

DOWA HOLDINGS CO.,LTD.


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DOWA



CSR
REPORT
2019



This report uses forest certified paper and vegetable oil ink that is environmentally friendly. 

Corporate Philosophy & Chronology

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

Based on our corporate philosophy, the DOWA Group works on solving 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.

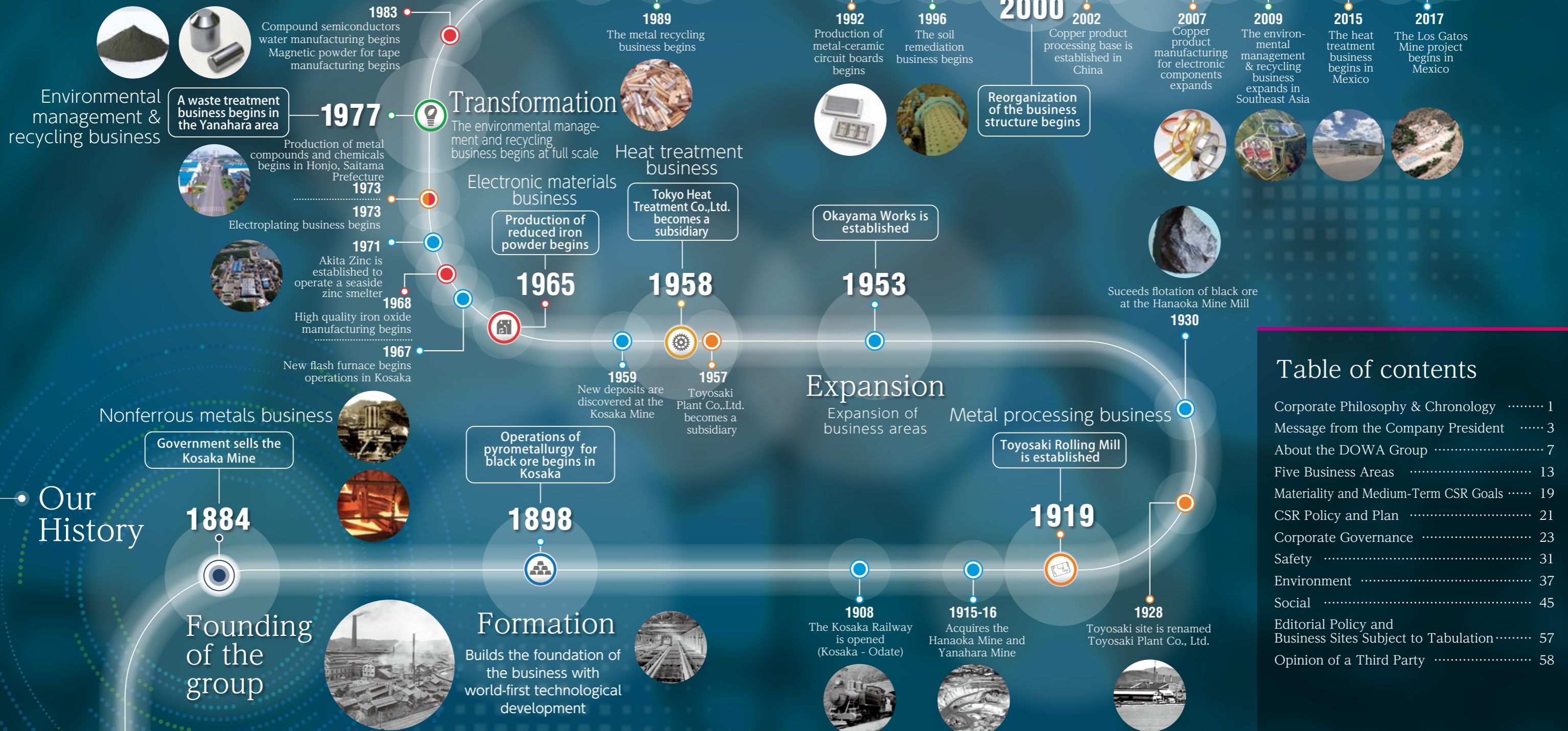


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TOP MESSAGE

Message from the Company President

To All Stakeholders



We will continue to contribute to the realization of a sustainable society through the evolution of our main business while dealing with all stakeholders with sincerity and openness.

DOWA HOLDINGS CO., LTD.
President and Representative Director
SEKIGUCHI Akira

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We have focused on solving various social issues by carrying on and developing our founding spirit.

Towards the Realization of a Sustainably Society

Our company was founded in 1884 as a mining business. We have changed our business in line with the progress of society, and currently have an environmental management & recycling business, nonferrous metals business, electronic materials business, metal processing business and heat treatment business.

In their respective areas, these five businesses support various initiatives to solve several social issues facing modern society. As a matter of course, we are involved in the development of material recycling and the detoxification and reduction of hazardous waste. For example, in electric vehicles which are expanding globally as an environmental solution, our high-performance copper alloy and metal-ceramic circuit boards are used in the high-voltage terminals and power modules respectively. In addition, we provide materials and technologies such as high-performance silver nanoparticles for semiconductor die attach and advanced surface treatment for expendable parts.

In the nonferrous metals business, which is the cornerstone of our company, we utilize our unique technology and know-how, and with compact equipment that can efficiently recover and refine an unprecedented variety of valuable metals, we provide them around the world.

Since our founding, we always believe that consideration of society and the environment is essential in our business, and we will keep

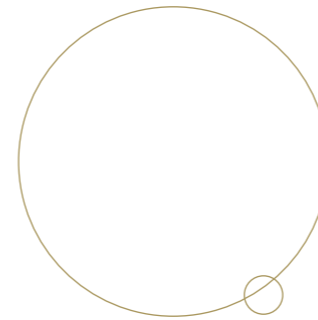
contributing to the realization of a sustainable society as our most important mission.

At mines overseas, we are also building symbiotic relationships with local communities through such things as dialogue with the local communities, protecting water resources and ecosystems, managing dumps and tailing dams, soil covering, planting to increase greenery, planting trees, constructing schools and hospitals, improving the educational and medical environment by arranging teachers and medical staffs, developing infrastructure such as electricity and roads, and creating jobs.

Respect for International Norms

Since 2009, the DOWA Group has participated in the UN Global Compact with its 10 principles in the four fields of human rights, labor, environment and anti-corruption. Going forward, we will continue to support the UN Global Compact, and in cooperation with our suppliers and supply destinations, we will strengthen CSR throughout the whole supply chain, together with sincere engagement.

In addition, we have contributed for a long time to the building of a circular society based on our corporate philosophy. Incorporating the principles of the “Sustainable Development Goals (SDGs)” adopted at the UN General Assembly in September 2015, we will create more integrated value in areas where the DOWA Group can contribute through our business, regardless of whether it is financial or non-financial.



Creating a Culture of Human Resource Development

We provide a work environment in which each employee can feel worthwhile and exhibit their abilities.

I wish to gain the trust and satisfaction of all our customers and shareholders as a group where all employees share the corporate philosophy and fulfill the mission as “one team” .

At present, we are continuing to create a culture of human resource development where everyone can grow in each of our offices, following on from Akita Zinc, which has been recognized with “Youth Yell certification” from Japan’s Ministry of Health, Labor and Welfare, and the “Good Career Company Award” . We firmly support such autonomous initiatives through cross-sectional human resource development and a fair evaluation system, and are building a foundation for growth throughout the company.

We will continue to meet the expectations of all our stakeholders through the creation of new value. We look forward to receiving your honest feedback.

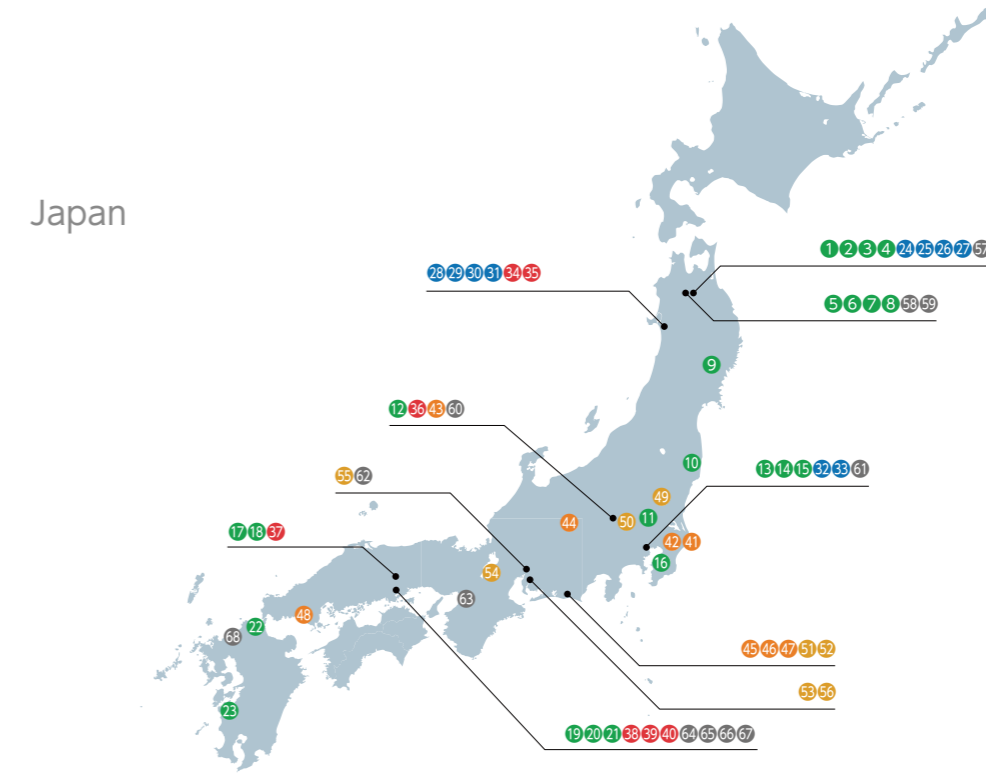
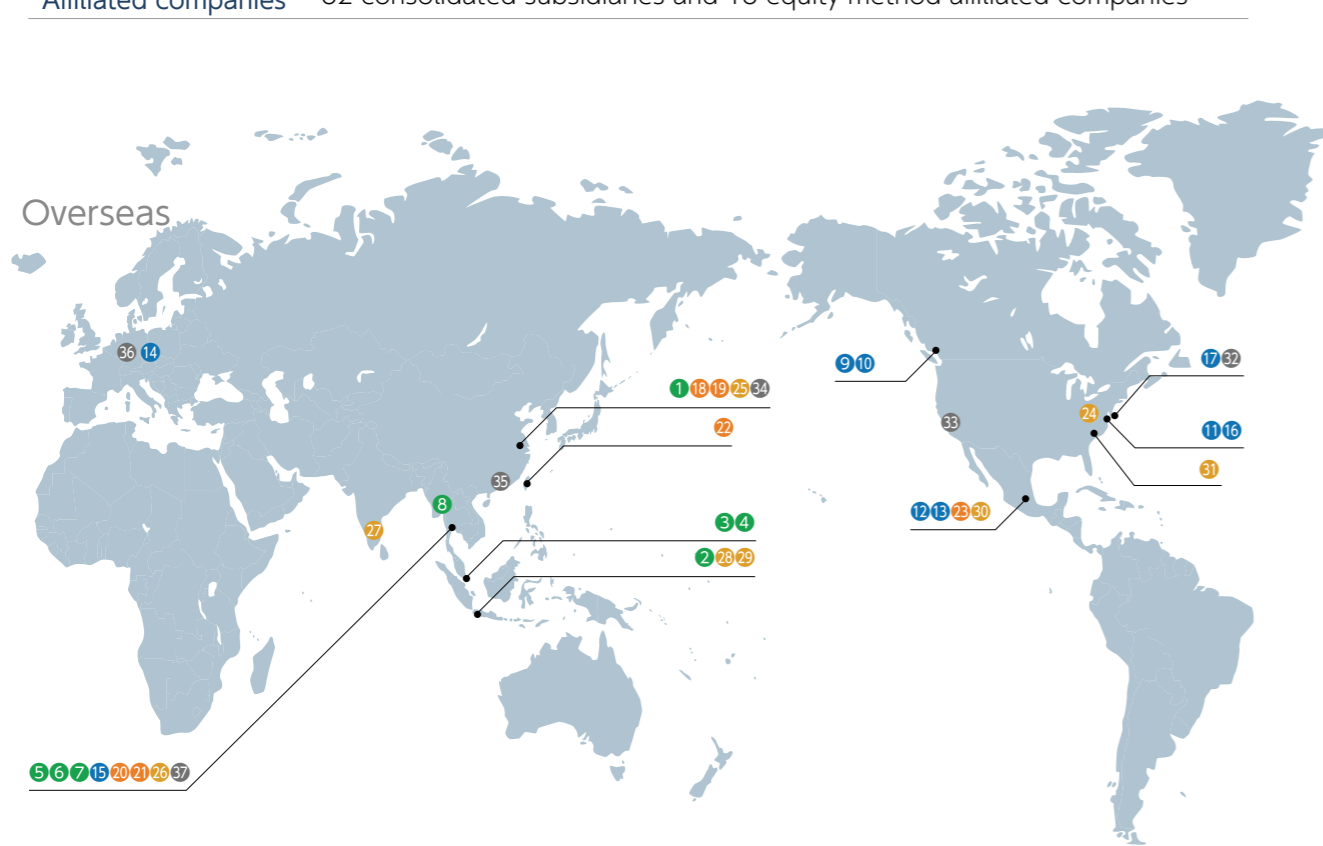
DOWA HOLDINGS CO., LTD.
President and Representative Director
SEKIGUCHI Akira



About the DOWA Group

Corporate profile, offices and group companies (as of March 31st, 2019)

Corporate name	DOWA HOLDINGS CO., LTD.
Representatives	Chairman and Representative Director YAMADA Masao President and Representative Director SEKIGUCHI Akira
Date of establishment	11-Mar-37
Head office location	22F, Akihabara UDX., 4-14-1 Sotokanda, Chiyoda-ku, Tokyo, 101-0021 Japan
Capital	36.437 billion yen
Affiliated companies	82 consolidated subsidiaries and 18 equity-method affiliated companies



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 DOWA LI PRECISION CO., LTD. (Taiwan)
- 23 DOWA METALTECH MEXICO, S.A. de C.V. (Mexico)

DOWA THERMO TECH CO., LTD.

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

Headquarters and others

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

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.

DOWA METALS & MINING CO., LTD.

- 24 Metallurgical Laboratory
- 25 KOSAKA SMELTING & REFINING CO., LTD.
- 26 NIPPON PGM 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.
- 45 Technology center
- 46 DOWA METAL CO., LTD.
- 47 DOWA METANIX CO., LTD.
- 48 TOKUYAMA-DOWA POWER MATERIALS CO., LTD.

DOWA THERMO TECH CO., LTD.

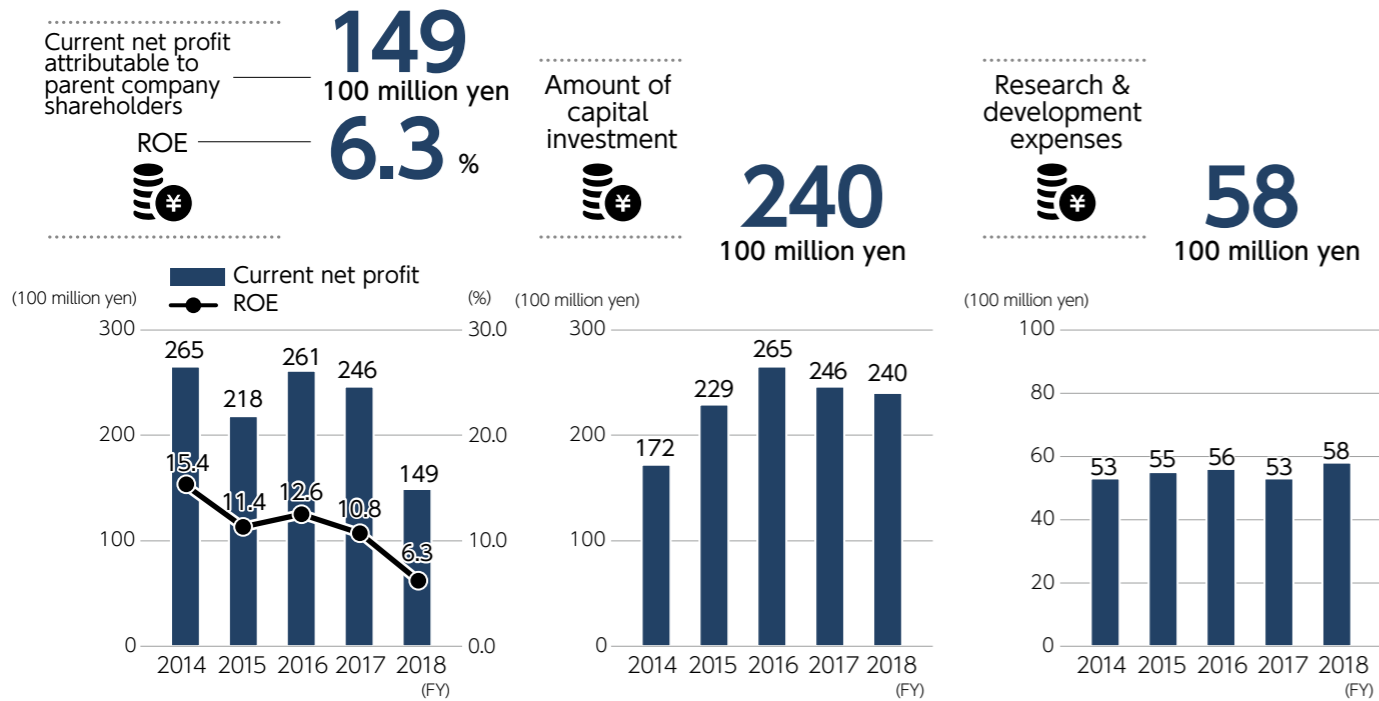
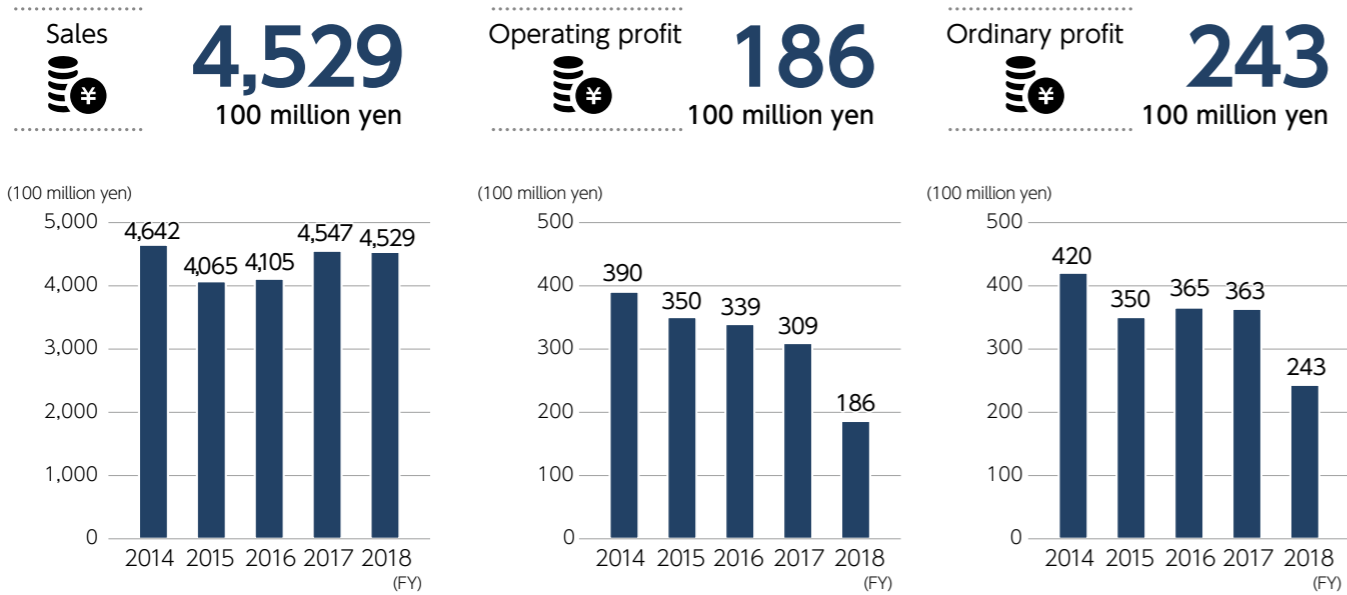
- 49 DOWA THERMOENGINEERING CO., LTD. Mooka plant
- 50 DOWA THERMOENGINEERING CO., LTD. Ohta plant

- 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.

