



SUSTAINABILITY REPORT 2020

We contribute to the development of a sustainable economy and society through innovation in the areas of resources and materials.

JX Nippon Mining & Metals Group Code of Conduct

Ensuring a stable supply of non-ferrous resources and materials is our social mission. We are engaged in a wide range of operations from exploration, mining, smelting & refining to metal fabrication and electronic materials production. Complying with the Code of Conduct stipulated below, we will continue to pursue technical rationality and efficiency, while making improvements in quality and product properties, as well as other matters in all aspects of our operations from development, production and marketing. At the same time, we will continue to promote recycling of resources and materials to achieve zero emission. This is our way of achieving continuous innovation in the productivity of resources and materials. In the conduct of our business, we are committed to maintaining and enhancing a harmonious relationship with a wide range of stakeholders, including our customers and the communities in which we operate. We are committed to contributing to the sustainable development of society on a global scale.

1. Our social mission

Based on continuous technological development and full awareness of our responsibilities in designing products, we will develop and produce a variety of products efficiently while minimizing waste. At the same time, we will promote recycling and reduce the impact of our operations on the environment. By doing so, we hope to obtain the satisfaction and trust of our customers and of society as a whole.

2. Compliance with laws and regulations and engagement in fair trade

We will comply with domestic and/or overseas laws and regulations, and will engage in fair, transparent and free competition and trade based on the fulfillment of our social responsibilities.

3. Disclosure of corporate information and protection of personal information

We will communicate not only with our shareholders, but also with the public at large, and will disclose corporate information in an active and equitable manner while focusing on the protection of personal information.

4. Creation of an optimum health, safety and working environment

We will place top priority on health, safety, and disaster prevention and will ensure a comfortable working environment that respects employees' personality, human rights, and individuality.

5. Environmental conservation

Based on the awareness that tackling environmental issues is an essential requirement for corporate existence, we will engage in activities aimed at conserving the global environment, including biodiversity, in a voluntary, active and continuous manner.

6. Enhancement and strengthening of risk management

We will establish a risk management system based on scientific data to enhance and strengthen risk management.

7. Harmonious relationship with society

We will commit ourselves to social contribution activities and work as a good corporate citizen to achieve a harmonious relationship with the rest of the society of which we are part.

8. International business operations

In international business operations, we aim to contribute to sustainable development by protecting the fundamental human rights of people in countries and areas where we operate, and by respecting their cultures and customs.

9. Elimination of antisocial activities

We stand firm against all antisocial forces and groups that threaten social order and safety.

10. Management responsibilities

Management executives will take the lead in implementing this code of conduct and ensure it is thoroughly implemented across the Group. In the event of any non-compliance with the code of conduct, the management executives will investigate the causes, work to prevent reoccurrence, disclose information to the public promptly and accurately, and be held accountable for the event.

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Sustainability Report 2020

Editorial Policy

The JX Nippon Mining & Metals Group is committed to fulfilling its corporate social responsibility (CSR) in all its business endeavors, toward the sustainable development of society. We issue a sustainability report each year to disclose appropriate corporate information to a broad range of stakeholders, including customers, suppliers, shareholders and investors, employees, and the international and local communities. As an important communication tool, this report is designed to enhance stakeholders' understanding of our CSR activities.

Sustainability Report 2020 has been prepared in accordance with the GRI Standards* Core option as required by the 10 Principles of the International Council on Mining and Metals (ICMM) and by the ICMM's Assurance Procedures.

*International guidelines issued by the Global Reporting Initiative, incorporating standard items for CSR reporting.

Definitions of Terminology

"JX Nippon Mining & Metals" ("The Company"): The terms "JX Nippon Mining & Metals" and "the Company" refer to JX Nippon Mining & Metals Corporation.

"The JX Nippon Mining & Metals Group" ("the Group"): The terms "the JX Nippon Mining & Metals Group" and "the Group" refer to JX Nippon Mining & Metals Corporation and all its subsidiaries.

However, the companies subject to reporting vary among different sections of the report (see "Scope of this Report" for details).

