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.
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The Mitsubishi Materials Group at a Glance
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 this fiscal year, 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
- Financial data is consolidated (149 companies)
- Greenhouse gas emissions include major consolidated subsidiaries (129 companies)
- Other environmental data is for major consolidated subsidiaries with manufacturing facilities (76 companies)
- CSR training data refers to the main companies subject to CSR activities (69 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

In May 2017, the Group acquired the Special Products Division from Luvata Espoo Oy and its two subsidiaries through MMC Copper Products Oy.

Period

Fiscal 2018 (1st April, 2017 - 31st March, 2018)

* This report may also include information from April 2018 onwards, in an effort to provide the most up-to-date information on the group.

Date of publication

October 2018 (previous report published in September 2017)

Referenced guidelines

GRI Standards
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.

<table>
<thead>
<tr>
<th>Name</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSR Data Book 2018 (PDF)</td>
<td>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.</td>
</tr>
<tr>
<td>Metals Company Supplementary Data Book (PDF)</td>
<td>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.</td>
</tr>
<tr>
<td>Integrated Report (printed version, PDF)</td>
<td>We produce an annual report on Mitsubishi Materials, aimed chiefly at investors, containing financial, management and general business information.</td>
</tr>
<tr>
<td>CSR Section of our Website</td>
<td>Our website features content that we were unable to fit in this report, including detailed performance data, a GRI Content Index, fact sheets, data from previous reports and information on our latest activities.</td>
</tr>
</tbody>
</table>

* 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/ja/csr/
Use for ESG Indices
Our data is used for the following ESG indices.

<table>
<thead>
<tr>
<th>Name</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSCI 2018 Constituent MSCI Japan ESG Select Leaders Index</td>
<td>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).</td>
</tr>
<tr>
<td>MSCI 2018 Constituent MSCI Japan Empowering Women Index (WIN)</td>
<td></td>
</tr>
</tbody>
</table>

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 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, and a “third-party assessment” of our initiatives from an expert standpoint, 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
<table>
<thead>
<tr>
<th>Information from the external environment / Gathering and summarizing feedback</th>
<th>October 2017 onwards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reaffirming basic philosophy</td>
<td>January 2018 onwards</td>
</tr>
<tr>
<td>Selecting priority topics</td>
<td></td>
</tr>
<tr>
<td>Engaging in dialogue with ESG investors</td>
<td></td>
</tr>
<tr>
<td>Conducting reader questionnaires</td>
<td></td>
</tr>
<tr>
<td>Taking part in CSR research activities</td>
<td></td>
</tr>
<tr>
<td>Preparation</td>
<td>March 2018 onwards</td>
</tr>
<tr>
<td>Production kickoff</td>
<td></td>
</tr>
<tr>
<td>In-house confirmation and interviews</td>
<td></td>
</tr>
<tr>
<td>Examining the specific contents</td>
<td></td>
</tr>
<tr>
<td>Compilation</td>
<td>May 2018 onwards</td>
</tr>
<tr>
<td>Asking individual departments to write articles</td>
<td></td>
</tr>
<tr>
<td>Editing report</td>
<td></td>
</tr>
<tr>
<td>Submitting report to the CSR Committee</td>
<td></td>
</tr>
<tr>
<td>Translation</td>
<td></td>
</tr>
<tr>
<td>Obtaining external assurance/assessment</td>
<td>May 2018 onwards</td>
</tr>
<tr>
<td>Online disclosure</td>
<td></td>
</tr>
<tr>
<td>Japanese text: September 2018</td>
<td></td>
</tr>
<tr>
<td>English text: October 2018</td>
<td></td>
</tr>
</tbody>
</table>

Summary
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).

* MSCI: Morgan Stanley Capital International
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

Metals Business

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 copper processing sector, we supply automotive parts, electrical wires, copper tubes, oxygen-free copper, and special copper alloys on a global scale. 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.

Value chain for the metals business

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
As part of our electronic materials and 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) that offer excellent radiation properties for items such as hybrid vehicles, and low-alpha solders, an area in which we boast a world-leading share of the 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 through supplying products such as thermistors, surge absorbers, and other electronic components which are used in vehicles and home appliances. Products we supply in the silicon sector include polycrystalline silicon for semiconductors and chlorosilane gas that play a crucial part in our advanced IT society.

In the aluminum sector, we have group companies that manufacture and sell aluminum rolled and processed products, as well as aluminum beverage cans. As part of our rolling operations, we operate a global extrusion business via manufacturing facilities in four other countries. We also have Japan’s only self-contained recycling system for used beverage cans, and are always doing our bit to help create a recycling-oriented society.

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.

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

President Message

We are committed to taking serious steps to realize our Corporate Philosophy as a way to meet stakeholder expectations as well as the demands of society.

The Mitsubishi Materials Group holds as its Corporate Philosophy “For People, Society and the Earth.” As we strive to realize that philosophy, it is our corporate social responsibility (CSR) and the basis of our management that we earnestly fulfill our obligations and expected role as a corporation as well as inform about and explain our activities within and outside the company and deepen mutual understanding through dialogue.

It is in line with this perspective that the Group identifies the seven areas of resources and recycling, environmental protection and technology, development and use of diverse human resources, occupational safety and health, responsibility throughout the value chain, stakeholder communication, and governance as material CSR issues. In particular, we focus on the issue of resources and recycling, taking into consideration its importance as a global social issue and the Group’s business characteristics and strengths. Based on our Corporate Philosophy, the Group envisions itself as becoming “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.” We are making efforts on a daily basis in pursuit of that vision.

Seen in this context, we want to express our deepest apologies for the considerable trouble we have caused our customers and stakeholders as a result of matters of non-conforming products in the Group. As President, I vow to take the lead in reviewing product safety, implement countermeasures to prevent recurrences, and work to speedily and fastidiously enhance our group governance structure. As a manufacturer, we will keep asking ourselves what we should do to reliably supply our customers with products that they can use without having to worry as well as how we should act to ensure their satisfaction.

We will be deepening and enhancing our CSR activities, thereby meeting stakeholder expectations and contributing to the sustainable development of society. In this, I would like to ask for all of your continued support and cooperation.

Naoki Ono President Mitsubishi Materials Corporation
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.

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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)
Expanding renewable energy supply and striving to improve energy efficiency

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 (opened as a gold mine, and later run as a copper mine, before closing in 1978). 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 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.

Regarding energy efficiency at key production facilities, we set out the goal toward 2020, and steadily aim to achieve it.

<table>
<thead>
<tr>
<th>Targets closely linked to our initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>● By 2030, increase substantially the share of renewable energy in the global energy mix. (Target 7.2)</td>
</tr>
<tr>
<td>● By 2030, double the global rate of improvement in energy efficiency. (Target 7.3)</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Targets closely linked to our initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>● End all forms of discrimination against all women and girls everywhere. (Target 5.1)</td>
</tr>
<tr>
<td>● Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women. (Target 5.b)</td>
</tr>
</tbody>
</table>
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 General Manager, Governance Div., 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 management audits also works with group companies to monitor progress with CSR activities, through internal audits for instance.

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.” (P64)

<table>
<thead>
<tr>
<th>Key comments and their source</th>
<th>Group response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investigating the causes of and implementing preventive measures for the quality issues</td>
<td>• A Special Investigation Committee investigates the facts and causes. • Systematic preventive measures are formulated and implemented (implementation of a front loading system for order receiving, enhancement of the framework and authority of the Quality Control Department, expansion of quality training, promoting automated inspection equipment, enhancement of quality audits, utilization of outside consultants)</td>
</tr>
<tr>
<td>Continuing to expand and improve resource recycling measures</td>
<td>• 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</td>
</tr>
<tr>
<td>Promoting measures to combat global warming (especially from a long-term perspective)</td>
<td>• 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</td>
</tr>
<tr>
<td>Managing abandoned mines</td>
<td>• Improving both equipment and management at closed mines • Continually working to reduce volumes of mine drainage</td>
</tr>
<tr>
<td>Preserving biodiversity (company-owned forests, areas around mines)</td>
<td>• Obtaining the forest certification by SGEC 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.</td>
</tr>
<tr>
<td>Respecting human rights throughout the supply chain</td>
<td>• Rolling out multi-layered initiatives aimed at ensuring the effectiveness of the CSR Procurement Guideline for the Procurement &amp; 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)</td>
</tr>
<tr>
<td>Creating Safe, Healthful Working Environments</td>
<td>• 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</td>
</tr>
<tr>
<td>Developing human resources capable of tackling global issues</td>
<td>• Continuing to step up global human resource development • Developing and recruiting overseas human resources</td>
</tr>
<tr>
<td>Promoting greater roles for diverse human resources</td>
<td>• 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</td>
</tr>
</tbody>
</table>
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 identify material issues using procedures and perspectives in line with the GRI Standard, as a set of international guidelines for sustainability reporting. As we are publishing our CSR report in accordance with the fourth version of the GRI Guidelines (G4) from fiscal 2017 onwards, we have once again conducted a companywide material issue assessment and restructured priority issues accordingly. We have continued to review the contents of our report within the framework of the material issues we identified, as part of the process of producing a report every year.

We will continue to carry out regular reviews in the future too, and reflect them in the contents of our reports, in order to share information with our stakeholders.

GRI Guidelines material issue assessment process

1. **STEP 1: Identification**
   - Identified key factors based on sources such as G4 indicators, ISO 26000, OECD Guidelines for Multinational Enterprises, SRI categories and CSR report questionnaires
   - Organized identified factors into a total of 79 issues

2. **STEP 2: Assessment**
   - Carried out departmental assessments based on the relevant issues, using a questionnaire format
   - Conducted interviews, supplemented assessments from a qualitative perspective, and adjusted scores
   - Brought together and organized the issues in line with the G4 aspects

3. **STEP 3: Prioritizing issues**
   - Compiled a matrix listing individual issues and aspects, along with their level of materiality
   - Organized internal discussion sessions
   - Adjusted order of materiality based on the results

4. **STEP 4: Validation**
   - Review by an external independent assurance provider
   - Finalized issues via the CSR Committee

Incorporated stakeholder and management perspectives into assessments

<table>
<thead>
<tr>
<th>External factors</th>
<th>Stakeholders’ perspective</th>
<th>Internal factors</th>
<th>Management perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td>① Key areas of interest, issues and indicators raised by stakeholders in relation to sustainability</td>
<td>① Relationship to the Group’s corporate value, policies, strategies, corporate management systems, goals and targets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>② Industry-specific issues and future priorities reported by peers and competitor</td>
<td>② Areas of interest to stakeholders and their expectations that could particularly provide a source of growth for the Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>③ Legislation, regulations, international agreements and voluntary agreements of strategic importance to the Group and its stakeholders</td>
<td>③ Significant risks to the Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>④ Impact of sustainability risks and opportunities identified as a result of reliable external research, etc.</td>
<td>④ The Group’s core competencies and the manner in which they can or could contribute to sustainable development</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Restructured material issues

- Resources and recycling
- Environmental Protection and Technology
- Development and Use of Diverse Human Resources
- Occupational safety and health
- Responsibility throughout the value chain
- Governance
<table>
<thead>
<tr>
<th>Material Issues</th>
<th>Material issue themes</th>
<th>Background and key initiatives</th>
</tr>
</thead>
</table>
| Resources and Recycling | ● Maintaining stable supplies of materials and products  
● Pursuing a recycling-oriented business model | 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 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. |
| Environmental Protection and Technology | ● Preventing global warming  
● Preventing environmental pollution  
● Preserving biodiversity  
● Developing environmental technologies and products | 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. |
| Development and Use of Diverse Human Resources | ● Human resource development  
● Diversity (Empowerment of women) | 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 working conditions. Initiatives such as these have the added bonus of creating a shared awareness based on partnership between labor and management. |
| Occupational Safety and Health | ● Preventing occupational accidents  
● Creating mentally and physically pleasant workplaces | 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. |
| Responsibility throughout the Value Chain | ● Respect for human rights in procurement  
● Product liability | 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. |
| Stakeholder Communication | ● Building and strengthening relationships with stakeholders  
● Improving customer satisfaction  
● Engaging in dialogue and coexisting with local communities | 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. |
| Governance | ● Reinforcing compliance | 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. |
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.

As the main mines are unevenly distributed between a handful of resource producing countries however, we are starting to see tighter restrictions surrounding resources. That includes certain countries adopting policies that limit market entry from foreign companies, or increasing taxes on the mining industry.

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 before the end of 2017, 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.

* "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.”

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 2018, one of the five cement kilns at the Kyushu Plant (Kanda District) achieved one year operation without requiring any repairs to the refractory bricks. We plan to expand this practice to the other cement kilns in fiscal 2019.

