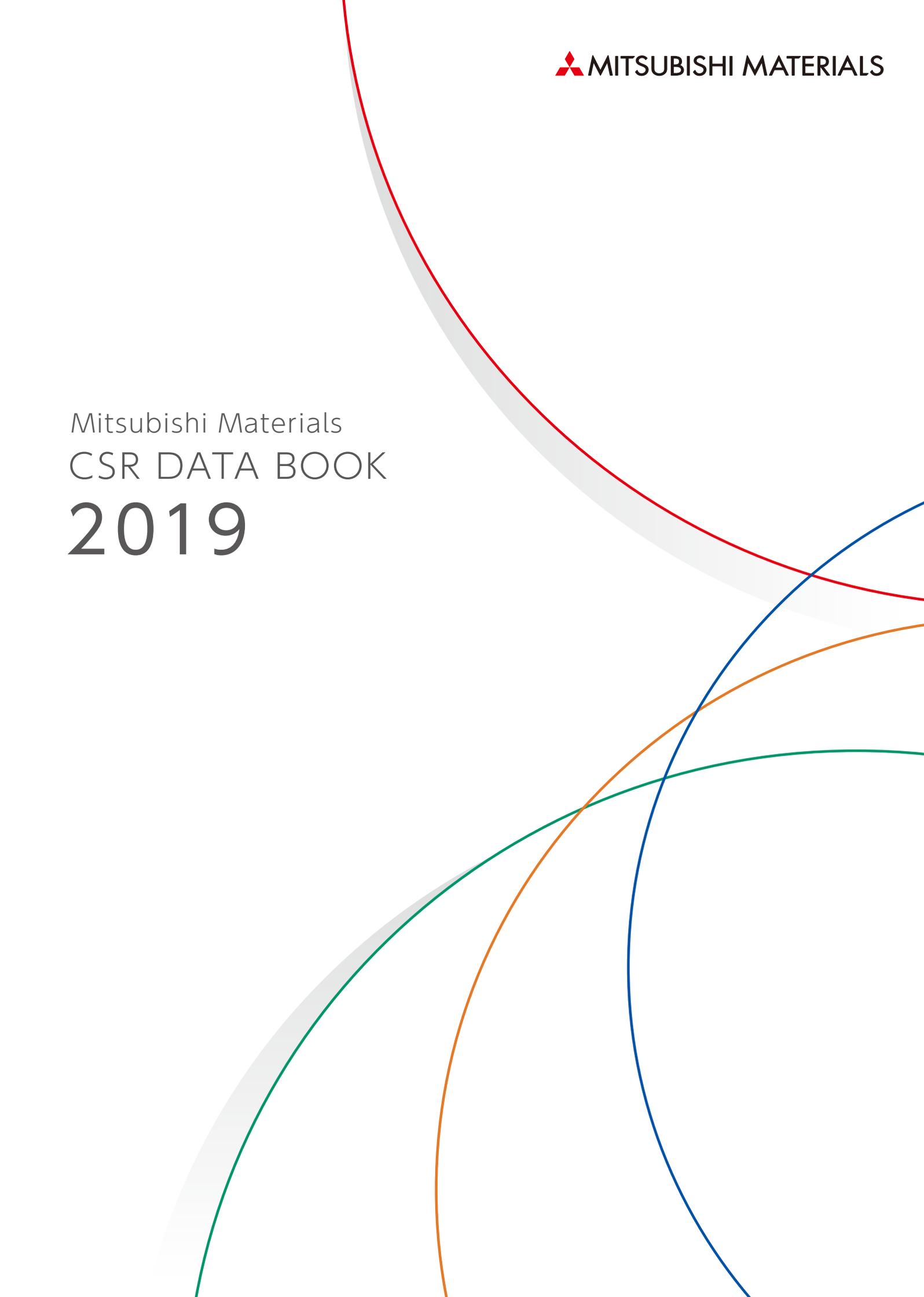


Mitsubishi Materials
CSR DATA BOOK
2019



Corporate Philosophy

For People, Society and the Earth

— Thoughts underlying our Corporate Philosophy —

As a diversified materials manufacturer, the Mitsubishi Materials Group has strived to work “For People, Society and the Earth” through the supply of basic materials indispensable to the world.

We have enhanced the research and development of our unique and distinctive technologies and products in order to respond to the increasingly diversified global needs that require superior products, systems and services. Today, the scope of our operations is extensive, ranging from the manufacture of resources and basic materials to high-performance processed products and new materials, as well as the provision of systems, engineering services and resource recycling. In our operations we endeavor to make the most efficient use of resources and raw materials. We take a circular economy approach in order to contribute to a sustainable world.

Through our fair business operations we will continue to promote materials* innovation that addresses the emerging global challenges of technical innovation, information technology advancement, globalization and enhanced environmental awareness. We strive to meet the expectations of our stakeholders, including our shareholders, and contribute to the sustainable development of society.

* “Materials” include all kinds of value that the Mitsubishi Materials Group is capable of offering, including raw materials, products, services, solutions and human resources.

Contents

- 1 Corporate Philosophy
- 3 Top Message

About This Data Book

- 5 Editorial Policy
- 6 The Process of Compiling

Businesses and Value Chains

- 7 Businesses and Value Chains

Strategy and CSR

- 10 Mitsubishi Materials Group's Business Activities and the SDGs
- 17 Mitsubishi Materials Group's Approach to CSR
- 19 Initiatives on Material Issues

E ENVIRONMENT

Resources and Recycling

- 21 Maintaining Stable Supplies and Recycling Materials and Products
- 23 In Pursuit of a Recycling-Oriented Business Model
- 26 Smelting and Cement Recycling System

Environmental Protection and Technology

- 28 Environmental Management
- 31 Overall Environmental Impact
- 33 Preventing Global Warming
- 39 Preventing Environmental Pollution
- 42 Preserving the Natural Environment
- 47 The Extensive Value and Potential of Company-Owned Forests
- 50 Developing Environmental Technologies and Products

S SOCIETY

Development and Empowering of Diverse Human Resources

- 52 Development and Empowering of Diverse Human Resources

Occupational Safety and Health

- 57 Creating a Safe and Healthy Workplace Environment

Responsibility throughout the Value Chain

- 64 Responsible Procurement of Raw Materials
- 70 Product Quality and Safety

Stakeholder Communication

- 74 Interaction with Stakeholders
- 76 Dialogue with Shareholders and Investors
- 77 Dialogue with Customers
- 78 Getting Involved in Society and the Community

G GOVERNANCE

Governance

- 81 Corporate Governance
- 89 Compliance
- 91 Risk Management

Obtaining External Assurance

- 95 Independent Assurance Report
- 96 The Mitsubishi Materials Group at a Glance

Contributing to Sustainability as a Global Common Vision While Boosting Both Our Economic and Social Value

Naoki Ono
President Mitsubishi Materials Corporation



Aiming to Boost Both Our Economic and Social Value

At the Mitsubishi Materials Group, we aim to boost both our economic and social value in the following three directions, based on a corporate philosophy of “For People, Society and the Earth.”

First, as a corporate group that provides copper, precious metals, cement, and other materials and copper-based alloys, cemented carbide, ceramics and other functional materials, we will contribute to building a richer society by responding to the market demand with new products and applications utilizing new materials, and the combination of such. We will provide solutions to society from a global perspective, anticipating changes in the world and leveraging the technologies we have accumulated over many years.

Second, we will play a leading role in the recycling oriented society that is evolving globally. Many of the materials and products that we have been providing are based on the Earth’s finite mineral resources. The effective use of these resources also leads to the improvement of our competitiveness as a business enterprise. From a medium- and long-term perspective, we are promoting initiatives such as the use of existing business infrastructure (smelters & refineries, cement plants, and networks), development and advancement of recycling technologies, and expansion of the range of materials that can be recycled. We are also proactive in reviewing product designs to make them easier to recycle and automating recycling processes using IoT and AI.

Third, we will contribute to building a low-carbon society. Geothermal power generation, in which we harness the technologies we have developed in our mining development operations, and hydroelectric power generation, which we launched as part of our mining operations, have been playing a new social role as renewable energy in recent years. At the same time, we sincerely face the fact that we emit CO₂ in various business activities, and make comprehensive and continuous efforts to reduce the environmental impact of those activities.

Looking ahead, I would like to see the Group will continue to work towards the persistent improvement of its corporate value while I wish in mind that someday we could build a world of manufacturing where we are capable of developing and supplying the same amount of clean energy as that required, where all products manufactured and provided by the Group can be recycled, and their resources recovered, one in which the Group contributes to people, society and the Earth through these efforts, and a wide range of other recycling initiatives.

Preventing the Recurrence of the Quality Issues

At the Mitsubishi Materials Group, we have been tackling three core issues to ensure that the quality issues that occurred in November 2017 onwards are not repeated.

First, to improve the insufficient communication in terms of both quantity and quality, members of senior management, myself included, personally visited manufacturing sites and offices, and increased the opportunities for a direct exchange of opinions with employees from every level. In these activities, senior management showed, even more clearly than before, a willingness to listen to the voices of others. These efforts have notably increased the amount of communication and laid the foundation for improving the quality of communication. We will take further steps to develop a frank and open workplace environment, where even negative information is shared quickly.

Next, with regard to fragility and the low standards of our compliance framework and awareness, we have established a system for comprehensive discussions on governance plans in place at each business site and checking the progress of the plans. We also have bolstered the functions of management departments and increased the frequency of audits. To establish ourselves as an organization of individuals who can identify and resolve issues on our own, we introduced training for members of senior management at Group companies and promoted small-group activities by employees at each business site. In addition, we conduct compliance awareness surveys continually and make use of findings from the surveys for further improvement.

Finally, concerning the insufficient resource allocation, we established the SCQDE approach as a guiding principle intended to clarify an order of priority to apply when performing business activities. The S stands for Safety and Health, C for Compliance and Environment, Q for Quality, D for Delivery, and E for Earnings. We have worked to promote awareness of this SCQDE approach across the entire Group, including sites outside Japan, starting from members of senior management. And we have cited the aging and deterioration of equipment and the gap between the work volume and available human resources as risks to address in a company-wide manner in fiscal 2020 and decided to properly understand and manage such risks.

While I feel that the efforts we have made to date have definitely been effective, we will look to steadfastly continue such efforts in an unrelenting push, so as to have this approach take root as part of our organizational culture.

Enhancement of Corporate Governance

Upon approval at the Ordinary General Meeting of Shareholders held in June 2019, we transitioned from a company with board of company auditors to a company with three designated committees (nomination, audit and remuneration committees). We will strive to achieve the three objectives of ensuring faster, higher-quality decision-making and business execution, strengthening the function for supervising business execution, and improving the transparency and fairness of management.

Because changes are taking place rapidly in our current business environment, we will be left behind unless we act quickly. However, we must avoid a decline in the quality of our decision-making that may result from excessive pursuit of speed.

We have judged that being a company with nominating committee, etc. and applying the new structure is the best way to make decisions more quickly while also improving the quality of our decision-making. This is why we have decided to make the transition. With this, we will speed up the decision-making process by transferring authority to the chief executive officer and other executive officers while the Board of Directors will spend more time deliberating on core issues such as our basic philosophy, management strategies, risks, and business opportunities.

We will use this transition as an opportunity to make a fresh start and will keep making improvements, in an effort to establish a corporate governance system that will support the sustainable improvement of our corporate value.

Aiming for an Organization That Achieves Transformation and Evolution

Since our founder, Yataro Iwasaki, began mining operation in 1871, the Mitsubishi Materials Group has been growing by changing and renewing its business portfolio, thereby responding flexibly to significant changes in the environment. The mindsets towards transformation, with which we continue to take on challenges, have been passed down as part of our DNA at the Mitsubishi Materials Group.

To achieve our corporate philosophy of “For People, Society and the Earth” today and in the future, we need to pursue a business portfolio that enables us to boost both our economic and social value as a business enterprise and have in place organizations, a work environment, and human resources that support the process of boosting our value.

Looking ahead, we are prepared to further transform and evolve ourselves in order to take sure strides toward what we aim to be.

About This Data Book

Editorial Policy

This data book is designed to inform all stakeholders of the Mitsubishi Materials Group (hereafter, the Group) about our ideas and activities relating to corporate social responsibility (CSR), including results, challenges and our direction for the future, in an accessible and comprehensive format. It is also intended to elicit opinions and help us continuously improve the standard of our activities.

The reports in this data book are in accordance with the core options of the GRI Standards.

From fiscal 2018, an integrated report was published as print media, so this data book is published electronically (PDF) only.

■ Boundary

Qualitative data: Including group companies, with Mitsubishi Materials Corporation playing a central role.

Quantitative data: Data on group companies is as follows

- Greenhouse gas emissions include major consolidated subsidiaries (132 companies)
- Other environmental data is for major consolidated subsidiaries with manufacturing facilities (80 companies)
- CSR training data refers to the main companies subject to CSR activities (70 companies).
- Safety data relates to the 22 major consolidated subsidiaries

Apart from the above, figures related to Mitsubishi Materials on a non-consolidated basis

* For the purposes of this data book, the terms "Mitsubishi Materials" and "the company" refer to Mitsubishi Materials on a non-consolidated basis.

■ Key Changes to Organizations Subject to Reporting

Three of our product manufacturing businesses (copper & copper alloy products, electronic materials & components, and aluminum) were integrated in October 2018, resulting in the establishment of the Advanced Products Company.

■ Period

Fiscal 2019 (April 1, 2018 – March 31, 2019)

* This report may also include information from April 2019 onwards, in an effort to provide the most up-to-date information on the Group.

■ Date of publication

September 2019 (previous report published in September 2018)

■ Referenced guidelines

GRI Standards 2016

GRI Standards GRI Sector Disclosures (Mining and Metals)

* A GRI search function is available via the CSR section of our website.

■ Principal Reporting Tools

We systematically disclose information on the Group, mainly via the following reporting tools.

Name	Summary
CSR Data Book 2019 (PDF)	It is a comprehensive report of the plans, objectives, initiatives, results, and detailed data related to the Mitsubishi Materials Group's CSR management and CSR material issues.
Metals Company Supplementary Data Book (PDF)	As part of our activities to disclose information through the International Council on Mining and Metals (ICMM), of which we are a member, we publish a supplementary data book containing detailed information on activities carried out by our Metals Company and smelting-related Group companies not included in this report.
Integrated Report (printed version, PDF)	We produce an annual report on Mitsubishi Materials, aimed chiefly at investors, containing financial, management and general business information.
CSR Section of our Website	Our website features content that we were unable to fit in this report, including detailed performance data, a GRI Standards Index, fact sheets, data from previous reports and information on our latest activities. * In the event that any mistakes or misprints are discovered after online publication of our CSR Data Book, corrections will be posted on the CSR section of our website. http://www.mmc.co.jp/corporate/en/csr/

■ Adoption of the stocks that make up stock indexes for ESG investment (As of July 2019)

	<p>We are included in the stocks comprising the MSCI Japan ESG Select Leaders Index and MSCI Japan Empowering Women Index (WIN), which are both administered by MSCI. Made up of companies demonstrating outstanding initiatives with respect to ESG and gender diversity, respectively, we have been selected as part of the operation index for ESG investment operated by the Government Pension Investment Fund, Japan (GPIF).</p> <p>* MSCI: Morgan Stanley Capital International</p>
	<p>THE INCLUSION OF MITSUBISHI MATERIALS CORPORATION IN ANY MSCI INDEX, AND THE USE OF MSCI LOGOS, TRADEMARKS, SERVICE MARKS OR INDEX NAMES HEREIN, DO NOT CONSTITUTE A SPONSORSHIP, ENDORSEMENT OR PROMOTION OF MITSUBISHI MATERIALS CORPORATION BY MSCI OR ANY OF ITS AFFILIATES. THE MSCI INDEXES ARE THE EXCLUSIVE PROPERTY OF MSCI. MSCI AND THE MSCI INDEX NAMES AND LOGOS ARE TRADEMARKS OR SERVICE MARKS OF MSCI OR ITS AFFILIATES.</p>

	<p>Mitsubishi Materials has been included in ECPI Indices. ECPI is an investment management and advisory firm specializing in sustainability, and is based in Italy and Luxemburg. It conducts research and ratings related to the ESG of companies.</p>
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■ Symbols Used in This Data Book

A ★ signifies a part where an indicator subject to external independent assurance is indicated.

■ Caution Regarding Forecasts and Forward-Looking Statements

The final decision, including any investment decisions, rests with individuals. The Company assumes no responsibility or liability whatsoever for any losses or damages resulting from investments or other actions based on information in this data book.

The Process of Compiling

We place great importance on the process of compiling our CSR Data Book. The process is designed with the aim of improving transparency and reliability as a company, in the interest s of accountability, and of tying in with CSR activities carried out by group companies.

■ Improving Transparency and Reliability

Having examined and identified seven “material issues” from the perspectives of our stakeholders and management, they provide the basic framework for both our CSR activities and CSR reports. As the environment is constantly changing around us, not least in terms of stakeholder trends, we review our material issues on a regular basis. We also keep a close eye on matters of interest to our stakeholders, their expectations and business conditions, so that we can check and adjust the contents of our reports in precise detail.

To keep track of matters of interest to our stakeholders, their expectations and other related trends, we gather information from individual departments, based on sources such as questionnaires from SRI agencies and ESG investors, responses to reader questionnaires, and intensive internal interviews prior to the compilation of the current report. We hold Stakeholder Meetings to discuss topics of particular importance. Meetings also help to establish a clear understanding of social issues, from various different angles, and to examine details of group initiatives.

We also obtain an “independent assurance,” to assist in comprehensively evaluating the contents of our report against international requirements in an effort to improve transparency and reliability.

■ Promoting CSR Activities based on Communication

We make the most of communication activities, as part of the process of compiling this data book, to improve our ability to promote CSR activities, by establishing a shared understanding and raising awareness of changes in the external environment for example.

The CSR Department of the Governance Division, which oversees our CSR activities, conducts hearings with the relevant corporate and company departments as needed, and not only coordinates the reporting, but also exchanges opinions and shares information about matters of interest or concern to stakeholders, issues for the future, and the direction of our activities.

Asking relevant departments to produce articles for this report, and then exchanging opinions regarding the draft report once it has been compiled, enables departments to review their CSR activities from an external perspective and helps to develop a shared understanding of their strategic significance.

The policy for the current CSR data book, its contents and other relevant details are discussed and approved by management during CSR Committee meetings.

■ The Process of Compiling



Businesses and Value Chains

Advanced Products

Three of our product manufacturing businesses, which are very similar in terms of market needs and technology development (copper & copper alloy products, electronic materials & components, and aluminum), were integrated in October 2018 and have since been operating collectively.

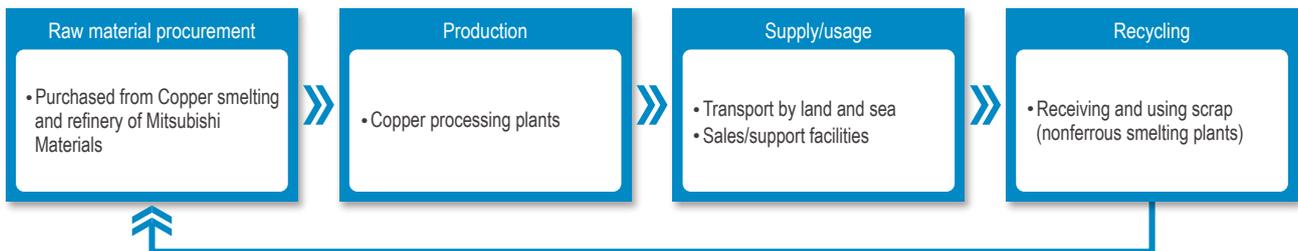
In the copper & copper alloy products business, we supply automotive parts, copper wires, oxygen-free copper, and special copper alloys on a global scale.

In the electronic materials & components business, we supply products in four sectors; advanced materials, chemical products, electronic devices, and silicon. In the advanced materials sector, we manufacture sputtering targets for use in displays for smartphones and LCD televisions, high reliability insulating substrates (DBA substrates) that offer excellent heat radiation properties for items such as hybrid vehicles, and low-alpha solders, which captured the top share of the world market. In the chemical products sector, we supply items such as solar heat-ray shielding paints for windows, and organic fluorine products. In the electronic devices sector, we contribute to energy-saving by supplying products such as thermistors, surge absorbers, and other electronic components that are used in vehicles and home appliances. In the silicon sector we supply polycrystalline silicon including chlorosilane gas for semiconductors which play a crucial part in our advanced IT society.

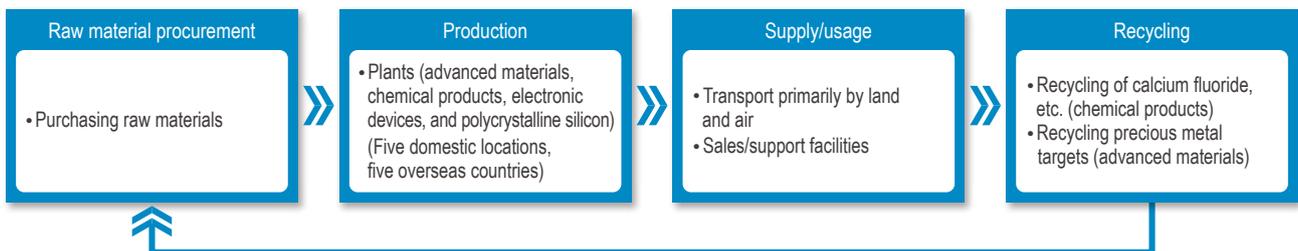
In the aluminum business, we have group companies that manufacture and sell fabricated aluminum and processed aluminum products, as well as aluminum beverage cans. As part of our rolling operations, we operate a global extruded product business via manufacturing facilities in four overseas countries. We also have Japan's only self-contained recycling system for used beverage cans and are contributing to help create a recycling-oriented society.

Value chain for the advanced products business

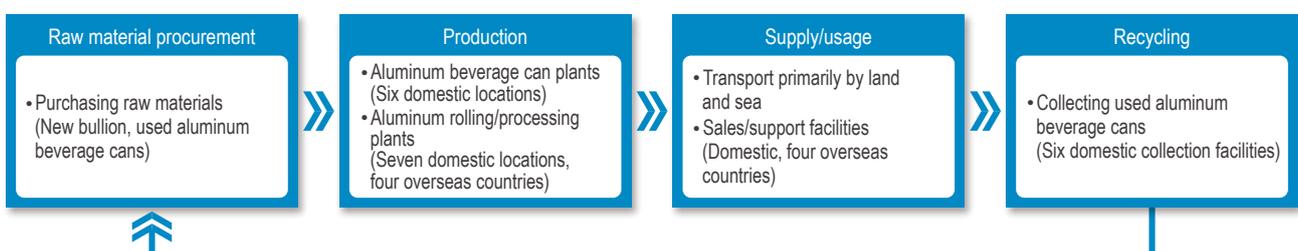
Copper & Copper Alloy Products



Electronic Materials & Components



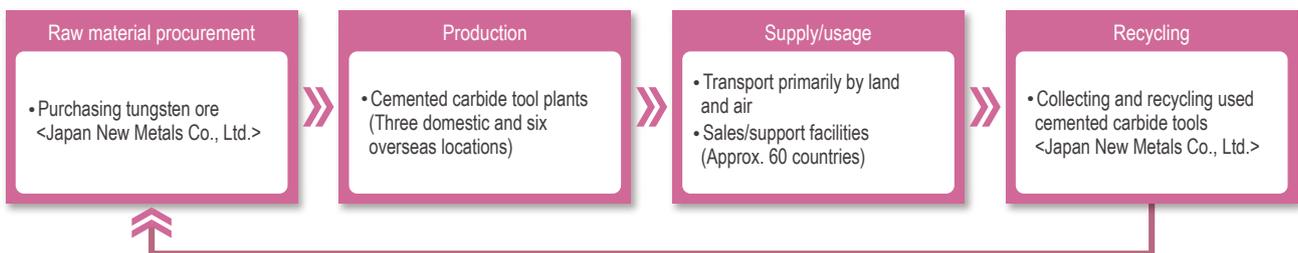
Aluminum



Advanced Materials & Tools Business

In addition to cutting tools that are essential for processing metal parts, we supply advanced materials and tools including rock tools, wear resistant tools, and other cemented carbide products, as well as sintered parts used for purposes such as engines and drive parts for vehicles and aircraft. We operate manufacturing and sales facilities worldwide, in China and other parts of Asia, the Americas and Europe. We provide high added value products and services in line with customers' needs, underpinned by high levels of technical expertise and reliability. We also boast a leading share of the domestic cemented carbide product market, supporting manufacturing across a range of different fields. The sintered parts sector contributes to improve fuel efficiency for eco-friendly automobile and promote electrification. We also actively recycle tungsten, the rare metal that provides the main raw material for cemented carbide, and are focusing a great deal of effort on collecting using cemented carbide tools.

Value chain in the advanced materials & tools business



Metals Business

Our metals business consists of three areas of business; mining, smelting and refining, and precious metals*. Our metals business consists of four areas of business; mining, smelting and refining, copper processing and precious metals. In the mining sector, we invest in overseas copper mines in order to procure a steady supply of copper concentrate. In the smelting and refining sector, we manufacture and sell high quality products, both domestically and overseas, thanks to the Mitsubishi Process, which combines high efficiency with exceptionally low environmental impact. Making the most of the smelting process, we have also established a recycling system for recovering valuable metals from E-Scrap, as part of our active commitment to recycling resources. In the precious metals sector, we provide precious metal bullion products and services under the brand "Mitsubishi Gold," including our accumulation plan service called "MY GOLD PARTNER" for gold, silver and platinum for individual customers.

* Copper & copper alloy products were integrated into the Advanced Products Company in October 2018.

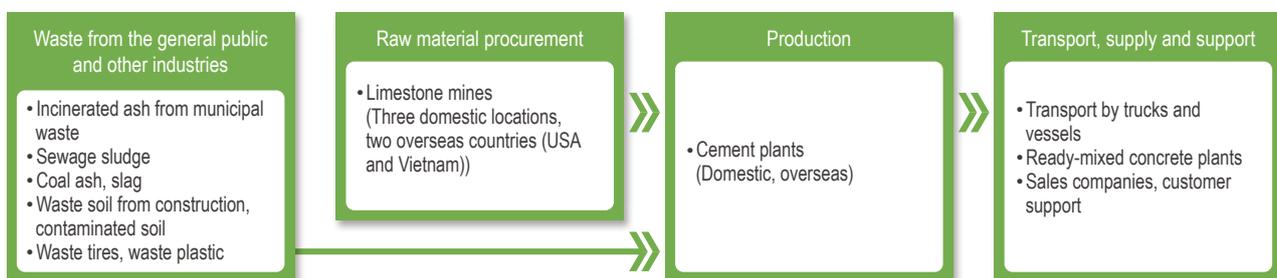
Value chain for the metals business



Cement Business

Cement is an essential basic material to our modern society, not least for the construction of roads, bridges, ports and buildings. We contribute to the development of social infrastructure through our cement business, and have established a wide-ranging business structure, from mining limestone, the main raw material in cement, through to cement plants, transportation, sales, ready-mixed concrete plants, and construction companies. In addition to our four domestic facilities, spearheaded by our Kyushu Plant, we also undertake global activities via production and sales facilities in countries such as the US and Vietnam, where there is strong demand. We supply high quality products such as low-heat cement, ultra-high strength concrete cement, and non-shrink grout, in addition to regular Portland cement and other general-purpose products. Furthermore, we actively take in difficult-to-treat waste products at our cement plants, and detoxify them using a high-temperature burning process at 1,450°C. Effectively reusing resources like this enables us to contribute to the establishment of a recycling-oriented society.

Value chain for the cement business



Environment & Energy Business

In the energy sector, we contribute to the creation of a recycling-oriented society by providing stable supplies of renewable energy, including geothermal, hydroelectric and solar power. In the nuclear sector, our operations include treatment and disposal of radioactive waste, safety assessments and environmental restoration in Fukushima. In the coal sector meanwhile, we sell coal mined from countries such as Australia and Indonesia.

In the eco-recycling sector, we operate recycling plants that we have established together with home appliance manufacturers, while working collaboratively within the group to expand resource recycling, not least through our smelting and cement recycling system.

Affiliated Business

We operate a wide range of affiliated businesses via our highly distinctive group companies. In addition to the likes of engineering and trading companies, other businesses include pure gold cards made using gold extracted from the copper smelting process, and our high quality jewelry brand MJC, domestic coal mine. We also operate tourist mines by making use of former mining sites, manufacture salt, run golf courses, and even operate driving schools, designed to revitalize local communities. We make the most of our advanced technologies to play a key role in the ground source heat sector too.

Strategy and CSR

Mitsubishi Materials Group's Business Activities and the SDGs

Universal Long-Term Goals for the International Community

In September 2015, all 193 members of the UN signed up to the 2030 Agenda, a plan to eliminate poverty, unfairness and injustice wherever possible, protect the environment, and create a better future. One of the key features of the agenda was the Sustainable Development Goals (SDGs), which set out a vision for how the world should be by the year 2030. Following on from the Millennium Development Goals (MDGs), which the international community had been working on for 15 years since 2001, the SDGs are positioned as universal goals applicable to all countries.

Rather than relying solely on national governments, the SDGs also require companies and members of the public to take action all over the world. The SDG Compass is a guide to show companies how they should be using the SDGs, published jointly by the Global Reporting Initiative (GRI), UN Global Compact, and the World Business Council for Sustainable Development (WBCSD). It provides the following explanation.

“Unlike their predecessor, the Millennium Development Goals, the SDGs explicitly call on all businesses to apply their creativity and innovation to solve sustainable development challenges. The SDGs have been agreed by all governments, yet their success relies heavily on action and collaboration by all actors. The SDGs present an opportunity for business-led solutions and technologies to be developed and implemented to address the world's biggest sustainable development challenges.”

The Group's Business Activities and the SDGs

The Mitsubishi Materials Group is a diversified materials manufacturer with the corporate philosophy “For People, Society and the Earth.” We are also committed to achieving our vision – “We will become the leading business group committed to creating a sustainable world through materials innovation, with use of our unique and distinctive technologies, for People, Society and the Earth.”

The adoption of the SDGs by the UN has reaffirmed that we are going in the right direction with our business activities as a group, and provided us with a springboard from which to assess critical long-term risks and opportunities, in terms of issues that we need to address and the path we need to take in the future.

Of the 17 goals set out under the SDGs, numbers 9 (industry, innovation and infrastructure), 12 (responsible consumption and production), 7 (affordable and clean energy), and 5 (gender equality) in particular tie in with areas in which we are implementing priority initiatives.

We intend to incorporate the SDGs into our strategies from the point of view of both increasing the competitiveness of our existing business, and creating new products and businesses. We will also be actively working with a wide range of outside partners, as we strive to create value over the medium to long term.



Supplying materials as backbone for infrastructure, industry and innovation worldwide

As a diversified materials manufacturer, we continue to supply basic materials indispensable to the world. With continuous innovation, we supply a wide range of products, systems and services that support designed to save energy, conserve resources and contribute to cleaner processes, as well as infrastructure development and industry all over the world.

In addition to developing products and technologies in each businesses, at the Central Research Institute we also carry out research and development on a long-term perspective with accumulating technologies such as “material analysis technologies,” “basic technologies to support materials, process and products development,” and “core technologies of reaction processes, metals, processing, interface, thin films.” We are particularly focused on developing environmental products and technologies as a priority area over the medium term.

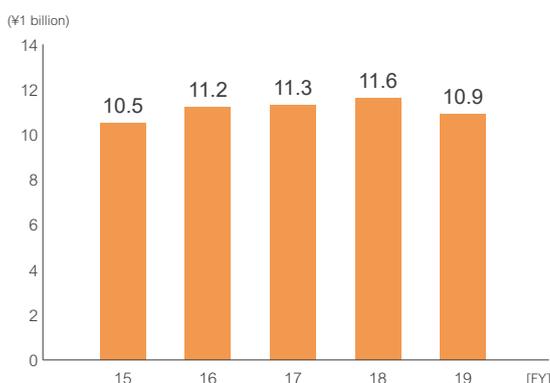
We are involved in collaborative activities with major universities. Meanwhile, we help to develop human resources for the future of scientific research.

Targets closely linked to our initiatives*

- By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities. (Target 9.4)
- Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending. (Target 9.5)

* Specific targets set out under each of the 17 goals listed in the SDGs.

■ Research and development spending (consolidated)



Contributing to a recycling-oriented society from a global perspective

We are constantly thinking about ways to effectively use and reuse the limited resources we need for manufacturing, and engage in recycling operations in every business field. As well as making full use of the resources and materials that nature has given us, we recycle waste and byproducts in an effort to help create a sustainable world.

Contributing to a recycling-oriented society is positioned as a key element of our corporate philosophy, vision and management strategy, in terms of creating value that will help to resolve social issues.

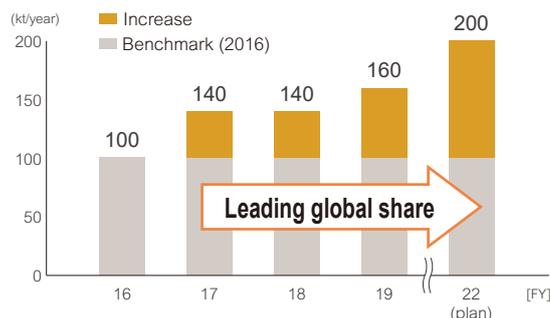
In our strategy of “creating value by building a recycling-oriented society” under our current medium-term management plan, we have made it a priority to make better use of urban mines (E-Scrap, including waste substrates from electronic devices). We now have world-leading E-Scrap intake and processing capacity within the Group, and are steadily increasing the amount of E-Scrap that we process.

We are continuing to work on further advances in recycling technology, and to develop more efficient means of collection and processing, so that we can expand possibility of resources recycling.

Targets closely linked to our initiatives

- By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse. (Target 12.5)

■ E-Scrap processing capacity





Increasing the renewable energy supply and promoting comprehensive measures against climate change

We have a long history of supplying renewable energy. Our business in this area dates back to 1898, when we developed the Nagata Hydroelectric Plant to supply power to Osarizawa Mine in Kazuno, Akita prefecture. Making the most of the technology we had built up through our mining business, we later moved into geothermal development, commenced operations at the Ohnuma Geothermal Plant in the same area in 1974. We currently have hydroelectric plants in six locations, geothermal plants in two locations, and large-scale solar power plants in five locations. We are also working on new hydroelectric and geothermal projects (a hydroelectric project at one location and geothermal projects in four locations in Japan).

At the same time, we are promoting to use harness ground-source heat, which is regarded as a promising new source of renewable energy. We have developed a commercial system that runs on heat pump technology, and have already supplied over 100 systems domestically. We are also developing technology that will improve work efficiency.

We comprehensively work on risks and business opportunities related to global warming in the medium to long term, under the initiative of our Global Environment and Energy Committee, which is comprised of members of the Executive Officers' Meeting. Regarding energy efficiency at key production facilities, we are steadily pursuing initiatives to achieve our 2020 goal.

Targets closely linked to our initiatives

- By 2030, increase substantially the share of renewable energy in the global energy mix. (Target 7.2)
- By 2030, double the global rate of improvement in energy efficiency. (Target 7.3)
- Integrate climate change measures into national policies, strategies and planning. (Target 13.2)
- Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning. (Target 13.3)



Creating more opportunities for women to maximize their potential

We are committed to promoting greater roles for female employees, for the purpose of “securing domestic workforce under declining birth rate circumstance,” and “creating new added value from diverse human resources working together.”

We formulated Basic Principles on Women's Empowerment in September 2015. In order to steadily take three steps, “securing and retaining female employees,” “expanding career options,” and “enabling women to play a greater role in the company,” we set out specific measures and targets for us to achieve by the year 2020. These activities are based on three key perspectives: “creating a better corporate culture,” “raising awareness amongst female employees and reforming career options,” and “improving systems and working environments.”

We regard promoting greater roles for women as part of our efforts to reform our corporate culture. We think it important to create a company where not only women, but also diverse human resources such as the elderly, disabled people, people from abroad, etc., can work together effectively and healthily both in body and mind.

Instead of being influenced by a temporary surge in momentum, we are determined to continue implementing activities on an ongoing basis.

Targets closely linked to our initiatives

- End all forms of discrimination against all women and girls everywhere. (Target 5.1)
- Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women. (Target 5.b)



Progress in Fiscal 2019

1 / Full-fledged development of composite materials using “graphene” and metals

Goal 9

At Mitsubishi Materials, which boasts strengths in non-ferrous metal materials, we are working in earnest on the development of composite materials using metals and graphene, a new carbonaceous material, in collaboration with Incubation Alliance, Inc. Graphene is one of the carbon allotropes and a new material with unique physical properties, such as ten times better thermal conductivity than copper, and is light weight. It is expected to be applied as heat radiation material for smartphones, next-generation vehicles, and other devices with high heat generation density.

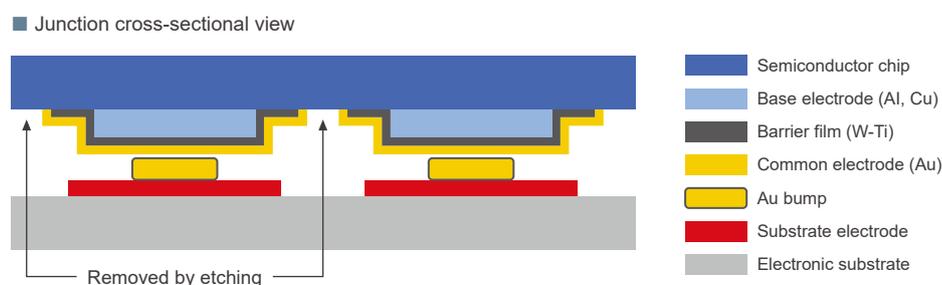
Through our businesses, we are striving to supply materials that support infrastructure development and industries worldwide. We aim to create innovative hybrid products made of graphene composite materials that will generate technological innovations by collaborating with Incubation Alliance, Inc., which established the first technology for the mass production of graphene.

2 / Development of W-Ti sputtering target for barrier films

Goal 9

For many years, we have been manufacturing sputtering targets, an electronic material that forms thin films of alloy or other materials on substrates by applying the sputtering method. When a semiconductor chip is mounted on an electronic substrate, a film formed by a tungsten-titanium (W-Ti) sputtering target is used as the barrier between the base electrode and common electrode. While the unwanted part of the barrier film must be removed, conventional films had shortcomings, such as a low melting rate. We increased the melting rate by up to approximately 60% compared to our previous products, and have developed and began commercial production of a product with the capability to flexibly control the rate according to customer wishes.

The recent movement towards the increase in functionality for smartphones and other devices has led to a shift to the fine pitch process, in which electrodes are densely mounted on semiconductor chips. The new sputtering target is compatible with the semiconductor fine pitch process and contributes to improving the production efficiency of the chip mounting process. With this product, we would like to support the development of the information and communication industry and contribute to energy conservation.



3 / Completion of MM Metal Recycling B.V. in the Netherlands

Goal 12

At the Mitsubishi Materials Group, we are promoting the expansion of E-Scrap receiving and processing capacity by taking advantage of the Mitsubishi Process for continuous copper smelting, which achieved the lowest environmental impact in the industry. We boast the largest E-Scrap receiving and processing capacity in the world, with the combined capacity of ourselves and Onahama Smelting and Refining Co., Ltd., at approximately 140,000 tons per year. To expand the collection of E-Scrap from Europe, we jointly established MM Metal Recycling B.V. with Hanwa Co., Ltd. At this subsidiary in the Netherlands, construction of a sampling center for receiving, inspecting, and sampling E-Scrap and other operations was completed in May 2018. As a result, our E-Scrap receiving and processing capacity increased to approximately 160,000 tons per year.

We are promoting initiatives under the vision of being committed to creating a sustainable world. We will continue to contribute to the development of a sustainable society by further expanding the collection and recycling of valuable metals.



4 / Joint development of technology for recycling lithium ion batteries with Nippon Magnetic Dressing Co., Ltd. Goal 12

Demand for lithium ion batteries, which are used for hybrid vehicles, electric vehicles, and other electrified vehicles, is expected to increase. However, there is concern over the shortfall in the supply of cobalt and other rare metals, which are the main materials of those batteries.