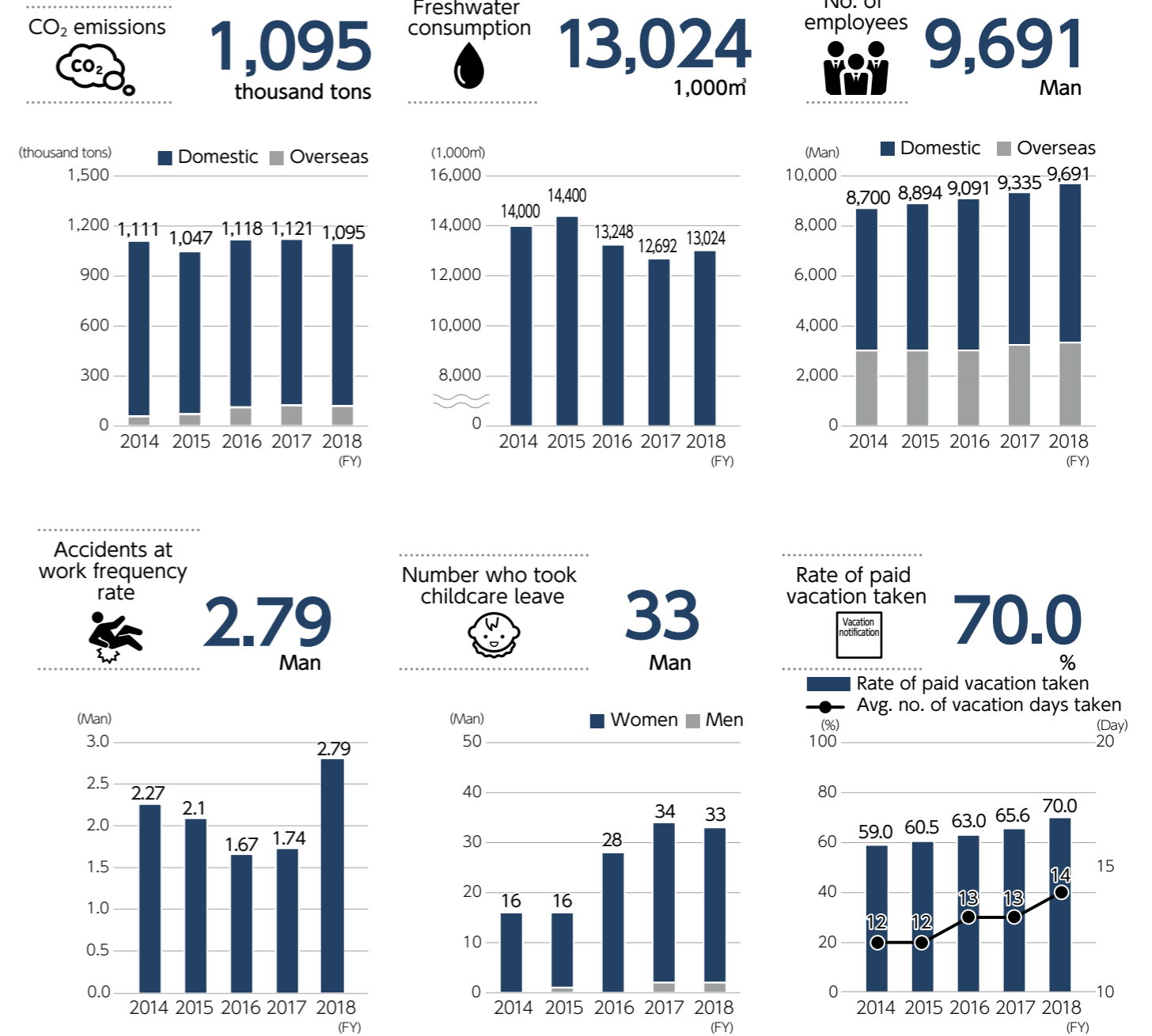
Headquarters and others

- 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

Financial Information



Non-Financial Information

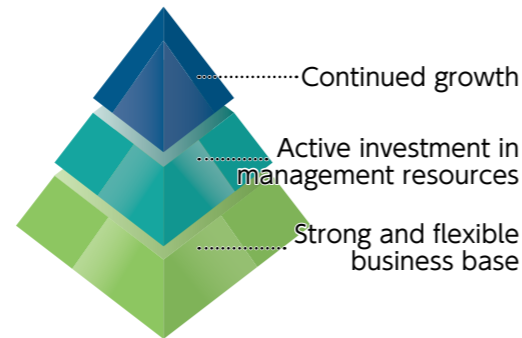


- Figures for each fiscal year are as of March 31st, 2019.
- CO₂ emissions are the total of direct emissions from fuel use, and indirect emissions from energy sources, such as electricity, both in Japan and overseas, and do not include the amount of CO₂ generated from waste received.

Towards the Realization of Our Vision

Under the “Midterm Plan 2020”, which started in April 2018, we are working for further growth by strengthening our basic business base and actively investing in management resources.

Midterm Plan 2020



State of progress for the “Midterm Plan 2020”

In FY 2018, the first year of the Midterm Plan 2020, profits declined year-on-year due to a worsening in purchase conditions for smelting raw materials, and a decrease in demand for electronic materials. Despite not reaching the planned goals, under the basic policies of “expanding business in growth markets” and “strengthening the competitiveness of existing businesses” in order to achieve growth from a medium-term perspective, we have steadily implemented various measures, such as opening overseas locations and increasing the processing capacity of production bases.

	Midterm Plan 2020	2018 Results	2019 Forecast
Operating profit (100 mln yen)	(FY 2020) 450	186	245
Ordinary profit (100 mln yen)	(FY 2020) 500	243	300
ROE (%)	(End of FY 2020) Over 12	6.3	8.0
ROA (%)	(End of FY 2020) Over 10	5.1	6.0
Operating CF (100 mln yen)	(3-year total) 1,200	(2-year total) 725	
Investment and lending (100 mln yen)	(3-year total) 1,100	(2-year total) 830	
Research & development (100 mln yen)	(3-year total) 200	(2-year total) 131	

Change in the Business Environment

Positive Factors

- Increase in metal prices (midterm plan assumption - copper 5,500\$/t and zinc 2,700\$/t)
- Increased collection of automobile shredder dust and discarded home appliances against a background of stronger environmental regulations in Japan and overseas

Negative Factors

- Stronger yen (midterm plan assumption - 115 yen / \$)
- Rising costs such as electricity costs and the unit price of materials
- Decreased profit for low-concentration PCB waste treatment
- Change in the business environment for LEDs and silver powder
- Delay in the launch of new product markets by the electronic materials department

FY 2019 Plan

In FY 2019, while costs for such things as electricity and depreciation are rising, in addition to a rebound in purchasing conditions for smelting raw material, and the elimination of transient factors, we will promote initiatives to increase profits year-on-year via increased sales of existing and new products through the effect of measures in the Midterm Plan 2020.

With regards to forecasts for FY 2019 (ending March 2020), we are planning on sales increasing 27 billion yen year-on-year to 480 billion yen, operating profit increasing 5.8 billion yen year-on-year to 24.5 billion yen, ordinary profit increasing 5.6 billion yen year-on-year to 30 billion yen, and current net profit attributable to parent company shareholders increasing 5.0 billion yen year-on-year to 20 billion yen. Going forward, we will steadily carry out each measure and strengthen our business foundation for growth.

CLOSE-UP 2018

Close-Up

Development of near-infrared LED chips with global top-class output

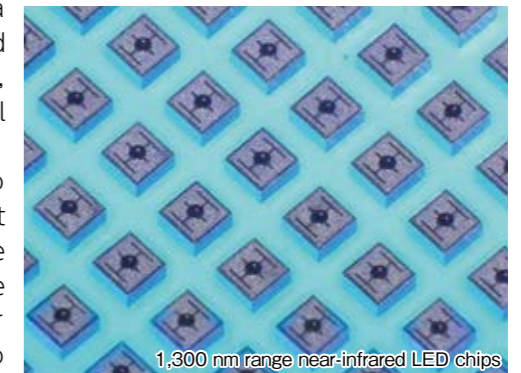
DOWA ELECTRONICS MATERIALS CO., LTD.

In 2018, DOWA Electronics Materials succeeded in developing a near-infrared LED chip with global top-class output of 6.8mW*1, 3.5 times more than our existing product in the center wavelength 1,300 nm range.

Optical sensors using LEDs have excellent features such as small size, power-saving ability and long life, and are used in a variety of applications. The light source of optical sensors has a wide range of light wavelengths from infrared to visible light and ultraviolet light, and each has different properties. However, within this, since near infrared light with a wavelength range of 800 nm to 2,000 nm has the feature of high permeability for living organisms, it is being advanced in the analysis of crops and food, and medical and healthcare applications*2. Particularly in the healthcare field, where the market is expected to expand, by using LEDs in sensors, it is expected that the measurement of the blood glucose level could be realized without the need for drawing blood.

The newly developed near-infrared LED chip with a center wavelength of 1,300 nm has significantly improved optical output in the direction of the upper surface, which is important as a sensor, while balancing the usual trade-off between high output and miniaturization.

DOWA Electronics Materials has already begun to provide samples, and they are preparing a development system that can flexibly meet various needs such as the customization of wavelength ranges. In the future these technologies will also be developed to the center wavelengths of the 1,450 nm and 1,650 nm range to expand our lineup.



※ 1 : 350μm angular size, and an output value when direct current 100mA is applied at room temperature
 ※ 2 : Wavelength range and types of light & main applications

Wavelength (nm)	280	325	340	400	750	1,000	2,500	3,000	5,000	8,000		
Types of light	Deep ultraviolet		Near ultraviolet	Violet	Blue	Green	Yellow	Orange	Red	Near infrared	Middle infrared	Far infrared
	UVC	UVB	UVA	Visible Light			NIR	SWIR	MWIR			LWIR
Applications	Sterilization		Skin treatment	Lighting	Decorative illumination		Blood oxygen sensors	Proximity sensors	Healthcare sensors		Freshness sensors	

Implementation Status of Main Measures

Environmental Management & Recycling

Expanded processing capacity for low-concentration PCB waste, and strengthened the melting and recycling business

Nonferrous Metals

Promoted construction of the Los Gatos Mine (Mexico), and increased production capacity at the Thai zinc processing base

Electronic Materials

Got customer recognition for conductive atomized powder and started shipment of near-infrared LED samples

Metal Processing

Established a copper product and tin electroplating processing base in China

Heat Treatment

Opened an industrial furnace maintenance base in the U.S., and built two new plants in India

Five Business Areas [Recycling-Oriented Business Model Centered on Metals]

The DOWA Group is building a unique recycling-oriented business model centered on metals by linking our five core businesses. In the “environmental management & recycling business”, we detoxify waste and separate and recover metals from used products. The recovered metal is used as raw material for smelting. In the “nonferrous metals business”, we extract useful metals from various recyclable raw materials in addition to the natural resource of ore. Through the “electronic materials business”, “metal processing business” and “heat treatment business”, these metals become materials with the added value of function by various processes such as high-purification treatment, electroplating treatment and surface treatment. Products that pass from the manufacturer to the consumer are eventually used up, leading to a recycling system that again recovers metals through the “environmental management & recycling business”.



Instead of business collaboration as part of the manufacturing process, there are multiple loops and networks in a chain of recycling, and each business is building an organic structure to take advantage of each other. For example, in the “nonferrous metals business”, there is the loop of Akita Zinc, which is a zinc smelter, and Kosaka Smelting & Refining, which does recycle smelting. Since byproducts generated during the production of zinc are used as raw materials for recycle smelting, more types of metals are recovered and a process that does not generate waste is realized. In addition, after recovering metals from waste generated from each business, the “environmental management & recycling business” plays an important role as group-wide infrastructure by having incineration plants and disposal sites that handle it properly. Our strength lies in the fact that business collaboration functions as a means to create greater value in this process of recycling.



Environmental Management & Recycling

DOWA ECO-SYSTEM

Waste Treatment Business	Deploys a wide range of services in Japan and overseas, from waste collection and transportation to intermediate treatment and landfill disposal
Soil Remediation Business	Provides total support from investigation of soil contamination to remediation work and monitoring
Recycling Business	Recovers valuable metals from the scrap of the production process at factories, and from used products such as electrical appliances and automobiles

Business Strategies

- Increase competitiveness of existing businesses to establish a position as No. 1 in Asia and accelerate increase in market share and launch new businesses in each field and region.
- Build the foundation of new businesses that will be the next mainstay businesses in light of global trends in environmental management.

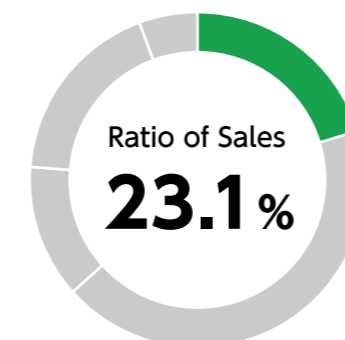
Situation in FY 2018

Sales	YOY +5%	104.4 billion yen
Operating profit	YOY +14%	5.6 billion yen
Ordinary profit	YOY +10%	6.2 billion yen

Amid the steady growth of waste generation in Japan and Southeast Asia, the waste treatment business worked to increase processing capacity, and the volume of waste treatment was generally the same as the previous fiscal year. The soil remediation business worked to expand orders through a new remediation method that handles naturally contaminated soil. The recycling business expanded the amount of waste electronic circuit that were collected, which are recyclable raw materials for our smelters, and increased the processing volume for automobile recycling and home appliance recycling.

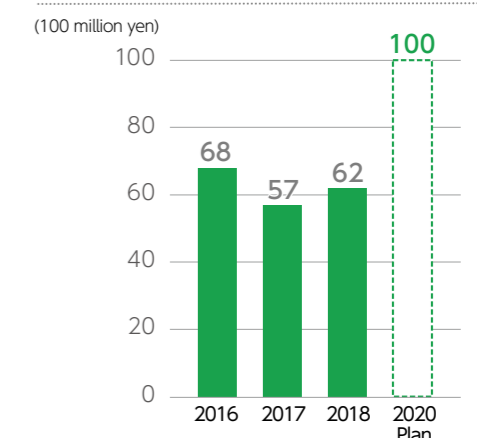
Initiatives for Growth

The waste treatment business aims to expand the treatment of refractory waste, including low-concentration PCB waste, by working to strengthen cost competitiveness. In addition, we will strengthen the collection of waste to expand melting and recycling. In Southeast Asia, we will expand the processing of hazardous waste in Thailand. In Indonesia and Thailand, we will also establish and expand waste treatment facilities to expand our business. The soil remediation business will expand orders due to a remediation method that handles naturally contaminated soil, and will promote the establishment and expansion of landfill sites in Japan. The recycling business will work to expand global collection of recyclable raw materials. In automobile recycling and home appliance recycling, we will continue full operation of dismantling and sorting locations, which will lead to the promotion of processing.



※Excluding adjustments

FY 2018 Results & Plans (Ordinary Profit)



Nonferrous Metals

DOWA METALS & MINING



Precious Metal & Copper Business	One of the world's leading recycling smelters that can recover various metals including gold, silver, and copper
PGM Business	Recycles platinum group metals such as platinum from used catalysts for cleaning automobile exhaust
Zinc Business	With a focus on Akita Zinc, the largest zinc smelter in Japan, uniform business development from resource development to base metal production and sales of processed products

Business Strategy

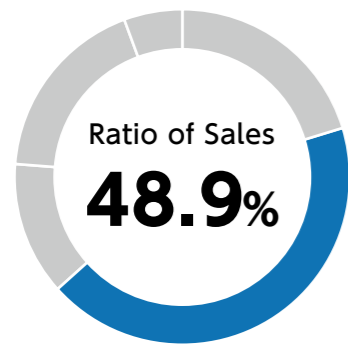
- Strengthen the business by deepening the functions in the smelting and recycling complex.

