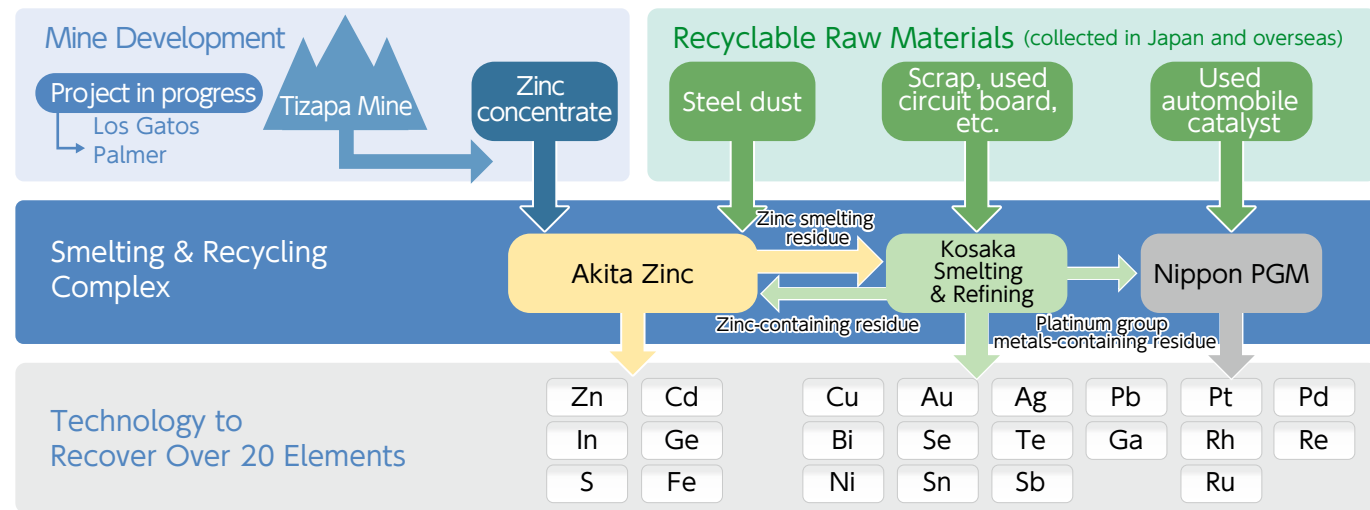
DOWA HOLDINGS Co., Ltd. President and Representative Director Akira Sekiguchi

関口明

Special Feature 1 Sustainable Mine Development

To realize a prosperous society through the supply of metals

By stably supplying metals, we believe that the DOWA Group can contribute to the realization of a prosperous society through products and services that use metals. The strength of our smelting department is in its "smelting and recycling complex" structure through Akita Zinc Co., Ltd., Kosaka Smelting & Refining Co., Ltd. and an alliance with Nippon PGM Co., Ltd. that recovers platinum group metals from automobile waste catalyst. Through the coordination of intermediate interactions at multiple smelting sites, and by utilizing the unique technology at each site, we are able to efficiently recover about 20 kinds of elements that cannot be recovered independently.



Through mine development that takes the environment and society into consideration, the DOWA Group stably provides non-ferrous metal resources, including zinc, to support a prosperous society.

Metals are indispensable for manufacturing products in Japan such as automobiles and electronic products, but now there are few metal mines in operation in the country, and many products depend on imports. In order to ensure the quality and quantity of metallic materials required by society, we are smelting from two raw materials - the mineral concentrate produced from mines, and recyclable raw materials. Recycling is indispensable for the sustainable use of metals that are exhaustible resources. On the other hand, the usage period for metal products is long and they cannot be recovered immediately. Also, as there is no social system to stably collect a large quantity of recyclable raw materials with uniform quality, recycling alone cannot cover the world's growing demand. The DOWA Group collects recyclable raw materials both in Japan and overseas, and is actively working on mine development overseas.

To secure long-term stability for metallic raw material

Mine development takes a long time from discovery of the deposit until the actual production. Normally, surveying the reserves takes more than 10 years, and two to three years are needed until the construction of the necessary equipment to dig the ore and produce the metallic raw materials. In addition to requiring a large amount of development expenses during this period, there is also the risk that the external environment, such as metal prices and foreign exchange rates, will change significantly. In order to alleviate such risks as much as possible, we conduct preliminary ore processing tests on projects where initial exploration has been completed. We proceed with the project only after our smelting complex has confirmed whether the quality of the mineral concentrate to be produced in future is appropriate raw material.

Criteria for project selection

- Development of multiple mines to secure long-term stability
- Select countries or regions with low political and economic risks
- Raw materials suitable for the mine, smelting and recycling complex
- An internal rate of return (IRR) that meets our company's standard

Topic

Los Gatos Project

Zinc is used in a wide range of applications, such as anti-corrosive metal plating for automobiles, household appliances and building materials, and corrosion-resistant parts for ships and bridges. Against the background of global expansion for metal demand that accompanies economic development, our company is working on mine development in order to secure a long-term stable supply of zinc, which is a resource that is essential to living.

DOWA Metals & Mining Co., Ltd., in cooperation with Sunshine Silver Mining & Refining Corp. (SSMRC) of the U.S., is proceeding with a project to mine silver, zinc and lead at the Los Gatos Mine in Mexico.



Mouth of the Los Gatos Mine

Outline of the project

The Los Gatos Project is a mine scheduled to start operation in July 2019. In 2020, we will move to full-scale operation and will be able to produce zinc raw material throughout the year. Our company's interest is 30%, but we have the right to purchase all of the zinc raw material. About 50,000 tons of zinc raw material (around 57% zinc, 500 g/t silver) is expected to be supplied every year for 12 years. As a result, together with the interest that we hold in the Tizapa Zinc Mine, also in Mexico, the 20% ratio for our own mining (which is the ratio of raw materials procured from mines that we have invested in) is expected to almost double. This will contribute greatly to the stable supply of zinc raw material. Furthermore, since the zinc raw material of Los Gatos contains silver at a high level, it will be possible to recover by utilizing the technology we gained through our smelting and recycling complex.

| | |
|---------------------------------------|--|
| Mine Location | State of Chihuahua in Mexico |
| Production Method | Pit mining |
| Capital Structure | DOWA 30%, SSMRC 70% |
| Mineable Reserves | 9.8 million tons Silver content 247g/ton Zinc content 4.8%, lead content 2.3% |
| Mineral Concentrate Production Volume | Zinc concentrate about 50,000 tons / year Lead concentrate about 30,000 tons / year |
| Operating Period | About 12 years from July 2019 |

Sustainable mine development in harmony with the region

Because mines can have a major impact on the natural environment, such as ecosystems and water, and the community, it is the duty of the business operator to conduct development that considers the environment and local community. Upon the implementation of this project, after surveying the environmental and social impact that accompanies the overall development activities, we obtained approval for development activities by submitting to government agencies a "prevention report" that formulates an operation management and implementation plan to avoid or reduce the impact. In addition, we regularly conduct various monitoring surveys related to the environment, such as plants, animals, water and the atmosphere, and are making efforts to preserve the environment. Not only the natural environment, but with regards to laborers working at the mine, we implement safety education and training according to the work environment, and we confirm that consideration is being given to working conditions based on international standards (IFC performance standards, etc.). Sustainable management that is rooted in the community is essential for mines that have a long-term connection with the community. Full-scale operation of the Los Gatos Mine will happen in the future, but at the Tizapa Mine, which has been in operation since 1994, we are continuing our efforts to contribute to the local community, with environmental conservation activities such as tree planting, and the establishment of things like hospitals and gyms.



Los Gatos Mine



Water quality monitoring



Tree planting at the Tizapa Mine

VOICE

Together with completing a feasibility study in January 2017, the Los Gatos Project submitted to the relevant government agencies a "prevention report" based on various environmental and social impact studies. In October of the same year, we got the approval for mine development, and started construction work. Including contractors, up to 1,000 laborers are working at each construction site, and safety education and training are being carried out to protect the safety and health of the workers. In addition we continue to work to gain the cooperation and understanding of the community about the mine operation through exchange activities at nearby villages.



DOWA METALS & MINING CO., LTD.
Resource and raw material director
Hideo Kudo

Special Feature 2 Development of Human Resources and the Organization

Aiming for people who support the business and sustainable growth of the organization

Recent considerable changes in the external environment are expected to add to an acceleration of the labor shortage, with big changes in the ways that employees work. In order to continue sustainable growth together with the society, we will secure limited human resources, we will aim to develop a reliable and substantial workforce through human resource development, and we will establish a foundation for more efficient and effective organization management.

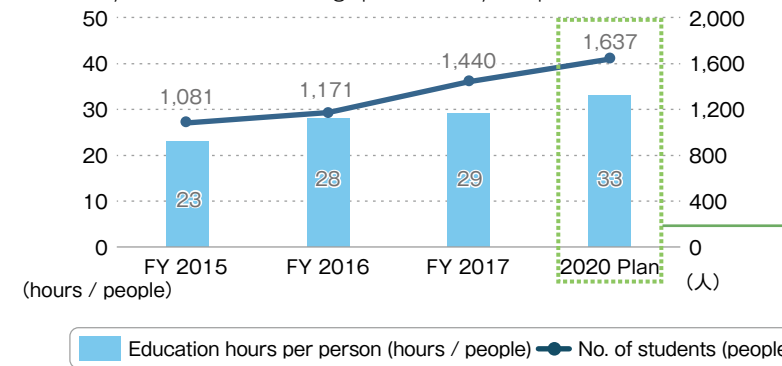


At the DOWA Group, from FY 2018 we will further strengthen human resource development measures based on the recognition that our employees are an important management resource for the company, and the belief that their growth is essential for our sustainable growth.

In the Midterm Plan 2020 that started in April 2018, not only are we strengthening the organizational foundation that supports the business, but looking 10 years ahead, we are confronting head on the challenges that may occur in the future in order for the group to have sound sustainable growth. In the Midterm Plan 2020, we are positioning as the most important task the building of a long-term foundation for growth in the areas of human resources and organizations, and we are actively investing in opportunities for education.

《Investment in educational opportunities: Change in education hours and the number of students》

*Only covers Off-JT training sponsored by the personnel and human resources development department



Towards 2020, we will work to increase investment in educational opportunities and improve training satisfaction!

FY 2017 Degree of satisfaction with the training

4.1

From a questionnaire of the students

Topic

Midterm Plan 2020 - Development of Human Resources and the Organization

The educational system of DOWA consists of OJT and Off-JT*. While there is training that has continued for nearly 20 years, from time to time we do a brush-up based on needs and changes in the environment. Here we will expand three topics based on the Midterm Plan.

*OJT (On-the-job training) is giving opportunities to acquire skills and knowledge directly related to work through daily work and real experiences.

Off-JT (off-the-job training) is giving opportunities to learn specialized skills and knowledge away from daily work and the workplace, such as collective training, seminars and correspondence education.

1 Strengthening workplace skills

Strengthen business competitiveness × Creating a company that has pride and peace of mind × Fostering a climate for training

Policy

While sharing organizational strengthening activities mainly developed at each site as the knowledge of the whole group, and with each employee having a desire for growth and demonstrating autonomous behavior, it fosters a climate in which actions for growth naturally continue to be executed.

Initiative

- Holding meetings of those responsible for human resource development...The people responsible for training at each company gather together and develop management strategies for human resource development
- Actively hold presentations on activities to strengthen workplace skills...Introduce the human resource development activities at each company, develop examples among peer groups, and connect with mutual study
- Expansion of autonomous growth opportunities...Select their own learning content, utilize learning opportunities and lead to self-improvement
- ★ The re-education of middle managers...Managers who are key to the organizational culture will re-learn about management in line with the current times



Presentation on activities to strengthen workplace skills



Meeting of those responsible for human resource development

2 Promoting diversity

Expansion of business overseas × Initiatives for new and growing fields × Creating a company that has pride and peace of mind

Policy

Human resources with diverse nationalities, genders and values demonstrating each of their strengths to the maximum. By arranging an environment where people accept each other, creating a vibrant organization.

Initiative

- Hold training for female office workers...Utilizing their individuality, aim for an organization where each person can continue to be active with pride
- Implementation of global human resources training...Aim for early development of local human resources in and out of Japan through practical training in the workplace outside Japan
- ★ Hold meetings to strengthen global sites...Managers from offices overseas gather together and promote problem-solving in various areas
- Conduct training to enhance diversity management...Strengthen management abilities to accept and utilize diversity
- (★A new initiative from FY 2018)



Training for female office workers



Global human resources training

3 Training center renewal

Building a foundation for growth

Policy

By positioning the training center as the most important site of human resource development for the DOWA Group, transform it into a symbolic facility that combines not only the best quality of training, but also a space that promotes employee interaction



Training venue supporting active learning



The lounge that connects DOWA's past and present day



Café de DOWA - a place where employees can interact

Besides these, we also actively develop education for each level, systemic education, basic education on harassment, and education on safety, environment and governance.

VOICE

Under the current uncertain and hard-to-predict social environment, it is essential to develop human resources and strengthen organizations in order for companies to grow and survive. In response to this challenge, in the Medium-Term Plan of our department, we are implementing various measures that champion "training autonomous human resources who can learn, think and act independently" and "strengthening organizational abilities through the promotion of cross-functional (cross-departmental collaboration) and knowledge management (organizational knowledge)". We will open the door to the future of DOWA by promoting these initiatives frankly and strongly.



DOWA HOLDINGS Co., Ltd.
Personnel and Human Resources Development Department
Atsushi Katagiri

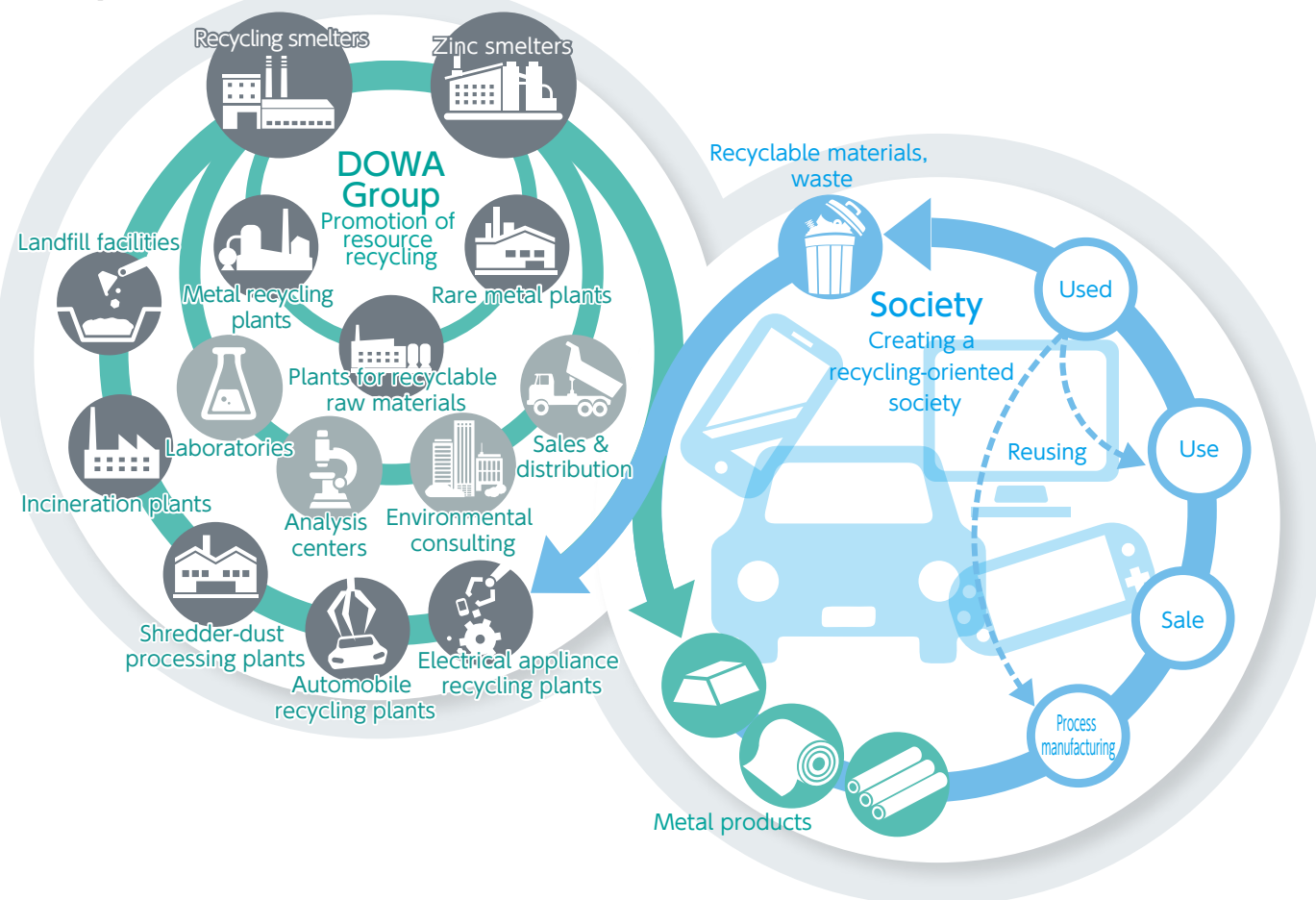
Social Issues and Our Business

The goal of Corporate Social Responsibility (CSR) is “to contribute to sustainable development”, but on the other hand, current society faces various problems and issues along the way to sustainable development. Social issues vary widely, with things like the environment, water, food and poverty, but we recognize that the effective use of resources is a particularly important social issue for the DOWA Group's business, which consists of using metal resources. We are making efforts to contribute to sustainable development through effective use of resources.

Multifaceted approach towards the creation of a resource recycling society

Ore, which is a natural resource, will be depleted if we continue to consume it. While recycling is an important solution, in addition to technologies to efficiently recover metals, technologies and infrastructure to safely process hazardous material and non-useful substances generated during that recovery process are also important. In addition, recycling also includes technical, economic and social issues that should be resolved, such as the construction of a social system that efficiently collects recyclable raw materials, and the time, trouble and cost it takes to process a wide variety of raw materials.

The DOWA Group is developing a wide range of recycling businesses, such as for precious metals, electrical appliances, automobiles and used small household appliances both in Japan and overseas, but instead of just recycling, the DOWA Group is utilizing its own waste intermediate treatment facilities, laboratories and transportation department. We are promoting efforts to solve problems for effective utilization of resources from various aspects.



DOWA's business and SDGs

In 2015, the "Sustainable Development Goals (SDGs)" were adopted at the United Nations "Sustainable Development Summit". The SDGs clearly state 17 goals and 169 targets to be solved on a global scale by 2030. In order to reach these Sustainable Development Goals, every sector in the world is required to act, including companies.