In response, we are jointly developing technology for recycling rare metals from lithium ion batteries for electrified vehicles, with Nippon Magnetic Dressing Co., Ltd. We installed our proprietary cobalt and nickel refining equipment on the premises of the Hibiki Plant of Nippon Magnetic Dressing, and in April 2019, launched a demonstration project to collect cobalt and nickel for battery materials from used lithium ion batteries for both electrified vehicles. We will promote the technical validations of this facility and joint development of a safe, highly efficient recycling technology, aiming for its commercialization in fiscal 2023.

5 / Acceptance of disaster waste generated by the torrential rain in Northern Kyushu Goal 12

Our cement plants, which use a high-temperature burning process, are capable of detoxifying and effectively using difficult-to-treat materials without generating secondary waste. The Kyushu Plant of our Cement Company has begun to accept disaster waste generated from the torrential rain in Northern Kyushu that occurred around Asakura City, Fukuoka, in July 2017.

By August 2018, the plant had accepted approximately 1,160 tons of wood chips derived from driftwood and approximately 220 tons of rice straws that could no longer be used as fodder. We will continue to accept and treat disaster waste at the plant, thereby supporting the reconstruction and contributing to promoting a recycling-oriented society while also achieving sustainable growth.

6 / Establishment of a company producing biogas from food waste Goal 7

In Japan, approximately 16 million tons of food waste is generated every year. However, most of this waste is incinerated, with only 20% to 30% recycled into fodder and fertilizer. To promote the recycling of food waste, we established New Energy Fujimino Co., Ltd., a company that will operate the business of producing biogas from food waste on the premises of Iruma Tobu Rescue in Saitama Prefecture in May 2018. Construction of this plant is underway, aiming to commence operation in April 2020.

Effective use of biogas, which is produced by methane fermentation of food waste, as electricity and thermal energy is attracting attention as a recycling method that reduces waste from incineration, prevents global warming, and provides other benefits. In addition, sludge and other byproducts generated at the plant can be recycled and reused at our cement plants without generating secondary waste. We are advancing this initiative as a new business model that contributes to improving energy efficiency and reducing the environmental impact.

7 / Construction of a new hydroelectric power plant in Akita Goal 7

In May 2019, we began to construct the New Komatagawa Hydroelectric Power Plant (capacity: 10,326 kW), which will be the first hydroelectric power plant in 66 years in the reservoirs along the Komata River of Akita Prefecture. The plant will be completed in December 2022. When it has begun operating, CO₂ emissions will be reduced by approximately 9,800 tons every year, while the annual power generation amount in the reservoirs along the Komata River is expected to increase to approximately 13,400 MWh.

While hydroelectric power generation attracts attention for not producing CO₂ emissions, new construction of run-of-river power plants, which directly draw in river water, is becoming less frequent partially due to the difficulty of securing water resources and profitability. Our hydroelectric power generation businesses have a history of more than 100 years. By taking advantage of our technologies and expertise we have succeeded, we will strive to achieve a long-term, stable supply of renewable energy while protecting the river environment.



8 / Aomori Plant certified as a company promoting workstyle reform by the prefectural government of Aomori Goal 5

At the Mitsubishi Materials Group, we are taking initiatives to promote the active participation of women. In 2018, our Aomori Plant was certified under the Aomori prefectural government program for companies that promote workstyle reform. Approximately 70 companies in Aomori Prefecture have obtained this certification.

To be eligible for it, a company must be taking initiatives or have made achievements in at least five items in four fields: “economic stability of young people,” “retention rate of female employees,” “male contribution to the household,” and “work-life balance.” The Aomori Plant was highly evaluated for seven items. We will continue to make group-wide efforts to create comfortable workplaces where not only female employees but diverse human resources can participate actively.



Certification mark

9 / Kurumin certification granted to Mitsubishi Aluminum Co., Ltd. Goal 5

In 2018, Mitsubishi Aluminum Co., Ltd., which is our group company, was granted Kurumin certification by the Tokyo Labor Bureau of the Ministry of Health, Labour and Welfare, recognized as a company that supports childcare. The company was highly rated for its initiatives taken under its action plan for April 2015 to March 2018, including promotion of acquisition of childcare leave by male employees, introduction of a program exempting employees with children below school age from overtime work, and promotion of acquisition of paid leave. We will continue to improve the workplace environment and systems, aiming to create a workplace where all employees can actively participate by demonstrating their skills.



Kurumin 2018 mark

10 / Two group companies commended as excellent business operators in the Eco-Ship Modal Shift program Goal 13

At the Mitsubishi Materials Group, we promote diverse initiatives to tackle climate change. For logistics, we are promoting a modal shift or replacement of transportation methods with ones that feature a low environmental impact, such as railways and ships.

Fuji Plant of Mitsubishi Aluminum Co., Ltd. and MA Packaging Co., Ltd., which are our group companies, received awards from the Director General of Maritime Bureau, Ministry of Land, Infrastructure, Transport and Tourism in 2018 as excellent business operators in the fiscal 2018 Eco-Ship Modal Shift program.

Mitsubishi Aluminum Co., Ltd. received this award for the second time in recognition of its use of the roll-on/roll-off (RORO) ship* line between Shimizu Port and Oita Port. MA Packaging Co., Ltd. received this award for the first time for its use of a ferry line between Kobe Port and Miyazaki Port, and a RORO ship line between Shimizu Port and Oita Port.

We will continue to take initiatives to reduce CO₂ emissions in logistics.

* Vessels designed to carry trucks and trailers without unloading their cargo

11 / Agreement on forest maintenance concluded with Mori Town, Hokkaido Goal 13

In October 2018, we concluded an agreement with the government of Mori Town, Hokkaido, concerning 0.41 hectares of forest owned by the town, which was damaged by the typhoon in 2016. Under this agreement, we take responsibility for the recovery of the overall area, including the above forest and the adjacent, company-owned Mori Forest. We will spend the next five years planting trees in the area and the next 10 years growing them.

We own 14,000 hectares of forestland across Japan, making us one of the largest owners of forestland in the country. We are working on sustainable forest management, appropriately overseeing our forests while developing diverse functions for them, including the prevention of global warming through the absorption of CO₂, the contribution to local communities, and the conservation of biodiversity, in addition to the production of timber as a renewable resource. In 2015, Mori Forest and other company-owned forests in Hokkaido received SGEC forest certification. We will continue to keep the forests healthy and will promote the absorption of CO₂ by forests as a countermeasure against global warming.



12 / Completion of an incineration fly ash treatment facility

Goal 12

The limited availability of waste final landfill sites in Japan is one of the challenges for achieving sustainable production and consumption. At the Mitsubishi Materials Group, we are promoting initiatives to solve this issue through our businesses.

In March 2018, Kitakyushu Ash Recycle Systems Co., Ltd., our group company, completed an incineration fly ash treatment facility, which washes fly ash from waste incineration and recycles it into cement resources. This recycling measure was selected for "Ichioshi Eco-Premium," the highest-ranked initiative, in fiscal 2019 *Kitakyushu Eco Premium Industrial Creation Project*. *Kitakyushu Eco Premium* is a project in which the city government of Kitakyushu selects products, services, etc. with a low environmental impact as new added value and provides support for their related promotion. The initiative of Kitakyushu Ash Recycle Systems Co., Ltd. was highly evaluated because the treatment of incineration fly ash is expected to contribute greatly to building a recycling-oriented society. We will continue to extend the life of landfill sites by recycling incineration fly ash into a cement resource as part of our efforts to contribute to a recycling-oriented society.

13 / Establishment of the Smart Factory Promotion Group

Goal 7

Goal 13

In response to the quality issues that occurred in the Mitsubishi Materials Group, the Production Technology Management Department established the Smart Factory Promotion Group in July 2018 to support fundamental improvement of our manufacturing sites.

It is a cross-sectoral group with members from the System Strategy Department and the Corporate Production Engineering Department. The experienced members study requests from manufacturing sites and issues from surveys from different perspectives and provide support to manufacturing sites and related departments like research, development, and planning to automate tests, build a traceability system or to introduce advanced IoT and AI initiatives. Along these lines, we promote the optimization of our manufacturing sites also to improve energy efficiency and to prevent global warming.

Mitsubishi Materials Group's Approach to CSR

Incorporating Social Expectations into Management Practices

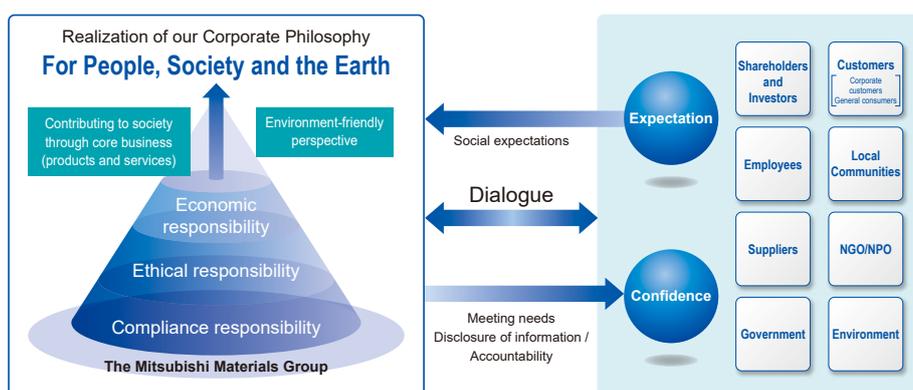
In order to put the group's corporate philosophy into practice, we define corporate social responsibility (CSR) as faithfully carrying out the role required and expected of us as a company, disclosing and sharing details of our activities, both inside and outside the company, and deepening mutual understanding through dialog.

To put it another way, promoting CSR means incorporating society's needs into our management activities. Our corporate philosophy system reflects the principles set out by the International Council on Mining & Metals (ICMM), of which we are a member, and the modern-day requirements of the international community.

In identifying CSR key issues too, we started by ascertaining public demand based on a wide range of information sources, including international guidelines and ESG research questionnaires. We then evaluate and prioritize issues based on stakeholder and management perspectives. Our approach to resolving key issues, once they have been identified, is to incorporate them into our business strategy, and tackle them in different ways as part of our day-to-day business processes.

We have also looked closely at how our business as a group relates to the SDGs, which recognize issues facing the international community between now and 2030, and continue to engage in dialog with outside experts, as we work out how best to proceed.

■ Outline of the Mitsubishi Materials Group's approach to CSR



CSR Definition

The Mitsubishi Materials Group is an ensemble of companies operating under the composite profile of a comprehensive basic materials maker. As a group, we provide resources, basic materials and energy indispensable to modern lifestyles, and in these efforts, we adhere to a corporate philosophy that emphasizes efforts that contribute to people, society and the Earth.

CSR for the Group thus hinges on making this philosophy a reality, through the sincere fulfillment of the obligations and expected role that society places on a corporate citizen, disclosure of the approaches taken—with proper explanation—and the constant pursuit of two-way communication with stakeholders to promote greater mutual understanding.

These actions will underpin a position of trust in society.

CSR Direction

1. Respecting relationships with people: Reinforcing ties to stakeholders

Through mutual communications, plants and companies under the Group umbrella will go to great lengths to maintain favorable perceptions of the Group—as held by shareholders, customers, suppliers, employees and other stakeholders—deepen their understanding of stakeholder points of view, and work hard to ensure a high level of stakeholder satisfaction.

2. Respecting promises made to society: Ensuring thorough compliance and risk management practices

We will systematically reinforce levels of compliance and risk management to ensure legal compliance—a vital prerequisite for expanding corporate activities—and to prevent business-related problems from arising.

3. Respecting the Earth: Reducing environmental impact

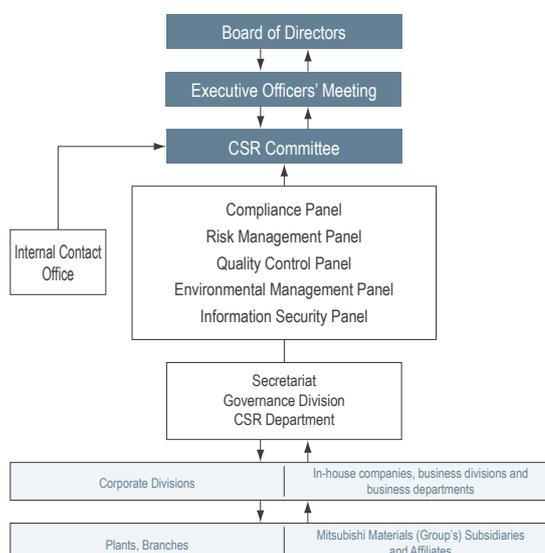
In our activities, which serve to reduce environmental impact, we will direct efforts toward such measures as saving energy and resources, cutting waste and limiting the use of hazardous substances.

CSR Promotion Framework

We have a CSR Committee, chaired by the Director in charge of CSR, that meets four times a year to discuss matters such as our policy and activity plans for the year. We also submit regular reports to the Corporate Strategy Committee and the Board of Directors, outlining progress with the establishment and implementation of CSR-related systems. Meanwhile, our dedicated CSR Department in the Governance Division makes an ongoing effort to promote CSR throughout the Group.

We have systems in place so that any compliance issues occurring within the group are reported to the CSR Department, which then works with the division or department concerned to investigate the causes of the issue and implement measures to prevent a recurrence. The department responsible for conducting audits also works with group companies to monitor progress with CSR activities, through internal audits for instance.

■ CSR Promotion Structure



Response to Issues Highlighted by Stakeholders

We respond to issues highlighted and suggestions made by our stakeholders so that we can improve the standard of our CSR activities and CSR Reports. We have launched a number of initiatives in response to key comments and requests, including the following. For information on methods of communication with stakeholders when ascertaining details, please see “Interaction with Stakeholders.” (P.74)

Key comments and their source	Group response
Investigating the causes of and implementing preventive measures for the quality issues	<ul style="list-style-type: none"> Implementing systematic measures for restructuring the governance framework for quality control in our Group Focusing our efforts on initiatives for solving the three key issues on Group governance (communication, compliance framework and awareness, and resource allocation)
Continuing to expand and improve resource recycling measures	<ul style="list-style-type: none"> Making it a priority strategy to “create value by building a recycling-oriented society” Making greater use of urban mines (recycling E-Scrap) Promoting automobile recycling business Working to achieve targets for establishing a recycling-oriented society and contributing to the environment, and publishing reports outlining our results
Promoting measures to combat global warming (especially from a long-term perspective)	<ul style="list-style-type: none"> Implementing continuous, multi-faceted initiatives to save energy and reduce CO₂ emissions at all production facilities Developing technology for CO₂ capture and underground storage Promoting the use of renewable energy (geothermal, ground source, hydraulic, solar) over the medium to long term Placing a greater emphasis on developing and providing environmental technologies and products that will help save energy and reduce CO₂ emissions Water risk countermeasures
Managing abandoned mines	<ul style="list-style-type: none"> Improving both equipment and management at closed mines Continually working to reduce volumes of mine drainage
Preserving biodiversity (company-owned forests, areas around mines)	<ul style="list-style-type: none"> Obtaining the forest certification by SGEN for company-owned forests and promoting sustainable forest management Confirming that biodiversity has been factored into mines in which we invest, and carrying out preservation activities at facilities located adjacent to national parks.
Respecting human rights throughout the supply chain	<ul style="list-style-type: none"> Rolling out multi-layered initiatives aimed at ensuring the effectiveness of the CSR Procurement Guideline for the Procurement & Logistics Division Implementing CSR investment/procurement standards as part of our metals business, and engaging in dialog with local communities near mines where we invest Obtaining certification for conflict-free minerals (gold, tin, tungsten)
Creating Safe, Healthful Working Environments	<ul style="list-style-type: none"> Thorough efforts to make equipment safe(engineering measures) through risk assessments (RA) Strengthening health and safety education Raising employees' awareness of health Strengthening safety and health systems
Developing human resources capable of tackling global issues	<ul style="list-style-type: none"> Continuing to step up global human resource development Developing and recruiting overseas human resources
Promoting greater roles for diverse human resources	<ul style="list-style-type: none"> Setting targets for the empowerment of women (percentage of female graduate recruits, percentage of women in management positions, percentage of female employees voluntarily leaving the company within five years) Rehiring retired employees and hiring disabled persons' employees

Initiatives on Material Issues

Identifying and Reviewing Material Issues

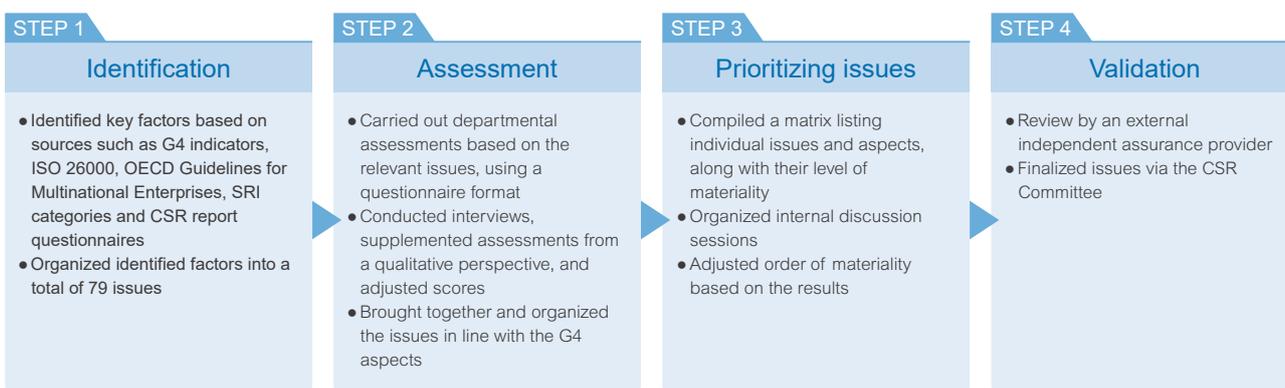
We recognize that the sustainability of society as a whole will always have a significant impact on our corporate activities in the future. That is why we identify high priority issues from the point of view of management. Once we have identified these material issues, we incorporate them into our business activities, and publish details and the results of our initiatives in our CSR data book.

We identified nine material issues in fiscal 2008 by conducting a material issue assessment based on the framework of the GRI Guidelines, a set of international guidelines that address sustainability reporting. We conducted a material issue assessment again in fiscal 2016 in response to changes in the external environment and restructured it into seven issues by following the steps shown in the figure below.

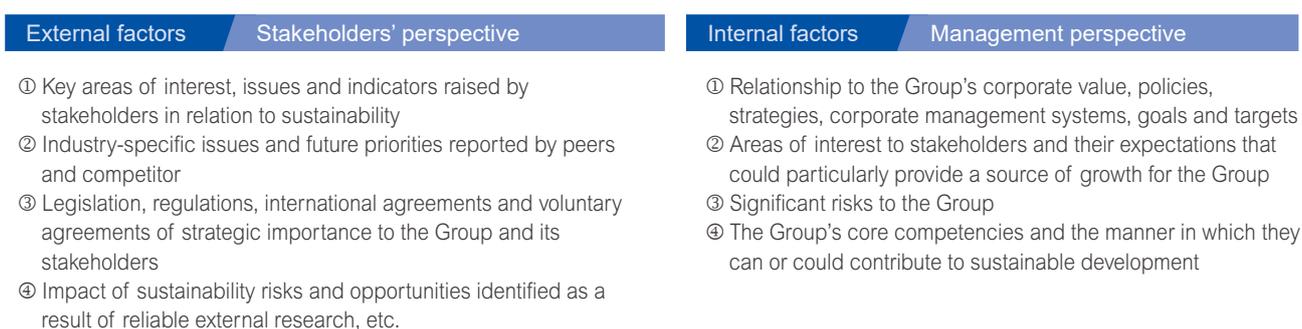
Now, we compile reports in accordance with the GRI Standards and by reflecting the recently-growing interest in non-financial information.

We will continue to carry out regular reviews of the reports and strive to enhance their contents in response to the expectations and requests of our stakeholders.

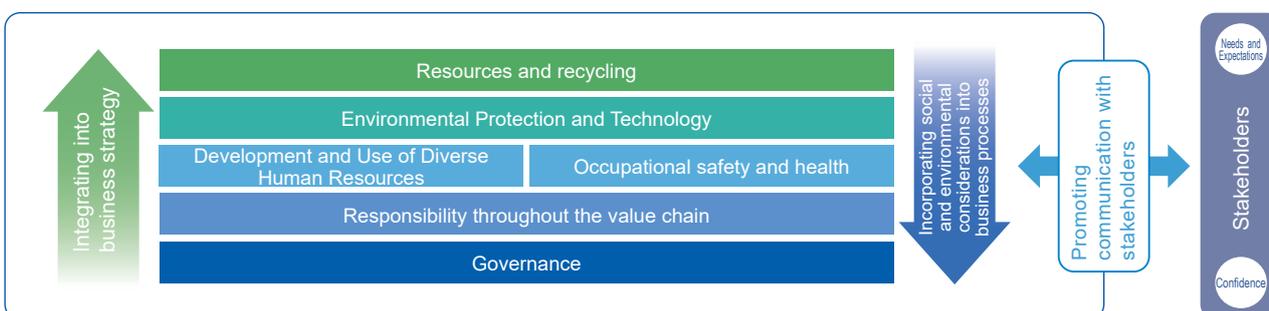
GRI Guidelines material issue assessment process



Incorporated stakeholder and management perspectives into assessments



Material issues



Mitsubishi Materials' Seven Material Issues

Material Issues	Material issue themes	Background and key initiatives
Resources and Recycling	<ul style="list-style-type: none"> ● Maintaining stable supplies of materials and products ● Pursuing a recycling-oriented business model 	<p>With growing worldwide demand for resources, especially in emerging countries, risks relating to resource procurement are on the increase due to factors such as export restrictions and human rights issues in resource-producing countries. Whilst continuing to purchase ore primarily from mines in which we invest, we are also working to strengthen relationships with mining and mineral producing companies and diversifying raw material sources, as well as ensuring that development takes into account local companies and the surrounding environment in resource-producing areas. We are also committed to rolling out our unique recycling-oriented business model, in order to secure recycled resources and contribute to resource recycling, both at home and overseas.</p>
Environmental Protection and Technology	<ul style="list-style-type: none"> ● Preventing global warming ● Preventing environmental pollution ● Preserving biodiversity ● Developing environmental technologies and products 	<p>Companies are finding themselves under increasing pressure to reduce the environmental impact of their business activities and step up measures in response to environmental issues. We make every effort to comply precisely with environmental regulations throughout the Group, and to reduce a wide range of substances of concern in terms of environmental impact. As well as integrated initiatives aimed at preventing global warming and establishing a recycling-oriented society, in line with the characteristics of each of our businesses, we are also focused on areas such as preventing pollution and preserving biodiversity. We are similarly committed to initiatives such as creating renewable energy, maintaining our extensive company-owned forests, and developing environmentally friendly products and technologies in order to help reduce the environmental impact.</p>
Development and Use of Diverse Human Resources	<ul style="list-style-type: none"> ● Human resource development ● Diversity (Empowerment of women) 	<p>To maintain sustainable growth, companies need to enable a diverse human resources to make the most of their abilities. We are committed to developing and using of human resources, both in Japan and overseas, and are actively focused on initiatives such as promoting empowerment of women, ensuring an adequate work-life balance, and improving benefits and welfare. We also engage in ongoing initiatives aimed at ensuring basic human rights and creating friendly, safe and pleasant working environments for all. Initiatives such as these have the added bonus of creating a shared awareness based on partnership between labor and management.</p>
Occupational Safety and Health	<ul style="list-style-type: none"> ● Preventing occupational accidents ● Creating mentally and physically pleasant workplaces 	<p>Ensuring employees' safety and health must always be one of the top priorities of our company. We are "committed to providing a safe and healthy environment for all," as enshrined at the highest level in our Code of Conduct, and continue to promote health and safety activities throughout the group, which is also based on our experiences dealing with serious accidents in the past. We try to implement initiatives from every angle, including improving individual awareness and capabilities, refining manuals and processes, upgrading facilities, and creating positive working environments from both a mental and physical point of view.</p>
Responsibility throughout the Value Chain	<ul style="list-style-type: none"> ● Respect for human rights in procurement ● Product liability 	<p>Companies are required to monitor and take into account the social and environmental impact of their business activities throughout the value chain. We keep a close eye on conditions at the companies that supply us with raw materials and products, and do our best to ensure that no human rights violations are committed at any point in our global supply chain, based on our CSR Investment Standards and CSR Procurement Guidelines. We are also committed to ensuring that our products are safe and reliable, from the design and development stages all the way through to manufacturing and shipping.</p>
Stakeholder Communication	<ul style="list-style-type: none"> ● Building and strengthening relationships with stakeholders ● Improving customer satisfaction ● Engaging in dialogue and coexisting with local communities 	<p>To promote CSR activities, it is essential for companies to keep track of global trends, and identify the needs and expectations of their stakeholders, so that they can incorporate them into their management activities. We also need to disclose information that is of interest to their stakeholders. We make every effort to disclose information via our CSR Data Book and website, and continue to promote dialogue and consultation with our stakeholders, whilst also improving communication through activities such as Stakeholder Meetings.</p>
Governance	<ul style="list-style-type: none"> ● Reinforcing compliance 	<p>Companies need to establish mechanisms to enable them to make decisions transparently, fairly and quickly, and to adequately audit their operations, in line with the needs of customers, local communities, suppliers, shareholders, employees and other stakeholders. In addition to continually improving our corporate governance systems so that we can make appropriate decisions as quickly as possible, we continue to strengthen our internal auditing capabilities and reinforce governance in terms of groupwide management, including overseas. We also strive to reinforce compliance, as the cornerstone of corporate management, and implement risk management activities across every aspect of our business, as well as putting in place business continuity plans (BCP) in case of an emergency and constantly strengthening our risk management systems in areas such as disaster prevention and security.</p>

Maintaining Stable Supplies and Recycling Materials and Products

International Issues Surrounding Resources and Our Role

Worldwide Demand and Restrictions on Resources

Of all the base metals, copper in particular is used for a wide range of purposes. In spite of risks such as short-term metal prices and exchange rate fluctuations, demand is expected to continue growing over the long term, not least due to infrastructure development in emerging economies.

However, copper is a finite mineral resource that is produced in different areas worldwide. While competition for the resource is intensifying, excellent mines are becoming rare. Recently, securing clean copper concentrate is more important than ever because the locations of newly developed mines are higher or deeper than in the past and their quality of copper is lower, tending to contain more impurities, in addition to resource-holding countries' protection of their resources and anti-development campaigns reflecting growing environmental awareness.

We are striving to secure a stable supply of copper concentrate, with an aim to participate in copper mine projects with sufficient mine life and low operating cost.

The Growing Importance of Developing "Urban Mines"

Mechanisms and technologies to enable us to efficiently recycle resources are becoming increasingly important, in terms of securing stable supplies of metal resources and enabling the sustainable development of society as a whole.

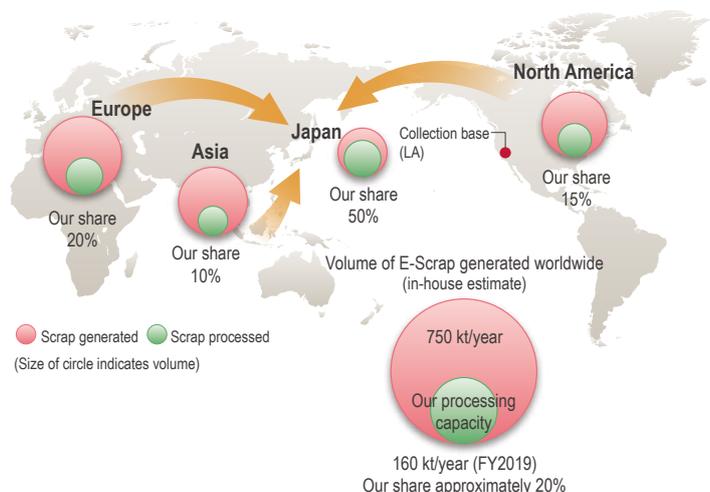
In particular, waste electrical and electronic equipment (WEEE), such as televisions and computers, cellular phones contain large quantities of valuable metals such as precious metals and rare metals. These "urban mines"* are being thrust into the spotlight because they enable efficient extraction (recycling) of resources with minimal impact on the environment and local communities compared to natural mines.

In addition to the smelting and refining technologies the our group has built up over more than a century, for copper and other nonferrous metals, we have a wealth of expertise in recycling, and continue to actively work on recycling of E-Scrap (recyclable materials picked out from dismantled and crushed WEEE, mainly printed circuit boards).

Alongside our high-level operational expertise and the "Mitsubishi Process," a unique continuous copper smelting and converting process developed exclusively by Mitsubishi Materials, we have established a global collection network, and are constantly working to improve and reinforce processing capacity, as well as services such as our online booking system. Between the Naoshima Smelter & Refinery (Kagawa prefecture) and the Onahama Smelter & Refinery (Fukushima prefecture, Onahama Smelting & Refining Co. Ltd.), we are currently able to process E-Scrap on a world-leading scale of approximately 140,000 tons annually.

We are also scheduled to complete construction of a sampling plant in the Netherlands in February 2018, handling activities such as intake, inspection and sampling of E-Scrap. This will increase the group's annual E-Scrap processing capacity to approximately 160,000 tons.

Rolling out E-Scrap recycling operations globally



* "Urban mines": Electronics devices and other industrial products from which we can obtain valuable resources such as those extracted from natural mines.

Acting as a Responsible Partner in International Resources Recycling

In recent years, we have been disposing of large quantities of electronic devices that have outlived their useful lifespan as WEEE. While these devices still have potential value as urban mines, there are concerns that they could also cause environmental contamination from lead, mercury or other harmful substances if they are processed inappropriately. The European Union (EU) is taking these concerns very seriously, and in 2003 introduced a directive to limit volumes, and promote the reuse and recycling of WEEE.

Within the EU, a certification scheme is being put in place for companies throughout the recycling chain, to encourage them to handle WEEE in an appropriate manner. In fall 2016, we became the first company in Japan to obtain certification under the Standard on End-Processing of WEEE Fractions (E-Scrap) at the Naoshima Smelter & Refinery and Onahama Smelter & Refinery (Onahama Smelting & Refining Co. Ltd.).

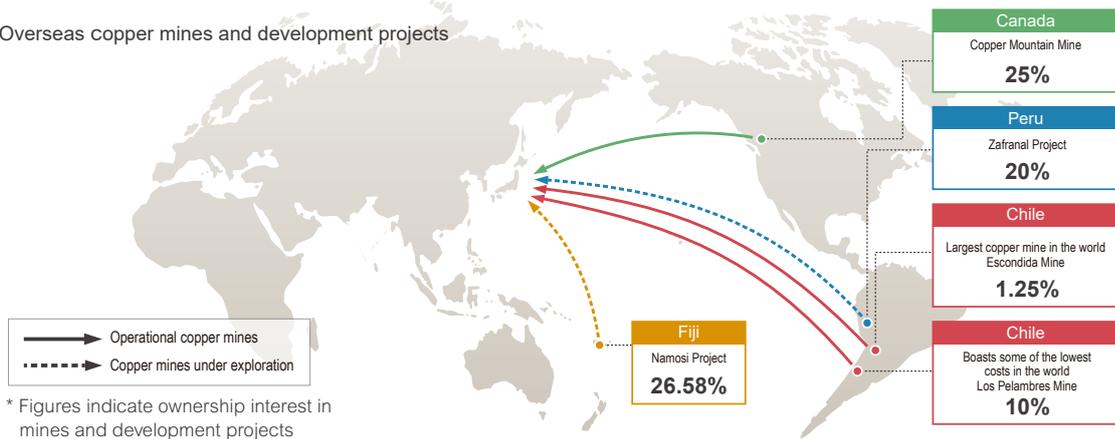
We will continue to build on the technologies and expertise, so that we can contribute to the sustainable development of society as a whole through international resource recycling, as a leading partner in responsible E-Scrap recycling.

Securing Stable Products Supplies: Copper Products

Since the closure of our Akenobe Mine in 1987, we have been reliant on imports from overseas mines for copper concentrate*, the main raw material used in our products. To ensure stable procurement, we have therefore continued to invest in overseas mines. Depending on our level of investment, we also assign personnel to mines in other countries, and provide support to ensure that mines are developed sustainably in the best interests of the environment and the local community.

* Copper concentrate: Once "ore" has been extracted from a mine and dressed, the grade of copper is then improved to produce "concentrate." Materials imported domestically are known as "copper concentrate."

Overseas copper mines and development projects



* Figures indicate ownership interest in mines and development projects

For a Stable Supply of Cement

To achieve a stable supply of cement, the stable operation of cement production equipment is crucial. In particular, it is important to ensure the long-term stable operation of the cement kiln (90 m length, 5 m diameter, lined with fire brick), which fires cement raw materials at 1450°C to produce the intermediate product clinker. The cement industry has previously sought to expand the processing of a range of industrial waste, and in recent years, the use of waste plastic, which can replace thermal heat in the cement kilns, has increased. In connection with this, the lifespan of the fire brick inside the kilns has become shorter, making repairs necessary twice annually.

In an effort to prolong the refractory brick's lifespan, we are continuously working on the development of techniques to analyze mechanical stress which causes damage to refractory bricks, the measures against faults that reduce the fluctuations in thermal load accompanied by faults, and the selection of suitable refractories. In fiscal 2019, one of the five cement kilns at the Kyushu Plant (Kanda) achieved one year continuous operation without requiring any repairs to the refractory bricks, which was also achieved in fiscal 2018. We are planning to introduce high-efficiency burners in fiscal 2020 to improve the combustibility of waste plastic and others. We will continue striving to promote the further stability of cement kiln operations.

Securing Stable Products Supplies: Cemented Carbide Products

Over 80% of worldwide demand for tungsten, the main raw material used in our cemented carbide products, is supplied by China. Although the balance of supply and demand has eased somewhat for the time being, due in part of changes in the external environment with regard to resource policy, the scarcity of tungsten as a rare metal remains largely unchanged. We remain committed to expanding recycling initiatives in the future too.

In Pursuit of a Recycling-Oriented Business Model

Purpose of activities	Activities during fiscal 2019	Self-assessment	Targets/plans for activities from fiscal 2020 onwards
<ul style="list-style-type: none"> Steadily processing industrial waste as raw materials (Cement Business) 	<ul style="list-style-type: none"> Biomass and low-cost alternative thermal energy resources increased by 11,599 tons from the previous year Accepted 1,127 tons of incineration fly ash after the commencement of operation of facilities 	A	<ul style="list-style-type: none"> Increase the usage of waste plastic by introducing high-efficiency kiln burners Look for new biomass and low-cost alternative thermal energy resources and expand acceptance of such energy Increase waste utilization through fully automated analytical equipment
<ul style="list-style-type: none"> Expanding recycling operations (Metals Business) 	<ul style="list-style-type: none"> Expand high-grade E-Scrap collection and processing 	B	<ul style="list-style-type: none"> Optimization of Material Flow Associated with Expansion of the Recycling Business
<ul style="list-style-type: none"> Promoting recycling of tungsten (Advanced Materials & Tools Business) 	<ul style="list-style-type: none"> The amount of collected scrap increased (by 45% from the fiscal 2018 level) Recycling rate increased (by 39% from the fiscal 2018 level) 	A	<ul style="list-style-type: none"> Increase the recycling rate (above the fiscal 2019 level) Use more recycling manufacturers (than the current level)
<ul style="list-style-type: none"> Promoting recycling of fluorine resources (Advanced Products (Electronic Materials & Components)) 	<ul style="list-style-type: none"> The amount of recycling was 3,700 tons/year, 10% above the plan Material recycling rate was 20%, 5% above the plan 	A	<ul style="list-style-type: none"> Work to steadily recycle the full volume as client operating rates are high and the volumes brought in are expected to exceed projected volumes
<ul style="list-style-type: none"> Facilitating the 3Rs as part of aluminum can operations (Advanced Products (Aluminum)) 	<ul style="list-style-type: none"> Continued to provide internal support for Universal Can Corporation in line with the Japan Aluminum Can Recycling Association's third voluntary action plan to promote the 3Rs via aluminum beverage cans 	A	<ul style="list-style-type: none"> Provide lateral support to further improve the aluminum-can recovery rate of Universal Can Corporation
<ul style="list-style-type: none"> Advancement of Home Appliances Recycling Aiming for No.1 handling company of E-Scrap in Japan (Environment & Energy Business) 	<ul style="list-style-type: none"> Development of an air-conditioner indoor unit disassembly machine increased productivity by 40% Successfully established an integrated processing system from mixed resins through polypropylene raw material pellets Demonstrated advanced recycling of collected items from home appliances recycling by utilizing automobile recycling facilities 	A	<ul style="list-style-type: none"> Promotion of labor saving and efficient recycling by developing dismantling technologies Promotion of advanced recycling of items recovered at home appliance recycling plants Achieve greater synergy between home appliance and automobile recycling

Self-assessment grades A: Target achieved B: Target mostly achieved C: Target not achieved

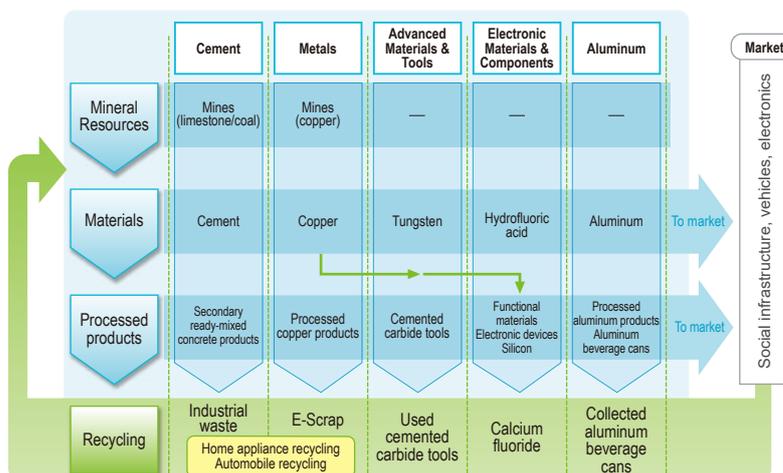
Recycling-Oriented Business Model

Overview of our Recycling-Oriented Business Model

The Mitsubishi Materials Group is a complex corporate entity encompassing a wide range of technologies and expertise, from resources upstream to materials midstream to processed products downstream. We have continued to make the most of those capabilities on a groupwide scale, in an effort to establish a recycling-oriented business model based on recovering resources from a wide range of waste products.

We strive to create cyclical value chains in each of our businesses, so that resources and materials are processed into products and then recycled back into materials. As well as enabling sustainable growth, this also helps to promote recycling-oriented social systems.

■ Recycling-oriented business model (by segment)



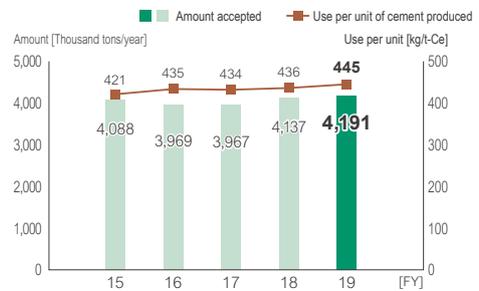
Recycling in Individual Businesses

Cement // Recycling Industrial Waste and Byproducts

Using a burning process that reaches temperatures of 1,450°C, our cement plants detoxify and make effective use of industrial waste and other difficult-to-treat materials without generating any waste. As well as using substances such as construction sludge, coal ash, copper slag byproducts from copper smelters, and gypsum as raw materials, we also turn materials such as plastic, tires and wood back into cement, by using them as a source of thermal energy.

To deal with chlorine contained in waste products, which can affect plant operations and the quality of cement, we have installed and continue to upgrade high performance chlorine bypass facilities at each of our plants. To further promote the effective use of waste products meanwhile, we are committed to strengthening the capabilities of our waste processing facilities, through measures such as upgrading pre-treatment facilities for waste plastic and processing facilities for waste gypsum board.

■ Amount accepted and volume of per unit production of waste and byproducts

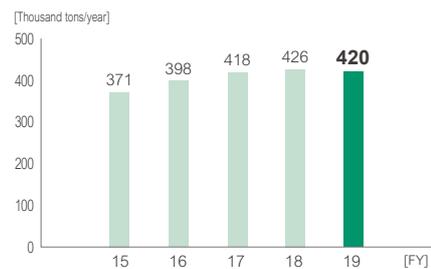


Metals // Recycling Scrap

We use smelting technology for the purpose of recycling at our smelters and refineries. We take in a wide variety of scrap, including shredder dust and used batteries from sources such as used home appliances or scrap vehicles, and E-Scrap from sources such as used substrates and connectors. We then recycle scrap, by using it for raw materials or thermal energy, and recover valuable metals.