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

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

<table>
<thead>
<tr>
<th>Purpose of activities</th>
<th>Activities during fiscal 2018</th>
<th>Self-assessment</th>
<th>Targets/plans for activities from fiscal 2019 onwards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steadily processing industrial waste as raw materials</td>
<td>● The amount of waste plastic processed increased by 140% after reinforcing the equipment</td>
<td>A</td>
<td>● Increase waste utilization through fully automated analytical equipment at the Kyushu Plant, completed in 2018</td>
</tr>
<tr>
<td>(Cement Business)</td>
<td>● Biomass and inexpensive thermal energy increased by 198% from the previous year</td>
<td></td>
<td>● Develop and expand acceptance of new alternatives to biomass and cheap thermal energy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● Expand acceptance of municipal waste incineration fly ash with the operation of KitaKyushu Ash Recycle Systems Co., Ltd.</td>
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</tr>
<tr>
<td>Expanding recycling operations (Metals Business)</td>
<td>● Operate sampling facilities in the Netherlands (MIMMR) with an eye to expanding E-Scrap processing</td>
<td>B</td>
<td>● Expand high-grade E-Scrap collection and processing</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Promoting recycling of tungsten (Advanced Materials &amp; Tools Business)</td>
<td>● Since November 2017, new facilities have been completed and we are identifying issues and measures to ensure stable operations (Japan New Metals Co., Ltd.)</td>
<td>A</td>
<td>● Stabilize the scrap-processing capacity of Japan New Metals</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● Strengthen relationships with re-refiners</td>
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</tbody>
</table>
| Promoting recycling of fluorine resources (Electronic Materials & Components Business) | ● Used 2,463 tons/year, compared to the projected 2,115 tons  
|                                                           | ● Used 18%, compared to projected 15%                                                          | A               | ● Work to steadily recycle the full volume as client operating rates are high and the volumes brought in are expected to exceed projected volumes |
|                                                           |                                                                                               |                 |                                                                                                                     |
| Facilitating the 3Rs as part of aluminum can operations (Aluminum Business) (3Rs = Reduce, Reuse, Recycle) | ● 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               | ● Provide lateral support to further improve the aluminum-can recovery rate of Universal Can Corporation |
|                                                           |                                                                                               |                 |                                                                                                                     |
| Advancement of Home Appliances Recycling                 | ● Increased productivity by 50% by developing an air-conditioner indoor unit disassembly machine | A               | ● Promotion of labor saving and efficient recycling by developing dismantling technologies                        |
| Aiming for No.1 handling company of E-Scrap in Japan      | ● Demonstrated advanced recycling of collected items from home appliances recycling by utilizing automobile recycling facilities |                 | ● Promotion of advanced recycling of items recovered at home appliance recycling plants                            |
| (Environment & Energy Business)                           |                                                                                               |                 | ● 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 (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.

**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.

**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

**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 2018, we recycled 2,199 thousand units of home appliances at six plants of our five affiliated companies. The recycling of this volume could reduce landfill disposal equivalent to approximately 100,000 tons.
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.

Recycling Aluminum Beverage Cans

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.

Recycling Fluorine Resources

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.

Recycling Tungsten from Urban Mines

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.
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.
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.

Recycling resources from urban mines

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.

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 FY2018)

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

The above table does not take into account the impact of recovering fluorocarbons*. Expressed in terms of CO₂ emissions, recovering approximately 470 tons of fluorocarbons would equate to a reduction of approximately 1,250,000 tons.

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

<table>
<thead>
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</tr>
</thead>
</table>
| ● Complying with environmental legislation  
Continuing to reduce environmental impact | ● Step up education on environmental legislation  
● Strengthen measures to prevent environmental accidents | A | ● Strengthen efforts to observe environmental legislation (introducing legal compliance check sheets, etc.)  
● Step up education on environmental legislation |

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 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

Full Compliance and Environmental Accident Prevention

Ensuring that environmental management is carried out appropriately requires full awareness among managers and staff of the importance of protecting the environment and a proper understanding of legislative requirements. The Group consequently shares information on legislative revisions, conducts capital investments and operations management in compliance with applicable laws and regulations and takes steps to prevent omissions in obtaining licenses and certifications. We provide ongoing staff education in pollution prevention and proper waste management, moreover, as well as training for ISO 14001 internal environmental auditors.

Information-sharing Regarding Compliance with Environmental Legislation

We keep employees up to date on changes in legislation 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.

Compliance with Legislation on Pollution Prevention

We strictly observe all relevant laws and regulations in operations management at our business sites, with consideration for local residents and the environment as our highest priority.

In order to prevent failure to make notifications or obtain permits or licenses in accordance with legislation applicable to installing or upgrading equipment, we conduct investigations at individual facilities to determine what notifications the regulations require them to submit. We also confirm application of the legislation and the response status of the submissions by the relevant corporate departments. These activities pertain particularly to business startups that require investments exceeding prescribed amounts. In light of the importance of confirming with certainty that operations management is conducted in full compliance with laws and regulations at our business facilities, we introduced a checking system to confirm the status of legal compliance without fail and implemented it in July 2018.

With regard to our compliance with environment-related laws and regulations in fiscal 2018, 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 18 complaints relating to noise, vibrations, suspended dust, etc. For all of these, we immediately investigated the causes and implemented the necessary countermeasures.
Dealing with Environmental Risks

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.

We recognize that freshwater is also an invaluable resource, and are taking steps to tighten wastewater management and save water, to minimize the risk that declining freshwater resources could impact on our business activities.

Environmental Accounting

In fiscal 2018, we invested approximately ¥3.5 billion in areas such as renewing Tohoku Power Service Station’s Oyu Hydroelectric Plant and updating equipment at our cement plants to improve waste recycling.

Costs associated with environmental preservation came to ¥4.4 billion, including environmental measures, and maintenance and management of equipment to prevent pollution.

Environmental education in FY2018

<table>
<thead>
<tr>
<th>Category</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental management training</td>
<td>Managers</td>
</tr>
<tr>
<td>Waste management training</td>
<td>Managers</td>
</tr>
<tr>
<td></td>
<td>Supervisors</td>
</tr>
<tr>
<td>Training for internal environmental auditors</td>
<td></td>
</tr>
</tbody>
</table>

Spending on environmental preservation in FY2018

<table>
<thead>
<tr>
<th>Category</th>
<th>Inception Amount</th>
<th>Expense Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business area costs</td>
<td>3,531</td>
<td>4,433</td>
</tr>
<tr>
<td>Pollution prevention costs</td>
<td>1,139</td>
<td>2,802</td>
</tr>
<tr>
<td>Global environmental conservation costs</td>
<td>1,455</td>
<td>187</td>
</tr>
<tr>
<td>Resource recycling costs</td>
<td>937</td>
<td>1,444</td>
</tr>
<tr>
<td>Upstream/downstream costs</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Administration costs</td>
<td>63</td>
<td>333</td>
</tr>
<tr>
<td>R&amp;D costs</td>
<td>27</td>
<td>12</td>
</tr>
<tr>
<td>Social activity costs</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Environmental remediation costs</td>
<td>0</td>
<td>151</td>
</tr>
</tbody>
</table>

* 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**

The fiscal 2018 total energy input (non-consolidated) had increased by about 4% (1.5 petajoules: crude oil equivalent of 40 megaliters) compared to fiscal 2017. This was due to increased production volume for cement, the demand for which has been increasing steadily. Energy unit consumption improved by 1.1% compared to fiscal 2017 as we sought to improve energy use efficiency by increasing production volume and improving energy-saving activities at all locations.

**Raw Material Input**

In fiscal 2018, we used a total of 3.6 million tons of waste and byproducts (similar to the previous year) at Mitsubishi Materials, which is roughly 19% of the total raw material input of 18.9 million tons.

**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 430 million m³ of water at Mitsubishi Materials during fiscal 2018. Of the total water consumption volume, only 14.7 million m³ (14% increase from the previous year) was fresh water.
In fiscal 2018, the Company’s non-consolidated SOx emissions had increased by about 48% on the previous year and NOx emissions by about 8%. The increase in SOx was due to the use of more fuel oil. The increase in NOx was due to the use of more petroleum coke.

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

The volume of waste sent to landfill by Mitsubishi Materials came to approximately 5.1 thousand tons in fiscal 2018, similar to the previous year. The total volume of waste for the Group as a whole, including Mitsubishi Materials, came to approximately 110 thousand tons, of which around 80% was recycled.

* We changed the method for calculating final waste disposal volumes and resource recovery volumes in fiscal 2018, now differentiating between hazardous and non-hazardous waste.
The large number of disastrous extreme weather events believed to have been caused by global warming in recent years (superstorms, floods, droughts, etc.) has engendered a growing sense of concern with respect to global economic risk. We have set clear targets based on our environmental policy for each of our plants for the purpose of achieving a steady reduction of CO₂ emissions while actively developing and supplying products and services that will contribute to realization of a low-carbon society.

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.

The Company’s Global Environment and Energy Committee (comprising members of the Corporate Strategy Committee) takes the lead in formulating strategic initiatives in response to risks and business opportunities related to climate change from a comprehensive medium- to long-term perspective. In fiscal 2019, the Committee made the decision to begin considering ways of introducing an internal carbon pricing system.

### 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 2018 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.

#### Targets for 2020 and results/progress in FY2018

<table>
<thead>
<tr>
<th>Sector</th>
<th>Details</th>
<th>Preventing global warming</th>
<th>Creating a recycling-oriented society/contributing to the environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement</td>
<td>All facilities (Kamori, Isebe, Yokozu, Kyushu, Higashitani)</td>
<td>1.8% increase compared to FY2011 (Milestone: 0% decrease)</td>
<td>11.4% decrease (Milestone: 11.4% increase)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.0% increase compared to FY2017 (Milestone: 0% decrease)</td>
<td>10.7% decrease (Milestone: 10.7% increase)</td>
</tr>
<tr>
<td></td>
<td>Nacchoma Smelter &amp; Refinery</td>
<td>0.3% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
<td>0.7% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
</tr>
<tr>
<td></td>
<td>Saiki Plant</td>
<td>0.3% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
<td>0.7% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
</tr>
<tr>
<td></td>
<td>Tsuchioka Plant</td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
<td>0.7% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
</tr>
<tr>
<td></td>
<td>Gifu Plant</td>
<td>0.7% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
</tr>
<tr>
<td></td>
<td>Akashi Plant</td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
<td>0.7% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
</tr>
<tr>
<td></td>
<td>Yokoichi Plant</td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
<td>0.7% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
</tr>
<tr>
<td></td>
<td>Ceramics Plant</td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
<td>0.7% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
</tr>
<tr>
<td></td>
<td>Sanda Plant</td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
<td>0.0% increase compared to FY2009 (Milestone: 11.4% decrease)</td>
</tr>
</tbody>
</table>

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

- **☆**: Below 50% achievement
- **☆☆**: Between 50% and 80% achievement
- **☆☆☆**: Between 80% and 100% achievement
- **☆☆☆☆**: 100% or higher achievement
Progress towards Targets in FY2018

As for accomplishing our Global Warming Prevention goals, we achieved at least 100% of fiscal 2018 levels for 3 out of 9 units and less than 50% for the remaining 6 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 6 items.

The most common reason for achieving less than 50% was that "The external environment and other operational 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 Materials & Tools Business and the Electronic Materials and Components 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.

Environmental Breakdown for FY2018

<table>
<thead>
<tr>
<th>Category</th>
<th>Non-consolidated</th>
<th>Group companies</th>
<th>Total companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>From energy sources</td>
<td>2,924</td>
<td>563</td>
<td>788</td>
</tr>
<tr>
<td>From non-energy sources</td>
<td>4,143</td>
<td>194</td>
<td>692</td>
</tr>
<tr>
<td>Subtotal</td>
<td>7,067</td>
<td>757</td>
<td>1,480</td>
</tr>
<tr>
<td>From energy sources (power, etc.)</td>
<td>593</td>
<td>600</td>
<td>552</td>
</tr>
<tr>
<td>Subtotal (power, etc.)</td>
<td>593</td>
<td>600</td>
<td>552</td>
</tr>
<tr>
<td>Total</td>
<td>8,096</td>
<td>1,357</td>
<td>1,132</td>
</tr>
</tbody>
</table>

* Group companies includes 120 consolidated subsidiaries (68 domestic, 53 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 (direct) shows market base emissions. It is 1,750 [thousand tCO2e] for location base.
Eighth 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 2018 contest are outlined as follows.

- **Logistic Initiatives**

  Our CO2 emissions from logistics for fiscal 2018 totaled 43,910 tons for Mitsubishi Materials (up 482 tons from the previous year), and 77,320 tons on a consolidated basis*¹ (down 358 tons). Energy consumption per unit*² meanwhile came to 15.95 kiloliters per million ton-kilometers for Mitsubishi Materials (0.5% worse than the previous year), and 19.87 kiloliters per million ton-kilometers for the group as a whole.

  We are working on initiatives such as promoting a modal shift and improving shipping efficiency by road, as we continue to optimize logistics throughout the group and minimize the resulting impact on the environment.