Situation in FY 2018

Sales	YOY +2%	2,216billion yen
Operating profit	YOY -94%	5billion yen
Ordinary profit	YOY -64%	46billion yen

The precious metal & copper business worked to improve the extraction of tin, a metal byproduct. For the PGM (platinum group metals) business, the amount of metals recovered from used catalysts for cleaning automobile exhaust fell short of expectations.

The zinc business was affected by worsening mine purchasing conditions and rising electricity prices. On the other hand, for the Los Gatos project, which is to ensure long-term raw material stability for our smelters, construction work is progressing smoothly as planned, and it started operation in the summer of 2019.



※Excluding adjustments

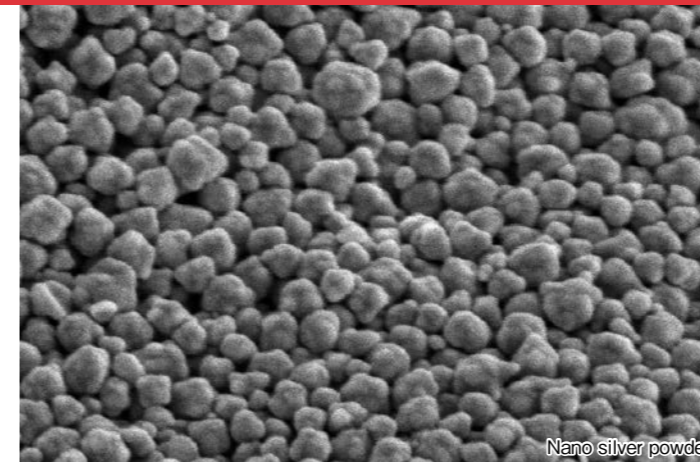
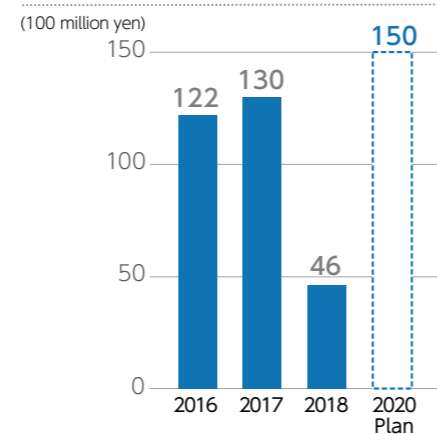
Initiatives for Growth

In the precious metal & copper business, Kosaka Smelting & Refining will strengthen its ability to handle a variety of raw materials, such as recyclable materials. In addition, we will increase production by improving the actual yield and increasing the purity of tin.

The PGM (platinum group metals) business will work to expand collection and sampling locations overseas for used catalysts for cleaning automobile exhaust in order to expand the collection of raw materials.

In order to increase zinc production, the zinc business will promote the establishment of a 220,000-ton annual production system by constructing equipment to remove impurities from raw materials. In addition, we will increase the production capacity of our processing plant in Thailand and strengthen sales to Southeast Asia, a growing region. Due to the start of the Los Gatos silver, zinc and lead project, we will promote long-term and stable procurement of raw materials for our smelters. In addition, with the steady advancement of exploration activities in the Palmer zinc and copper project in Canada, we aim to further stabilize raw material procurement.

FY 2018 Results & Plans (Ordinary Profit)



Electronic Materials

DOWA ELECTRONICS MATERIALS

Semiconductor Business	Leading manufacturer of high-purity gallium-indium semiconductor materials, compound semiconductor wafers and high-brightness and high-power LEDs
Electronic materials business	Manufactures and sells conductive powders used in solar panels and electronic components, including silver powder with the top market share
Functional Materials Business	Manufactures and sells functional powders used in magnetic powder and high temperature products, including particulate magnetic powder with the top market share

Business Strategies

- Launch new businesses, develop new niche/top products, and make them major sources of earnings.
- Further expand business areas to growth markets such as automobiles, medical treatment and healthcare.

Situation in FY 2018

Sales	YOY -16%	649billion yen
Operating profit	YOY -61%	21billion yen
Ordinary profit	YOY -49%	31billion yen

In the semiconductor business, demand for LEDs for smartphones decreased.

In the electronic materials business, demand for silver powder for solar panels decreased in the Chinese market.

Inventory adjustment for magnetic powders for archival data tapes continued in the functional materials business. For early commercialization of new products, research and development expenses increased for deep ultraviolet LEDs for sterilization applications, and nano silver powder for semiconductor bonding materials.

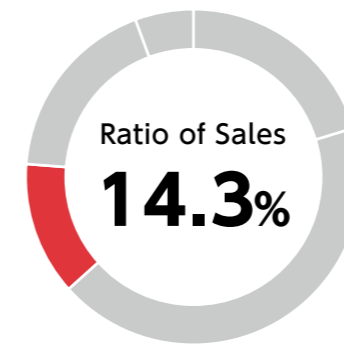
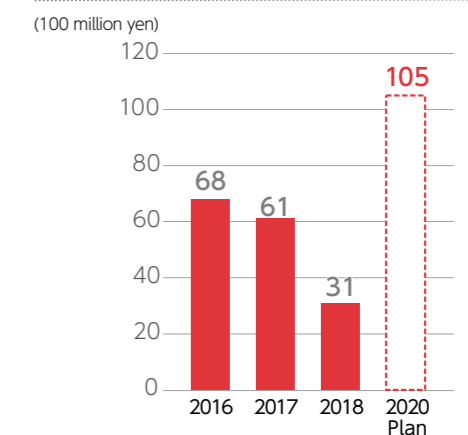
Initiatives for Growth

The semiconductor business will develop new LEDs for healthcare equipment and freshness sensors, and aims for mass production.

The electronic materials business will work to expand sales of silver powder that meets the need for thinner new solar panels with high power generation efficiency, and conductive atomized powder for electronic components such as condensers. The functional materials business will work to expand sales of magnetic powder for next-generation archival data tapes, and fuel cell materials.

Research and development will respond quickly to the rapidly changing needs of the electronic materials market, and work on early commercialization of new products, such as improving the characteristics of deep ultraviolet LEDs for sterilization applications, and mass-producing nano silver powder for semiconductor bonding materials, and will expand our areas of business.

FY 2018 Results & Plans (Ordinary Profit)



※Excluding adjustments

Metal Processing

DOWA METALTECH



DOWA METALTECH MEXICO

Copper Rolled Products Business	Manufactures copper, brass and copper alloy strips, and brass rods and forged products used for terminals and connectors for automobiles and semiconductors
Electroplating Business	Precious electroplating processing for automotive parts such as connectors and switches
Metal-Ceramics Substrate Business	Manufactures metal-ceramic substrates used for power control equipment such as industrial machinery

Business Strategies

- Expand businesses by focusing efforts on the automobiles and IoT-related fields.
- Increase earning potential further by establishing a business base that is resistant to changes in the business environment.

Situation in FY 2018

Sales	YOY +2%	920billion yen
Operating profit	YOY -14%	62billion yen
Ordinary profit	YOY -15%	64billion yen

In the copper rolled products business, demand for smartphones decreased mainly in the Chinese market from around the end of 2018, but sales for automobiles were steady.

The electroplating business absorbed demand for automotive electrical equipment.

In the metal-ceramics substrate business, despite expanding sales for railways and automobiles, demand for industrial machinery decreased in the circuit board business.

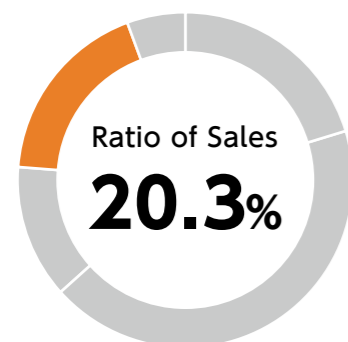
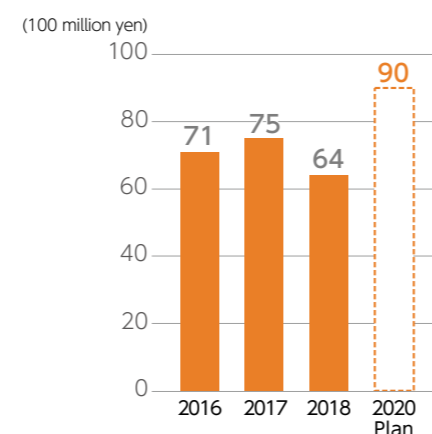
Initiatives for Growth

The copper rolled products business will promote sales of high-performance copper alloys in response to increasing electrification and intelligence in automobiles, and expanding demand for IoT-related electronic components. In addition, to respond to growing demand over the medium to long term, we will strengthen production capacity at our domestic locations and expand sales to Asia using our locations in China, Thailand and Taiwan.

The electroplating business will respond steadily to the overseas production of Japanese manufacturers, and the production expansion by foreign-affiliated customers, through full-scale operation of our Mexico and Thailand bases, and by improving productivity and increasing production of metal plating lines in Japan and Thailand.

The metal-ceramics substrate business will increase production of core products and new products, and expand sales for railways and automobiles.

FY 2018 Results & Plans (Ordinary Profit)



※Excluding adjustments

Heat Treatment

DOWA THERMOTECH



HIGHTEMP FURNACES 7-メカニカル工場(インド)

Industrial Furnace Business	Utilizing know-how of heat treatment processing, provides total service from heat treatment furnace facility design to start-up and maintenance.
Heat Treatment Processing Business	Surface processing treatment to improve wear resistance, fatigue resistance and seizing resistance of metal parts such as automobile engines and transmissions

Business Strategies

- Increase revenues further by taking advantage of the strengths of the current business model.
- Pursue initiatives in new business domains.

Situation in FY 2018

Sales	YOY +5%	297billion yen
Operating profit	YOY -7%	24billion yen
Ordinary profit	YOY +3%	25billion yen

In the industrial furnace business, orders for new equipment increased, and demand for equipment maintenance expanded both in Japan and overseas.

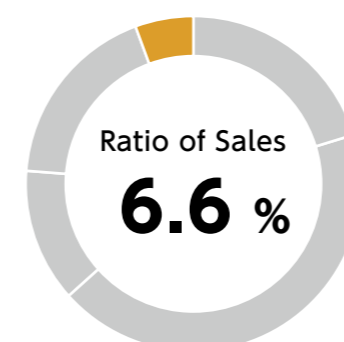
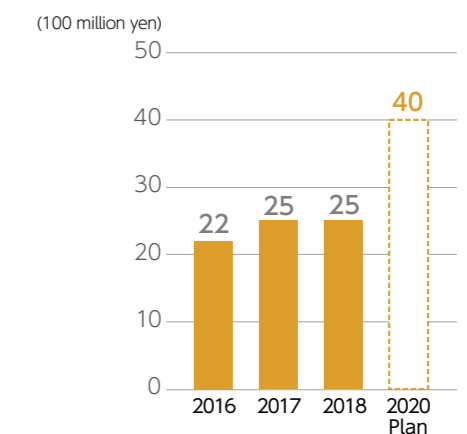
In the heat treatment processing business, orders decreased due to the impact of a drop in automobile production numbers in China.

Initiatives for Growth

The industrial furnace business will expand its product lineup to capture demand from auto parts manufacturers in Japan and overseas. In addition, we will work to strengthen profitability in the maintenance business.

The heat treatment processing business will improve productivity and increase production at domestic locations in anticipation of further increases in demand. In addition, we will accelerate the expansion of overseas businesses where wide demand is expected, such as launching new locations in India, and upfront investment and strengthening profitability in China, Thailand and Indonesia.

FY 2018 Results & Plans (Ordinary Profit)



※Excluding adjustments

Materiality and Medium-Term CSR Goals

At the DOWA Group, we identified our materiality in FY 2010, and formulated a CSR policy in FY 2011. Based on these, in FY 2014, we formulated the “Vision for 2020,” which are medium-term goals for CSR, and set single-year activity plans and goals each year to achieve that vision, and are working on CSR throughout the group. (P.21-22)

FY 2020 is the final year of the goals, and we plan to evaluate the results of our efforts so far. Furthermore, in light of the changes in society and the business environment, we will review “materiality” and consider devising a new CSR plan in order to clarify issues that should be prioritized from a medium- to long-term perspective.

Endorsed the UN Global Compact

- In March 2009, signed the UN Global Compact, which consists of the four fields of “human rights”, “labor”, “environment” and “anti-corruption”

FY2008

FY2009

Started a company-wide risk survey

- Started a survey focused on environmental risks with an in-house questionnaire targeting all offices, and since then have done it annually
- Conducted materiality questionnaires at operating subsidiaries

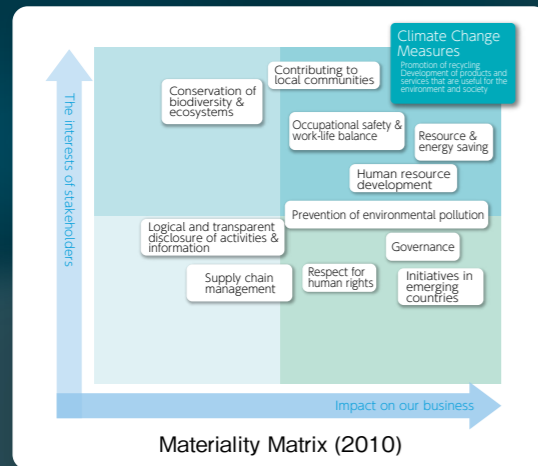
FY2010

Identified DOWA Group materiality

- Gathered select members from the five operating companies and held a study camp to examine the materiality of the DOWA Group
- Identified social issues and important issues affecting our business, and summarized important issues and measures for each operating company
- Included the “Materiality Matrix” in the next FY CSR report



Materiality study camp (2010)



Materiality Matrix (2010)

Formulated CSR policy and set priority measures

- Formulated the “DOWA Group CSR Policy” based on the UN Global Compact and our corporate philosophy to promote CSR activities from a long-term perspective
- Implemented self-evaluation based on both the materiality identified in the previous fiscal year and core issues of ISO 26000, and set priority areas and measures to address

FY2011

FY2012

Started evaluation of activities for priority measures by the four CSR areas

- Started setting goals and evaluating activities based on the priority measures
- Disclosed activity details and evaluation results through CSR reports

FY2013

Conducted company-wide risk assessments in the area of the “environment”, “society” and “governance”

- Conducted a mid- to long-term risk survey of all offices regarding environmental, social and governance risks, taking into account the current situation and the impact of future changes
- Included the results in the next FY CSR report

Area	Risk	Examples of initiatives
Environment	Legal regulations	Collecting information about and responding to legal regulations related to the revision of domestic laws, strengthening of regulations & standards, overseas regulations such as REACH regulations & RoHS directives, and general business and product transactions
	Environmental conservation	Measures for air quality, water quality, noise, odors, chemical substance management and climate change, etc.
Society	Healthy & safety	No accidents & disasters, and mental health measures, etc.
	Quality	Ensuring and improving quality and establishing a quality control system, etc.
	Education	Development of an employee education and training system, skill transfer and career support, etc.
Governance	Large-scale disasters	Disaster prevention and mitigation measures for earthquakes, tsunamis and floods, etc.

Mid- to Long-Term Risk Assessment (2013)

Announced the Vision for 2020, and formulated the medium-term CSR goals and plans (until 2020)

- Set the medium-term goals with the aim of the “Vision for 2020” for the entire group
- Priority measures set for each of the “S+ESG” areas specified in the CSR policy to prioritize issues that should be addressed for the vision
- Single-year activities and goals set as an activity plan to realize the vision

FY2014

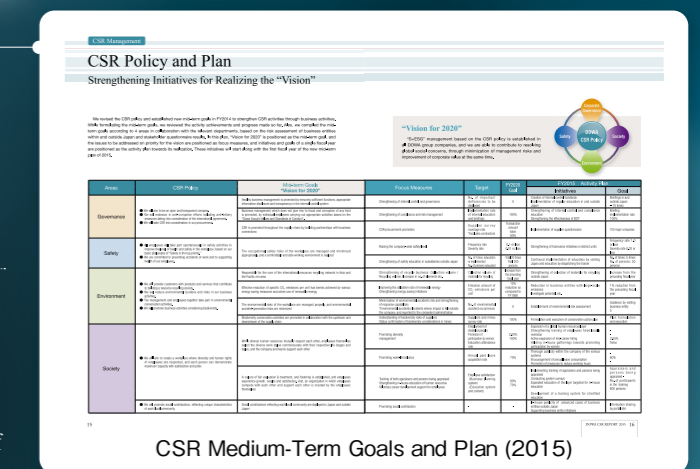


Sustainable Development Goals (SDGs) - 2016

FY2015

Started the CSR plan for medium-term goals

- CSR midterm plan started in line with the first year of the DOWA Group's new midterm plan in 2015



CSR Medium-Term Goals and Plan (2015)

Evaluate the results of the CSR midterm plan, review our materiality and consider a new CSR plan

After FY2020

FY2016~19

CSR plan results by FY and initiative goals for the next FY announced

- In the annual CSR report, the initiative results and evaluation of measures by area, and the next FY goals, are reported
- Among social issues, especially activities that our company focuses on for a solution, selected goal 12 of the SDGs - “securing sustainable patterns of consumption and production”

CSR Policy and Plan

● Concept of the CSR plan and the goals

At the DOWA Group, 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 FY2018, please see the report by area from the next page.