"The ENEOS Group": The term "the ENEOS Group" refers to the corporate group formed by ENEOS Holdings, Inc., the parent company of JX Nippon Mining & Metals Corporation. Along with the Company, the core operating companies of the ENEOS Group are ENEOS Corporation and JX Nippon Oil & Gas Exploration Corporation.

Publication Date

February 2021
Publication date of previous report: February 2020
Publication date of next report: February 2022

Reporting Period

April 2019 - March 2020
In principle, this report covers our business activities during fiscal 2019. To ensure comprehensive disclosure, however, it also includes certain information regarding important events that occurred prior to or after this period.

Scope of this Report

This report covers JX Nippon Mining & Metals Corporation as well as domestic and overseas Group companies. However, in certain parts of the report (listed as "Corresponding Sections" in the table below), we report main indicators only for those companies as described under "Scope of this Report" in the table below.

Corresponding Sections	Scope of this Report
Business Overview	Companies included in the consolidated financial statements of JX Nippon Mining & Metals. (The Company and its consolidated subsidiaries listed on the right that have the ◎ symbol after their names.)
Environment	Businesses where total energy consumption per fiscal year is equivalent to 1,500 kiloliters of crude oil or more. (Companies listed on the right that have the * symbol to the right of their names.)
Employees, Society, Corporate Governance	The Company and 81 companies in which the Company has 50% or greater voting rights directly or indirectly. (Companies listed on the right that have the ★ symbol to the right of their names.)

The indicators in this report that are assured by a third-party organization are marked with a check.

Main Companies Covered by This Report

Domestic

- JX Nippon Mining & Metals Corporation ◎*★
- JX Metals Trading Co., Ltd. ◎*★
- Toho Titanium Co., Ltd. ◎*★
- JX Nippon Mining Ecomanagement, Inc. ◎*★
- Yoshino Mines Co., Ltd. ◎*★
- Oya Mines Co., Ltd. ◎*★
- Hokuriku Mines Co., Ltd. ◎*★
- Shin-Takutama Mining Co., Ltd. ◎*★
- Kaneuchi Mining Co., Ltd. ◎*★
- Hitachi Mines Co., Ltd. ◎*★
- Shakanai Mines Co., Ltd. ◎*★
- Hanawa Mines Co., Ltd. ◎*★
- Hokushin Mining Co., Ltd. ◎*★
- Namariyama Mining Co., Ltd. ◎*★
- Kamikita Mines Co., Ltd. ◎*★
- Toyoha Mine Co., Ltd. ◎*★
- Shimoda Hot Springs Co., Ltd. ◎*★
- Kamine Clean Service Co., Ltd. ◎*★
- Furuuchi Chemical Corporation ◎*★
- Ibaraki Nikko Kensetsu Co., Ltd. ◎*★
- JX Metals Plant Saganoseki Co., Ltd. ◎*★
- Kasuga Mines Co., Ltd. ◎*★

- JX Nippon Exploration and Development Co., Ltd. ◎*★
- MFN Investment LLC ◎*★
- Nippon Caserones Resources Co., Ltd. ◎*★
- Pan Pacific Copper Co., Ltd. ◎*★
- Keihin Kaseihin Center Co., Ltd. ◎*★
- PPC Logistics Co., Ltd. ◎*★
- JX Metals Smelting Co., Ltd. ◎*★
- Nissho Kou-un Co., Ltd. ◎*★
- Japan Copper Casting Co., Ltd. ◎*★
- Japan Korea Joint Smelting Co., Ltd. ◎*★
- JX Nippon Environmental Services Co., Ltd. ◎*★
- JX Nippon Tomakomai Chemical Co., Ltd. ◎*★
- JX Nippon Mikkaichi Recycle Co., Ltd. ◎*★
- JX Nippon Tsuruga Recycle Co., Ltd. ◎*★
- JX Nippon Takasho Co., Ltd. ◎*★
- Ichinoseki Foil Manufacturing Co., Ltd. ◎*★
- JX Nippon Coil Center Co., Ltd. ◎*★
- JX Metals Precision Technology Co., Ltd. ◎*★
- Kitaibaraki Precision Co., Ltd. ◎*★
- JX Nippon Foundry Co., Ltd. ◎*★
- TANIOBIS Japan Co., Ltd. ◎