We also take in clinker dust, as a byproduct from our cement plants, and use components such as calcium as auxiliary raw materials for smelting. After use, clinker dust turns into copper slag, which is then recycled back into raw materials at our cement plants.

■ Volume of scrap processed



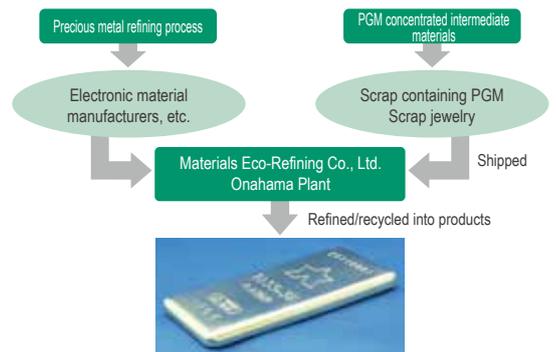
Metals // Recycling Rare Metals

PGM* are rare metals that are found in copper concentrate. Group company Materials Eco-Refining Co., Ltd. refines PGM intermediate materials obtained from our Naoshima Smelter & Refinery, to create products such as metals and chemical compounds.

Platinum and palladium in particular are key materials in the automotive, electric and electronic sectors. With that in mind, we applied to register our brand with the London Platinum and Palladium Market (LPPM), as a means of offering market assurance, and successfully obtained certification in September 2012. We are determined to keep on improving the quality of our products, and make every effort to ensure stable supplies of rare metals.

* PGM: Platinum Group Metals

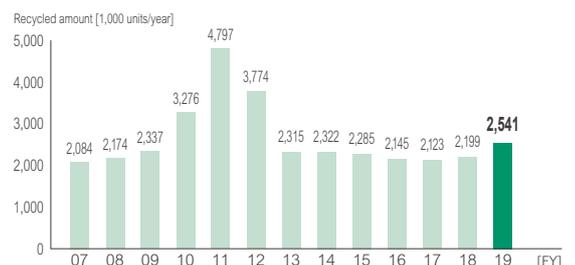
■ The rare metal recycling process



Environment & Energy // Home Appliances Recycling

Home appliances are made by combinations of various materials such as glass, plastic and rubber as well as metals such as steel, aluminum, and copper. Home appliances are first of all disassembled manually, then crushed and sorted at our home appliances recycling plants. We have adopted several advanced sorting process for components and materials, and are always trying to create more value from recovered materials and to improve recycling efficiency. We recover copper and other precious metals from recovered copper-based materials and printed circuit boards in our copper smelting process. Thus, we maximize the effect of synergies within our group. In fiscal 2019, we recycled 2,541 thousand units of home appliances at six plants of our five affiliated companies. Recycling of this volume could reduce landfill disposal equivalent to approximately 110,000 tons.

■ Trend of recycled amount



Advanced Materials & Tools // Recycling Tungsten from Urban Mines

Waste containing rare metals is often found in the form of “urban mines,” which contain such a high percentage of rare metals that it is possible to extract them more efficiently than obtaining metals from natural resources. A prime example is tungsten, the main raw material used in cemented carbide products. Making the most of the Mitsubishi Materials Group’s comprehensive capabilities as a manufacturer, from raw materials through to finished products, we are currently focusing on recycling used cemented carbide products in an effort to secure stable supplies of raw materials.

Advanced Products (Electronic Materials & Components) // Recycling Fluorine Resources

We manufacture a range of fluorine compounds at Group company Mitsubishi Materials Electronic Chemicals Co., Ltd., including materials for use in semiconductor manufacturing, and materials that function as flame retardants and antistatic agents, as well as hydrofluoric acid. We also recover calcium fluoride sludge produced by companies using fluorine compounds. We have been recycling sludge back into fluorine resources that can be used as alternative raw materials for fluorite ever since fiscal 2007, and are now able to substitute a high percentage of resources as part of our operations. We remain fully committed to recycling fluorine resources in the future, through continued technical innovation.

Advanced Products (Aluminum) // Recycling Aluminum Beverage Cans

We have been operating a total CAN TO CAN recycling system within the Mitsubishi Materials Group (Universal Can Corp. and Mitsubishi Aluminum Co., Ltd.), based on a cycle of can manufacturing, collecting, melting, casting and rolling, for over 40 years now. Our system is uniquely integrated within the group and enables us to process used beverage cans (UBC) on a leading scale domestically, thereby helping to conserve aluminum resources. We also do our bit to prevent global warming by manufacturing slabs of recycled aluminum from UBC. As this only requires about 3% as much energy as manufacturing aluminum from scratch, it enables us to substantially reduce energy consumption, and it also enables us to contribute to preventing global warming.



TOPICS Aluminum Beverage Can Recycling that Responds to the Need to Conserve the Global Environment

Aluminum beverage can recycling has its long history. At the Mitsubishi Materials Group, we proactively recycle aluminum beverage cans, thereby contributing to the conservation of the global environment.

According to a survey by the Japan Aluminum Beverage Cans Recycling Association, the recycling rate of used aluminum beverage cans in Japan has remained high for more than 10 years, exceeding 90% (93.6% in fiscal 2019). Some used beverage cans are exported overseas even where they are reused appropriately.

More than 70% (71.4% in fiscal 2019) of aluminum beverage cans recycled in Japan are reused as new aluminum beverage cans (Can-to-Can recycling). This rate is outstandingly higher than that of PET-to-PET recycling, which has been below 30% (24.6% in fiscal 2018: Data from The Council for PET Bottle Recycling).

The amount of energy consumed to recycle used aluminum beverage cans into new aluminum ingots is much lower, at only approx. 3% than that consumed to make new ingots through the process of smelting and refining aluminum ores (bauxite). Accordingly, CO₂ emissions from the generation of electric power needed for recycling are quite low.

As seen above, aluminum beverage can recycling, which is already established as a stable social system, is a versatile approach to reducing waste, conserving resources and energy, preventing global warming, and presenting solutions to the recent concerns over marine plastic pollution.



Smelting and Cement Recycling System

Recycling Resources with No Need for Landfill Sites

Operating our Smelting and Cement Recycling System

As a result of an increasing volume and variety of waste products, Japan is facing issues such as a growing percentage of difficult-to-treat materials, and pressure on landfill sites. Recovering and recycling waste without producing secondary waste has therefore become a top priority.

As one of very few companies in the world that has both nonferrous smelting and cement plants, we run a combined smelting and cement recycling system as part of our environmental recycling operations here at the Mitsubishi Materials Group, in an effort to help establish a recycling-oriented society. Our smelting plants use byproducts generated by our cement plants as raw materials, and vice versa, enabling us to recycle waste without any need for landfill sites. One of the byproducts we generate at our smelting plants is copper slag, which is increasingly being used as an aggregate for heavyweight and other concretes, as part of construction work to better prepare Japan for tsunamis and other natural disasters.

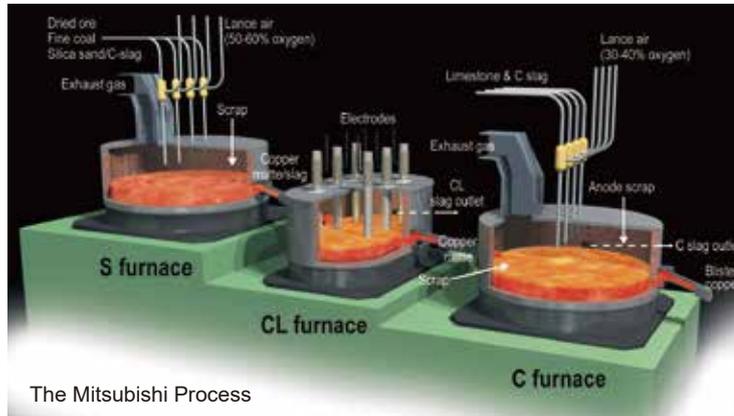
Making the most of this system, which enables us to process E-Scrap, used home appliances, scrap vehicles, batteries and various other types of waste, we have also started to recycle difficult-to-treat waste such as rubble from disaster areas and waste plasterboard. We use unique technologies at our cement plants in particular to recycle waste plasterboard into raw materials for cement, and are working to reinforce our processing capabilities even further.



Smelter & Refinery Recycling resources from urban mines

■ **The Mitsubishi Process**

Our unique Mitsubishi Continuous Copper Smelting and Converting Process (Mitsubishi Process) is a highly efficient copper manufacturing process that has exceptionally low environmental impact. We put copper concentrate through a series of three connected furnaces connected by pipes to produce blister copper (98.5% purity). The required facilities are compact and also help to save energy and cut costs.

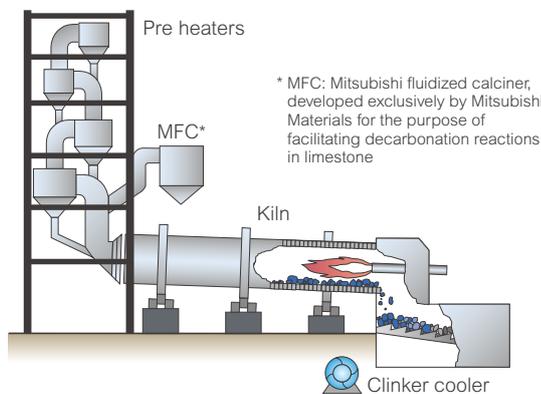
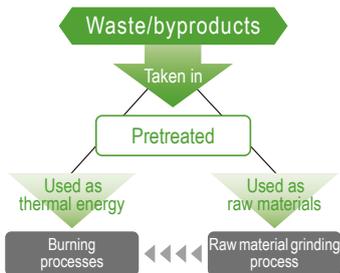


The Mitsubishi Process

Cement plants Taking in, decontaminating and stabilizing Cement plants difficult-to-treat waste from other industries

■ **High Temperature Burning Process**

Raw materials (including wastes and byproducts) are prepared during the raw material grinding process and then sintered at high temperatures to produce a hydraulic mineral during the burning process. Once the raw mixture has reached the maximum temperature (1,450°C) and a series of chemical reactions are completed, it is quickly cooled into an intermediate product called clinker.



[Key features of waste treatment at our cement plants]

- Capacity to treat large volumes of waste
- Detoxification of waste products
- No secondary waste (extending life span of landfill sites)

Home appliance recycling plants Used home appliances are disassembled and almost all of the recovered items are supplied as materials.

■ **Reduction in Environmental Impact due to Recycling Home Appliances (LCA analysis for FY2019)**

If recycling home appliances, so that resources are recovered from used appliances and reused as new materials

	Effect	Total
Compared to sending used appliances to landfill and manufacturing new materials from natural resources	Reduction in CO ₂ emissions	128,000 tons
	Reduction in consumption of natural resources	132,000 tons
	Reduction in energy consumption	61,000 tons
	Reduction in waste sent to landfill	113,000 tons



Recycling process of refrigerators

The above table does not take into account the impact of recovering fluorocarbons*. Expressed in terms of CO₂ emissions, recovering approximately 522 tons of fluorocarbons would equate to a reduction of approximately 1,340,000 tons.

* Fluorocarbons refrigerants used in air conditionings, refrigerators and washing machines, and fluorocarbons insulation materials used in refrigerators

Environmental Management

Purpose of activities	Activities during fiscal 2019	Self-assessment	Targets/plans for activities from fiscal 2020 onwards
<ul style="list-style-type: none"> Complying with environmental legislation Continuing to reduce environmental impact 	<ul style="list-style-type: none"> Strengthen efforts to observe environmental legislation (introducing legal compliance check sheets, etc.) Step up education on environmental legislation 	A	<ul style="list-style-type: none"> Strengthen efforts to observe environmental legislation Step up education on environmental legislation

Self-assessment grades A: Target achieved B: Target mostly achieved C: Target not achieved

Environment Policy

Based on our Corporate Philosophy "For People, Society and the Earth," we recognize the importance of environmental preservation on a global scale and strive to contribute to the creation of a sustainable society through our business activities.

As a comprehensive materials manufacturer, with operations ranging from cement, metals and metalworking through to electronic materials and components, we supply many of the basic materials and products that are essential to our industrialized society. Indeed, our materials and products are widely used in many aspects of daily life.

Whereas operations within the materials industry inevitably have a high environmental impact at the manufacturing stages, they also present opportunities to effectively harness and recycle resources through initiatives at the waste processing and recycling stages.

We take the environment into consideration in everything that we do and are committed to environmental management, capitalizing on the nature of our operations to strike a balance between business and the environment. With that basic philosophy in mind, we are determined to do our bit to help create a recycling oriented society that has a low impact on the environment, through strict legal compliance and operations such as supplying and recycling essential everyday materials and products.

We are engaged in the following initiatives to achieve those objectives.

1. Promote environmental management

We will effectively harness environmental management systems, expand environmental education and take every possible opportunity to raise awareness of environmental management so as to ensure that it is put into practice by each and every employee.

2. Reduce environmental impact

We will make every effort to reduce greenhouse gases, waste, hazardous chemicals and other forms of environmental impact resulting from the consumption of energy and other resources at every stage of our business activities in an effort to preserve the environment. We will also focus on promoting green procurement and developing environmentally friendly materials, products and technologies and make every effort to minimize environmental risks through initiatives aimed at preventing environmental pollution and accidents.

3. Contribute to the creation of a recycling-oriented society

We will make the most of the technologies and facilities at our disposal, based on the nature of the Mitsubishi Materials Group's operations, in order to process and recycle resources from waste and promote other forms of recycling. We will also do our bit to promote a recycling-oriented society through initiatives such as increasing usage of renewable energy.

4. Preserve biodiversity

We recognize that biodiversity is one of the cornerstones of a sustainable society, not least in terms of natural resource development, and will ensure that our business activities remain in harmony with society and the natural environment, taking ecosystems into consideration every step of the way.

5. Help to create a low-carbon society

We will develop and get involved in materials, products and technologies that help to reduce energy consumption and prevent global warming in an effort to help create a sustainable low-carbon society. We will also proceed with forest development with the aim of making a greater contribution to CO₂ fixation (absorption) at forests owned by Mitsubishi Materials.

6. Coexist with local communities

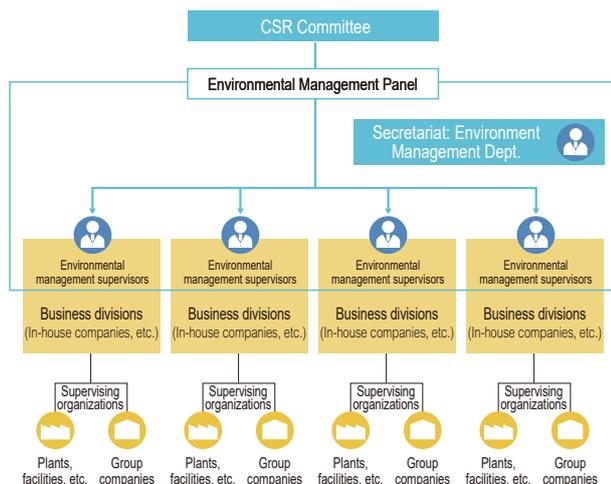
We will maintain close communication with local communities and work together to preserve the environment based on conditions in each area.

Framework

We have introduced environmental management systems throughout the group, including ISO 14001, and carry out environmental preservation activities based on specific factors such as the nature of our diverse business activities and the local area. When dealing with cross-sectional issues, we discuss options via the Environmental Management Panel, one of the dedicated subcommittees that form a part of our CSR Committee, then implement measures as necessary.

As a licensed waste treatment business, we recycle waste products generated domestically into raw materials and thermal energy for use in smelting copper and manufacturing cement in particular. We have positioned waste management as one of our top priorities and make every effort to ensure legal compliance across the board, from head office to individual facilities. That includes using tools such as waste management manuals and self-check sheets, and operating a consultation desk at head office.

■ Environmental management system



Environmental Preservation

Ensuring that environmental management is carried out appropriately requires full awareness among managers about the importance of protecting the environment as well as proper understanding of the staff on the legislative requirements. Therefore, we provide ongoing staff training in pollution prevention and proper waste management, as well as training for developing ISO 14001 internal environmental auditors.

In response to the revision to ISO 14001 in fiscal 2016, we provide training to facilitate the transition to the revised standards.

Environmental Management Training

Management-level staff at our various facilities receive education designed to improve their understanding of pollution prevention management systems, and other basic management requirements from an environmental management perspective.

Seminars were organized for environmental management supervisors at individual facilities to clarify legislation such as the Air Pollution Control Act and the Water Pollution Control Act.

Waste Management Training

This training is provided to staff that are responsible for waste management and those in charge of practical operations related to waste at our various facilities. For staff responsible for waste management, we provide training to understand waste risks and roles that waste managers are expected to fulfill by introducing the latest waste management case examples, among others. For staff in charge of practical operations, we organize seminars for understanding the specific regulations of the Waste Management and Public Cleansing Act that are imposed on waste generators. We also deliver information about waste regulations and similar issues on a regular basis to improve the level of our staff in charge of practical operations.

Internal Environmental Auditor Training

We have introduced environmental management systems in accordance with ISO 14001, and organize seminars to train internal environmental auditors.

Training is focused on practical matters, including learning about ISO 14001 aspects and environmental legislation, identifying environmental concerns and applicable legislation, devising ways of reducing environmental impact, and checking for nonconformity.

■ Environmental education in FY2019

		Participants
Environmental management training	Managers	66
	Supervisors	181
Waste management training		76
Training for internal environmental auditors		76

Compliance with Environmental Laws and Regulations

We keep employees up to date on changes in legislation applied to the Mitsubishi Materials Group by providing information via intranet or email. In the event of major revisions or revisions requiring measures such as equipment upgrades, we organize explanatory meetings to provide information on the requisite measures and ensure that all our facilities are prepared to take appropriate action.

Laws and regulations that currently apply are checked at each facility. In addition, the Internal Audit Department conducts environmental audits to check the status of compliance with environmental legislation, how chemicals are handled, how equipment is managed, and others. Any noncompliance found in the audits is corrected promptly and shared with related facilities as part of our efforts to improve the level of management in the overall Group. In the event of installation of new equipment, equipment upgrades, or any other projects involving new operations of a certain scale, individual facilities determine what notifications the regulations require them to submit, and confirmation is also made by relevant divisions.

Status of Compliance with Environmental Laws and Regulations

With regard to our compliance with environment-related laws and regulations in fiscal 2019, we were not subject to any adverse dispositions (revoked permits, orders to cease operations, orders to stop use of equipment, fines, etc.) by regulatory authorities.

Moreover, we received 11 complaints to noise, suspended dust, vibrations, etc. For all of these we immediately investigated the causes and implemented the necessary countermeasures.

Dealing with Environmental Risks

In accordance with our Environmental Policy, we identify environmental risks to the Mitsubishi Materials Group from a broad perspective and take measures to prevent such risks from materializing.

If harmful substances leak, or waste products are treated in an inadequate manner, there is a risk that they could have a detrimental impact on the environment, as well as having a serious effect on our business activities as a group. We carry out risk assessments in line with the nature of our business activities, the substances that we handle, and the location of individual facilities, and take action as necessary. As well as preventing inadequate waste treatment at our own facilities, we also take steps to ensure that we do not overlook inadequate treatment by contractors through on-site confirmation. Moreover, we continue to manage mines that we excavated in the past to prevent mining-induced pollution. (→ p. 40-41 “Managing Abandoned Mine”)

At mines from which the Mitsubishi Materials Group procures raw materials (such as ores), we have introduced and observe standards for confirming that biodiversity is preserved. In addition, we strive to maintain and restore biodiversity in forests and at other sites that are managed by the Group. (→ p. 66-67 “Copper Product Raw Material Procurement Initiatives” and p. 46-49 Sustainable Management and Operation of Company-Owned Forests”)

To reduce climate change risks, we take multiple approaches to save energy and reduce CO₂ emissions. We also study technologies for CO₂ capture and storage and generate renewable energy. (→ p. 36 “For Capture and Storage and Effective Use of Carbon Dioxide” and p. 37-38 “Producing Renewable Energy”)

In addition, with regard to the risk that declining freshwater resources could impact our business activities, we conduct risk assessments of major facilities in Japan and overseas and take measures including the effective utilization of seawater, saving water by improving the efficiency of the production process, water recycling, and ensuring that wastewater is treated and purified. Freshwater is precious in Naoshima (Kagawa), because the island is surrounded by the sea. Therefore, at Naoshima Smelter & Refinery, we make effective use of rainwater and water recovered from municipal sewage as industrial water and operate a seawater desalination system to overcome the water shortage.

Environmental Accounting

In fiscal 2019, we invested approximately ¥1.7 billion in areas such as capital investments, including the partial renewal of equipment at copper smelting facilities.

Costs associated with environmental preservation came to ¥6.1 billion, including environmental measures, and maintenance and management of equipment to prevent pollution.

■ Spending on environmental preservation in FY2019 [Million yen]

Category	Investment Amount	Expense Amount
Business area costs	1,541	5,763
Pollution prevention costs	867	2,608
Global environmental conservation costs	457	250
Resource recycling costs	217	2,905
Upstream/downstream costs	0	0
Administration costs	142	295
R&D costs	4	28
Social activity costs	0	11
Environmental remediation costs	9	101

* Calculations are based on the 2005 version of the Environmental Accounting Guidelines published by the Ministry of the Environment.
* Figures refer to Mitsubishi Materials on a non-consolidated basis.

Overall Environmental Impact

INPUT



Total Energy Input*
» 41.6 PJ
 (Equivalent to 1.07 million kiloliters of crude oil)



Raw Material Input*
» 18.3 million t
 (Volume of incoming recycled resources: 3.6 million t)



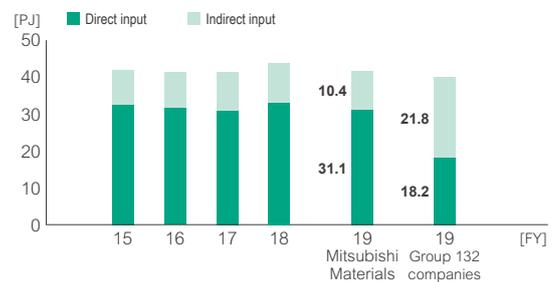
Water Use*
» 421 million m³
 (Salt water: 407 million m³) (Fresh water: 14 million m³)

(All values above are on a non-consolidated basis)



Total Energy Input*

The fiscal 2019 total energy input (non-consolidated) had decreased by about 3% (1.4 petajoules: crude oil equivalent of 35 thousand kiloliters) compared to fiscal 2018. This was largely due to the increased volume of waste plastic used at the Kyushu Plant in fiscal 2019 and the increased production rate of cement with a high ratio of byproducts, which permitted fuel substitution to make progress. Energy unit consumption improved by 2.7% compared to fiscal 2018.

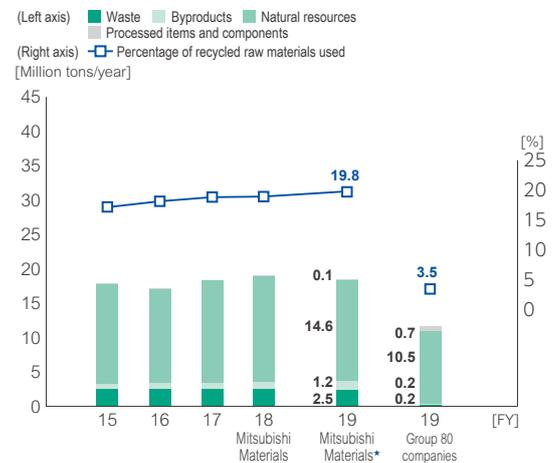


* 1 PJ (peta joules) = 10¹⁵ J = 1,000 TJ (tera joules)



Raw Material Input

In fiscal 2019, we used a total of 3.6 million tons of waste and byproducts (similar to the previous year) at Mitsubishi Materials, which is roughly 20% of the total raw material input of 18.3 million tons.

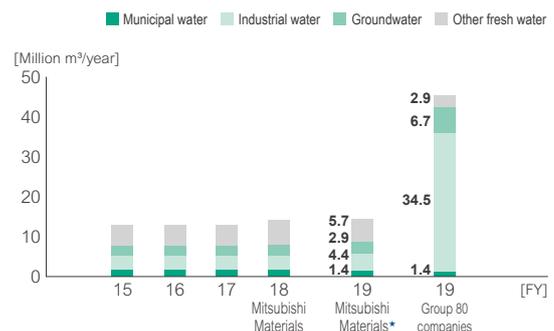


* Natural resources include limestone procured from Group mines



Water Use

The vast majority of the water we consume is seawater used as cooling water thermal power generation facilities at our cement plants and copper plants. We used a total of 421 million m³ of water at Mitsubishi Materials during fiscal 2019. Of the total water consumption volume, only 14.4 million m³ (3% increase from the previous year) was fresh water.



* Excluding fresh water used in hydroelectric power generation
 * Excluding seawater used for cooling

OUTPUT



Greenhouse Gas Emissions*
 » **7,933** thousand t
 CO₂ equivalent



Emissions into the Air and Bodies of Water*
 » Airborne emissions
 SOx: **813** t NOx: **10,932** t
 » Water emissions
 BOD: **32** t COD: **25** t Nitrogen: **148** t



Water discharged*
 » **418** million m³
 (Discharged into sea: 409 million m³
 Discharged into other bodies of water: 8 million m³)



Volume of Industrial Waste*
 » **13.8** thousand t
 (7.7 thousand t of which was recycled)



Chemicals Released or Transferred*
 » Released: **64** t Transferred: **33** t

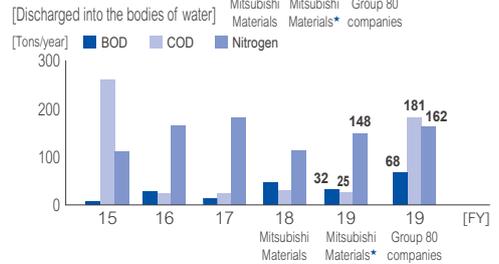
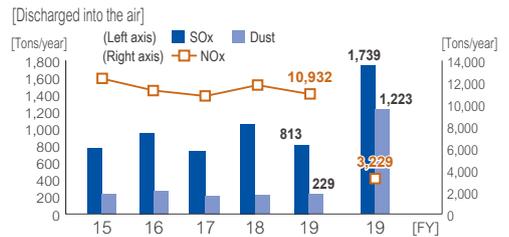
(All values above are on a non-consolidated basis)



Emissions into the Air and Bodies of Water

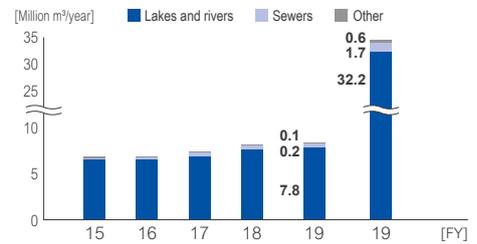
In fiscal 2019, the Company's non-consolidated SOx emissions decreased by about 22% on the previous year and NOx emissions by about 7%. The decrease in SOx was due to the use of less fuel oil at our copper smelters. The decrease in NOx was due to the reduction of production volume in our cement business.

* COD figures exclude COD contained in seawater used for cooling, due to changes to the scope of calculations from fiscal 2016 onwards.



Water Discharged

The volume of water discharged by Mitsubishi Materials (excluding water drained into the sea) totaled approximately 8 million m³, roughly the same as the previous year. Of the 409 million m³ of water drained into the sea by Mitsubishi Materials, the vast majority was seawater that had been used as once-through cooling water.

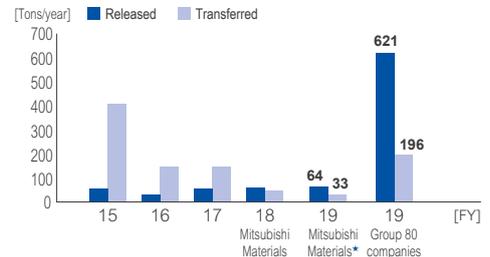


* Excluding water drained into the sea



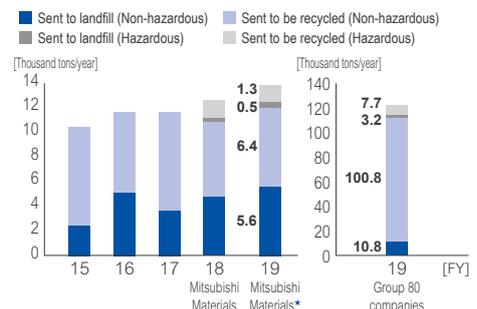
Chemicals Released or Transferred

At about 64 tons, the Company's non-consolidated emissions were at a level similar to the previous year. The transferred amount decreased slightly to about 33 tons due to the reduction in production volume.



Volume of Industrial Waste

The volume of waste sent to landfills by Mitsubishi Materials in fiscal 2019 increased by around 19% from the previous year, to approximately 6.1 thousand tons, due in part to the increase in production volume. The total volume of waste for the Group as a whole, including Mitsubishi Materials, came to approximately 136 thousand tons, of which around 80% was recycled. Starting from fiscal 2018, we differentiate final waste disposal volumes and resource recovery volumes between hazardous and non-hazardous waste. The Company's non-consolidated volume of hazardous waste was 1.9 thousand tons, a level similar to the previous year, of which around 70% was recycled.



Preventing Global Warming

Policy and Framework for Tackling Climate Change

There is no longer any doubt that global warming is caused by greenhouse gas emissions from human activities. Damage from extreme weather events (such as storms, flooding and drought) are growing in both frequency and scale, and there is growing concern over their risk to the global economy.

Our cement business not only produce CO₂ through their use of energy sources, but they also produce CO₂ emissions through the thermal decomposition of limestone, the main raw material in cement production.

Any tightening of regulations on greenhouse gas emissions (including emissions trading schemes) could therefore pose a considerable financial risk to the Group. At the same time, however, demand for technologies and products that contribute to saving energy and reducing CO₂ emissions is expected to grow, creating more future business opportunities as a result. We are also proactively developing damage prevention measures with respect to heavy rainfall and storm surges associated with extreme weather.

Hereafter, initiatives for significantly reducing greenhouse gas emissions will be promoted worldwide by setting long-term targets in accordance with the Paris Agreement. In April 2019, we established the Sustainable Development Department under the Corporate Strategy Department to plan and promote strategic initiatives on risks and opportunities related to global warming by linking them with a company-wide management strategy. Moving forward, the Sustainable Development Department will plan policies on tackling climate change and our Global Environment and Energy Committee (chaired by the Director & Managing Executive Officer), which is comprised of members of the Executive Officers' Meeting including the President, will take the initiative from the comprehensive medium- and long-term perspective.

Risks and Opportunities Related to Climate Change and Water Risks

Risks related to climate change at each facility, including water risks associated with disastrous extreme weather events such as superstorms, floods, and drought, etc. are covered by the risk management activities of the Group. Risks are identified by the overall Group, and measures including risk reduction are taken throughout the year. The details of risk management activities are shared with the management and corporate division as well. The progress of those activities is monitored on a quarterly basis by the Committee for Monitoring of Measures to Enhance Governance, which consists of external directors, the Board of Directors, internal audits, and others, thereby ensuring appropriate PDCA management.

The Sustainable Development Dept. and Energy Dept. work with related divisions to regularly monitor the trends of physical risks and the transition risks of climate change, identify significant risks including those that are highly relevant to financial risks, and report them to the responsible executive officer. Actions against identified risks are reflected in the budget and approved at the meeting of the Global Environment and Energy Committee or an executive officers' meeting before they are implemented.

On the other hand, climate change is also likely to lead to new business opportunities because it is expected to increase demand for technologies and products that contribute to saving energy or reducing CO₂ emissions. In developing a medium- to long-term management strategy, the Corporate Strategy Dept. of the Corporate Strategy Div. collects information about these opportunities from business divisions. It then prepares a medium- to long-term vision, sets targets, and manages the progress.

We stably produce clean electricity through renewable energy business (including the hydroelectric power generation business, geothermal power generation business, and solar power generation business).

We also own around 14,000 hectares of forestland in Japan, mainly in Hokkaido, making us one of the largest owners of forestland in the country. We are managing the forests for the purpose of harnessing their diverse public interest functions, including not only the production of lumber as a renewable resource but also the prevention of global warming through CO₂ fixation and the conservation of biodiversity.

Comprehensive Initiatives Aimed at Preventing Global Warming and Establishing a Recycling-Oriented Society

The Group's efforts to realize a sustainable society include establishing global warming prevention targets to be met by 2020 and acting on our total commitment to achieving higher energy efficiency through such means as actively pursuing energy saving at our facilities. We are monitoring progress toward achieving our targets at 13 facilities (with five plants counted as one in the cement business). Our performance in fiscal 2019 registered 100% or higher achievement of our targets at 3 facilities but under 50% at the remaining sites. In addition to pursuing CO₂ reduction initiatives, we are working to achieve clearly defined targets, such as effective use of recycled resources, aimed at contributing to a recycling-oriented society.

Environmental education in FY2019

Sector	Applicability	Details	Preventing global warming		Creating a recycling-oriented society/contributing to the environment	
			Targets	Results/Progress	Targets	Results/Progress
Advanced Products	Sakai Plant	Upgrade equipment to energy saving models as part of manufacturing processes for copper and brass materials, copper alloys and processed copper products.	• Energy consumption per unit Reduction of 1% per year (14% overall reduction compared to FY2006)	4.1% increase compared to FY2006 (Milestone: 12.1% decrease) -34%	• Waste oil/acid Reduction of 40% (compared to FY2006)	208% increase (Milestone: 34.6% decrease) -601%
	Yokkaichi Plant	Upgrade refrigeration systems and other equipment to energy saving models as part of the manufacturing process for silicon products, and improve treatment processes for wastewater.	• Energy consumption per unit Reduction of 1% per year (14% overall reduction compared to FY2006)	7.5% increase compared to FY2006 (Milestone: 12.1% decrease) -62%	• Industrial waste generated per unit (tons per ton-products) Reduction of 56.3% (compared to FY2006)	46.8% decrease (Milestone: 48.8% decrease) ☆☆☆ 96%
	Ceramics Plant	Upgrade air conditioning systems and other equipment to energy saving models as part of the manufacturing process for electronic devices. Develop commercial temperature sensors for motorcycles.	• CO ₂ per unit Reduction of 30.8% (compared to FY2006)	58.1% decrease compared to FY2006 (Milestone: 26.7% decrease) ☆☆☆☆ 216%	• Number of environmentally friendly products At least one per year	1 or more cases/year → Completion of development and launch of BLE module ☆☆☆☆ 100%
	Sanda Plant	Upgrade coolant water systems and other equipment to energy saving models as part of the manufacturing process for functional materials. Continue to develop next generation components for high efficiency inverters.	• Energy consumption per unit Reduction of 1% per year (15% overall reduction compared to FY2006) * Specific to this plant	25.2% decrease compared to FY2006 (Milestone: 17.3% decrease) ☆☆☆☆ 146%	• Develop next generation components for high-efficiency inverters (Effect of reduction in CO ₂ emissions when using products: at least 3 times that in FY2009)	1.0 times (Milestone: 3.0 times) ☆ 33%
Advanced Materials & Tools	Tsukuba Plant	Upgrade water chillers and heaters as part of air conditioning systems, and other equipment, to energy saving models in the manufacturing process for cemented carbide tools, and improve the overall efficiency of production equipment.	• Energy consumption per unit Reduction of 20% (compared to FY2006)	15.1% increase compared to FY2006 (Milestone: 17.3% decrease) -87%	• Scrap generated Reduction of 40% (compared to FY2010)	4.1% decrease (Milestone: 35% decrease) ☆ 12%
	Gifu Plant	Upgrade compressed air systems as part of the manufacturing process for cemented carbide tools, reduce liquid waste through measures to prevent leaks, and focus on development of environmentally friendly products.	• Energy consumption per unit Reduction of 15% (compared to FY2006)	28.9% decrease compared to FY2006 (Milestone: 13% decrease) ☆☆☆☆ 222%	• Incorporate industrial waste indicators (volume of industrial waste produced per production value) into each medium-term plan, and continue to achieve 100%. • Continue to achieve targets for the number of certified environmentally friendly products set out in each medium-term plan.	31.3% decrease compared to FY2013 reference value (Milestone: 24.2% decrease) ☆☆☆☆ 129% Development theme completion (1 goal) → Leading drill series DLE and MB4120 CBN grade for sintered alloy and cast iron turning (two products) ☆☆☆☆ 200%
	Akashi Plant	Reduce losses as part of the manufacturing process for cemented carbide products, through TPM activities, and improve wastewater processes.	• Energy consumption per unit Reduction of 10% (compared to FY2011)	3.1% decrease compared to FY2011 (Milestone: 8% decrease) ☆ 39%	• COD load No more than 1 ton per year	0.444 t/year (Milestone: 0.673 t/year) ☆☆☆☆ 152%
Metals	Naoshima Smelter & Refinery	Install high-efficiency equipment, and upgrade or install heat recovery and other such equipment at copper smelting facilities, in order to improve energy efficiency. Cater to growing volumes of E-Scrap overseas, reinforce pre-treatment facilities, and step up recycling operations.	• Energy consumption per unit Reduction of 1% per year (14% overall reduction compared to FY2006)	4.7% increase compared to FY2006 (Milestone: 12.1% decrease) -39%	• Volume of E-Scrap processed over 100,000 tons per year	98,000 t/year (Milestone: 105,000 t/year) ☆☆☆ 93%
Cement	All facilities (Aomori, Iwate, Yokoze, Kyushu, Higashitani)	Improve energy efficiency steadily through the installation of energy saving equipment. Promote the use of waste and byproducts from other industries as alternative materials for cement.	• Energy consumption per unit Reduction of 1.2% (compared to FY2011)	0.8% increase compared to FY2011 (Milestone: 0.84% decrease) ☆ 96%	• Alternative waste/byproducts per unit 435 kg per ton (Baseline: 406 kg per ton) • Percentage of alternative thermal energy Increase of 2% (compared to FY2011)	445 kg/t (Milestone: 433 kg/t) ☆☆☆☆ 103% 0.7% decrease (Milestone: 1.5% increase) ☆ 47%

* We have set out the following scale to indicate progress.

☆☆☆☆: 100% or higher achievement of milestones at the end of fiscal 2019 for achieving the 2020 targets, ☆☆☆: Between 80% and 100% achievement, ☆☆: Between 50% and 80% achievement, ☆: Zero to 50% achievement

Changes in energy consumption per unit (non-consolidated)

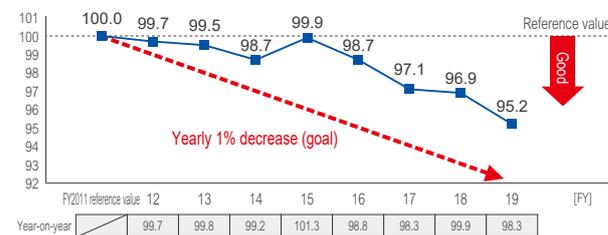


[Decrease goal]

■ FY2011 reference value

Year-on-year changes in consumption per unit for each fiscal year with FY2011 as the reference. The goal is to reduce energy consumption per unit by at least 1% from the previous fiscal year.

Changes in greenhouse gas emissions per unit (non-consolidated)



[Decrease goal]

■ FY2011 reference value

Year-on-year changes in emissions per unit for each fiscal year with FY2011 as the reference. The goal is to reduce emissions per unit by at least 1% from the previous fiscal year.

* Energy consumption per unit is calculated in accordance with the periodic report guidelines prescribed under Japan's Act on the Rational Use of Energy (Energy Conservation Act). As the Company's business is diverse, we identify a "value intimately related to energy use" for each business and use it as the denominator for calculations. We calculate each business's contribution by multiplying the year-on-year of each business's energy consumption per unit with that business's share of the Company's total energy use. The product is the Company's total consumption per unit (year-on-year). Greenhouse gas emissions per unit is calculated in the same way.

Fiscal 2019 Reduction Activities

Progress towards Targets in FY2019

As for accomplishing our Global Warming Prevention goals, we achieved at least 100% of fiscal 2019 levels for 3 out of 9 units and less than 50% for the remaining units.

As for our Building a Recycling-Oriented Society / Environmental Contributions goals, we achieved at least 100% for 5 out of 11 items and less than 50% for the remaining 4 items.