Areas	CSR Policy	Medium-Term Goals “Vision for 2020”	Priority Measures	Indicator	FY 2020 Goals	Activity Plan for FY2019	
						Initiative	Goal
Corporate Governance Results on P.25	<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	Establish a nominating committee	Establish Zero incidences
			Strengthening of compliance and risk management	Implementation rate of internal education and briefings	100%	Conduct compliance training for those posted overseas	Conduct compliance training in group training of foreign location managers
			CSR procurement promotion	Coverage rate for supplier surveys *Excluding construction contractors	80% on a transaction amount basis	Create an education tool through collaboration with other companies	One incidence
Safety Results on P.33	<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*1 Severity rate	1.0 or less 0.01 or less	Implementation of safety audits & safety and health examinations from an objective viewpoint	Frequency rate 1.5 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	20 times in total 200 people in total	Strengthen maintenance education	Cut in half the incidence of accidents at the time of repairs
Environment Results on P.39	<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 impacts 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 the 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	Total greenhouse gas emissions Versus previous FY 1% reduction
			Minimize the risk of environmental accidents and strengthen the ability to respond *Environmental accidents: In cases where there is impact outside of the company and it is reported to the relevant agency	No. of environmental accident occurrences	Zero incidences	Raising the level through seminar courses and mutual inspections of environment management systems	8 regions
Social Results on P.47	<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. In unity with the local community, we will promote social contributions that reflect the unique characteristics of the local community 	<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 Deploy inside and outside of Japan social contributions together with each region 	Promoting diversity	Employment rate of people with disabilities*2 Attendance rate for education about promoting the success of women	2.2% 100%	Employment for the physically challenged Interview each office about conditions of the work environment Expand global human resources and strengthen human resources and organizations at offices overseas Strengthen relationships with universities and technical colleges, and develop routes to employ those with mechanical and electrical skills	2.2% Draft measures in order to create workplaces where it is easy to work Implement a global challenge program, short-term intensive English language training and training of foreign location managers Clarify priority schools and routes for employment
			Promoting work-life balance	Rate of annual paid leave taken	70%	Thorough knowledge within the company of the various systems Encouragement of the use of annual paid vacation Promotion of measures to reduce working hours	Publicize handbooks to explain the systems A rate of 70% for the days taken, and promote measures to encourage the taking of paid vacation 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 Support for career development done on the initiative of the employee	Employee degree of satisfaction —Business planning system —Attendance rate	90% 70%	Implement training of evaluators and briefings for those being evaluated Conduct surveys about the degree of penetration and understanding of the personnel system Evaluation system education for new employees Implement career training for new and young employees Promote career planning seminars	300 students A response rate of 100% (targeting 1,100 people) Attendance rate 100% Attendance rate: 100% Attendance rate: 10%
			Promoting social contribution	—	—	Activities related to education for children Activities related to regional revitalization	4 times 4 times

*1: From this report, the frequency rate calculation method has been revised to the definition of the Ministry of Health, Labor and Welfare

*2: The goal has been revised according to the statutory employment rate

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”.

Priority Measure - CSR Procurement

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 annually disclose information on the usage of four kinds of minerals, namely gold, tantalum, tin and tungsten, that originate in the conflict area of the Democratic Republic of Congo (DRC) and its neighboring countries. Moreover, the European Parliament adopted conflict mineral regulations in 2017, and efforts to encourage companies to deal with conflict minerals as a social issue are spreading around the world.

As our social responsibility as a company that handles metallic materials, the DOWA Group is working toward responsible mineral procurement that takes human rights, the environment and ethics into consideration.

Strengthening our response towards responsible mineral procurement

With automobiles, electronic devices and electrical appliances, there are a huge number of products that use metals. These are distributed around the world and they support our lives. Regardless of how information is disclosed, we believe that the procurement of ore, the raw material for these products, should not prolong conflicts and not promote human rights violations.

Because we do not use minerals as raw materials that may fund organizations involved in things like risky and illegal human rights abuses in conflict and high-risk areas, for the purpose of clarifying more specific management methods, in March 2019 we revised the “DOWA Group Responsible Mineral Procurement Policy”, our conflict minerals management policy that was established in 2012.

Based on this policy, we conduct due diligence (risk assessment) for all suppliers of raw materials containing gold, tin and silver (excluding tin contained in recyclable raw materials), and respond appropriately to the identified risks. As a result of the risk assessment, if the manager in charge of conflict minerals determines that the risk is high, it is stipulated that the purchase of the raw materials be stopped. Due diligence is implemented in accordance with the “OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas”.

In addition, in accordance with the policy revision, a dedicated inquiry point of contact has been established on our website with regards to responsible mineral procurement. By responding in a timely and appropriate manner to concerns and opinions about conflict minerals from domestic and foreign stakeholders through this point of contact, we can quickly deal with supply chain risks.



Responsible Mineral Procurement Policy http://www.dowa-csr.jp/about/procurement_policies.html

Audit by an independent third party

The DOWA Group has multiple smelters in Japan and produces many types of metals, including gold, silver and tin. So that all customers can use these metals with peace of mind, we are regularly audited by a third-party organization with regards to our responsible mineral management system and its implementation status.

Two of our companies, Kosaka Smelting & Refining and Eco-System Recycling, have been certified for the Conflict-Free Smelter Program in accordance with the Responsible Minerals Assurance Process established by the Responsible Minerals Initiative (RMI). In the program, an independent third party evaluates the smelter / refiner’s procurement activities and determines whether all ores handled are from conflict-free mines and pits, or whether it is recycled material. In the actual audit, such things as our procurement policy and code of conduct, the procurement material analysis process, the method of determining suppliers, and the appropriateness of the definition of recycled materials, are verified through on-site audits and the checking of documents. In addition, as a part of promoting responsible mineral procurement, at these offices we regularly conduct employee training about conflict minerals and human rights.

In 2019, to further promote responsible mineral procurement, we have newly obtained third-party certification for silver that is compliant with the Responsible Silver Guidance (RSG) set by the London Bullion Market Association (LBMA). We are actively responding to stakeholders’ requests for transparency in the supply chain by strengthening management systems and policies, formulating risk assessment procedures for suppliers, and publishing audit results.

As a role that we should fulfill as a smelter located in the upstream of the supply chain, we strive for responsible mineral procurement by establishing a metal supply system that is not related to conflicts or human rights abuses.



VOICE

In March 2019, DOWA Metals & Mining established a new management system to prevent the procurement of raw materials from suppliers with a wide range of risks, such as conflict areas, human rights abuses, money laundering and bribery. Supplier due diligence (risk assessment) is a daunting task of sending and collecting questionnaires and notices to hundreds of suppliers. There is a time difference with suppliers overseas, and since communication with them tends to be via emails, it of course takes time to collect. At first they did not understand, but by persistently explaining the importance of responsible mineral procurement and our efforts in this regard, we were able to be certified with the cooperation of our suppliers. I would like to express our gratitude to our suppliers and all those concerned.



Corporate Governance

Corporate Governance Area 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 FY 2018 and the plan for FY 2019 in the field of corporate governance.

●FY 2018 Results

Corporate Governance Priority Measures	Tasks	Indicator	Evaluation	Main Results
Internal control and governance	Supporting internal control activities of domestic and overseas companies	Prepare an executive handbook	△	Explanation of responsibilities during executive training
Compliance and risk management	Conducting briefing sessions about harassment	3 times	○	700 participants
CSR procurement promotion	Revise the promotion system and methods	Implement a revision based on exchanges with other types of industries	○	By participating in the Global Compact Network Japan Supply Chain Subcommittee, collaborated and cooperated with other companies
	Promote in-house education	Implement CSR procurement training targeting those responsible for procurement	○	Development of original training tools, and training for a total of 66 procurement staff and new employees

●FY 2019 Initiatives and Goals

Internal control and governance	Establish a nominating committee	→	Establish
	No. of important deficiencies that should be disclosed	→	Zero incidences
Compliance and risk management	Conduct compliance training for those posted overseas	→	Conduct compliance training in group training of foreign location managers
CSR procurement promotion	Create an education tool through collaboration with other companies	→	One incidence

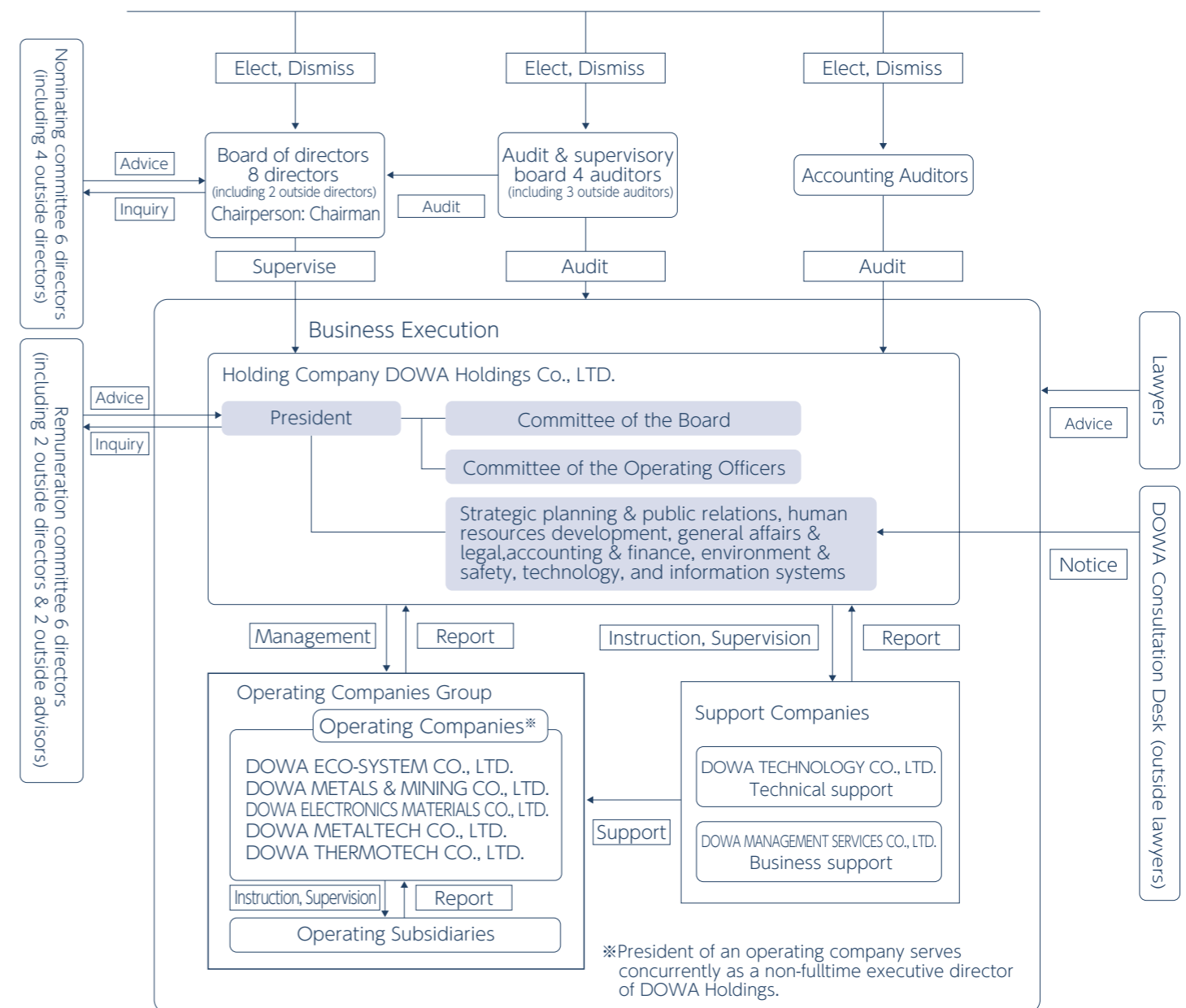
Corporate Governance

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.

● 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.

General Meeting of Shareholders



As of the current CSR Report issued in 2019

●Board of Directors and Directors

The board of directors is composed of eight directors (seven men and one woman), including two outside directors appointed in consideration of their expertise and background, with attendance by four auditors, including three outside auditors. 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.

In the fiscal year that ended in March 2019, the board of directors met 15 times, and the attendance rate of outside directors was 100%. In addition, outside directors and auditors hold regular meetings to exchange opinions and ensure cooperation.

No. of directors in the articles of incorporation	13
Term of office for directors in the articles of incorporation	1 year
Chair of the board of directors	Chairman
No. of directors	8
No. of outside directors	2
Among the outside directors, no. specified as independent directors	2

Evaluation results on the effectiveness of the board of directors

We conducted a questionnaire (self-evaluation) for all directors and auditors, including those outside the company, and through discussions with the board of

directors, analyzed and evaluated the effectiveness of the entire board of directors.

Implementation Details | Self evaluation done through a questionnaire

Evaluation subject Board of director meetings held from April 2018 to March 2019 (total of 15 times)

Evaluators All directors and auditors

Evaluation results It was confirmed that the frequency of meetings of the board of directors, and the proceedings of the chair, are appropriate, and the board of directors has become a venue for free and vigorous discussion, and that its effectiveness has been sufficiently secured, including its composition and agenda items.

Future initiatives to improve effectiveness

While there were some improvements in the analysis and review of company-wide risk assessment methods, and the measures taken to implement the midterm management plan, which were cited as issues last fiscal year, opinions were expressed that continuous improvement was desirable. Based on this, going forward we will continue working to further improve the effectiveness of the board of directors.

 With regards to basic policies and initiatives about governance, please see our report about corporate governance. https://www.dowa.co.jp/jp/about_dowa/governance.html

Status of voluntary committees that have been established

With the advice of the compensation committee, which consists of outside directors and outside experts, the executive compensation system is designed to incorporate an objective perspective, such as the consolidated business results of our group, dividends to shareholders and external compensation levels. For particularly important matters, such as the appointment and dismissal of executive managers, the

nominating committee has been established to obtain advice from an objective position. Both committees consist of five or more members, including two outside directors, one outside auditor and one outside expert. The chairperson is elected by the board of directors and, in principle, the committees meets once a year or more.

Compliance

At the DOWA Group, “compliance” is positioned as the basis of corporate management. The “DOWA Group’s Values and Code of Conduct” has been established for each employee to not only comply with the laws and regulations, but also carry out activities in accordance with the common sense of society. Together with contributing to society through our business activities, the whole group is working to establish and operate an effective internal control system. 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.

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 relevant departments and each group company. The audit results are reported to the directors, auditors and the relevant departments. In FY 2018, as part of strengthening internal control, we conducted internal audits at eight domestic companies, and overseas we conducted internal audits at 15 companies in North America, Southeast Asia and China.

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

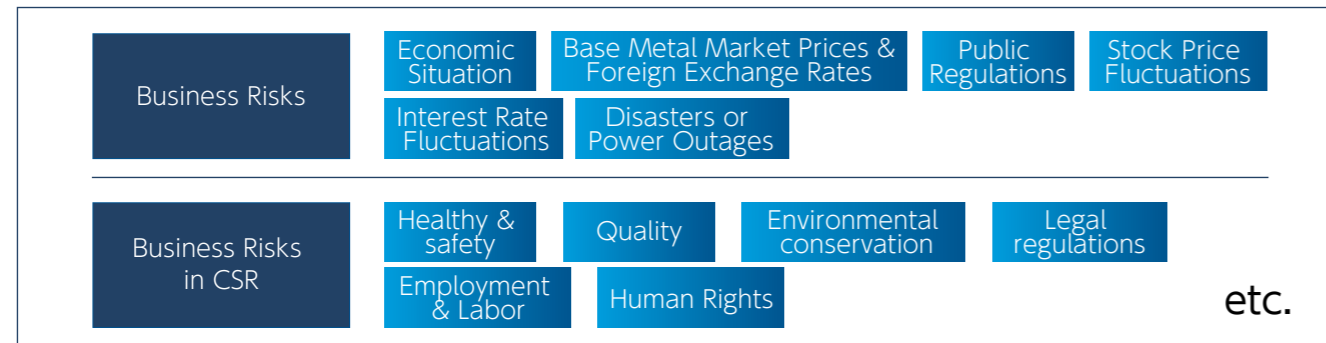
●Internal Reporting System

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 those outside our company, and have 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.

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 we have formulated business continuity plans (BCP) for natural disasters such as typhoons and floods caused by torrential rain that have been increasing in recent years, and pandemics such as new strains of influenza. We are working to avoid risks in order to continue business activities in emergency situations.

Continuous improvement of the BCP

We revise the BCP on a regular basis, and in FY 2018, 18 operating subsidiaries updated their BCPs, and revised such things as the scale of disasters, response procedures and target recovery periods. 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 twice 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.

Introduction of a safety information confirmation system

In order to ensure prompt contact and confirmation of someone’s safety in the event of a disaster, we have introduced a safety information confirmation system using smartphones to strengthen our disaster prevention system. In the disaster drill for FY 2018, we conducted a safety information gathering drill using this system, confirmed that information could be collected promptly, and successfully completed the drill.



Participation in International Organizations and Consortium

In March 2009, the DOWA Group endorsed and signed the UN Global Compact (UNGC), which are voluntary principles of corporate action proposed by the United Nations. We respect the 10 principles in the four fields of “human rights, labor, environment and anti-corruption” that are listed in the UN Global Compact, and we are working toward the sustainable development of society.

The 10 Principles of the UN 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 labor; 5 the effective abolition of child labor; 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.

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. We are also actively participating in the activities of the Global

Compact Network Japan (GCNJ), UNGC’s local network in Japan. In FY 2018, we participated in the “Supply Chain Subcommittee” of GCNJ, and while cooperating with various companies, we work to promote its activities.

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

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.

●Harassment Training

In FY 2018, we held harassment training for managers throughout the group. An outside lawyer, who is in charge of the DOWA Consultation Desk, was invited to give lectures on the legal status and risks related to power harassment and sexual harassment, and specific criteria based on precedent. The training was held three times by connecting the Tokyo headquarters, the venue of the event, and offices nationwide, via video conference, and was attended by more than 700 people, including managers and voluntary participants. In addition to training and education, we disseminated information by putting up posters at our offices and through the intranet, etc., and worked to prevent workplace harassment.



●Initiatives to Eliminate Antisocial Forces

As included in the “DOWA Group’s Values and Code of Conduct”, to fulfill our corporate social responsibility, we will eliminate wrongdoing due to antisocial forces, and require all executives and employees to be aware and act. We have established a system in which related departments cooperate with each other, centering on the general affairs and legal affairs departments in charge, and stipulate that there will be cooperation and organizational response with external specialized groups, such as lawyers, as necessary. In addition, while ensuring that all executives and employees comply with the code of conduct and the related laws and regulations through employee training and distribution of manuals, the status of compliance is monitored through internal audits.

Safety

Occupational safety and health is one of the most important themes in the development of DOWA's business.

Based on the basic philosophy that "safety takes the priority over everything", we formulated CSR management plans at all business sites in Japan and overseas, and are conducting safety activities based on our annual plan.