Overseas

- Hong Kong Nikko Shoji Co., Ltd. ◎*★
- Shenzhen Nikko Shoji Co., Ltd. ◎*★
- Materials Service Complex (Thailand) Co., Ltd. ◎*★
- Materials Service Complex Coil Center (Thailand) Co., Ltd. ◎*★
- Nikko Metals Taiwan Co., Ltd. ◎*★
- JX Nippon Mining & Metals Shanghai Co., Ltd. ◎*★
- MLCC Finance Netherlands B.V. ◎*★
- Nippon Mining of Netherlands B.V. ◎*★
- Nippon LP Resources B.V. ◎*★
- Nippon LP Resources UK Limited ◎*★
- JX Nippon Mining & Metals Chile SpA ◎*★
- Compania Minera Quechua S.A. ◎*★
- JX Nippon Mining & Metals Exploration Peru S.A.C. ◎*★
- JX Nippon Mining & Metals Exploration Chile Limitada ◎*★
- Nippon Caserones Resources Canada Enterprises Corp. ◎*★
- SCM Minera Lumina Copper Chile ◎*★
- Caserones Finance Netherlands B.V. ◎*★
- JX Nippon Mining & Metals Philippines, Inc. ◎*★
- Nippon Mining & Metals (Suzhou) Co., Ltd. ◎*★
- Nikko Fuji Precision (Wuxi) Co., Ltd. ◎*★
- Materials Service Complex Malaysia Sdn. Bhd. ◎*★
- Nikko Metals Shanghai Co., Ltd. ◎*★
- JX Nippon Mining & Metals Dongguan Co., Ltd. ◎*★
- JX Nippon Mining & Metals USA, Inc. ◎*★
- JX Nippon Mining & Metals Europe GmbH ◎*★
- JX Nippon Mining & Metals Korea Co., Ltd. ◎*★
- JX Nippon Mining & Metals Singapore Pte. Ltd. ◎*★
- TANIOBIS GmbH ◎
- TANIOBIS Co., Ltd. ◎
- TANTANIOBIS Smelting GmbH & Co. KG ◎
- TANIOBIS USA LLC ◎

*Company names are current as of fiscal 2020.



Review of Our Fiscal 2017-2019 Medium-Term Management Plan

Stable Operations at the Caserones Copper Mine; Expanded Production Systems Grow Our Advanced Materials Business

Since fiscal 2017, we have been executing strategies guided by a medium-term management plan reflecting policy to make our current core businesses more profitable and cultivate next-generation core businesses. Our business results were generally in line with all initial targets after excluding impairment losses related to the Caserones Copper Mine (Chile). Supported by rising copper prices, our Caserones Copper Mine has achieved stable operations and is now generating profits. We also experienced increased sales and other positive performance related to functional materials and thin film materials, driven by smartphone sales.

Pursuing our main strategies, we engaged in structural reform and enacted policies to strengthen our upstream and midstream businesses. These strategies included revising our portfolio of mining rights and interests, upgrading the flash furnace at Pan Pacific Copper's Saganoseki Smelter & Refinery (now JX Metals Smelting Co., Ltd.), and revising the operating structures for copper-related joint ventures. Downstream, we expanded our business through the acquisition of H. C. Starck Tantalum & Niobium (now known as TANIOBIS GmbH). We also launched collaborations with start-up companies, including Material Concept, Inc. and OxMet Technologies (now Alloyed Limited). Further, we expanded our production capacity for treated rolled copper foil, high-performance copper alloys, and sputtering targets for semiconductors in preparation for market expansion.