- **Recovery and Underground Storage of CO2**

  We have been keeping a close eye on carbon dioxide capture and storage (CCS) technology, capable of isolating and recovering CO2 from production activities and storing it underground, rather than releasing it into the air. We are putting to good use the outstanding technologies and human resources that we have built up since the Company’s founding to assess the relevant underground structures.

  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.

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*¹ Consolidated figures refer to six companies classified as “Designed shippers,” accounting for over 90% of emissions among domestic group companies.

*² Refers to the amount of energy consumed in kiloliters crude oil equivalent (kl) divided by transportation in ton-kilometers.

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<table>
<thead>
<tr>
<th></th>
<th>FY2017</th>
<th>FY2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitsubishi Materials</td>
<td>Group companies*¹</td>
<td>Mitsubishi Materials</td>
</tr>
<tr>
<td>Total</td>
<td>43,428</td>
<td>34,257</td>
</tr>
<tr>
<td>Road</td>
<td>8,224</td>
<td>26,459</td>
</tr>
<tr>
<td>Rail</td>
<td>1</td>
<td>32</td>
</tr>
<tr>
<td>Ocean</td>
<td>35,143</td>
<td>7,766</td>
</tr>
<tr>
<td>Air</td>
<td>59</td>
<td>0</td>
</tr>
</tbody>
</table>
Earthquake-resistant structures were constructed at the Koma-Monomi area in 2011, and the construction of a new power plant in the Komatagawa water system, which was launched in September 2013, was completed in March 2018. We are determined to keep on securing both stable operations and stable revenue in the future.

In fiscal 2018, the combined power generated by all six hydroelectric plants was 93 GWh, which is equivalent to a 67,000-ton reduction in CO₂ emissions compared to oil-fired power.

We are currently planning a new hydroelectric plant on the Komatagawa water system, in an effort to generate even more renewable energy.

Towards Commercialization 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 started joint development for practical application of this technology.

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 2018, we generated a total of 325 GWh of power, which is equivalent to a 240,000-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 Co., Ltd., started construction of Wasabizawa Geothermal Power Plant in May 2015. 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 are also in the process of conducting joint surveys with other companies and in the Bandai-Azuma-Adatara 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.

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. We are determined to keep on securing both stable operations and stable revenue in the future.

In fiscal 2018, the combined power generated by all six hydroelectric plants was 93 GWh, which is equivalent to a 67,000-ton reduction in CO₂ emissions compared to oil-fired power. We are currently planning a new hydroelectric plant on the Komatagawa water system, in an effort to generate even more renewable energy.
Examples of systems in use

- **Solar power plants**
  - Makabe, Fukuoka prefecture
  - Fukuoka prefecture
  - Miyagi prefecture
  - Fukushima prefecture

- **Reduction in CO2 emissions using renewable energy**

<table>
<thead>
<tr>
<th>Year</th>
<th>Power generated (MWh)</th>
<th>Reduction in CO2 (thousand tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>282</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>335</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>350</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>361</td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>324</td>
<td></td>
</tr>
</tbody>
</table>

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

Overview of the geothermal heat pump (GeoHP) system

- **Bore hole systems**
  - Kazuno Wide-Area Administrative Union Fire Department (air conditioning)
  - Tokyo Metro Co., Ltd. Nakano Depot (air conditioning)
  - Ishinomaki Port Government Building (air conditioning)
  - Tokyo Skytree (district heating system)

- **Foundation pile systems**
  - Akita City Hall (air conditioning, snow-melting system)
  - Hachimantai City Hall (air conditioning)

- **Horizontal systems**
  - Iyo City Office (air conditioning)
  - Setagaya-Daita Station and Higashi-Kitaazuma Station (Odakyu Line) (air conditioning)

- **Open loop systems**
  - Mitsubishi Materials Techno Corporation Kazuno office (air conditioning)

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.

We are working to develop systems to harness ground source heat using urban infrastructure. Having been included in a project spearheaded by the New Energy and Industrial Technology Development Organization (NEDO), aimed at developing technology to harness heat from renewable energies, in February 2016, Mitsubishi Materials Techno is now conducting research into low-cost GSHP systems that combine the SMW* system, which is commonly used in urban construction, with ground source heat. The end results will be compiled by the end of fiscal 2019.

From December 2015 to March 2018, the Company was commissioned by the Ministry of the Environment and conducted assessments based on empirical field trials and monitoring as to what impact the use of ground source heat has on underground ecosystems (especially microorganisms). Our report from the empirical trials concluded that we could not observe any impact on underground ecosystems by the use of ground source heat. This result is reflected in the Ministry of the Environment’s Guidelines for the Use of Ground Source Heat (Revised and Enlarged Edition) (March 2018).

* 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.
Preventing Environmental Pollution

Preventing Air Pollution

We use manufacturing processes that emit air pollutants such as dust, sulfur oxides (SOx) and nitrogen oxides (NOx), as a result of burning fuel for instance. In particular, our cement and copper manufacturing operations account for the majority of those emissions. We ensure stable operations at each of our facilities, and adequately maintain the performance of electrostatic precipitator and other such emission treatment equipment, in an effort to minimize emissions of air pollutants.

Preventing Water Pollution

As well as seawater, which we use as once-through cooling water for thermal power generation at our cement plants and at our copper plants, we also use industrial water, groundwater and river water, which we discharge into the sea, rivers and sewers after use.

We install effluent treatment systems at all of our facilities, and make every effort to prevent water pollution through steps such as imposing management targets that are even stricter than wastewater 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 training aimed at preventing the spread of substances in the event of a leak.

Chemical Management

The Group’s manufacturing plants for non-ferrous metals, processing tools, and electronic materials 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. Through this, we are preventing hazardous chemical substances from leaking into the environment and reducing environmental risks by decreasing loads.

The Sanda Plant Shizuoka DBA Center, which manufactures DBA substrates, produces industrial waste in the form of ferric chlorides. Meanwhile, our Naoshima Smelter & Refinery purchases and uses ferric chlorides for its wastewater treatment process, thus Naoshima started using ferric chlorides from the DBA Center in fiscal 2016 after resolving quality, stable supply and other issues. As a result of continuously working on this initiative, almost all the ferric chlorides produced as industrial waste from the Sanda Plant Shizuoka DBA Center (annual maximum of approximately 1,000 tons) is reused at the Naoshima Smelter & Refinery.

Waste Management

Here at the Mitsubishi Materials Group, we make every effort to reduce the volume of waste that we generate, and to recycle resources from waste.

The plants of the Advanced Materials & Tools Company, where cemented carbide products and ultra-precision processing tools are manufactured, are working to recycle waste by keeping down amounts of waste produced, thoroughly separating the waste, and selling it. The Narita and Yasu Plants of Mitsubishi Hitachi Tool Engineering, Ltd. have been acknowledged for such continuous initiatives and were awarded by the Environment Special Award for fiscal 2018 by the Japan Cutting & Wear-Resistant Tool Association (JTA).

Further, starting in fiscal 2018, we revised our calculation methods for the amounts of waste for final disposal and recycling, dividing them into hazardous and non-hazardous waste.
Activities during fiscal 2018

- Provided management training for abandoned mines
- Upgrading aging facilities

Self-assessment: A

Purpose of activities

- Managing abandoned mines
- Enhancing management training for abandoned mines
- Upgrading aging facilities
- Tailings dam reinforcement work

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 nonferrous metal mines have now been suspended or discontinued. The following controls and management programs are currently in place at 21 abandoned mines in 14 locations.

- 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, all our Group companies have been implementing responses to deteriorating natural disasters and other risks by conducting protective construction to guard against pollution 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.

Construction costs are recorded on a regular basis as provisions for the environment. Funding for tailing dam reinforcement work at six of the 10 sites in need of reinforcement had been recorded as of fiscal 2018 along with the costs of mine pollution countermeasures, including the costs involved in reducing wastewater at its source.

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 of 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.

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.

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. For the sake of our continuous management of abandoned mines in the future, we are actively training young engineers with little mining experience, helping them to inherit and learn techniques from experienced engineers in a variety of programs.

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.

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.
Preserving the Natural Environment

<table>
<thead>
<tr>
<th>Purpose of activities</th>
<th>Activities during fiscal 2018</th>
<th>Self-assessment</th>
<th>Targets/plans for activities from fiscal 2019 onwards</th>
</tr>
</thead>
</table>
| ● Promoting biodiversity-oriented activities | ● Undertook activities to protect endangered species of plants in nature conservation areas  
● Carried out tree-planting activities at mines | A | ● Continue with current activities for the time being |
| ● Ensuring sustainable management of company-owned forests | ● Maintained forest certification based on documentary screening and site inspections (Otaru Forest, Shiraoi Forest)  
● Provided placements for seven overseas trainees as part of JICA issue-specific training, and organized training workshops  
● Tree-planting ceremony with local participants in Teine Forest (44 participants) | A | ● High added-value use of broadleaf-tree resources (use for office furniture, etc.)  
● Measure forest resources using drones  
● Continue tree-planting and raising ceremonies and activities |

Preserving Biodiversity

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.

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
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 conjunction with the local preservation authorities, and have maintained watering stations ever since the area was operational, in an effort to protect bighorn sheep and other wildlife living in the hills behind the mine.

Initiatives at Limestone Mines (Mount Buko)

The Une Mine of Ryoko Lime Industry Co., Ltd. extracts limestone from Mount Buko, which is the symbol of the Chichibu area in Saitama Prefecture. In the area in which limestone is extracted, we have planted more than 20,000 trees, the majority being Euptelea and willows native to the area. Despite the harsh environment with a slope facing north and an altitude over 1,000 meters, 35 years have passed since we planted the first trees and they are now more than 5 meters tall. Wild larch, beech and other trees have also found their way in from the adjacent forest and the mining site is slowly but steadily returning to its original state. In recent years, the fresh verdure can be seen from the city in May, allowing local residents to observe the achievements of our greening activities as well.
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. All the while steadily conducting this kind of meticulous forest management, we will make continuous efforts to preserve the rich forests now and in the future 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

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

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.

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 primarily through our “resource forests,” and provide society with a steady supply, which in turn contributes to the establishment of a recycling-oriented society.

In our “resource forests,” toward the sustainable forest management, we maintain an even spread of trees of different ages, and continue to fell and replant a certain portion of each forest, to ensure that we can supply timber consistently over the long term. We have also formulated our very own management standards for each species of tree that we plant, and have set out long-term management plans running up to 80 years into the future, so that we can continue produce high quality timber at a reasonable cost. As the natural world is constantly changing, reality frequently deviates from our initial plans. That is why we carry out onsite surveys across all of our forests every five years, when formulating forest management plans. This enables us to revise plans flexibly, and take remedial measures along the way, to bring us closer to achieving our goals for each forest.
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 local NPO Teine Sato-gawa Tankentai, 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. We bring in light to the interior of our forests, by thinning out trees in dark areas where overcrowding is blocking the sunlight, and quickly remove dead or damaged trees that are at risk of falling, in order to make the forest a safe place. If paths become difficult to use, due to mud caused by melting snow or heavy rains for instance, we lay down timber and take steps to maintain surfaces, so that visitors can walk along the paths with confidence.

As a way to let local residents know about the value and fun that forests provide, we hold tree planting festivals in our forests. In the future, we will be creating more opportunities for local residents to interact with the forests through these kinds of active initiatives, and increase our efforts to make the forests of Mitsubishi Materials into valuable features of their local areas.

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 (corresponding to amount for approx. 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 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

* 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.

In addition to prohibiting the felling of trees in key locations where creatures live and move around, including forest ridge and riverside areas, we also refrain from clearing large areas of land even in timber production areas. Ensuring that we never clear connecting areas and that we disperse the areas for the felling of trees enables us to maintain biodiversity within the forest environment. 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.

**Confirmed rare species (As of August 2017)**

- **Mammals** 1 species
- **Aquatic** 4 species
- **Plants** 13 species
- **Birds** 12 species
- **Insects** 1 species

![Daily monitoring](image1)

![Wildlife camera trap](image2)

**Japanese sable**

**Black woodpecker**

**Masu salmon**

**Japanese primrose**

**Dogtooth violet**

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**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 principle.

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 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

Creating distinctive products and technologies to provide the Earth with new materials

Leading company

Future needs in priority areas

New core businesses for sustainable growth

Inspirational new products and businesses

Creating new products and businesses

Needs that the Company should meet

Next-generation vehicle, IoT and AI

Clean energy

Low carbon business

Lithium-ion battery (LIB) recycling

Urban mines

Next-generation vehicle

Energy

Environment

Clean energy

Low carbon business

Lithium-ion battery (LIB) recycling

Urban mines
As we seek to alleviate climate change, there is a need to develop new energy-saving technology for cement production. The temperature of the clinker\textsuperscript{1} fired inside rotary kilns,\textsuperscript{2} which is a type of cement production equipment, is measured using radiation thermometers,\textsuperscript{3} but there was a problem that the precision is low due to dust composed of clinker particles dispersing, absorbing, and radiating luminous energy.