Priority Measure - Raising the Company-Wide Safety Level

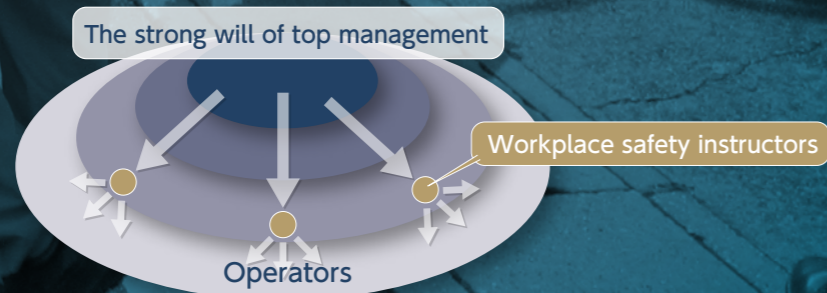
Safety Takes the Priority Over Everything

Raising the safety level

On-site safety is supported by the strong will of management and correct employee education. The DOWA Group is putting effort into training workplace safety instructors to enhance safety education for operators.

In addition, our company has a unique system that strongly supports improvement, and designates business sites with serious accidents, and those with a high frequency of accidents, as "designated business sites" and "quasi-designated business sites" respectively. The Safe Environment Personnel Council, which is made up of safety managers from the holding company and all operating companies, provides support and guidance to designated business sites and quasi-designated business sites in improving their safety systems. When necessary, we implement and discuss safety audits and health & safety examinations that incorporate an objective perspective from external consultants, and improve the safety level by working on our own issues.

Implemented by the will of top management and educated employees



For business sites with issues, company-wide support and guidance

Initiatives for business sites with a high number of accidents and disasters

Designated business sites	<ul style="list-style-type: none"> Strengthen on-site safety in conjunction with the safety management special guidance office Initiatives to foster a culture of safety
Quasi-designated business sites	<ul style="list-style-type: none"> Safety examinations that include an objective viewpoint from external consultants Selecting themes according to individual companies Promoting improvement
Disaster visits	<ul style="list-style-type: none"> Digging deep into factor analysis Verifying the appropriateness of measures Safety audits

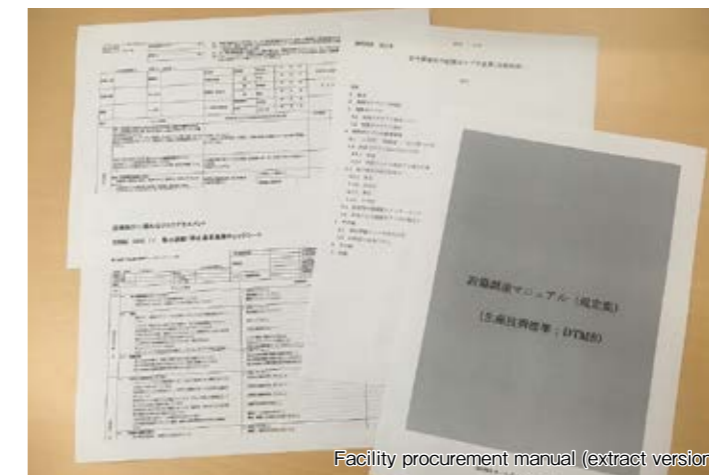
Initiatives to prevent accidents and disasters -Formulating technical standards when introducing equipment-

If there is insufficient consideration at the time of new equipment construction, not only equipment safety, but production capacity may not even be realized. With regards to safety, for example, fault such as inadequate safety devices, forcing unreasonable work and the inability to cover human errors must be resolved when the equipment is introduced.

Therefore, keeping in mind the safety of equipment and achieving production capacity, a working group for the standardization of production technology was launched at DOWA Technology, and we developed an equipment procurement manual (DTMS: DOWA Technical Manufacturing Standard) which are standard rules at each stage of considering the concept of construction work, basic design, and detailed design.

The standard rules consist of items to be considered, such as workflows, technical standards and risk assessments, and check sheets at each stage. As a standard manual from equipment planning to introduction and start-up, it has begun to be applied to some construction works from FY 2019.

In the future, we will further expand the applicable range, boost completion accuracy in capital investment, and improve the certainty of safety and performance.



VOICE

While it was a difficult way from the start of considering until getting on track, since serious accidents continued, and it was urgent to review safety functions, we cooperated with engineers all over the country. We will continue to improve it so that it will be useful as a technical standard for improving equipment safety and reducing omissions, oversights and risks. In addition, there are side effects such as the accumulation and utilization of the contents of consideration, raising awareness about risks, and activating communication between departments. We can expect an improvement in technical skills. Going forward, the study details will be enriched and become more efficient due to the standardization of the design review (DR) method, and we will work to respond individually to differences in equipment for each business, and to improve the level of satisfaction with the manual.



SAKAI Shoichi, Manager, Production Technology Dept, DOWA TECHNOLOGY

Safety

Safety Area 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

The status of activities in the safety field in FY2018, and the plan for FY2019 are as follows.

●FY 2018 Results

Key safety measures	Tasks	Indicator	Evaluation	Main Results
Raising the company-wide safety level	Strengthen cross-initiatives by region	Frequency rate* 1.5 or less	×	2.79
		Severity rate 0.02 or less	×	0.06
Strengthening of safety education in subsidiaries outside Japan	Strengthen maintenance education	Cut in half the incidence of accidents at the time of repairs	△	▲14% reduction

●FY 2019 Initiatives and Goals

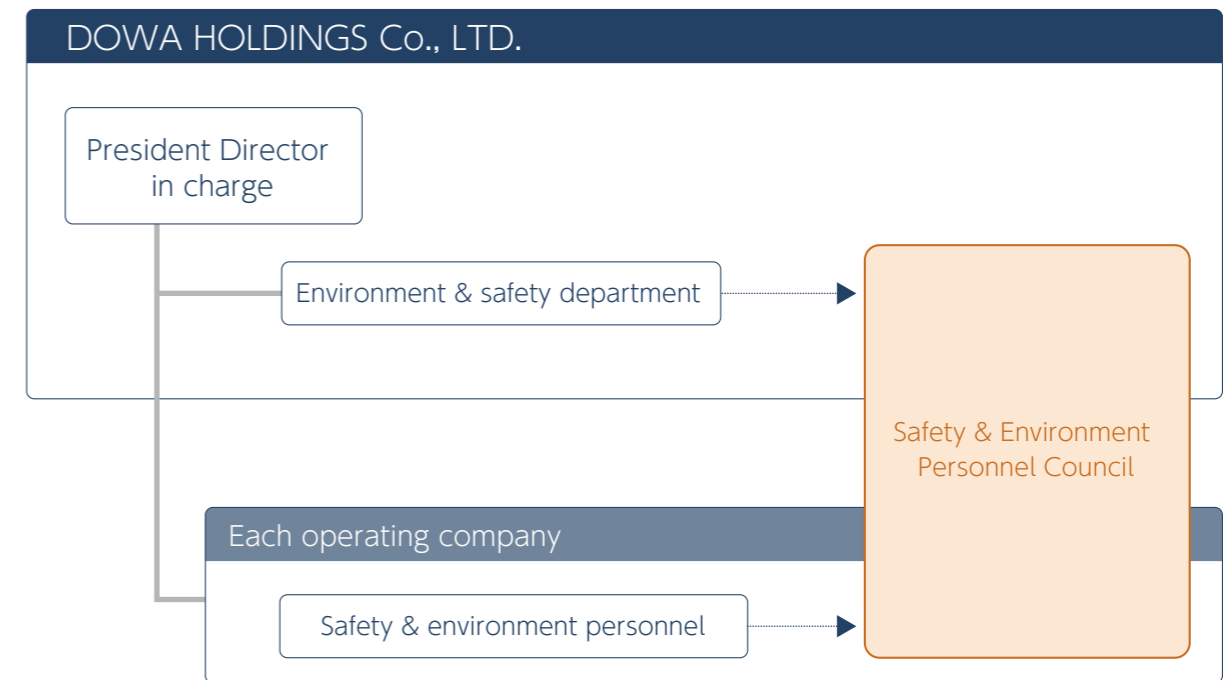
Raising the company-wide safety level	Do safety audits & safety and health examinations including an objective viewpoint	Frequency rate* 1.5 or less	→	_____
		Severity rate 0.02 or less	→	_____
Strengthening of safety education in subsidiaries outside Japan	Strengthen maintenance education	Cut in half the incidence of accidents at the time of repairs	→	_____

※From this report, the frequency rate calculation method has been revised to the definition of the Ministry of Health, Labor and Welfare.

●Safety Management System

The DOWA Group’s environmental and safety management activities are carried out in cooperation with the environment & safety department of DOWA Holdings, the holding company, and safety & environment personnel appointed by each operating company that

conducts environmental conservation activities. While arranging and coordinating between each of the operating companies, DOWA Holdings implements safety promotion activities for the entire group.



Safety & Environment Personnel Council

The Safety & Environment Personnel Council is held at the head office every month, and is a place to discuss promotion of company-wide safety activities, to share the activities of each company, and provide mutual support. In the event of an accident or disaster, the council grasps the situation and discusses the causes and measures to deal with it. For matters such as details or measures decided by the council, it goes from those in charge to each operating subsidiary, with a mechanism in place for quick information sharing.



Safety Campaign Region Council

The Council is set up as a place for communication with a system where the members of each region share examples of activities and ideas and consult with each other. Going forward, we will further develop this network and contribute to the promotion of the campaign.



Occupational Safety Initiatives

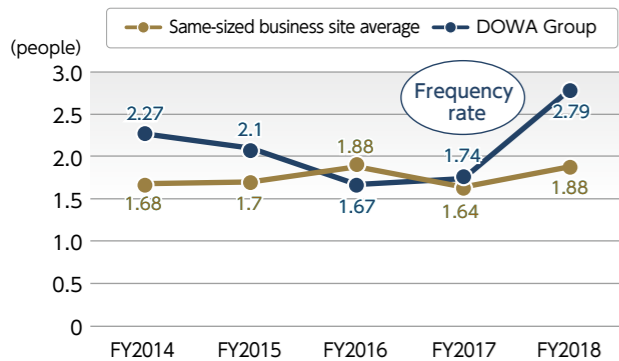
For the DOWA Group, based on the CSR policy (all employees will independently take part in activities to improve the level of health and safety, based on our basic philosophy of “safety takes the priority over everything”), we are developing various safety activities based on an annual safety and health plan.

● Occurrence Status for Accidents at Work

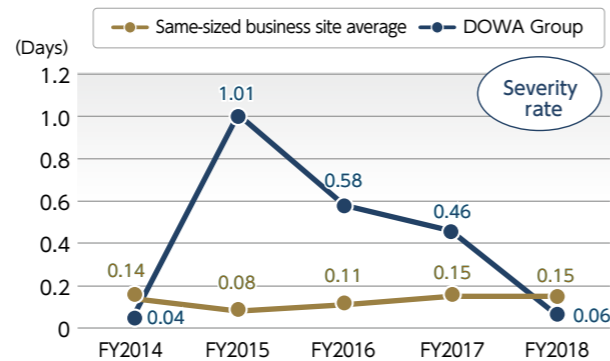
While the number of accidents at the DOWA Group as a whole is on a downward trend in the long term, it increased in FY 2018. Compared with figures at business sites of the same scale in the accident statistics of the Ministry of Health, Labor and Welfare, the frequency rate was 2.79 against 1.88, but for the severity rate it was 0.06 against 0.15, an improvement from the previous year.

Regarding the types of accidents that occurred in FY 2018, there were many cases of being “pinched & caught” or “cut & scraped”, accounting for nearly half of the total. In addition, it is characterized by the fact that many of the victims have less than five years of experience. Since the causes of these accidents at work have aspects of both the “safety management system” and “individual sensitivity & behavior”, we are taking measures for both at the same time to prevent recurrence.

■ Change in the accidents at work frequency rate



■ Change in the accidents at work severity rate



※Compared with the final accident statistics for FY 2018 for sites with 100 to 299 employees (the average number of employees at each of our business sites)

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

● Promotion of Safety Education

We are working to raise safety awareness through risk simulation training and workshop-type training so that all employees can make occupational safety their own issue and act on their own.

Safety awareness survey

From FY 2018, we started a safety awareness survey called “Safety Power Check” for new employees and those who participated in front-line supervisor training. From both the social and personal aspects, the survey evaluates the “spirit of compliance & safety observance” and “risk prediction ability & risk avoidance ability” which are necessary for safety power. By the using the survey results for workshops and one-on-one instructional exercises, it is not just a mere evaluation, but an opportunity to have self-awareness about what kind of trends there are.



We expect that changes in individual behavior in the future will enable safer behavior, and safety awareness will increase throughout the workplace through communication about safety.

Risk assessment presentation

For the sharing of the excellent initiatives of each group company, and to form a human network of those in charge, we hold a risk assessment presentation every June with the purpose of improving the level of safety initiatives at each company. In the eighth presentation, adding the seven domestic companies selected by advance screening, DOWA Thermotech Thailand presented on their “Contractor Control for Safety Activity” initiative, which got an excellent grade at the safety conference overseas.

About 70 people from Japan and abroad attended, and active opinions and questions were exchanged about each company’s initiatives.



Safety & Environmental Compliance Seminar

In December 2018, the 26th Safety & Environmental Compliance Seminar was held at a business site in the Okayama region. Putting a focus on the business activities of plants, a workshop was held in which each could share their opinions about corporate compliance with regards to safety and the environment. In the training, the details were more practical for the workplace, such as incorporating issues found during actual plant tours.



Promotion of Health Management

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 raise 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

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

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

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 impact of our business as an important issue for management.

Priority Measure - Reducing Environmental Impact & Risks

Safety Management of Suspended or Abandoned Mines and Tailing Dams

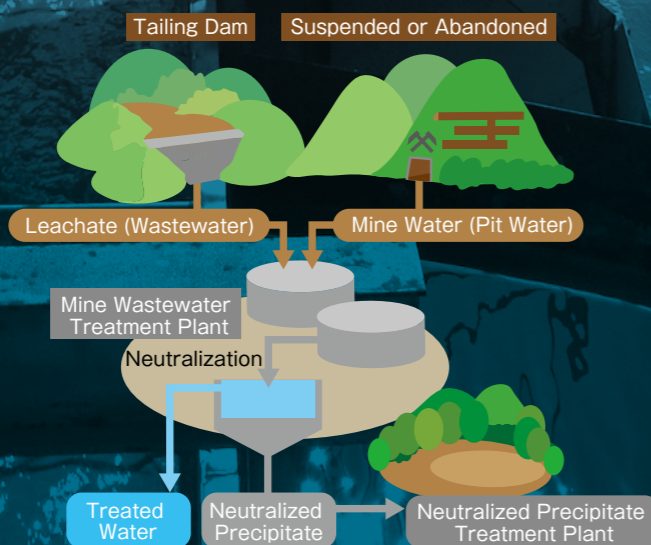
In the past, many mines were operating in Japan, but from around 1970, such things as the rapid appreciation of the yen reduced profitability, and forced many domestic mines to stop operating. At present, along with tailing dams that are adjoining facilities of these suspended or abandoned mines, under various mining laws and procedures such as the Mine Safety Act, they are strictly managed by the company or local government that ultimately held the right to operate the mine.

We currently operate and manage more than 20 suspended or abandoned mines and more than 30 tailing dams, the majority of which have been suspended or abandoned. In addition, by managing with voluntary management standards that are stricter than mining laws and procedures, we are working to prevent mine pollution and maintain and improve safety.

Management of water resources

In suspended or abandoned mines, as a result of excavated tunnels, some of the ore remaining in the mines comes into contact with groundwater and oxygen in the air, causing an oxidation reaction. There is the possibility that acidic water or mine water (pit water) containing heavy metals will flow out from the pithead. In addition, at tailing dams, leachate (wastewater) containing harmful heavy metals is discharged due to rainwater or groundwater, and there is the risk of it flowing into rivers, causing pollution of water quality and agricultural land.

We have set up mine wastewater treatment plants near each facility, we monitor pit water and wastewater generated from tunnels and tailing dams 24 hours a day, 365 days a year, and perform appropriate treatment according to the quality. Through this, we are working to maintain healthy water circulation and a sustainable water use environment.



Maintaining Stability at Suspended or Abandoned Mines and Tailing Dams

Most of the suspended or abandoned mines and tailing dams that we manage are facilities that had ceased operations by 1980. Mine wastewater treatment plants and tailing dam facilities are inspected on an irregular basis by public safety and inspection departments in each region. However, our tailing dams are mostly suspended or abandoned, with soil covering and mine pollution prevention work implemented, and greening by vegetation completed, so they are in a very stable condition. Including tailing dams still in use, we set the items for inspection and frequency for each location, with qualified people doing patrol inspections of such things as pitheads that have been blocked, and the slopes and culverts of tailing dams. We strive to maintain a stable condition by quickly detecting and repairing points of deterioration due to changes over time.



Preparing for Natural Disasters

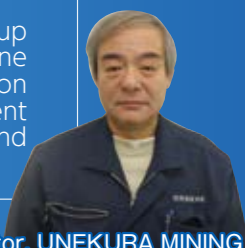
In recent years, abnormal weather caused by climate change has continued in Japan, with localized heavy rains occurring at an unprecedented frequency. In addition, Japan is an earthquake-prone country, and preparing for large-scale earthquakes is essential.

Together with building a mechanism to prevent mine wastewater from flowing out of the system even if heavy rain occurs, and by evaluating the stability of tailing dams against large-scale earthquakes, and systematically implementing reinforcement work as needed, we are enhancing our preparedness for the threat of natural disasters.



VOICE

At Unekura Mining, which manages the suspended or abandoned mines of the DOWA Group and treats mine wastewater, we have introduced various technologies into the mine wastewater treatment process, such as labor-saving treatment facilities and a neutralization method using iron-oxidizing bacteria. In the future as well, we will pursue efficient treatment methods that have both low environmental impact and low cost, and we will work on safe and secure mine pollution prevention.



HAREYAMA Satoshi, Representative Executive Director, UNEKURA MINING

Environment

Environmental Area 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 impact 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

The status of activities in the area of the environment in FY 2018 and the plan for FY 2019 are as follows.