The most common reason for achieving less than 50% was that “The external environment and other operation conditions had changed from what was expected when the goals were first set.” Plants with low achievement rates are taking measures to achieve the goals.

Principal Initiatives at Each Business

We regard it as a top priority to save energy wherever possible at our manufacturing facilities and plants. That is why we are so committed to energy saving activities.

Specific activities include switching fuels, making effective use of untapped energy, upgrading processes and equipment, installing high-efficiency equipment, optimizing device specifications, and reviewing equipment controls and operating practices. We are constantly working to save energy at smaller facilities, too, including Head Office, branches, sales offices and research facilities, through measures such as installing LED lighting.

■ The Cement Business

We are working to reduce power consumption, through measures such as ensuring adequate mill maintenance, reviewing maintenance of exhaust heat power generation systems, increasing electrical equipment efficiency, and switching to LED lighting, as well as to improve energy efficiency through initiatives such as increasing the amount of alternative thermal energy sources that we use, and making energy-saving upgrades to burning equipment.

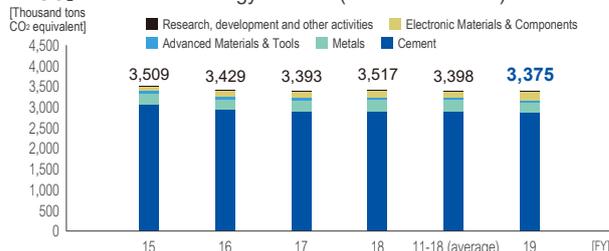
■ The Metals Business

We are working to increase energy use efficiency through measures such as saving energy from compressors and related equipment, increasing efficiency from transformers and motors, and switching to LED lighting, as well as to improve energy efficiency through initiatives such as reviewing operations for individual furnaces, in order to reduce fuel oil consumption.

■ The Advanced Products & The Advanced Materials Business

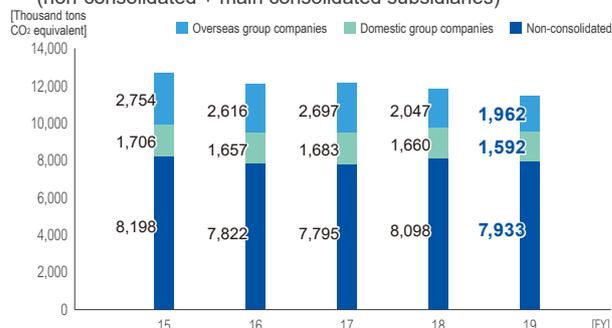
We are working to reduce power consumption through measures such as improving water pump controls, saving energy from air conditioning, refrigeration, compressors and related equipment, installing higher efficiency electrical equipment, switching to LED lighting, and upgrading various other processes, as well as to improve energy efficiency through initiatives such as optimizing controls on boilers and heat recovery equipment.

■ CO₂ derived from energy sources (non-consolidated)*



* CO₂ derived from non-energy sources comes mainly from limestone, which is used as a raw material. As it is difficult to substitute or reduce volumes of limestone, however, our emissions target covers CO₂ emissions derived from energy sources, which can be reduced by energy saving initiatives.

■ Total greenhouse gas emissions (non-consolidated + main consolidated subsidiaries)*



■ Breakdown of total emissions for Fiscal 2019*

Category		[Thousand tons CO ₂ equivalent]				
		Non-consolidated	Domestic group companies	Overseas group companies	Total companies	
SCOPE1 (direct)	From energy sources (fuel, etc.)	2,810	550	722	4,083	
	From non-energy sources	From processes	4,073	182	669	4,924
		From waste	468	253	29	750
		Greenhouse gases other than CO ₂	17	38	5	60
	(Reference) Total from non-energy sources	4,558	473	702	5,734	
Subtotal		7,368	1,023	1,425	9,816	
SCOPE2 (indirect)*	From energy sources (power, etc.)	564	570	537	1,671	
(Reference) Total from energy sources		3,375	1,119	1,259	5,753	
Total		7,933	1,592	1,962	11,487	

* “Group companies” includes 132 consolidated subsidiaries (66 domestic, 66 overseas).

* The above data has been calculated in accordance with Version 4.3.2 of the Manual for Calculating and Reporting Greenhouse Gas Emissions.

* SCOPE2 (Indirect) emissions are market-based emissions. Location-based SCOPE2 emissions are 1,735 thousand t-CO₂e.

Nineth Eco Contest

We have been running an award scheme to promote activities at facilities throughout the Mitsubishi Materials Group since fiscal 2011, aimed at preventing global warming, preserving resources, and protecting the environment. The results of our fiscal 2019 contest are outlined as follows.

■ Best location award: The Yasu Plant, Mitsubishi Hitachi Tool Engineering, Ltd.

They engaged in energy-saving activities, including switching to LED lighting, took initiatives to reduce waste, such as turning metal scrap into valuable resources, and achieved their goals. They also successfully reduced the plant's overall energy and waste unit consumption. In the development of carbide drills, they achieved outstanding improvement in performance compared to conventional products from other companies. As a result, they received in 2017 the technological achievement award from the Japan Machinery Foundation and an encouragement award in *Cho Monozukuri Buhin Taisho 2017*, an award program for excellent parts and components manufacturers hosted by the Nikkan Kogyo Shimbun. Their product acquired eco-product certification from the Japan Cutting & Wear-resistant Tool Association, highlighting their high rating in the industry, etc.

■ Environmental contribution award: the Tsukuba Plant

In the development of a CVD grade for steel turning, they reduced unit power consumption in the manufacturing process and enabled high-efficiency processing with Nano-Texture coating technology (patented), TOUGH-Grip technology (patented) for increasing the adhesion between TiCN and Al₂O₃, technology for the optimal formation of tough edge layers of special carbide substrates (patented), and technology for reducing the tensile residual stress in CVD coatings. They thus succeeded in developing environmentally friendly products that benefit users, such as reducing power consumption.

Logistic Initiatives

Our CO₂ emissions from logistics for fiscal 2019 totaled 44,856 tons for Mitsubishi Materials (up 946 tons from the previous year), and 79,443 tons for the Mitsubishi Materials Group*¹ (up 2,123 tons). Meanwhile, energy consumption per unit*² came to 16.05 kiloliters per million ton-kilometers for Mitsubishi Materials (0.7% worse than the previous year), and 20.16 kiloliters per million ton-kilometers for the group as a whole (1.5% worse than the previous year).

We will continue to promote a modal shift with a focus on long-distance transport and optimize logistics throughout the group in our efforts to build a logistics system with low environmental impact.

*1 Figures for the overall group refer to ones for six domestic group companies classified as Specified Consigners under the Act on Rational Use of Energy. The combined amount of emissions from the six companies and Mitsubishi Materials accounts for over 90% of emissions from the overall group.

*2 Value obtained by converting energy consumption into crude oil (kl) and dividing it by transportation in ton-kilometers (million ton-kilometers)

■ CO₂ emissions according to mode of transport

(Unit: Tons CO₂)

	FY2018		FY2019	
	Mitsubishi Materials	Group companies* ¹	Mitsubishi Materials	Group companies* ¹
Total	43,910	33,410	44,856	34,587
Road	8,694	26,246	9,265	27,170
Rail	1	28	1	29
Ocean	35,154	7,137	35,534	7,388
Air	61	0	56	0

For Capture and Storage and Effective Use of Carbon Dioxide

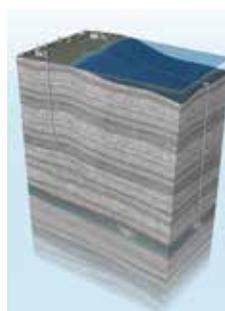
Two Approaches that Take Advantage of Technological Capability

At the Mitsubishi Materials Group, we take two approaches to study how to reduce the CO₂ emissions from production activities, by putting to good use the outstanding technologies for assessing underground structures, which we have built up since our foundation, as well as our human resources.

■ Carbon Capture and Storage (CCS)

(CCS: Carbon Capture and Storage)

In May 2008, we invested in Japan CCS Co., Ltd., which was established under the leadership of the Ministry of Economy, Trade and Industry. Through Japan CCS, we are participating in large-scale CCS demonstration testing in Tomakomai and studies into suitable locations for CO₂ storage. We are also contributing to assessment studies for CO₂ storage in an environmentally friendly CCS testing project headed by the Ministry of the Environment, which started in fiscal 2017.



Outline of CCS



Tomakomai CCS Demonstration Plant

Images and photos provided by Japan CCS Co., Ltd.

■ **Effective utilization (Carbon dioxide Capture, Utilization and Storage)**

We are taking initiatives aiming for the practical application of bioplastic materials derived from CO₂-sequestering algae.

This R&D has been adopted by the Ministry of the Environment as a “Development and Demonstration Project for Reduction of CO₂ Emission” performed by University of Tsukuba as a representative organization. We aim to realize to put “highly functional algae-derived plastic” into practice within fiscal 2022.

If cement manufacturing process as CO₂ source and algae culturing process as efficient CO₂ fixation are combined and highly functional bioplastic can be produced from emitted CO₂, it is possible to produce a substitute for petroleum-based synthetic plastics and contribute to a low-carbon, recycling society.

In collaboration with University of Tsukuba, Sobio Technologies Inc. and NEC Corporation, we are implementing joint development for practical application of this technology.



Algae culture (photosynthesis) using sunlight and CO₂ released from a cement factory



Prototype algae bioplastic

(Courtesy of the University of Tsukuba)

Producing Renewable Energy

Geothermal Power Generation Business

We stably generate environmental loading-reducing electric power through our Ohnuma Geothermal Plant and Sumikawa Geothermal Plant (steam supply only, power generated by Tohoku Electric Power Co., Inc.), both in the Hachimantai area of Kazuno, Akita prefecture. In fiscal 2019, we generated a total of 338 GWh of power, which is equivalent to a 250,000-ton reduction in CO₂ emissions compared to oil-fired power.

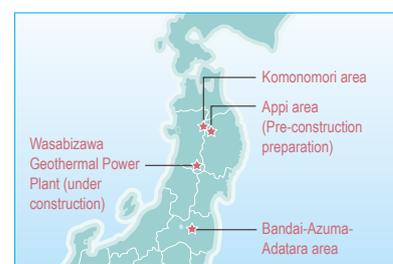
In conducting the geothermal power generation business, we have to confirm the geothermal systems of Sumikawa area, in order to maintain continual and stable supplies of steam. We are working to maintain a geothermal reservoir at the Sumikawa Geothermal Area, with the aim of increasing the amount of power generated in the future. We have been examining data, and reanalyzing geothermal systems since we started operations at the site, as we continue to focus on maintaining stable operations.

■ **Activities for New Geothermal Development**

In addition to operating existing power plants, we are currently working on new projects too. Yuzawa Geothermal Power Corporation, established jointly with Electric Power Development Co., Ltd. and Mitsubishi Gas Chemical Inc. started construction of Wasabizawa Geothermal Power Plant in May 2015 and began commercial operation of this plant on May 20, 2019. In October 2015, we established Appi Geothermal Energy Corporation in conjunction with Mitsubishi Gas Chemical Company, Inc., and went ahead with a feasibility study, including an environmental impact assessment, for the construction of a geothermal power plant in the Appi area of Hachimantai, Iwate prefecture. We were joined by Electric Power Development Co., Ltd. in June 2018. The three companies will promote commercialization and start construction work in August 2019.

We are also in the process of conducting joint surveys with other companies and in the Bandai-Azuma-Adatarara area of Fukushima prefecture. We are hoping to carry out further studies in the Komonomori area of Kazuno, Akita prefecture, providing that we can secure support from the local community.

■ **New geothermal development projects**



Hydroelectric Power Generation Businesses

We have a long history of generating hydroelectric power, dating back to 1898, when we built seven hydroelectric power plants in Akita prefecture, for the purpose of supplying enough power to run Osarizawa Mine (opened as a gold mine, later operated as a copper mine, closed in 1978) and homes in the local area. We were compensated for one of those power plants when a dam was built and the plant was submerged in 2000. The remaining six however are still operating today, selling on all of the power that they generate to a power company. Since 2014, we have successfully completed upgrades at three hydroelectric power plants, in an effort to deal with aging facilities. We successfully completed equipment updates at three hydroelectric power plants that were part of aging countermeasures started in 2014. We also completed updates at Oyu Hydroelectric Power Plant (Kazuno) in March 2018. In addition, in May 2019, we began to construct the New Komatagawa Hydroelectric Power Plant in the Komata River, a branch stream of the Ani River in the reservoirs along the Yoneshiro River in Kita-Akita City, Akita since the No. 4 Komatagawa Hydroelectric Power Plant, which was completed in 1953. We are determined to continue securing both stable operations and stable revenue in the future.

In fiscal 2019, the combined power generated by all six hydroelectric plants was 98 GWh, which is equivalent to a 70,000-ton reduction in CO₂ emissions compared to oil-fired power.



Oyu Hydroelectric Power Plant

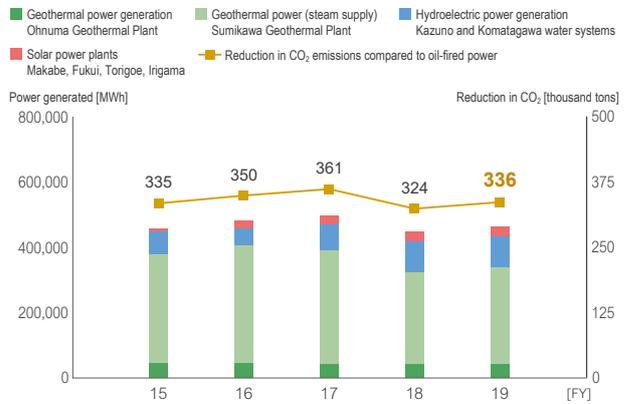
Solar Power Businesses

Having entered the solar power business in 2013, making effective use of idle group land, by 2017 we had built power plants in five locations as part of a joint venture with Mitsubishi UFJ Lease & Finance Company Limited. We are currently operating plants in Makabe (Ibaraki prefecture), Fukui, Torigoe (Fukuoka prefecture), Irigama (Miyagi prefecture), and Yabuki (Fukushima prefecture). In fiscal 2019, the combined total of power generated by all five solar power plants was 30 GWh, which is equivalent to a 20,000-ton reduction in CO₂ emissions compared to oil-fired power.



Yabuki Solar Power Plant

Reduction in CO₂ emissions using renewable energy



* The above figures have been recalculated based on the latest data published by the Central Research Institute of the Electric Power Industry (2010).

Ground Source Heat Pump Systems (GSHP)

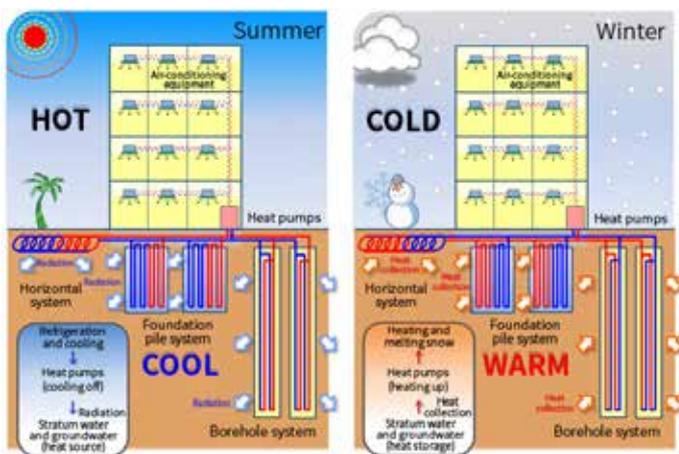
Helping to Save Energy and Reduce CO₂ through Optimized Infrastructure and Rooftop Snow-Melting Systems

Mitsubishi Materials Techno Corporation is actively working on research and development of systems capable of harnessing “ground-source heat” as a form of renewable energy. It has successfully developed commercial systems using the borehole, foundation pile and horizontal methods, with over 100 systems installed nationwide since 2003.

Through a commissioned project spearheaded by the New Energy and Industrial Technology Development Organization (NEDO), which was implemented during 2016 to 2019, Mitsubishi Materials Techno Corporation has compiled a result of the research on combining the Ground Source Heat Pump Systems with the SMW*, which is commonly used in urban construction. The report from this study shows the effectiveness for low-cost GSHP system. The company added this technology to its lineup of the ground source heat collections.

* SMW system: Method of construction that involves taking soil (S) and mixing (M) it together with cement slurry onsite, to form a connected wall (W) in the ground.

Overview of the geothermal heat pump (GeoHP) system



Examples of systems in use

	Facility	Location	Started operations
Bore hole systems	Kazuno Wide-Area Administrative Union Fire Department (air conditioning)	Kazuno, Akita prefecture	2015
	Tokyo Metro Co., Ltd. Nakano Depot (air conditioning)	Tokyo (Nakano ward)	2015
	Ishinomaki Port Government Building (air conditioning)	Ishinomaki, Miyagi prefecture	2014
	Tokyo Skytree (district heating system)	Tokyo (Sumida ward)	2012
Foundation pile systems	Akita City Hall (air conditioning, snow-melting system)	Akita, Akita prefecture	2016
	Hachimantai City Hall (air conditioning)	Hachimantai, Iwate prefecture	2014
Horizontal systems	Iyo City Office (air conditioning)	Iyo, Ehime prefecture	2017
	Setagaya-Daita Station and Higashi-Kitazawa Station (Odakyu Line) (air conditioning)	Tokyo (Setagaya ward)	2014
Open loop systems	Mitsubishi Materials Techno Corporation Kazuno office (air conditioning)	Kazuno, Akita prefecture	2015

Preventing Environmental Pollution

Preventing Air Pollution

We own cement factories, copper smelters, and other large-scale plants, which emit air pollutants such as dust, sulfur oxides (SO_x) and nitrogen oxides (NO_x), as a result of burning fossil fuels in the manufacturing process. At each plant, we strive to minimize emissions of air pollutants by improving the stability and efficiency of operations, in addition to installing advanced exhaust gas purification systems.

Preventing Water Pollution

We treat effluent appropriately at all of our facilities and manage it by imposing management targets that are even stricter than effluent standards. In addition to measures such as installing dikes to prevent chemical or oil leaks, and inspecting equipment on a daily basis, we also conduct regular training aimed at preventing the spread of substances in the event of a leak.

Chemical Management

The Group's manufacturing plants handle a diverse range of chemical substances. Each plant is taking steps to reduce usage and switch to less hazardous substances by developing processes and introducing new equipment in accordance with the characteristics of each chemical substance. We take these and other measures to minimize the emissions of hazardous chemical substances into the environment.

Waste Management

To contribute to building a resource-recycling society, we take comprehensive measures to recycle resources from waste and also engage in recycling operations.

Managing Abandoned Mine

Purpose of activities	Activities during fiscal 2019	Self-assessment	Targets/plans for activities from fiscal 2020 onwards
<ul style="list-style-type: none"> Managing abandoned mines 	<ul style="list-style-type: none"> Provided management training for abandoned mines Upgrading aging facilities Tailings dam reinforcement work 	A	<ul style="list-style-type: none"> Ongoing training of engineers managing abandoned mines Upgrading aging facilities (continued) Tailings dam reinforcement work (continued)

Self-assessment grades A: Target achieved B: Target mostly achieved C: Target not achieved

Managing Abandoned Mines

We are a company with its origins in the mining industry. The Mitsubishi Materials Group owns a wide range of mines around Japan, including limestone, coal and nonferrous metal mines, such as copper, lead and zinc mines. Operations at all of our non-ferrous metal mines have now been suspended or discontinued. Currently, we are managing 21 abandoned mines in 14 locations. We have continued to implement the following controls and management programs for our abandoned mines on a long-term basis, pursuant to Article 5 of our Code of Conduct, which states, “[Environmental Management] We will work to manage our environmental impact and promote the effective use of natural resources and recycling.”

- Management of tailings dam (sites used to store rubble from mining minerals, slag and sediment from mine drainage treatment).
- Maintenance of excavated mine drift and drainage routes; implementation of safety measures at disused mine mouths and subsidence sites.
- Treatment of acidic drainage containing heavy metals from the above sites.

We continue to preserve and maintain sections of mine drift in some abandoned mines as cultural heritage sites or tourist facilities to exhibit their former conditions and preserve historical mining technologies for future generations.

Facility Upgrading and Environmental Countermeasures for Abandoned Mines

Since 2015, our Group has been implementing responses to deteriorating natural disasters and other risks by conducting protective construction to guard against contamination and other threats, reinforcing tailing dams to prevent uncontrolled release of slag and sediment in the event of major earthquakes, reducing wastewater at the source and upgrading aging facilities and by fiscal 2019, we had completed appropriating an environmental countermeasure reserve for work expenses.

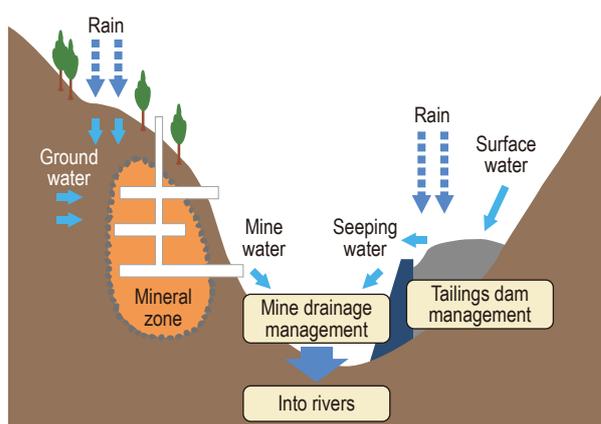
In addition to introducing these construction-based solutions, we are directing efforts toward R&D of new technologies for reducing the volume and improving the quality/treating the drainage water in mines and training human resources to handle future operations. We intend to continue our efforts to enhance efficiency and reduce the environmental burden in our management of abandoned mines.

■ Abandoned Mitsubishi Materials (non-ferrous) Mines



Overview of Acid Mine Drainage Treatment at Abandoned Mines

Broadly speaking, acid mine drainage can be generated in two ways. There is the acidic water in the pits (mine water) containing heavy metals, generated through contact between oxidized minerals and rainwater and groundwater, which can fill the underground pits and mining cavities formed in mineralized belts due to mining operations. Then there is the permeated water (wastewater) generated when small amounts of heavy metals in the tailings dams come into contact with rainwater and surface water. Heavy metals are removed from the acid mine drainage at processing plants and the water is then discharged into rivers according to wastewater standards after undergoing neutralization.



Major Management Tasks for Abandoned Mines

The Group controls acid mine drainage treatment, tailings dams, mine drifts and entrance drifts at the abandoned mines under our management. Acid mine drainage treatment control involves the appropriate processing of acid mine drainage. Tailings dam control involves preventing stored slag and sediment from leaking out in case of dam body collapse. Mine drift and entrance drift control involves inspections to maintain waterways for acid mine drainage and sealing entrances to prevent injuries due to third-party trespassing and mine drift collapse. In particular, acid mine drainage control is carried out around the clock every day of the year.



Pit waste water treatment plant at the Minami-furutobe Mine



Tailings dam management (Ikuno Mine)

Tailings Dam Reinforcement

Drawing on lessons learned from the leakage of slag and sediment from tailings dams during the Great East Japan Earthquake, the Ministry of Economy, Trade, and Industry revised its relevant technical policies in November 2012. Based on this, we evaluated the stability of the tailings dams at abandoned mines managed by the Group, which revealed that measures needed to be implemented at 10 locations. Thus, we started construction work to design and implement stability measures at the locations in fiscal 2016.



Reinforcement work by soil stabilization at the Yatani Mine Tailings Dam

Wastewater Reduction at the Source

In an effort to decrease the burden and risks of acid mine drainage due to environmental change (large-scale typhoons and guerrilla rainstorms) in recent years, we are conducting construction work to separate clear and waste waters as a way to preempt potential accidents. One way of doing this is to cover exposed surfaces of mineralized belts on a large scale, using the latest technology (chipcrete). This prevents rainwater from coming into direct contact with the mineralized belts, which is expected to reduce the amount of water to be processed as well as the burden of contamination.



Contamination containment work by slope seeding called Chip-creteat the Komagi Mine

Human Resources Development

All the Group's non-ferrous metal mines are abandoned and some time has passed since the mines were closed down. As such, we have seen a decrease in relevant human resources as engineers with skills in non-ferrous metal mining have either retired or reached advanced age. In order to continue to sustainably manage of abandoned mines, we are aggressively training young workers with little mining experience, and setting up a variety of educational programs for managers and workers of abandoned mines. In fiscal 2019, we held a workshop at our newly completed acid mine drainage treatment site and studied safer operations management.



Group training (mine drift management training)



Workshop

Joint Industry-academic Activities

In fiscal 2018, we opened an endowed laboratory in the field of environmental conservation in mining at Hokkaido University. In addition to lecturing students, this laboratory engages in a variety of research projects and activities related to the protection of the mining environment. We also receive the cooperation and instructions of experts from other universities and research institutions about our development and studies on new environmental conservation technologies, including technologies for unpowered mine drainage treatment that use natural depuration by microorganisms, etc. (passive treatment), technologies for greening former mining sites, and studies of methods to assess the impact of acid mine drainage on the surrounding environment.



Seminar given by the endowed laboratory that we opened at Hokkaido University



Field test of passive treatment

Communication with Local Residents

To promote local residents' understanding of our measures for preventing mining-induced pollution at our abandoned mines, we proactively hold sessions to explain countermeasure work and offer facility tours. We also strive to contribute to local communities through tree-planting and the release of juvenile fish as environmental activities, as well as participation in and cosponsoring of local events and festivals. In addition, we accept inspection tours of our mining facilities by students and researchers from Japan and overseas. We thus offer our facilities as locations for research and development and skills training related to the prevention of mining-induced pollution.

Preserving the Natural Environment

Purpose of activities	Activities during fiscal 2019	Self-assessment	Targets/plans for activities from fiscal 2020 onwards
<ul style="list-style-type: none"> Promoting biodiversity-oriented activities 	<ul style="list-style-type: none"> Undertook activities to protect endangered species of plants in nature conservation areas Carried out tree-planting activities at mines 	A	<ul style="list-style-type: none"> Continue with current activities for the time being (Undertook activities to protect endangered species of plants in nature conservation areas, carried out tree-planting activities at mines)
<ul style="list-style-type: none"> Contributing to local communities, society, and the global environment through sustainable management of company-owned forests 	<ul style="list-style-type: none"> We received and passed periodic screenings to maintain forest certification from the Sustainable Green Ecosystem Council (SGEC). (Site inspections were conducted at Nishino Forest and Imakane Forest.) Provided placements for seven overseas trainees as part of JICA issue-specific training, and organized training workshops Signed an agreement with the local government of Mori Town, Hokkaido, concerning recovery of the forest that was damaged by a typhoon in 2016. In the disaster-affected areas of the forest owned by the town, we removed fallen trees, carried out ground clearance, and planted trees. We named the area Sodachi-no Mori (forest of growth). Moving forward, we will grow trees there by inviting local residents to tree-planting ceremonies and other events. Tree-raising ceremony and environmental training with local participants in Teine Forest (34 participants) High added-value use of company-owned forests with the introduction of office furniture made of broadleaf trees from the forests to the Head Office and Sapporo Office Conducted measurement tests of forest resources using drones. Tests are continuing to improve the precision. Christmas trees, which we made using trees in company-owned forests, were donated to two nurseries in Atsuma Town that were damaged by the Hokkaido Eastern Iburi earthquake Provided training on close-to-nature silviculture that is practiced in Switzerland, and began practicing it in some company-owned forests. Provided part of Teine Forest as the training site for spreading self-employed timber harvesting, which is on a small scale and features the construction of disaster-resistant, indestructible access roads Carried out monitoring activities for conserving the biodiversity of company-owned forests, both internally and through outsourcing 	A	<ul style="list-style-type: none"> Maintain SGEC forest certification Promote forestation that maximizes the use of nature's strengths, aiming for both economic and environmental achievements (such as practicing close-to-nature silviculture) Improve the efficiency of forest management using cutting-edge technologies such as drones and ICT Promote high value-added use and sales of lumber from company-owned forests Continue tree-planting and raising ceremonies and activities Promote the provision of sites for recreational activities, research, and training Contribute to local communities by using services related to company-owned forests (initiatives such as the donation of Christmas trees) Creating disaster-resistant forests Continue monitoring activities steadily

Self-assessment grades A: Target achieved B: Target mostly achieved C: Target not achieved

Preserving Biodiversity

The preservation of biodiversity is an element that forms the basis of our approach to business. We clarify this point both internally and externally by stating, “We will be more considerate of biodiversity and work to live in the harmony with nature,” in the Article 5 of our Code of Conduct. In addition, in our Environmental Policy we state, “We recognize that biodiversity is one of the cornerstones of a sustainable society, not least in terms of natural resource development, and will ensure that our business activities remain in harmony with society and the natural environment, taking ecosystems into consideration every step of the way.”

In our business activities, the impact on biodiversity is particularly likely from overseas mines from which we procure raw materials. At the copper mines in which we have invested (as a minor investor with up to 25% equity stake) and are our important suppliers (Copper Mountain Mine in Canada, Escondida Mine in Chile, and Los Pelambres Mine in Chile), an Environmental Impact Assessment was appropriately conducted before the mining operations commenced and environmental monitoring has continued ever since. In ongoing copper mine development projects (at Zafranal in Peru and Namosi in Fiji), we are carrying out environmental baseline studies for Environmental Impact Assessment and collecting data for preserving diversity. As an investor, we confirm with operators of the mines that these initiatives will be taken, and encourage them to take such initiatives. In addition, when we procure materials from a mine in which we do not invest, we confirm that considerations are given to natural protected areas and biodiversity is preserved, in accordance with the CSR Procurement Standards of Metals Company.

On the other hand, at limestone mines in Japan and other countries, which we manage directly, we transplant rare species of plants at the sites and plant trees in former mining sites to recover the original vegetation. At some mines, we also take measures to protect wildlife in the surrounding area.

We also take initiatives to preserve biodiversity at our manufacturing facilities by considering the characteristics of each site. For example, at Naoshima Smelter & Refinery (Naoshima Town, Kagawa County, Kagawa), we have been engaged in Material-no Mori (Materials Forest) tree-planting activities in districts where trees were lost due to wildfires. At such sites, we also create biotopes, grow sunflowers, and use their seeds as part of the Wanosato Project, which is aimed at environmental education and learning. Naoshima Smelter & Refinery ensures thorough treatment of exhaust gas and effluent from the facility under its own standards, which are stricter than government standards, in its efforts to protect the natural environment of Setouchi.

We own 14,000 hectares of forest across Japan and manage it by considering the habitats of the plants and animals that live there. We carry out wildlife monitoring and include rare species confirmed to be living in the areas on our red list. Our nine forests in Hokkaido have obtained certifications for sustainable forest management with consideration for biodiversity.

We will continue to pay attention to the contact points between our business activities and biodiversity, and take action to conserve biodiversity from a broad perspective.

Biodiversity Initiatives at Our Mine

Monitoring Water Quality at Copper Mines (Copper Mountain Mine)

We invest in Copper Mountain Mine, located in British Columbia, Canada, where we engage in corporate management with an emphasis on biodiversity. We continually monitor the quality of water in local rivers, in accordance with quality guidelines issued by the provincial government, and also carry out ongoing surveys into fish populations, in order to gauge the impact of our activities on the ecosystem. Continuous environmental monitoring has been carried out since the mine operation started, and also closure plan is established.



Surveying fish populations

Environmental Impact Assessment as part of Copper and Gold Deposit Development Project

We are carrying out a basic environmental study geared towards conducting EIA* as part of a development project in Zafranal, in southern Peru. At the same time, we are studying and analyzing the potential impact on the environment by the development, and are looking into ways to secure new habitats for species of flora and fauna if there is a risk of any impact on the ecosystem.

* Environmental Impact Assessment



Exploration drilling



River water quality survey

Initiatives at Limestone Mines (Cushenberry Mine)

At Cushenberry Mine in California, Mitsubishi Cement Corporation extracts limestone and also manufactures cement at the foot of the mine. Having worked with local experts to develop and plant trees across a mining area covering 25,000 square meters. Around 90% for the trees we have planted to date have grown. We also carry out activities to protect precious wild animals in the area, in cooperation with the local nature conservation authorities*. To protect bighorn sheep living in the hills behind the mine, we have maintained watering stations ever since the area was operational. We also offer financial assistance to biological research on the sheep, which is conducted using GPS.

* Mitsubishi Cement Corporation is a member of the local association for the protection of bighorn sheep.



Bighorn sheep

Environmental Impact Assessment on Construction of Power Plants

Environmental Impact Assessment for Launch of Operations of Appi Geothermal Plant

In 2015, we established Appi Geothermal Energy Corporation in conjunction with Mitsubishi Gas Chemical Company, Inc. to the west of Appi Highlands in Hachimantai City, Iwate. We were joined by Electric Power Development Co., Ltd. in 2018, and the three companies are promoting the project towards the launch of the operation, aiming to begin operating a 14,900 kW geothermal power plant in 2024. Appi Geothermal Energy Corporation began procedures for an Environmental Impact Assessment in 2015, and studied, predicted, and assessed the impact of the construction of the Appi Geothermal Power Plant on the surrounding environment. The company received approval for the final environmental impact statement from the Minister of Economy, Trade and Industry in January 2018 and began construction of the plant in August 2019.

Voluntary Assessment of the New Komatagawa Hydroelectric Power Plant

We own a hydroelectric power plant immediately below the Moriyoshi Dam in the Komata River, a branch stream of the Ani River in the reservoirs along the Yoneshiro River in Kita-Akita City, Akita. In May 2019, we began construction on the New Komatagawa Hydroelectric Power Plant (rated output: 10,326 kW), a hydroelectric power plant that will use the discharged water which was used for power generation at the existing plant. When planning the construction of the new power plant, we undertook a voluntary environmental assessment to determine the impact on the surrounding environment. We are also creating a new plan to ensure that the flow rate of surplus from the new plant will be appropriate for the river to preserve the surrounding river environment. In addition, we will carry out eco-friendly construction work. We will use power generated in the existing hydroelectric power plant, a renewable energy, for construction work on the headrace tunnel with TMB method. We will also recycle trees that were felled to construct the new power plant.

Biodiversity Conservation Activities of PT Smelting (Indonesia)

PT Smelting in Indonesia manufactures copper cathode, sulfuric acid, and other products at Gresik Copper Smelter & Refinery in East Java, Indonesia. The company implements the following two initiatives to preserve biodiversity.

Activities for Preserving Mangrove Forests

Preservation of mangrove forests is important because they are habitats of diverse species and have a high level of CO₂ absorption capacity.

The company plants mangroves in Gresik Regency, where it is located. As a result of these activities, which have been ongoing since 2014 with cooperation from local municipalities in the area and have been highly acclaimed by the local government, we planted a total of 40,300 seedlings on the premises, whose area is approximately 40,000 m² (equivalent to a forest with a capacity to absorb 1,071 tons of CO₂ per year), by 2018.

The mangrove trees planted in the first year are now over three meters tall. With a successful growth rate in excess of 95% across the entire forest, this has made a substantial contribution to biodiversity, even bringing wild animals such as monkeys back to the area in recent years.



Planting of mangrove trees

Activities for Protecting Rare Animals

To further develop its activities for environmental protection and biodiversity preservation, PT Smelting has been co-sponsoring a program for protecting rare animals by Taman Safari Indonesia since 2018.

In this program, endangered species designated by the International Union for Conservation of Nature (IUCN) are bred and released into the wild to enhance sustainability. PT Smelting participates in a program to protect Javan hawk-eagles.

The Javan hawk-eagle is the national bird of Indonesia because it has the same characteristics as Garuda, the divine bird in the national emblem of Indonesia (*Garuda Pancasila*). However, recently there is concern over the decrease in the population of this species due to the destruction of rainforests as well as poaching. Through this program, the company not only aims to breed Javan hawk-eagles as a national symbol but also to support the education of children as future leaders and biological research on the birds, thereby contributing to preserving biodiversity.



Javan hawk-eagle
Photo provided by Taman Safari Indonesia

Sustainable Management and Operation of Company-Owned Forests

Basic Approach to Sustainable Forest Management

We currently own around 14,000 hectares of forestland in Japan, mainly in Hokkaido, making us one of the largest owners of forestland in the country. We originally began acquiring forests for the purpose of supplying wooden supports for our own mines and coal mining activities. As we no longer operate domestic mines or engage in coal mining however, our forests now fulfill different roles and are subject to different expectations.

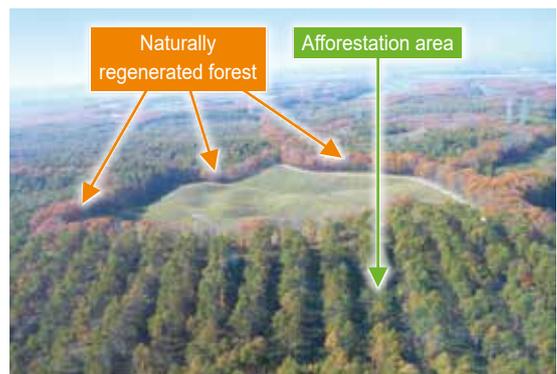
At present, we are managing forests for the purpose of harnessing their diverse public interest functions, including the production of lumber as a renewable resource, the provision of public recreational spaces, the prevention of global warming by fixing CO₂, and the conservation of biodiversity. Not all company-owned forests are the same as their location and environmental conditions vary by area, as do the functions they are hoped to fulfill. As such, we divide the forests we manage into four categories (zoning): water and ecosystem conservation zones, health and cultural usage zones, selective natural forest cutting zones, and timber resource recycling zones. We specify what functions need to be developed and what management methods apply for each zone type. While steadily conducting this kind of meticulous forest management, we will pursue beautiful forests that are rich in function, under the slogan: “Mitsubishi Materials’ forests will lead the way for forests throughout Japan.”

By way of outside recognition for sustainable forest management initiatives such as these, on 1st October, 2012, we obtained certification from the Sustainable Green Ecosystem Council (SGEC) at Hayakita Forest in Hokkaido. Since then, the SGEC has revised and introduced certification standards outlining transitional procedures for mutual certification with the Programme for the Endorsement of Forest Certification (PEFC), an international forest certification scheme. With that in mind, we simultaneously obtained forest certification under the SGEC’s new standards for a total of nine forests in Hokkaido in 1st September, 2015, including Hayakita Forest.



■ The zoning of company forests and management policies

Zone	Activity
Water and ecosystem conservation zones	Maintain the natural forest by the water and convert it into a natural forest if artificial
Health and cultural usage zones	Create a model forest and facilities for walking and other forms of forest recreation
Selective natural forest cutting zones	Produce useful broad-leaved trees in a sustainable manner by felling trees in naturally regenerated forests within a range not exceeding their growth
Timber resource recycling zones	Sustainably produce lumber from artificial needle-leaved forests



■ Data on Company-owned forests

• 31 locations nationwide	• Total area: 14,513 hectares
• SGEC certified area: 11,541 hectares	* 9 forests in Hokkaido
• Natural forest: 6,976 hectares	Manmade forest: 7,467 hectares

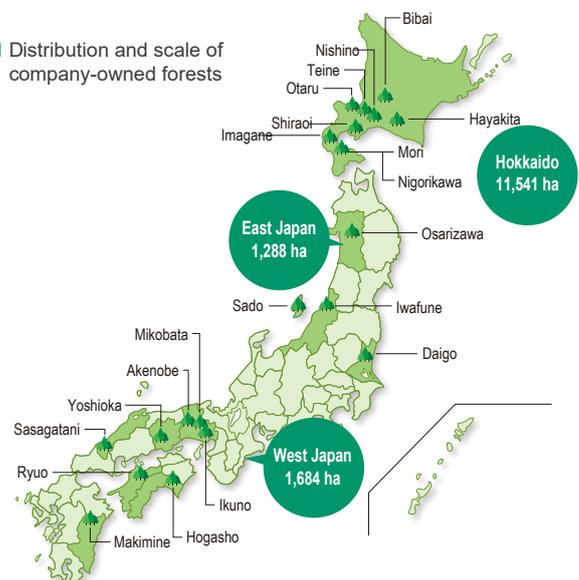
Hayakita Forest

The forest is laid out in a mosaic pattern, based on appropriate zoning between naturally regenerated forest (trees that have grown naturally) where felling is prohibited, and afforestation areas (trees grown from seedlings planted manually), planted with larch to be used for recycled resources.