Wanting to ensure that the clinker firing does not waste energy, the Company and CHINO Corporation used a technique called the Dust Canceling Method to develop a high-precision temperature measuring system that can be used in a cement rotary kiln under high concentration of dust. Having tested it in a real kiln, it was successfully shown to be able to measure temperatures within a range of ±25°C, which represents a huge increase in precision when compared to the -150 to -60°C error range of conventional radiation thermometers.

This system not only contributes to decreasing thermal energy consumption in the clinker firing process, which is the most energy-consuming in the cement production process, but we believe that it will be indispensable for realizing low-temperature clinker firing technology that uses mineralizers,\textsuperscript{4} whose commercialization is expected to become a reality soon. Moreover, we also expect that it can be applied to temperature measurement in other industrial furnaces where dust is a problem, outside of the cement production process. Mitsubishi Materials Corporation and CHINO Corporation will be increasing the system’s measurement precision, reliability, and durability, and plan to productize it in fiscal 2021.

Moreover, this research was implemented as part of a project promoted by the New Energy and Industrial Technology Development Organization (NEDO).

\textsuperscript{1} Lumps of limestone, clay, silica stone, iron, and other materials a few centimeters in size resulting from kiln firing. It is pulverized together with gypsum to produce cement.

\textsuperscript{2} Rotating continuous high temperature firing device. The raw ingredients are entered above into the slightly tilted “steel tube lined with fire brick” and the burner flame is applied from beneath. The ingredients are fired while slowly moving downward due to their own weight and the rotation.

\textsuperscript{3} A measuring instrument that takes in luminous energy corresponding to the temperature radiated from an object of measurement and converts this into a temperature value.

\textsuperscript{4} A technology that lowers the firing temperature of clinker by about 100°C by adding mineralizers (fluorine and sulfur trioxide). It is expected to save around 2.6% of energy. It was developed as part of Developing Basic Technologies for Innovative Cement Production Processes, a 2010-2014 project subsidized by the Ministry of Economy, Trade, and Technology. Clinker particles tend to become smaller during low-temperature firing, which generates more dust and so may reduce measurement precision.
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.

### Human Resource Development

#### Basic Approach to Human Resources

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#### Group-wide education system

- **Safety**
- **Mental health**
- **CSR**
- **Human rights**
- **Quality control**

**Global Management Program (GMP)**

- **Junior Global Program (JGP)**
- **Company-sponsored graduate studies (Japan/overseas)**
  - Participation by personal application, recommendation or open call

**Life planning training**

- Age 55 for union members, 57 for managerial staff

**Career training**

- Supervisors at ages from 26 to 28

**Career design training**

- Age 48 for managerial staff

**Manufacturing Innovation Seminar**

**Advanced Leadership Development Program**

- Senior general manager training
- General manager training
- Assistant general manager training
- Manager training
- Assistant manager training

**Junior Global Program (JGP)**

- Evaluating employees
- Follow-up training
- Qualification training

**New recruit training**

- Young employee training (Mitsubishi Materials Corporate University)
- Frontline supervisor training

**Company-wide education system**

- **Training for selected**
- **Training by job grade**
- **Optional training**
- **Career development training**
- **Personal development support plans**

- **Evaluator training**
- **Evaluator training follow-up training**
- **Qualification incentives**
- **TOEIC incentives**
- **Distance learning incentives**
- **General manager training**
- **Assistant general manager training**
- **Manager training**
- **Assistant manager training**
- **Frontline supervisor training**

**Self-assessment grades**

- A: Target achieved
- B: Target mostly achieved
- C: Target not achieved

<table>
<thead>
<tr>
<th>Purpose of activities</th>
<th>Activities during fiscal 2018</th>
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<th>Targets/plans for activities from fiscal 2019 onwards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promoting human resource development</td>
<td>Reviewing training for new and mid-level employees and expanding career education</td>
<td>B</td>
<td>Enhancing and promoting the placement of employees to train next-generation management candidates</td>
</tr>
<tr>
<td>Retaining and utilizing talented locally employed staff at overseas facilities</td>
<td>Introducing a training program for locally employed managers (China)</td>
<td>A</td>
<td>Expanding the training program for locally employed staff to other areas</td>
</tr>
<tr>
<td>Promoting disabled persons’ employment</td>
<td>Disabled persons’ employment rate [Target: 2.5% → Actual: 2.34%]</td>
<td>B</td>
<td>Continuing to promote employment based on the Group-wide and divisional action plans</td>
</tr>
<tr>
<td>Promoting work-life balance</td>
<td>Continue to implement reduced-hours scheme aimed at reducing overall working hours</td>
<td>B</td>
<td>Continuing to suppress long working hours and to promote employees to take paid leave in order to reduce overall working hours</td>
</tr>
</tbody>
</table>

SOCIETY

Development and Empowering of Diverse Human Resources

>> Development and Empowering of Diverse Human Resources
Overseas Human Resource Development and Promotion of Their Empowerment

In order to speedily expand the Mitsubishi Materials Group’s overseas operations, we consider it essential to make the best possible use of overseas human resources, including Japanese staff assigned overseas. With that in mind, in fiscal 2018 we have introduced management training for locally employed managers of our overseas group companies, in line with our “Leadership Values in Mitsubishi Materials.” We also provide placements for technical staff from overseas group companies, so that they can gain expertise from Mitsubishi Materials and share what they have learned with their respective overseas workplaces.

We hope to continue making progress on a groupwide scale in the future, in terms of developing and use of National human resources.

Reinforcing Global Human Resource Development

One of the groupwide strategies under our Medium-term Management Strategy is to “promote growth and strengthen presence in the global market.” With that in mind, we are working to improve our global human resource development activities even further.

In fiscal 2014, we launched a Global Human Resource Development Program, for selected employees who are scheduled to be assigned overseas and young employees who are expected to make a considerable global contribution in the future. Aimed at developing human resources with a global perspective, a total of 287 employees went through this program during the five year period up to fiscal 2018.

<table>
<thead>
<tr>
<th>Global Human Resources</th>
<th>Expanding global development programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploring, devising and implementing development programs for national staff</td>
<td></td>
</tr>
<tr>
<td>Object: Employees in their 2nd to 8th year with the company</td>
<td>Employees expected to be assigned overseas within two to three years</td>
</tr>
<tr>
<td>Program: Junior Global Program (JGP)</td>
<td>Global Management Program (GMP)</td>
</tr>
<tr>
<td>Details: Language training, Training in awareness, skills and expertise (external instructors)</td>
<td>Language training, Training in specialist knowledge (internal instructors)</td>
</tr>
</tbody>
</table>

Global human resources developed over five years from FY2014: Approx. 287

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.

The ambition is that each company and plant should implement measures independently, so one of our concrete initiatives during fiscal 2018 was that we selected priority plants and each created an informal organization for promoting women’s participation. We then had each plant take initiative on the theme “Expanding the Range of Female Employees’ Work.”

In addition, we have routinized diversity training for managerial positions and started a follow-up course for past participants in April this year, as a way to keep up awareness.

In fiscal 2019, we started an internal diversity website that shows what activities we conduct to encourage diversity, including empowerment of women. We will be making the most of the website to convey more information about these activities.

Key themes for initiatives to expand career options for female employees:
- Raising awareness
- Monitoring progress of female employees
- Expanding career options for female employees
- Recruitment activities
- Improving working environments

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.

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.

In fiscal 2018, we introduced a by-the-hour paid leave system as a way to support diverse working styles.

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.

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 55 people* were newly rehired as part of this program in 2017.

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, 4,334 employees underwent a combined total of 4,430 hours of training in fiscal 2018.

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 17 matters during fiscal 2018.)
Labor Union and Management Partnership

Our union shop scheme 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 sustainable growth for the future. We also make sure that there is sufficient time to carefully explain and consult on measures such as business restructuring. As of the end of March 2018, the number of union members amongst those directly employed by Mitsubishi Materials (including employees on assignment) stood at 3,616. Including group companies, the total number of members was 7,276.

Employment Statistics (As of March 31, 2018)*

Payroll (full-time equivalent)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Employees</th>
<th>Temporary Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-consolidated</td>
<td>4,664</td>
<td></td>
</tr>
<tr>
<td>Consolidated</td>
<td>26,959</td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>16,527</td>
<td>5,110</td>
</tr>
<tr>
<td>Overseas</td>
<td>10,432</td>
<td></td>
</tr>
</tbody>
</table>

Employee numbers according to location (consolidated)

<table>
<thead>
<tr>
<th>Location</th>
<th>Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>16,527</td>
</tr>
<tr>
<td>North America</td>
<td>3,457</td>
</tr>
<tr>
<td>South America</td>
<td>28</td>
</tr>
<tr>
<td>Oceania</td>
<td>23</td>
</tr>
<tr>
<td>Europe</td>
<td>1,130</td>
</tr>
<tr>
<td>East Asia</td>
<td>1,078</td>
</tr>
<tr>
<td>Southeast Asia</td>
<td>4,718</td>
</tr>
<tr>
<td>Total</td>
<td>26,959</td>
</tr>
</tbody>
</table>

Employee training

Total hours of training (annual) | Average hours per employee (annual)
----------------------------------|-----------------|
93,484 hours                     | 19.9 hours

Graduate recruitment

<table>
<thead>
<tr>
<th>Subject</th>
<th>University graduates (including graduate school)</th>
<th>High school graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>72</td>
<td>90</td>
</tr>
<tr>
<td>Women</td>
<td>12</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>84</td>
<td>111</td>
</tr>
</tbody>
</table>

Employee turnover (employees leaving the company in FY2018)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Aged under 30</th>
<th>Aged 30-49</th>
<th>Aged 50 or over</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of employees leaving company</td>
<td>Men</td>
<td>21</td>
<td>23</td>
<td>107</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>7</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>28</td>
<td>26</td>
<td>115</td>
</tr>
<tr>
<td>Turnover</td>
<td>Men</td>
<td>2.4%</td>
<td>1.2%</td>
<td>7.7%</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>5.4%</td>
<td>1.1%</td>
<td>10.7%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>2.8%</td>
<td>1.2%</td>
<td>7.9%</td>
</tr>
</tbody>
</table>

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 1.47%
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.

### Creating a Safe and Healthy Workplace Environment

<table>
<thead>
<tr>
<th>Purpose of activities</th>
<th>Activities during fiscal 2018</th>
<th>Self-assessment</th>
<th>Targets/plans for activities from fiscal 2019 onwards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promoting safety and health activities</td>
<td>● Continue to promote the Zero Occupational Accident Project</td>
<td>B</td>
<td>● Continue to promote the Zero Occupational Accident Project</td>
</tr>
<tr>
<td></td>
<td>● Implement thorough activities for risk reduction as a campaign to eliminate multiple accidents</td>
<td>B</td>
<td>● Expand multiple accidents to the top three ranked accidents and conduct a campaign to eliminate them*</td>
</tr>
<tr>
<td></td>
<td>● Reinforce equipment safety based on risk assessments</td>
<td>A</td>
<td>● Continue to make thorough efforts to ensure facility safety through risk assessments (RA)</td>
</tr>
<tr>
<td></td>
<td>● Promote safety and health education through effective utilization of the Occupational Safety &amp; Health Education Center</td>
<td>A</td>
<td>● Continue to promote safety and health education through effective use of the Occupational Safety &amp; Health Education Center and introduce Virtual Reality accident simulations</td>
</tr>
<tr>
<td></td>
<td>● Promote transition to electronic health management records, through measures such as integrating health checkup organizations</td>
<td>A</td>
<td>● Promote health measures through the individual health management system</td>
</tr>
<tr>
<td></td>
<td>● Make effective use of group analysis results based on stress checks</td>
<td>B</td>
<td>● Continue to make effective use of group analysis results based on stress checks</td>
</tr>
</tbody>
</table>

*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.
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.

Our safety management framework revolves around the Mitsubishi Materials Safety & Environment Department. We also appoint Safety Coordinators at each in-house company, in order 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.

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 2017, we set out the following management priorities, and rolled out occupational safety and health management systems at each of our plants / factories accordingly:

**Management Priorities**

- **Group occupational safety and health management system**
- **A. Management review by head of facility**
  - Achievement of targets, progress with plans
  - Onsite checks (patrols, etc.)
  - Following up on occupational accidents
- **B. Review companywide basic policy and priority initiatives**
- **P. Facility policy, targets and plans**
  - Education/training plans
  - Equipment safety plans
  - Risk assessment execution plans
  - Operating manual reviews
- **C. Improvement instructions**
  - Confirmation of activities at each facility, guidance and support
  - Analysis of factors responsible for occupational accidents (companywide)
- **D. Implementation and operation**
  - Human resource development (education, training sessions)
  - Safety audits, sharing information on occupational accidents
- **Guidance from outside consultants**

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**Framework**

Society
Group-wide priorities for safety and health management (2017)

1. Campaign to Eliminate Multiple Accidents at Each Plant

A survey of the safety measures implemented by excellent firms publicly acknowledged for their safety work in the industry shows that what they have in common is not innovative activities or quick remedies, but thorough implementation that yields results. The Group decided to have each plant run a Campaign to Eliminate Multiple Accidents since we deemed that this “thoroughness” was lacking and because of frequently occurring similar accidents peculiar to each plant.