We made strategic investments of ¥90 billion, exceeding our plan of ¥70 billion. We also invested ¥120 billion in business support, largely in line with plan. Through these efforts, I believe we have made a strong start toward becoming the technology-based company described in the JX Nippon Mining & Metals Group Long-Term Vision 2040.

The JX Nippon Mining & Metals Group Long-Term Vision 2040

Becoming a Technology-Based Company Through Redefining Our Business, Engaging in Co-Creation-Based Development, Building Our Organization, and Developing Human Resources

In 2019, we formulated the JX Nippon Mining & Metals Group Long-Term Vision for 2040. The aim of this long-term vision is to contribute to the achievement of the Sustainable Development Goals (SDGs) by growing as a technology-based company that supplies high-value-added products and technologies through the technologies and expertise we have accumulated. This vision redefines our businesses as either Focus Businesses, which is the core of our growth strategy, or Base Businesses, which contribute to maintaining a strong organizational foundation. Focus Businesses consist of businesses that allow us to compete globally through technological differentiation. These businesses include our Functional Materials Business, Thin Film Materials Business, and Tantalum and Niobium Business. Base Businesses include our Mineral Resources Business and Metals & Recycling Business. Moving forward, we aim to grow our company through strategies that leverage the characteristics of each of these businesses.

To speed technology development and commercialization, we will move away from our traditional in-house approach and proactively engage in development via co-creation. We believe that combining group core technologies with innovative technologies from outside sources generates greater synergies and accelerates the type of technological innovation that will transform society.

We will build a flexible organizational structure that enables rapid decision-making and the proactive use of high-level human resources, etc. At the same time, the group will secure and develop human resources capable of creating new value and managing our organization. Our head office relocation in June of this year was one initiative in line with this policy. We designed our new head office to be a space that encourages internal and external communications and facilitates the creation of new value. In this way, every employee will be aware of and proactive in their own role in building the future of JX Nippon Mining & Metals.

Message From the President

As a technology-based company supplying advanced materials, JX Nippon Mining & Metals contributes to the creation of a sustainable society.

Seiichi Murayama

President and Chief Executive Officer
JX Nippon Mining & Metals Corporation



New Medium-Term Management Plan for Fiscal 2020-2022

A Three-Year Season of Sowing Seeds to Achieve Our Long-Term Vision

Our new medium-term management plan will be a three-year season of sowing seeds to achieve our long-term vision. To act with speed in expanding strategic investments, promoting technological development, reviewing business portfolios, and developing human resources capable of creating new value, we will engage in business management with a greater degree of autonomy, agility, and independence.

In our Focus Businesses, we will add even more production capabilities in sputtering targets for semiconductors, an area of follow-on investments during our prior plan, treated rolled copper foil, high-performance copper alloy, and other products. Our objective here is to capture the growing demand for advanced materials in the

information and communications market. The group also intends to build a more robust supply chain, aiming for sustainable growth. Here, we will review the role of overseas facilities according to geopolitical risk and actively strengthen the supply chain through coordination with other companies.

The Mineral Resources Business, which is a Base Business, will aim to secure net profits by engaging in operating improvements and ongoing cost reductions to take a major step forward in Caserones Copper Mine profitability. In our Metals & Recycling Business, we will contribute to creating a recycling-oriented, decarbonized society by pursuing the best mix of smelting materials and recycled materials. To this end, we made the Saganoseki Smelter & Refinery a wholly owned subsidiary and integrated the smelting and recycling business in April 2020.

In terms of technology development, we intend to pursue development through our core technologies and via co-creation with outside resources, discover new categories through open innovation, industry-academic collaboration, etc., respond to digital transformation, adopt IoT and AI in production facilities, and more.

The Impact of COVID-19 and Our Response
Comprehensive Measures to Prevent Infection and Fulfilling Our Mission as a Member of the Community

We have seen the drastic changes in the conventional wisdom of business and lifestyles caused by COVID-19, which began spreading around the globe in early 2020. The pandemic has done more than simply cause a change in work styles. COVID-19 has also had an immense impact on economic activities in general, including how people and goods are transported, how we think about consumption activities, and more.