For our business, which consists of using metal resources, goal number 12 of the SDGs, “securing sustainable patterns of consumption and production” is the most influential. We think that by contributing in this area, we can demonstrate our great abilities. As shown in our corporate philosophy, we will strive to achieve goal number 12 by working on the "creation of a recycling-oriented society " through our technology and resources.

Other goals that we can contribute to through our resource recycling initiatives are listed below.

Social issues concerning effective use of resources

- Depletion of resources
- Increase in the price of ore
- Waste problems
- Environmental burden from mine development and smelting
- Uneven distribution of resources
- Increase in global demand
- Responsible mineral procurement
- Energy consumption associated with smelting

Initiatives of the DOWA Group

- Promotion of recycling**
 - Electrical appliance recycling
 - Automobile recycling
 - Metal recycling
 - Recycling of small used household appliances
 - Biodiesel recycling of waste edible oil
- International resource recycling**
 - Recycling at the Asian sites of DOWA
 - When it is difficult to recover with technology and facilities overseas, it is properly recycled at a DOWA site in Japan
- Reducing the environmental burden**
 - Appropriate processing of heavy metals and Freon gas contained in recyclable raw materials
 - Reduction of waste by promoting resource recycling
- Securing rare metals**
 - Recovery of platinum group metals from automobile waste catalyst
- Reducing the environmental burden of mines**
 - Mine development that considers the natural and social environments
 - Consideration for biodiversity at the time of exploration and mining
- Improvement of technology**
 - Technology to Recover Over 20 Kinds of Elements
 - Supporting a large variety of small quantities for recyclable raw materials
 - Highly efficient recovery of micro elements
 - Improve the metal recovery efficiency for mines
- Stably securing recyclable raw materials**
 - Recovering automobile waste catalyst from sites in Europe and North America
- Improvement of energy consumption**
 - Improvement of the electric power consumption rate in the smelting process
 - Utilization of renewable energy (hydroelectric power generation)
- Initiatives for future issues**
 - Building solar panel recycling systems
 - Building recycling systems for fuel cell waste

Contribution to the SDGs through our initiatives



Goal 12
Securing sustainable patterns of consumption and production

Other goals that we can contribute to through resource recycling initiatives



Goal 9
Aiming to develop resilient infrastructure, promote inclusive and sustainable industrialization and expand innovation

→ Improvement of recycling technology
Promoting recycling at Asian sites



Goal 13
Take emergency measures to counter climate change and its impact

→ Utilizing renewable energy
Appropriate processing of Freon gas



Goal 16
Promoting a peaceful and inclusive society towards sustainable development, providing access to justice for all people, and building effective, responsible and inclusive systems at all levels

→ Controlling for conflict minerals

The DOWA Group will continue to contribute to the use of sustainable metal resources through its business while facing the various challenges surrounding metal resources.

About the DOWA Group

The DOWA Group has developed a global recycling business consisting of five core businesses. In “Nonferrous metals business”, we extract useful metals from various recyclable raw materials in addition to natural resources. The extracted metals go through various processes and are given enhanced functionality in “Electronics materials business”, “Metal processing business” and “Heat treatment business”, after which they are included in final products such as automobiles and electronic devices. “Environmental management and recycling business” detoxifies waste and separates and recovers metals from used products. The recovered metal is used again as raw material for smelting. Through the development of such a recycling business, in addition to providing high-quality products and services, we are working to resolve social issues such as environmental conservation and resource problems.

Our business situation in FY 2017 was as follows.

FY 2017 Financial Highlights

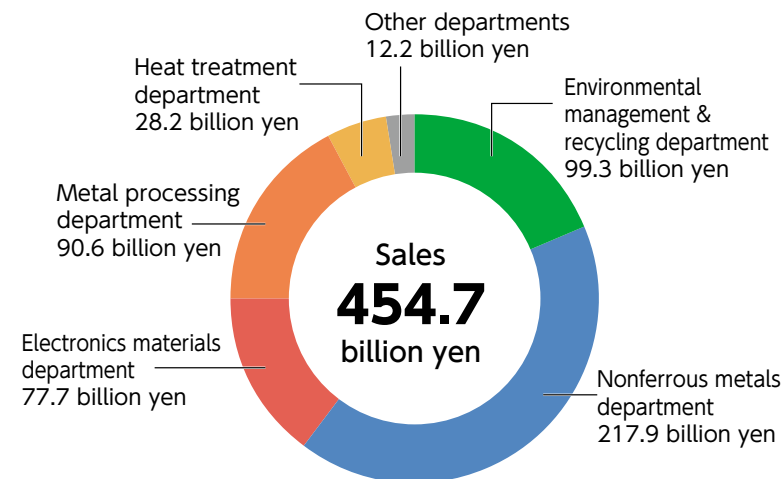
In the FY 2017 financial results, while sales increased due to higher metal prices, operating profit declined due to an increase in depreciation costs, a deterioration in purchasing conditions for smelting raw materials, and a decrease in waste treatment volume. Consolidated sales rose 11% year on year to 454.7 billion yen, consolidated operating profit fell 9% to 30.9 billion yen, ordinary profit was unchanged at 36.3 billion yen, and consolidated current net profit attributable to parent company shareholders fell 6% to 24.6 billion yen.

With regards to the business environment for the corporate group, demand for automobile-related products remained comparatively steady both in Japan and overseas, while demand for electronic components and new energy-related products grew mainly in East Asia. With regards to the market environment, metal prices rose for such things as precious metals and zinc.

| Operating results | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|-------|-------|-------|-------|-------|
| Sales | 4,439 | 4,642 | 4,065 | 4,105 | 4,547 |
| Operating profit | 317 | 390 | 350 | 339 | 309 |
| Ordinary profit | 350 | 420 | 350 | 365 | 363 |
| Attributable to parent company shareholders Current net profit | 233 | 265 | 218 | 261 | 246 |

(100 million yen)
Each year listed shows the fiscal period from April 1st to March 31st.

Situation in FY 2017



Demand for automobile-related products remained steady both in Japan and overseas

Demand for electronic components and new energy-related products grew mainly in East Asia

With regards to the market environment, metal prices rose for such things as zinc and copper

With regards to the foreign exchange market, one dollar remained mostly around the 110 yen level until the third quarter, and after that the yen appreciated

The sales of each department include the 71.3 billion yen eliminated due to consolidation adjustments

FY 2017 Business Topics

Promoting low carbonization of waste treatment

Technochem Environmental Complex (hereinafter referred to as TEC), which provides waste management services in Singapore, has earned the trust of local companies as a processing factory which has processing licenses for almost all items of hazardous waste. Currently, as a major chemical industry hub in Asia with government support, Singapore is seeing an expansion in factories and research facilities for chemical and pharmaceutical manufacturers. In the future, hazardous waste discharged by this bio industry will increase, and it is expected that the need for waste treatment where high safety and reliability are required will rise.

Initiatives to create a low-carbon society

In November 2017, Tec started operating a new incinerator that mainly treats solid hazardous waste. The new vertical type stoker furnace uses combustion improver only from the ignition point to the temperature rising point, and then the combustion proceeds using the amount of heat of the waste itself, therefore no additional fuel is necessary during operation, meaning that this waste treatment facility is low-carbon type. From our estimate, upon treatment of the same amount of waste in a conventional furnace, over 1,000 tons of fuel is needed annually, so a significant reduction of CO₂ emission is expected.

The incineration capacity of the new furnace is 36 tons per day, and together with the existing one, about twice as much treatment is possible as before. By expanding the acceptance of solid hazardous waste, such as the refractory waste related to pharmaceuticals and chemicals, we will be able to quickly handle the appropriate processing of increasing hazardous waste. Taking advantage of the experience that the DOWA Group has acquired in Japan and overseas, we will contribute to the safe treatment of hazardous waste and the reduction of CO₂, and we will work for responsible waste treatment.



Development of deep ultraviolet LED with global top-class output

Deep ultraviolet LED, which emits deep UV rays having short wavelength within the UV range, has sterilization action and it is being adopted in a wide range of applications, including purification of water and air, resin curing, and sterilization of medical instruments. DOWA Electronics Materials has been building a mass production system for deep ultraviolet LED chips in a wide wavelength range of 265 to 340nm (nanometers) by combining aluminum nitride template with our unique crystal growth technology.

Energy savings, long life and mercury free

In FY 2017, based on the technology fostered by LED development until now, and using a sapphire circuit board to which the nano-level microfabrication technology, which belongs to Oji Holdings Corp, has been applied to increase luminous efficiency, we achieved global top-class output of 90mW in the 310nm wavelength range.

The LED we developed is suitable for applications such as the curing of resin for coating and skin treatment. By replacing mercury lamps or excimer lamps that have been used as the main light source until now, we have made things mercury free, since mercury is strongly toxic and is highly regulated internationally. Moreover, since it has various benefits such as miniaturization, energy savings and long life, in addition to its application to existing products, it is expected that applications will further expand in the future. DOWA Electronics Materials will continue to advance LED technology development and will contribute to creating a safe and sustainable society.

Towards the Realization of Our Vision

We have formulated the Midterm Plan 2020 which is our medium-term business plan for the three years from FY 2018 to FY 2020. In the Midterm Plan 2020, we will continue to strengthen our business foundation and actively introduce management resources toward further growth to reform ourselves into a company that has both steadiness and growth potential.

About the Midterm Plan 2020

Basic Policy

Expand businesses in growth markets

Aggressively invest management resources in markets for “automobiles,” “information and communication,” “environment and energy” and “healthcare.”

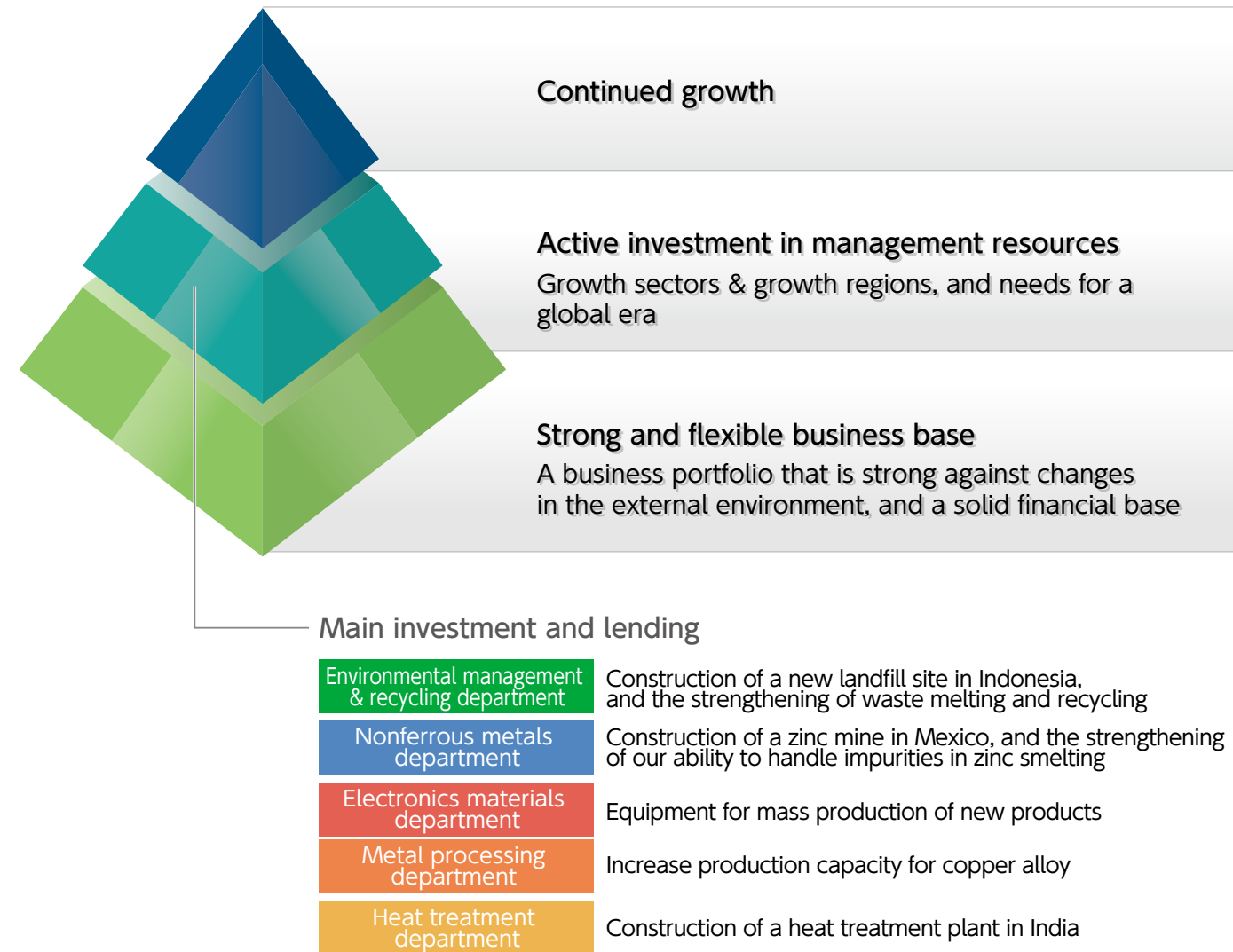
Increase the competitiveness in existing businesses

Enhance the earning power of existing businesses by increasing competitiveness in the mature domestic markets and improving the functions in the recycling and smelting complex.



2020 Business Numbers

| | | | |
|------------------|------------------|--|-------------------|
| Ordinary profit | 50 billion yen | Cash flow from operating activities (3 year total) | 120 billion yen |
| Operating profit | 45.0 billion yen | Investment and lending (3 year total) | 110.0 billion yen |
| ROE | 12% or more | Research and development (3 year total) | 20 billion yen |
| ROA | 10% or more | Prerequisites Forex: 115 ¥/\$; Zinc: 2,700 \$/ton; Copper: 5,500 \$/ton | |

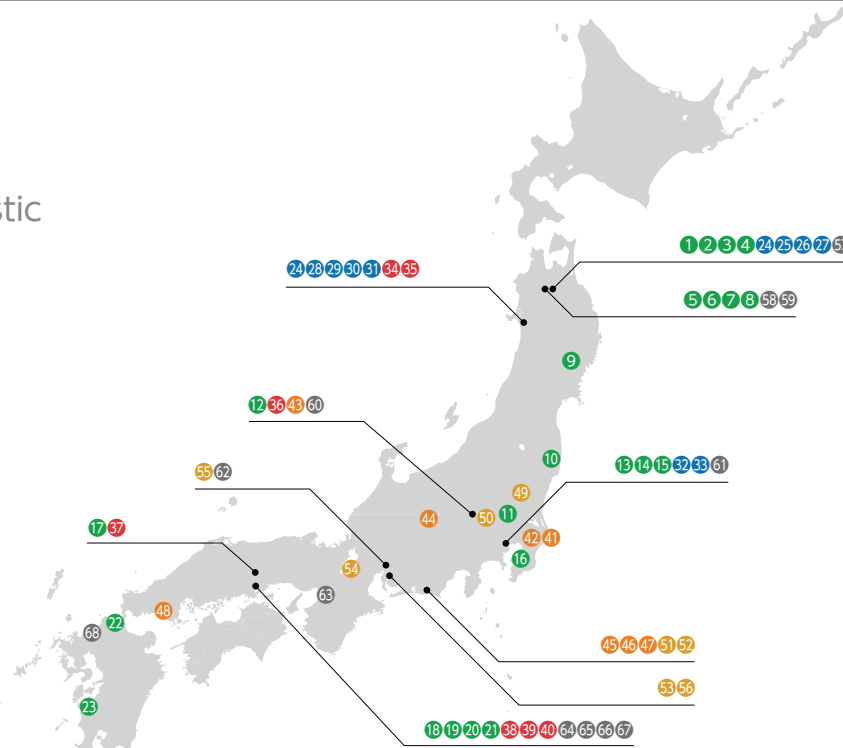


Corporate profile, offices and group of companies

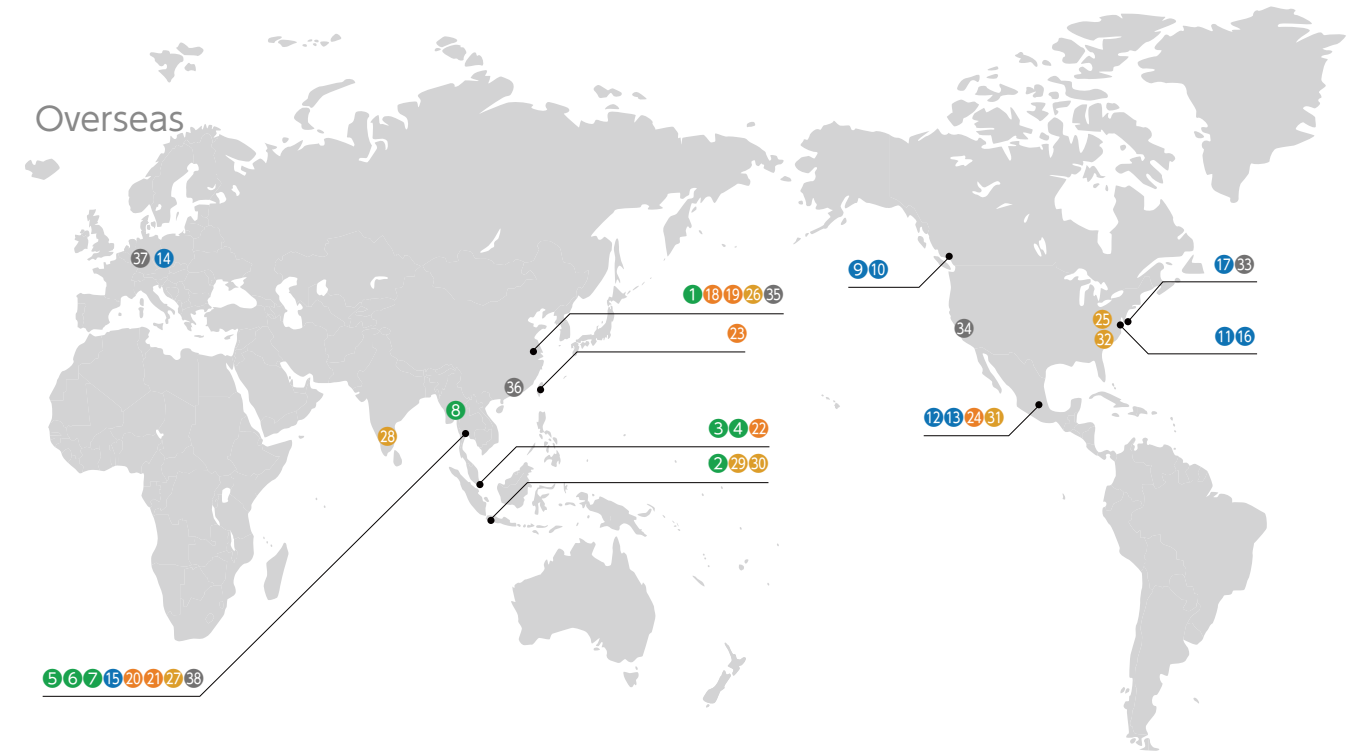
| | |
|-----------------------|--|
| Company name | DOWA HOLDINGS CO., LTD. |
| Date of establishment | 1937/3/11 |
| Head office location | 〒101-0021 22F, Akihabara UDX., 4-14-1 Sotokanda, Chiyoda-ku, Tokyo |
| Representatives | Chairman and Representative Director Masao Yamada President and Representative Director Akira Sekiguchi |
| Capital | 36.437 billion yen |
| No. of employees | About 6,100(consolidated, end of March 2018) |



Domestic



Overseas



DOWA ECO-SYSTEM CO., LTD.