Role of Individual Forests

The role played by each of our forests depends on factors such as the forest’s terrain and location. Hayakita Forest, for example, is located on a gentle incline, which makes it easier to maintain the forest efficiently. It also benefits from an excellent location from the standpoint of logistics, situated close to paper factories that use a great deal of wood, and to the Port of Tomakomai, which is heavily used for shipping outside Hokkaido. That is why Hayakita Forest is positioned as a “resource forest,” geared primarily towards sustainable timber production. In contrast, Teine Forest is located within the city limits of Sapporo. It is positioned as an “environmental forest,” somewhere for local people to cherish, as a rare slice of rich forestland on the outskirts of their city. As well as providing space to City of Sapporo, for purposes such as camp grounds, public access and nature walks, we also give local NPOs access to fields to carry out natural activities, and even offer up part of our company-owned forest for local elementary school children to practice skiing. Our aim is to create a forest environment that is embraced by the local community.

■ Distribution and scale of company-owned forests



The Extensive Value and Potential of Company-Owned Forests

The Value of Company-Owned Forests



1. Contributing to a recycling-oriented society –Supplying society with sustainable timber resources–

Timber is an outstanding sustainable resource. We produce timber at our company-owned forests, primarily through our “resource forests,” and provide society with approximately 10,000 m³ of timber every year as raw materials for a variety of products, from building materials to woody biomass fuels. We thus contribute to building a recycling-oriented society. Our recent activities that attract attention include the provision of cedar wood from our company-owned forests for the eaves and canopies of the New National Stadium, which is planned to be completed in 2019.

While effectively using wood, we have repeated the cycle of felling, planting, and growing trees in artificial forests for almost 80 years in our efforts to ensure a sustainable and stable supply of timber.

Natural forests constitute approximately 50% of our company-owned forest resources. We thin these forests moderately, which helps them become sound, fast-growing forests with many socially beneficial functions. A certain amount of timber is produced from the thinning. Timber from broad-leaf trees, which is primarily produced in natural forests, is used for diverse purposes with high added value, including valuable furniture. While timber from natural forests is limited in supply compared to that from artificial forests, we aim to provide society with materials with the highest possible value.

TOPICS Use of timber from company-owned forests for furniture in the new Head Office building and Sapporo Office

Our Head Office was relocated in March 2019. We took this as an opportunity to introduce tables and other furniture made of timber from broad-leaf trees produced in our company-owned forests to the new Head Office and Sapporo Office, where the forest management division is located. We have thus chosen our own offices as the places to begin implementing the model of cyclical use of timber from our company-owned forests.

■ Office furniture made of timber from broad-leaf trees produced in company-owned forests



A big table at the corporate cafeteria of the new Head Office



Internal stairs as the symbol of the “office where we connect with each other”



Work desks at Sapporo Office

2. Contributing to the local community –Forests where local people can relax and interact with the wonders of nature–

As well as being company's assets, our company-owned forests are also an important element of the environment, in terms of shaping the local area. Adequate forest management enhances functions that benefit the public as a whole, including watershed protection and prevention of soil loss, all of which helps to prevent disasters in the local area.

Company-owned forests located on the outskirts of urban areas meanwhile are positioned as "environmental forests," parts of which are open to local people to enjoy the natural environment up close. Located in the Teine area of Sapporo, Teine Forest offers a slice of rich forestland that also has excellent transport access from the city center. We open up part of the forest to the people of Sapporo as a public forest, for purposes such as nature walks and camping ground. We also provide access to fields for nature activities organized by a local NPO, as a practice slope for local elementary school children to improve their skiing, and for research by universities and other institutions. That is why it is important to maintain an environment that is suitable for each of these purposes, so that everyone in the local community is able to use our company-owned forests in a meaningful way. In addition, we are proactive in activities such as thinning trees to add light to the interior of our forests, removing dangerous trees, and creating and maintaining paths in the forests.

As a way to let local residents know about the value and fun that forests provide, we hold tree planting festivals in our forests. We also engage in activities for contributing to local communities by utilizing our knowledge and skills cultivated through our work in company-owned forests. For example, we worked on the recovery of a forest owned by Mori Town, Hokkaido, which was damaged by the typhoon in 2016. We also produced Christmas trees using trees from our company-owned forests and sent them to local nurseries in Atsuma Town, which were affected by the Hokkaido Eastern Iburi earthquake in 2018.

In the future, we will contribute to society through these kinds of active initiatives and increase our efforts to make the forests of Mitsubishi Materials into valuable features of their local areas.



Children from a nursery in Atsuma Town decorating the Christmas tree that we donated

3. Contributing to a low-carbon society –CO₂ fixation–

One of the important ways in which forests benefit all of us is through the function they perform in terms of CO₂ fixation. As one of the largest owners of forestland in Japan, we dedicate ourselves to sustainable forest management, and do our level best to enhance the CO₂ fixation capabilities of the trees in our forests, so that we can do our bit to prevent global warming. The CO₂ fixation capabilities of our forests is estimated* to be 54,000 tons per year (equivalent to the annual amount of CO₂ emitted by approximately 26,000 people).

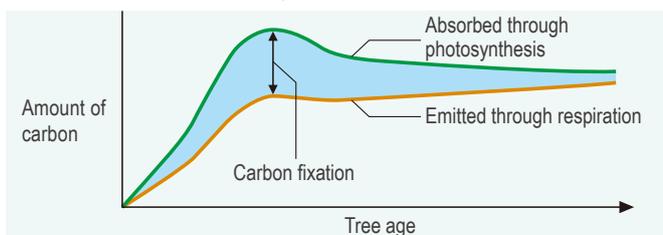
The ability of forests to fix CO₂ peaks during the period when trees are young or middle-aged. When they age beyond that point, their fixation capabilities start to decline. That is why we make every effort to regenerate our forests, by felling and planting new trees at the right time, in an order to maintain CO₂ fixation capabilities over the long term.

When trees are cut down, the CO₂ remains inside the timber. In particular, CO₂ remains fixed over a longer period of time if timber is used on a long term basis, as a building material for instance. We therefore contribute to effective CO₂ fixation by maintaining stable production of quality timber that can be used for purposes such as building materials, focusing particularly on major commercial species such as Japanese larch and cedar.

* Method of calculation

Growth (m³) x material volume weight (t/m³) x carbon conversion efficiency x tree/trunk ratio x CO₂ molecular weight / carbon molecular weight

Relationship between tree age and carbon absorption/emissions



Japanese larch

* Edited from documents published by the Forestry and Forest Products Research Institute (FFPRI)

4. Conserving biodiversity –Maintaining an environment suitable for a wider range of wildlife–

As our company-owned forests also provide a habitat for a diverse range of wildlife, we take the utmost care to ensure that our various activities, including timber production, do not have a detrimental impact on living organisms.

Key locations where creatures live and move around, including forest ridge and riverside areas, are called the green corridor, which is extremely important for preserving biodiversity. Accordingly, we do not fell trees in those locations. We also refrain from clearing large areas of land even in timber production areas, thereby ensuring that clear-cut areas are dispersed in our efforts to maintain diverse environments in forests. We are also introducing trial forest management schemes in selected areas, aimed at conserving biodiversity. These include managing felling so that we leave underlayer trees after cutting down upper layer trees, rather than bare earth, and actively mixing coniferous and broad leaf trees in certain areas, in order to give the forest a more diverse structure.

We carry out wildlife monitoring on a daily basis too. As well as recording wildlife sightings while on patrol around our forests, we have positioned plant survey sites where we keep track of any changes in plant life, and fixed camera traps to monitor populations of wildlife living in the area. When felling trees or engaging in other such activities, we carry out monitoring surveys before and after, to ensure that wildlife has not been affected. If we find that there are any rare species in the area, we look into ways to minimize impact from our activities, such as felling trees at more suitable times of year.

Rare species that have been confirmed to be living in the area (most endangered species included on red lists published by the Ministry of the Environment and Hokkaido Government) are included in our own red list of rare species living in Mitsubishi Materials company-owned forests. Warnings are also issued to all concerned parties with access to the relevant forests.



Daily monitoring



Wildlife camera trap

Confirmed rare species (As of August 2017)					
Mammals	1 species	Aquatic	4 species	Plants	13 species
Birds	12 species	Insects	1 species		



Japanese sable



Black woodpecker



Masu salmon



Japanese primrose



Dogtooth violet

Policies for maintaining and improving biodiversity

1. In order to maintain and improve the biodiversity of individual forest, we conduct flora and fauna surveys, either by ourselves or by hiring someone. Based on the results, we prescribe a biodiversity conservation program in each company forest's management and administration plan.
2. The abovementioned flora and fauna surveys prioritize resource recycling forests for clearcutting.
3. The results of the abovementioned flora and fauna surveys are of highest priority for the zoning in the individual company forest's management and administration plans.
4. We stipulate preservation plans for animals and plants listed in the red data book.
5. All waterside forests in fens or marshes should be zoned as biodiversity preservation zones in the individual company forest's management and administration plan, and forest operations should not be conducted as a principle. The extent of the waterside forests' preservation zones are individually determined based on the terrain, but they should generally cover about 10 meters on each side.
6. Natural forests are as a rule zoned as either water and ecosystem preservation zones or selective cutting zones. Taking into consideration the continuity of natural forests, only suitable places will be made timber resource recycling zones for needle-leaved artificial forests.
7. Natural forests along ridges are maintained as water and ecosystem preservation zones.
8. With the exception of larches, no non-native species are to be planted.
9. Hunting is prohibited in company forests as a principle. Moreover, non-forestry activities that hinder the maintenance of biodiversity should also not be conducted as a rule.
10. The picking of wild animals and plants should not exceed sustainable levels and efforts should be made to prevent inappropriate activities.

(Excerpt from a company forest management and administration plan)

Developing Environmental Technologies and Products

Basic Policy on R&D

Developing New Products and Technologies to Anticipate Changes in the World Around Us

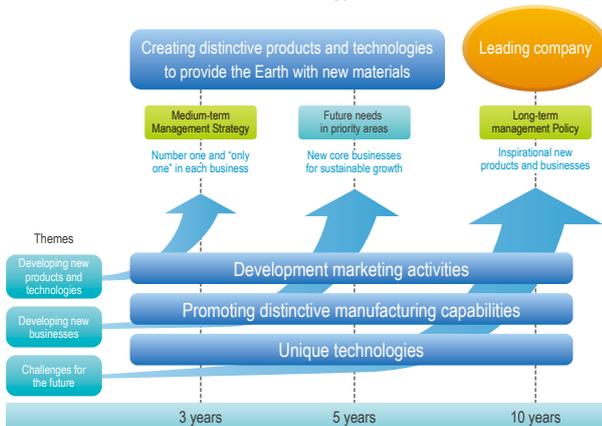
Our basic policy when it comes to development is to precisely identify customers' needs and future technology trends, and to develop and provide products and technologies that anticipate changes in the world around us. With this policy in mind, we aim to provide the Earth with new materials that make the most of the group's unique technologies. This means creating distinctive products and technologies that will be competitive in the global market, and upholding our strategy of becoming a world's leading company.

We also engage in a development strategy with the aim of creating timely new products and technologies that will help us to become the number one, and "only one," in each of our lines of business in the short term. Over the medium term, we intend to focus on developing new core businesses that will underpin the sustainable growth of the entire group, particularly in next-generation vehicles, IoT and AI-related products and areas where we can contribute to a realization of fulfilling sustainable society. On a longer-term basis, we intend to boldly take on the challenge of creating inspirational new technologies for the future. Combining technology, human resources and passion, our aim is to continually achieve innovation, with an emphasis on the customer's perspective and speed.

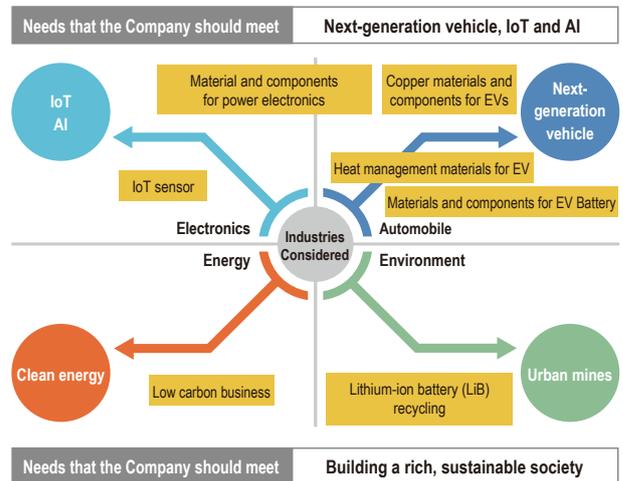
Examples of Environmentally Friendly Development

We are also committed to improving manufacturing processes, and reducing environmental impact from our materials and components. We use computer analysis technologies to optimize operating conditions at our cement plants, to achieve further reductions in CO₂ emissions due to thermal energy sources. We have rolled out the same technology to manufacturing processes for copper smelting and polycrystalline silicon, to enable us to improve quality and increase efficiency. We are also working on technologies capable of harnessing alternatives to fossil fuels, including waste plastic and shredder dust, as well as using recycled raw materials in the smelting process and recovering rare metals from urban mines. In an effort to save energy and extend the life span of our materials and components meanwhile, we are working on development in areas such as coating films for cemented carbide products, battery materials, connector terminals, insulated circuit substrates and temperature sensors.

■ Research and development strategy



■ Creation of new products and businesses



Developing Environmental Technologies and Products

TOPICS Development of Technologies for Recovering Rare Metals from Lithium-Ion Batteries for xEVs (Electrified Vehicle)

We have begun a demonstration experiment at a recycling facility for recovering cobalt, nickel, and other rare metals contained in lithium ion batteries for xEVs*, which are expected to see a significant increase in recycling demand in the future.

While the demand for lithium ion batteries is expected to continue increasing in the future due to the electrification of vehicles, there is concern over a shortage in the supply of cobalt and other rare metals as the main materials of batteries. Through demonstration projects by the Ministry of Economy, Trade and Industry and the Ministry of the Environment, we have been engaged in the research and development of recycling related to discharge, disassembly, thermal decomposition, and transportation of used lithium ion batteries.

By applying our technologies for wet smelting of rare metals, which were cultivated through nonferrous smelting, we have developed refining equipment for recovering cobalt, nickel, and other rare metals from active materials of lithium ion batteries. We will install this equipment in a plant in Kitakyushu City, and within the current fiscal year, we will start operating a facility for recycling lithium ion batteries, where the processes from disassembly of waste batteries, recovery, and refining are completed safely and with high efficiency. Aiming for commercial operation of this facility, we will proceed with a technical validation and development test for improved technologies based on the results of the validation.

We will establish technologies for the comprehensive recycling of lithium ion batteries from used xEVs and rejected goods from processes at battery manufacturers, aiming to contribute to the stable supply of materials for lithium ion batteries and building a system for recycling the batteries.

* xEV: Collective name of electrified vehicles, including hybrid vehicles (HEVs), plug-in hybrid vehicles (PHEV), and battery electrified vehicles (BEVs)

■ Major achievements in FY2019

Field	Technology	Application/ effect
Recycling	Joint development of technologies for recycling cobalt, nickel, and other rare metals with Nippon Magnetic Dressing Co., Ltd.	Establishing comprehensive recycling technologies for the safe, proper processing of lithium ion batteries from used xEVs, rejected goods from processes at battery manufacturers, and others, thereby recovering cobalt, nickel, and other rare metals with high efficiency, aiming to contribute to the stable supply of materials for lithium ion batteries and building a system for recycling the batteries.
Thermal management	Development of DBA substrate with sintered Ag layer that is usable under medium- to high-temperature atmospheric ambient	Developing a new product that offers both a low-resistance circuit, which can withstand high temperatures from 300 to 400 degrees Celsius, and stress-relaxation effects, thereby contributing to improving the reliability of thermoelectric conversion technologies that enable exhaust heat from cars, factories and other sources to be recovered and reused to generate electricity.
Eco-friendly vehicles	Joint development of ceramic insulated circuit substrates with high thermal dissipation for eco-friendly vehicles	Merging the material and manufacturing technologies for ceramics from Denka Co., Ltd. with our proprietary technologies for the circuit-making process through joint development, thereby improving the reliability of thermal recycling of ceramic insulated circuit substrates with high thermal dissipation, which are used for power modules for driving the motors of electric vehicles and other eco-friendly vehicles as well as increasing the power output of the motors.
Energy conservation	Development of corrosion protective plating technology for connectors in aluminum wire harnesses	Developing corrosion protective plating technology for the terminal connectors of aluminum wire harnesses jointly with Mitsubishi Shindoh Co., Ltd., our consolidated subsidiary, thereby contributing to ensuring the reliability of connections and reducing the weight of automobiles.
Eco-friendly vehicles	Additional development of two types of sintering bonding materials for next-generation power modules	Developing bonding materials with extremely high heat resistance, which can withstand the heat of 200 degrees Celsius or higher that is generated by next-generation power modules, thereby contributing to improving the reliability of high-output motor power controlling inverters for hybrid vehicles.
Eco-friendly vehicles	Development of technology for homogenous electrodeposition coating with resins that features high heat resistance and insulation properties for next-generation vehicles	Developing technology for homogenous electrodeposition coating of metallic conductors with resins that features high heat resistance and insulation properties, thereby contributing to functionality improvement and downsizing of coil devices for electric vehicles.

Development and Empowering of Diverse Human Resources

Purpose of activities	Activities during fiscal 2019	Self-assessment	Targets/plans for activities from fiscal 2020 onwards
<ul style="list-style-type: none"> Promoting human resource development 	<ul style="list-style-type: none"> Enhancing and promoting the placement of employees to train next-generation management candidates Continue to review activities in line with increasingly diversified needs 	B	<ul style="list-style-type: none"> Continuing to promote initiatives for training the next-generation management candidates Continuing to review contents of the activities
<ul style="list-style-type: none"> Retaining and utilizing talented locally employed staff at overseas facilities 	<ul style="list-style-type: none"> Expanding the training program for locally employed staff to other areas <p>We planned the expansion of the training program for locally employed staff implemented by our regional management company in China to the equivalent company in Thailand. However, we shelved the expansion plan, because it did not meet local needs.</p>	C	<ul style="list-style-type: none"> Expanding the training program for locally employed staff to other areas
<ul style="list-style-type: none"> Promoting disabled persons' employment 	<ul style="list-style-type: none"> Disabled persons' employment rate [Target: 2.5% → Actual: 2.29%] 	B	<ul style="list-style-type: none"> Continuing to promote employment based on the Group-wide and divisional action plans
<ul style="list-style-type: none"> Promoting work-life balance 	<ul style="list-style-type: none"> Continue to implement reduced-hours scheme aimed at reducing overall working hours Encourage uptake of paid leave 	B	<ul style="list-style-type: none"> Continuing to suppress long hour working habits and to promote employees to take paid leave in order to reduce overall working hours

Self-assessment grades A: Target achieved B: Target mostly achieved C: Target not achieved

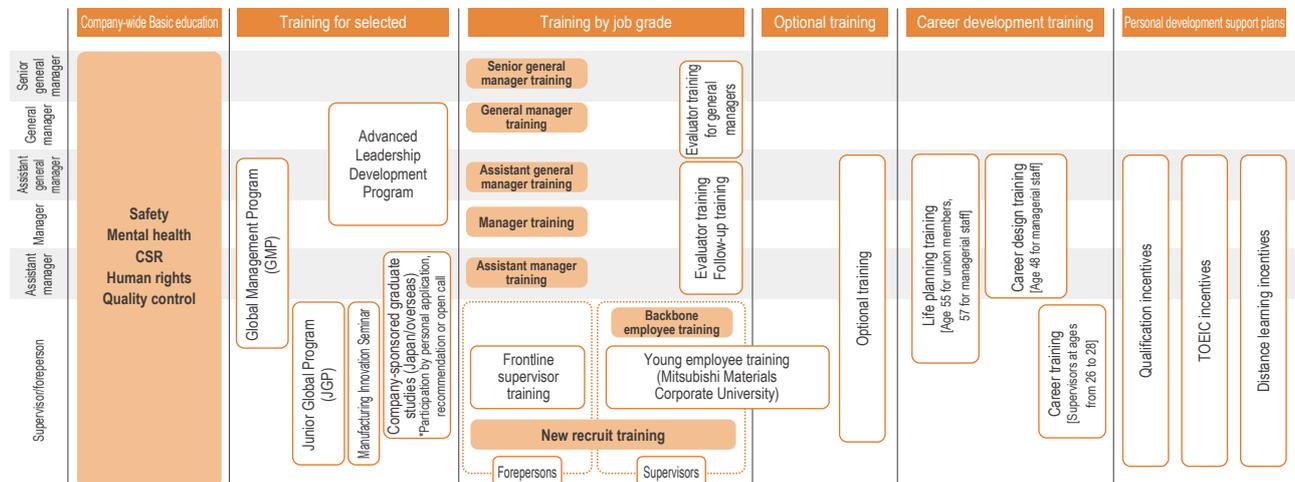
Human Resource Development

Basic Approach to Human Resources

The Mitsubishi Materials Group views its employees as creators of new value and sources of corporate competitiveness. We consequently seek to be a company that accepts and respects diversity, where every employee finds work personally meaningful while working together to achieve optimal organizational performance.

Our medium- to long-term HR strategy states that “we improve the development and retention of human resources equipped with high strategic skills and practical abilities, and strengthen the Group’s management capacity through the appropriate allocation of human resources.” We consider it essential for corporations to continuously develop personnel who excel as leaders in order to maintain competitiveness and sustain growth.

Group-wide education system



Leadership Values in the Mitsubishi Materials Group

In February 2016, in order to clarify the competencies and skills common to leaders in our Group’s various businesses, we drew up “Leadership Values in the Mitsubishi Materials Group” (“Leadership Values” hereinafter), which is to be used as a set of guidelines for our leadership development.

Among the three Leadership Values listed, “Integrity and Spirit of a Leader” has especially deep roots in our tradition of commitment and responsibility for the safety and livelihood of our employees. Our Group traces its roots back to the era of coal and metal mining, where the workplace sometimes put ones’ life in danger. This value is therefore a constant among requisite leadership qualities that have been passed down unbroken through generations in the Group, and was selected as one of core values through keen discussions among management.

Our Leadership Values are reflected in performance assessment of managerial employees in Mitsubishi Materials. The Company’s manager training programs have been redesigned in accordance with our Leadership Values, which afford Group employees opportunities for leadership development appropriate to the various stages of their careers.

Advanced Leadership Development Programs

In fiscal 2006, we established “Advanced Leadership Development Programs,” which seek to develop qualified candidates for our Group’s senior management positions. General managers considered as potential candidates for the executives of Mitsubishi Materials or presidents of major Group companies are identified as “Superiority Talents,” while managers considered as potential candidates for general managers, plant managers or presidents of Group companies are identified as “Advancing Talents.” Their professional capabilities are developed accordingly through both training and experience.

The development programs were enhanced in fiscal 2018. Their contents were expanded based on the Leadership Values to ensure that the personnel development methods were implemented more systematically and continuously. An annual HR meeting held by each business division brings the executive officer responsible for HR and the general manager of the Human Resources Department together with the executive officer responsible for each division to assure coordinated implementation of the development programs, such as confirming individual career development and assignment plans for each of Superiority and Advancing Talents.

The training for the Superiority Talents includes a program that employs members of Mitsubishi Materials’ current management executives as instructors to train participants directly as a means of engendering a management mindset, including risk awareness and mental preparations. In fiscal 2019, 10 participants made presentations on the future and visions of the Group to the management executives on the final day of the training program, which inspired lively discussion between them.

For the Advancing Talents, we provide a special training program in which they develop business strategies for the individual businesses, and make systematic assignment based on individualized career development plans to broaden their experiences.

Activities for Diversity and Inclusion

Activities to Promote Women’s Participation

“The development of human resources capable of creating and promoting an organizational culture that combines superior strategic thinking with practical capabilities, in the interests of sustainable growth” is our human resource strategy that supports the Company’s long-term management policy. In line with this and in accordance with our Basic Principles on Women’s Empowerment formulated in October 2015 as well as our Action Plan legally required by the Act on Promotion of Women’s Participation and Advancement in the Workplace enforced on April 1, 2016, we are implementing a number of initiatives.

In order that each business unit and plant should implements relevant measures independently, during fiscal 2018 we selected priority plants and each created an informal organization for promoting women’s participation. Each plant took its own initiative on the theme “Expanding the job categories of female employees.” In addition, we have routinized diversity training for managerial positions and started a follow-up course for past participants in April 2018.

In fiscal 2019, we held information exchange sessions to introduce examples of initiatives taken at the priority plants and offered female manager training (involving female managers from Group companies) for such purposes as increasing their awareness of acting as role models for female employees in the position immediately below them. We also provided training related to diversity and human rights to raise the awareness of all employees. In addition, we started an internal diversity website as a tool that shows what activities we conduct to encourage diversity, including the empowerment of women. We update the initiatives as necessary.

■ Key themes for initiatives to expand career options for female employees



■ Numerical targets under the Basic Principles on Women’s Empowerment (by 2020)

Percentage of female graduate recruits	25% or higher
Percentage of female employees voluntarily leaving the company within five years	15% or higher
Percentage of women in management positions	2.5% or higher

Improving Childcare and Family Care Support Systems

The Company has a system for supporting childcare and family care that goes beyond the legal requirements. For childcare, we have made part of child nursing leave into paid leave as well as introduced a childcare subsidy system and an allowance to facilitate a quick return to work after taking childcare leave, starting in 2014. In 2017, we also introduced a support and consultation scheme for employees returning from maternity leave, as well as making it possible for employees to take out child nursing leave in half-day units.

Moreover, we have extended the upper-limit of the age group for which reduced work hours for childcare apply from third grade to sixth grade of elementary school in 2018, thus improving our support for employees who wish to balance family and work.

In terms of family care meanwhile, we allow employees to take leave at intervals and allocate accrued leave towards caring for the same family member. In 2017, we increased the maximum length of leave for employees to care for any one family member from 365 days to 36 months, and extended the period of reduced working hours from 365 days to 72 months. We have also made it possible for employees to take family care leave in half-day units.

In addition to all this, we are working to improve care support through measures such as organizing care seminars at our Head Office.

■ Use of Support Schemes (FY2019)*

Subject	Men	Women	Total
Percentage of paid holidays taken (Based on calendar year)	—	—	85.1%
Number of employees taking maternity leave	—	18	18
Number of employees taking childcare leave	6	32	38
Number of employees taking family care leave	3	2	5
Employees using the childcare subsidy scheme	78	24	102

Support for Diverse Working Patterns

We promote creating working environments that enable our employees to strike a balance between their work and their private lives. As well as enabling employees to adapt their working patterns in line with events in their lives, we make every effort to establish and continually improve a range of support schemes so that employees can advance their careers and take on challenging jobs.

We have introduced a system that permits employees who are leaving the Company due to unavoidable family circumstances (marriage, childbirth, childcare, nursing care, or transfer of a spouse) to return to work under specific conditions (a reemployment scheme for retired employees) and a special temporary retirement program that permits employees to take a leave of absence in the event of overseas transfer of their spouse or to take education at their own expense. In fiscal 2018, we began to introduce a by-the-hour paid leave system.

In an effort to reduce long work hours on a companywide scale, we have established an exploratory committee on reducing working hours, consisting of both labor union and management. We are also working to reduce out-of-hours work and encourage employees to take paid leave, in line with actual operations at each of our facilities.

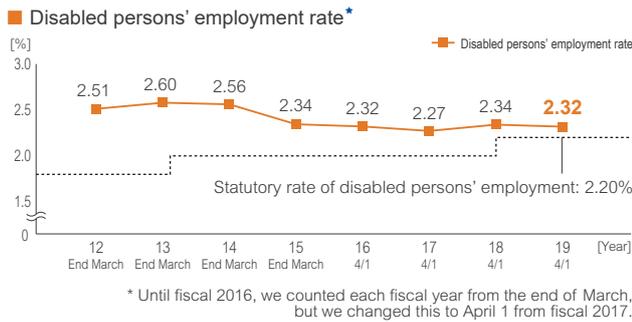
Welfare

We allow our employees to carry over up to five days of unused paid leave each year, up to a maximum of 45 days, and then use those days to take “wellness leave.” Employees can use wellness leave for reasons relating to their own health, including recuperating from illness and injury, or attending medical examinations or gynecologist appointments, or for purposes such as caring for family members, taking leave to return home if working away from their families, or taking part in volunteer activities. We are working to extend this system even further, and in fiscal 2015 extended eligibility to in- and out-patient fertility treatment.

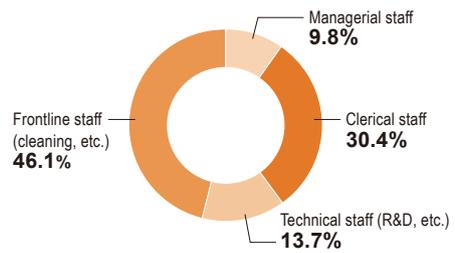
In addition to these, we have introduced an optional welfare scheme in an effort to cater to our employees’ increasingly diverse needs, including travel and life support. A great number of employees as well as their families are using the scheme.

Promoting Disabled Persons' Employment

Our Human Resources Department provides a range of support to encourage disabled persons' employment within Mitsubishi Materials and at group companies, based on the principles of social responsibility, legal compliance and diversity of human resources. The department offers a "model workplace for disabled employees," aimed at enabling disabled people to learn, grow and contribute to society through their work. In addition to providing jobs such as maintaining greenery on company premises, cleaning the cafeteria, and producing business cards, including for group companies, we also actively engage in social contribution activities such as accepting internship of students from local special needs schools, and volunteering to help out with litter collection activities in the local area. In fiscal 2019, we used the Head Office relocation as an opportunity to expand the range of work for disabled employees, which included recruitment of new employees concerning the clean-up of the corporate cafeteria and meeting rooms.



■ Main jobs undertaken by disabled persons' employees at Mitsubishi Materials (As of April 1, 2019)



TOPICS

Grand Prize Won in a Workplace Slogan Competition (Human Resource Development Center, Human Resources Dept.)

We applied for a workplace slogan competition hosted by the Government-Labor-Management Meeting (*Kou-Rou-Shi Kaigi*) of Saitama Prefecture. Named *Dare-mo ga kagayaku shokuba slogan* ("a workplace slogan that allows anyone to shine"), the competition is aimed at encouraging the creation of pleasant, motivating workplaces.

Applications are solicited from business companies and other organizations in Saitama. The slogan from Mitsubishi Materials, which means "respecting the distinctive characteristics and possibilities of individuals, encouraging to let them do it and leaving it to them are the first steps toward growth" won the grand prize (*dare-mo ga kagayaku shokuba taisho*).

In the final review, we gave a presentation about initiatives taken in our workplaces as the background of the slogan, and staff members with disabilities who work at the Human Resource Development Center politely answered questions from judges. We earned high marks for our efforts to create workplaces where the creative measures we devise and work improvements increase the volume of work that can be handled by staff members with disabilities, while each staff member finds job satisfaction and enjoys working.



Rehiring of Retired Employees

We rehire retired employees aged 60 and over who wish to work, in order to give them the opportunity to find reemployment at one of our offices or affiliated companies, whilst at the same time enabling us to continue benefiting from the skills and expertise of employees who have reached retirement age. A total of 72 people* were newly rehired as part of this program in 2018.

We continue to look into reviewing this program in consultation between labor and management, in light of changing employment conditions for people aged 60 and over.

Respect for Human Rights

Basic Approach

Article 1 of our Code of Conduct relates to human rights, and states that "we will respect human rights of all." This means that we will never discriminate based on race, gender, religion, nationality, or any other factor not related to an individual's abilities or performance. We aim to raise awareness and provide training based on the principle "we will eliminate discrimination and respect the dignity of each individual." We also organize human rights awareness training on an ongoing basis in order to encourage individual employees (including short-term, part-time, temporary and contract employees) to take a personal interest in human rights issues, and to ensure that they maintain a deep-rooted awareness of the importance of human rights as part of their day-to-day activities, based on a resolute determination not to engage in, allow or tolerate any form of discrimination. As a result of promoting human rights awareness training throughout the company, 5,902 employees underwent a combined total of 4,800 hours of training in fiscal 2019.

Preventing Harassment

Any form of harassment, including sexual harassment, power harassment, or harassment relating to maternity or care leave, can stifle employees' enthusiasm and erode an otherwise congenial working environment. We believe that stepping up educational and training programs, and implementing a range of preventive and response measures, are both effective ways of combating harassment. We have revised our guidelines on preventing sexual harassment and maternity harassment, as well as our guidelines on preventing harassment relating to childcare or family care, to reflect the contents of revisions to the Act on Securing, etc. of Equal Opportunity and Treatment between Men and Women in Employment, and the Act on Childcare Leave, Caregiver Leave, and Other Measures for the Welfare of Workers Caring for Children of Other Family Members, both of which came into effect in January 2017. In addition to an Internal Contact Office, we also appoint in-house supervisors at each of our enterprise place to provide advice on sexual harassment or maternity harassment, and have established an external consultation service to ensure that all matters are handled appropriately. (Consultation services were contacted with regard to 7 matters during fiscal 2019.)

Labor Union and Management Partnership

Under our union shop scheme, we respect collective bargaining rights and freedom of association as the basic rights of workers, thereby striving to maintain a good labor-management relationship. The scheme also enables us to share information and exchange opinions between labor and management on a regular basis. Our biannual Labor-Management Conference in particular is aimed at strengthening solidarity through active debate, covering subjects such as recent issues, strategies and policies in each sector, and establishing a shared direction in the interests of the company's sustainable growth for the future.

As of the end of March 2019, the number of union members amongst those directly employed by Mitsubishi Materials (including employees on assignment) stood at 3,711. Including group companies, the total number of members was 8,011.

■ Number of union members

Subject	Number
Mitsubishi Materials	3,711
Overall Group	8,011

Employment Statistics (As of March 31, 2019)*

■ Payroll (full-time equivalent)

Subject	Employees	Temporary Staff
Non-consolidated	4,807	1,042
Consolidated	28,426	
	Japan	16,982
	Overseas	11,444

■ Employee numbers according to location (consolidated)

Location	Employees
Japan	16,982
North America	3,692
South America	34
Oceania	16
Europe	1,225
East Asia	1,187
Southeast Asia	5,290
Total	28,426

■ Breakdown of employees (full-time equivalent)

Subject	Manager*	Regular employees	Total	Average service	Average age
Men	1,223	3,017	4,240	17.5 years	41.5 years
Women	22	545	567	14.4 years	38.5 years
Total	1,245	3,562	4,807	17.2 years	41.2 years

We ensure fair treatment irrespective of gender, with no difference in benefits or wages between male or female employees.

Percentage of women in management positions

1.57%

■ Employee training

Total hours of training (annual)	Average hours per employee (annual)
96,447 hours	20.0 hours

■ Graduate recruitment

Subject	Graduate recruitment	
	University graduates (including graduate school)	High school graduates
Men	75	78
Women	25	16
Total	100	94

■ Employee turnover (employees leaving the company in FY2019)

Subject	Aged under 30	Aged 30-49	Aged 50 or over	Total	
				Number of employees leaving company	Turnover
Number of employees leaving company	Men	39	21	113	173
	Women	5	6	5	16
	Total	44	27	118	189
Turnover	Men	4.1%	1.1%	8.1%	4.1%
	Women	3.2%	2.2%	6.5%	3.1%
	Total	4.0%	1.2%	8.0%	4.0%

"Employees leaving the company" refers to those who leave the company because they have reached the mandatory retirement age, those who leave the company voluntarily or involuntarily, and those who are dismissed.

Creating a Safe and Healthy Workplace Environment

Purpose of activities	Activities during fiscal 2019	Self-assessment	Targets/plans for activities from fiscal 2020 onwards
<ul style="list-style-type: none"> Promoting safety and health activities 	<ul style="list-style-type: none"> Promote the Zero Occupational Accident Project 	C	<ul style="list-style-type: none"> Continue the Zero Occupational Accident Project
	<ul style="list-style-type: none"> Conduct the Campaign to Eliminate Multiple Accidents (Top Three) at each plant* 	B	<ul style="list-style-type: none"> Expand the Campaign to Eliminate Multiple Accidents to the top three ranked accidents and finish the campaign*
	<ul style="list-style-type: none"> Promote equipment safety based on risk assessments (rate of reduction of critical risks: 90%) 	A	<ul style="list-style-type: none"> Make efforts to ensure equipment safety based on risk assessments (rate of reduction of critical risks: 95%)
	<ul style="list-style-type: none"> Promote safety and health education through effective utilization of the Occupational Safety & Health Education Center and introduce Virtual Reality accident simulation training 	A	<ul style="list-style-type: none"> Continue to promote safety and health education through effective utilization of the Occupational Safety & Health Education Center and promote Virtual Reality accident simulation training
	<ul style="list-style-type: none"> Promote health measures through the individual health management system 	B	<ul style="list-style-type: none"> Operate the individual health management system
	<ul style="list-style-type: none"> Implement group analysis based on stress checks 	B	<ul style="list-style-type: none"> Promote the effective use of group analysis based on stress checks

Self-assessment grades A: Target achieved B: Target mostly achieved C: Target not achieved

* If each plant can eliminate their top three accidents, this can reduce the total number of accidents by around 60%. As such, we will continue and develop the same elimination campaign targeting three types of accidents over a period of three years starting in 2017 in the same manner.

Basic Approach

In Chapter 2 of the MMC Group Code of Conduct, we vow to “We are committed to providing a safe and healthy environment for all our stakeholders.” This is based on the notion that, if we can’t keep our employees safe and healthy, they won’t be able to provide secure and happy lives for their families, we won’t be able to operate effectively, and we will never be able to keep on expanding as a company.

MMC Group Basic Policy on Safety and Health Management

1. We will carry out safety and health activities based on full participation from all employees, underpinned by leadership and initiative from the President and other managing personnel.
2. We will ensure that all employees comply with the Industrial Safety and Health Act and other applicable legislation, manuals and operating procedures, and establish a workplace culture whereby everyone follows the rules and ensures that others do too.
3. We will make every effort to create pleasant workplaces that are healthy for both body and mind, for all employees, through activities aimed at creating open workplaces and promoting health.
4. We will take preventive measures in accordance with Ministry of Health, Labour and Welfare guidelines on the prevention of work-related traffic accidents and improve road etiquette amongst all employees, in order to eliminate traffic accidents based on our commitment to promoting road safety activities as an example to society as a whole.

And since 2018, we have declared that among the goals represented by SCQDE enacted as the guideline to decisionmaking concerning conduct of our work (priority order), "S" which represents "Safety and Health" is the first priority.

Guideline to decisionmaking concerning conduct of our work (priority order)

Let's act while recognizing the order of priority, "SCQDE"

1	S	Safety & Health	Safety & Health come first
2	C	Compliance & Environment	Compliance & Environment to ensure fair activities
3	Q	Quality	Quality Products and services provided to our "customers"
4	D	Delivery	Delivery dates to be met
5	E	Earnings	Reasonable profit (Obtained based on "customer" trust after satisfying SCQD)

"SCQDE" shows the order of priority of our business decisions. In providing customers with our products & services, we should thoroughly fulfill SCQ at first and satisfy D. We believe that we will be able to obtain trust from customers and society by continuously executing SCQD in good faith, and this will produce a reasonable profit.

Framework

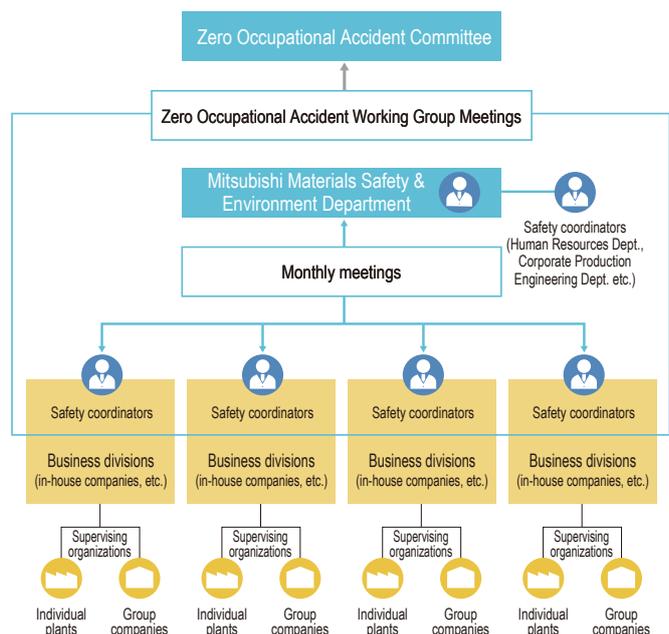
In the wake of the fire and explosion at our Yokkaichi Plant in January 2014, we launched a new Zero Occupational Accident Project in April that same year, and set about strengthening the foundations of safety and health on a groupwide scale, with the aim of eliminating serious occupational accidents resulting in four or more lost days.