FY 2018 Results

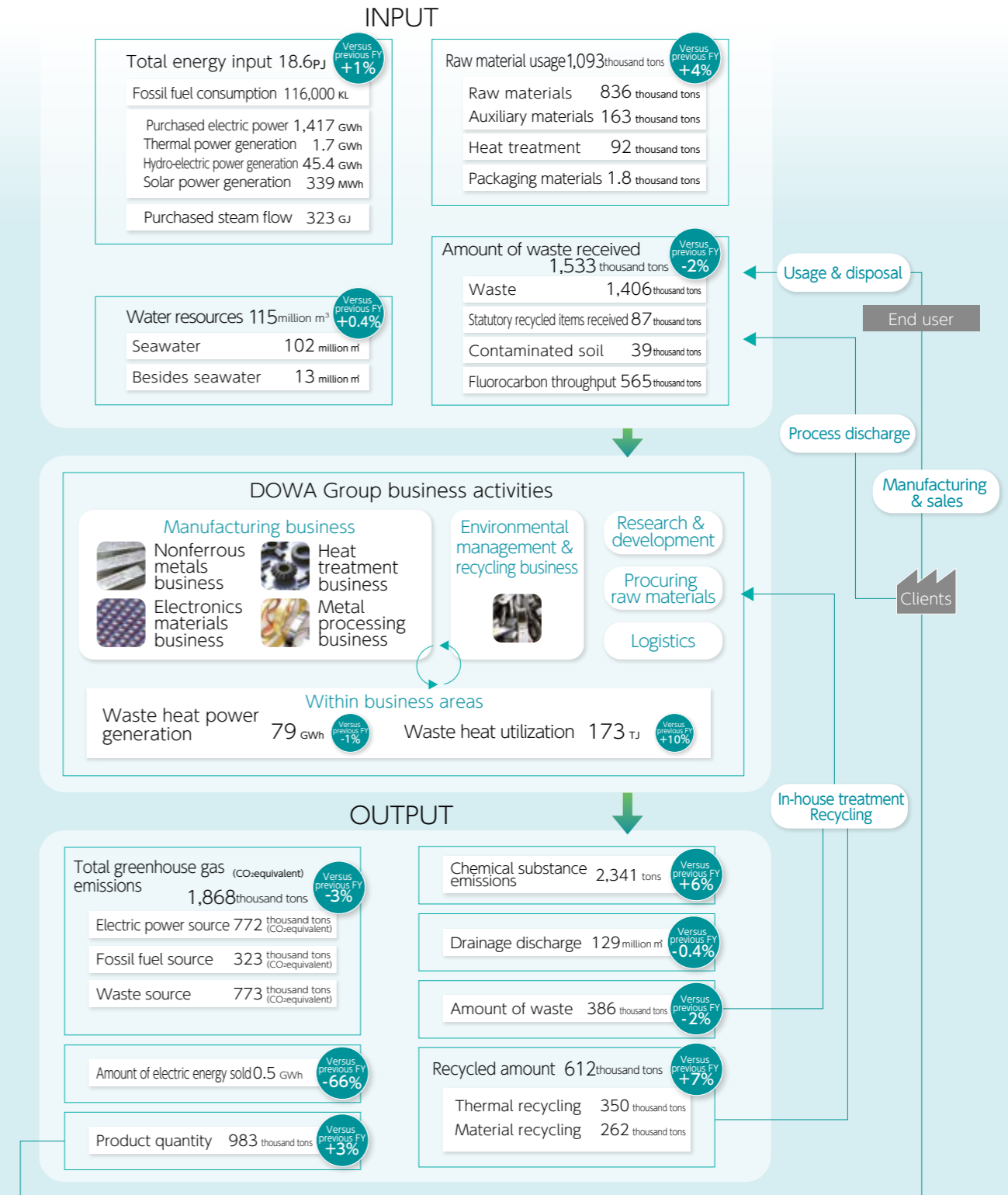
Environmental Priority Measures	Tasks	Indicator	Evaluation	Main Results
Promotion of resource recycling	Strengthening of collection of materials for recycling outside Japan	Increase from the preceding fiscal year	○	•Expansion of global collection of discarded electronic circuit boards for precious metal and copper smelting •Expansion of automobile waste catalyst collection by utilizing European and Asia sites
Environmental impact	Promotion of renewal of energy-saving equipment at large-scale disposal sites	Total greenhouse gas emissions reduced by 1% compared to the previous FY	○	Versus previous FY 3% decrease
Environmental risks	Raising the level through seminar courses and mutual inspections of environment management systems	8Regions	△	4Regions
Biodiversity	Confirm the biodiversity consideration status for mine-related suppliers	Over 80% on a transaction amount basis	×	12.6%

FY 2019 Initiatives and Goals

Promotion of resource recycling	Strengthening of collection of materials for recycling outside Japan	➔ Increase from the preceding fiscal year
Environmental impact	Promote renewal of energy-saving equipment and energy conversion	➔ Total greenhouse gas emissions reduced by 1% compared to the previous FY
Environmental risks	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

FY 2018 Material Balance

The DOWA Group is promoting business activities while considering material balance by quantitatively knowing the “input” of necessary resources and energy at each stage of the business life cycle, and the “output” of CO₂ and waste generated from these activities.



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 Climate Change. 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 2018 CSR Report have also been revised.

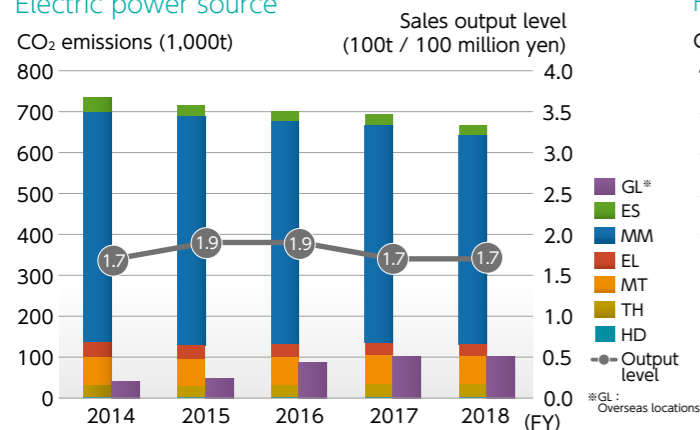
About the Current Environmental Status — Initiatives For Climate Change

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”.

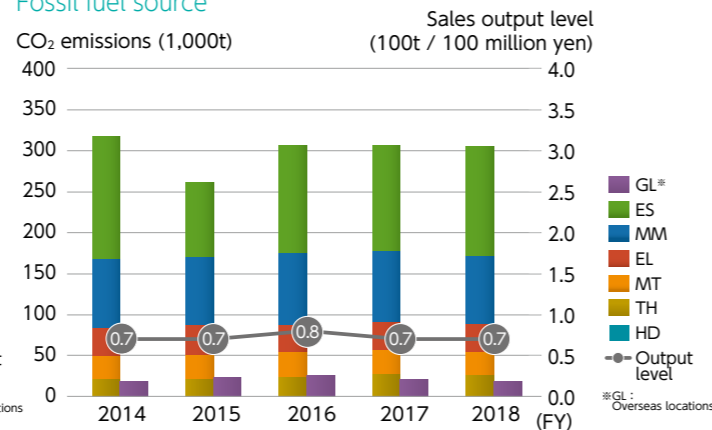
Reduction of Greenhouse Gas Emissions

In FY 2018, the greenhouse gas emissions by the DOWA Group as a whole were about 1,868 thousand tons CO₂ (1,748 thousand tons CO₂ in Japan, and 120 thousand tons CO₂ overseas). Compared to the previous FY, it decreased by about 3% in Japan and overseas.

Electric power source



Fossil fuel source



Major Initiatives for FY 2018

- Facility remodeling & renewal and process improvement
- Energy savings through business efficiency
- Waste heat utilization and waste power generation
- Fuel conversion

Initiatives for Renewable Energy

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

At Kosaka Smelting & Refining (Akita Prefecture), in 1897 (Meiji 30) 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 2018, we generated

45.4 GWh, which is an important power source to cover the energy of Kosaka Smelting & Refining. In addition, we are introducing solar power generation systems at the Ohta Plant of Thermoengineering (Gunma Prefecture), Meltec (Tochigi Prefecture), DOWA Hightech (Saitama Prefecture), Eco-System Sanyo (Okayama Prefecture) and Act-B Recycling (Kumamoto Prefecture). In FY 2018, the total power generation of the five companies was 339MWh, and it is used for part of our electric power needs in our business activities.

TOPICS

Launch of Indonesia's First Hazardous Waste Rail Transport

In August 2018, PPLi, which has the only approved hazardous waste final disposal site in Indonesia and provides comprehensive waste management services, launched the country's first rail transport of hazardous waste in collaboration with the Indonesian national railways and its operating subsidiary KALOG. Trucks took about three days to transport this, but by switching to rail it now takes about one day, and it can be safely transported on a more stable schedule. It is also known that railroads emit significantly less CO₂ per unit of transport volume than automobiles.

With the cooperation of the Indonesian regulatory authorities, the Indonesian national railways and its logistics subsidiary, this project took four years to achieve through persistent trial operations. The DOWA Group contributes to solving environmental issues in Asia by cooperating with governments, regions and operating companies in various sectors.



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.

Water Resources

In FY 2018, the water resource input amount was 114.9 million m³, an increase of about 0.4% from the previous FY. Our most common use of water resources is for cooling water used in the smelting process, which uses seawater. Freshwater usage is about 10% of the total, but increased by 2.3% versus the previous FY to 13 million m³.

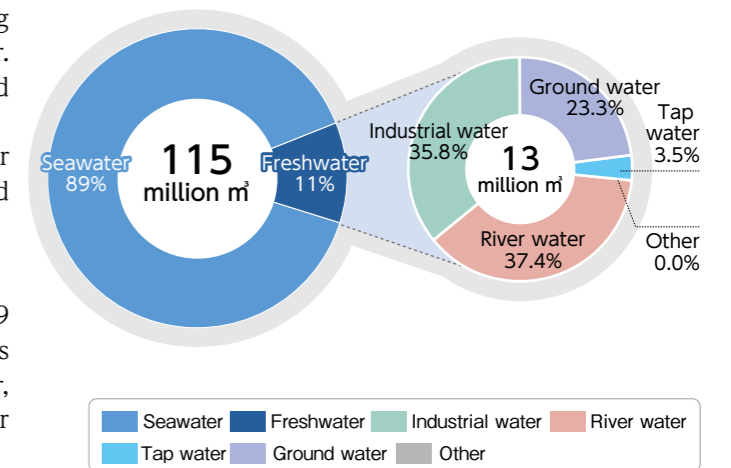
In FY 2018, we worked on reducing the amount of water usage by installing water-saving type equipment and recycling usage within processes.

Drainage Water

In FY 2018, the total amount of drainage water was 129 million m³, a decrease of about 0.4% from the previous FY. Most of the cooling water for smelting uses seawater, and after using it in the process, we check the water quality and return it to the original sea area.

At each business site, we ensure drainage water management and we are working to conserve water quality, not only observing drainage water regulations 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.

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 company'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 2018, 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”.

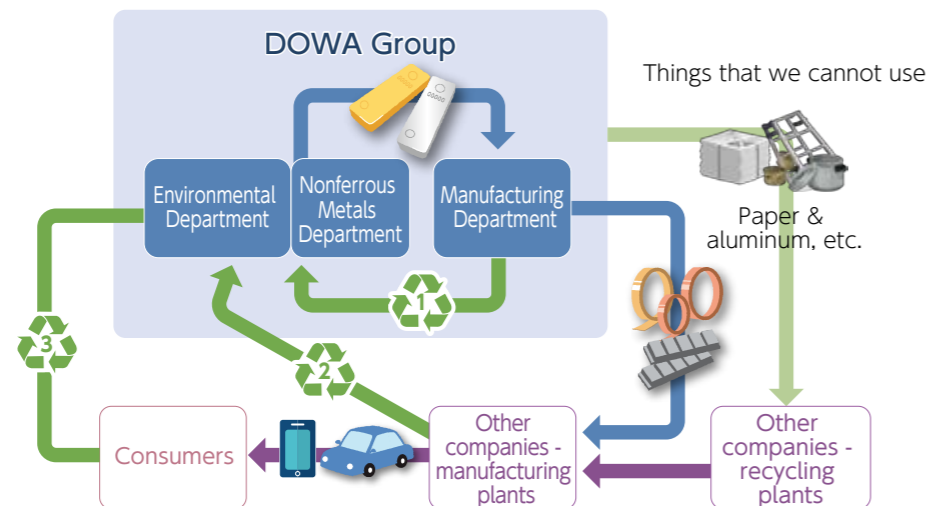
Resource Recycling Initiatives

At the DOWA Group we are working on effective utilization of limited resources through the three loops of our own manufacturing process, the manufacturing processes of other companies, and the waste generated by society. At the same time, as a social responsibility in resource recycling, together with striving to minimize the environmental impact 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.

●Three Resource Recycling Loops

- ① With 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 “nonferrous metals business”. Besides selling it as metallic material, we re-use it as raw material for our company.
- ② 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.
 - ③ 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 and aluminum, etc., that we cannot use, we strive to appropriately recycle through the recycling processes of other companies.



○INPUT

Raw materials

The amount of raw material used in FY 2018 was 1,093 thousand tons, up about 4% from the previous FY. Most of the raw material we use is ore for metal smelting, and it was around 69% of the total in FY 2018, followed by recyclable raw material such as scrap metal at about 14%.

Waste received

The amount of waste received in FY 2018 was 1,533 thousand tons, a decrease of approximately 2% from the previous FY, so about the same level.

○OUTPUT

Products

The product shipment volume in FY 2018 was 983 thousand tons, an increase of about 3% from the previous FY. This was mainly because of an increase in the amount handled due to improvement in the operation rate of heat treatment processing, and an increase in the number of heat treatment furnaces manufactured.

Discharged waste

The amount of waste treatment in FY 2018 was 386 thousand tons, a small decrease of approximately 2% from the previous FY.

Recycling

The amount of thermal recycling in FY 2018 was 350 thousand tons, an increase of approximately 8% from the previous FY. Of this, 43 thousand tons was recycled within the Group, and 306 thousand tons was recycled outside of the company. The amount of material recycling in FY 2018 was 262 thousand tons, a decrease of approximately 5.6% from the previous FY. Of this, 72 thousand tons was recycled within the Group, and 190 thousand tons was recycled outside of the company.

CLOSE-UP 2018

Close-up

Lithium-ion Battery Recycling

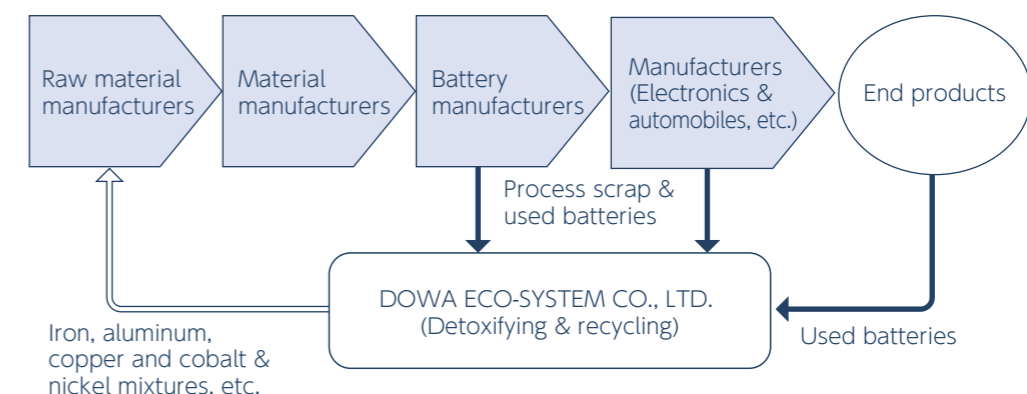
Balance safe processing and efficient metal recycling

Due to their high output, high energy efficiency, small size and light weight, demand for lithium-ion batteries is growing as an indispensable battery for a wide range of electronic devices, from mobile phones to electric vehicles (EV). On the other hand, continuous and stable processing has not been established due to the danger of electric shock and fire during disposal and dismantling, and the value of recovered smelting raw materials being affected by the fluctuation in metal prices. There was a need for a safe and efficient recovery and recycling system for the future.

In January 2019, DOWA Eco-System, which has an environmental business, started operating a detoxified lithium-ion battery recycling line in Odate, Akita Prefecture. Since October 2018, DOWA Eco-System has been participating in the joint collection scheme for lithium-ion batteries launched by the Japan Automobile Manufacturers Association (general incorporated association). The DOWA Group's Eco-System Akita and Eco-System Sanyo are registered as battery recycling facilities.

Until now, after detoxifying lithium-ion batteries by heat treatment at several large incinerators owned by the DOWA Group, it was divided into iron and non-iron metal mixtures, and the metal mixture was melted by the DOWA Group's Meltec. It was then recycled into artificial aggregate for construction materials, and raw materials for smelting. The recycling line that is now in operation has a processing capacity of about 100 tons per month, and separates batteries that have been detoxified by heat treatment into iron, aluminum, copper and cobalt & nickel mixtures, etc. With this, we can recycle each metallic raw material more efficiently than at present, making it possible to achieve both safe processing and highly efficient recycling.

The DOWA Group will contribute to the conservation of the global environment by promoting stronger environmental and recycling services such as the appropriate processing and recycling of waste.