The JX Nippon Mining & Metals Group has maintained stable operations through comprehensive measures to prevent infection. These measures include prohibiting business trips to and from production facilities, limiting visitors, and reducing contact among employees by adjusting work shifts. In March, we shifted all head office employees to telework to prevent the spread of infection and ensure employee safety. Subsequently, we have taken a flexible approach in accordance with government guidelines, etc.

As a member of the community, we made donations to Kitaibaraki City and Hitachi City (Ibaraki Prefecture), Samukawa Town (Kanagawa Prefecture), and Oita City (Oita Prefecture). These donations helped fight the spread of infectious diseases in these communities where we operate our main production facilities. We also provided PPE masks to medical facilities in these regions. Overseas, SCM Minera Lumina Copper Chile (operator of the Caserones Copper Mine) provided simplified COVID-19 test kits to local governments and

medical institutions. In addition to these initiatives, we have endorsed and participate in the Open COVID-19 Declaration. This declaration states that companies will not enforce patent rights, utility model rights, design rights, or copyrights for activities that contribute to the containment of COVID-19.

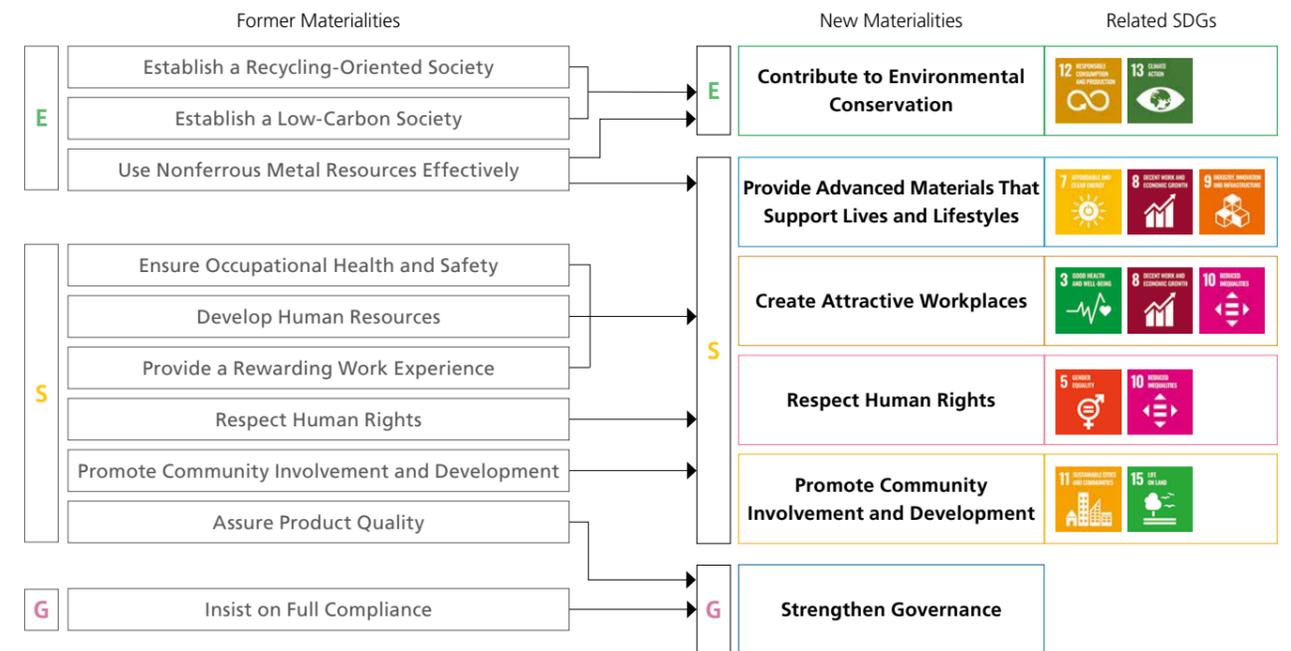
The Mission of the JX Nippon Mining & Metals Group
A Group in Self-Transition as We Envision Our Future

We have recategorized our materialities, originally defined in 2018, to six categories. In this way, we aim to garner greater internal support and to improve our ability to communicate materialities externally. We have also taken this opportunity to establish KPIs and rededicate ourselves to our aspirations of making a significant commitment to society.