In the Zero Occupational Accident Project, the Zero Occupational Accident Committee, which is chaired by an executive officer appointed by the president, checks the current situation, discusses the basic policy and specific measures, and implements them after deliberations and approval at the Executive Officers' Meetings, and regularly reports the progress status of the measures to the meeting. Based on factors including occupational accidents that have occurred, the Zero Occupational Accident Committee identifies priority issues that our Group should tackle and sets priority tasks for safety and health management through consultations with the Zero Accident Labor-Management Meeting and strives to make improvements through the PDCA cycle in accordance with the situations of each facility.

Implementation of each measure revolves around the Mitsubishi Materials Safety & Environment Department. We also appoint Safety Coordinators at each in-house company to share information regarding progress and issues with safety and health measures at plants/factories under their management, including Group companies, with the Safety & Environment Department via monthly meetings, and to consult regarding solutions.

We have an integrated groupwide promotion framework in place whereby Safety Coordinators take part in Zero Occupational Accident Working Group Meetings, to report on and discuss matters that extend beyond the confines of individual companies.

At the same time, Safety Managers, Safety Coordinators and Safety Instructors are assigned to individual plants / factories, where their role is to promote safety activities. We hold regular Groupwide Safety Manager meetings and meetings for Safety Coordinators and Safety Instructors, where we exchange openings on a wide range of occupational accident information and health and safety activities across the Group and the various business sectors in which it is involved, and endeavor to raise the level of health and safety.



Management Priorities

To expand the joint labor-management initiative to achieve zero occupational accidents, we have identified issues at the MMC Group in light of occupational accidents, etc. that occurred last year, engaged in joint labor-management discussions on the particular items to be addressed to achieve solutions, and designated management priorities on that basis. In 2018, we set out the following management priorities, and rolled out occupational safety and health management systems at each of our plants / factories accordingly.

Group-wide priorities for safety and health management (2018)

1. Conducting Campaign to Eliminate Multiple Accidents (Top Three) at Each Plant

If each plant can eliminate their top three accidents, this can reduce the total number of accidents by around 60%. As such, we have decided to expand the Campaign to Eliminate Multiple Accidents, which we conducted in 2017, continue and develop the same elimination campaign targeting three types of accidents over a period of three years starting in 2017 in the same manner, and develop the campaign into a system that will keep us accident-free in the future.

[Procedure]

- ① Each plant designates what accidents to eliminate.
 - ② A Declaration to Eliminate Accidents is adopted at each plant about an accident selected at that plant.
 - ③ The risks relating to the designated accidents are thoroughly identified, measures to reduce risks are considered and implemented, and the results in terms of risk reduction and accident elimination are assessed.
- A permanent mechanism is established for measures to reduce risks that do not depend on temporary managerial measures, such as education and calling for vigilance.

2. Thorough efforts to make equipment safe (engineering measures) through risk assessments (RA)

At the core of our work on safety management priorities is our efforts to make equipment safer through engineering measures by utilizing risk assessment, which we have been promoting since 2015. We set the index for these activities as an 80% reduction rate (risk level II or below: acceptable level) of high risks (risk level III or above: unacceptable level). All plants are working to exceed this index.

An analysis of the types of occupational accidents occurring at the MMC Group has revealed that many occupational accidents occur due to two factors: “flawed protective and safety measures” such as incomplete safety measures for machinery and equipment, and “proximity to dangerous areas,” such as touching machinery or equipment while it is operating. To strengthen the physical measures in place by reviewing structures and mechanisms from the perspectives of the foolproof*1 and failsafe*2, we are employing thorough engineering-based action through risk assessments.

Further, with respect to occupational accidents caused by “flawed operating methods” such as the use of inappropriate tools and jigs or incorrect operating procedures, we will strive to make risk assessment-based improvements including the verification of operating methods, and revised operating procedures that reflect hazard prediction.

Risk assessment is an effective means of discovering, eliminating or mitigating potential danger or harm attributable to operating practices and other work performed at a manufacturing site. At the MMC Group, we implement risk assessment activities from the perspective of workers on the production floor at each facility. We have trained risk assessment instructors to improve the ability to identify unsafe equipment states and began offering training classes from October 2015. About 500 people have taken the course as of March 2019. Centering on these instructors, it is contributing to enhancing and stimulating on-site activities.

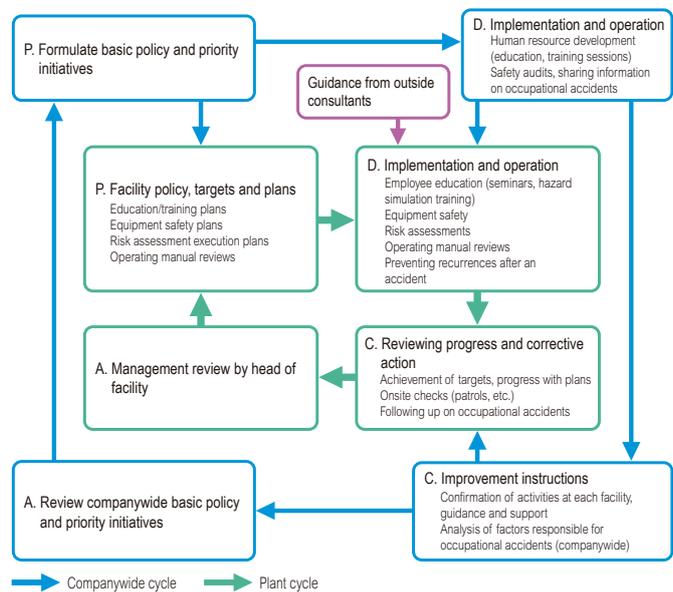
*1: Foolproof: A function that prevents human error from resulting in an occupational incident or disaster

*2: Failsafe: A function ensuring that equipment will operate on the safe side in the event of mechanical malfunction, power outage or otherwise

3. Promotion of Safety for Basic Actions

We are seeing an increasing number of accidents that occur during basic actions, such as minor accidents during basic actions in irregular procedures, incision caused by the use of a cutter, falling while walking or doing a task, and falling or twisting while going up or down (hereinafter, “accidents during basic actions”). While accidents during basic actions are low in energy, they are serious, resulting in at least 40 days of absence from work on average. We have therefore decided to take measures to eliminate these accidents. Tangible measures include the safety improvement of passageways and staircases and the installation of fences. We will also take intangible measures including the promotion of risk prediction, ensuring the use of handrails, measurement of physical age, and other awareness-raising activities carried out in the overall plant.

■ Group occupational safety and health management system



Enhancing Safety and Health Education

We thought that personal experiences of hazards are important to improve hazard awareness, so started running an Occupational Safety and Health Education Center -“Midori-kan” in March 2017. The center has 50 different hazard experience facilities inspired by the actual work environment and the dangers that hide in everyday tasks. It also regularly provides specialized education needed for work safety and health in dedicated classrooms, in addition to hazard experience education by expert instructors. Since its establishment until March 2019, the Center provided hazard sensitivity training for more than 2,600 Group employees, approximately 500 of whom have also complete specialized training courses.



Occupational Safety and Health Education Center - “Midori-kan”



Monument for safety and health
The monument for safety and health in the courtyard of the Midori-kan. The design consists of a green cross, meaning safety, surrounded by five materials symbolizing our business.

Hazard experience education using VR (virtual reality)

We introduced VR hazard experience education at our Occupational Safety and Health Education Center in May 2018 to allow participants to experience hazard difficult to simulate with regular equipment. VR allows participants to have a 360° field of vision, better realism and immersion through haptic and other technologies, and experiences of hazard until the end (e.g., before, during and after falling). It is helpful for creating better hazard awareness. Because the devices are portable, we have decided to provide the training at each plant of the Group. They have been lent and used at seven direct-controlled plants by March 2019. Further, in 2019, we will introduce second and third sets of devices and lend them to Group companies, aiming to improve hazard awareness.

VR hazard experience courses (Occupational Safety and Health Education Center)



High temperature accidents (gas releases)



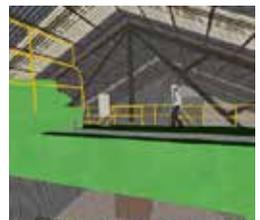
High temperature accidents (steam explosions)



Forklift accidents (driver moving forward)



Forklift accidents (pedestrian moving backward)



Falling accidents (falling from crane)



Falling accidents (stepping through the floor)



Caught-between accidents (press)



Caught-in accidents (high-speed conveyor belt)



Caught-in accidents (slow-speed conveyor belt)

Raising Employees' Awareness of Health and Creating Mentally and Physically Pleasant Workplaces

Promoting Measures to Maintain and Improve Employee Health, and Improve Working Environments, in Order to Prevent Work-related Diseases

Our attitude to health management is that healthy employees are an essential resource for the company, and we are working to improve our health systems on a companywide basis.

Since FY2016, we have been giving employees health advice after their regular health checks, provided by public health nurse from Head Office. We continued this initiative in FY2019, and have also been offering advice on improving lifestyles, in the interests of detecting and treating illness as early as possible and preventing lifestyle-related diseases.

Starting from April 2018, we have worked to consolidate the institutions in charge of health examinations within the Company as well as initiated a centralized system managing digitized health information, such as physical examination results. This has facilitated more accurate health management and work effectivization. We will improve health management by drafting and implementing highly effective health promotion measures that are based on data.

Meanwhile, we are committed to continually improving workplace environments to prevent work-related diseases, including stepped-up efforts to manage hazardous substances (poisonous substances, toxic substances, chemicals) and prevent exposure.

Stepping Up Mental Healthcare Initiatives

We continually provide various mental healthcare training as a form of primary preventive care for mental health issues (such as improving workplace environments and providing training). As part of "line-care" training for management personnel, clinical psychologists from Head Office are scheduled to visit all of our sites every two years. In terms of "self-care" training, we select members of staff at each facility to undergo training, so that they can assume the role of instructors as we roll out training to all employees. We also provide mental health training as part of our global human resource and position-specific training programs. Starting from fiscal 2019, all employees who have been with us for three years get to talk to the clinical psychologist stationed at each plant, in an effort to forestall mental health issues. We have decided to expand this initiative to all employees who have been with us for 30 or 31 years in fiscal 2020.

By way of secondary and tertiary preventive mental healthcare (such as early response to employees with mental health issues and support for their return to work), we continue to offer meetings and consultations with industrial healthcare staff at each of our sites, as well as using external back-to-work programs to enable employees to reintegrate smoothly into their jobs and prevent them from having to take further time off.

We operate a stress-check system required by law at all facilities and offer meetings with physicians as needed. In the future, Moreover, we are committed to further strengthening our mental health measures for example by applying the results of group analysis to our workplace improvement activities.

Strengthening Safety and Health Systems

Establishing a Safety and Health Award Scheme

We have established a scheme to award groups and individuals serving as an example to the MMC Group in outstanding safety and health improvement activities over the course of the year.

As the activities carried out by grand prize winners cannot be adequately described in writing, we hold guided visits of facilities open to Groupwide participation as an opportunity to observe the award-winning activities as well as exchange opinions and gain insight into overall safety and health improvement activities.

The fourth awards were presented in April 2019. The below table lists the facilities presented with awards in the group category. Moving forward, we will continue to actively roll out these outstanding activities within the Group in a bid to further raise the levels of safety and health.

■ The fourth safety and health activity awards

Award	Winner	Award-winning Activities
Grand Prize	Safety & Health Committee, Sambo Plant, Mitsubishi Shindoh Co., Ltd.	Promotion of mine safety activities, for which an award was received from the Minister of Economy, Trade and Industry
Incentive Award	Safety & Health Committee, Sambo Plant, Mitsubishi Shindoh Co., Ltd.	Promotion of improvement of safety climate
	Akashi Plant	Enhancement of accident simulation training for improving employees' hazard awareness
	Kyushu Plant	Support for safety activities of affiliates
Honorable Mention	Naoshima Smelter & Refinery	Activities for eliminating accidents requiring leave caused by lower back pain and activities for improving employees' constitution
	Kyushu Plant	Continuation of activities for eliminating heat stroke

Safety and Health Instruction Utilizing Outside Consultants

As the results of an analysis of past occupational accidents revealed issues in risk identification, we have been providing MMC Group facilities with safety and health guidance through outside consultants. Having an expert point out latent risks that are usually overlooked by on-site personnel and taking measures to mitigate the identified risks raises the on-site safety level and improves the hazard sensitivity of employees.

Promoting the Rollout of Information within the Group through consolidation and Dissemination

The Safety & Environment Department has been running an internal portal website since February 2017 for the collection, dissemination, and viewing of information about safety, health, disaster prevention and the environment. As regards health and safety, safety data and safety chronology that had previously only been stored on head office servers along with occupational accident case studies, documents used for safety and health training and information concerning health and mental health have been classified, organized and published to the intranet.

Computer graphics have been used to produce videos depicting cases of typical occupational accidents that have occurred in the MMC Group. The videos can be used to offer straightforward explanations of the conditions of an occupational accident, its cause, countermeasures taken and the lessons learned.

All past accidents in the Group have been entered into a database. That database has been available on the internal portal website since June 2017. It allows keyword and full-text searches and the creation of accident calendars, contributing to the preparation of safety education materials as well as measures against similar accidents. It is constructed so that all plants can obtain the necessary information swiftly and accurately, helping to bolster our safety foundation and foster a safety culture.

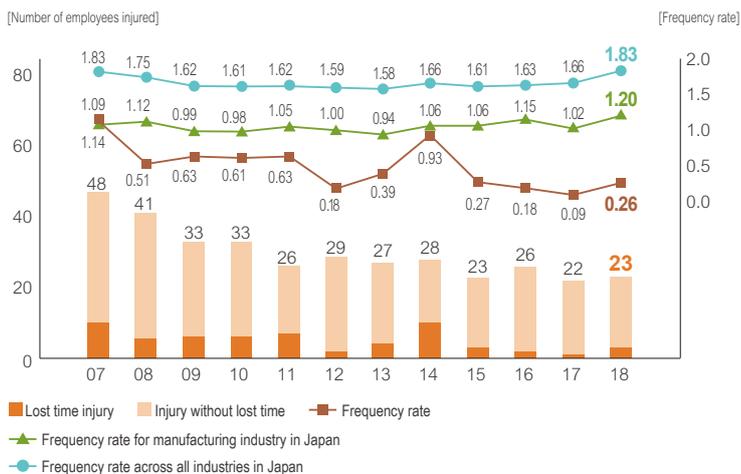
Disseminating Examples of Safety and Health Best Practices

Since 2014, we have been compiling a collection of safety and health best practices on a yearly basis, highlighting unique and highly-effective initiatives implemented at each MMC Group facility to prevent occupational incidents. We are promoting the spread of best practices by presenting them during National Safety Week as a shared asset for increasing the Group's safety and health levels.

Safety Record

The number of employees involved in occupational accidents, including injuries without lost time, in the Company and in 22 major Group companies was as high as 176 in 2018. Of these, 48 were lost time injuries. The number of accidents at the Company, on a non-consolidated basis, has been showing a downward trend for the past ten years, but it has leveled off in recent years. The Company's accident frequency rate (number of deaths and injuries per 1 million working hours), which is an assessment of the frequency of occupational accidents, was 0.26. This is lower than the manufacturing industry average of 1.20. However, we will position 2019 as the year for reviewing our campaign to eliminate multiple accidents, in which we will examine the campaign implemented in the past two years, add further measures for preventing accidents, and promote initiatives to achieve our goal of zero accidents.

■ Safety Record Trend (Mitsubishi Materials)*



* Figures are based on calendar years and do not include minor incidents

■ Breakdown of safety performance (incl. partner companies)

		2015	2016	2017	2018
MMC (non-consolidated)	Fatal	0	0	0	0
	Lost-time (or more serious)	3	2	1	3
	No lost-time	20	24	21	20
MMC (subcontractors)	Fatal	0	1	0	0
	Lost-time (or more serious)	5	3	7	10
	No lost-time	11	14	11	13
Group companies (Incl. subcontractors)	Fatal	0	0	0	0
	Lost-time (or more serious)	28	14	32	35
	No lost-time	93	90	109	95
Totals	Fatal	0	1	0	0
	Lost-time (or more serious)	36	19	40	48
	No lost-time	124	128	141	128

Number of employees injured

Responsible Procurement of Raw Materials

Purpose of activities	Activities during fiscal 2019	Self-assessment	Targets/plans for activities from fiscal 2020 onwards
<ul style="list-style-type: none"> Operating CSR Procurement Guidelines for the Procurement & Logistics Division 	<ul style="list-style-type: none"> Supplier self-check sheets for existing suppliers were submitted by 264 companies (response rate: 70%) Supplier self-check sheets for new suppliers were submitted by 99 companies (response rate: 100%) Reviewed and assessed 254 suppliers 	A	<ul style="list-style-type: none"> Rate of collection of Self-Check Sheet is 70% or higher Assessed 206 existing suppliers Reviewed 100% of new suppliers
<ul style="list-style-type: none"> Copper Product Raw Material Procurement Initiatives 	<ul style="list-style-type: none"> Formulated and operated a policy on the responsible procurement of minerals 	A	<ul style="list-style-type: none"> Operated a policy on the responsible procurement of minerals

Self-assessment grades A: Target achieved B: Target mostly achieved C: Target not achieved

Basic Approach

As a comprehensive materials manufacturer, we work in partnership with wide range of suppliers throughout the value chain, in an effort to improve added value and promote global procurement with an emphasis on stable product supplies and more competitive products.

Stable procurement is important in terms of reducing opportunity loss and maintaining consistent operations. We therefore aim to build close relationships with all of our suppliers, ensuring that all transactions are fair, avoid corruption, comply with the law and take into account issues such as human rights.

Operating CSR Procurement Guidelines for the Procurement & Logistics Division

In an effort to reinforce our organizational capabilities with regard to CSR priorities throughout the global supply chain, we have informed suppliers of the CSR Procurement Guidelines for the Procurement & Logistics Division and incorporated the guidelines into basic agreements.

The guidelines apply to all raw materials (excluding those for copper, cement and aluminum products) and equipment. They consist of a Basic Procurement Policy, which sets out the division's responsibilities, such as respect for human rights, safety and health, and environmental protection, and our CSR Procurement Standards with which we require our suppliers to comply to secure product quality and safety.

To ensure the effectiveness of initiatives taken by suppliers, the division has been screening and evaluating suppliers since April 2016.

Before starting transactions with new suppliers, we request that they conduct self-evaluations using a Supplier Self-Check Sheet, which consists of items that assess their initiatives on social responsibilities related to human rights (such as child labor, forced labor, and unreasonably cheap labor) and procurement (including negative environmental impact), in addition to general items such as quality, cost and delivery. The division assigns scores according on their answers to the 12 evaluation items on the Self-Check Sheet.

Based on rules of the division, we request that existing suppliers evaluate themselves every other year using the Supplier Self-Check Sheet, thereby checking the progress of their initiatives. In addition, concerning major raw materials that must be managed on an item-by-item basis, the division evaluates the comprehensive performance by using the Supplier Evaluation Sheet, which consists of 28 evaluation items.

We provide feedback on the results of these evaluations to suppliers, including items that need improvement, and monitor them as needed.

In fiscal 2019, we collected Supplier Self-Check Sheets from 363 suppliers (99 new ones and 264 existing ones). We conducted screenings of all 99 new suppliers and periodic evaluations of 155 of the 264 existing ones.

The division's priority activity in fiscal 2020 is to promote purchases from multiple suppliers of major raw materials, which were purchased from single suppliers, from the viewpoint of ensuring stable procurement.

CSR Procurement Guidelines for the Procurement & Logistics Division

[Basic Procurement Policy]

1. Open door/fair trade

The Procurement & Logistics Division opens its doors wide for all suppliers. We decide on suppliers based on fair assessments of quality, price, delivery time, management base and so forth, predicated on mutual trust for the sake of mutual prosperity. We conduct no unfair dealings.

2. Compliance with legislation and corporate ethics

The Division complies with legislation in Japan and abroad. We also do not act in ways that go against corporate ethics.

3. Safety and Health, environmental preservation and measures to combat global warming

The Division holds safety and health, environmental preservation and measures to combat global warming as priority tasks.

4. Respect for human rights

The Division respects the fundamental human rights of all persons involved.

5. Information security

The Division maintains as strictly confidential information obtained from the suppliers.

[CSR Procurement Standards]

1. Respect for human rights

To respect basic human rights, to not discriminate with regard to employment or treatment, and to not deal in child labor, forced labor or unfair low-wage labor.

2. Compliance with legislation and corporate ethics

To comply with legislation in Japan and abroad and to not act in ways that go against corporate ethics, including the provision or acceptance of inappropriate benefits and dealing with anti-social individuals or groups.

3. Safety and Health

To work to ensure and improve safety and health, such as by preventing occupational accidents.

4. Environmental preservation

To abide by legal environmental standards and to strive to preserve the environment, such as by disposing of industrial waste in an environmentally sound manner.

5. Information security

To establish an information management system, to implement measures to prevent the leakage of confidential information and to take special care to strictly manage obtained personal information.

6. Ensuring product quality and safety

To ensure the quality and safety required for the products.

Cement Product Raw Material Procurement Initiatives

Limestone is the principal raw material used in cement production. MMC procures the limestone for use in its cement plants from three Group-owned limestone mines in Japan and two overseas mines (in the United States and Vietnam). It seeks to build relationships of trust with the local communities in which it conducts limestone mining and transportation by implementing various exchange and cooperation activities, while also endeavoring to minimize noise and preserve the habitats of rare species.

Aluminum Product Raw Material Procurement Initiatives

In the Aluminum Business, we not only manufacture aluminum plates but have built a CAN to CAN recycling system, in which we procure and recycle used aluminum cans into a raw material. In addition, Mitsubishi Aluminum Co., Ltd., a Group company, procures materials such as new aluminum metal. We promote fair and impartial transactions with all of our business partners based on mutual trust, with awareness of the prevention of corruption, compliance with laws and regulations, respect for human rights and others.

We also proactively promote initiatives for fulfilling our corporate social responsibilities, such as protection of the global environment, by working with our major business partners in Japan and other countries.

Copper Product Raw Material Procurement Initiatives

We procure copper concentrate, a raw material for copper products, primarily from the overseas mines in which we invest, and while this places us in the position of a non-operator not directly involved in mine management, as a member of the International Council on Mining & Metals (ICMM) and a company engaged in global procurement activities, we hope to fulfill our sustainable development responsibilities.

If we have interests in a mine over and above a certain scale, we assign members of staff and go out of our way to engage in dialog with indigenous people and members of the local community, through advisory committees for example.

Moreover, our Metals Company requires the mining companies to comply with CSR loan and investment standards (if we are investing) and CSR procurement standards. We also check that those standards are followed, for example through regular questionnaire surveys, and if deemed necessary, we seek to understand and improve the situation. We include environmental preservation and respect for human rights as important matters to consider in our business processes as we manage our global supply chain.

Metals Company: Outline of CSR Procurement Standards

[Continual improvement of environmental performance]

- Introduce and implement environmental management systems focusing on continual improvement.
- Reduce negative environmental impact from mine development and operation.
- Take into account protected natural areas and protect biodiversity.
- Consult with stakeholders regarding environmental issues.

[Continual improvement of occupational safety and health]

- Introduce safety and health management systems focusing on continual improvement.
- Protect employees and contractors from occupational accidents. Implement disease prevention measures including local communities.

[Protection of basic human rights]

- Prevent forced and child labor.
- Eliminate harassment and discrimination.
- Avoid forced resettlement, or provide compensation.
- Protect indigenous people.
- Manage and record complaints and disputes with stakeholders.
- Eliminate any involvement, either direct or indirect, with militia or other armed groups in areas of conflict where there are concerns regarding human rights violations.

Metals Company: Outline of CSR Investment Standards

[Protection of basic human rights]

Protect the basic human rights of people impacted by our business operations. Consult with stakeholders regarding local community issues. Eliminate any involvement, either direct or indirect, with militia or other armed groups in areas of conflict where there are concerns regarding human rights violations.

[Mining and protected areas]

Identify and evaluate impact on cultural and natural heritage, and risks to biodiversity at every stage of our business. Develop and implement mitigation measures.

[Mining and indigenous people]

Understand and respect the society, economy, environment, culture and rights of indigenous people. Conduct social impact assessments with regard to indigenous people and provide appropriate compensation.

[Relationship with the local community]

Verify if there are any disputes or lawsuits with the local community. Engage in consultation and dialogue to explain business plans.

[Environmental preservation]

Conduct environmental impact assessments (EIA) and obtain appropriate permits. Set out specific policies to reduce the environmental impact of mine development and operation.

[Mineral resources and economic development]

Contribute to sustainable economic development at the regional and national level.

Environmental Impact Assessment for Zafranal Project (Peru)

Mitsubishi Materials Corporation joined Zafranal copper mine development project in Peru with Canadian mining company Teck Resources Limited and its subsidiary. Now the feasibility study is being carried out.

Compania Minera Zafranal S.A.C. (CMZ) operates the project. Mitsubishi Materials Corporation (MMC) has 20% share of the project and assigns personnel at the subsidiary established in Peru. MMC communicates closely with CMZ and works together in order to progress the project.

CMZ prizes the cultures, values, traditions and historical heritages of local communities, and has been establishing transparent and sincere long-term partnership with them. CMZ is having dialogues with local communities and additional stakeholders, and also conducting individual briefing, responding their inquiries. CMZ has been building public trust with taking in local opinions and needs through these activities.

In preparation for the legal process of the Environmental Impact Assessment, CMZ is consulting with local communities, and undertaking environmental and social baseline studies in the project and related infrastructure areas.

As a Responsible Business Operator Procuring and Smelting Minerals

From Conflict Mineral Management to Responsible Mineral Procurement Management

The United States' Dodd-Frank Wall Street Reform and Consumer Protection Act requires all companies listed in the US to disclose whether their products contain "conflict minerals," defined as gold, tin, tantalum and tungsten, along with details of reasonable survey on producing countries and the survey results, in an effort to prevent minerals mined in the Democratic Republic of Congo (DRC) or its neighboring countries from being used to fund the activities of armed groups responsible for human rights violations and other acts of violence. Recently, considerations are given beyond the scope of conflict minerals and from a broader perspective of responsible mineral procurement, mainly in EU countries. At present, cobalt and silver are also examined, and in tandem with movements of OECD and SEC, organizations such as RMI and LBMA have formulated guidance related to the issue of conflict minerals (responsible mineral procurement management).

As a responsible business operator smelting gold, silver, and tin, we promoted initiatives to respond to these global requirements, formulated a related policy, and disclosed it.

Metals Company (Initiatives with Respect to Gold, Silver, and Tin)

The Metals Company has pledged its support for a campaign to ensure a transparent flow of funds related to mineral resources, as promoted by the Extractive Industries Transparency Initiative (EITI)^{*1} since June 2011.

We began preparations for tackling the issue of conflict minerals in 2012, obtained certification in August 2013 for our compliance with the London Bullion Market Association (LBMA)^{*2} gold guidance and have had this certification renewed every year since. Since February 2014, we have received annual certification of our conformance with the RMAP of RMI^{*3} regarding tin.

*1 Responsible Minerals Initiative (RMI)

*2 London Bullion Market Association (LBMA):

The LBMA implements and oversees compliance with quality requirements for gold and silver bullion circulated in the market.

*3 Extractive Industries Transparency Initiative (EITI):

The EITI is a global framework established to improve the transparency of financial flows from extractive industries engaging in the development of oil, gas and mineral resources to the governments of resource-producing countries. Its aim is to prevent corruption and conflicts, and thus to promote responsible resources development that can facilitate growth and help to reduce poverty.

<http://eiti.org/>

*4 Certification under the Responsible Minerals Assurance Process (RMAP, formerly the Conflict-Free Smelter Program [CFSP])

Metals Company Responsible Minerals Control Policy

Establishment date: 19th June 2013
Last revised date (Rev.4): 15th February 2019

The Metals Company (hereinafter the "Company") engages in bullion manufacturing for gold, silver and tin. The Company does not procure materials originating from high risk areas, such as conflict-affected areas, connected to human rights abuses, terrorist financing, money laundering and illegal trade. To rigidly maintain this practice of nonuse, the Company has adopted a control system that follows the London Bullion Market Association (LBMA) guidance for gold and silver, and the Responsible Mineral Initiative (RMI) Responsible Minerals Assurance Process (RMAP) for tin and Undergoes regular audits by third-party bodies.

The Company hereby sets out its responsible minerals control policy applicable to gold, Silver and tin as follows and will implement the following measures.

1. General Provisions

- (1) The Company will respect human rights and avoid direct or indirect involvement with inhumane acts. For this purpose, the Company will not use suspicious minerals which may be connected to conflict-affected and high risk areas where armed conflict, widespread violence and other risks may harm individuals.
- (2) The Company will perform risk controls on material procurement and will immediately stop a transaction when it becomes known that the Company is purchasing minerals originating from and connected to those in power in conflict-affected and high risk areas.
- (3) The Company annually receives third-party assurance on its procurement of materials containing gold, silver and tin, and reports the audit results concerning gold and silver to LBMA and those concerning tin to RMI.

2. Control System and Responsibility

- (1) The Company's headquarters deals with all operations for mineral control Smelters and refineries do not procure materials independently.
- (2) The compliance officer appointed by the Company assumes authority and responsibility stipulated in the control manual, including those for overseeing relevant sections and divisions and for operating the control system.
- (3) The supply chain officer appointed by the Company assumes authority and responsibility stipulated in the control manual, including those for overseeing the entire control system and for regularly conducting management reviews.

3. Judgment Criteria for Material Procurement from Conflict-Affected and High-risk Area

The Company considers procurement of materials containing gold, silver and tin with definite or highly suspicious connections to specific conflict-affected areas as determined by the Company and high risk areas connected to human rights abuses, terrorist financing, money laundering and illegal trade as high risk.

4. Implementation of Due Diligence on Material Suppliers

The Company will practice due diligence and perform risk assessments on all suppliers of materials containing gold and silver and all suppliers of materials containing tin. The Company will immediately stop a transaction when it is deemed by the supply chain officer as being high risk, as a result of the risk assessment.

5. Monitoring of Materials Purchased by the Company's Headquarters

- (1) Materials purchased by the Company headquarters are supplied to smelters and refineries, which will check the actual goods and analyze the content of gold, silver, tin and/or other metals for every lot, to examine consistency with the information from suppliers provided in advance by the Company headquarters and to report the findings to the Company headquarters.
- (2) The Company will effectively utilize the monitoring system for incoming materials, Which has long been in place, for the purpose of responsible minerals procurements control at the Company headquarters and operate it as a system for the prevention of contamination with high risk minerals.

6. Operation of the Responsible Minerals Sourcing Control System

- (1) The compliance officer will provide education and training to the relevant sections and divisions of the Company headquarters and to the smelters and refineries as needed.
- (2) The compliance officer will perform at least one internal monitoring per year of the relevant sections and divisions of the Company headquarters and of the smelters and refineries to assess if operations are properly performed in accordance with the responsible minerals sourcing control system or if there are any deviances from the system.
- (3) In the event of starting transactions with a new supplier for material procurement, the Company will ensure that the information is communicated to the compliance officer in an effort to prevent contamination with high risk minerals.
- (4) The compliance officer will keep the records of all operations concerning responsible minerals sourcing control and retain them for five years. The relevant documents of the control manual will be revised as needed and properly managed.

* We disclose the LBMA Responsible Gold Guidance Compliance Report and the Independent Assurance Report (KPMG AZSA Sustainability Co., Ltd.) on our official website.

Japan New Metals Co., Ltd. (Supervised by the Metalworking Solutions Company) (Initiatives with Respect to Tungsten)

Japan New Metals Co., Ltd., a Group company whose operations include tungsten smelting and refining, encouraged its suppliers to obtain external certifications for its use of conflict-free minerals, by visiting Chinese smelters and refineries as its suppliers and carrying out other activities. Japan New Metals also made preparations to obtain a certification. The company formulated a Procurement Policy in April 2014 and acquired certification of its conformance with the RMAP regarding tungsten in December of that year.

JAPAN NEW METALS CO., LTD. Mitsubishi Materials Group
 a pioneer of advanced technology materials

Products R & D Data **Company** Contact Us

HOME » Company » Procurement Policy

Company

Procurement Policy

Action for Addressing Conflict Minerals Issues

Minerals produced in the Democratic Republic of Congo (DRC), its neighboring countries and other regions undergoing continuous conflict act as a source of funds for arming anti-government rebels committing atrocious human rights abuses and acts of violence. This is now a significant international issue. The Organization for Economic Co-operation and Development (OECD) calls on businesses to respect human rights in their mineral supply chains, when minerals come from conflict-affected and high-risk areas, and to implement risk control to avoid involvement in conflicts.

In response to this situation, the U.S. Securities and Exchange Commission (SEC) issued a rule concerning "Conflict minerals" under Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act, which is imposed on companies listed in the US for disclosure and reporting requirements relating to their use of four minerals - tin, tantalum, tungsten and gold - produced in the DRC and its neighboring countries, as well as their countries of origin.

As a member of Mitsubishi Materials group, Japan New Metals strives to procure minerals in a responsible manner and is strengthening its procurement processes to avoid conflict minerals in its supply chain, in light of the main purpose of this legislation.

Moving forward, Japan New Metals will continue to coordinate with business partners and stakeholders to develop initiatives aimed at avoiding the use of conflict minerals while promoting endeavors aimed at more responsible mineral procurement, including efforts to prevent assisting money laundering, fostering conflicts, and being complicit in human rights abuses or acts of violence.

- Greeting
- Company Profile
- Corporate Philosophy
- Quality Policy
- Environmental Policy
- Procurement Policy**
- Location

Procurement Policy of Japan New Metals Co., Ltd.

Product Quality and Safety

The Circumstances of and Responses to the Group's Quality Issues

Quality Issues Occurred in Our Group

As we announced in November 2017 and February 2018, it was discovered that certain products manufactured and sold by five MMC subsidiaries in the past had been shipped in conditions that deviated from customer standards or internal company specifications due to misconduct, including the rewriting of inspection records data. An issue related to quality control methods in copper slag aggregate manufacture at our Naoshima Smelter & Refinery was also occurred, leading to revocation of JIS certification of the product in June of 2018.

We implemented measures to prevent recurrences at the five subsidiaries and Naoshima Smelter & Refinery.

We also conducted a thorough analysis of the root causes and backgrounds of these issues, and derived the following themes for the entire Group.

1. Main causes of the shipment of non-conforming products

- ◆ Inadequate framework for exerting influence on product development and order receiving processes at order receiving stage
- ◆ Attitude excessively prioritizing "order receiving" and "delivery date"
- ◆ Order received and mass production that the specifications exceeding manufacturing capability
- ◆ Insufficient framework of quality assurance system
- ◆ Pressure on quality assurance departments from other departments
- ◆ Low awareness of compliance with specifications
- ◆ Arrogance in thinking that quality control is being achieved
- ◆ Low sensitivity to risk in relation to quality issues
- ◆ Insufficient business resources (insufficient inspectors, inspection equipment, etc.)
- ◆ Audit procedures that has become a mere facade

2. Recognition of Group Governance Issues

1. Communication

- Harmful effects of the vertically-segmented organizations
- Insufficient control over subsidiaries
- Insufficient sharing and communication of information regarding governance-related matters

2. Compliance Framework and Awareness

- Compliance awareness is insufficient at each level; necessary knowledge has not been acquired
- Awareness of our responsibilities as an organization and business is shallow
- Insufficient capacity to discover misconducts, take initiatives to resolve issues, and make timely reports

3. Resource Allocation

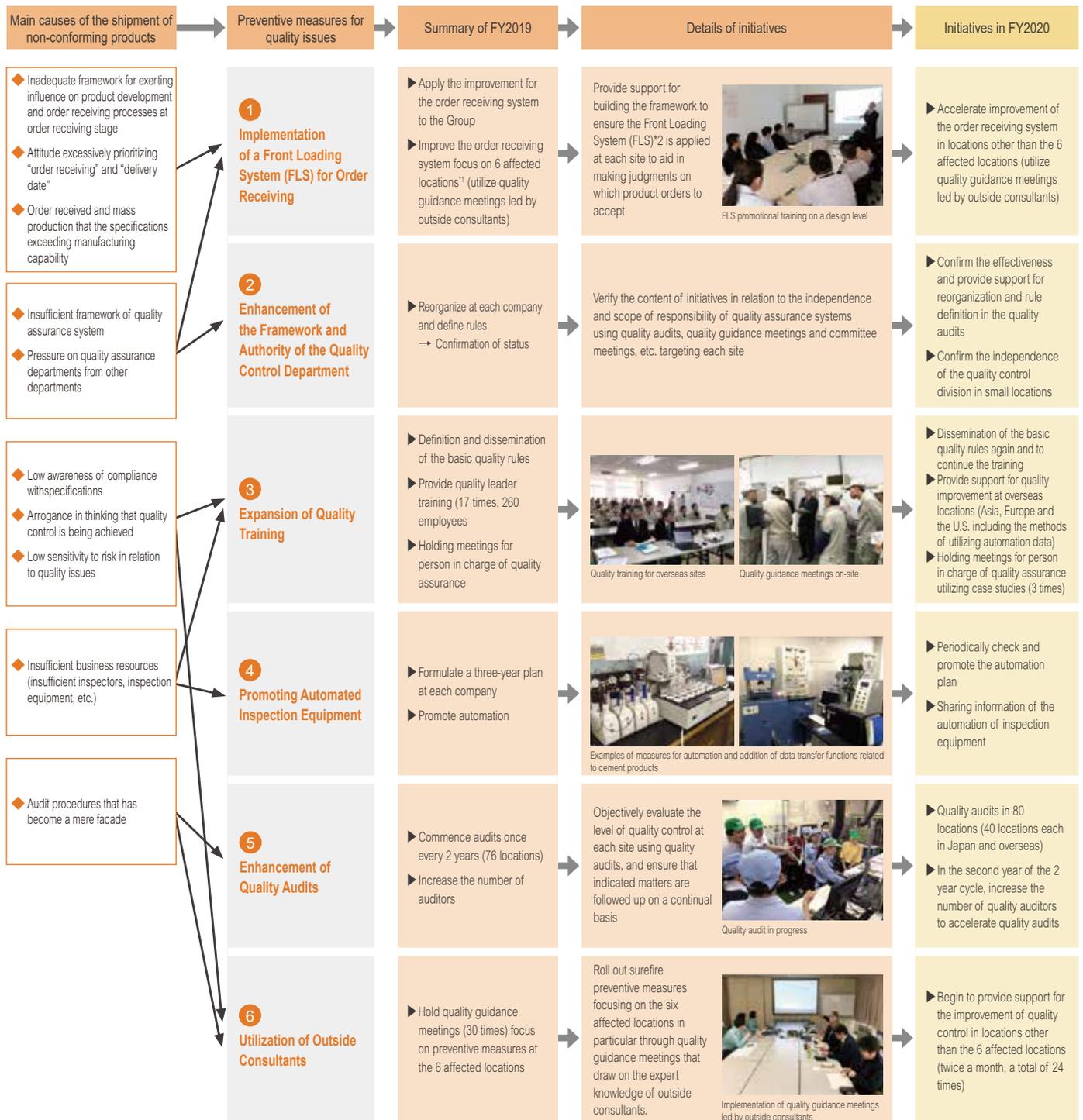
- Insufficient process capabilities that are adequate for received orders or insufficient inspection and quality assurance framework
- Unsuitable resource allocation due to priority on earnings, postponement of necessary capital investment, etc.

Based on this awareness of the issues concerned, we formulated "Restructuring Measures of the Governance Framework for Quality Control in the MMC Group" and "MMC Group Governance Framework Enhancement Measures" and initiated their implementation.

We intend to proceed with these measures with a stronger sense of crisis at an accelerated speed to prevent recurrence of the problems and restore trust in our Group.