- 1 GREEN FILL KOSAKA CO., LTD
- 2 ECO-SYSTEM RECYCLING CO., LTD.
Northern Japan plant
- 3 ECO-SYSTEM KOSAKA CO., LTD.
- 4 AUTO RECYCLE AKITA CO., LTD.
- 5 Environmental Technology R & D Center
- 6 ECO-SYSTEM AKITA CO., LTD.
- 7 ECO-SYSTEM HANAOKA CO., LTD.
- 8 ECO-RECYCLE CO., LTD.
- 9 DOWA TSUJUN CO., LTD.
- 10 MELTEC IWAKI CO., LTD.
- 11 MELTEC ltd.
- 12 ECO-SYSTEM RECYCLING CO., LTD.
East Japan plant
- 13 ECO-SYSTEM JAPAN CO., LTD.
- 14 GEOTECHNOS CO., LTD.
- 15 E&E Solutions Inc.
- 16 ECO-SYSTEM CHIBA CO., LTD.
- 17 ECO-SYSTEM SANYO CO., LTD.
- 18 OKAYAMA KOYU CO., LTD.
- 19 ECO-SYSTEM RECYCLING CO., LTD.
West Japan plant
- 20 ECO-SYSTEM OKAYAMA CO., LTD.
- 21 BIODIESEL OKAYAMA CO., LTD.
- 22 KOWA SEIKO CO., LTD.
- 23 Act-B Recycling Co., Ltd.

- 27 AKITA RECYCLE & FINEPACK CO., LTD.
- 28 AKITA ZINC CO., LTD.
- 29 AKITA ZINC SOLUTIONS CO., LTD.
- 30 AKITA RARE METALS CO., LTD.
- 31 AKITA ZINC RECYCLING CO., LTD.
- 32 Acids Co. Ltd.
- 33 ZINC EXCEL CO., LTD.

DOWA ELECTRONICS MATERIALS CO., LTD.

- 34 Semiconductor Materials Laboratory
- 35 DOWA SEMICONDUCTOR AKITA CO., LTD.
- 36 Electronics Materials Laboratory
- 37 DOWA F-tec CO., LTD.
- 38 Advanced Fine Materials Laboratory
- 39 DOWA ELECTRONICS MATERIALS OKAYAMA CO., LTD.
- 40 DOWA IP CREATION CO., LTD.

DOWA METALTECH CO., LTD.

- 41 NEW NIPPON BRASS CO., LTD.
- 42 HOEI SHOJI CO., LTD.
- 43 DOWA HIGHTECH CO., LTD.
- 44 DOWA POWER DEVICE CO., LTD.
Technology center
- 45 DOWA METAL CO., LTD.
- 46 DOWA METANIX CO., LTD.
- 47 TOKUYAMA-DOWA POWER MATERIALS CO., LTD.

DOWA THERMOTECH CO., LTD.

- 49 DOWA THERMOENGINEERING CO., LTD.
Mooka plant
- 50 DOWA THERMOENGINEERING CO., LTD.
Ohta plant

- 51 DOWA THERMOENGINEERING CO., LTD.
Hamamatsu plant
- 52 DOWA THERMOENGINEERING CO., LTD.
Hamamatsu-kita plant
- 53 DOWA THERMOENGINEERING CO., LTD.
Chukyo Handa plant
- 54 DOWA THERMOENGINEERING CO., LTD.
Shiga plant
- 55 CEMM CO., LTD.
- 56 TONETSU KOHSAN CO., LTD.

Headquarters and others

- 57 DOWA TECHNO RESEARCH CO., LTD.
- 58 UNEKURA MINING CO., LTD.
- 59 AKITA ENGINEERING CO., LTD.
- 60 DOWA TECHNOLOGY CO., LTD.
Kanto Techno center
- 61 Headquarter
- 62 DOWA Group Nagoya Branch
- 63 DOWA Group Osaka Branch
- 64 DOWA TECHNOLOGY CO., LTD.
Seibu Techno center
- 65 DOWA TECHNO ENGINEERING CO., LTD.
- 66 YOWA ENGINEERING CO., LTD.
- 67 DOWA KOHSAN CO., LTD.
- 68 DOWA Group Kyushu Branch

DOWA METALS & MINING CO., LTD.

- 24 Metallurgical Laboratory
- 25 KOSAKA SMELTING & REFINING CO., LTD.
- 26 NIPPON PGM CO., LTD.

DOWA ECO-SYSTEM CO., LTD.

- 1 DOWA ENVIRONMENTAL MANAGEMENT CO., LTD. (China)
- 2 PT. PRASADHA PAMUNAH LIMBAH INDUSTRI (Indonesia)
- 3 TECHNOCHEM ENVIRONMENTAL COMPLEX PTE. LTD. (Singapore)
- 4 DOWA ECO-SYSTEM SINGAPORE PTE. LTD. (Singapore)
- 5 WASTE MANAGEMENT SIAM LTD. (Thailand)
- 6 BANGPOO ENVIRONMENTAL COMPLEX LTD. (Thailand)
- 7 EASTERN SEABOARD ENVIRONMENTAL COMPLEX CO., LTD. (Thailand)
- 8 GOLDEN DOWA ECO-SYSTEM MYANMAR COMPANY LIMITED (Myanmar)

DOWA METALS & MINING CO., LTD.

- 9 Vancouver Office (Canada)
- 10 Cariboo Copper Corporation (Canada)
- 11 NIPPON PGM AMERICA, INC. (America)
- 12 Mexico office
- 13 MINERA TIZAPA, S.A. DE C.V. (Mexico)
- 14 Nippon PGM Europe s.r.o. (Czech Republic)
- 15 DOWA METALS & MINING (THAILAND) CO., LTD. (Thailand)
- 16 KEY METAL REFINING, LLC (America)
- 17 DOWA METALS & MINING AMERICA INC. (America)

DOWA METALTECH CO., LTD.

- 18 DOWA ADVANCED MATERIALS (SHANGHAI) CO., LTD. (China)
- 19 DOWA NEW MATERIALS (SHANGHAI) CO., LTD. (China)
- 20 DOWA METALTECH (THAILAND) CO., LTD. (Thailand)
- 21 Dowa Precision (Thailand) Co., Ltd. (Thailand)
- 22 Singapore branch
- 23 DOWALI PRECISION CO., LTD. (Taiwan)
- 24 DOWA METALTECH MEXICO, S.A. de C.V. (Mexico)

DOWA THERMOTECH CO., LTD.

- 25 DOWA THT AMERICA, INC. (America)
- 26 KUNSHAN DOWA THERMO FURNACE CO., LTD. (China)
- 27 DOWA Thermotech (Thailand) Co., Ltd. (Thailand)
- 28 HIGHTEMP FURNACES LTD. (India)
- 29 PT. DOWA THERMOTECH INDONESIA (Indonesia)
- 30 PT. DOWA THERMOTECH FURNACES (Indonesia)
- 31 DOWA THERMOTECH MEXICO, S.A. DE C.V. (Mexico)
- 32 DOWA THERMOTECH NORTH CAROLINA, INC.

Headquarters and others

- 33 DOWA INTERNATIONAL CORPORATION (America)
- 34 DOWA INTERNATIONAL CORPORATION San Jose branch (America)
- 35 DOWA HOLDINGS (SHANGHAI) CO., LTD (China)
- 36 DOWA HOLDINGS (SHANGHAI) CO., LTD. Shenzhen branch (China)
- 37 DOWA HD Europe GmbH (Germany)
- 38 DOWA HOLDINGS (THAILAND) CO., LTD. (Thailand)

CSR Policy and Plan

The DOWA Group is proceeding based on the CSR plan targeting the year 2020.

The CSR plan and the approach for the goals

In the four priority areas of governance, safety, environment and society for our CSR policy, we have set the “Vision for 2020” as our medium-term goal. While seeing this vision as a goal that can be feasibly achieved, as priority measures for issues that should be treated preferentially, we have set up an action plan to realize this with single year initiatives and goals, and are promoting repeated action, evaluation and measures.

For details about the results of the initiatives by area for FY2017, please see the report by area from page 19.



| Areas | CSR Policy | Medium-Term Goals “Vision for 2020” | Focus Measures | Indicator | FY 2020 Goals | Activity Plan for FY2018 | |
|---|--|--|--|---|---|---|--|
| | | | | | | Initiative | Goal |
| Corporate governance Governance Results →P.19 | <ul style="list-style-type: none"> We will aim to be an open and transparent company Taking into consideration international initiatives, we will work on anti-corruption including bribery We will take CSR into consideration in our procurement | <ul style="list-style-type: none"> Promoting sound business management by ensuring sufficient functions, appropriate information disclosure and transparency for internal control systems By each employee carrying out appropriate activities based on the “DOWA Group’s Values and Code of Conduct”, promoting business management that does not give rise to any kind of fraud or corruption Promoting CSR throughout the whole supply chain by building partnerships with suppliers | Strengthening of internal control and governance | No. of important deficiencies that should be disclosed | Zero incidences | Supporting internal control activities at companies in Japan and overseas | Prepare an executive handbook |
| | | | Strengthening of compliance and risk management | Implementation rate of internal education and briefings | 100% | Conducting briefing sessions about harassment | 3 times |
| | | | CSR procurement promotion | Coverage rate for supplier survey *Excluding construction contractors | 80% on a transaction amount basis | Revise the promotion system and methods Promote in-house education | Implement a revision based on exchanges with other types of industries CSR targeting those responsible for procurement Implement procurement education |
| Safety Safety Results →P.25 | <ul style="list-style-type: none"> All employees will independently take part in activities to improve the level of health and safety based on our basic philosophy of “safety takes the priority over everything” We will prevent accidents at work and will support the health of our employees | <ul style="list-style-type: none"> Appropriately manage and minimize occupational safety risks in the workplace, and make a comfortable and safe working environment a reality | Raising the company-wide safety level | Frequency rate Severity rate | 0.7 or less 0.01 or less | Strengthen cross-initiatives by region | Frequency rate 0.9 or less Severity rate 0.02 or less |
| | | | Strengthening of safety education in subsidiaries outside Japan | No. of times education is implemented No. of persons educated | Total 20 times 200 people total | Strengthen maintenance education | Cut in half the incidence of accidents at the time of repairs |
| Environment Environment Results →P.29 | <ul style="list-style-type: none"> We will provide customers (clients and regions) with products and services that contribute to building a recycling-oriented society We will reduce environmental burdens and risks in our business activities. From managers to employees, we will be unified in working on environmental conservation activities We will promote business activities that consider biodiversity | <ul style="list-style-type: none"> Be responsible for the essentials of the international resource recycling network in Asia and the Pacific rim area Realize effective reduction of CO₂ emissions per unit by energy saving measures and actively utilizing renewable energy Properly manage the environmental risks of the workplace, and minimize the risk of environmental accidents happening Promote biodiversity conservation activities in collaboration with the upstream and downstream of the supply chain | Strengthening of the recycling business: Collection volume, recycling volume and an increase in the number of elements, etc. | Collection volume of recyclable raw materials | Increase from the preceding fiscal year | Strengthening of collection of materials for recycling outside Japan | Increase from the preceding fiscal year |
| | | | Improve the utilization ratio of renewable energy Strengthen energy saving initiatives | Emission amount of CO ₂ emissions per unit | Compared to FY 1990 15% reduction | Promote renewal of energy-saving equipment and energy conversion | Reduction of greenhouse gas emissions per unit at large-scale emission sites by 1% compared with the previous FY |
| | | | Minimize the risk of environmental accidents and strengthen the ability to respond <small>*Environmental accidents: In cases where there is impact outside of the company and it is reported to the relevant agency</small> | No. of environmental accident occurrences | Zero incidences | Raising the level through seminar courses and mutual inspections of environment management systems | 8 regions |
| | | | Understand the biodiversity risk of suppliers Confirm consideration for the biodiversity situation at mines | Survey rate for suppliers and mines | 100% | Confirm the biodiversity consideration status for mine-related suppliers | Over 80% on a transaction amount basis |
| Society Social Results →P.37 | <ul style="list-style-type: none"> We will aim to create a workplace where diversity and the human rights of employees are respected, and each person can demonstrate their maximum abilities with satisfaction and pride Establish a culture that fosters fair evaluation & treatment, with employees experiencing growth, results and satisfaction. Employees themselves create an organization where they compete with each other and support each other. | <ul style="list-style-type: none"> While diverse human resources mutually respect each other, employees themselves select the diverse ways of working that are in line with their respective life stages and styles, and the company and teams support each other | Promoting diversity | Employment rate of people with disabilities Attendance rate for education about promoting the success of women | 2.0% 100% | Employment for physically challenged Implement female employee training and management training Expansion of a global human resources Strengthen human resources and organizations at offices overseas Implement training to strengthen recruitment abilities at each company | 2.2% Attendance rate 90% Implement a global challenge program Hold at all the major sites |
| | | | Promoting work-life balance | Annual paid leave acquisition rate | 70% | Thorough knowledge within the company of the various systems Encouragement of annual leave Promotion of measures to reduce working hours | Updating and publicizing handbooks to explain the system Acquisition rate 60% Thorough and strict observance of group management standards for working hours |
| | | | Training of both evaluators and those being evaluated Strengthen in-house human resources education | Employee degree of satisfaction —Business planning system | 90% | Implement training of evaluators and those being evaluated Implement an institutional survey Evaluation system education for new employees | 300 participants Done by 1,100 people (100% answer rate) Attendance rate 100% |
| | | | Support for career development done on the initiative of the employee | —Educational system and details | 70% | Introduce career planning seminars | Attendance rate 30% |
| | | | Promoting social contribution | — | — | Promote regional contribution activities that capture regional needs Support by sharing and providing information on social contribution activities | 5 times Collect examples of initiatives and provide information |
| | | | In unity with the local community, we will promote social contributions that reflect the unique characteristics of the local community | Deploy inside and outside of Japan social contributions together with each region | — | — | — |

Governance

Corporate governance

To continue to be a company that is trusted by society, the DOWA Group has positioned the strengthening of corporate governance as a key management issue, and is working on it based on the "DOWA Group's Values and Code of Conduct".

CSR Policy

- We will aim to be an open and transparent company
- Taking into consideration international initiatives, we will work on anti-corruption including bribery
- We will take CSR into consideration in our procurement

Progress of Activities

Following is the status of activities for FY2017 and the plan for FY2018 in the field of corporate governance.

FY 2017 Results

| Corporate Governance Focus Measures | Tasks | Indicator | Evaluation | Main Results |
|--|---|--|------------|---|
| Strengthening of internal control and governance | Conducting briefing sessions for internal control | More than 140 participants in briefing sessions for senior executives and managers | ○ | 160 attended |
| Strengthening of compliance and risk management | Supporting internal control activities of domestic and overseas companies | 10 companies domestic and overseas | ○ | Implemented by more than 10 companies |
| CSR procurement promotion | Preparation of easy-to-answer questionnaire | Review of question items | △ | Revised the format and company information registration |
| | Expansion of research scope | Development of important suppliers in industries other than manufacturing | ○ | Development of facility equipment manufacturers |

FY 2018 Initiatives and Goals

| | | | |
|--|---|---|---|
| Strengthening of internal control and governance | Supporting internal control activities at companies in Japan and overseas | ➔ | Prepare an executive handbook |
| Strengthening of compliance and risk management | Conducting briefing sessions about harassment | ➔ | 3 times |
| CSR procurement promotion | Revise the promotion system and methods | ➔ | Implement a revision based on exchanges with other types of industries |
| | Promote in-house education | ➔ | Implement CSR procurement education targeting those responsible for procurement |



Strengthening of Governance - "Environmental business and human rights in Myanmar"

In the Republic of the Union of Myanmar, where economic liberalization policies are advancing, the number of companies entering from overseas has increased, and resource development, basic infrastructure development (such as transportation and electric power), and construction of industrial parks and commercial facilities are happening rapidly. With such rapid industrialization and urbanization, there is concern that the burden on the environment will increase. In the midst of this,

with the rapid increase in waste, the need is rising to promote recycling and appropriate processing. Based on the experience and technology acquired from our environmental management and recycling businesses in Japan, Southeast Asia and China, since 2016 the DOWA Group has been implementing a comprehensive waste management business in Myanmar.

About GOLDEN DOWA ECO-SYSTEM MYANMAR

As Myanmar's first private waste treatment facility, GOLDEN DOWA ECO-SYSTEM MYANMAR (hereinafter referred to as GEM), which is located in the Tirawa Economic Zone in the suburbs of Yangon, provides comprehensive waste management solutions such as transportation of waste, sorting, intermediate treatment, recycling and landfill.

Human rights initiatives

Regardless of the country or region where business is done, fulfilling our responsibility to respect human rights is important, but there are many ethnic minorities in Myanmar, a multiethnic country, and consideration for human rights is strongly required. Based on the UN Global Compact that the DOWA Group is a participant of, GEM is advancing various initiatives in the local community. The basis for carrying out these activities is building mutual trust by understanding the situation of local residents and working to disclose information on the company's corporate activities. In addition to consideration for local residents, we are also working on human rights education for our employees. Since December 2016, on Human Rights Day, we have continued human rights education and have explained the Universal Declaration of Human Rights, for learning about the importance of respecting human rights.



Monthly meeting with community leaders

Involvement with the local community

- Meeting once a month with community leaders in the area
- Collect and transport waste in the neighboring area
- Regular water quality analysis of the domestic water that residents use

Human rights initiatives

- Active recruitment of relocated residents
- Human rights education for employees

Information disclosure

- Post on our website environmental reports, business activities and a point of contact to support such things as complaints
- Providing information about our daily work through Facebook
- Holding business site tours for local residents, students and NGOs



Human rights education for employees

Environmental initiatives

Improper treatment of waste can worsen the living environment and threaten basic human rights by damaging the health of vulnerable people like children and the elderly through water and soil contamination. Instead of dealing with environmental pollution after it has occurred, environmental management is important to prevent it in advance.

The two waste landfill sites owned by GEM are facilities that are compliant with the first international standard in Myanmar (the standard of the Environmental Protection Agency in the U.S.) by installing leachate collection drain pipes with multiple water interception structures and gas vents, etc. The waste water treatment plant takes into consideration the impact on the surrounding environment, and it conforms to international standards based on wastewater standards in Japan and other Asian countries. In addition, it has an analysis facility for waste and water quality, and an intermediate treatment facility for recycling. As infrastructure is essential for economic development, it contributes to environmental conservation and improvement of public health in Myanmar.