Flow of Lithium-ion Battery Manufacturing, Processing & Metal Recycling

Social

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

Priority Measures

Promoting work-life balance

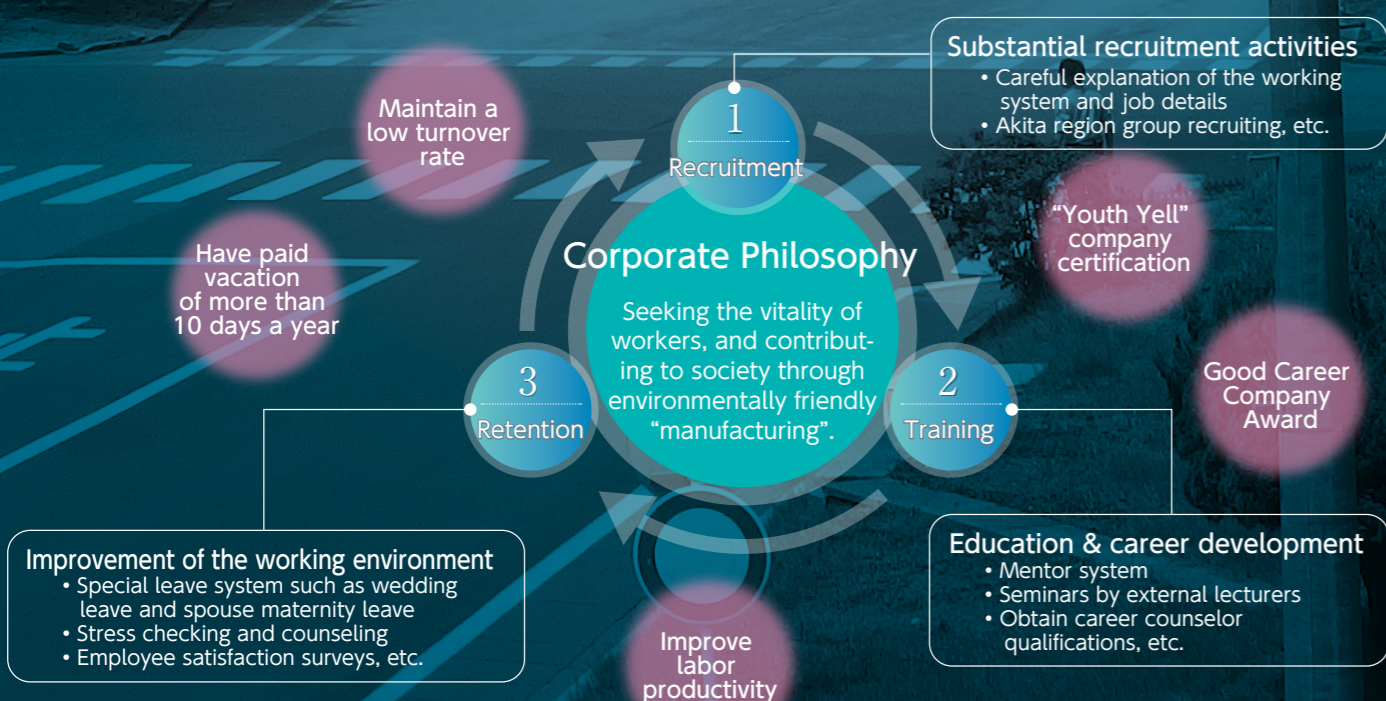
Support for career development done on the initiative of employees

Self-Directed and Self-Driven Initiatives

Akita Zinc, located in the waterfront area in the city of Akita, is the largest zinc smelter in Japan with more than 200 employees. Zinc is an important material that supports industry and life as anti-corrosive metal plating for such things as automobiles and building materials, and as a corrosion resistant component for ships and bridges, etc. Akita Zinc is the smelter with the largest market share in Japan, producing about 200,000 tons of zinc annually. It also achieves world-class quality using our unique technologies such as the hematite method.

A Virtuous Circle of “Recruitment”, “Training” and “Retention”

At Akita Zinc, in order to strengthen the production base through human resource strategy, we are promoting initiatives with the aim that the three areas of recruitment, training and retention function well. Akita Prefecture is the region in Japan where the population is declining at the largest pace, and we need to cope with the drop in the working population, with the falling birthrate, aging of the population and increasing employment mobility. In order to secure human resources, it is important not only to increase new hires, but also train and retain employees that leads to further recruitment. Therefore, we are engaged in recruiting activities to prevent mismatches, and in addition to creating a working environment where it is easy to work, we are working to develop human resources that will make each person feel the job is more worthwhile and satisfying so they can show off their abilities.



From Guidance and Development to Support and Promotion

“Seeking the vitality of workers, and contributing to society through environmentally friendly “manufacturing”. is Akita Zinc’s new corporate philosophy that was formulated in 2018 by the in-house “Workplace Skills Improvement Project Team”. The Workplace Skills Improvement Project is an initiative undertaken by the entire DOWA Group with the aim of improving workplace skills that are indispensable to building a foundation for corporate growth from the perspective of human resource development. With the project at Akita Zinc, we believe that the corporate philosophy is the basis of human resource development. From the starting point of “what is the company for”, manufacturing has returned to the spirit of human resource development from the time the company was founded, and it has been summarized as our goal. At present, we are working to spread this as a philosophy that should be shared by all employees.



Akita Zinc’s Workplace Skills Improvement Project Team consists of members from each department selected by questionnaires of all employees, with a particular focus on human resource management that encourages voluntary changes in behavior. Currently, based on the idea that “people have the power to grow on their own”, we are moving from human resource development centered on guidance to developing activities that incorporate ways of involvement, such as support and facilitation to promote awareness and personal growth. In the future, we will promote the creation of an environment where human resources with shared goals can each be active in autonomous and self-propelled Initiatives.

What External Evaluation Aims For

In FY 2015, Akita Zinc was the first company in Akita Prefecture to be recognized as a “Youth Yell” company with certification by the Minister of Health, Labor and Welfare that the company is active in recruiting and training young people, and has excellent employment management. Since then, the company has continued to be certified for five years. In FY 2017, the company received the Human Resources Development Director’s Award of the “Good Career Company Award” that the Ministry of Health, Labor and Welfare awards to companies that have model employee career development support. In addition, it has received high praise for helping employees balance work and childcare, such as the “Baby Wave Action Chairman’s Award” that is awarded to model companies in the area of stopping the declining birthrate, certification by the city of Akita that the company is contributing to a town for healthy children, and the child care support leader declaration of the Akita City Ikuboss Declaration.



Getting external evaluation is not only recognition from the outside that the company is a place where it is easy to work, but recognition through the third party’s evaluation is an opportunity for employees to feel proud about their own workplace, and has the effect of reminding employees that their company is a place where it is easy to work. In addition, by getting the awards, since the points of praise are clarified, such as the low turnover rate and the high rate of taking paid vacation, it also helps to strengthen and deepen our efforts.

Akita Zinc promotes the creation of a business foundation centered on the “people” who support the sources of manufacturing through various initiatives that take advantage of internal and external viewpoints.

VOICE



MIURA Takahiro, Manager, General Affairs Department, AKITA ZINC

The decrease in the population is often viewed as a negative for both the national and local economies and the company, but it has given us a strong opportunity to change. Previously, economic indicators such as production volume and sales were the main management indicators, but in addition to that, as a measure for nurturing and retaining human resources, we have conducted employee satisfaction surveys, quantitatively evaluated motivation and job satisfaction, and can now consider more specific measures and improvements. We believe that the vitality of workers is the source of good “manufacturing” that leads to customer trust and satisfaction. The level of satisfaction still has a way to go, but while respecting each other’s values, and with each thinking and acting individually, we would like to pursue a richness of spirit and an improvement in our corporate values.

Social

Social Area 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

The status of activities in the area of society in FY 2018 and the plan for FY 2019 are as follows.

●FY 2018 Results

Key social measures	Tasks	Indicator	Evaluation	Main Results
Promoting diversity	Employment for the physically challenged Implementation of female employee training and management training	2.2% Attendance rate 90%	△ ○	Strengthening of recruitment activities Attendance rate 90% (female employee training 93% and management training 88%) ■ Six mid-level employees participated in the global challenge program (Thailand, Singapore, Indonesia, U.S. and India) [Details] Cultivating overseas work skills through three months of domestic training and three months of overseas on-the-job training ■ 10 managers participated in training for foreign location managers (Indonesia, Singapore, Thailand and China) [Details] Creating organizational missions & sharing cases of trouble overseas
	Expansion of a global human resources Strengthen human resources and organizations at offices overseas	Implement a global challenge program	○	
	Implementation of training to strengthen recruitment abilities at each company	Hold at all the major sites	○	Recruitment staff meetings held at six major DOWA locations (Odate, Kosaka, Akita, Tokyo, Chubu, Okayama and Yanahara)
Promoting work-life balance	Thorough disseminate of the various regulations in the company	Updating and publicizing the handbook to explain the regulation	△	Finished updating the handbook to explain the regulation (scheduled to be publicized in-house in FY 2019)
	Encouragement to use annual paid vacation	Rate of days taken 60%	○	Rate of days taken 70%
	Promotion of measures to reduce working hours	Thorough and strict observance of group management standards for working hours	○	Thorough operation of group management standards for working hours
Human resource development, evaluation & treatment	Implementation of training of evaluators and those being evaluated	300 participants	△	247 people
	Implementation of an institutional survey	Done by 1,100 people (100% answer rate)	△	60%
	Evaluation system education for new employees	Attendance rate 100%	○	Attendance rate 100%
	Introduction of career planning seminars	Attendance rate 30%	×	Attendance rate 2%
Social contribution	Promotion of regional contribution activities that capture regional needs	5 times	○	In Thailand, Indonesia and Myanmar, implemented next-generation development support activities and environmental conservation activities with local residents
	Support by sharing and providing information on social contribution activities	Collect examples of initiatives and provide information	○	Did a survey of initiatives targeting operating subsidiaries Published in the group report Disseminated information to the outside via the DOWA Holdings website

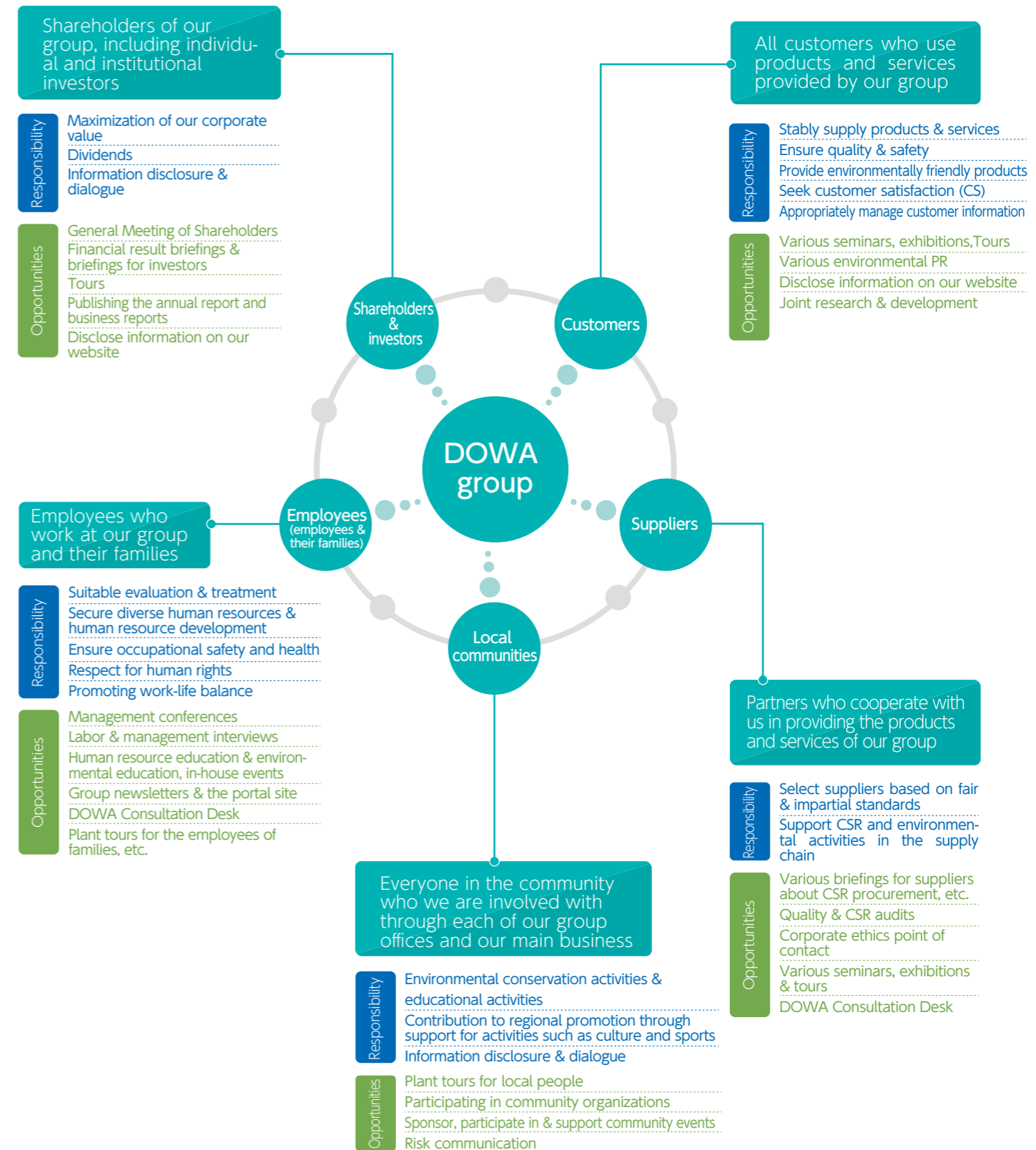
●FY 2019 Initiatives and Goals

Promoting diversity	Employment for the physically challenged Interview each location about improving the work environment	2.2%		Draft measures in order to create workplaces where it is easy to work
	Expansion of a global human resources Strengthen human resources and organizations at offices overseas	→		Implement a global challenge program Short-term intensive English language training Training of foreign location managers
	Strengthen relationships with universities and technical colleges Develop routes to employ those with mechanical and electrical skills			Clarify priority schools Clarify routes for employment
Promoting work-life balance	Thorough internal awareness of the various regulations in the company			Publicizing the handbook to explain the regulation
	Encourage the use of annual paid vacation	→		A rate of 70% for the days taken Promote company-wide measures to encourage the taking of paid vacation
	Promotion of measures to reduce working hours			Thorough and strict observance of group management standards for working hours
Human resource development, evaluation & treatment	Implement training of evaluators and briefings for those being evaluated			300 students
	Conduct surveys about the degree of penetration and understanding of the personnel system			A response rate of 100% (targeting 1,100 people)
	Evaluation system education for new employees	→		Attendance rate 100%
	Implement career training for new and young employees Promote career planning seminars			Attendance rate: 100% Attendance rate: 10%
Social contribution	Activities related to education for children			4 times
	Activities related to regional revitalization	→		4 times

Relationship with 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.

●Responsibilities and opportunities for communication to major stakeholders



Communication with Shareholders and Investors

At the DOWA Group, we recognize that the explanation of corporate and management information to stakeholders, such as shareholders and investors, is one of important issues for corporate governance, and we are striving to disclose information in a timely and appropriate manner.

●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 company, 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 FY 2018, we launched a new e-mail delivery service that provides our latest IR information and major news releases to shareholders and investors. In

order for the business situation and business strategies of the DOWA Group to be understood, we also post IR information on our company website. In addition to financial statements and securities reports, we also post materials such as annual reports and shareholder communications. We will keep working to disclose information in a timely and easy-to-understand manner.



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

●General Meeting of Shareholders

For FY 2018, the 115th ordinary general meeting of shareholders was held at the Hotel Chinzan-so in Tokyo on June 26th, with about 400 shareholders attending. 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 2018, a presentation was given about the business development of DOWA Metals & Mining entitled “DOWA’s Resource Development: Initiatives to Ensure Long-term Stability of Zinc Raw Materials”.



●Dialogue with institutional investors

Besides the quarterly financial statement briefings by the company president and management, we hold 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 2018 with regards to CSR

- I would like non-financial information to be actively disclosed, as it leads to financial information.
- The business of the DOWA Group can be summarized as environment and resource recycling. I think that you can appeal as a distinctive entity throughout the company.
- Please explain how CSR goals and priority measures have led to mid- to long-term enhancement of corporate value.
- It is easy to understand if web information is organized by ESG.

Together with Our Customers and Business Partners

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

●Supply Chain Management

We promote 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. In FY 2018, we revised it in line with review of the

“Responsible Mineral Procurement Policy” (P. 23-24).

In addition, as a supplier ourselves, we may receive requests for CSR procurement from customers, but in order to correctly understand and respond promptly, the environment & safety department and the procurement department collaborate to implement internal explanation and follow-up.

Self-check assessment

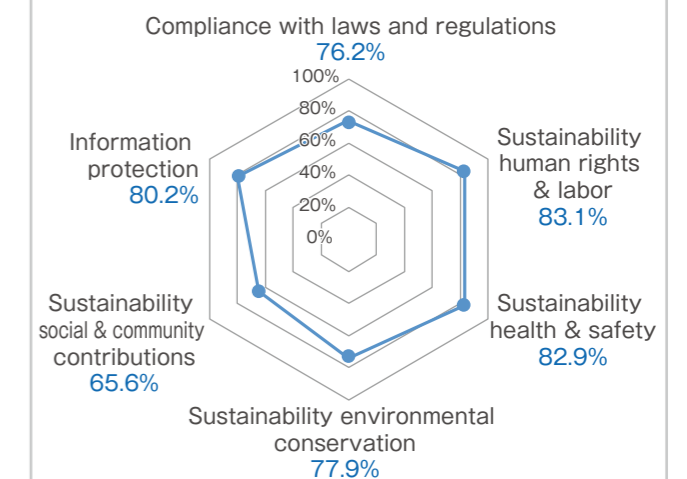
In FY 2018, in order to confirm the status of CSR efforts, we distributed a self-check questionnaire to about 100 major business partners and suppliers, and collected about 95% of them. For those business partners and suppliers who we received answers from, we sent them a feedback report, telling them about the status of the current evaluation. While the overall trend did not change compared to the previous FY, looking at it by sector, we found that initiatives for social contribution were weak.

CSR audits

With regards to important suppliers, we actually visit them, and together with telling them our thinking about CSR procurement, we also check their conformity with the DOWA Group CSR Procurement Guidelines. In FY 2018, we visited six raw material and auxiliary material manufacturers that are important for our manufacturing business. At the places we visit, we interview them about the questionnaire results, check documents, and confirm site safety and environmental initiatives. In addition, the audit results are compiled in a report and confirmed so that they can be used in future CSR initiatives.

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.

Results of the FY 2018 self-check questionnaire (average value for answers)



●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 FY 2018, we conducted an audit of our internal quality control

system for major overseas business sites.

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.

●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 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 locations, 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.

●The DOWA Group's Social Contribution Activities [Domestic]

[Tokyo] Students Took a Field Trip Tour of Our Headquarters

In May 2018, as part of a school trip, 47 third-year students from Kosaka Junior High School at Kosaka town, Akita Prefecture, the area of our company's birthplace, visited the headquarters of DOWA in the Akihabara area of Tokyo. In these tours that started from 2013, after they tour our offices and we explain our business, every year the students come up with ingenious presentations, such as song or dance, and it becomes a place for mutual exchange. In FY 2018, which was the sixth time, a choir of the students performed the school song and nursery songs. In addition, the students presented us with a calendar using the "Kosaka Municipal Day Map" prepared by the Kosaka Revitalization Action Project and photos of the town.