Restructuring of the Governance Framework for Quality Control in Our Group

To realize the quality policy of the Mitsubishi Materials Group of “manufacturing and providing the first class quality products that meet customers’ requirements and that guarantee their satisfaction,” we have formulated and implemented measures against the causes of the shipment of nonconforming products to prevent a recurrence of quality issues. The series of quality issues showed that a range of problems and issues seen from various perspectives contributed to causing the shipment of non-conforming products. Based on the lessons we have learned from these failures, the Group is firmly resolved to make steady progress on measures for enhancing the quality control systems in place in an effort to restore trust in the Group.



*1 Six affected locations: Mitsubishi Cable Industries, Ltd., Mitsubishi Shindoh Co., Ltd., Mitsubishi Aluminum Co., Ltd., Tachibana Metal Mfg. Co., Ltd., Diamet Corporation, Naoshima Smelter & Refinery

*2 A system used to review and make judgments on specifications and receiving orders across multiple related departments in advance in order to avoid accepting orders for difficult-to-produce products that exceed our production capabilities

Quality Control and Companywide Quality Activities

Quality Control and Assurance Systems

The Group revised its Basic Regulations on Quality in fiscal 2019 and began operating the revised regulations as a way to strengthen its governance system for quality management. Under the regulations, we reconfirmed the "Group Quality Policy" with the aim to provide first-class products that are satisfactory to our customers, and established and began operating the "Guidelines on Quality Management" to complement this. We will reestablish our quality assurance system, from the stages of design and development to those of production, shipping and sales, for all organizations involved in the quality improvement of products and services offered by the Group.

As such, we created a Quality Committee composed of quality liaison staff from eight departments, including the Governance Division's Quality Management Department and each company. In this way, we are making concentrated efforts to strengthen our governance system. The Quality Committee receives reports on quality activities in each company, including Group companies, reviews and shares information as well as work to prevent occurrences of quality issues. With the exception of the cases announced starting November 2017, no cases corresponding to quality crises as determined by our Basic Regulations on Quality have occurred in the Group or its companies in fiscal 2019.

The quality management system (QMS) based on ISO 9001 continues to be the foundation for our quality management and quality assurance work. We are regularly holding internal auditor courses, aimed at training ISO 9001 internal auditors, in the Kanto and Kansai regions as well as at individual plants.

Companywide Quality Meetings

The Quality Management Department conducts quality audits at all plants over the course of two years. For key locations, in the years when no audits are conducted there, quality meetings are held instead. There, the staff checks and discusses the quality control situation of each location as well as what measures can be taken to strengthen quality control governance. They then look into how to expand good practices to other plants, carrying out detailed support of quality control activities.

Other activities include providing information on revisions affecting quality management systems including ISO 9001, and the latest chemical legislation. The Quality Management Group also organizes seminars and internal auditor training upon request via quality meetings, in an effort to support quality management system improvement activities at facilities.

Quality Improvement Activities at Overseas Manufacturing Facilities

Our Advanced Materials & Tools Company has 12 overseas manufacturing facilities, which manufacture high quality products in conjunction with our domestic facilities. To accommodate production expansion at overseas facilities, we have continued efforts to dispatch technical instructors from domestic facilities and accept trainees in Japan to provide instruction on equipment maintenance, production technologies, inspection criteria and so on. Thanks to initiatives pursued over many years, today national employees have taken in the lead in quality improvement activities, including improvement meetings and revisions to quality management systems, and their motivation to learn new technologies has become the driving force behind quality improvements.

At the Advanced Products Company, we expanded to Southeast Asia early on with our Electronic Components business and made strides transferring production overseas. Today, we maintain for manufacturing sites in Southeast Asia for this business alone in the form of three subsidiaries and one subcontracting company, and have worked closely with the domestic ceramics plant as the "mother plant" to develop production systems.

With the shift of most production capacity overseas, quality improvement activities at overseas manufacturing sites have become increasingly important. In particular, we promote information sharing between plants to reduce the number of customer complaints on product quality, and in the interest of raising the quality control levels at overseas manufacturing sites to equal or exceed those at domestic sites, we regularly hold quality control manager meetings to gather overseas and domestic quality control managers and personnel responsible for practical work at local sites. By sharing quality improvement-focused initiatives and issues being tackled at each plant and discussing solutions at these meetings raises awareness and improves the skills of national staff overseas.

Quality Control throughout the Supply Chain (Jewelry-related business)

As part of our MJC jewelry brand, we carefully control the quality of all items throughout the supply chain, from manufacturing raw materials through to processing and distributing finished goods, in order to provide customers with reliable products at reasonable prices.

As well as addressing the issue of conflict diamonds based on the Kimberley Process*, we have created an original MJC Jewelry Quality Rule Book, covering matters such as compliance with the Washington Convention (CITES), metal allergy measures and traceability, and continue to raise awareness amongst our main supplies (approx. 120 companies.) We also organize quality meetings in both Tokyo and Kofu as part of our activities aimed at improving trust and reliability throughout the supply chain.

* Introduced in Japan in January 2013, the Kimberley Process is an international certification scheme designed to combat illegal trade in rough diamonds, used to fund conflict. As well as preventing member countries (81) from importing or exporting stones that do not have a certificate of origin, it also enables consumers to ask for proof that the products they are purchasing from retailers do not contain conflict diamonds.



Jewelry Quality Rule Book

Product Safety

As a manufacturer, we are committed to providing our customers with safe, high quality products. We therefore implement a range of quality and safety initiatives, as a precautionary approach and to ensure compliance with the law and other applicable regulations. We have also developed a set of regulations for the control of hazardous chemical substances contained in our products. As well as ensuring that we do not release any products containing hazardous substances to customers, including via group companies, we are committed to disclosing product information when deemed necessary.

Impact Assessments at the Development and Prototype Stages

We carry out a review during R&D at four key stages, when exploring areas of R&D, conducting R&D and trial production, conducting mass production trials, and commercializing products. We repeatedly confirm and meticulously examine all of our products from the very beginning, including checking for the use of hazardous chemical substances, guaranteeing that products meet customers' requirements and ensuring legal compliance, always taking into consideration the safety of products and processes as we engage in development works.

Controls on Chemical Substances Contained in our Products

We have formulated a set of regulations for the control of hazardous chemical substances contained in our products, and continue to reinforce management and ensure legal compliance in relation to chemical substances contained in our products. We successfully completed registration of 13 substances covered under REACH regulations*¹ by September 2017. Currently, we maintain and manage 13 substances. We are also working to establish systems to ensure compliance with chemical substance-related legislation and regulations in markets such as South Korea and Taiwan, as well as to collect information and develop further systems to maintain compliance in other countries in the future.

We submitted our 2018 notification for substances covered under the revised Chemical Substances Control Law*² in June 2019.

We provide group companies with the latest information through Quality Committee meetings and quality meetings, and give them advice on compliance with all applicable legislation.

*1 REACH (Registration, Evaluation, Authorization and Restriction of Chemicals): EU regulation that governs the registration, evaluation, authorization and restriction of chemical substances manufactured within or imported into the EU.

*2 Revised Chemical Substances Control Law: Act on the Partial Revision of the Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

Providing Safety Information

Providing safety information on our own products is vitally important, to ensure product safety further along the supply chain. We therefore attach Safety Data Sheet (SDS) to Mitsubishi Materials products so as to effectively disclose and convey information on chemical substances.

Ensuring Safety in Transit

We make every effort to guarantee safety when transporting products that require additional safety measures in transit, such as sulfuric acid. Specific measures include ① avoiding contact with other substances, ② using protective equipment when loading and unloading products, ③ preventing leaks or dispersal from containers, and ④ providing drivers with SDS clearly outlining measures in the event of an accident.

Interaction with Stakeholders

Basic Approach to Building Relationships with our Stakeholders and Key Means of Communication

In the interests of sustainable corporate management, we believe that communicating with our stakeholders is crucial if we are to reflect their expectations and requirements in our business strategies and activities. While creating more opportunities for communication, our aim is to incorporate stakeholders' perspectives into our management practices to a greater extent than ever before.

Basic approach to building relationships with our stakeholders and key means of communication



Distribution of Economic Value to Stakeholders

Striving to Adequately Distribute Economic Value

As we continue to earn operating revenue and generate economic value added thanks to the involvement of our many and varied stakeholders, we believe that it is important to fulfill our social responsibilities and adequately distribute that added value among our stakeholders.

Economic Value Added in Fiscal 2019

Revenue for Mitsubishi Materials in fiscal 2019 came to ¥893.2 billion. That included proceeds from the sale of products and services, dividends and other forms of non-operating income, and extraordinary income. Operating costs, which consist primarily of payments to suppliers, totaled ¥855.4 billion.

After subtracting operating costs from our total revenue, the amount of added value generated through our business activities came to ¥37.8 billion.

Distribution of Added Value

Personnel costs, which include statutory welfare expenses and pension contributions and represent the portion of revenue distributed to our employees, came to ¥39.6 billion.

In the meantime, we distributed a total of ¥2.1 billion to financial institutions and other creditors, in the form of interest on borrowings.

We distribute value to society and local communities through the government and through our own social contribution activities. We paid ¥9.4 billion to the government this year, as the combined total of corporate income tax plus other taxes and public charges liable as expenses. We also gave ¥300 million back to the community in the form of social contribution activities, including donations, lending our facilities to the public and providing employees' services.

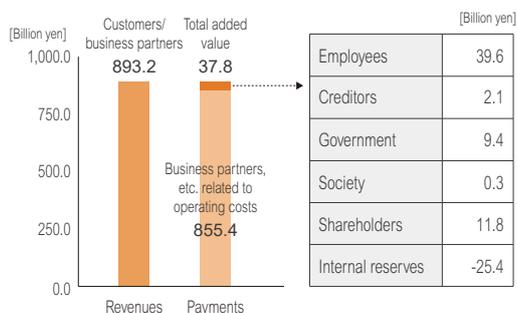
Cash dividends, which represent the value that we distribute to our shareholders (companies and individuals, in Japan and overseas), came to a total of ¥11.8 billion.

Retained earnings to cover investment and contingencies for the future meanwhile decreased ¥25.4 billion.

Contributing to Local Communities as part of our Overseas Operations

Whenever we engage in business activities overseas, we make every effort to understand conditions in the relevant country and the national identity of its people, so that we can integrate into the local community as a corporate citizen. We re-invest money that we make through our overseas operations back into the local community wherever possible, in order to continue growing our business and contribute to the sustainable development of the local area.

■ Economic added value



Category	Stakeholder	Amount (million yen)	Details/method of calculation
Revenues	Customers and suppliers	893,201	Net sales, non-operating income, extraordinary income
	Suppliers	855,364	Operating costs (cost of sales and selling, general and administrative costs, minus deductions for personnel costs, tax and public charges, and donations)
Payments	Employees	39,604	Personnel costs (including statutory welfare expenses and pension contributions)
	Creditors	2,053	Interest expense
	Government	9,406	Taxes (corporate income tax, and other taxes and public charges liable as expenses)
	General public	344	Donations, etc.*
	Shareholders	11,787	Cash dividends paid
	Retained earnings	-25,356	Net income minus cash dividends paid

* Calculated based on the value of items such as donated goods, public lending of our facilities and the provision of employees' services as well as cash donations, as specified by Nippon Keidanren.

Pension Contributions

Obligations relating to unfunded lump-sum severance payment plans and funded defined benefit pension plans totaled ¥37.6 billion and ¥42.9 billion respectively. ¥61.5 billion of this total was paid out in the form of pension assets to outside funds (coverage: 76.4%). A further ¥9.8 billion was registered as expenses in the form of accrued retirement benefits, with the remaining ¥9.2 billion classed as unrecognized benefit obligations. We plan to amortize all unrecognized benefit obligations over the next ten years.

Financial Assistance from the Government

We received ¥400 million in grants, subsidies and other financial assistance from the government. The government does not hold shares in Mitsubishi Materials or any of our group companies.

Dialogue with Shareholders and Investors

Purpose of activities	Activities during fiscal 2019	Self-assessment	Targets/plans for activities from fiscal 2020 onwards
<ul style="list-style-type: none"> Ensuring timely and appropriate disclosure, and promoting understanding of our business 	<ul style="list-style-type: none"> Number of press releases/interviews [FY2019 target: 205 meetings / Actual: 161 meetings] Build a website that shows the appeal of the Company's business system, policies, strategies, and so forth 	C	<ul style="list-style-type: none"> Number of press releases/interviews [FY2019 target: 205 meetings] Continue to improve the corporate website to improve the results of external evaluations
<ul style="list-style-type: none"> Organize investor conference on the business operation for analysts and institutional investors 	<ul style="list-style-type: none"> Business briefing about the Advanced Products Company 	A	<ul style="list-style-type: none"> Organize investor conference on the business operation for analysts and institutional investors

Self-assessment grades A: Target achieved B: Target mostly achieved C: Target not achieved

Dialogue with Shareholders

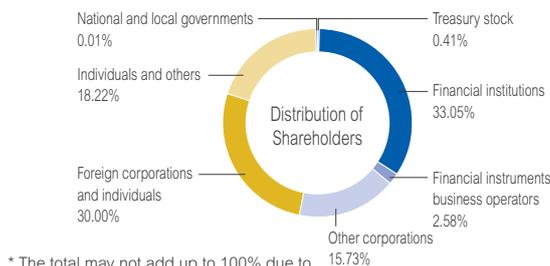
Our Ordinary General Meeting of Shareholders offers an invaluable opportunity for direct communication between our management members and shareholders. We therefore send out convocation notices at the earliest possible date, while also providing details on our Website, to give shareholders sufficient time to consider the matters to be presented and resolved at the meeting. We continue to expand the range of our information disclosure, by posting new content to our annual business report, including details of our policies concerning remuneration and the status of corporate governance.

Besides permitting shareholders to exercise their voting rights in writing or online, we have introduced an electronic voting platform to facilitate voting by both domestic and international institutional investors.

We use slides with accompanying narrations at the General Meeting of Shareholders to help ensure participants' clear comprehension of the presented contents. We also publish shareholders' voting results for every resolution on the Website, after the meeting.

In February 2019, we held a small meeting between outside directors and major domestic institutional investors who own our shares. They conducted a free discussion on a wide range of topics, mainly our corporate governance, successfully deepening the participants' understanding of our initiatives.

Distribution of shareholders



* The total may not add up to 100% due to rounding up or down of individual figures.

Dialogue with Investors

Meetings for Investors

We organize earnings information meetings for institutional investors and securities analysts to coincide with our quarterly earnings announcements. In addition to providing a breakdown of our earnings and explanations regarding matters such as management policy, we also accept questions and comments from participants so as to reflect their views in our IR activities via channels such as feedback to management.

We also organize facility tours on an ongoing basis and arrange interviews with institutional investors and securities analysts at home and abroad. As exercises in active communication, such interviews enable us to clarify operating strategies and other aspects of our business and engage in constructive exchanges of opinions.

We have been participating in information meetings for individual investors since fiscal 2010.

We are committed to maintaining an active IR schedule and ensuring adequate disclosure in the future, for the benefit of all of our investors.

IR activities in fiscal 2019

Description	Number of times during fiscal 2019
Interviews with institutional investors	196
Overseas IR visits (Europe, USA, Asia)	16
Facility tours for institutional investors	2
Earnings information meetings for individual investors	6



Presentation at investor conference (Naoki Ono, Chief Executive Officer)

Dialogue with Customers

Improving Customer Satisfaction

Customer Satisfaction Surveys

As a part of our quality management activities, we analyze complaints and conduct customer satisfaction surveys at all Mitsubishi Materials facilities and group companies in order to reflect the diverse views of our customers. We take analysis results and customers' comments seriously and submit our findings to management reviews, in an effort to provide customers with better quality products and services.

Cement Business: Valuing the Feedbacks from Our Customers

The various types of cement, which are our main products, are supplied to our customers in Japan and abroad via Ube-Mitsubishi Cement Corporation, our Group logistics and sales company.

They always share information about product quality, service, customer inquiries and customer product feedbacks with us. This allows us to further increase customer satisfaction by improving our steady supply of stable-quality cement.

Metals: Meeting Customers' Needs

We strive to achieve customer satisfaction by providing products and services that meet our customers' needs. With more and more home appliances and electronic devices being recycled in recent years, in all corners of the world, we are focusing on processing E-Scrap to extract precious metals. Operations take place at our Naoshima Smelter & Refinery, which introduced a new online system for customers in 2014, called "NEWS." This has enabled us to process transactions quickly and smoothly online, from making appointments to bring in E-Scrap through to checking progress and payment details.

Advanced Materials & Tools: Technical Support Activities for Customers.

Our Machining Technology Center provides extensive technical support so that customers are able to use cutting tools properly. We offer a "Machining Academy" to increase attendees' knowledge of tools and cutting operations, along with cutting tests and technical support so that customers can use our tools more efficiently. Additionally, a toll-free telephone technical counseling service is available to ensure direct communication with our customers at all times. During fiscal 2019, we held 151 seminars (3,994 participants) and achieved 1,008 customer visits. Based on the customer demands, we will continue to provide comprehensive solutions through technical diagnosis and analysis of the actual processing lines.



Seminar

Aluminum Business: CS Activities

MMC Group company Universal Can Corporation strives to operate with meticulous care and a well-prepared quality control system to ensure safe and reliable food.

Universal Can has already obtained certification for the ISO 22000 (FSMS) food safety management system standard and its advanced variant FSSC 22000 across all of its plants. By ensuring the effective functioning of the management systems, we provide good quality aluminum beverage cans to our beverage manufacturer clients and by extension, to all consumers. As a manufacturer dealing with food containers, in the future we will endeavor to raise the level of food hygiene and safety.

Getting Involved in Society and the Community

We communicate with the local community and engage in a whole host of social contribution activities, making the most of key features of the Mitsubishi Materials Group's various facilities around the world. Moreover, in cases where our business activities have a potential effect on communities, we engage in sincere dialogue with the local community and make improvements based on the outcomes of the dialogue.

Social Contribution Activities

Support for Areas Affected by the Great East Japan Earthquake (East Japan Recycling Systems Co., Ltd.)

Since April 2001, we have been engaged in recycling business in Kurihara City, Miyagi, based on the Law for Recycling of Specified Kinds of Home Appliances. In the month following the Great East Japan Earthquake, we began to participate in volunteer activities in Ishinomaki City, Miyagi. The location of the activities later changed to Minami Sanriku Town, where we participate multiple times every year. Immediately after the earthquake, the contents of the activities included the removal of debris and cleanup. Recently, we help industries with labor shortages, such as the production of Japanese leek, kombu kelp, and scallops.

In 2011, we began to deposit 10 yen per home appliance we recycle and donated the money to the prefectural government of Miyagi and the city government of Kurihara as a reconstruction fund. In 2017, we received a letter of gratitude from the prefectural government of Miyagi when the cumulative total amount of donations exceeded 10 million yen.



Weeding in a Japanese leek field



Tying each piece of kombu kelp into knots

Giving Facility Tours to Many Visitors from All Over the World (Kansai Recycling Systems Co., Ltd.)

The head office plant is in Hirakata City, Osaka, and the second plant is in Iga City, Mie. Located in an urban area, the head office plant is visited by 15,000 people on average every year and people from overseas account for approx. 30% of visitors. The facility tour includes a washing machine demolition show and a hands-on experiment with a handmade device, which are aimed at raising awareness of home appliance recycling.

We also proactively provide environmental education to elementary, junior high, and high school students. We give them plant tours and visit schools to give classes.

Since 2013, we have been committed to the Green Curtain Initiative (growing green plants that act as curtains to keep a building cool) as a countermeasure against global warming and the heat island effect. We received an award of excellence in the group division of a green curtain competition organized by the city government of Hirakata for two consecutive years from fiscal 2018.



Washing machine demolition show

Sharing a Mine's History with Children (Teine Office, Eco-Management Corporation)

The former Teine Mine, which is located in Teine Ward, Sapporo City, Hokkaido, gives tours that aim to help local people understand the mine's history, current businesses, and initiatives for reducing the environmental impact. In fiscal 2019, the site gave tours to 320 people, including children from nurseries and elementary schools, students from special-needs high schools and universities, and people from organizations and the government.

In 1993, the government of Teine Ward began to implement a program in which local fourth graders (10-year-old children) imagine how Teine will be in 10 years and draw pictures of it. The government returns these pictures to them during their coming-of-age ceremony. It also grants awards to children who created excellent works and began to invite award winners to Teine Tanken (exploration) Tour in 2008. The tour is aimed at having children rediscover the appeal of Teine. They explore three sites with the respective themes of history, nature, and the future. We cooperate on during the history part of the tour. By learning about local history, including the history of the former Teine mine, we hope that children will understand the town and its development and become attached to it.



Entrance to Takinosawa Shako (inclined drift)



Explanations being given in the mine drift

Main Recognition for the Mitsubishi Materials Group's Activities

■ Main awards and commendations from outside organizations in fiscal 2019

Recipient	Awarding body or organization		Details
Tsukuba Plant	Japan Cutting & Wear-resistant Tool Association	2018 Japan Cutting & Wear-resistant Tool Association Award Technology Encouragement Award	Development of VPX series multi-functional cutter for high efficiency machining
Central Research Institute and Sakai Plant, Mitsubishi Materials Corporation	Japan Mining Industry Association	2018 Japan Mining Industry Association Award	Development of 7N high-purity copper using copper sulphate bath
Central Research Institute, Mitsubishi Materials Corporation	Japan Cement Association	46th Distinguished Paper Award of Japan Cement Association	Development of technology for highly accurate measurement of clinker temperature in a kiln
Hokuryo Corporation	Ministry of Economy, Trade and Industry	Minister of Economy, Trade and Industry Award in the Mine Division of 2018 National Mine Safety Awards	Promotion of activities for maintaining mine safety
Mitsubishi Polycrystalline Silicon America Corporation (MIPSA)	Alabama Department of Labor, the United States	Alabama Workplace Safety Awards	No accident requiring leave in 2017
PT. MMC Metal Fabrication	West Java, Republic of Indonesia	Company CSR 2018	Social contribution activities for West Java and the town where the company's plant is located

Our Approach to Society

Activities Implemented as a Member of the International Council on Mining and Metals

The International Council on Mining and Metals (ICMM), of which Mitsubishi Materials is a member, seeks to achieve industry-wide CSR improvements to solve issues, including ones on the environment, safety, labor and human rights in the interest of sustainable development.

The ICMM makes use of dialogues with member companies to formulate its policy. In May 2018, Executive Vice President Osamu Iida participated in the Council Meeting (meeting of representatives from member companies), where he productively exchanged views on CSR improvement in the industry with representatives from other countries.

In addition, members of the Occupational Safety & Quality Control Dept. participated in the Biannual Members' Meeting in November 2018, and those from the London Office attended the meeting in March 2019, and discussed action guidelines for the industry.

Concerning the Tailing Dam Failure of Vale S.A., a serious accident that occurred in Brumadinho, Brazil in January 2019, Executive Vice President Osamu Iida had a conference call with CEO Tom Butler of ICMM in February 2019 and they exchanged opinions about actions to be taken by the industry to prevent a similar disaster.

ICMM 10 Principles

1. Apply ethical business practices and sound systems of corporate governance
2. Integrate sustainable development in corporate strategy and decision-making processes
3. Respect human rights
4. Implement effective risk-management strategies and systems
5. Pursue continual improvement in health and safety performance
6. Pursue continual improvement in environmental performance issues
7. Contribute to the conservation of biodiversity and integrated approaches to land-use planning
8. Use and supply products responsibly
9. Contribute to society
10. Ensure effective, highly transparent reporting

Dialogue with the Local Community

Initiatives in Geothermal Energy Development

To ensure the Ohnuma and Sumikawa Geothermal Plants in Kazuno City, Akita prefecture are not affecting nearby hot springs, we have been conducting hot spring monitoring for more than 20 years. We report the results obtained to the hot spring proprietors every year and also have the impact of geothermal plant operations on hot springs assessed by the Impact Research Committee, convened by the Kazuno government. In addition, before digging any new geothermal wells, we always visit all hot spring proprietors first and explain the details of the work. Moreover, we would never start any new project surveys, discussions of commercialization, or building of power plants, without first gaining the understanding of local residents through explanations and dialogue.

We will continue to have dialogues with local residents to deepen their understanding of our geothermal energy business.

Corporate Governance

Basic Approach

We have established a corporate philosophy, vision, values and code of conduct that apply to the entire MMC Group, and make every effort to further the sustainable development of the company and maximize the corporate value through fair business activities. We recognize that for this purpose, it is vital that we engage in efficient and transparent management, and have long implemented a range of measures aimed at enhancing our corporate governance.

Overview of Corporate Governance and Reason for Adopting a Corporate Governance System

The Company changed to a Company with a Nomination Committee following the approval for said proposal at the 94th Ordinary General Meeting of Shareholders held June 21, 2019.

With the change, we will accelerate business execution and decision making with the transfer of authority to Executive Officers, while strengthening the Board of Directors' management supervisory functions and improving the management transparency and fairness.

We have also adopted an in-house company system in order to operate more flexibly and appropriately as an integrated business entity involved in Advanced Products, Metalworking Solutions, Metals, Cement and other businesses.

(Board of Directors)

The Board of Directors determines matters which may have a serious impact on the management of the Group, such as the basic policy of the Company's management - in accordance with the provisions of laws and regulations, the articles of incorporation and the Board of Directors Rules - in order to achieve the sustainable development of the Group and maximize corporate value. Further, the Board of Directors monitors the performance of business tasks by Directors and Executive Officers, and works to ensure shareholder value over the mid- to long-term.

The Board of Directors is comprised of 11 Directors (including six Outside Directors), and the Chairman of the Board of Directors is performed by the Chairman of the Company.

(Nomination Committee)

The Nomination Committee determines the content of proposals, etc. concerning the election and dismissal of Directors to be submitted to General Meeting of Shareholders. In addition to this, the Nomination Committee reviews and responds to inquiries from the Board of Directors concerning the election and dismissal, etc. of Executive Officers. The Nomination Committee is comprised of five Directors (including three Outside Directors), and the Chairman of the Nomination Committee is performed by an Outside Director.

(Audit Committee)

The Audit Committee audits the legality and validity of duties performed by Directors and Executive Officers, either via internal audits conducted by the department in charge of internal audits, or directly by the Audit Committee member elected. The Audit Committee is comprised of five Directors (including three Outside Directors), and the Chairman of the Audit Committee is performed by an Outside Director. The Audit Committee also elects three Full time Member of the Audit Committee in order to improve the effectiveness of audits conducted by the Audit Committee.

(Remuneration Committee)

The Remuneration Committee sets policies for determining individual remuneration received by Directors and Executive Officers, and determines the individual remuneration received by Directors and Executive Officers based on these policies. The Remuneration Committee is comprised of five Directors (including three Outside Directors), and the Chairman of the Remuneration Committee is performed by an Outside Director.

(Executive Officer)

Executive Officers perform business tasks according to the segregation of duties set, based on the transfer of authority from the Board of Directors. The Company has 10 Executive Officers, of which the Chief Executive Officer Naoki Ono, and the Executive Vice President and Executive Officer Osamu Iida, are elected as Representative Executive Officers upon the decision of the Board of Directors.

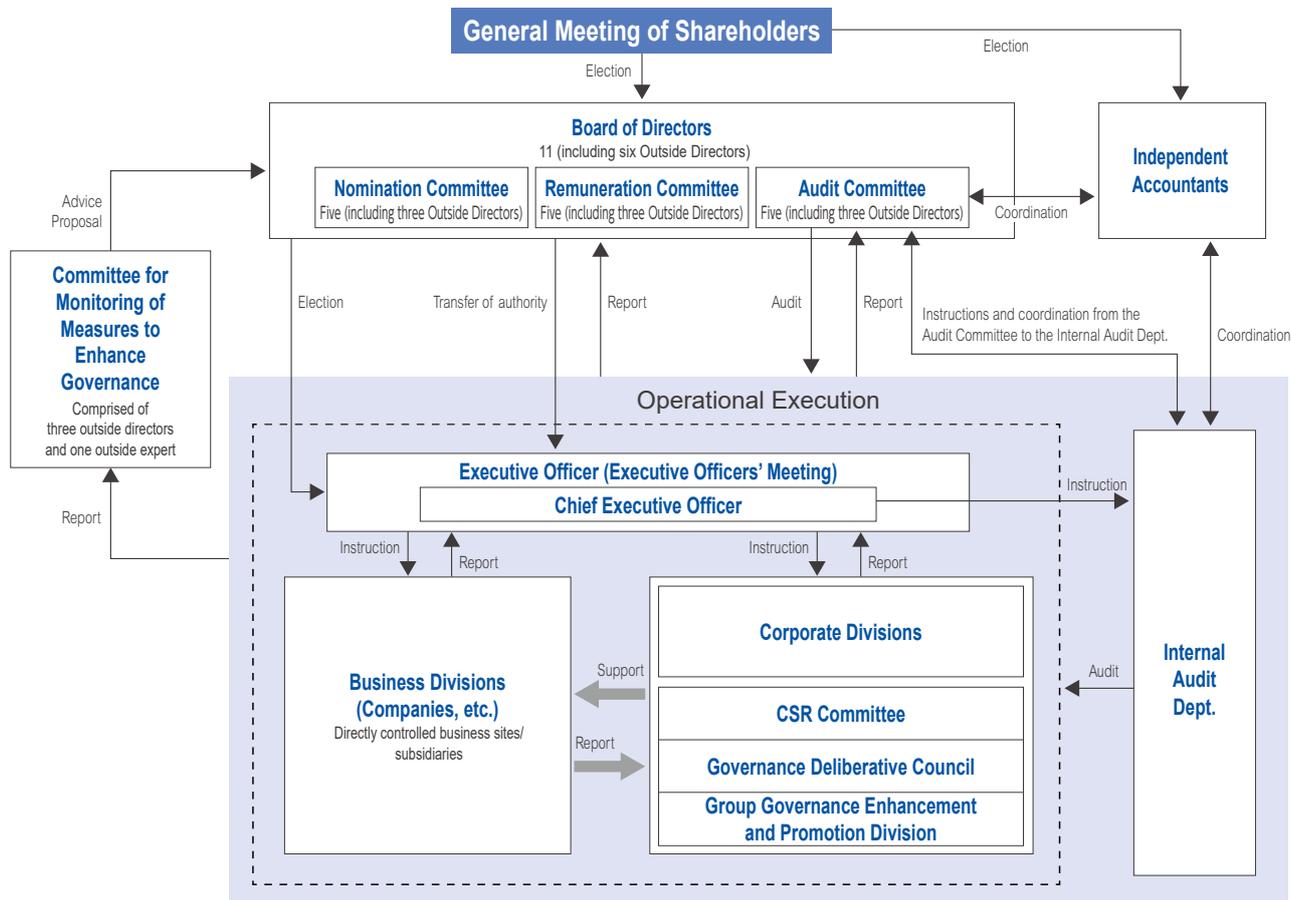
(Executive Officers' Meeting)

Following the transfer of authority from the Board of Directors, Executive Officers' Meetings review and determine important matters concerning the management of the entire Group. Executive Officers' Meeting are attended by all 10 Executive Officers, and the Chairman of the Executive Officers' Meeting is performed by the Chief Executive Officer.

(Committee for Monitoring of Measures to Enhance Governance)

The Committee for Monitoring of Measures to Enhance Governance monitors the status of “the Restructuring Measures of the Governance Framework for Quality Control in the MMC Group” and “MMC Group Governance Framework Enhancement Measures” from a more independent position than management, as well as providing necessary advice and proposals on related issues to the Board of Directors. The Committee for Monitoring of Measures to Enhance Governance is comprised of three Outside Directors and one outside expert, and is headed up by an Outside Director.

■ Overview of the Corporate Governance System



Nomination of Candidates for Director and the Election and Dismissal of Executive Officers

Mitsubishi Materials is an integrated business entity involved in Advanced Products, Metalworking Solutions, Metals, Cement and other businesses, and our basic approach to the structure of the Board of Directors, which fulfills the roles of determining on important matters and exercising supervision over management, is to ensure that it comprises a diverse range of human resources with different expert knowledge, experience, and other qualities. In light of this approach, the Nomination Committee endeavors to nominate and select individuals of exceptional insight and character as candidate directors, regardless of attributes such as gender or nationality.

Candidates for Outside Director should be individuals who will supervise the appropriateness of Directors and Executive Officers in the execution of their duties from an independent and objective standpoint, and should be able to provide a diverse range of values and advice regarding the management of the Company based on expert knowledge, extensive experience, and broad, advanced insight that differs from those of Directors who have advanced internally, or possess expert knowledge, extensive experience, and broad, advanced insight in relation to finance and accounting, financial affairs, legal matters, administrative affairs, or science and technology, etc. These candidates are nominated by the Nomination Committee with reference to standards for determining independence.

Conversely, proposals are made to the General Meeting of Shareholders concerning the dismissal of Directors for those deemed to not satisfy the abovementioned policy for nomination as determined by the Nomination Committee.

Further, persons well-versed in company management and the business activities of the Company shall be elected as Executive Officers responsible for the execution of business tasks, regardless of individual attributes concerning sex and nationality, etc. Following reviews by the Nomination Committee, said candidates for Executive Officer shall be elected based on a comprehensive review into the candidate’s work history and achievements, and specialist knowledge and other capabilities by the Board of Directors.

Conversely, Executive Officers deemed to not satisfy the requirements of this selection policy shall be dismissed on the decision of the Board of Directors following a review by the Nomination Committee.

Policy regarding the determination of remuneration

As of June 2019 we made it a basic policy to appropriately link the remuneration for Directors and titled Operating Officers to corporate performance as well as individual performance. Drawing on the advice of external experts, steps have been taken to design a system that was highly objective. Remuneration was comprised of a basic fixed component as well as a bonus that was linked to performance. Further, the maximum monthly amount of the basic remuneration to Director remuneration was set at 49 million yen (6 million yen for Outside Directors), with the maximum annual bonus amount for the same was set at 170 million yen based on the resolution passed by the General Meeting of Shareholders.

The amount of the basic remuneration was determined in accordance with the title and individual performance of each Director or Operating Officer. A portion of basic remuneration was paid in a fixed monthly amount as stock-based remuneration (not paid to outside directors) and used for purchasing the company's shares through the company's director shareholding association. The Company's shares acquired based on the remuneration could not be sold at least during each director's and operating officer's term of office. This aimed to link the remuneration to medium and long term corporate performance.

Secondly, the amount of the bonuses, as remuneration linked to short-term corporate performance, was determined after the end of the fiscal year using the net income attributable to owners of parent and consolidated ordinary income for that year as important indicators tied to the evaluation of corporate value, and taking into consideration individual performance. Although no target metrics were set concerning bonuses for the fiscal year as a formula tied to performance in relation to net income attributable to owners of parent and consolidated ordinary income is already applied, bonuses can be reduced or removed entirely depending on factors such as business conditions and the amount of the dividends for the fiscal year.

Due to the role fulfilled by Outside Directors in supervising the appropriateness of Directors in the execution of their duties from an outside, independent, and objective standpoint, their remuneration comprised only a fixed amount, which is determined in light of individual circumstances based on internal regulations approved by the Board of Directors.

While these basic policies were determined by the Board of Directors, on June 22, 2018, the Company established the "Committee for Nomination and Compensation" as a consultive body to the Board of Directors in order to ensure the transparency and objectivity of the Board of Directors' decisions regarding the election and dismissal of Directors and Operating Officers, as well as their remuneration. The Committee for Nomination and Compensation met six times in fiscal 2019 to review the Directors and Operating Officers' remuneration system and standards, etc. based on this basic policy.

Further, with the Company changing to a Company with a Nomination Committee following the approval for said proposal at the 94th Ordinary General Meeting of Shareholders held June 21, 2019, the policy concerning the determination of remuneration for Directors and Executive Officers, and individual remuneration decisions will be made by the Remuneration Committee. The Remuneration Committee has determined Director and Executive Officer remuneration from July 2019 in accordance with the abovementioned policy. Looking ahead, the Remuneration Committee will deliberate on the ideal format for Directors and Executive Officers remuneration to take, appropriate standards for remuneration and policies for determining Directors remuneration with a view to applying such findings from the fiscal year starting April 1, 2020.

■ Directors' Remuneration (fiscal 2019)

Position	Total Amount of Remuneration (Millions of yen)	Remuneration by Type (Millions of yen)		Number of Executives (persons) ¹⁾
		Basic ³⁾	Bonus ⁴⁾	
Directors (of which Outside Directors)	413 ²⁾ (56)	318 (56)	94	12 (4)

Note 1: The number of Directors includes three Directors whose terms ended during the fiscal 2019. There are nine Directors as of the end of the fiscal 2019.

Note 2: It was resolved at the 91st Ordinary General Meeting of Shareholders held on June 29, 2016 that the amount of remuneration to the Directors should not exceed ¥49 million per month (excluding salaries as employees for Directors who also serve as employees), including remuneration not exceeding ¥6 million for Outside Directors.

Note 3: Of the basic remuneration for Directors, the stock-based remuneration is ¥28 million.

Note 4: It was resolved at the 81st Ordinary General Meeting of Shareholders held on June 29, 2006 that the amount of the bonuses for Directors other than Outside Directors should not exceed ¥170 million per annum.

* As the Company changed to a Company with a Nomination Committee following the approval for said proposal at the 94th Ordinary General Meeting of Shareholders held June 21, 2019, no remuneration, etc. was provided to Executive Officers for fiscal 2019.

Evaluation of the Effectiveness of the Board of Directors

The Board of Directors evaluates the role, composition, management method, etc. of the Board of Directors on an annual basis, based on which the effectiveness of such is analyzed and evaluated at meetings of the Board of Directors.

The method applied to evaluate the effectiveness of the Board of Directors in fiscal 2019, and a summary of the results of such are outlined below.

1. Method of analysis/evaluation

Answers to a questionnaire distributed to the nine Directors and five Audit & Supervisory Board Members in January 2019 were retrieved. Based on the results of this questionnaire, a review of the effectiveness of the Board of Directors was conducted at a meeting of the Board of Directors held in February 2019, with a resolution reached on evaluations of the effectiveness of the Board of Directors in fiscal 2019 at a meeting of the Board of Directors held in March 2019.

Further, in consideration of efforts to enhance the Group governance system, including in relation to quality control, this questionnaire was implemented with additional questions referencing the views of external organizations.

2. Fiscal 2019 questionnaire items

The core questionnaire items are as follows.

(1) Effectiveness of management monitoring

- Matters pertaining to the enhancement of Group governance systems, including quality control, and other compliance-related issues, etc.

(2) Matters considered particularly important for improving corporate value

- Matters pertaining to committee use, cross-shareholdings and management strategies, etc.

(3) Monitoring of issues in consideration of evaluations of the effectiveness of the Board of Directors for fiscal 2018

- Matters pertaining to the composition of the Board of Directors, the frequency of meetings, proposals and discussion materials, etc.

3. Summary of fiscal 2019 evaluation results

As a result of deliberations by the Board of Directors, the Board of Directors was able to verify that it achieved a sufficient level of effectiveness for fiscal 2019. A summary of questionnaire responses and discussions within the Board of Directors is provided below.

(1) Effectiveness of management monitoring

While the view was raised that there was a sufficient level of discussion by the Committee for Monitoring of Measures to Enhance Governance in relation to measures to enhance Group governance system, including quality control, some opinions were raised that there was further room for improvement with regard to the means of provision and content of information provided to the Board of Directors from this Committee, and in terms of the time allotted for discussion by the Board of Directors.

In view of this feedback, the Board of Directors will look to taking further steps to improve the effectiveness of management monitoring measures.

(2) Matters considered particularly important for improving corporate value

The feedback provided showed that while proper reports on the cost of capital, the setting of appropriate indicators, and strategy decisions were being provided to the Board of Directors, there was room for further improvement in relation to the frequency, method and content of reports concerning the progress of the Medium-term Management Strategy, and the response to such, and of strategies concerning business portfolio reviews, etc.

In view of this feedback, the Board of Directors will review the appropriate means of supervising strategies in relation to the Medium-term Management Strategy and reviews of the business portfolio, etc.

(3) Monitoring of issues in consideration of evaluations of the effectiveness of the Board of Directors for fiscal 2018

With regard to proposals that should be put before the Board of Directors for debate, responses showed that there was room to review the standards set for discussions based on the importance of proposed matters, and that there was further room for improvement in terms of preparing materials that take a finer look at key matters up for discussion.

In view of this feedback, the Board of Directors will review appropriate items for discussion by the Board of Directors, and the form in which materials should take in order to facilitate smoother discussion.