[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.
④ 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 480 people have taken the course as of March 2018. 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
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. In the one year since the center’s opening, more than 1,500 Group employees have received hazard experience education and about 300 have completed the expert education.

Moreover, with “Chemical substance risk assessment” becoming obligatory under the Industrial Safety and Health Act revised in June 2016, we started holding workshops to train and improve the skills of employees in charge of actual operations. As of March 2018, about 210 people at 43 plants have taken the course.

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. Furthermore, 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.

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.
**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 third awards were presented in April 2018. 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.

<table>
<thead>
<tr>
<th>Grand Prize</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kyushu Plant</td>
</tr>
<tr>
<td>Completion of the Heatstroke Eradication Declaration</td>
</tr>
<tr>
<td>Hosokura Metal Mining Company</td>
</tr>
<tr>
<td>First year and two consecutive years without accidents requiring leave</td>
</tr>
</tbody>
</table>

**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.
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. As the devices are portable, the Group can lend them out to each plants, allowing them to conduct hazard experience education there.

■ VR hazard experience courses (Occupational Safety and Health Education Center)
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 181 in 2017. Of these, 40 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 0.09. This is lower than the manufacturing industry average of 1.02, but we are continuing to work in 2018 to achieve our goal of zero accidents, by continuing our campaign to eliminate multiple accidents, promoting equipment safety through risk assessment, and implement measures against common accidents that have to do with basic movements such as falling and twisting.

### Safety Record

#### Number of occupational accidents involving employees (Mitsubishi Materials)*

<table>
<thead>
<tr>
<th>Year</th>
<th>Lost-time (or more serious)</th>
<th>No lost-time</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>68</td>
<td>41</td>
</tr>
<tr>
<td>2008</td>
<td>48</td>
<td>33</td>
</tr>
<tr>
<td>2009</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td>2010</td>
<td>29</td>
<td>26</td>
</tr>
<tr>
<td>2011</td>
<td>26</td>
<td>25</td>
</tr>
<tr>
<td>2012</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>2013</td>
<td>28</td>
<td>26</td>
</tr>
<tr>
<td>2014</td>
<td>28</td>
<td>26</td>
</tr>
<tr>
<td>2015</td>
<td>22</td>
<td>11</td>
</tr>
</tbody>
</table>

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

#### Breakdown of safety performance (incl. partner companies)

<table>
<thead>
<tr>
<th>Category</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-consolidated Subcontractors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lost-time (or more serious)</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>No lost-time</td>
<td>20</td>
<td>24</td>
<td>21</td>
</tr>
<tr>
<td>MMC Group companies (incl. subcontractors)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lost-time (or more serious)</td>
<td>5</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>No lost-time</td>
<td>11</td>
<td>14</td>
<td>11</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lost-time (or more serious)</td>
<td>36</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>No lost-time</td>
<td>124</td>
<td>128</td>
<td>141</td>
</tr>
</tbody>
</table>

Number of employees injured
Responsibility throughout the Value Chain

Responsible Procurement of Raw Materials

<table>
<thead>
<tr>
<th>Purpose of activities</th>
<th>Activities during fiscal 2018</th>
<th>Self-assessment</th>
<th>Targets/plans for activities from fiscal 2019 onwards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating CSR Procurement Guidelines for the Procurement &amp; Logistics Division</td>
<td>Keep working on trying to collect self-check survey answers from suppliers through both online and offline systems</td>
<td>B</td>
<td>Increasing supplier self-check sheet recovery rate (51% → 70% or more) Thoroughly carry out recovery of the self-check sheet</td>
</tr>
<tr>
<td>Dealing with the issue of conflict minerals</td>
<td>Continued to operate our conflict mineral management system / Underwent third-party audits and renewed annual certification for gold (LBMA) and tin (RMI), Starting operations with regard to silver (LBMA’s Responsible Silver Guidance)</td>
<td>A</td>
<td>Annually renewing certifications for gold (LBMA) and tin (RMI) through continuous management of operations and by third-party audits Starting operations with regard to silver (LBMA) Subsequently, managing operating continuously and accepting third-party audits</td>
</tr>
</tbody>
</table>

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 (excepting those for copper, cement and aluminum products) and equipment, and consist of a Basic Procurement Policy, which sets out the division’s responsibilities, and our CSR Procurement Standards, with which we require our suppliers to comply.

To ensure effectiveness, since April 2016 we have been screening and evaluating the performance of both existing and new suppliers in accordance with new standards, including evaluation criteria like preventing child labor, forced labor and unreasonably cheap labor, and avoiding negative environmental impact, in addition to conventional requirements such a quality, cost and delivery. Before carrying out screening and evaluations, we ask suppliers to conduct and report on their own evaluations using our Supplier Self-Check Sheet, and engage in dialogue regarding improvements as necessary.
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.

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**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.
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 dialogue 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.
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 have been recycling used aluminum cans for re-use as can materials for many years, and as a rolled aluminum manufacturer, MMC Group company, Mitsubishi Aluminum Co., Ltd. strives to engage in fair trade based on mutual trust with suppliers in the procurement of raw materials and other materials.

We also actively promote initiatives to fulfill corporate social responsibility in terms of legal compliance, respect for human rights and preservation of the global environment through mutual cooperation with key suppliers both overseas and domestically.

Initiatives in Response to Conflict Mineral Issues

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.

Because the Company’s smelting and refining operations employ three of these minerals—gold, tin and tungsten—we are reinforcing initiatives in this area. We began by formulating a Companywide policy on conflict minerals and publishing it on our Website in 2013.

Initiatives with Respect to Gold 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.

In August 2013, we obtained certification of our use of conflict-free minerals in our gold products from the London Bullion Market Association (LBMA)² and have had this certification renewed every year since. Since February 2014, moreover, we have also received annual certification of our use of conflict-free tin from RMAP(former CFS program) of Responsible Minerals Initiative (RMI³, former CFSI).

Initiatives with Respect to Tungsten

Japan New Metals Co., Ltd., a Group company whose operations include tungsten smelting and refining, began efforts at an early stage to acquire independent certification of its use of conflict-free minerals for supply to smelters and refineries in China. We formulated a Conflict Mineral Management Policy in April 2014 and acquired RMAP certification for tungsten in December of that year.

*¹ 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.

*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 Responsible Minerals Initiative (RMI) http://www.responsiblemineralsinitiative.org/

Electronics Industry Citizenship Coalition (EICC) was renamed Responsible Business Alliance (RBA) and CFSI was renamed Responsible Minerals Initiative (RMI), Conflict-Free Smelter (CFS) program was renamed Responsible Minerals Assurance Process (RMAP) on October 2017.
Product Quality and Safety

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 Material 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 non-conforming products to prevent a recurrence of quality issues.

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”
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Preventive measures

1. Implementation of a Front Loading System for Order Receiving

Currently, we are planning to implement a system (a Front Loading System) for making decisions on specifications and receiving orders after considering whether the order can be accepted taking into account manufacturing capability at various department within the business division including development and design, manufacturing, inspections and sales. Currently, according to the new guidelines for the front loading system, each business is installing the front loading system. Some businesses have begun considering of products in new orders at receiving orders, based on the guidelines.

2. Enhancement of the Framework and Authority of the Quality Control Department

Centered on the Governance Division and the Quality Management Department, we will establish a framework aimed at improving quality control for the Group and will construct the required quality control function for each business and product.

3. Expansion of Quality Training

We will expand quality training aiming to have our group employees at all levels and in all areas understand the importance of quality and what should be done to maintain and improve quality. We will use the recent quality issues (the “Incident”) in this training. After April 2018, training of quality management personnel of the Group will be provided by inviting outside experts, and a meeting will be held for personnel responsible for quality in the Group. In addition, a new handbook for quality management will be developed and used for training and other purposes.

4. Promoting Automated Inspection Equipment

For all product inspection data, from when it is obtained during the manufacturing process through the final inspections, by promoting initiatives such as automating acquisition of inspection data, we will aim to establish a system that will prevent misconduct, including the rewriting of data, and will establish a system that allows for more accurate and prompt confirmation that inspection data is consistent with customer specifications. Currently, the locations where the Incident occurred are installing equipment for automated processing as soon as it is ready and some locations have already started operating the equipment. In addition, the details of the process to install the equipment for automated processing for the entire Group are being discussed. We will formulate a three-year plan to be prepared for this installation.

5. Enhancement of Quality Audits

With the Quality Management Department and Internal Audit Department in the Governance Division taking the lead, we will implement the following measures, etc.:

a. Improving the independence of our group’s internal audit departments and strengthening their authority;
b. Increasing internal audit staff and increasing the frequency of audits;
c. Training human resources to become experts in quality audits;
d. Applying audit methods for the prevention of misconduct;
e. Enhancing coordination among the Company’s Internal Audit Department and the internal audit departments of our subsidiaries and associates; and
f. Improving internal audit operations with the use of IT

During FY 2019, quality audits will be conducted, covering about 70 locations in Japan and overseas.

6. Utilization of Outside Consultants

In order to introduce third party perspective in quality control, we will utilize outside consultants on an ongoing basis specializing in quality control matters. Since January 2018, outside consultants have visited locations where the Incident occurred and provided guidance and advice on quality management and assurance. The number of locations these consultants visit will be increased in the future to prevent complacency in the Group’s quality management activities and to firmly establish effective quality management activities.

Progress of Recurrence Prevention at the Subsidiaries where the Quality Issues Occurred

The MMC’s five consolidated subsidiaries, where the recent quality issues occurred, are respectively implementing the measures to prevent a recurrence of the issues as their top priority. At the same time, they are also implementing the group governance framework enhancement measures which include quality control. The progress of the measures at the above companies is reported in the Implementation Schedule on the page on the right.
### Implementation schedule (As of the end of June 2018)

<table>
<thead>
<tr>
<th>Name of measure</th>
<th>Outline of measure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Implementation of a front loading system (FLS) for order receiving</td>
<td></td>
</tr>
</tbody>
</table>
| | Establish and wide dissemination of guidelines  
| | Confirmation of operation status  
| | Primary preventive measures for quality issues at 5 affected companies |
| **2** Enhancement of the framework and authority of the quality control department | |
| | Confirmation that independence of quality assurance function in each business organization is ensured  
| | Confirmation of area of responsibility and status of fullfillment at quality assurance department in each business organization  
| | Primary preventive measures for quality issues at 5 affected companies |
| **3** Expansion of quality training | |
| | Provision of quality training to relevant employees at locations in Japan and overseas  
| | Primary preventive measures for quality issues at 5 affected companies  
| | Training preparation  
| | Training provision  
| | Follow-up and review of training content |
| **4** Promoting automated inspection equipment | |
| | Promotion of automated inspection equipment (2 years)  
| | Primary preventive measures for quality issues at 5 affected companies  
| | Collection and collation of data  
| | Confirmation of progress in promoting automated inspection equipment  
| | Sharing information and applying within the Group  
| | Introduction of the inspection equipment for automated  
| | Automated uploading to the Company’s enterprise system  
| | Introduction of the latest technology for measurement and automated  
| | Improvement and enhancement the function of the Company’s enterprise system  
| | Improvement of issuance system for certificate of analysis  
| | Automated collecting of inspection data |
| **5** Enhancement of quality audits | |
| | Review of checklist for quality audits  
| | Implementation of quality audits of all affected locations requiring quality audits  
| | Planning and preparation  
| | Implementation of quality audits  
| | Review as necessary after establishment |
| **6** Utilization of outside consultants | |
| | Implementation of quality consultant guidance meetings  
| | Primary preventive measures for quality issues at 5 affected companies  
| | Implementation of quality consultant guidance meetings for each location  
| | Confirmation of status of improvement and progress at each company, sharing of information and applying within the Group |
Quality Control and Companywide Quality Activities

Quality Control and Assurance Systems

The Group revised its Basic Regulations on Quality as a way to strengthen its governance system for quality management. Under the regulation, we reconfirmed the "Group Quality Policy" with the aim to provide first-class products that are satisfactory to our customers, and established 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 2018.

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 Electronic Materials & Components 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.
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, and intend to continue with the registration procedure in the future. 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 2017 notification for substances covered under the revised Chemical Substances Control Law*² in June 2018.

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.
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>> 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
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 2018

Revenue for Mitsubishi Materials in fiscal 2018 came to ¥914.9 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 ¥834.0 billion.