Since our founding in 1905, the JX Nippon Mining & Metals Group has provided new value to society on a consistent basis through relentless creativity and innovation, supported by our technological capabilities. The world faces challenges that will continue to change in the future. The JX Nippon Mining & Metals Group is sensitive to our mission, and we will confront social issues as we continue to evolve and contribute to the achievement of a sustainable society. Our Vision for 2040 is to grow into a technology-based company, united as an organization and working with our stakeholders to contribute to the future of the Earth and humanity.



Correspondence Between JX Mining & Metals Group Materialities and the SDGs



A Rich History of Value Creation

In recognition of our mission as a stable provider of nonferrous metal resources and materials to society, the Group has, since our founding in 1905, strived to generate new value even while answering the various changes in the business environment.

We are determined to continue striving forward, taking on this challenge of contributing to the development of a sustainable economy and society through innovation in the areas of resources and materials.

JX's Growth in Business, and in Value Provided

June 2020
Relocated headquarters to the Toranomon area



The Okura Prestige Tower

2020
Net Sales **1,004.4** bil. yen
(fiscal year ended March 2020)
*Consolidated

No. of Employees **9,678**
(as of March 31, 2020)
*Consolidated

2010
Birth of the JX Group
The JX Group (JX Holdings) was born as one of the world's leading integrated energy, resources, and materials business groups, conducting business in each of the areas of petroleum refining and sales, oil field development, and metals

2017
JXTG Holdings (now ENEOS Holdings) born
JXTG Holdings was established with the merger of JX Holdings and Tonen General Sekiyu K.K.

2016
Changed Japanese name of JX Nippon Mining & Metals

2002
Established Nippon Mining Holdings
Merger of Japan Energy and Nikko Metals

1992
Nikko Metals becomes independent company
Spinoff of Nippon Mining's metals and metal fabrication businesses

1978
Built new recycling furnace
A new recycling furnace making use of smelting techniques was built at the Hitachi Smelter & Refinery, marking the launch of the Company's Recycling and Environmental Services Business. Using this furnace, we pursued the business of reclaiming valuable metals from plating sludge and other industrial waste.

1914
Built the Hitachi Giant Stack
The rapid growth of the Hitachi Mine's business led to severe smoke pollution in its surrounding area. To deal with the pollution, the Company built what was then the world's tallest stack, at 155.7 meters. It began operation in March of the following year.

1929
Established Nippon Mining

1905
Established

1905
Developed a custom smelter
The company's resources development and smelting and refining businesses were launched by founder Fusanosuke Kuhara at the Hitachi Mine in Ibaraki Prefecture. The Hitachi Mine pioneered the custom smelter, using its full-fledged facilities to process not only ores from self-developed mines, but also those purchased from other firms.



Founder
Fusanosuke Kuhara

1916
Launched operations at the Saganoseki Smelter & Refinery
In order to further expand the mining, smelting, and refining segments fundamental to the Company's diversified business, the Saganoseki Smelter & Refinery was built in Oita Prefecture. It was one of the largest such plants in Japan. Even to this day, it remains a key location within the JX Nippon Mining & Metals Group, as a leading-edge smelter boasting world-class technological capabilities and production capacity.



The Saganoseki Smelter & Refinery in 1916

1964
Launched operations at Kurami Works
The launch of operations at the Kanagawa-based Kurami Works marked the Company's earnest entry into the metal fabrication business. It featured the latest rolling mills, producing phosphor bronze and other copper alloy products. By answering the needs of complex markets for diverse, small-lot, and made-to-order products, as well as advanced technical demands on products, the Company carved out a solid position for itself in the metal fabrication field.