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

The DOWA Cup, held on the shore of Lake Towada in Akita Prefecture, is a historic junior cross-country ski tournament that started in 1991, and it is certified as an official event of the Ski Association of Akita. It also serves as a Jr. Olympics representative selection race, and one of the features is the sit ski competition that is held, an official event of the Paralympics. Over 100 staff are involved in its operation, including our employees and people from neighborhood councils and local ski clubs etc. It takes over a month to prepare the courses. For more than a quarter of a century, the event has deepened the bond between the DOWA Group and the people of the local community, such as cooperating in setting up the venue and taking it down at the end. In February 2019, for the 29th DOWA Cup, 245 children from elementary and junior high schools in the three Tohoku region prefectures participated and competed in the races.



[Okayama Prefecture] 9th Lake Kojima Flower Corridor Cherry Blossom Festival

The Lake Kojima Flower Corridor Supporters' Club (KFSC) is an organization established primarily by the DOWA Group to improve the environment around Lake Kojima and its surroundings in the memory of Denzaburo Fujita, the founder of the DOWA Group, who was known for reclaiming Kojima Bay in the city of Okayama. We promote regional exchange and environmental conservation activities through the Flower Corridor Project that plants and nurtures Kawazu cherry trees around Lake Kojima. The Flower Corridor Project is a system where each cherry tree has a plate with the name of the supporter written on it, and the person planting voluntarily manages it. We are working with local people, including for the planting and care of the trees. When the Kawazu cherry trees blossom in early March, we hold a cherry blossom festival with the cooperation of the local neighborhood associations and volunteer groups. In FY 2018, the 9th Lake Kojima Flower Corridor Cherry Blossom Festival was held on March 11th, with about 20,000 people visiting.



[Overseas]

Initiatives in 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, sorting, intermediate treatment, recycling and landfill of waste.



Not only contributing to society through its business, GEM aims to get the trust of society through CSR activities, and to grow together. 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. In promoting social contribution, a priority measure, and in order to contribute to the local development of Myanmar, we are actively engaged in activities that improve the lives of local residents and support children who will lead the future.

Workshops for Neighborhood Residents

As a place to deepen exchanges with local people, from the time that the facilities were constructed, every May and November GEM holds workshops for the neighborhood residents that explain the business, and lectures and events on the theme of health and safety. At the tenth workshop in November 2018, we explained the operational status of our business sites, as well as safety and environmental initiatives. Also, to improve road safety, there was a lecture given about the safety of driving motorcycles as a common way of transport, with about 50 residents participating.



Tours for Residents

GEM's CSR activities are based on the building of mutual trust, and at the same time as understanding the situation of local residents, working to disclose information about the company. Approximately 1,000 residents live in the villages near the district of Tirawa, where GEM is located, including those who work for the company as employees. In January 2019, we held a second tour of our business sites so that local residents could actually see GEM's waste treatment facilities. The tour was attended by 80 people, including adults as well as local children, who saw the status of each facility as explained by local staff. Through these opportunities, GEM can feel more familiar to the local people, and we hope that this will also lead to an interest in waste treatment.



Children's Day Events

In Myanmar, every February 13th is "Children's Day" when families celebrate and wish for the growth of their cherished children. GEM holds an event in February each year and invites nearby children to commemorate Children's Day. For FY 2018, the 3rd event was held on February 17th, and gifts of sweets and soy milk were given to about 300 local children who participated. In the future, we would like to continue initiatives that the local children would enjoy.



Together with Employees

The DOWA Group specifies that human resources are the basis of all business activities, and employees are 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.

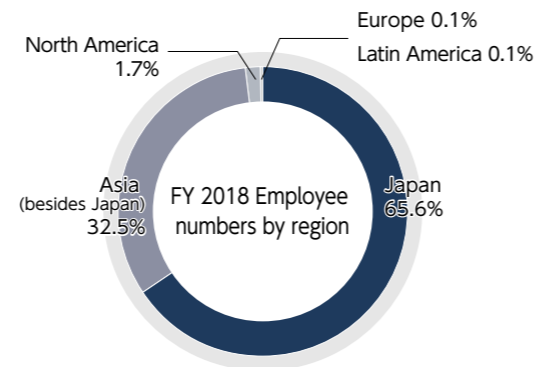
● Employment status

At the end of FY 2018 (March 31st, 2019), the number of employees in Japan was 6,359, up 265 people the year before. Of the regular employees in Japan, there were 4,049 men (91%) and 388 women (9%). With globalization, the proportion of employees at offices overseas is increasing, and the number of employees overseas in FY 2018 was about 34% of the total. In addition, the total number of new graduate and mid-career hires in the group as a whole was 230 men and 31 women, an increase of about 15% from the year before. The retention rate three years after joining the company has been around 90%, with women tending to be higher.

[Employment related data]

Employment situation in Japan (DOWA Group)

Type of employee	Classification	FY2016		FY2017		FY2018	
		Men	Women	Men	Women	Men	Women
Regular employees in Japan	Executive officers	128	1	125	1	120	1
	Management employees	758	9	778	10	754	13
	General employees	2,901	311	2,948	326	3,175	374
Non-regular employees in Japan	Dispatched employees	633		709		720	
	Part-time	1,050	281	897	300	839	363
	Total	5,470	602	5,457	637	5,608	751
Grand total		6,072		6,094		6,359	



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

Region	FY2016	FY2017	FY2018
Japan	6,072	6,094	6,359
Asia (besides Japan)	2,899	3,092	3,148
Europe	23	14	14
North America	96	131	166
Latin America	1	4	4
Total	9,091	9,335	9,691

Employee Retention Rate (DOWA Group new graduate and mid-career hires combined)

Year they joined the company	FY 2016 (as of the end of FY 2018)	
	Men	Women
Avg. retention rate after 3 years in the company%	88%	100%
Avg. retention rate	89%	

TOPICS

Act-B Recycling Certified as a "Bright Company"

In Kumamoto Prefecture, in order to improve the working environment and treatment of workers in the whole prefecture, and to promote youth employment in the prefecture, a company where workers can shine brightly and continue working with peace of mind is certified as a "Bright Company" (a phrase coined by Kumamoto Prefecture to express the opposite of a "black company" that exploits its employees.) It is an initiative to widely disseminate the excellent activities of such companies. In October 2018, Act-B Recycling, which does electrical appliance recycling in the city of Minamata, was certified as the second Bright Company in the southern district of the prefecture, recognizing the degree of their contribution to local employment and to the local community, the improvement in the level of satisfaction for employees and their families, and initiatives for stable management.



● Human Resource Development and Evaluation

As a vision for human resources and our organization, the DOWA Group aims to "By respecting a solid and free corporate culture and building a foundation for long-term growth, we will

create human resources and organizations that will continue to provide new value to society." We are developing various human resource development and utilization measures for all employees.

Fair evaluation & treatment

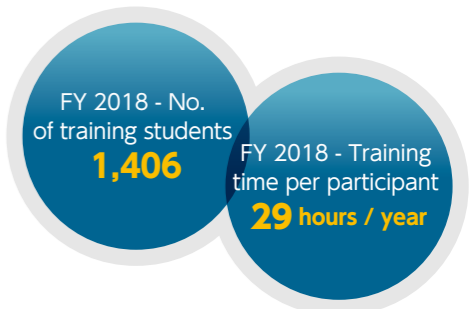
At the DOWA Group, based on the principle of "evaluating employees for their ability to proceed their tasks on their own", we are working for fair evaluation and treatment under the following policies.

- 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 their work performance.

Training for evaluators and those being evaluated is positioned 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, as a key point for the three years from FY 2018, we are conducting "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. The identified issues will be added as new items for improvement in the next year's briefing for those being evaluated and evaluator training. We are striving to promote understanding of the system for employees, and for its appropriate operation.

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 2018, we held new training to strengthen middle management for managers and held a human resource development manager meeting to strengthen on-site capabilities at each site. 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.



[Education System Example]

(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	
		【New employee education】	【Follow-up III training】 Membership & introspection			
	Technology	【Training to strengthen engineering abilities I】	【Follow-up II training】 Poster session	【Training to strengthen engineering abilities II】	【Training to strengthen engineering abilities III】	【Training to strengthen middle management】
Selective education	Business				【Business leader training】 Development of the next management	
				【Problem solving & thinking ability training program】		
	Global			【Training to strengthen skills for leading subordinates】	【Global challenge program】	
【Training before taking up a new post】						

Promoting Diversity

At the DOWA Group, 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, we are working on creating a mechanism from the recruitment stage based on the idea of working globally regardless of nationality. In addition to actively hiring Japanese and foreign students who have graduated from overseas universities, and international students from overseas, with the expansion of employing people in various countries and regions, at the time of hiring, we provide education to communicate our philosophy and policies, together with a consideration for human rights. We are also working to develop global human resources, such as conducting "global challenge program" training for mid-level employees where they go to overseas locations other than their own department to work on solving problems.

Promotion of Women's Participation and Advancement

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 1.7%. The number is certainly not high, but it is on an increasing trend year by year, along with changes in the business and workplace environments. In particular, the number of domestic general employees has increased by nearly 50. In addition, from FY 2017, we launched diversity career training and diversity management training to support the advancement of women, and we are working to expand education for women employees.

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 position

Position	FY 2016	FY 2017	FY 2018
Executive officers	0.8%	0.8%	0.8%
Management employees	1.2%	1.3%	1.7%
General employees	9.7%	10.0%	10.5%

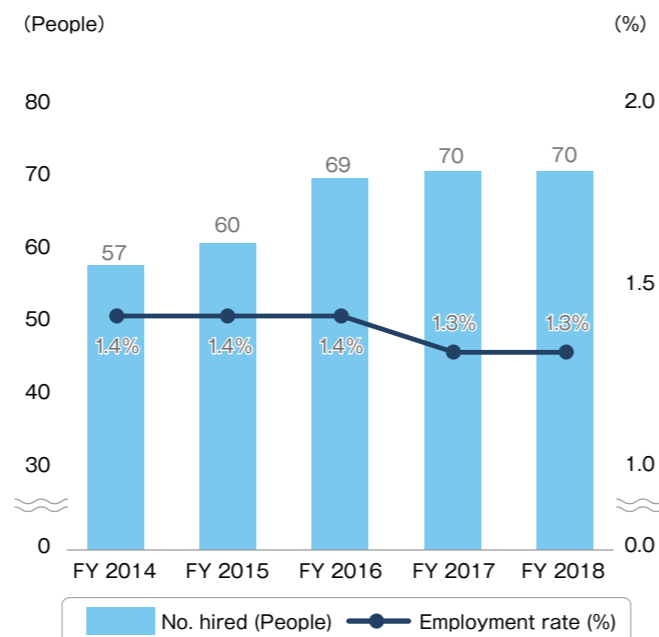
Re-employment of retired workers

Utilizing their technical skills and knowledge, for employees who wish to continue working 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 the physically challenged

In FY 2018, for the DOWA Group as a whole, the employment rate for the physically challenged was 1.3%, and we were unable to reach the statutory employment rate. On the other hand, the number of such employees hired is on the rise. In order to promote the employment of the physically challenged, 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. In FY 2019, we are recruiting with an expansion in the types of jobs.



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 our company, 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 volunteer leave and a relaxation leave system where employees get days off for a certain length of service, we have prepared support measures beyond what is stipulated by the law, such as paid leave 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 2018, the number of people who took childcare leave was 33, and 35 men and 28 women took leave for nursing sick children.

Those Taking Child-Care Leave & Leave for Nursing Sick Children

FY Number of People Took (People)	FY2016		FY2017		FY2018	
	Man	Woman	Man	Woman	Man	Woman
Child-Care Leave	0	28	2	32	2	31
Leave for Nursing Sick Children	24	24	27	26	35	28

In-house Questionnaire

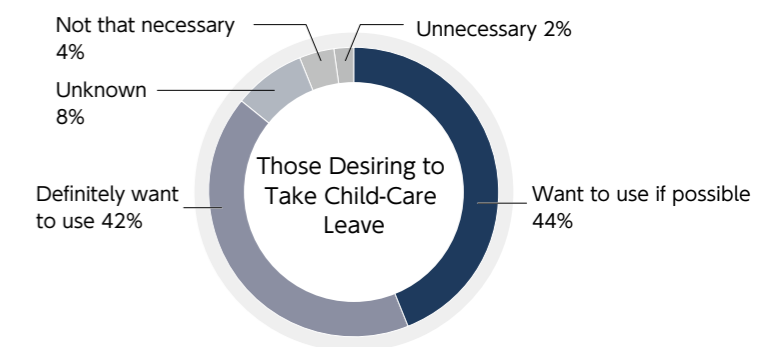
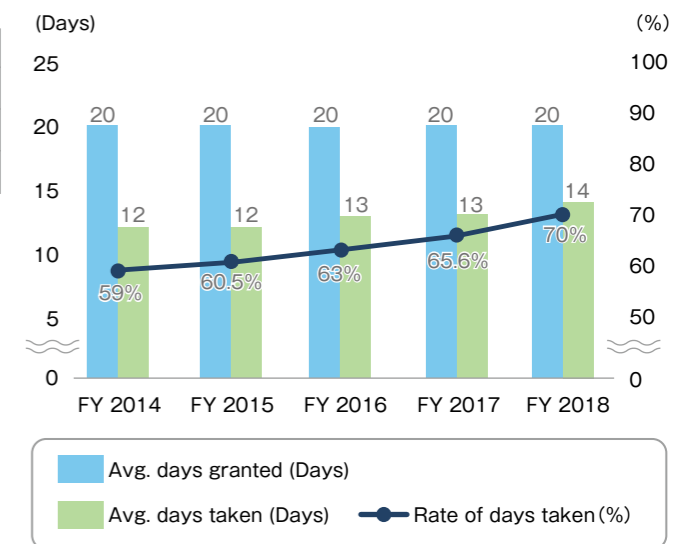
We conduct a questionnaire on work-life balance for new employees every year. Following from the previous year, in FY 2018, those who wished to take child-care and family-care leave were more than 80%, including men. It seems that changes are occurring in how people think about the balance between work and family. Against the background of the improvement in the utilization rate of the current system, such as leave for nursing sick children, in addition to promoting the improvement of the workplace environment so that it is easy to use the system, the impact of the change in awareness by such employees can be said to be significant.

On the other hand, to balance work and family, there was also a wide range of opinions requesting that specific measures be expanded, such as initiatives to improve the rate at which annual paid vacation is taken, and systematic implementation of telecommuting. We will keep working on work-life balance initiatives with these opinions in mind.

Optimization of Working Hours

We are working to reduce long working hours and promote the taking of annual paid leave 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 2018 were 18.2 hours per month, an 8% decrease from the previous year, so it is improving. To optimize working hours, we will continue to strive to manage working hours with both hard and soft measures.

With regards to annual paid leave in FY 2018, with 20 days on average granted, employees took about 70% of their vacation days, an increase of 7% from the year before. Besides promoting the planning of yearly paid leave according to the business situation at each business site, by changing the awareness of employees with such things as feedback on the number of days taken during the year, the number of leave days taken improves year by year.



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.

■Target Areas of the Report

This report was prepared based on the four areas of the DOWA Group's CSR policy - Corporate Governance, Safety, Environment, and Society. We report on each policy, the status of progress for important issues and initiatives of the target 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 2018 (April 2018 to March 2019), but in order to convey more accurate information, we also report about some of our previous initiatives or most recent activities.

■Reference Guidelines

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. Check our website for detailed information about the topics with below mark.



If mistakes are found after publication of the CSR report, we will report it on our website.

(3) Basic Information

■Publication date: December 2019

■Next scheduled publication date: November 2020

■Department that prepared the report: Environment & Safety Department, DOWA Holdings

■Website URL

https://www.dowa.co.jp (Japanese)

https://www.dowa.co.jp/index_e.html (English)

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Business Sites Subject to Tabulation

	Company	Region		Company	Region	
Domestic	ES ECO-SYSTEM AKITA CO., LTD.	Akita prefecture	Domestic	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 MELTECH 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 TSUJUN CO., LTD.	Iwate prefecture		ES DOWA ENVIRONMENTAL MANAGEMENT CO.,LTD.(Suzhou, China)	China	
	Overseas	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 METAL CO., LTD. TH DOWA THERMOTECH CO., LTD. HD DOWA HOLDINGS CO., LTD.

Opinion of a Third Party

DOWA CSR Report 2019 About the Details of the Report

The DOWA Group's initiatives, which can be read from the CSR Report, are making steady progress every year. For this fiscal year, there were pages allocated to the company history, disclosure of financial and non-financial indicators and an explanation of the five business areas. There were also explanations about such things as the identification of materiality in the chronology under "Materiality and Medium-Term CSR Goals", the selection of priority measures and details about conducting risk assessment in the areas of ESG. As priority measures, responsible mineral procurement initiatives were explained in detail, and link to their website, they disclosed such things as the revised Responsible Mineral Procurement Policy and the results of audits by third parties. In addition, improvements were seen throughout the report, including enhancements to the explanation of corporate governance, explanations of risk management including business risks and CSR risks, and analysis of the causes of accidents at work.

■Towards Further Improvement

In the list of CSR plans and goals, there were explanations of indicators to understand the progress for each priority measure, with the text showing the progress of activities in each of the four priority areas, so you can know the state of progress for the whole company. On the other hand, what I am concerned about is that there are issues that seem directly related to the business that are not included in the elements of the materiality matrix, or the four priority areas. For example, it does not include the issue of responsible mineral procurement. In the reviews scheduled for FY 2020 and beyond, if they can further integrate their business and CSR, and evaluate and analyze it, I think there will be consistency as a company.

In the explanation of business areas, it would also be good to mention such things as related social and environmental issues and the dilemma for business. For example, conflict minerals and the risk of human rights violations are described as priority measures, but since these are not mentioned in the pages that report on each of the five business areas, I get the impression that the thinking of the company is not unified.

■Expectations for Future Initiatives

Currently, in the medium to long-term value creation of companies, the importance of purpose (the reason for existing) has been globally recognized anew. In this regard, the DOWA Group's corporate philosophy clearly states that "DOWA helps to create an affluent, recycling-oriented society through its business activities worldwide". I think our company will be a stronger organization when all the employees re-recognize the relation between their own business and the company's purpose. I have great expectations for the DOWA Group's ability to solve problems as a leader in the supply of valuable resources needed for human development.

E-Square Inc.

President and Chief Executive Officer

MOTOKI Hiroo



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 Sustainability/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 has given many lectures related to sustainability & CSR and ESG investment.