After subtracting operating costs from our total revenue, the amount of added value generated through our business activities came to ¥80.9 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 ¥40.5 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 ¥12.4 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 ¥400 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 ¥9.2 billion.

Retained earnings to cover investment and contingencies for the future meanwhile totaled ¥16.4 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.

Pension Contributions

Obligations relating to unfunded lump-sum severance payment plans and funded defined benefit pension plans totaled ¥37.8 billion and ¥42.9 billion respectively. ¥60.1 billion of this total was paid out in the form of pension assets to outside funds (coverage: 74.5%). A further ¥10.3 billion was registered as expenses in the form of accrued retirement benefits, with the remaining ¥11.2 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

General Meeting of Shareholders

We regard our Ordinary General Meeting of Shareholders as an invaluable opportunity for management staff to talk directly with shareholders. That is why we send out a convocation notice as early as possible, and provide details on our website, so that our shareholders have sufficient time to think about matters to be reported and resolved at the meeting. We have continued to expand our efforts to disclose information. Since 2012, we started posting information on our website even earlier and adding new content to information sent out with our annual business report, including details of our policy regarding the determination of remuneration and status of corporate governance.

As well as enabling shareholders to exercise their voting rights in writing or online, we also use an electronic voting platform for institutional investors both in Japan and overseas.

We use slides with accompanying narrations at the General Meeting of Shareholders to help ensure participants’ clear comprehension of the presented contents. In the General Meeting of Shareholders, we use slides and narration to make the contents of our presentations easier to follow. We also publish shareholder voting figures for all resolutions after the meeting, via channels such as our website.

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 2018

<table>
<thead>
<tr>
<th>Description</th>
<th>Number of times during fiscal 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviews with institutional investors</td>
<td>209</td>
</tr>
<tr>
<td>Overseas IR visits (Europe, USA, Asia)</td>
<td>18</td>
</tr>
<tr>
<td>Facility tours for institutional investors</td>
<td>5</td>
</tr>
<tr>
<td>Earnings information meetings for individual investors</td>
<td>6</td>
</tr>
</tbody>
</table>
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 2018, we held 169 seminars (3,378 participants) and achieved 1,284 customer visits.

Based on the customer demands, we will continue to provide comprehensive solutions through technical diagnosis and analysis of the actual processing lines.

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.
New Business Creation in Cooperation with Customers

Seeking enhanced responsiveness to the major social changes such as increased popularity of EVs, the rapid dissemination of new types of energy and so on, the Mitsubishi Materials Group is shifting to market-driven product development based on customer-oriented marketing. The focus of this approach is dialogue with customers in recognition of the vital importance of identifying and acquiring an accurate grasp of their current real and emerging needs. This means grasping opportunities for discussions with key customers in various business areas, pursuing negotiations with selected customers at trade shows and private exhibitions, and conducting technical meeting with specified customers. Through such means, we gather invaluable feedback from customers and utilize it to match our strengths with customers’ needs while also creating new development concepts. We structure these activities strategically by sharing marketing information among our business divisions and Group companies, promoting technical exchange and coordinating collaborative development.

Since our technologies and products are often integrated into customers’ (end) products as value-added materials and components, it can be difficult to recognize their features when viewing them independently. To give customers a clearer image of characteristics and value of our products and encourage their use in the customers’ product designs, we are experimenting with marketing activities which employ fullsize models of end products incorporating our products.

Conceptual model of a lithium-ion battery module
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

Reducing Our Environmental Impact and Sharing a Spirit of Mutual Assistance with Society (Otec (Thailand) Co., Ltd.)

Otec (Thailand) (Ayutthaya Province, Thailand), a manufacturer of construction tools, has been conducting social contribution activities in the form of “the Green Otec Project” since 2012, to suit the characteristics of the local community and society.

Aiming to reduce their environmental impact by separating and sorting waste, and recycling bottles and cans at the plant, and to share a spirit of mutual assistance with society, they conduct repairs and plant trees at schools and temples once a year. These activities are supported by recycling income from the separation of garbage, private donations from employees, and grants from the company.

The participating employees act voluntarily with the intent to provide real benefits. They visit potential locations, look into the needs there, think about in what way they can contribute, and then decide where to conduct their activities. In 2017, 47 employees drove to a national park 3 hours away, where they planted 500 plants of maca, rosewood trees, tamarind trees, and rubber trees, to restore an area where tree felling is prohibited but that has suffered from illegal farming.

Promoting Greening Activities at the Site of the Former Osarizawa Mine (Kazuno Ryokokai*)

The Kazuno Ryokokai, which consists of our plants in Akita prefecture and five affiliates, has been working together with Osarizawa Woodland and Nature Society, a local volunteer organization in Kazuno, Akita prefecture, since 2006 to restore the natural environment around the former Osarizawa Mine by planting and raising trees.

In October 2017, at a jointly organized tree-planting ceremony, a group of around 70 participants including representatives from Akita prefecture, the city of Kazuno, Rotary Club as well as local kindergarten children planted 478 trees. To date, a total of 6,909 trees have been planted, including weeping cherry, double-flowered cherry, hydrangea, oak, maple, and beech.

To help the trees take root, we are improving the soil around the former mine site (replacing 1 meter of surface soil), and have so far planted trees across some 20,000 square meters, of which about 80% have taken root. The hydrangea is especially deeply-rooted, creating a “hydrangea road” along about 2 kilometers of the road going to the former site of the Osarizawa Mine.

The Osarizawa Woodland and Nature Society was highly praised for these activities and was awarded the Environment Grand Prize from Akita prefecture in October 2017. They also received the Regional Environmental Beautification Merit Award from the Ministry of the Environment in June 2018.

* Tohoku Power Service Station (Geothermal & Electric Power Department, Energy Business Division, Environment & Energy Business Unit), Hachimantai Geothermal Corporation, Akita Power Generation Co., Ltd., Boring Center (Kazuno Engineering Office, Mitsubishi Materials Techno Co.), Osarizawa Office (Eco-Management Corporation), Osarizawa Mine site (Golden Sado Inc.)
## Main Recognition for the Mitsubishi Materials Group’s Activities

### Main awards and commendations from outside organizations in fiscal 2018

<table>
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<th>Recipient</th>
<th>Awarding body or organization</th>
<th>Details</th>
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<tr>
<td>Mitsubishi Materials Corp.</td>
<td>Central Research Institute</td>
<td>Japan Mining Industry Association 2017 Japan Mining Industry Association Award</td>
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<tr>
<td>Mitsubishi Materials Corp.</td>
<td>Central Research Institute</td>
<td>The Japan Institute of Metals and Materials 40th Japan Institute of Metals and Materials Technical Development Award</td>
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<tr>
<td>Mitsubishi Shindoh Co., Ltd.</td>
<td>Wakamatsu Plant</td>
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<tr>
<td>Japan New Metals Co., Ltd.</td>
<td>Japan Environmental Management Association for Industry Resources Recycling Promotion Center</td>
<td>Recycling Technology and System Award 2017 Rare Metal Recycling Award</td>
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<tr>
<td>Mitsubishi Hitachi Tool Engineering, Ltd.</td>
<td>Narita Plant</td>
<td>Japan Cutting &amp; Wear-resistant Tool Association 2017 Japan Cutting &amp; Wear-Resistant Tool Association Award Environmental Award / Environment Special Award</td>
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<td></td>
<td>Yasu Plant</td>
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<tr>
<td>Mitsubishi Cement Corporation</td>
<td>Portland Cement Association (PCA) in the US</td>
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<tr>
<td>PT MMC Metal Fabrication</td>
<td>West Java, Indonesia</td>
<td>Company CSR 2017</td>
</tr>
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**Participating in Akashi City ShakeOut Drill (Akashi Plant)**

ShakeOut is a term created in 2008 by an American earthquake research team for extensive regional disaster drills. ShakeOut involves the basic self-protective actions of “drop, cover, and hold on.” A large number of Japanese local governments, firms, and commercial facilities endorse this, with 6.66 million people participating nationwide in 2017.*

ShakeOut drills have been conducted in Akashi, Hyogo prefecture, where the Akashi Plant is located, as part of their work for disaster prevention and mitigation, once a year since 2015. On January 17, 2018, 138 groups and more than 50,000 people participated in the drill. Akashi Plant has participated since 2016, practicing basic actions as well as checking plant equipment at risk of “moving, flying, falling, and breaking.”

ShakeOut drills are extremely simple in that anyone can participate just using their own body, and are great opportunities to learn the importance of daily awareness of disaster prevention.

* The Great Japan ShakeOut http://www.shakeout.jp/
Activities via the International Council on Mining and Metals (ICMM)

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 related to the environment, safety, labor and human rights in the interests of sustainable development. The ICMM makes use of dialogue with member companies to formulate policy, and in June 2017 ICMM CEO Tom Butler came to Japan and met with Our Executive Vice President Osamu Iida and Senior Managing Executive Officer Yasunobu Suzuki. In May 2018, Executive Vice President Iida attended a Council meeting in the United States, which brought together representatives of member companies and had productive exchange of views on issues such as ICMM’s action plans for 2019 to 2021.

Meeting with our Senior executives
(from left, ICMM Director John Atherton, ICMM CEO Tom Butler, Mitsubishi Materials Executive Vice President Osamu Iida, Mitsubishi Materials Senior Managing Executive Officer Yasunobu Suzuki)

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.
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 society 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.

Decision-Making and Executive Framework

All important matters relating to our business are overseen and determined by the Board of Directors, which currently consists of nine Directors in total, six inside and three outside. As well as having the ideal size to enable us to make decisions quickly, we feel that this is the right composition in terms of management objectivity and transparency.

Outside Directors also oversee the execution of duties by directors to ensure validity from an objective standpoint, and offer a wide range of perspectives on company management based on their own specialist knowledge and experience in different areas to our own executives.

Matters to be resolved by the Board of Directors are first reviewed and discussed in detail by our Corporate Strategy Committee, which is made up of President, Executive Vice Presidents, Managing Directors, and Senior Executive Officers, in order to make the decision-making process more efficient and effective.

We have also adopted an executive officer system and an in-house company system in order to operate more flexibly and appropriately as an integrated business entity involved in Cement, Metals, Advanced Materials & Tools, Electronic Materials & Components.

Matters Resolved by the Board of Directors

With the aim of ensuring swift and appropriate decision making and execution of duties, the Board of Directors makes important executive decisions including exclusive prerogatives of the Board of Directors as required by laws and regulations, the standards for which are clearly stated in the Board of Directors Rules. The determination and execution of business affairs not decided by the Board of Directors is delegated to the Corporate Strategy Committee, appointed directors, or the heads of each business division or corporate department in accordance with internal regulations on decision-making authority. The Board of Directors also receives summarized reports on and exercises supervision over business affairs determined by the Corporate Strategy Committee.

Nomination of Candidates for Director and Selection of Managing Titled Executive Officers

Mitsubishi Materials is an integrated business entity involved in Cement, Metals, Advanced Materials & Tools, Electronic Materials & Components, and our basic approach to the structure of the Board of Directors, which fulfills the roles of deciding 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, we endeavor to nominate and select individuals of exceptional insight and character as candidate directors and titled executive officers, regardless of attributes such as gender or nationality.

In nominating candidate directors to be in charge of business affairs and selecting titled executive officers, we select individuals who are familiar with company management in general and with the businesses and operations of Mitsubishi Materials. After discussions with related officers as needed, the president makes a selection after a comprehensive accounting of various factors including career, past performances and expert knowledge. Finally, appointments or selections are made following deliberation by the Board of Directors.

Candidates for outside director should be individuals who will supervise the appropriateness of company directors 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 based on expert knowledge, extensive experience, and broad, advanced insight that differs from those of directors who have advanced internally. These candidates are selected by the president with reference to standards for determining independence, and are nominated after deliberation by the Board of Directors.
Committee for Nomination and Compensation

On June 22, 2018, the Company established the “Committee for Nomination and Compensation” for which the majority of members being outside directors in order to ensure the transparency and objectivity of the Board of Directors’ decisions regarding the appointment and dismissal of directors and officers as well as their compensation.

◆ Composition of the Committee
(a) The members of the Committee will not exceed five and will be appointed from directors other than the Chairman and the President by resolution of the Board of Directors. More than half of the members will be outside directors.
(b) The chairperson will be selected from committee members who are outside directors by resolution of the Board of Directors.

◆ Matters to be Discussed
The Committee will recommend to the Board of Directors the following matters:
(a) Policy and criteria regarding appointment and dismissal of directors and executive officers; selection of each candidate
(b) Plans regarding successors of managerial positions, including the President
(c) Structure and standard regarding Director’s and officer’s compensation
(d) Any matters ancillary to the above

Committee for Monitoring of Measures to Enhance Governance

To prevent the reoccurrence of deliveries of products, etc. that deviated from the customer standards or internal company specifications as a result of the Company’s consolidated subsidiaries improperly rewriting inspection data, the formulation, disclosure, and sequential implementation of preventive measures and group governance framework enhancement measures (collectively, the “Measures”), which include quality control, are being undertaken by the relevant subsidiaries where data falsification took place and by the Company, respectively.