In line with the CSR policy of the DOWA Group, GEM is working on CSR activities for all four areas of corporate governance, safety, the environment and society. We aim not only to contribute to society through our business, but also to gain the trust of society through CSR activities, and to grow together.

Corporate Governance

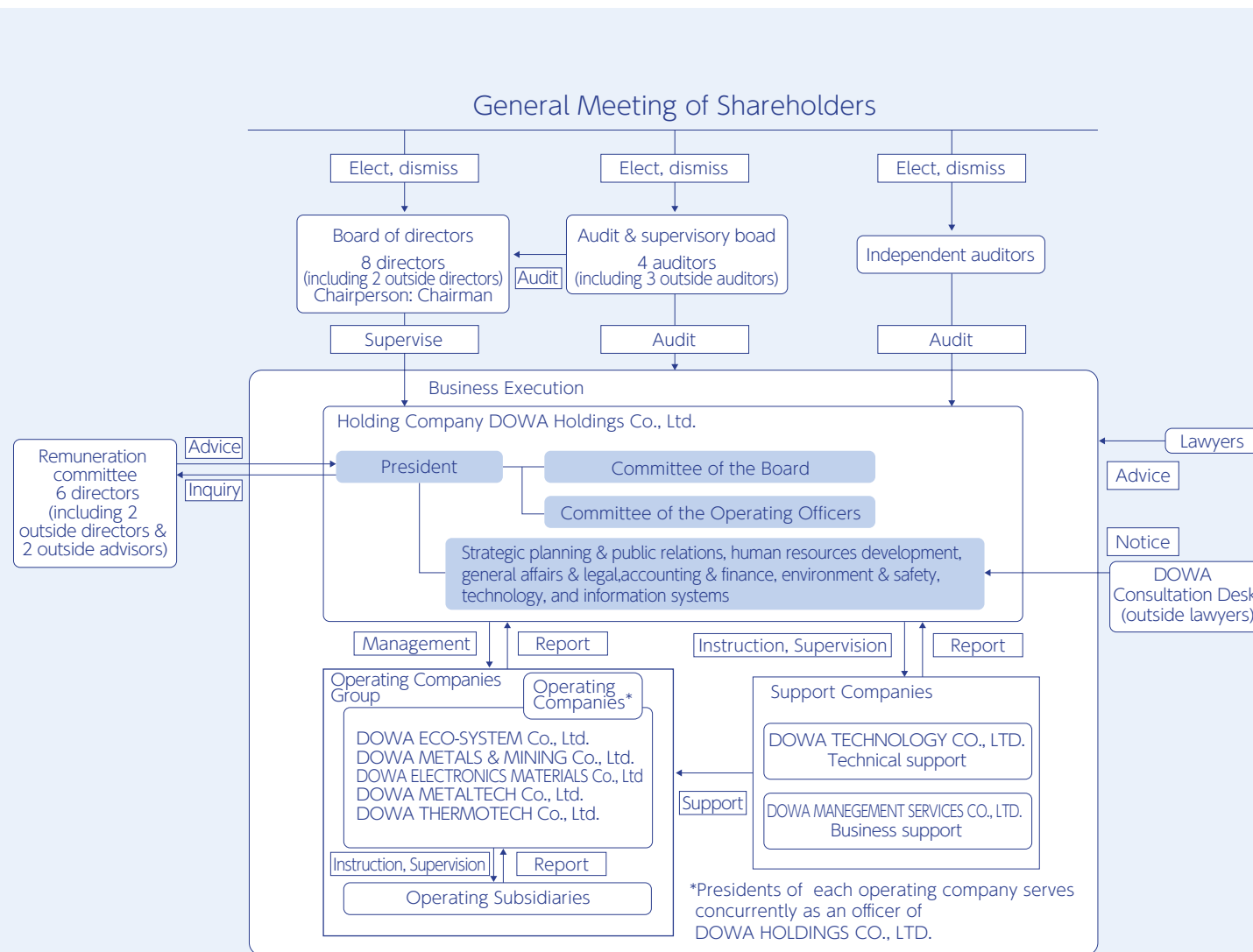
The DOWA Group positions the strengthening of corporate governance as one of the highest management tasks, and we are working on group-wide efforts to develop and operate a system that is effective and efficient in contributing to society and for internal control.

WEB For details, please refer to the report on our corporate governance. http://www.dowa.co.jp/jp/about_dowa/governance.html

Corporate Governance System

At the DOWA Group, in order to operate the organization soundly and efficiently, and at the same time to speed up decision making and to boost management efficiency, in addition to adopting an executive officer system, we have adopted a holding company system and have separated our business divisions into

subsidiaries. In addition, by establishing the board of corporate auditors, and by appointing outside directors, we are trying to ensure the soundness of management.



As of the current CSR Report issued in 2018

Board of Directors and Directors

The company's board of directors consists of eight directors, including two outside directors, with four corporate auditors, including three outside auditors, attending. With regards to their

decisions for business execution and the supervisory function of the board of directors, we evaluate the effectiveness of the board of directors every year with the aim of continuous improvement.

Evaluation results on the effectiveness of the board of directors

- Implementation details: Self evaluation done through a questionnaire**

[Evaluation subject]

Board of director meetings held from April 2017 to March 2018 (total of 15 times)

[Evaluators]

All directors and auditors

- Evaluation results**

It was confirmed that the board of directors has become a venue for free and vigorous discussion, and that its effectiveness has been sufficiently secured, including its composition, operation and agenda items. In addition, with regards to securing further time for reviewing documents submitted to the board of directors, which was cited as an issue last year, it was evaluated that this has improved.

- Future initiatives to improve effectiveness**

Based on the opinion that further improvement is needed both for consideration of methods to evaluate company-wide risk, and the analysis and review of measures implemented for the medium-term business plan, we will keep working to further improve the effectiveness of the board of directors.

Compliance

Within the DOWA Group, we have positioned "legal compliance" as the foundation for corporate management, and based on the "DOWA Group's Values and Code of Conduct", we are working on measures to strengthen internal control and education as core areas. In addition, each company in the DOWA Group aims to improve the awareness of compliance as they deal with the annual internal audit.

Internal Control Activities

In order to strengthen corporate governance in the DOWA Group, the holding company and each group company share the basic policy and basic system for internal control, and by utilizing the uniqueness of each company for specific activities, we are aiming for an effective and efficient internal control according to the holding company system.

reported to the directors, auditors and the relevant departments. In FY 2017, as part of strengthening internal control, we conducted internal audits at 10 domestic companies, and overseas we conducted internal audits at 13 companies in Southeast Asia and China.

Internal Audit

The internal audit based on the internal audit rules prescribed by the DOWA Group involves all corporate activities, such as the accounting audit, legal audit and safety & environmental audit. It is implemented with the cooperation of each relevant department and each group company. The audit results are

WEB Please refer to our annual report on the basic policy and operation status with regards to the internal control system. <http://www.dowa.co.jp/jp/ir/library/annual.html>

Risk Management

The DOWA Group works on risk management with the goal of properly controlling risks that may hinder the realization of our business philosophy and achievement of our business plans, and to fulfill our social responsibilities, and to contribute to the improvement of our sustainable corporate value. Among the risks surrounding the group, the board of directors is responsible for “business risks” and the environmental and safety department is responsible for “CSR risks” in cooperation with other departments.

● Business Continuity Plan (BCP) Initiatives

In addition to large-scale earthquakes, by regions and offices the DOWA Group has formulated business continuity plans (BCP) for natural disasters such as typhoons and floods caused by torrential rain that have been increasing in recent years. We are working to avoid risks in order to continue business activities in emergency situations. We revise the BCP on a regular basis, and in FY 2017, 17 operating subsidiaries revised their BCP assumptions, response procedures and recovery schedules. In addition, measures are being promoted that incorporate practical activities such as revision of disaster-related manuals and the addition of stored items.

Survey of BCP Formulation in Supply Chain

The DOWA Group mainly deals with B to B business, and since a disruption of the supply chain has a big impact on the production and sales of customers that we deliver to, through CSR procurement, we are checking with major suppliers about their status for formulating BCP with regards to rapid business restoration and continuation in the event of a disaster. For suppliers who have not yet formulated such plans, we explain the importance of the initiative and request strengthening of their BCP measures. Also, when natural disasters such as heavy snowfall or typhoons occur, the procurement department at the head office promptly confirms the impact on production and shipment based on the list of supplier production sites by region.

Implementing company-wide disaster drills

We carry out company-wide disaster drills once a year. We set up emergency headquarters at each level of the holding company, operating companies and business divisions, and we aim to maintain and improve initial response capabilities such as confirming the safety of our employees and reporting the damage situation between each emergency headquarters. Also, in FY 2017 we began introducing safety confirmation calls using smartphones for employees and their families.

● DOWA Consultation Desk

In order to encourage early detection of risks associated with corporate activities, and aiming for employees to feel more secure and comfortable in the workplace environment, we have set up a "DOWA Consultation Desk" that allows direct consultation with external lawyers. Confidentiality concerning the report, and that the person reporting is not subject to disadvantageous treatment, are both guaranteed, and it becomes commonly known through the intranet, posters and group reports.

Moreover, in order to build a healthier partnership with suppliers and cooperating companies, we have also set up a point of contact at the DOWA Consultation Desk for these external stakeholders, and have also made it possible for employees of suppliers and cooperating companies to use it. At this point of contact, confidentiality is kept for the consultations made and opinions given, and we respond promptly and appropriately.

Participation in international organizations and consortium

Since 2009, the DOWA Group has participated in the Global Compact (UNGC), which are voluntary action principles for companies advocated by the United Nations. Toward the sustainable development of society, we respect the 10 principles in the four fields of “human rights, labor, environment and anti-corruption” of the Global Compact, and are working to ensure that they are practiced.

The 10 principles of the Global Compact

Human rights

1. Businesses should support and respect the protection of internationally proclaimed human rights
2. make sure that they are not complicit in human rights abuses.

Labor

3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
4. the elimination of all forms of forced and compulsory labour;
5. the effective abolition of child labour;
6. the elimination of discrimination in respect of employment and occupation.

Environment

7. Businesses should support a precautionary approach to environmental challenges;
8. undertake initiatives to promote greater environmental responsibility.
9. encourage the development and diffusion of environmentally friendly technologies.

Anti-corruption

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

WEB Global Compact Network Japan <http://www.ungcjin.org/index.html>

We reflect the principles of the Global Compact, such as respect for human rights and elimination of child labor, in the formulation of our CSR procurement policies and guidelines. The DOWA Group participates in the "Supply Chain Subcommittee" of

Global Compact Network Japan, which consists of UNGC participating companies. At the same time as sharing the latest CSR trends and specific examples of each company, we are working to address the issues.

● Initiatives for human rights and anti-corruption

Based on the 10 principles of the UN Global Compact, the DOWA Group prohibits unfair discrimination, child labor and forced labor due to nationality, race, ethnicity, religion, gender, age or disability, and works to prevent corruption. Regarding human rights, we conduct a questionnaire annually of our operating subsidiaries, including offices overseas, and work to understand the current situation.

Towards responsible mineral procurement

In recent years it has been pointed out that ore mined in conflict areas around the world has been used to fund armed groups and to prolong such things as civil wars, causing great human right violations for workers and local residents. In the U.S. financial regulatory reform bill enacted in 2010 and which aims

to cut off the source of funding for armed groups, companies that are listed on the US stock market are obliged to disclose information on the usage of four kinds of minerals, such as gold and tin that originates in the conflict area of the Democratic Republic of Congo (DRC) and its neighboring countries.

At the DOWA Group, in order to support responsible mineral procurement, the two companies Kosaka Smelting & Refining and Eco-System Recycling obtained certification that their smelting sites are free of conflict minerals. We provide gold and tin which a third party has certified is not derived from conflict minerals.

Safety

Safety

Occupational safety and health is one of the most important themes in the development of DOWA's business. Based on the basic idea that "safety takes the priority over everything", we have established organizations such as safety and health committees at all business sites in Japan & overseas, and we are developing various safety activities based on an annual plan.

CSR Policy

- All employees will independently take part in activities to improve the level of health and safety based on our basic philosophy of "safety takes the priority over everything"
- We will prevent accidents at work and will support the health of our employees

Progress of Activities

Following is the status of activities in the area of occupational safety in FY 2017, and the plan for FY 2018.

FY 2017 Results

| Key safety measures | Tasks | Indicator | Evaluation | Main Results |
|---|---|----------------------------|------------|--|
| Raising the company-wide safety level | Strengthen cross-initiatives by region | Frequency rate 0.9 or less | △ | 0.91 |
| | | Severity rate 0.02 or less | × | 0.64 |
| Strengthening of safety education in subsidiaries outside Japan | Confirm continuous implementation and follow-up through visits to Japan for education and on-site education | 7 times | ○ | 8 times (4 visits to Japan for education, and 4 on-site education sessions) |

FY 2018 Initiatives and Goals

| | | | |
|---|--|---|---|
| Raising the company-wide safety level | Strengthen cross-initiatives by region | → | Frequency rate 0.9 or less Severity rate 0.02 or less |
| Strengthening of safety education in subsidiaries outside Japan | Strengthen maintenance education | → | Cut in half the incidence of accidents at the time of repairs |



Towards the elimination of accidents at work

Safe Environment Personnel Council

As a safety initiative of the DOWA Group, those responsible in the environmental and safety department, operating companies and technical support companies gather and hold a "Safety Environment Personnel Council" at the head office every month. With regards to understanding the situation for the most recent accidents and disasters that occurred, identifying the cause of the occurrence at the site where the accident or disaster occurred and measures to prevent recurrence, we confirm the facts, analyze and view what led up

to the cause, discuss whether concrete emergency and permanent measures are sufficient, and give feedback.

In addition, we share disaster cases, and promote initiatives for prevention at each business site. For the details discussed at the Safety Environment Personnel Council and the decisions made about measures and such, the people who are responsible disseminate it to each operating subsidiary through the office organizations, and aim to share information.

Function of the Safety Environment Personnel Council

- Development of company-wide safety policies, and notification and communication about decisions
- Confirmation and analysis of facts in accident disaster reports, confirmation of measures, feedback and applying to similar things
- Promotion and discussion of company-wide activities
- Sharing and mutual support for the activities of each company

Local check visits

In the event of accidents or disasters, those responsible in the environmental and safety department, operating companies and technical support companies visit the business site, and confirm the cause and facts and measures to prevent recurrence at the site where it occurred. In addition, they revisit business sites where accidents and disasters had occurred in the past, and check the effectiveness of measures to prevent recurrence. For incidents where good examples were announced at risk assessment or safety conferences, and Safety Awards, they also check the actual site.

Following FY 2016, in FY 2017 we conducted safety audits at 43 business sites in Japan and overseas, especially confirming the safety management system, procedure manual, related equipment, and relevant emergency response, and giving corrective guidance to sites that were insufficient.

Major activities involving local visits in FY 2017

- Safety audits
- Local interviews and checks
- Cross patrol
- Safety education
- Safety conferences
- Response to accidents
- Evaluator training for OHS law observance
- Compliance seminars
- District safety conferences
- Safety inspection tours

* OHS (Occupational health and safety)



Checking the accident occurrence status at a Thai subsidiary



Checking a good example (lockout & tagout)



Local patrol at a compliance seminar

Occupational Safety Initiatives

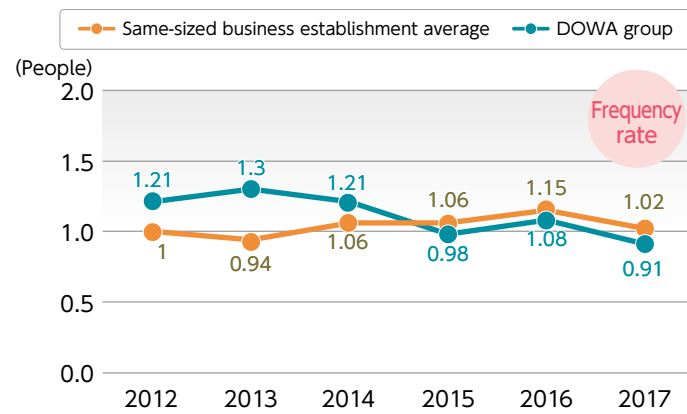
For the DOWA Group, based on the health and safety policy that “all employees will independently take part in activities to improve the level of health and safety”, based on our basic philosophy of “safety takes the priority over everything”, we have established organizations such as safety and health committees at all business sites, and we are developing various safety activities based on an annual safety and health plan.

● Occurrence status for accidents at work

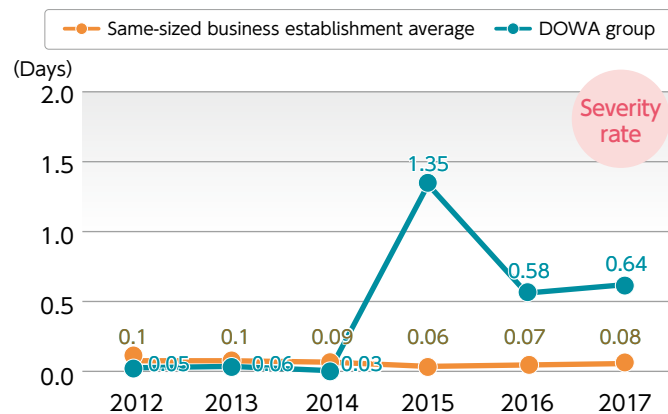
While the number of labor disasters at the DOWA Group as a whole is on a downward trend in the long term, in fiscal 2017, a serious accident at work occurred in June. For this reason, compared with figures at business establishments of the same scale in the disaster statistics of the Ministry of Health, Labor and Welfare, the frequency rate is 0.91 against 1.02, but for the

severity rate it is 0.64 against 0.08, showing that the severity rate is higher than the labor disaster statistics. Based on past serious disasters, a thorough examination of all items has been specified as mandatory in the safety and health plans of each business site, and we are strengthening our efforts.

■ Change in the accidents at work frequency rate



■ Change in the accidents at work severity rate



*In comparison with the Ministry of Health, Labor and Welfare Labor Accident Trend Survey Manufacturing Industry Total (business sites with 100 or more people)

| | |
|-----------------------|---|
| Frequency rate | Indicator showing the frequency of disasters by the number of dead and injured due to accidents at work per 1.0 million total working hours |
| Severity rate | Indicator showing the degree of labor disasters by the number of working days lost due to accidents at work per 1,000 total working hours |

Promotion of safety education

● DOWA Group risk assessment presentations

For the sharing of the excellent initiatives of each group company, and to form a human network of those in charge, we hold a DOWA Group risk assessment presentation every June with the purpose of improving the level of safety initiatives at each company.