Kurami Works just after completion

1985
Launched operations at Isohara Works
The Company entered the electronic materials business in time for the rise of the electronics industry in the 1980s, making sputtering targets for semiconductors and transparent conductive films for liquid crystal displays, as well as materials for compound semiconductors. By establishing the Ibaraki-based Isohara Works as a new main manufacturing center, the Company expanded into development and manufacturing of copper foil and various electronics materials.



The newly-established Isohara Works

2014
Launched production at Caserones Copper Mine
The Group celebrated the official opening of the Caserones Copper Mine, a resource development project in Chile fully funded by Japanese entities providing the Group's first copper concentrate shipments.



Caserones Copper Mine

2018
Acquired shares in H.C. Starck Tantalum and Niobium GmbH (now TANIOBIS GmbH)
The Group acquired shares of H.C. Starck Tantalum and Niobium GmbH (now TANIOBIS GmbH), a German manufacturer of metal powders, with an eye to expanding its business areas in anticipation of dramatic demand growth for electronic components and devices.



TANIOBIS Co., Ltd. (Thailand)

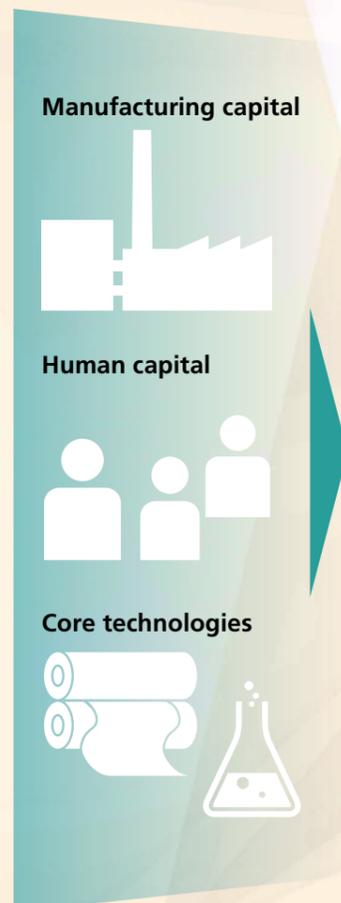
Value Creation Model

The JX Nippon Mining & Metals Group works to identify and recognize the social issues calling for resolution by JX, and seeks to promote a value creation model in growing sustainably and resolving social issues.