In addition, on May 10, 2018 the Company established the “Committee for Monitoring of Measures to Enhance Governance” comprised of outside directors of MMC and outside experts with the objectives of monitoring the status of main enhancement and other measures progress, achievements, and administration from a more independent position than management as well as providing necessary advice and proposals on related issues to the Board of Directors.

◆ Composition of the Committee
(a) All members of the Committee will be outside directors or outside experts.
(b) The chairperson of the Committee will be one of the outside directors appointed by the committee members through consultation.

◆ Responsibility
(a) Confirmation of the appropriateness regarding the investigation into the facts and cause analysis of the quality issues and the preventive measures.
(b) Confirmation and supervision of the progress of the Measures and the preventive measures of the quality issues occurred within the MMC group
(c) Reporting of the results of (a) and (b)

On April 1, 2018, the Company newly established the “Group Governance Enhancement and Promotion Division” as a cross-sectional organization to steadily implement and confirm the status of the main prevention measures and main enhancement and other measures; the “Governance Deliberative Council” as a body that deliberates on business divisions’ governance-related policies and plans (including main enhancement measures) for the fiscal year; and the “Governance Division (which oversees the Safety & Environment Dept., CSR Dept., Quality Management Dept., and Internal Audit Dept.)”, which is tasked with governance-related administrative and support functions.
Policy Regarding the Determination of Remuneration

<Directors and titled Executive Officers>
We make it a basic policy to appropriately link the remuneration for Directors and titled Executive 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 is highly objective. Remuneration is paid in accordance with internal rules and regulations approved by the Board of Directors and is comprised of a basic fixed component as well as a bonus that is linked to performance.

The amount of the basic remuneration is determined in accordance with the title and individual performance of each director or officer. A portion of basic remuneration is 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 cannot be sold at least during each director’s term of office. This aims 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, is 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 indicators, and taking into consideration individual performance. The 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 comprises only a fixed amount, which is determined in light of individual circumstances based on internal regulations approved by the Board of Directors.

<Audit & Supervisory Board Members>
The remuneration for Audit & Supervisory Board Members is set at an appropriate level based on discussions among them and is not linked to corporate performance in light of the fact that they assume the responsibility for auditing the execution of duties by Directors as an independent body entrusted by shareholders.
Evaluation of the Effectiveness of the Board of Director

Respective directors and respective auditors regularly evaluate the role, composition, management method, etc. of the Board of Directors, based on which the effectiveness is analyzed and evaluated at the meeting of the Board of Directors. It has been confirmed that the effectiveness of the Company’s Board of Directors has been secured in the fiscal 2018 analysis and evaluation, with the Company’s Board of Directors as the target, where exchange of opinions was made on the following three points as the matters to be discussed continuously:

- Balance between the composition of the Board of Directors and their attributes (expertise, experience, etc.)
- Contents and length of time of the deliberation and explanation at the meeting of the Board of Directors
- Contents of the materials for the meeting of the Board of Directors

We will keep making continuous efforts for further improvement of the effectiveness.

### Auditing Framework

Operational and financial audits are overseen by the Audit & Supervisory Board, which consists of five members in total; three standing members (including one outside member) and two non-standing members (both outside auditors). We regard this to be a valid composition in the interests of auditing the adequate performance of duties by the directors. We have also determined that this is a suitable number of outside Audit & Supervisory Board members based on compliance with the conditions stipulated by law as well as with the total number of members and roles they perform.

### Enhancement of the Effectiveness of Audits by Audit & Supervisory Board Members

MMC’s Audit & Supervisory Board has reported to the Board of Directors that it will work to supervise the implementation and operation status of MMC Group’s governance framework enhancement measures, and implement the following measures for improving the effectiveness of audits by Audit & Supervisory Board Members, and that MMC will make the necessary response to such efforts.

(i) The personnel working in the Audit & Supervisory Board Member Assistance Dept.—who support the duties of MMC’s Audit & Supervisory Board Members will serve concurrently as part-time audit & supervisory board members at major subsidiaries with full-time audit & supervisory board members, whereby coordination between MMC’s Audit & Supervisory Board Members and the standing audit & supervisory board members of subsidiaries will be improved.

(ii) The subsidiaries that only have part-time audit & supervisory board members will be requested to submit monthly activity status reports by such part-time audit & supervisory board members, and MMC’s Audit & Supervisory Board will work to obtain and act on the information in a timely manner.

(iii) MMC’s Standing Audit & Supervisory Board Members will newly establish a new consultation contact method liaising directly with the Standing Audit & Supervisory Board Members, in addition to the current whistleblower hotline.

(iv) Cooperation with the Internal Audit Dept. of the Governance Division, which conducts internal audits, will be strengthened, including the expansion of the scope of joint audits.
Internal Audit

We conduct internal audits in order to check that our operations, including those at group companies, are being run effectively and efficiently, and to verify the reliability of the financial reporting, the maintenance and effective use of assets, the status of risk management activities, and the compliance with legislation, internal regulations, and other applicable standards.

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 other departments in the Governance Division 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 in 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.

Mentioning about our cooperation with Audit & Supervisory Board Members and directors, we are required to submit reports to the Board of Directors twice a year, covering subjects such as progress of the internal audits and the auditing plans for the following year. Meanwhile, we are required to submit monthly reports to the Audit & Supervisory Board Members outlining the results of the assessments carried out on the establishment and the implementation of internal controls in relation to internal audits and financial reporting. From fiscal 2018, we will conduct joint audits with the Audit & Supervisory Board at some facilities in an effort to streamline the auditing and to share auditing information.

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 2018 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 2018 in the form of an Internal Control Report with the unqualified opinion of an auditing firm.

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<th>Main performance data</th>
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<td>Number of directors prescribed in the Articles of Incorporation</td>
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<td>Term of office of a director prescribed in the Articles of Incorporation</td>
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<td>Number of directors</td>
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<tr>
<td>Number of outside directors (of whom designated as independent officers)</td>
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<td>Percentage of female executives (directors, Audit &amp; Supervisory Board members)</td>
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<td>Voluntary committee corresponding to a nominating or compensation committee</td>
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<td>Number of Audit &amp; Supervisory Board members prescribed in the Articles of Incorporation</td>
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<td>Number of outside Audit &amp; Supervisory Board members (of whom designated as independent officers)</td>
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* Detailed information on corporate governance is given in the Company’s Corporate Governance Report (available in Japanese only). http://www.mmc.co.jp/corporate/ja/company/governance.html
The Company formulated and began to implement the measures (the “Measures”) sequentially, to enhance the Group governance framework including quality control as a measure to respond to the quality issues that occurred in our Group. The Governance Division will swiftly and surely promote the Measures.

Roles of the Governance Division

The Governance Division, established as of April 1, 2018 as part of the Measures, consists of the Company’s departments related to safety, health, compliance, environment and quality. The Governance Division works on risk reduction and problem prevention as a promoter to enhance the management and support of governance-related matters in the entire Group.

Moreover, in the new system, the corporate division will positively manage and support the subsidiaries of the Mitsubishi Materials Group, although it had mainly been respective business divisions that were responsible for their management and support.

Meeting of the Governance Deliberative Council started

The first meeting of the Governance Deliberative Council was held in April 2018. Each business division develops an annual plan of the measures related to the governance of the facilities and subsidiaries, and the council discusses the plan. We have started a mechanism, in which the governance-related measures are managed and promoted in the entire Group by confirming the progress of the above plans at the Corporate Strategy Committee, etc. In order to make the Measures more effective, we will strengthen the collaboration with corporate divisions, business divisions and management divisions of respective companies, positively provide support.

Steady implementation of the Measures by the Group Governance Enhancement and Promotion Division

On April 1, 2018, the Company newly established the “Group Governance Enhancement and Promotion Division,” as a cross-sectional organization to manage the implementation and progress of the Measures, operated mainly by the Governance Division.

We aim at the long-term improvement of our corporate value by swiftly and surely implementing the Measures with further enhanced sense of crisis and in a more timely manner and working to regain the trust of customers and other stakeholders.

Makoto Shibata, Director & Managing Executive Officer

Promotion framework for governance framework enhancement

The Committee will deliberate business divisions’ policies and plans related to governance. The Committee is composed of the President, Officers at the level of Managing Executive Officer and above, Standing Corporate Auditor, etc.

The first meeting of the Governance Deliberative Council was held in April 2018. Each business division develops an annual plan of the measures related to the governance of the facilities and subsidiaries, and the council discusses the plan. We have started a mechanism, in which the governance-related measures are managed and promoted in the entire Group by confirming the progress of the above plans at the Corporate Strategy Committee, etc. In order to make the Measures more effective, we will strengthen the collaboration with corporate divisions, business divisions and management divisions of respective companies, positively provide support.
Enhancement of the Governance Framework

◆ 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.

◆ Measures

① Enhancement of Framework for Discussion, Reporting and Follow-up of Governance-Related Matters
  The Governance Deliberative Council, which was newly established in April 2018, have been held and the policy for addressing matters relating to the governance of the entire Group, the annual plan and the status of the actions taken were discussed and shared. The measures decided at the meeting will be carried out on a group-wide basis.

  In addition, the reporting system of the Company and its subsidiaries will be restructured and the Group’s safety and health, CSR, environment, compliance, quality and other matters relating to governance will be monitored regularly by the Board of Directors and the Corporate Strategy Committee of the Company.

  In addition, on May 10, 2018 the Company established the “Committee for Monitoring of Measures to Enhance Governance” comprised of outside directors of MMC and outside experts with the objectives of monitoring the status of main enhancement and other measures progress, achievements, and administration from a more independent position than management as well as providing necessary advice and proposals on related issues to the Board of Directors.

② Improvement of Functions of Management Divisions and its Collaboration with Operating Divisions
  In order to improve administrative divisions’ control and support functions for governancerelated matters, the Company reorganized its structure as of April 1, 2018 and launched the Governance Division (comprising the CSR Dept., Safety & Environment Dept., Quality Management Dept. and Internal Audit Dept.)

  In addition, the Company will specify departments and persons responsible for the promotion of governance-related matters in each department within operating divisions, each business establishment, and each subsidiary, with the aim of facilitating communication of information and to enhance the promotion framework.

  On April 1, 2018, the Company newly established the “Group Governance Enhancement and Promotion Division” as a cross-sectional organization to steadily implement and confirm the status of the main prevention measures and main enhancement and other measures.

③ Improvement of Human Resources Training and Encouragement of Active Interaction
  The Company will expand training regarding governance-related matters provided to the Group’s management and other employees. In addition to promoting human resources interactions in the Group and endeavoring to deepen communication, the Company plans to provide human resources training throughout the Group.

  Since January, 2018, there were total of four education sessions for Executive Officers of the Company, Presidents of its subsidiaries and other management executives of the Group in matters to strengthen the governance framework, legal liability of directors and other related matters, resulting in 290 persons in total attending the sessions.

④ Internal Audit Strengthening
  With respect to the Company’s internal audits of business establishments and subsidiaries, the frequency and content of audits will be enhanced through cooperation with each department within the Governance Division. The Company will also strengthen cooperation with the Corporate Auditor such as joint audits, etc.

⑤ Studies with a Business Optimization Focus
  When considering the Group’s business optimization, whether the governance framework can sufficiently function is also one of the important decision-making criteria. On that basis, we will seek to achieve an appropriate business portfolio and management framework that match the Group’s governance capabilities.
Compliance

We take a broader view of compliance, incorporating elements such as corporate ethics and social norms, as well as legal compliance, and are sincerely determined to live up to our stakeholders’ expectations. In an effort to strengthen the whole Group’s compliance system, we have been implementing a variety of measures, such as training in Japan and abroad, thereby steadily heightening the compliance awareness of each and every Group employee. We will work to further improve awareness by drawing lessons from the series of quality issues.

Effectively Implementing Compliance

Further Reinforcing our Compliance Framework

We have established a Compliance Panel, as a subdivision under our CSR Committee, in order to actively reinforce our groupwide compliance framework. Specifically, we are working to strengthen a framework capable of identifying compliance-related issues or problems within the Group, including the series of quality issues, as quickly as possible, and exploring precautionary and preventive measures in consultation with related departments. We are also further developing and improving group-wide educational and training exercises in an effort to encourage each and every employee to have compliance awareness as his or her own personal issue.

Extending CSR Education to All Group Employees

As a member of the Mitsubishi Group, we uphold the “Three Principles” that underpin the Mitsubishi Group’s management philosophy, whilst also carrying out our business activities in accordance with the Mitsubishi Materials Group’s corporate philosophy system. To promote these philosophies and establish genuine compliance awareness, we consider it important to remain flexible, and to continue to adapt our activities and initiatives in line with changes in our business and the surrounding environment, rather than clinging to established practices.