For the seventh one this time, in addition to presenting the initiatives of the six domestic companies selected through advance

judging, DOWA Thermotech Thailand, which achieved excellent results at the overseas safety conference, also announced their safety initiatives. About 60 people from Japan and abroad gathered at the venue, and active opinions were exchanged about each company's initiatives. After the presentations were over, they had a social gathering, and they were able to further exchange information and deepen friendships.

● DOWA Eco-System global management training

At DOWA Eco-System, they have put efforts into safety education, and as part of that they are implementing a program where the managers from their Southeast Asian offices visit Japan for training. In a meeting room of the DOWA head office, the trainees again confirm that the policy of DOWA Holdings is “safety takes the priority over everything”. They also confirm that the policy does not

change at the stage it is deployed in the operating companies and operating subsidiaries. In addition, they learn about the importance of senior management, such as executives, managers and leaders, taking the initiative to put “Safety First” into practice, and the importance of fostering a safety culture.

● China Safety Conference

For the “China Safety Conference” that started in 2011, we hold it about two or three times a year, with managers and those responsible for safety from the management company and offices in China attending, and managers and those responsible for safety from the environmental and safety department in Japan attending. In FY 2017 it was held twice - in September

(Suzhou City, Jiangsu Province) and March (Kunshan City, Jiangsu Province). A safety cross patrol was done and there was an objective exchange of views by those responsible from different offices and departments in discussing accident and disaster cases. We are working to raise the safety level of all our offices in China.



A cross patrol at the China Safety Conference



DOWA Group risk assessment presentation

Promotion of Health Management

At the DOWA Group, through the health insurance association, we are developing various initiatives for promoting the health management of employees and their families, such as promoting physical check-ups and mental health measures, and supporting sports events.

● Health Check Up

To increase each person's awareness of health and to maintain mental and physical health, besides working on a department and business site basis so that everyone reliably gets a regular medical check-up every year, we have also enhanced the system for various subsidies, such as for complete physical examinations, gynecological examinations and influenza vaccinations. In addition, in order to raise the examination rate for specific medical check-ups for insured persons

and their dependents who are over 40 years old, we have provided information through such things as group newsletters, and the examination rate is gradually increasing.

Further, provide a subsidy system for sporting events for employees through sports and exercise so that they continue to maintain and promote a healthy body.

● Mental Health Initiatives

At the DOWA Group, we operate a mental health counseling system for the mental health management of employees, and have established a dedicated telephone number for telephone consultations with specialized counselors (Clinical Psychologists). We have established a strictly private point of contact outside of the company that anyone can contact with peace of mind. Moreover, from FY 2013, in order to encourage people to be aware of their

own stress, and to improve the workplace environment that is the cause of stress, we have introduced a stress check tool so that people can self-diagnose their mental health, and we are working to prevent employees from having mental health problems.

● Initiatives to prevent overtime work

At the DOWA Group, in order to improve long hours work, we are promoting management of working hours with logging in and logging out on personal computers. In addition, for employees who have more than 80 hours of overtime in a month, we are

working on preventing health problems from work with such things as interviews with their supervisors and guidance from doctors.

Environment

Environment

The DOWA Group recognizes the impact of business activities on the environment, and we are working on it throughout the entire group with initiatives for the environment and society through our core business, and by positioning a reduction in the environmental burden of our business as an important issue for management.



Landfill sites are essential for society

CSR Policy

- We will provide customers (clients and regions) with products and services that contribute to building a recycling-oriented society
- We will reduce environmental burdens and risks in our business activities.
- From managers to employees, we will be unified in working on environmental conservation activities
- We will promote business activities that consider biodiversity

Progress of Activities

Following is the status of activities in the area of the environment in FY 2017, and the plan for FY 2018.

FY 2017 Results

| Key environmental measures | Tasks | Indicator | Evaluation | Main Results |
|---------------------------------------|---|--|------------|--|
| Promotion of resource recycling | Strengthening of collection of materials for recycling outside Japan | Increase from the preceding fiscal year | △ | Expansion of automobile waste catalyst collection by utilizing European and North American sites Promotion of new reclamation of scrap raw materials in Southeast Asia and Europe Recyclable raw materials collection amount down 6% from the previous FY for precious metal and copper smelting |
| Environmental impact & risks | Promotion of energy-saving equipment renewal at large-scale emission sites | Total greenhouse gas emissions reduced by 1% compared to the previous FY | △ | Domestic: Advancing technological efforts such as improvement of waste heat utilization efficiency, with a 2% reduction from the previous FY Overseas: Due to an expansion in the hazardous material risk reduction business, up 58% from the previous FY |
| Environmental conservation activities | Hosting a seminar for environmental conservation for outside partners | 3 times | ○ | 9 times |
| Biodiversity | Strengthening of disaster prevention measures against abnormal weather and natural disasters at pit wastewater treatment facilities | Formulation of countermeasure plan | ○ | Including strengthening of disaster prevention measures against abnormal weather and natural disasters, a three-year plan was formulated |

FY 2018 Initiatives and Goals

| | | | |
|---------------------------------------|--|---|--|
| Promotion of resource recycling | Strengthening of collection of materials for recycling outside Japan | ➔ | Increase from the preceding fiscal year |
| Environmental impact & risks | Promote renewal of energy-saving equipment and energy conversion | ➔ | Reduction of greenhouse gas emissions per unit at large-scale emission sites by 1% compared with the previous FY |
| Environmental conservation activities | Raising the level through seminar courses and mutual inspections of environment management systems | ➔ | 8 regions |
| Biodiversity | Confirm the biodiversity consideration status for mine-related suppliers | ➔ | Over 80% on a transaction amount basis |

Currently, the creation of a recycling-oriented society is advancing throughout the world. It can be said that it is essential for sustainable development to revise the structure of the economy and society that produces large amounts of waste, and to promote resource recycling with little burden on the environment by using finite resources efficiently.

However, as humanity conducts their activities, waste always occurs, and it is necessary to manage harmful waste

according to its characteristics. Also, since waste is generated even in the process of proper recycling, it is crucial to properly process it so it does not impact human beings and the environment. For this reason, we believe that it is important for the DOWA Group to work as a whole in "promoting recycling" and the "appropriate processing of waste".

Management technology for landfill sites

The Dowa Group has developed its landfill business for waste with five sites in total, two in Japan and three overseas.

Green Fill Kosaka, which has a landfill capacity of 2.7 million cubic meters and is the largest in Japan's private sector, is located in Kosaka, Akita Prefecture where we have many recycling facilities. It is a managed landfill site that has introduced state-of-the-art technology such as an electric water leakage detection system. In addition to a dual water interception structure, it has a strong structure against damage by the laying of protective mats. We are working to reduce the environmental burden of such things as discharge by doing the treatment of the leachate from the landfill site at the attached leachate treatment facility according to the wastewater standards. This technology, which was developed in Japan, is contributing to the building up of developing countries by supporting social infrastructure.

PT. Prasadha Pamunah Limbah Industri in Indonesia (hereinafter referred to as PPLi) owns a landfill site that was built to conform to the standards of the U.S. EPA (Environmental Protection Agency). As the only final disposal site for hazardous waste in Indonesia, it collects, transports and accepts waste from the whole country. In addition to conducting regular monitoring of groundwater, surface water, leachate and final discharge water, they have promised to manage it over the 30 years after the landfill is completed. In addition, from government agencies, educational institutions, the community and customers there are many requests concerning consultation and education about the PPLi processing technology and know-how.



Promoting the appropriate processing of waste

For many years we have worked on improving recycling technology and are working on building a recycling-oriented society through the recycling of metals. However, in reality, there is waste that cannot be reused or recycled. Waste incineration facilities and landfill sites tend to be kept at a distance, but if they cannot be built, there is no place for the waste to go, and public health could not be guaranteed. We believe that our waste treatment business, which develops technically safe facilities, performs appropriate maintenance and sufficiently communicates with residents, plays an important role for society.

The landfill site is a facility that supports the foundation of resource recycling. The DOWA Group will continue to develop landfill sites that are necessary for society by enhancing waste treatment technology and reliably ensuring their safety and security.

The Environment of DOWA

The Dowa Group positions environmental conservation initiatives as an important issue for management, and we promote environmental management.

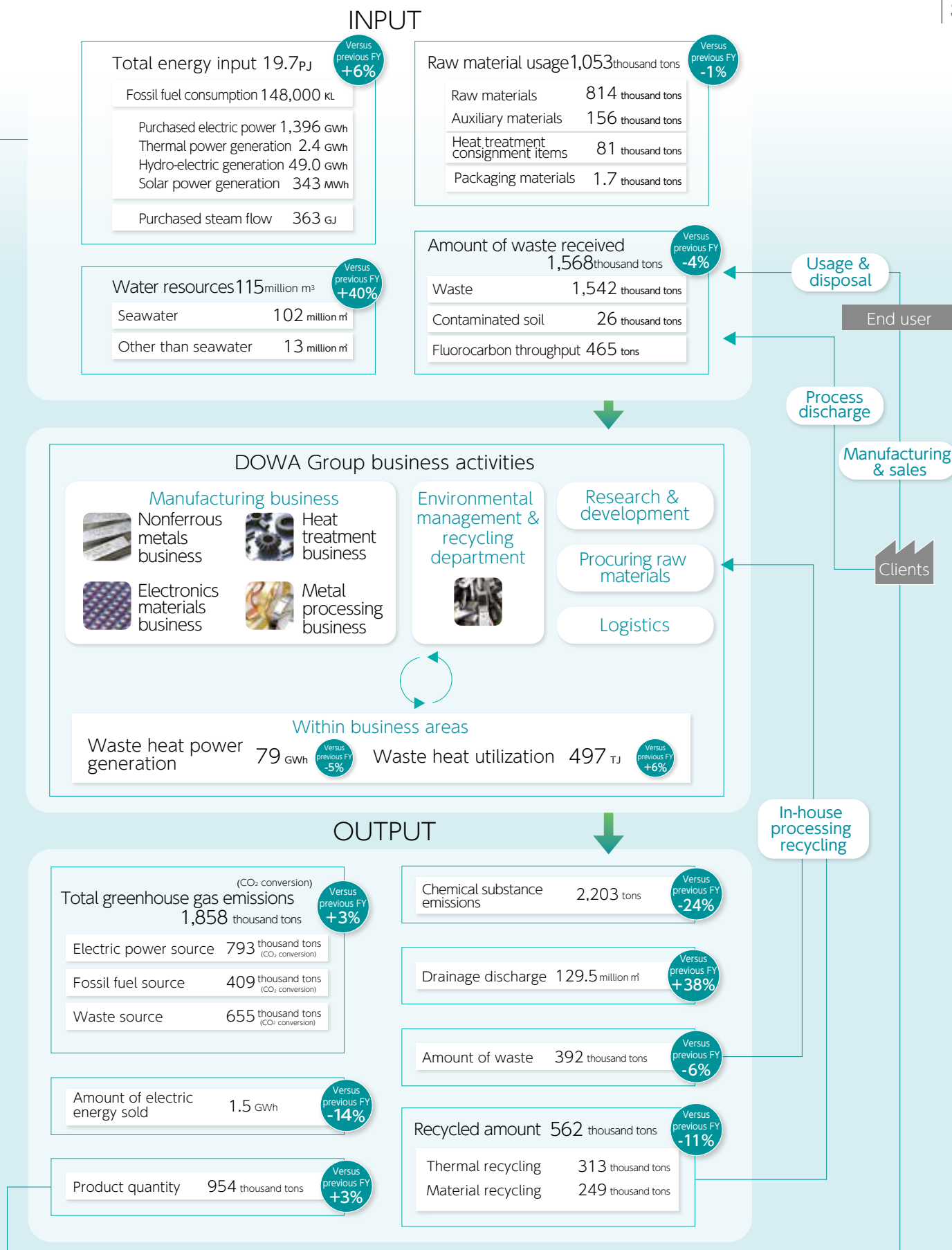
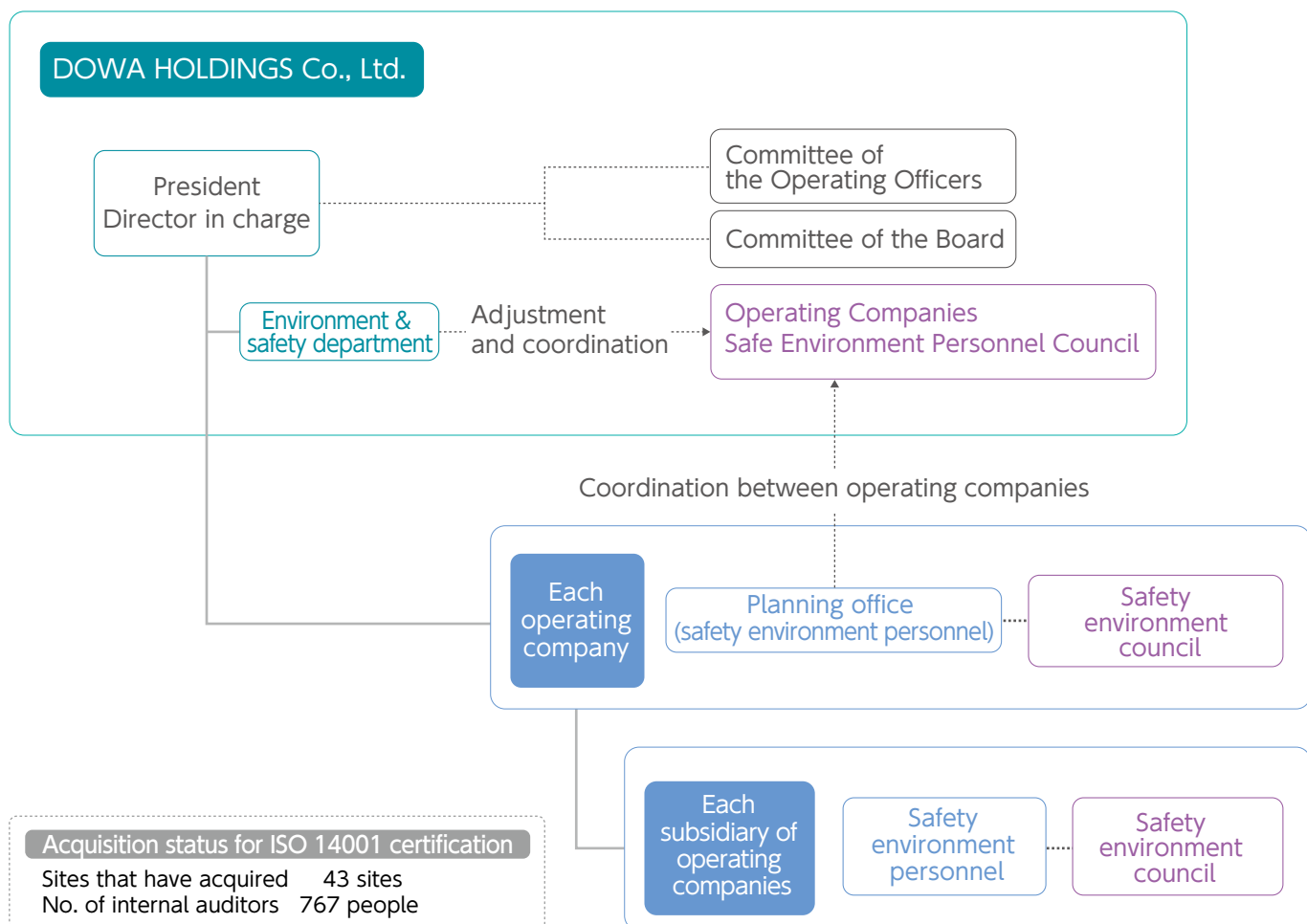
Basic Policy

We have formulated our basic environmental policy with the following basic concepts: "DOWA's business activities themselves are to improve the environment, and we are working with the aim that the next generation can inherit a good global environment" and "in our daily business activities we consider good things for the global environment and regions, and by taking actions that are esteemed by the local people, we establish fairness and integrity as our corporate culture in the actions and awareness of Dowa Group employees".

WEB Environmental basic policy http://www.dowa-csr.jp/about/csr_policy.html

Environment Management System

The DOWA Group's environmental management activities are coordinated by the environment & safety department and the planning offices of each operating company that conducts environmental conservation activities. Together with adjusting and coordinating things between each of the operating companies, DOWA Holdings conducts environmental management and compliance management for the entire DOWA Group. In addition, we have acquired ISO 14001 certification at major domestic production sites and overseas offices, and for the proper implementation of environmental management, we do regular internal and external audits, and we are working to support the training of internal auditors through auditor training courses.



With regards to CO₂ emissions, in principle we seek to multiply the electric power system purchase amount, the fossil fuel consumption and the amount of waste received, by the emission factor in the Law Concerning the Promotion of Measures to Cope with Global Warming. With regards to CO₂ emissions derived from waste received, because the calculation terms are set for preparing this report, it may not necessarily match with the number reported to government agencies. In addition, due to differences in the classification of waste in Japan and overseas, and the difficulty in setting an appropriate emission factor for waste received at overseas business sites, for CO₂ emissions originating from waste, only the portion for Japan business sites is shown.

Along with the review of the aggregate, some of the figures reported in the 2017 CSR Report have also been revised.

About the Current Situation of the Environment

Initiatives to Prevent Global Warming

At the DOWA Group, based on the Action Plan to Implement a Low Carbon Society by the Keidanren (Japan Business Federation) and the Japan Mining Industry Association (announced in January 2013), we have set a goal of "a 15% reduction in our CO₂ emission rate by FY 2020, compared to FY 1990".

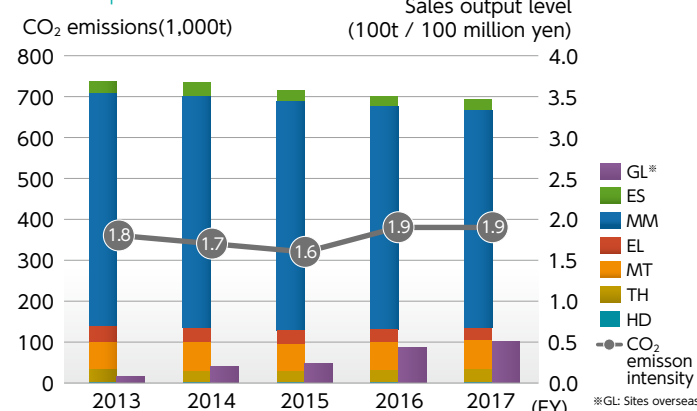
Reduction of Greenhouse Gas Emissions

In FY 2017, the greenhouse gas emissions by the DOWA Group as a whole were about 1,858 thousand tons CO₂ (1,649 thousand tons in Japan and 208 thousand tons overseas). Compared to the previous FY, it increased by 3%.