Looking ahead, the Board of Directors will keep making continuous efforts toward further effectiveness improvements, including in relation to the above matters.

Status of Audits

Status of audits performed by the Audit Committee

In addition to attending the Executive Officers' Meeting and other important meetings, members of the Audit Committee conduct interviews with Directors, Executive Officers, departments in charge of internal audits and other departments in charge of internal control concerning progress on the execution of their duties, and view important approval documentation, etc. Selected members of the Audit Committee investigate the state of business and assets at the Company headquarters and important business sites according to the audit standards and audit plans, etc. of the Audit Committee as established by the Audit Committee, and conduct visiting audits of subsidiaries, etc. as needed, as well as forming a framework for conducting audits of the state of the execution of duties by Directors and Executive Officers. Additionally, the Audit Committee holds regular meetings with Corporate Auditors at major Group companies as part of efforts to enhance coordination of audit systems in line with Group management measures in place. An organization has been set up within departments responsible for internal audits to assist the Audit Committee in its duties concerning such audits performed by members of the Audit Committee.

Status of internal audits

The Internal Audit Dept. responsible for conducting internal audits works with the Audit Committee on the instructions of the Chief Executive Officer to investigate whether internal control systems are configured and applied in an appropriate manner, and audit the effectiveness and efficiency of company operations across the Group, the credibility of financial reports, the state of asset preservation and use, the risk management status, and the state of compliance with laws and regulations, and internal rules and standards, based on internal audit plans approved by the Chief Executive Officer and the Audit Committee.

Further, in addition to conducting joint audits with the department responsible for internal audits after conferring on the audit plans for both at the beginning of the term, the Audit Committee engages in audits in close cooperation with the department responsible for internal audits, receiving reports from said department on audit results on a regular basis, sharing this information, and receiving reports on the status of the execution of duties from the department responsible for internal control, etc.

Additionally, the Audit Committee regularly receives reports from independent accountants on audit results, shares this information, and engages in audits in close cooperation with said independent auditors after conferring on the audit plans for both with them.

We begin our basic internal auditing procedure by conducting a "Paper Questionnaire" across all facilities (business divisions and subsidiaries of Mitsubishi Materials). The Paper Questionnaire consists of a comprehensive range of questions on the subject of laws, regulations, and control procedures that are of particular relevance to the group. We revise the Paper Questionnaire annually to reflect the latest legislation, and include supporting evidence for the questions and details of remedial measures to enable facilities to rectify issues themselves and use Paper Questionnaire as a manual. To encourage facilities to rectify issues themselves, we also carry out "Comprehensive Internal Audits" at selected facilities based on the risk-based approach to the results of the Paper Questionnaire.

Starting from fiscal 2019, the five-to-six-year cycle of the Comprehensive Internal Audits has been revised to a two-year cycle for an increased frequency of audits. Moreover, the audit contents will be improved taking into consideration collaboration with the Governance Div. and use of external resources.

In addition to Comprehensive Internal Audits, we conduct specific "Theme Audits" in order to focus auditing activities on such areas as compliance with important legislation. Combining these auditing techniques, we follow up on the found flaws every six months if they have been duly corrected in an effort to make the audits more effective and enhance the corporate value of the group as a whole.

We also make every effort to improve our group-wide internal auditing framework by sharing information through measures such as holding semiannual meetings with group companies that have their own internal auditing organizations, and also by planning joint audits with our subsidiaries on the companies affiliated with them.

Internal Control

Since the establishment of the Internal Control System Management Committee in January 2006, we have taken steps such as developing a set of basic principles for improving the Group's internal control systems, and ensuring compliance with the requirements to introduce internal control evaluation and disclosure systems in relation to financial reporting, in an effort to ensure compliance with the Companies Act, the Financial Instruments and Exchange Act, and other relevant legislation, and to establish the optimal internal control systems for both Mitsubishi Materials and the Mitsubishi Materials Group companies.

Evaluations conducted during fiscal 2019 found our internal control systems in relation to financial reporting to be sufficient and effective, with no material weaknesses identified. The results were then submitted in June 2019 in the form of an Internal Control Report with the qualified opinion of an auditing firm.

Toward the Enhancement of Group Governance

In light of the recent quality issues facing the Group, we are implementing several measures based on an understanding for the need to further enhance Group governance, including quality control, in order to resolve the issues with the Group that led to these quality concerns, and to avoid the same situation repeating itself in the future.

The Group sees the three primary issues confronting the governance systems in place as issues with Communication, Compliance Framework and Awareness, and Resource Allocation, and we are introducing and executing measures to address these. The progress of response measures to these issues is reported to the “Committee for Monitoring of Measures to Enhance Governance,” which is comprised of Outside Directors and outside experts independent from the execution of the Company’s business activities, which then verifies and supervises such measures from an objective standpoint.

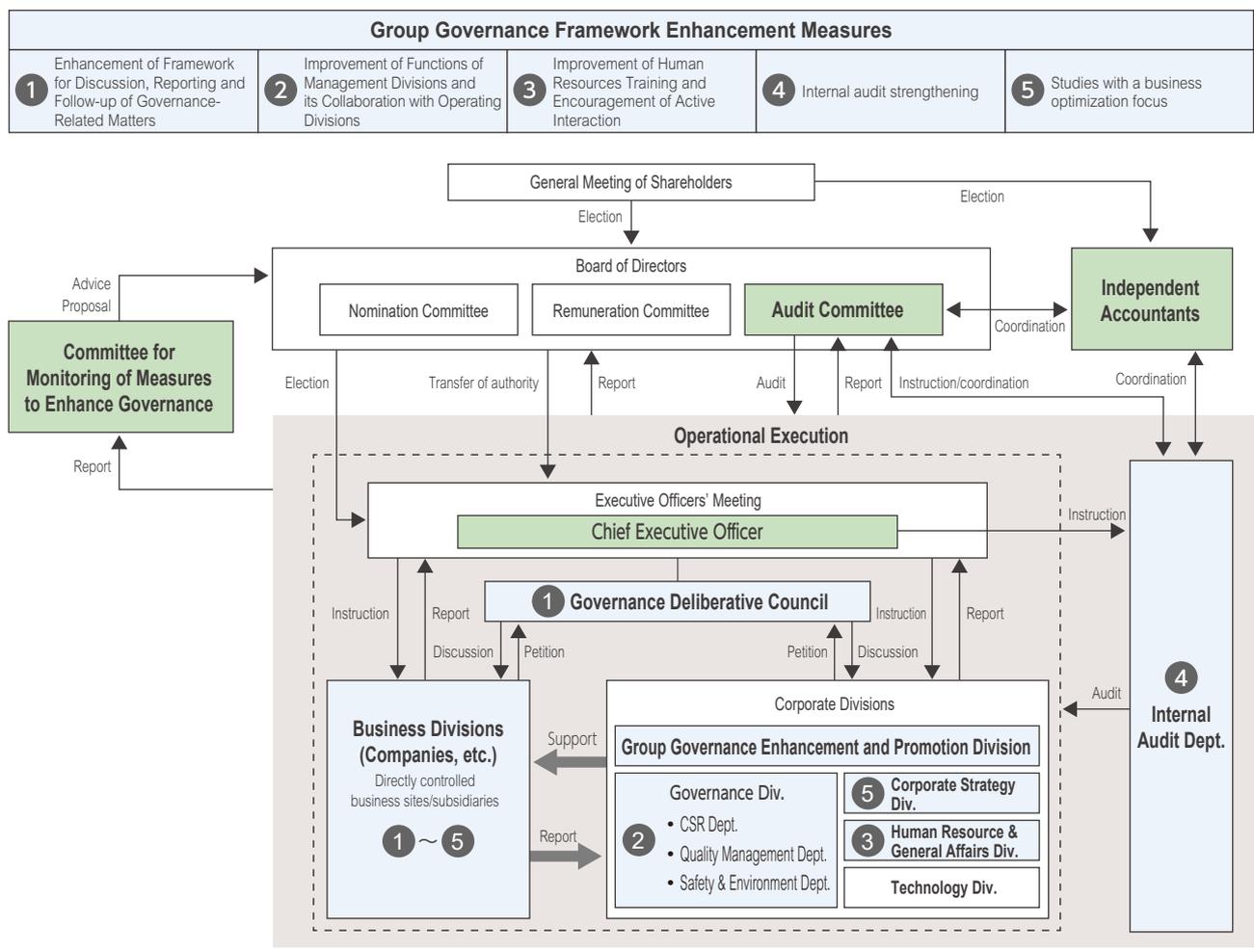
The system of governance that the Group strives for is one where each business site and Group company finds issues in all aspects of its business operations and resolves them by themselves, in other words, to become an affiliated group with the PDCA mechanisms and framework in place and in use to allow for each business site to exercise its selfcleaning capabilities on an organizational level.

We strive to establish bidirectional routes for communication between our Headquarters and business sites, the parent company and subsidiaries, and across hierarchies within the organization, and for management to make prompt decisions based on the information shared, and for the Group as a whole to carry out its business appropriately.

To achieve this, we will strive to foster a corporate culture that encourages communication, with the Governance Div. fulfilling a role that guides the organization along the right path, working to maintain an understanding of the circumstances at each business site and Group company, and providing the appropriate level of assistance and support based on the situation at hand.

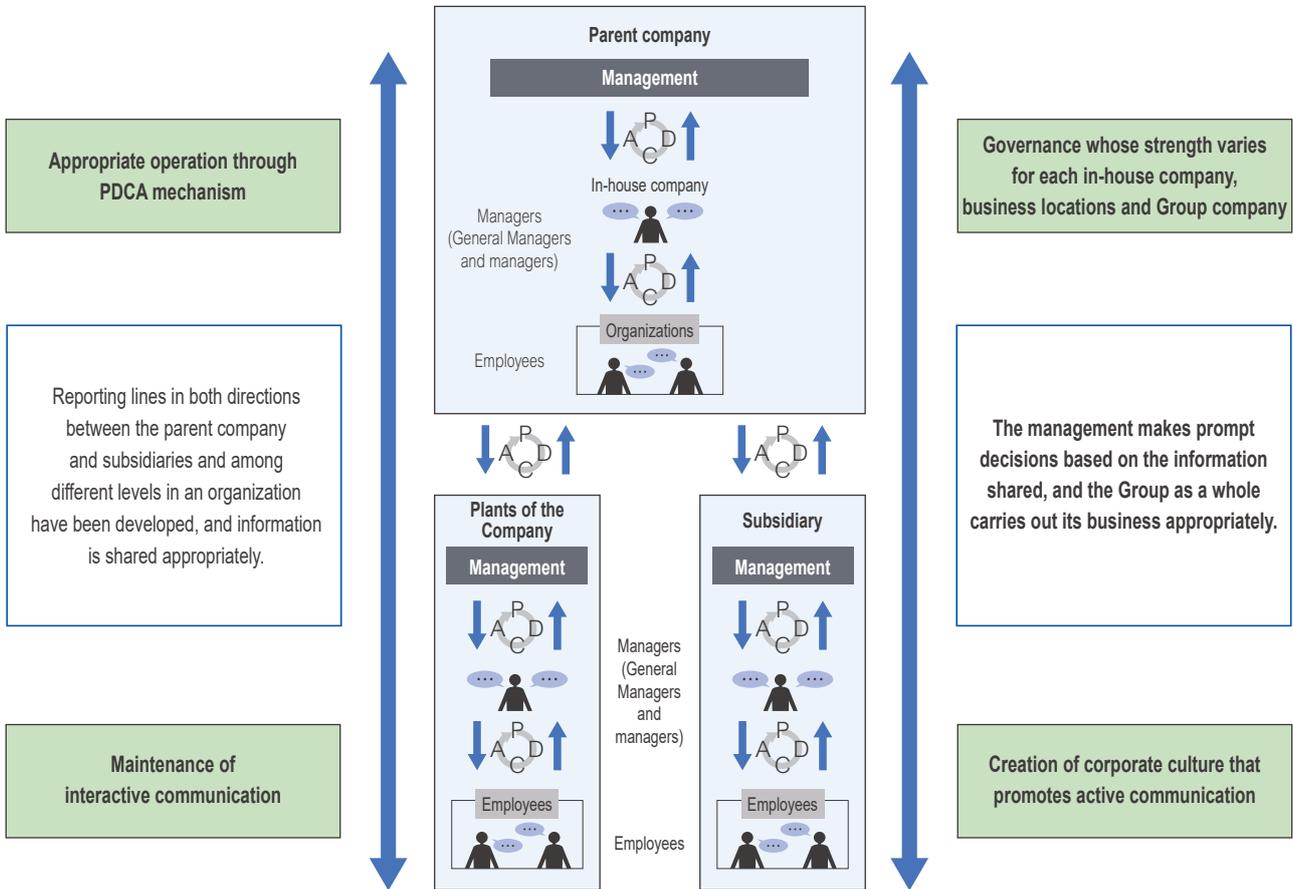
Susumu Sasaki, Managing Executive Officer

■ Promotion Framework for Governance Framework Enhancement



■ The Target of Group Governance that the Mitsubishi Materials Group Aims to Achieve

We aim for governance under which efficient and autonomous communication takes place between the parent company and subsidiaries, between the head office and plants, and among the subsidiaries.



Group Governance Framework Enhancement Measures

The Company formulated and began to implement the measures for the solution of the Group governance issues, based on the analysis of the background and root causes of the quality issues.



Compliance

Effectively Implementing Compliance

Spreading and Establishing an Awareness of Compliance

Our broad view of compliance encompasses such elements as corporate ethics and social norms in addition to legal compliance, reflecting our sincere determination to live up to our stakeholders' expectations.

We are continually implementing new measures to enhance our Group-wide compliance framework, including domestic and overseas training aimed at realizing our steadfast commitment to improving compliance awareness among individual Group employees. We will strive to continue these initiatives in an aim to further spread and establish an awareness of compliance.

Expanding and Reinforcing Compliance Education

We provide CSR education and training with a special emphasis on compliance for Mitsubishi Materials Group employees in Japan and overseas.

We have constructed a framework that enables every employee in every domestic Group company to participate in CSR training once a year. To accomplish this, we have been training instructors to provide CSR training for both our Corporate and Group companies since 2012. Employees responsible for promoting CSR activities at our individual facilities and Group companies serve as instructors for the training.

We invite outside experts to give lectures on CSR and compliance to members of management in the Group. Since 2018, Company management has been providing training to members of management at Group companies to help them understanding the responsibilities, duties and roles that a executives must fulfill in relation to governance and compliance, and to foster an awareness and acquire the means to achieve this.

We are reviewing the contents of overseas CSR education and training while taking into account the circumstances at hand in each region, and in fiscal 2019 we introduced online "WEBINAR" training courses, streamlining training over a wide range of regions. Special preliminary and global human resources training courses are organized to provide employees assigned overseas with training in CSR-related issues, including conflict minerals, human rights in emerging countries (such as child and forced labor), regulations concerning competition in the respective countries and overseas anticorruption measures.

We make proactive use of visiting instructors and e-learning in our training programs organized to enhance compliance awareness among employees both in Japan and overseas.

■ Education and Training Program Attendance during Fiscal 2019 (including 70 Group companies)*

(Unit: cumulative total number of people)

Training Program	Attendance
CSR training at domestic facilities, branches and group companies	19,153
CSR training at overseas Group companies	509
Job-class-specific training	647
Others (including risk management training)	317
Total	20,626

In-House Reporting System

We established an Internal Contact Office in December 2002 as a consultation service to handle reports and inquiries from employees of Mitsubishi Materials Corporation and its Group companies, before establishing an External Reporting System in April 2006, the operation of which is entrusted to an independent law firm. We also established a new Audit Committee Contact Office in June 2018 to contribute to work performed by Audit Committee members in detecting incidents, such as the recent spate of quality issues, and initiating corrective measures at an early stage. Contact information for these reporting system is printed on cards for employees of the Mitsubishi Materials Group to keep on their person and made available on our Group newsletter and through our CSR education and training activities. Steps are also being taken toward introducing an Overseas In-House Reporting System to aid in promoting a sound governance and compliance framework by contributing to the early detection of embezzlement, law violations and other illicit activities, or activities thought of as such, at overseas Group companies.

■ Numbers of reports and inquiries received through the In-house reporting system

(FY)

2014	2015	2016	2017	2018	2019
22	24	33	38	41	61

Intellectual Property Management

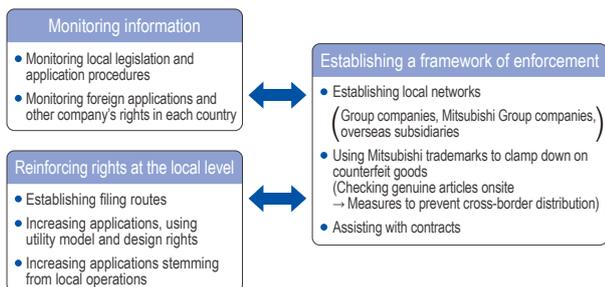
We always respect third party intellectual property rights, whilst at the same time making sure that we adequately protect and reinforce our own rights. We have introduced and are implementing a tool to create and analyze IP Landscape to better incorporate big data analytics on patents into business and development strategies. Based on the analysis data, we will focus on filing applications and establishing rights in line with our business strategies and the R&D strategies that support them, as we continue to build a powerful array of intellectual property rights. We organize a range of in-house educational programs on an ongoing basis, in an effort to improve understanding of how to establish and use intellectual property and deal with the Company's intellectual property risks through confirmation and advice regarding internal agreements related to intellectual property, such as non-disclosure and joint development agreements. Programs include position-specific training for employees from new recruits through to material level, training geared towards obtaining intellectual property qualifications, and optional training.

We also provide and release the knowledge gained from these activities, the issues faced, support tools and in-house seminars to Group companies in an effort to maintain and improve the level of governance of intellectual property for the business divisions of Mitsubishi Chemicals and Group companies, minimize risks associated with intellectual property, and maximize the value of our operations throughout the Group.

Reinforcing Intellectual Property Management in China and Southeast Asia

We have continued to develop a framework that will enable us to gather accurate information and adequately protect our rights, through cooperation with Mitsubishi Materials Group companies, Mitsubishi Group companies, overseas subsidiaries, and other overseas affiliated facilities. In China and Southeast Asia, we are developing systems for filing applications such as use of the Patent Prosecution Highway, or PPH, and stepping up efforts to tackle counterfeit products originating in China. In India meanwhile, we are ascertaining intellectual property-oriented information through our patent attorneys and local patent and intellectual property offices and working to enhance measures to protect our intellectual property.

■ Support in emerging countries



Risk Management

We are striving to improve our risk sensitivity and risk control capabilities to respond appropriately to the range of risks we face and to ensure stable business operation by minimizing damages and losses. In fiscal 2019, we reviewed our existing risk management system as part of the measures for reinforcing our governance system. We built a new risk management system that is more effective and reliable, and implement risk reduction activities at domestic and overseas business locations of the overall Group.

Risk Management Activities

Basic Perspective

We conduct risk management activities aimed at controlling factors that could exert a negative impact on our business performance and providing steady support for sound business operations throughout the Mitsubishi Materials Group. To assure achievement of these goals, we are conducting activities under the following three basic policies:

Basic Risk Management Policies and Objectives

1. Responding to high priority risks: Prioritizing risks and implementing measures accordingly
2. Identifying unrecognized risks: Using risk management records to establish a comprehensive overview of all risks
3. Sharing risk information: Disclosing the details of Group risks to all concerned parties

Implementation structure

While critical risks inherent to each field of business are identified by individual business divisions, the Group identifies serious, high-priority risks at a management level which share a high degree of commonality across the Group, and are thought to have a severe impact on the business management of the Group.

The matter and plan for addressing critical risks given priority across the whole Group, and critical risks tackled by each business division, are discussed at length by the Company's CSR Committee, Executive Officers' Meeting and Board of Directors, and set on an annual basis. Each business site formulates activity implementation plans in accordance with this, which then undergo review by the Governance Deliberative Council, before being applied as part of measures to reduce risk.

A structure is in place by which the content of these activities is shared with members of management and corporate divisions, and the progress of which is monitored on a regular basis by the CSR Committee, Executive Officers' Meeting, the Board of Directors, internal audits and the Committee for Monitoring of Measures to Enhance Governance, which is comprised of External Directors. Additionally, information on risks identified as part of risk management activities is provided as materials for internal audits, and a system is in place to have risks indicated through audits, etc. added as needed as subjects for risk management, making for a strict PDCA management system on the whole.

With regard to training, we are striving to boost our sensitivity to risk and enhance and raise the bar concerning our risk control capabilities by implementing training sessions featuring both internal and external consultants that are held both in Japan and abroad.

New Risk Management System

Points of improvement

As part of Group Governance Framework Enhancement Measures in fiscal 2019, we reviewed conventional risk management mechanisms in order to further improve risk management effectiveness, building a new, enhanced risk management system that is being rolled out across the Group both in Japan and abroad in fiscal 2020 onwards.

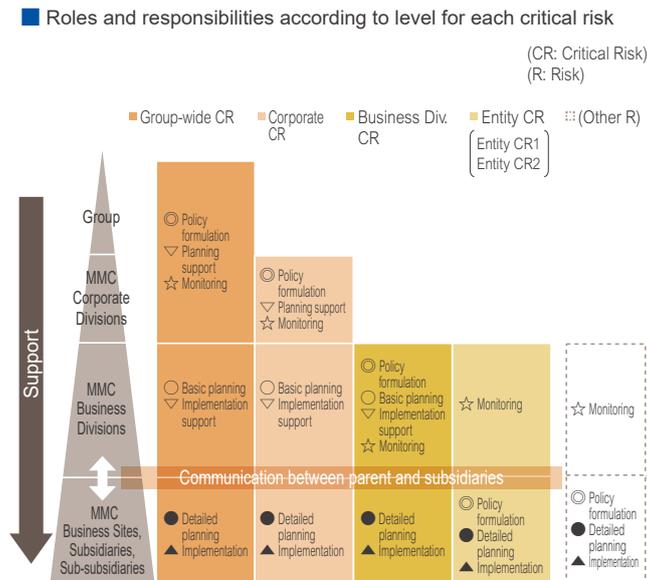
Main areas of improvement in the new risk management system

1. Identifies critical risks without fail, and facilitates the implementation of focused measures
2. Visualizes the state of risks Group-wide, and enhances risk portfolio management and monitoring
3. Clarifies the roles and responsibilities of core management, corporate divisions and companies and other business divisions by business site
4. Enhances dialog and discussion on critical risks between the parent company and subsidiaries, and provides an appropriate support for business sites

Activating of parent-subsidary discussion and support regarding risk countermeasures

Critical risks are classified into four categories according to the attributes of each, with roles and responsibilities set concerning the means of involvement at each level (management level, corporate division, company and other business division, business site).

In an effort to ensure that all critical risks are addressed without fail, a system has been established that allows for business sites to receive a sufficient support - following consultations with the parent company and overseeing business division, and corporate divisions specializing in the area of risk at hand—if the application of measures addressing risks proves particularly difficult for an individual business site alone.



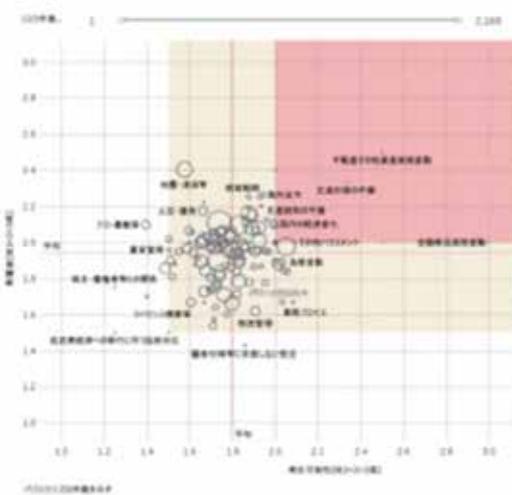
Enhancements to risk portfolio management and monitoring

Monitoring risk information is made easy by taking steps to visualize risk conditions and the progress status of risk reduction efforts. We are working to promptly and accurately determine where to prioritize deploying management resources to address risks, and the level to which risks can be reduced, by mapping out the risks inherent to the business operations of the Group.

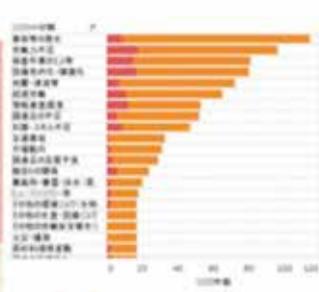
Further, monitoring the progress status of risk reduction efforts in an integrated manner has made it easier to identify delays, and facilitates prompt and appropriate response to risks.

Visualization of risk information

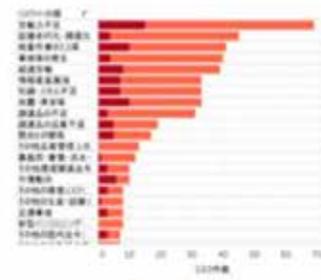
Risk map (distribution of risks)



Risk ranks



Risks with high degree of insufficiency of risk control (value at start of the term)



Impact of loss category when risk materialize



Crisis Management Activities

Basic Perspective

We are striving to strengthen our crisis management systems to facilitate prompt, accurate responsiveness to emergency situations, including natural disasters, accidents, terrorist attacks and pandemic events. Besides formulating crisis management measures, we institute business continuity plans for all our consolidated subsidiaries in Japan and overseas with the aim of minimizing the impact on customers of any crisis that might occur through swift restoration and continuation of operations.

We are also developing systems for obtaining information and expert advice from external consulting firms on the latest trends in crisis management around the world. We distribute regional editions of safety manuals that reflect risks unique to individual countries and regions, and moreover, perform security checks for particularly high-risk countries and regions.

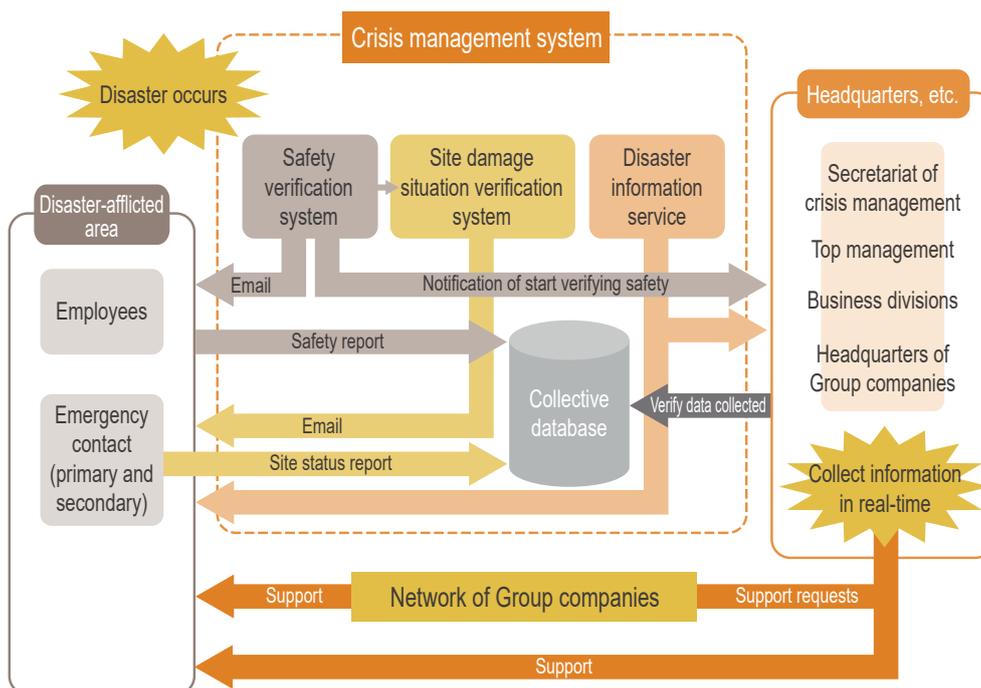
In addition to crisis management measures implemented so far in preparation for natural disasters, accidents, terrorist attacks and pandemics, we are planning to formulate systems to manage other critical risks we have identified in the course of our risk management activities.

Implementation of a crisis management system

The Group implemented a crisis management system in January 2019 both in Japan and abroad in order to help quickly establish an understanding of the safety of employees and the scope of damages at business sites, and to share this across the Group, should a disaster or another state of emergency occur.

This has made it possible to initiate a prompt and adequate initial response, and has also allowed us to leverage the Group network to provide support, etc. from sites nearby disaster-afflicted areas.

■ Crisis management system



Information Security

We regard information security as one of our top priorities in terms of CSR management, and consider personal information in particular to be one of our most important information assets. That is why we make every effort to minimize the risk of information being leaked, lost or damaged.

The focus of our information security activities is on improving information infrastructure, taking into account business continuity in the event of a large-scale disaster, and on reinforcing technical measures and implementing new management systems, with support from the Information Security Panel, a subdivision of our CSR Committee.

In terms of technical measures, we are working to improve protective measures to avoid damage as a result of attacks targeting known vulnerabilities, while also implementing risk mitigation measures against new threats such as targeted attacks, by expanding multi-layer protection and detecting damage early on.

Infections from computer viruses such as ransomware have seen an uptick in recent years. To deal with this threat, we have promoted increased vigilance at Mitsubishi Materials and all group companies, and introduced a system to forcibly apply software patches and updates to address vulnerabilities, even at overseas group companies.

On the management side, we are making every effort to maintain and enhance security levels through repeated implementation of the PDCA cycle in areas such as performance evaluations and employee education.

Moving forward, we will continue to examine and implement a range of technical measures against rapidly advancing security threats at the appropriate level and in a comprehensive and efficient fashion.

Protecting Customers' Personal Information

We are responsible for personal information belonging to many customers including members of our gold accumulation plan. Since the introduction of the Social Security and Tax Number System for Payment Records in January 2016, we started to receive customers' national identification numbers (nicknamed "My Number"). We have been doing our best to protect customers' personal information with a range of measures.

We centrally manage personal information in an electronic form and conduct regular diagnosis through specialized security firms to prevent hacking. We encrypt our customers' national identification numbers and manage them in the specified database, which is separate from personal information. Additionally, we work out regular in-house education on handling personal information, encrypt customers' personal information, and restrict access to personal information databases.



Independent Assurance Report

To the Director and Chief Executive Officer of Mitsubishi Materials Corporation

We were engaged by Mitsubishi Materials Corporation (the “Company”) to undertake a limited assurance engagement of the environmental and social performance indicators marked with a star ★ for the period from April 1, 2018 to March 31, 2019 (the “Indicators”) included in its CSR Data Book 2019 (the “CSR Data Book”) and Metals Company Supplementary Data Book 2019 (the “Supplementary Data Book”) for the fiscal year ended March 31, 2019; the alignment of the Company’s policies to the International Council on Mining and Metals (“ICMM”)’s 10 Sustainable Development (“SD”) Principles and the applicable mandatory requirements set out in ICMM position statements; the Company’s identification and prioritization of material issues; and the Company’s approach and management of its material issues.

The Company’s Responsibility

The Company is responsible for the preparation of the Indicators in accordance with its own reporting criteria (the “Company’s reporting criteria”), as described in the CSR Data Book and the Supplementary Data Book; reporting on the alignment of the Company’s policies to the ICMM’s 10 SD Principles and the applicable mandatory requirements set out in ICMM position statements; reporting on the Company’s identification and prioritization of material issues; and reporting on the Company’s approach and management of its material issues.

Our Responsibility

Our responsibility is to express a limited assurance conclusion on the Indicators based on the procedures we have performed. We conducted our engagement in accordance with the ‘International Standard on Assurance Engagements (ISAE) 3000, Assurance Engagements other than Audits or Reviews of Historical Financial Information’ and the ‘ISAE 3410, Assurance Engagements on Greenhouse Gas Statements’ issued by the International Auditing and Assurance Standards Board. The limited assurance engagement consisted of making inquiries, primarily of persons responsible for the preparation of information presented in the CSR Data Book and the Supplementary Data Book, and applying analytical and other procedures, and the procedures performed vary in nature from, and are less in extent than for, a reasonable assurance engagement. The level of assurance provided is thus not as high as that provided by a reasonable assurance engagement. Our assurance procedures included:

- Interviewing the Company’s responsible personnel to obtain an understanding of its policy for preparing the CSR Data Book and the Supplementary Data Book and reviewing the Company’s reporting criteria.
- Inquiring about the design of the systems and methods used to collect and process the Indicators.
- Performing analytical procedures on the Indicators.
- Examining, on a test basis, evidence supporting the generation, aggregation and reporting of the Indicators in conformity with the Company’s reporting criteria, and recalculating the Indicators.
- Visiting the Company’s Akashi Plant, Yokoze Plant, Onahama Smelting & Refining Co., Ltd. Onahama Refinery and Material Eco-Refining Co., Ltd. Onahama establishment selected on the basis of a risk analysis.
- Evaluating the overall presentation of the Indicators.
- Assessing the alignment of the Company’s policies to the ICMM’s 10 SD Principles and the applicable mandatory requirements set out in ICMM position statements through documentation reviews and interviews.
- Interviewing with the Company’s responsible personnel and reviewing documents with respect to the Company’s process of identifying and prioritizing its material issues.
- Interviewing with the Company’s responsible personnel and reviewing documents with respect to the Company’s approach to and management of its material issues.

Conclusion

Based on the procedures performed, as described above, nothing has come to our attention that causes us to believe that:

- the Indicators in the CSR Data Book and the Supplementary Data Book are not prepared, in all material respects, in accordance with the Company’s reporting criteria as described in the CSR Data Book and the Supplementary Data Book;
- the Company’s policies are not aligned to the ICMM’s 10 SD Principles and the applicable mandatory requirements set out in ICMM position statements as described on pages 4 and 5 of the Supplementary Data Book;
- the Company has not identified and prioritized its material issues as described on page 19 of the CSR Data Book; and
- the Company has not approached and managed its material issues as described on page 20 of the CSR Data Book.

Our Independence and Quality Control

We have complied with the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which includes independence and other requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior. In accordance with International Standard on Quality Control 1, we maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

KPMG AZSA Sustainability Co., Ltd.

KPMG AZSA Sustainability Co., Ltd.

Tokyo, Japan

September 26, 2019

The Mitsubishi Materials Group at a Glance

Corporate Data

As of March 31, 2019 * As of June 21, 2019

Company Name	Mitsubishi Materials Corporation	Total Assets	¥1,938,270 million
Head Office	3-2-3, Marunouchi, Chiyoda-ku, Tokyo 100-8117 Japan	Number of Employees	4,807 (Consolidated: 28,426)
Date Established	1st April, 1950	Consolidated Subsidiaries	152
Chief Executive Officer*	Naoki Ono	Equity Method Affiliates	16
Listings	Tokyo Stock Exchange	Membership	Nippon Keidanren (Japan Business Federation), KEIZAI DOYUKAI (Japan Association of Corporate Executives), Japan Cement Association, Japan Mining Industry Association, ICMM (International Council on Mining & Metals), etc.
Capital	¥119,457 million		

Domestic Network

□ Main Mitsubishi Materials premises ◇ Main Group companies

Kanto Region

- Head Office (Tokyo)
- Ceramics Plant (Saitama Prefecture) Advanced Products
- Yokozoe Plant (Saitama Prefecture) Cement
- Energy Project & Technology Center (Saitama Prefecture) Environment & Energy
- Saitama Property Management Office (Saitama Prefecture)
- Production Engineering Center (Saitama Prefecture)
- Tsukuba Plant (Ibaraki Prefecture) Metalworking Solutions
- Central Research Institute (Ibaraki Prefecture)
- ◇ Mitsubishi Shindoh Co., Ltd. (Tokyo)
- ◇ Mitsubishi Cable Industries, Ltd. (Tokyo)
- ◇ Mitsubishi Aluminum Co., Ltd. (Tokyo)
- ◇ Universal Can Corporation (Tokyo)
- ◇ Mitsubishi Hitachi Tool Engineering Ltd. (Tokyo)
- ◇ Onahama Smelting & Refining Co., Ltd. (Tokyo)
- ◇ Ryoko Lime Industry Co., Ltd. (Tokyo)
- ◇ Mitsubishi Materials Trading Corporation (Tokyo)
- ◇ Mitsubishi Materials Techno Corporation (Tokyo)
- ◇ Materials Finance Co., Ltd. (Tokyo)

Hokkaido

- Sapporo Branch (Hokkaido)

Tohoku Region

- Aomori Plant (Aomori Prefecture) Cement
- Akita Refinery (Akita Prefecture) Metals
- Iwate Plant (Iwate Prefecture) Cement
- Tohoku Branch (Miyagi Prefecture)
- ◇ Mitsubishi Materials Electronic Chemicals Co., Ltd. (Akita Prefecture)
- ◇ Hosokura Metal Mining Co., Ltd. (Miyagi Prefecture)

Chubu/Hokuriku Region

- Nagoya Branch (Aichi Prefecture)
- Gifu Plant (Gifu Prefecture) Metalworking Solutions
- Yokkaichi Plant (Mie Prefecture) Advanced Products
- ◇ Diamet Corporation (Niigata Prefecture)

Kinki/Chugoku Region

- Osaka Regional Head Office (Osaka Prefecture)
- Sakai Plant (Osaka Prefecture) Advanced Products
- Sanda Plant (Hyogo Prefecture) Advanced Products
- Akashi Plant (Hyogo Prefecture) Metalworking Solutions
- Ikuno Plant (Hyogo Prefecture) Metals
- ◇ Tachibana Metal Manufacturing Co., Ltd. (Osaka Prefecture)
- ◇ Japan New Metals Co., Ltd. (Osaka Prefecture)

Shikoku Region

- Naoshima Smelter & Refinery (Kagawa Prefecture) Metals

Kyushu Region

- Kyushu Branch (Fukuoka Prefecture)
- Higashitani Mine (Fukuoka Prefecture) Cement
- Kyushu Plant (Fukuoka Prefecture) Cement



Global Network

* The companies listed here are only a few of the overseas members of the Mitsubishi Materials Group.

Europe

Finland, United Kingdom, Germany, France, Spain, Italy, Russia, etc.

- **Advanced Products**
MMC Copper Products Oy (Finland)
- **Metalworking Solutions**
MMC Hartmetall GmbH (Germany)
Mitsubishi Materials España S.A. (Spain)
MMC Hardmetal ooo (Russia)
MMC Hardmetal Poland, Sp.z o.o. (Poland)

East Asia

China, Korea, etc.

- **Advanced Products**
MMC Electronics (HK) Ltd. (China)
MMC Shanghai Co., Ltd. (China)
MMC Electronics Korea Inc. (South Korea)
- **Metalworking Solutions**
Tianjin Tianling Carbide Tools Co., Ltd. (China)
- **Corporate**
Mitsubishi Materials (Shanghai) Corporation (China)

North America

Canada, United States, Mexico

- **Advanced Products**
Mitsubishi Polycrystalline Silicon America Corporation (United States)
- **Metalworking Solutions**
Mitsubishi Materials U.S.A. Corp. (United States)
- **Cement**
Mitsubishi Cement Corp. (United States)
MCC Development Corp. (United States)

Southeast Asia

Thailand, Malaysia, Singapore, Indonesia, India, etc.

- **Advanced Products**
MMC Electronics (Thailand) Ltd. (Thailand)
MMC Electronics (M) Sdn. Bhd. (Malaysia)
MMC Electronics Lao Co., Ltd. (Laos)
MA Extrusion India Pvt., Ltd. (India)
- **Metalworking Solutions**
MMC Tools (Thailand) Co., Ltd. (Thailand)
- **Metals**
PT. Smelting (Indonesia)
- **Corporate**
Mitsubishi Materials Southeast Asia Co., Ltd. (Thailand)

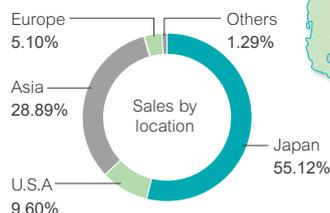
Oceania

Australia

- **Cement**
Mitsubishi Materials (Australia) Pty. Ltd. (Australia)

Overseas operations in countries and regions

30





For further information, please contact us at:

Mitsubishi Materials Corporation Governance Division CSR Department

Floor 22, Marunouchi Nijubashi Bldg.,
3-2-3 Marunouchi, Chiyoda-ku, Tokyo 100-8117 Japan

TEL: 03-5252-5260 FAX: 03-5252-5261

E-Mail: ml-csr2019@mmc.co.jp