Domestic CSR Education

We have in place a framework that enables every employee at every domestic group company to undergo CSR (Compliance) training once a year. To achieve that, we have been training instructors to handle CSR training, including at group companies, since 2012. We will continue to train human resources to serve as instructors. We will aim for education and training in which the instructors, as the driving force behind CSR activities at individual facilities and group companies, communicate the employees directly about subjects such as our corporate philosophy system and compliance in an easy-to-understand way and will deploy it throughout the Group. We will also be putting external instructors to effective use, thereby reforming and strengthening compliance awareness.

Overseas CSR Education

As for our training abroad, we are creating and developing training contents based on the specific conditions of each area. In recent years, we are concentrating particularly on training in Asia, where we have located numerous manufacturing and sales facilities. In fiscal 2018, with our regional management companies we worked in China, Thailand and Laos to organize training courses (compliance and risk management). We take advantage of educational opportunities such as preliminary training for employees assigned overseas and global human resource training courses to provide training in CSR-related issues such as conflict minerals, human rights in emerging countries (child labor, forced labor), competition law in related countries, and overseas anticorruption measures, in order to develop the human resources we need to expand our operations on a global scale. Similar to our education in Japan, we will be putting external instructors to effective use.

Education and Training Program Attendance during Fiscal 2018 (including 69 Group companies)*

<table>
<thead>
<tr>
<th>Education/Training Program</th>
<th>Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSR education at domestic facilities, branches and group companies</td>
<td>18,766</td>
</tr>
<tr>
<td>CSR training at headquarters</td>
<td>1,073</td>
</tr>
<tr>
<td>CSR education at overseas group companies</td>
<td>105</td>
</tr>
<tr>
<td>Position-specific training</td>
<td>680</td>
</tr>
<tr>
<td>Other training (risk management training, etc.)</td>
<td>134</td>
</tr>
<tr>
<td>Total</td>
<td>20,758</td>
</tr>
</tbody>
</table>
Using Educational Tools to Raise CSR Awareness

To ensure that our corporate philosophy system takes root among all Group companies, we have created booklets, cards for carrying around and a collection of case studies related to compliance. We also make case study files and training materials compiled by the CSR Department available via the intranet, so that CSR Supervisors can use them as and when necessary for purposes such as promoting CSR and educational activities in their respective departments. Materials such as these are designed so that the contents are easy to understand and practical, incorporating feedback from outside experts, as well as examples of both internal and external compliance incidents.

Corporate Ethics Month

Here at the Mitsubishi Materials Group, we have designated October as Corporate Ethics Month every year since 2006, in order to encourage individual divisions and group companies to implement their own unique activities. We engage in a wide range of activities aimed at raising compliance awareness, including posting messages from the President on the company intranet, and sending out compliance-related messages from top management at individual facilities and group companies.

In-House Reporting System

We established an Internal Contact Office in December 2002 as a consultation service to deal with reports and inquiries from employees working for Mitsubishi Materials and other group companies. We also set up an external reporting system in April 2006, as an outsourced service operated by an independent law firm. We continue to raise levels of awareness by issuing all employees with information cards, and continue to provide employees with information on subjects such as the availability and significance of our internal reporting system, procedure for filing internal reports, and whistleblower protection measures, through channels such as our group newsletter and CSR education and training activities.

| Numbers of reports and inquiries received through the in-house reporting system (FY) |
|---|---|---|---|---|---|
| 2014 | 2015 | 2016 | 2017 | 2018 |
| 22 | 24 | 33 | 38 | 41 |

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 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.
Risk Management

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 adhere conscientiously to the following three basic policies:

<table>
<thead>
<tr>
<th>Basic Risk Management Policies and Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Responding to high priority risks: Prioritizing risks and implementing measures accordingly</td>
</tr>
<tr>
<td>2. Identifying unrecognized risks: Using risk management records to establish a comprehensive overview of all risks</td>
</tr>
<tr>
<td>3. Sharing information concerning risks: Disclosing the details of Companywide risks to all concerned parties</td>
</tr>
</tbody>
</table>

Implementation Structure

Entities responsible for risk management in the corporate divisions, business divisions, factories, branches and Group companies formulate risk management plans according to Group risk management policies/plans approved by the CSR Committee. Upon receiving approval from the Governance Deliberative Council, they develop and deploy action plans in conjunction with the CSR Dept.

Each division identifies all risks at the beginning of each fiscal year, implements measures to minimize them throughout the year and conducts evaluations of their performance at year-end to determine areas for improvement in the coming term. Information on the activities is shared with the administrative and corporate divisions, and their progress is regularly monitored by the Committee for Monitoring of Measures to Enhance Governance comprising outside directors of MMC and outside experts, Corporate Strategy Committee, Board of Directors and internal audits, with a rigorous PDCA cycle applied overall.

In the area of employee education, meanwhile, we hold training and consulting meetings led by CSR Dept. staff or outside consultants in Japan and overseas as part of efforts to enhance risk awareness and strengthen our Group-wide risk control capabilities.

Comprehensive Identification of Critical Risks

The corporate divisions take the lead in identifying the critical corporate risks which are common throughout the Group in addition to the inherent risks to business segments identified by individual businesses.

To ensure absolute protection against critical risks at a time when these are diversifying and intensifying, the Group has instituted a system for comprehensive risk identification from various perspectives, with a particular focus on risks involving fraud as seen from the three viewpoints of “opportunity,” “pressure” and “rationalization.” Making use of the well-known “fraud triangle” theory for factor analysis of fraud.

The fraud triangle

- We’re under pressure to increase productivity, no matter what.
- Performance evaluations are based mainly on sales and profits.
- Delivery schedules are always tight, with compensation demanded if they are not met.

- No one else is checking this.
- I’m authorized to change unit numbers myself.
- I’m the only one who can generate this data.
- Everyone around here has been doing it for a long time.
- Considering the product’s intended use, don’t see any problem.
- I did it for the customers.
- The issues facing that company (division) are different from those facing us.
We are striving to strengthen our crisis management systems to facilitate fast, accurate responsiveness to emergency situations, including natural disasters, accidents, terrorist activities 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 consider risks unique to individual countries and regions, and moreover, conduct 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 activities and pandemics, we intend to formulate systems to manage other critical risks we have identified in the course of our risk management activities.

**BCM (business continuity management) Initiatives**

To minimize the impact of natural disasters and other crises on management, all Group companies in Japan and overseas are steadily putting together and developing business continuity plans (BCP) to ensure business continuity as well as swift recovery. Moreover, starting from fiscal 2019, we are going beyond just recovery at the plants to begin initiatives for ensuring business continuity management that involves entire supply chains.

**Risk Management Activities at Overseas Facilities**

To improve the risk management function at the Group’s overseas bases, we conducted group training for the Asia region (China, Thailand, Laos) in fiscal 2018. We placed special emphasis on increasing risk sensitivity and had a total of 80 participants from 19 companies.

**Introducing a Crisis Management System**

The Group has decided to introduce a crisis management system from January 2019 to swiftly and effectively check the safety of employees as well as for any damage to the plants during an actual or impending crisis. The information is shared among management executives to help them take appropriate initial action. The system not only has functions for checking safety and business location damage, but gives all relevant staff timely access to disaster, safety, and other risk information.
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.
Independent Assurance Report

To the President 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, 2017 to March 31, 2018 (the “Indicators”) included in its CSR Data Book 2018 (the “CSR Data Book”) and Metals Company Supplementary Data Book 2018 (the “Supplementary Data Book”) for the fiscal year ended March 31, 2018; 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 Iwate Plant and Naoshima Refinery 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 13 of the CSR Data Book; and
- the Company has not approached and managed its material issues as described on page 14 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.
Tokyo, Japan
October 10, 2018
The Mitsubishi Materials Group at a Glance

Corporate Data

- **Company Name**: Mitsubishi Materials Corporation
- **Head Office**: 1-3-2, Otemachi, Chiyoda-ku, Tokyo 100-8117 Japan
- **Date Established**: 1st April, 1950
- **President**: Naoki Ono
- **Listings**: Tokyo Stock Exchange
- **Capital**: ¥119,457 million
- **Total Assets**: ¥2,015,084 million
- **Number of Employees**: 4,664 (Consolidated: 26,959)
- **Consolidated Subsidiaries**: 149
- **Equity Method Affiliates**: 17
- **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.

**Domestic Network**

- **Kanto Region**
  - Head Office (Tokyo)
  - Tokyo Plant (Tokyo Prefecture)
  - Ceramic Plant (Saitama Prefecture)
  - Structural Materials Research Institute (Saitama Prefecture)
  - Central Research Institute (Saitama Prefecture)
  - Miyazaki Plant (Miyazaki Prefecture)
  - Nagoya Plant (Aichi Prefecture)
  - Yamaha Plant (Mie Prefecture)
  - Himeji Plant (Hyogo Prefecture)
  - Honkawa Smelting & Refining Co., Ltd. (Tokyo)

- **Hokkaido**
  - Sapporo Branch (Hokkaido)

- **Tohoku Region**
  - Sendai Plant (Miyagi Prefecture)
  - Akita Plant (Akita Prefecture)
  - Aomori Plant (Aomori Prefecture)
  - Akita Smelting & Refining Co., Ltd. (Akita Prefecture)
  - Chiba Plant (Chiba Prefecture)
  - Sendai Plant (Iwate Prefecture)
  - Iwate Plant (Iwate Prefecture)
  - Aomori Plant (Aomori Prefecture)
  - Tohoku Branch (Miyagi Prefecture)
  - Kesennuma Smelting & Refining Co., Ltd. (Miyagi Prefecture)
  - Oshika Smelting & Refining Co., Ltd. (Miyagi Prefecture)

- **Kinki/Chugoku Region**
  - Osaka Regional Head Office (Osaka Prefecture)
  - Osaka Plant (Osaka Prefecture)
  - Kansai Plant (Hyogo Prefecture)
  - Kansai Plant (Hyogo Prefecture)
  - Saka Plant (Hyogo Prefecture)
  - Himeji Plant (Hyogo Prefecture)
  - Honkawa Smelting & Refining Co., Ltd. (Osaka Prefecture)
  - Shinkansen Smelting & Refining Co., Ltd. (Osaka Prefecture)
  - Shinchi Smelting & Refining Co., Ltd. (Mie Prefecture)

- **Chubu/Hokuriku Region**
  - Nagoya Branch (Aichi Prefecture)
  - Osaka Plant (Osaka Prefecture)
  - Tokushima Plant (Mie Prefecture)
  - Toyota Plant (Mie Prefecture)
  - Chubu Plant (Gifu Prefecture)
  - Gifu Plant (Gifu Prefecture)
  - Sendai Plant (Iwate Prefecture)
  - Sendai Plant (Iwate Prefecture)
  - Sendai Plant (Iwate Prefecture)
  - Honkawa Smelting & Refining Co., Ltd. (Maebashi Prefecture)

- **Shikoku Region**
  - Kagawa Branch (Kagawa Prefecture)
  - Ehime Plant (Ehime Prefecture)
  - Tokushima Plant (Ehime Prefecture)
  - Himeji Plant (Hyogo Prefecture)
  - Honkawa Smelting & Refining Co., Ltd. (Hyogo Prefecture)
  - Himeji Smelting & Refining Co., Ltd. (Hyogo Prefecture)

- **Kyushu Region**
  - Fukuoka Branch (Fukuoka Prefecture)
  - Kagoshima Plant (Kagoshima Prefecture)
  - Kitakyushu Plant (Fukuoka Prefecture)

**Global Network**

- **Europe**
  - Finland, United Kingdom, Germany, France, Spain, Italy, Russia, etc.
    - Metals
      - MMC Copper Products Oy (Finland)
      - MMC Advanced Materials & Tools (Germany)
      - MMC Advanced Materials & Tools
    - Electronic Materials & Components
      - MMC Electronics N.V. (Belgium)
      - MMC Electronics (M) Sdn. Bhd. (Malaysia)

- **Southeast Asia**
  - Thailand, Malaysia, Singapore, Indonesia, India, etc.
    - Metals
      - PT. Smelting (Indonesia)
      - MMC Advanced Materials & Tools (Thailand)
    - Electronic Materials & Components

- **East Asia**
  - China, Taiwan, Korea, etc.
    - Metals
      - MMC Advanced Materials & Tools
    - Electronic Materials & Components
      - MMC Electronics (Shanghai) Co., Ltd. (China)

- **Oceania**
  - Australia, etc.
    - Environment & Energy
      - Mitsubishi Materials (Australia) Pty. Ltd. (Australia)

*The companies listed here are only a few of the overseas members of the Mitsubishi Materials Group.*
For further information, please contact us at:
E-Mail: ml-csr2018@mmc.co.jp