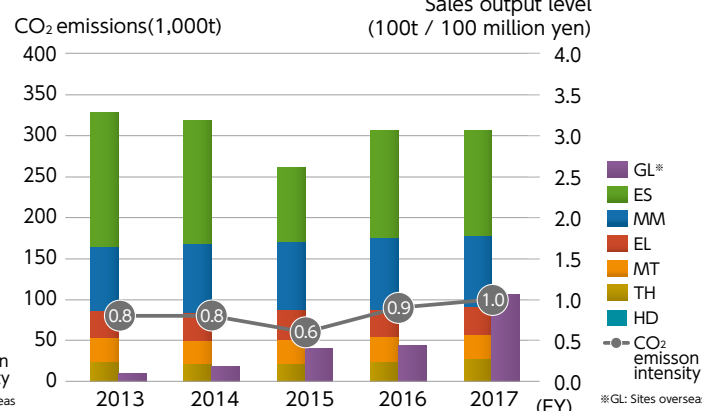
Domestic emissions decreased by about 2%. Despite an increase in target facilities and the full-scale operation of new

plants, energy consumption was reduced due to switching to energy-efficient equipment and appropriate operation management. On the other hand, overseas it increased by 58% compared with the previous FY due to expanded waste logistics in Indonesia and Thailand, and increased use of fossil fuels in line with business expansion in India.

Electric power source



Fossil fuel source



Major initiatives for FY 2017

- Facility remodeling & process improvement.....7 sites
- Miniaturization of equipment, and reduction of the number of units.....3 sites
- Switch to high efficiency type lighting equipment.....12 sites
- Reduction of equipment standby time, and planned shutdowns.....5 sites
- Waste heat utilization, and waste power generation.....8 sites

Initiatives for Renewable Energy

We are working on global warming measures through utilization of in-house power generation by renewable energy, and the dissemination of renewable energy through our business.

Utilizing renewable energy

At Kosaka Smelting & Refining (Akita Prefecture), in 1897 we began operating a hydroelectric power plant for the use of mine development, only the second such plant in Japan. Since then, as we expanded our business, we continued to expand and improve our facilities, and now we have six hydroelectric power plants in Akita Prefecture. In FY 2017, we generated 49.0 GWh, which is an important power source to cover the energy of Kosaka Smelting & Refining. In addition, we are introducing photovoltaic power generation systems at the Ohta Plant of Thermoengineering (Gunma Prefecture), DOWA Hightech (Saitama Prefecture), Eco-System Sanyo (Okayama Prefecture) and Act-B Recycling (Kumamoto Prefecture). In FY 2017, the total power generation of the four companies was 343Wh, and it is used for part of our electric power needs in our business activities.

Initiatives through business

DOWA Hightech is one of the world's largest manufacturers to produce "silver powder" which is used in the electrode sections of solar battery cells (crystal silicon type solar batteries). The silver powder for electrodes is required to have such properties as low resistance and high definition wiring, and it is positioned as an important material that greatly impacts product performance. By developing and providing optimal silver powder for the needs of domestic and overseas manufacturers, and supplying it stably, we are greatly contributing to the improvement of solar battery performance.

E&E Solutions is an environmental consulting company that carries out numerous support activities for introducing renewable energy such as solar power, wind power and biomass generation. They are working on the spread of renewable energy through such things as predicting mega solar power generation, technical verification and risk assessment of power generation equipment, and environmental assessments of offshore wind power generation.

Conservation of water resources

Every year the DOWA Group confirms the status for water intake sources and drainage destinations in addition to water usage at production sites in Japan and overseas. We are working to reduce the amount of water used throughout the entire group by promoting efficient use within business sites to reduce the quantity of water intake.

Use of water resources

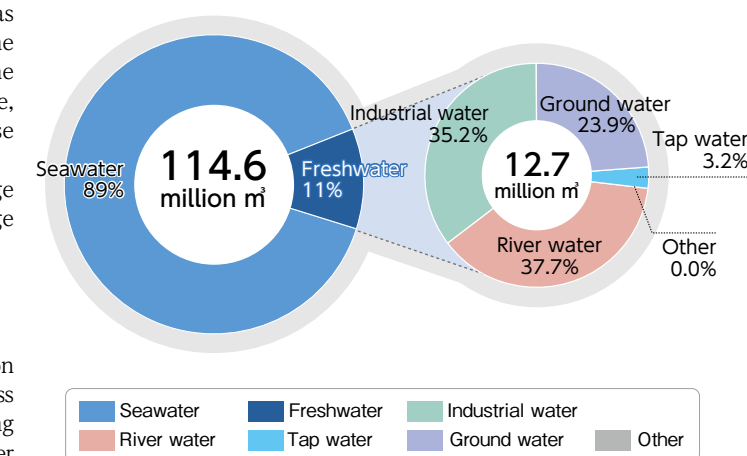
In FY 2017, the water resource input amount was 114.6 million m³, an increase of about 40% from the previous FY. This was due to an increase in the amount of seawater used as cooling water for smelting. After using the cooling water in the process, we confirm the water quality, and it is all returned to the original sea area except for the evaporated portion. Meanwhile, the amount of freshwater used was 12.7 million m³, a decrease of about 4% from the previous FY.

In FY 2017, we worked on reducing the amount of water usage by installing water-saving type equipment and recycling usage within processes.

Drainage water

In FY 2017, the total amount of drainage water was 130 million m³, an increase of about 38% from the previous FY. At each business site, we are working to preserve water quality, not only observing drainage water regulations through sound drainage water management, but also strict voluntary standards.

Amount of water resources used



Conservation of biodiversity

Based on the basic policy of biodiversity, the DOWA Group is working to minimize the impact that our business activities have on biodiversity, and we are promoting the conservation of biodiversity through social action programs.

Basic policy of biodiversity

The DOWA Group recognizes that our business activities get benefits from a biodiverse nature, and the conservation of biodiversity is important to keep enjoying these benefits. As a member of society, we will voluntarily and continuously work on the conservation of biodiversity and sustainable usage.

WEB <http://www.dowa-csr.jp/about/biodiversity.html>

Consideration for biodiversity in procurement

Supplying paper, a forest resource, is one of the important ecosystem services, and it is also related to climate change and waste. Because the DOWA Group's manufacturing business is mainly in the area of non-ferrous metals, we do not use biological resources for our main raw materials, excluding water, but we use paper at all our business sites both in Japan and overseas, and our whole group purchases a lot of paper every year. For this reason, we use paper that is a mixture of old paper and forest certified wood pulp for copy paper and pamphlets, and we are working to use sustainable biological resources.

When selecting suppliers of paper for FY 2017, in addition to

the environmental nature of the paper itself, based on the CSR procurement policy, we confirmed that suppliers are considering biodiversity through "responsible paper procurement".

Confirmation items for "responsible paper procurement"

- Establishment of a procurement policy for wood feedstock
- Establishment and operation of a management system that confirms the legality of the wood feedstock
- Can provide information about the supplier of raw material pulp

Resource Recycling Initiatives

At the DOWA Group, among the SDGs goals, “12. Securing sustainable patterns of consumption and production” is the area in which we are most closely involved, and we believe that we can show a great contribution towards the achievement of the goal. By working on resource recycling through our technology and resources, we aim to achieve goal No. 12.



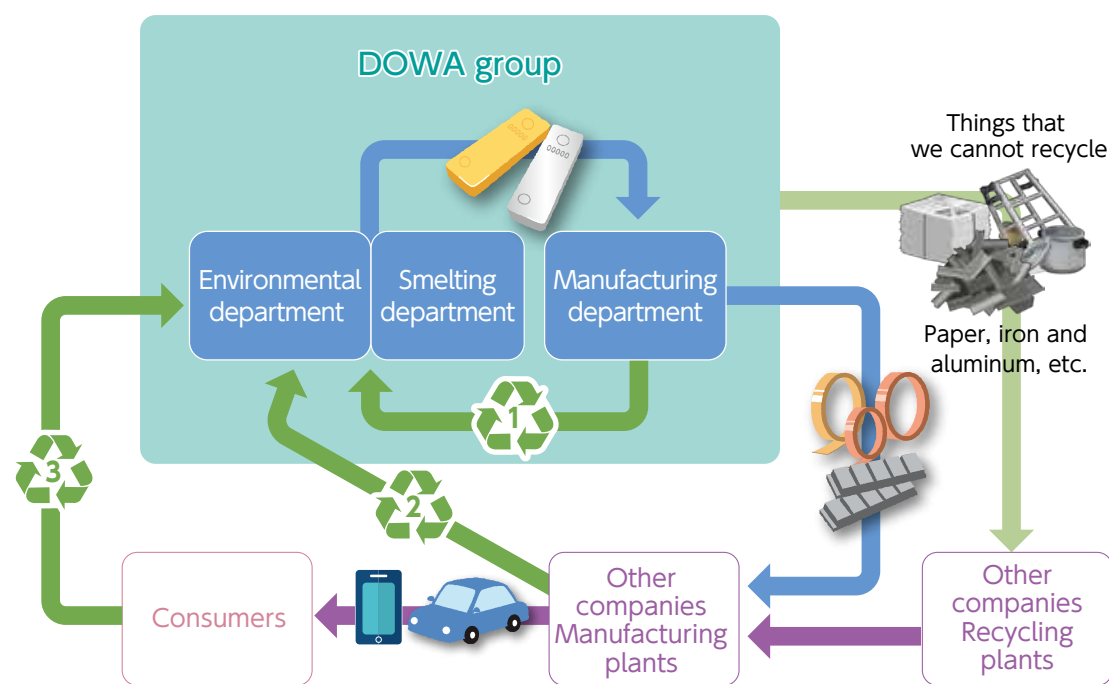
In the resource recycling of the DOWA Group there are three main loops.

First, is in-house generation and usage, for waste generated in the "manufacturing business", such as our smelting and metal processing, it is recycled in the "environmental business" and "smelting business" Besides selling it as metallic material, we re-use it as raw material for our company.

Second, is accepting and recycling scrap metal generated from the processes of manufacturing plants at other companies. In case it is from client factories that supply our materials or parts, such things as reusing the accepted waste as raw material leads to a reduction of new resource inputs.

Third, is the recycling of used end products. Through electrical appliance recycling, automobile recycling and the recycling of small household appliances, used products widely recovered from society will be returned to society as metallic material again.

In addition, with regards to paper, iron and aluminum, etc., that we cannot recycle, we strive to appropriately recycle through the recycling processes of other companies.



As shown above, at the DOWA Group we are working on effective utilization of limited resources through the three loops, from the production stage of our own company to the waste generated by society. At the same time, as a social responsibility in resource recycling, together with striving to minimize the environmental burden at every stage of recycling, such as appropriate water treatment, detoxifying waste and reliable landfill, we are aiming for sustainable resource recycling that considers environmental conservation and energy savings, such as using heat generated in the treatment process as steam or electric power.

INPUT

● Raw materials

The amount of raw material used in FY 2017 was 1,053 thousand tons, down about 1% from the previous fiscal year, so about the same level. Most of the raw material we use is ore for metal smelting, and it was around 60% of the total in FY 2017, followed by recyclable raw material such as scrap metal at about 17%.

● Waste received

The amount of waste received in FY 2017 was 1,568 thousand tons, a decrease of approximately 4% from the previous FY. This is due to a decrease in the amount of contaminated soil received because of soil cleanup.



OUTPUT

● Products

The product shipment volume in FY 2017 was 954 thousand tons, an increase of about 3% from the previous FY. This was mainly due to an increase in the shipment of zinc products and an increase in the number of heat treatment furnaces manufactured.

● Recycling

The amount of thermal recycling in FY 2017 was 313 thousand tons, a decrease of approximately 15% from the previous FY. Of this, 311 thousand tons was recycled within the DOWA Group, and 2,000 tons was recycled outside of the company. The amount of material recycling in FY 2017 was 249 thousand tons, a decrease of approximately 5% from the previous FY. Of this, 122 thousand tons was recycled within the DOWA Group, and 126 thousand tons was recycled outside of the company.

● Discharged waste

The amount of waste treatment in FY 2017 was 392 thousand tons, a decrease of approximately 6% from the previous FY. This was due to the recycling of some paper which until now had been waste.

TOPICS

Metal recovery of incinerated ash and recycling

In December 2017, at Meltec Iwaki in Iwaki, Fukushima Prefecture, we started operation of incinerated ash melting treatment and artificial manufacturing aggregate facilities, the second domestic site following Meltec in Tochigi Prefecture.

For incinerated ash generated from municipal waste treatment facilities, much of it is landfilled at landfill sites, but for the purpose of improving the recycling rate and securing capacity at the final disposal sites, municipalities that choose recycling such as melting treatment are on the rise. Since 1999, at Meltec, through a unique treatment process that melts the incinerated ash in a reduced state and cools it over time, molten slag used as artificial aggregate, and molten metal containing gold, silver, copper and other valuable metals, have been manufactured. With the new operation at Meltec Iwaki, we are introducing the same treatment process as Meltec, which has an operational track record of about 20 years, and are accepting incinerated ash from municipalities, including the city of Iwaki where Meltec Iwaki is located. By organizing melting treatment at two facilities, our ash melting and recycling capacity has doubled to about 90,000 tons per year, and we are responding to the needs of customers who want to make effective use of incinerated ash as a resource.



Plant facilities



Molten slag

Molten slag has a strength that is equivalent to natural stone, and because hazardous heavy metals are separated out and it is environmentally safe, the artificial aggregate that is used as roadbed material for streets is highly valued. In addition, for molten metal containing valuable metals, Kosaka Smelting & Refining of the DOWA Group recycles gold, silver, copper and other metals as smelting raw materials.

At the DOWA Group, we will contribute to achieving the SDGs by promoting recycling and the appropriate processing of waste, such as expanding the incinerated ash melting treatment and artificial manufacturing aggregate businesses.

Social Society

The DOWA Group aims to be a company trusted by all stakeholders for sustainable development and is taking initiatives to enhance the relationship with the society through its CSR activities.

CSR Policy

- We will aim to create a workplace where diversity and the human rights of employees are respected, and each person can demonstrate their maximum abilities with satisfaction and pride
- In unity with the local community, we will promote social contributions that reflect the unique characteristics of the local community

Progress of Activities

Following is the status of activities in the area of society in FY 2017, and the plan for FY 2018.

FY 2017 Results

| Key social measures | Tasks | Indicator | Evaluation | Main Results |
|--|---|--|------------|--|
| Promoting diversity | Expansion of a global human resources | — | ○ | Implement a global challenge program |
| | Strengthening and training of employees hired overseas and locally | — | ○ | Implemented training in Japan for employees hired locally overseas |
| | Aggressive development of career and employment | 20 people | ○ | 20 people employed |
| | Implementation of training for female employees and managers | Twice | ○ | Implemented female employee career training and training for management |
| Promoting work-life balance | Thorough knowledge within the company of the various systems | Updating and publicizing handbooks to explain the system | △ | Handbooks to explain the system partially updated (progress rate 40%) |
| | Encouragement of annual leave | Acquisition rate 60% | ○ | Acquisition rate 66% |
| | Promotion of measures to reduce working hours | Formulating and executing all group company working hour management policies and standards | ○ | Formulated all group company working hour management policies and held briefings at all companies Formulated group management standards for working hours and started operation |
| Human resource development, evaluation & treatment | Implement training of evaluators and those being evaluated | 300 participants | △ | 290 participants |
| | Conducting system surveys | Done by 1,100 people | △ | Done by 800 people |
| | Education for new people (until 3 years after joining the company) | 140 students | ○ | 142 students |
| Promoting social contribution | Development activities for children who will be responsible for next generation | 3 times | ○ | 5 times |
| | Awareness activities aiming at community contribution | 3 times | ○ | 6 times |

FY 2018 Initiatives and Goals

| | | |
|--|---|--|
| Promoting diversity | Employment for physically challenged | 2.2% |
| | Implement female employee training and management training | Attendance rate 90% |
| | Expansion of global human resources Strengthen human resources and organizations at offices overseas | Implement a global challenge program |
| Promoting work-life balance | Implement training to strengthen recruitment abilities at each company | Hold at all the major sites |
| | Thorough knowledge within the company of the various systems | Updating and publicizing handbooks to explain the system |
| | Encouragement of annual leave | Acquisition rate 60% |
| Human resource development, evaluation & treatment | Promotion of measures to reduce working hours | Thorough and strict observance of group management standards for working hours |
| | Implement training of evaluators and those being evaluated | 300 participants |
| | Implement an institutional survey | Done by 1,100 people (100% answer rate) |
| | Evaluation system education for new employees | Attendance rate 100% |
| Promoting social contribution | Introduce career planning seminars | Attendance rate 30% |
| | Promote regional contribution activities that capture regional needs | 5 times |
| | Support by sharing and providing information on social contribution activities | Collect examples of initiatives and provide information |

Focus Measures

Development activities for children who will be responsible for next generation

Support of local children by ESBE in Thailand



In January 2018, the Eastern Seaboard Environmental Complex (hereinafter referred to as ESBE) of the DOWA Group awarded scholarships at the Ban Khao Hin Elementary School in Thailand. ESBE, located in Si Racha, Chonburi Province, is a business that does recycling and landfill of waste oil, waste liquid treatment and waste.

The ceremony was held in a pleasant atmosphere, with many guests in attendance, including the mayor of Si Racha and the head of the district. Scholarships were awarded to 60 children attending six schools in the area, and the money was

used for teaching and writing materials. For the children who received the scholarships, priority was placed on their economic situation with the purpose of giving them opportunities to learn, and they were chosen by the principals of each school.

In addition to the scholarships, ESBE holds mangrove tree planting events and organizes excursions to natural parks. To promote recycling at the schools, they donate bins to separate garbage, and hold factory tours. They also support the teacher training fund, among other things. Every year, they continue to support the local schools in various ways.

Interview

Interview

We interviewed the principal of the Ban Khao Hin Elementary School to get their opinions and requests about the current situation of the school and the support they have received until now.

What are the issues at the school?

The first thing is the poverty of the children's families. Since Si Racha is an industrial park, it is an area where there are many migrant workers. Many of the children's parents are immigrants from the north and south of Thailand, and the burden of living expenses such as house rent is heavy, so there are only a few children who can go to university.

In addition, while the number of teachers is determined according to the number of children, in fact, it is a problem that the number of teachers is small at every school. In addition to the subjects of study, I have to take charge of classes for such special subjects as physical education and music, and I have hardly any time to prepare for the classes. I think it is also important to increase the number of teachers.

Please tell us about your goals and the activities that you are putting effort into.

We are pursuing various initiatives aimed at becoming an eco-school. We are doing pesticide-free agriculture such as vegetables, bananas and lemons, and making compost with fallen leaves that we have gathered. We also have the children themselves grow mushrooms and cultivate prawns. We use the things that we produce in school meals. In addition, the children learned how to make traditional houses, and painted the walls of red clay. Such activities will help children improve their basic living skills. In environmental classes, we also plant trees. The children select their favorite trees and we teach them how to care for them. By teaching elementary school students on separating garbage, I think that recycling will become more of a reality in Thailand in the future. Eventually, we expect our school to become a regional model and develop initiatives for neighboring elementary schools.

What is your thinking about relationships with companies and about our company?

Currently schools need to seek support and cooperation not only from the government, but also from local communities and companies, including economic support. Of the two, the support from companies is very helpful. There is a community representative at ESBE, and they respond quickly. I think that they are doing an appropriate business in waste treatment in Thailand. I would like you to keep developing together with the region in the future.

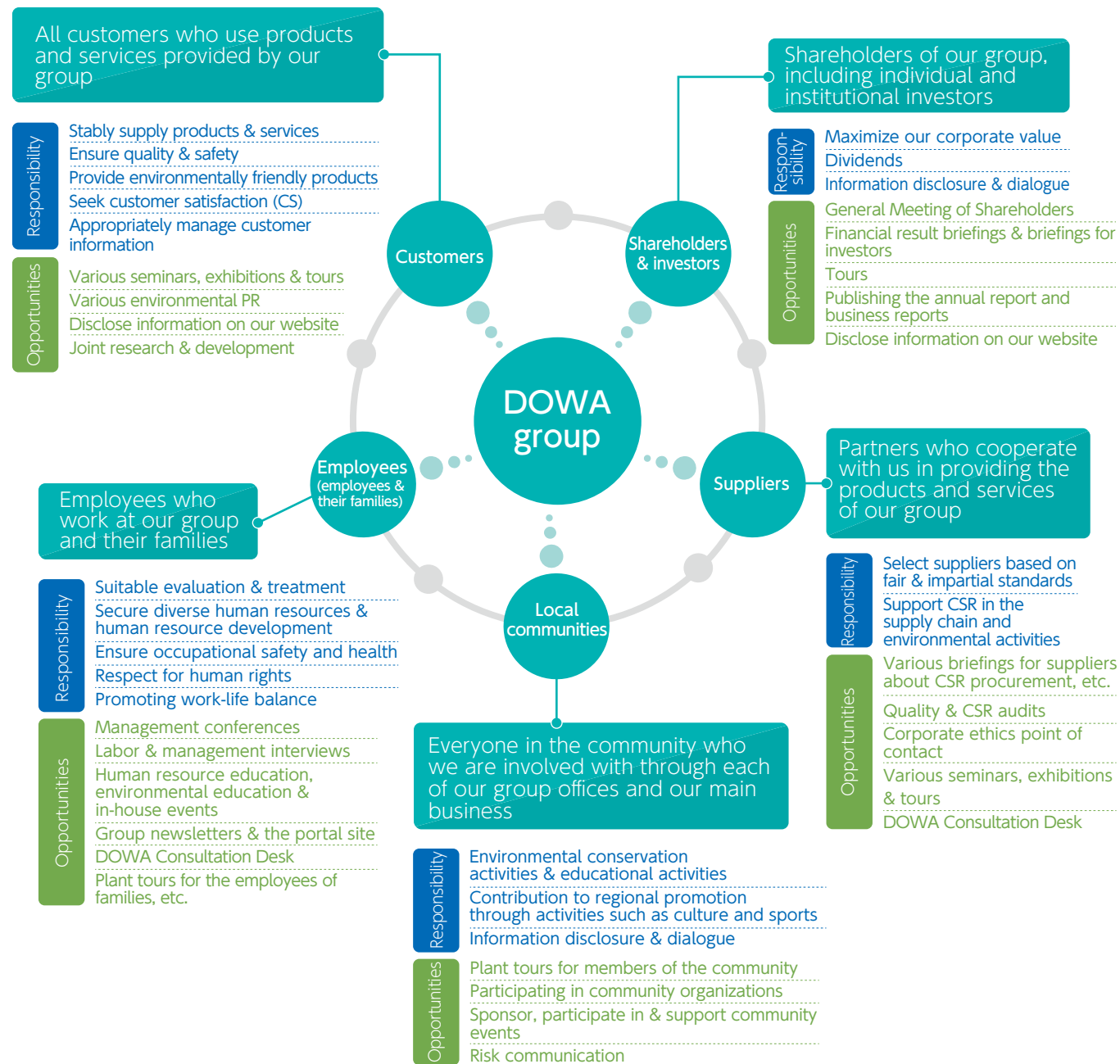


ESBE actively participates in the community in various ways and strives to provide support themselves that is suitable for the characteristics and demands of the area. For that reason, from day to day the community representative visits nearby districts and schools, so that they have many opportunities for dialogue. Through such activities, it feels like the understanding towards ESBE in the region is deepening. We will continue to develop with local communities in the future through good communication.

Relationship with Major Stakeholders

At the DOWA Group, at each office and department, we communicate with our major stakeholders through various methods of communication, including customers, shareholders, investors, suppliers, local communities and employees.

Relationship with Major Stakeholders



Communication with Shareholders and Investors

At the DOWA Group, we recognize as an important issue for corporate governance the explanation of corporate and management information to shareholders, investors and other stakeholders, and we are striving to disclose timely and appropriate information.

Providing IR information

We hold briefing sessions by management for our quarterly financial result announcements. In addition, we also arrange opportunities to explain management information directly to investors in Japan and overseas. As a tool to report the management policies and situation of the DOWA Group, we also publish the annual report and other reports in Japanese, English and Chinese, and we work to disclose information that is appropriate and highly transparent.

In order to help shareholders and investors understand the DOWA Group's management situation and business strategy, we also provide IR information on our website. In addition to the financial statement summary and securities report, we post materials like the annual report and shareholder communications. We will keep working to disclose information in a timely and easy-to-understand manner.



WEB IR information website: <http://www.dowa.co.jp/jp/ir/index.html>

General Meeting of Shareholders

Every June, we hold an ordinary general meeting of shareholders at the Hotel Chinzan-so in Tokyo. After the general meeting of shareholders, we hold a social gathering aimed at promoting communication with shareholders. There we set up a forum for dialogue with executives and a product exhibition section for each business. In addition, we set up a separate presentation room at the venue where the executives can explain the topics of the DOWA Group.

For FY 2017, we introduced products for hybrid cars and electric cars that DOWA Metaltech is developing in its business. We held an active question and answer session, with questions from shareholders about such things as the product shipment status.



Ordinary general meeting of shareholders



Social gathering for shareholders



Tour for investors

Dialogue with institutional investors

Besides the quarterly financial statement briefings by the company president and management, we holds such things as business briefings. In addition, IR representatives visit institutional investors in Japan and overseas, and also give individual interviews, working so that they can understand our business and business plans. We regularly report to management the opinions that we receive during these dialogues, which are useful to improve management.

〔 The main opinions we received in FY 2017 with regards to CSR 〕

- In the CSR Report, the ordinary things that we do also need to be listed. If it is not written about, it might look like nothing has been done.
- It is better to make more of an appeal about the main business, such as resource recycling or the environmental business.
- By the company growing, it leads to resolution of the SDGs. A stance of working on one goal in the medium to long-term can be valued.
- Once we set the SDGs goals, a viewpoint to link them with the core business seems important so that the process itself is updated each year.

Tour for investors

The Dowa Group conducts factory tours for institutional investors and securities analysts as an opportunity for them to deepen their understanding about our business. In FY 2017, we held one at the Hamamatsu Kita plant of DOWA Thermoengineering (Shizuoka Prefecture). We did a tour of industrial furnaces and manufacturing processes, and we explained the strengths of DOWA Thermotech which is engaged in both manufacturing & sales and processing services for heat treatment facilities.

Together with Our Customers and Business Partners

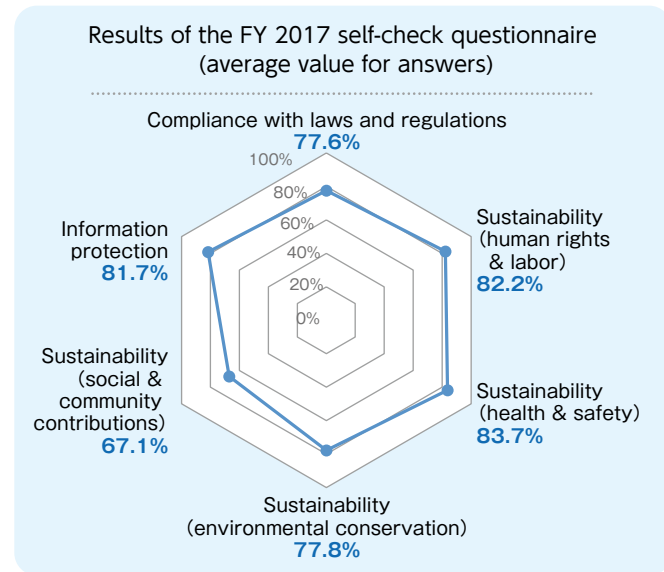
The DOWA Group strives to build long-term relationships of trust with its business partners and suppliers in order to improve customer satisfaction through providing better products and services. In addition, we are promoting CSR initiatives through the supply chain, including environmental conservation and improvement in the working environment.

Supply Chain Management

The DOWA Group promotes CSR throughout the whole supply chain by distributing to business partners and suppliers the “DOWA Group CSR Procurement Guidelines” that pull together our CSR procurement policies and code of conduct, and by seeking understanding about our company’s approach to CSR. These guidelines are translated into English, Chinese and Thai and distributed to DOWA offices overseas.

In FY 2017, in order to confirm the status of CSR efforts, we distributed a self-check questionnaire to about 100 major business partners and suppliers, and collected about 95% of them. While the average point rose overall compared to the previous FY, looking at it by sector, we found that initiatives for social contribution were weak.

For those business partners and suppliers who we received answers from, we sent them a feedback report, telling them about the status of the current evaluation.



CSR procurement audits

With regards to important suppliers, we will actually visit them, and together with explaining our thinking about CSR procurement, we also check their conformity with the CSR procurement guidelines. We mainly interview them about the questionnaire results, check documents, and confirm site safety and environmental initiatives. In FY 2017, we expanded the scope from raw material and auxiliary material manufacturers, and visited suppliers of equipment and manufacturing parts that are important to our manufacturing business.

Regarding the importance of CSR in the supply chain, we will keep working to further improve CSR while strengthening the partnership with suppliers by getting their understanding.

Quality Control

At the DOWA Group, we position “quality” as an important management standard for manufacturing. Major manufacturing plants have obtained international standard ISO 9001 certification for our quality control systems. We strive to improve the quality of products and services by continuously operating these quality control systems based on PDCA.

In addition, as an initiative to strengthen quality control, we put effort into confirming the quality of procured items. In cooperation with suppliers, we aim to ensure the quality of procured items from the aspect of quality and technology by implementing supplier surveys and inspections at appropriate intervals.

From fiscal 2018, we will begin auditing our internal quality control systems, including at overseas offices.

Response to Comments and Opinions

With regards to opinions and inquiries that we have received from customers, we strive to supply satisfactory products by aiming to promptly make appropriate improvements. We aim to improve the information sharing and management system, and we classify, analyze and evaluate the information gathered at each business site, which leads to development and improvement of our products and services.

Together With the Regional Society

With initiatives in the social field, the DOWA Group is working on regional contributions as a priority measure. In each of our domestic and overseas bases, we are actively developing community-based CSR activities such as factory tours, accepting interns, hosting sports events and communicating with local communities in order to progress and develop together with the region.

Social contribution activities

[Tokyo] Holding a tour of our headquarters

In May 2017, as part of a school trip, 48 ninth-grade students from the Kosaka Municipal Junior High School, the area of our company’s birthplace, visited the headquarters of DOWA in the Akihabara area of Tokyo. While this was the fifth time that students from this school have done such a tour, after they tour our offices and we explain our business, every year the students come up with ingenious presentations, such as song or dance. In FY 2017, presentaion entitled “The Love Kosaka Presentation”, they introduced their home town of Kosaka.



[Akita Prefecture] The DOWA Cup Junior Cross-Country Ski Tournament at Lake Towada

In February 2018, the DOWA Cup was held on the shore of Lake Towada in Akita Prefecture. This was the 28th time that this historic junior cross-country ski tournament was held, and it is certified as an official event of the Ski Association of Akita.

It is one of the qualifying races for participation in the Junior Olympics. From elementary and junior high schools in the three prefectures of the Tohoku region, 218 children participated in high-level races. About 130 staff are involved in its operation, including DOWA Group employees and people from neighborhood councils and local ski clubs. Starting with the cleaning of the venue in May of the previous year, they cooperate on various tasks, such as taking over a month to develop the course, setting up the venue and the final tidying up. For over a quarter of a century, this ski tournament has been an indispensable event for the DOWA Group to deepen ties with the local community.



[Myanmar] Event for children

In Myanmar, every February 13th is “Children’s Day” when families celebrate and wish for the growth of their cherished children. To celebrate Children’s Day, GOLDEN DOWA ECO-SYSTEM MYANMAR, which operates a waste treatment business in Myanmar, invites children from the neighboring area to a weekend event that they hold. Compared to the city of Yangon, the Tirawa area where the plant is located is still developing and there are children who do not attend school. At the event, the 216 children who participated were given original T-shirts and sweets, etc. In the future, we would like to continue our initiatives so that the children in the area can lead bright and healthy lives.

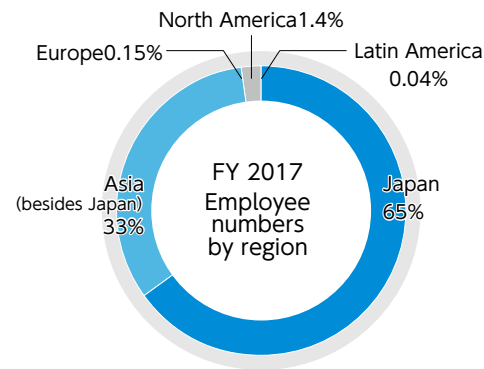


Together with Employees

The DOWA Group sets forth in its Code of Conduct that human resources are the basis of all business activities, and employees should be evaluated for their ability to do their jobs, regardless of differences in their educational background, seniority and gender. We have taken various initiatives so that employees can exercise their full potential.

● Employment status

At the end of FY 2017 (March 31st, 2018), the number of employees in Japan was 6,094, up 22 people the year before. Of the regular employees in Japan, there were 3,851 men (92%) and 337 women (8%). With globalization, the proportion of employees at offices overseas is increasing, and the number of employees overseas in FY 2017 was about 35% of the total. In addition, the total number of new graduate and mid-career hires in the group as a whole was 209 men and 19 women, an increase of about 20% from the year before. While the retention rate is a little higher for male employees, it is roughly around 90% overall.



[Employment related data]

Employment situation in Japan (DOWA Group)

| Type of employee | Classification | FY 2015 | | FY 2016 | | FY 2017 | |
|--------------------------------|----------------------|---------|-------|---------|-------|---------|-------|
| | | Men | Women | Men | Women | Men | Women |
| Regular employees in Japan | Executive officers | 132 | 1 | 128 | 1 | 125 | 1 |
| | Management employees | 725 | 9 | 758 | 9 | 778 | 10 |
| | General employees | 2,845 | 302 | 2,901 | 311 | 2,948 | 326 |
| Non-regular employees in Japan | Dispatched employees | 493 | | 633 | | 709 | |
| | Part-time | 1,053 | 318 | 1,050 | 281 | 897 | 300 |
| | Total | 5,248 | 630 | 5,470 | 602 | 5,457 | 637 |
| Grand total | | 5,878 | | 6,072 | | 6,094 | |

No. of employees by region (including non-consolidated)

| Region | FY 2015 | FY 2016 | FY 2017 |
|----------------------|---------|---------|---------|
| Japan | 5,878 | 6,072 | 6,094 |
| Asia (besides Japan) | 2,897 | 2,899 | 3,092 |
| Europe | 22 | 23 | 14 |
| North America | 96 | 96 | 131 |
| Latin America | 1 | 1 | 4 |
| Total | 8,894 | 9,091 | 9,335 |

Employee retention rate (DOWA Group)

| Year they joined the company | FY 2015 (as of the end of FY 2017) | |
|--|------------------------------------|-------|
| | Men | Women |
| Avg. retention rate after 3 years in the company | 95% | 83% |
| Avg. retention rate | 93% | |

TOPICS

Akita Zinc received the Innovation Award for the 2017 "Good Career Company Awards"

Akita Zinc, which smelts zinc in the city of Akita, was selected as the only company from Akita Prefecture to be awarded the "Innovation Award" (human resource development supervisor commendation) for the 2017 "Good Career Company Awards" by the Ministry of Health, Labor and Welfare.

Akita Zinc, where about 200 employees work, introduced a career consulting and mentoring system that makes the setting and achievement of individual goals a reality by tailoring to each individual's values, while utilizing existing mechanisms such as improvement proposals and small group activities. For six years in a row, they have achieved a turnover rate of zero for employees who have been with the company three years or less since graduating from high school. The point that this award recognized was "realizing young employee retention through career support to enhance a feeling of self-efficacy".



● Human resource development and evaluation

As a vision for human resources and our organization, the DOWA Group aims to "respect a sound and free corporate culture, and by building a foundation for long-term growth, continue to provide new value to society by creating human resources and the organization". We are developing various human resource development and utilization measures for all employees.

as a group-wide initiative. By setting up opportunities for ongoing training, we strive for appropriate evaluation, treatment and training. As a training opportunity, we plan to cover all employees of the group over three years. In addition to getting understanding of the system for three years from FY 2018, we plan to conduct "interview training" aimed at promoting communication with subordinates. We also conduct a survey every year in order to evaluate the operational status of the system. From last year, the issues extracted from this were added as new improvement items in the briefing for evaluators and the training for those being evaluated. We are striving to promote understanding of the system for employees, and for its appropriate operation.

Fair evaluation & treatment

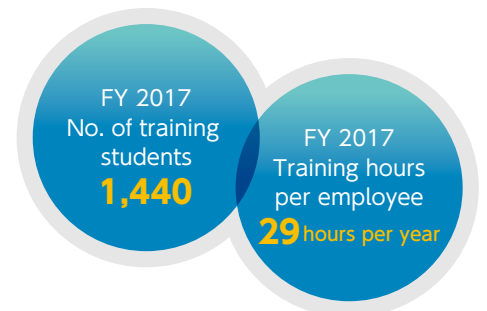
At the DOWA Group, based on the principle of "evaluating employees for their ability to do their jobs" in the Code of Conduct, under the following policies, we are working for fair evaluation and treatment.

Training for evaluators and those being evaluated is positioned

- For evaluators and those being evaluated, deepen understanding of the standards and structure of the system, and utilize appropriate evaluations and training.
- While sharing organizational goals, and getting understanding of the abilities and behaviors required of their job grade, try to improve job performance abilities.

Education and training system

From new employees to managers, we have established stratified education according to job classification, and have set up an education system of selective education in order to nurture the next generation of leaders at each level. We also conduct training and meetings to implement shared awareness and edification. In FY 2017, within the selective education we started training to strengthen skills for leading subordinates. In the selective education, we also provide opportunities for self development, with such things as correspondence education and e-learning, which are easy to use with few restrictions on time and place, and external interactive education.



[Examples of stratified & selective education in FY 2017] (Targeting DOWA Holdings and the operating companies)

| Target employees & classification | New & young people | | | Mid-level & leaders | Managers | Top executives |
|-----------------------------------|--|---|---|--|---|--|
| | 1st year | 2nd & 3rd years | | | | |
| Stratified education | All employees | [Follow-up I training] Improve job performance abilities. | [Follow-up IV training] Career & motivation | [5th rank training for newly appointed] Leadership | [Coaching training] Training subordinates | [Top management training] Administration |
| | | [New employee education] | [Follow-up III training] Membership & introspection | | [Newly appointed manager training] Management | |
| | Technology | [Training to strengthen engineering abilities I] | [Training to strengthen engineering abilities II] | [Training to strengthen engineering abilities III] | | |
| Selective education | Business | | | [Problem solving & thinking ability training program] | [Business leader training] Next-generation manager training | |
| | | | | [Training to strengthen skills for leading subordinates] | | |
| | Global | | | [Global challenge program] | | |
| | [Training before taking up s new post] | | | | | |

Promoting diversity

At the DOWA Group, amid global development and the expansion of business areas, we believe that diversified human resources with various values and points of view who can fully demonstrate their individuality and abilities will lead to the growth of the company.

Training of global human resources

As part of promoting diversity, the Dowa Group is working on creating a mechanism from the recruitment stage based on the idea of working globally regardless of nationality. In recruiting new graduates for regular positions, we are actively recruiting foreigners and Japanese exchange students who have graduated from foreign universities, and foreign exchange students from overseas, and are boosting our hiring results year by year. Along with the expansion in employing human resources in various countries and regions, at the time of hiring, we provide education to convey our principles and policies, as well as consideration for human rights. In addition, we provide training to employees who are assigned to overseas offices prior to taking up their new posts, and also conduct diversity acceptance education such as cross-cultural understanding. In future, we will continue to work on expanding our global talent base.

Promoting Participation by Women

At our company there is no distinction according to gender in how people work, and regardless of whether in Japan or overseas, female employees are also active in such fields as manufacturing, research and development, production management, sales and accounting. For hiring, promotion and advancement as well, evaluation is done according to the abilities of the person. For the hiring of women for regular positions, it is about 10% to 20% of people hired overall, and the number of female managers is around 1%. The number is certainly not high, but it is gradually increasing along with changes in the business and workplace environments. In addition, in order to support participation by women, we conduct diversity management training for managers. In FY 2017, we newly launched a diversity career program for female employees and training for female office workers.

At our company, despite arranging a workplace environment where it is easy for women who are raising children to work, such as a flex-time system without core time and assistance for child-rearing costs, it is a problem that the proportion of continued employment is lower than that of male employees. In the future, we will actively work on improving the system to balance work and family life and to change awareness, with a numerical target of 80% or more for the continued employment of women hired 10 years ago, so it is about the same as men.

Percentage of female workers by level

| Level | FY 2015 | FY 2016 | FY 2017 |
|----------------------|---------|---------|---------|
| Executive officers | 0.8% | 0.8% | 0.8% |
| Management employees | 1.2% | 1.2% | 1.3% |
| General employees | 9.6% | 9.7% | 10.0% |

Re-employment of retired workers

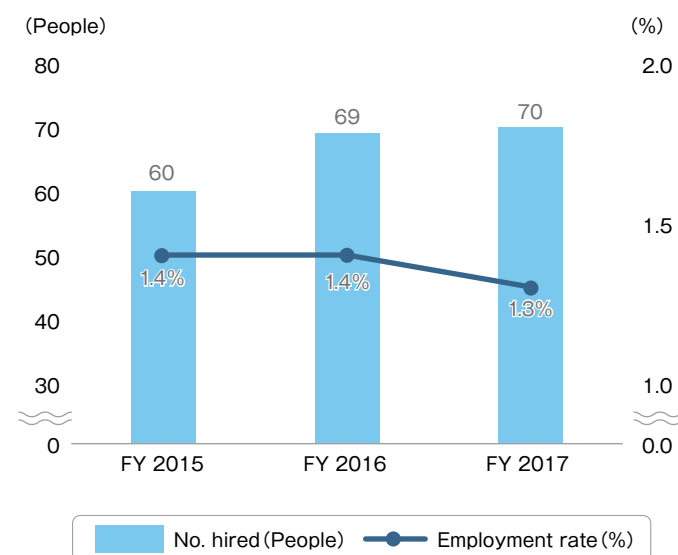
Utilizing their technical skills and knowledge, for employees who wish to continue working at the DOWA Group even after their retirement, we are striving to improve the environment so that they can work with more motivation. In addition, for the purpose of providing information about a second career after retirement, we hold a life planning seminar for employees who have reached a certain age.

We have also established an investigative committee on the employment of the elderly, and are discussing ways to utilize this human resource in the future.



Employment for physically challenged

In FY 2017, the DOWA Group as a whole was unable to reach the statutory employment rate. On the other hand, the scope of work that those with disabilities can do is increasing every year, and the trend is for an increase in the number hired. In order to promote the employment of people with disabilities, we will continue to provide opportunities for workplace experiences, and to create a workplace environment that accepts them and where it is easy for them to work.



Work-Life Balance

With the aim of harmonizing work and life, we are enhancing the system to support work-life balance, and are developing a workplace environment where it is easy to work, so that it is possible for employees to maximize their abilities according to their lifestyle.

Supporting various working styles

At the DOWA Group, we introduced a flex-time system without core time so that employees can work according to the fluctuations and characteristics of the job. In addition, besides community service leave and a relaxation leave system where employees get days off for a certain number of years of service, we have prepared support measures beyond what is stipulated by the law, such as paid time off for nursing sick children (up to five days), limitations on transfers that involve moving for the reason of childcare, partial subsidies for childcare expenses and a leave system due to life events.

The number of people using these systems has increased every year. In FY 2017, the number of people who took childcare leave was 34, and 27 men and 26 women took time off to nurse sick children.

Those who took childcare leave

| FY | FY 2015 | | FY 2016 | | FY 2017 | |
|---------------------------------|---------|-------|---------|-------|---------|-------|
| | Men | Women | Men | Women | Men | Women |
| No. who took the leave (people) | 1 | 15 | 0 | 28 | 2 | 32 |

In-house Questionnaire

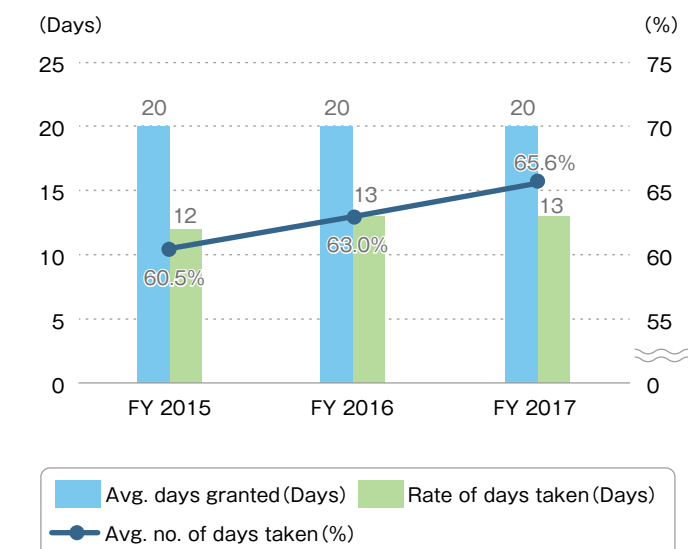
We conduct a questionnaire on work-life balance for new employees every year. In FY 2017, including men, those who wished to get childcare and nursing care leave was over 80%. Against the background of the improvement in the utilization rate of the current system, in addition to promoting the improvement of the workplace environment so that it easy to use the system, the impact of the change in awareness by such employees is also considered to be significant.

Also, in addition to flex-time and shorter working hours to balance work and family life, many were of the opinion that they wanted a telecommuting system. We will keep working on work-life balance initiatives with these opinions in mind.

Optimization of working hours

We are working to curb long working hours and promote the taking of annual paid vacation so that employees can work with health and vigor in both mind and body. With the attendance system managed by the head office, we are managing time through the computer logs, and when a certain level of working hours are exceeded, an improvement plan must be submitted to the manager. There is also an interview with an industrial physician depending on the number of overtime hours. The average overtime hours in FY 2017 were 19.7 hours a month. To optimize working hours, we will continue to strive to manage working hours with both hard and soft measures.

With regards to annual paid vacation in FY 2017, with 20 days on average granted, employees took about 65% of their vacation days. We promote the planning of yearly paid vacation according to the business situation at each business site, and through changing the awareness of employees with such things as further feedback on the number of days taken during the year, the number of vacation days taken improves year by year.



TOPICS

Meltec Certified as a work-life balance promoter in Oyama

At Meltec, which processes waste in Tochigi Prefecture, there has been understanding and a desire to promote a gender-equal society. In June 2017, as a company that actively worked on creating a working environment where it was easy to work for men and women who were balancing work and family life, they were certified as a work-life balance promoter in the city of Oyama. In the certification, Meltec was recognized for actively working on promoting community contribution activities in three areas: (1) Harmony between work and home life; (2) Promoting female workers to demonstrate their abilities; and (3) Activities in the community with regards to parenting and for people to connect with each other.



This is the seventh year that I am responsible for giving the third-party opinion of the DOWA Group's CSR Report. While I look forward to the progress of this report every year, what first caught my attention in this fiscal year's report was the special feature on the development of human resources and the organization. In the area of human resources, they analyze both apparent and future issues, and it clearly shows that they are making a systemic medium-term plan for human resources. They have also renewed the training center, and it communicates the enthusiasm of the DOWA Group to prize talent.

Towards further improvement

The need for companies to establish materiality (important issues) is becoming essential. There is the importance of the company's point of view and its impact on the business, and the importance of the external point of view via the expectations and requests of stakeholders. Evaluating from these two focal points, specifying materiality for the DOWA Group also leads to an integration of corporate management and sustainability from a management perspective. When institutional investors evaluate companies from the viewpoint of ESG (environmental, social and governance), they place emphasis on materiality, and it is important for group employees in Japan and overseas to recognize the company's materiality. I recommend that this be considered for the next fiscal year.

In the special feature on "Sustainable Mine Development", you can understand well the recognition by the DOWA Group of their social role in supplying the metals that are essential to Japanese manufacturing. In order to process the metallic materials required by society, they explain that they are smelting from two raw materials - the mineral concentrate newly produced from mines, and recyclable metal raw materials that they collect in Japan and overseas. However, they mention that recycling alone cannot cover the global demand that keeps growing, and as readers of the CSR report we should be worried about the problem of metal resource depletion. If mining continues at the current pace, there are reports that some metals will run out within 20 years. From the viewpoint of business management, I think that it would be good to explain what kind of perspective they have about the resource depletion problem, and how they are responding to it. This will lead to specific business strategies for target 12.2 of the SDGs - "By 2030 achieve sustainable management and efficient use of natural resources".

In supply chain management, they explain their promotion of CSR to the whole supply chain. Currently, companies are being questioned more about not just their in-house initiatives, but also their responsibility for initiatives through the entire supply chain. In the midst of this, the DOWA Group is distributing self-check questionnaires to key suppliers, and by further sending the suppliers a feedback report, it shows that DOWA is making a serious effort at two-way communication. It is a concern that the DOWA Group CSR procurement guidelines have not been disclosed. I think it would be good to show what are the specific policies, including the environmental and social aspects, and clarify how they are trying to raise the standard for the supply chain as a whole.

Expectations for future initiatives

Currently, interest in the circular economy is rapidly rising in various countries around the world. In the EU, the circular economy policy package was launched in 2015, and attempts have begun to convert society as whole into a sustainable direction while increasing the competitiveness of the economy. Even in Japan, while we have been putting effort into the formation of a policy-based recycling-oriented society from before, in the concept of the circular economy which is currently drawing attention, there is a strong sense of constructing a new business model with innovation. I think that this might be an area where the DOWA Group can demonstrate the strengths that they have fostered in their main business. I hope that DOWA can play a leading role in promoting a global circular economy that centers on collaboration with others, such as companies, international organizations, government agencies and research institutes.

Opinion of a Third Party

DOWA CSR Report 2018

About the details of the report

E-Square Inc.

President and Representative Director

Hiro Motoki



From 1992, he worked on information system construction, strategic planning and environmental management at the Deloitte Tohmatsu Group. From April 2001, as the person responsible for the consulting business at E-Square, he provided support in areas such as CSR, environmental and CSV strategies, communications and in-house dissemination mainly for major companies in a wide range of industries. In October 2011, he became the president and representative director of E-Square. He often gives talks about CSR, ESG and environmental-related issues.

Target Organizations of the Report

| Company | | Region | Company | | Region |
|---------|---|---------------------|---------|---|---------------------|
| ES | ECO-SYSTEM AKITA CO., LTD. | Akita Prefecture | MT | DOWA POWER DEVICE CO., LTD. | Nagano Prefecture |
| ES | ECO-SYSTEM CHIBA CO., LTD. | Chiba Prefecture | TH | DOWA THERMOENGINEERING CO., LTD. Ohta plant | Gunma Prefecture |
| ES | ECO-SYSTEM SANYO CO., LTD. | Okayama Prefecture | TH | DOWA THERMOENGINEERING CO., LTD. Mooka plant | Tochigi Prefecture |
| ES | MELTEC LTD. | Tochigi Prefecture | TH | DOWA THERMOENGINEERING CO., LTD. Hamamatsu plant | Shizuoka Prefecture |
| ES | ECO-SYSTEM JAPAN CO., LTD. | Tokyo other | TH | DOWA THERMOENGINEERING CO., LTD. Hamamatsu-kita plant | Shizuoka Prefecture |
| ES | ECO-SYSTEM HANAOKA CO., LTD. | Akita Prefecture | TH | DOWA THERMOENGINEERING CO., LTD. Chukyo Handa plant | Aichi Prefecture |
| ES | GREEN FILL KOSAKA CO., LTD. | Akita Prefecture | TH | DOWA THERMOENGINEERING CO., LTD. Shiga plant | Shiga Prefecture |
| ES | GEOTECHNOS CO., LTD. | Tokyo | TH | CEMM CO., LTD. | Aichi Prefecture |
| ES | E&E Solutions Inc. | Tokyo | HD | DOWA TECHNOENGINEERING CO., LTD. | Okayama Prefecture |
| ES | ECO-SYSTEM RECYCLING CO., LTD. East Japan plant | Saitama Prefecture | HD | UNEKURA MINING CO., LTD. Northern office | Akita Prefecture |
| ES | ECO-SYSTEM RECYCLING CO., LTD. West Japan plant | Okayama Prefecture | HD | UNEKURA MINING CO., LTD. Western office | Okayama Prefecture |
| ES | ECO-SYSTEM RECYCLING CO., LTD. Northern Japan plant | Akita Prefecture | HD | DOWA HOLDINGS Co., Ltd. Tokyo headquarters | Tokyo |
| ES | ECO-SYSTEM KOSAKA CO., LTD. | Akita Prefecture | HD | DOWA TECHNO RESEARCH CO., LTD. | Akita Prefecture |
| ES | ECO-SYSTEM OKAYAMA CO., LTD. | Okayama Prefecture | ES | PT. PRASADHA PAMUNAH LIMBAH INDUSTRI | Indonesia |
| ES | ECO-RECYCLE CO., LTD. | Akita Prefecture | ES | BANGPOO ENVIRONMENTAL COMPLEX LTD. | Thailand |
| ES | Act-B Recycling Co., Ltd. | Kumamoto Prefecture | ES | EASTERN SEABOARD ENVIRONMENTAL COMPLEX CO., LTD. | Thailand |
| ES | AUTO RECYCLE AKITA CO., LTD. | Akita Prefecture | ES | TECHNOCHEM ENVIRONMENTAL COMPLEX PTE. LTD. | Singapore |
| ES | DOWA TSUUN CO., LTD. | Iwate Prefecture | ES | DOWA ENVIRONMENTAL MANAGEMENT CO.,LTD.(Suzhou, China) | China |
| MM | KOSAKA SMELTING & REFINING CO., LTD. | Akita Prefecture | ES | DOWA ECO-SYSTEM SINGAPORE PTE. LTD. | Singapore |
| MM | NIPPON PGM CO., LTD. | Akita Prefecture | MM | NIPPON PGM AMERICA, INC. | America |
| MM | AKITA ZINC CO., LTD. | Akita Prefecture | MM | DOWA METALS & MINING (THAILAND) CO., LTD. | Thailand |
| MM | AKITA RARE METALS CO., LTD. | Akita Prefecture | MT | DOWA ADVANCED MATERIALS (SHANGHAI) CO., LTD. | China |
| MM | AKITA ZINC SOLUTIONS CO., LTD. | Akita Prefecture | MT | DOWA METALTECH (THAILAND) CO., LTD. | Thailand |
| MM | AKITA ZINC RECYCLING CO., LTD. | Akita Prefecture | TH | DOWA THT AMERICA, INC. | America |
| EL | DOWA SEMICONDUCTOR AKITA CO., LTD. | Akita Prefecture | TH | KUNSHAN DOWA THERMO FURNACE CO., LTD. | China |
| EL | DOWA ELECTRONICS MATERIALS OKAYAMA CO., LTD. | Okayama Prefecture | TH | Dowa Thermotech(Thailand) Co., Ltd. | Thailand |
| EL | DOWA IP CREATION CO., LTD. | Okayama Prefecture | TH | PT.DOWA THERMOTECH INDONESIA | Indonesia |
| EL | DOWA F-TEC CO., LTD. | Okayama Prefecture | TH | HIGHTEMP FURNACES LTD. Bangalore Plant | India |
| MT | DOWA METAL CO., LTD. | Shizuoka Prefecture | TH | HIGHTEMP FURNACES LTD. Nelamangara Plant | India |
| MT | DOWA METANIX CO., LTD. | Shizuoka Prefecture | TH | HIGHTEMP FURNACES LTD. Gurgaon Plant | India |
| MT | HOEI SHOJI CO., LTD. | Chiba Prefecture | TH | HIGHTEMP FURNACES LTD. Chennai Plant | India |
| MT | NEW NIPPON BRASS CO., LTD. | Chiba Prefecture | TH | HIGHTEMP FURNACES LTD. Pune Plant | India |
| MT | DOWA HIGHTECH CO., LTD. | Saitama Prefecture | | | |

ES DOWA ECO-SYSTEM CO., LTD.

MM DOWA METALS & MINING CO., LTD.

EL DOWA ELECTRONICS MATERIALS CO., LTD.

MT DOWA METALTECH CO., LTD.

TH DOWA THERMOTECH CO., LTD.

HD DOWA HOLDINGS CO., LTD.