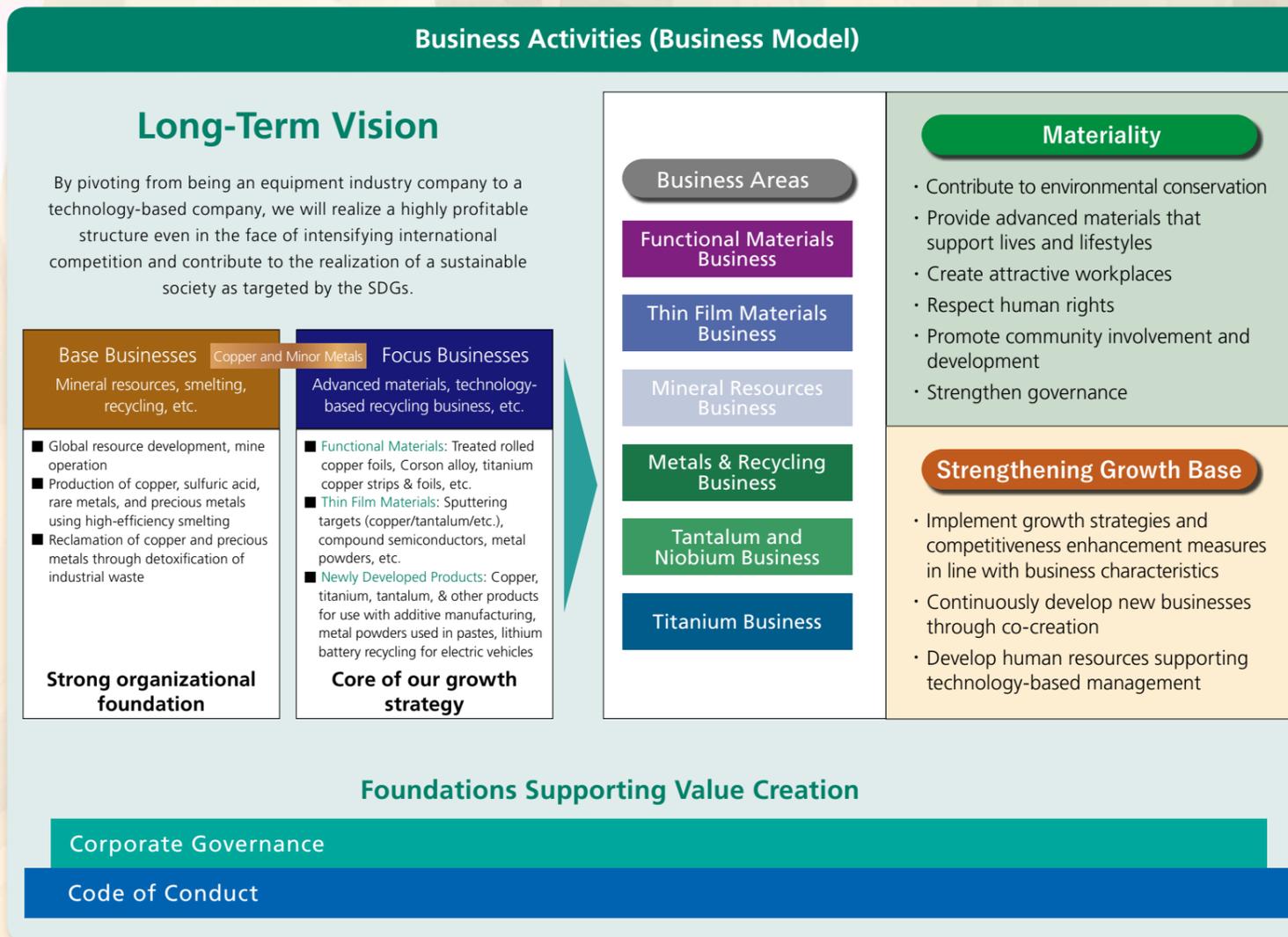
Key Social Trends



Inputs (Capital)



Business Activities (Business Model)



Outputs (Products/Services) Outcomes (Created Value)



Long-Term Vision

The JX Nippon Mining & Metals Group Long-Term Vision 2040

By pivoting from being an equipment industry company to a technology-based company, we will realize a highly profitable structure even in the face of intensifying international competition and contribute to the realization of a sustainable society as targeted by the SDGs

- We position each business as either a focus business that aims to increase profits or a base business that supports the foundation of the organization. Focus businesses are characterized by differentiation through technology
- Moving forward, we position minor metals in our core domain, equally to copper and as materials indispensable for advanced materials



Business Strategies



Key Social Trends

<p style="text-align: center;">Deepening resource shortages / depletion with expansion of the middle class</p> <p>As middle classes grow, so too does resource depletion. Resources with good quality and reasonable cost will see competition for their acquisition, with deepening regional disparities and resource shortages/depletion.</p>	<p style="text-align: center;">Shrinking domestic market / challenges attaining sustainable growth in emerging countries</p> <p>Japanese markets are shrinking with declining birthrates, an aging society, and the hollowing out of industry. Though the core of economic growth will shift to emerging countries in places like Asia, environmental problems are manifesting in these nations, and a key issue for sustainable growth will be how they are addressed.</p>	<p style="text-align: center;">Expanding demand for advanced materials</p> <p>Looking toward the realization of a sustainable society, digital data's utilization is accelerating in IT, mobility, healthcare, energy, construction, and other industries. As such, needs for advanced materials used in these fields are expanding.</p>
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Measures for new business creation

- 1) Active utilization of external resources**

There is a low probability that a given basic research project will be developed all the way to commercialization, and this process requires significant time commitments. Therefore, we will proactively utilize external resources to unprecedented degrees, using a co-creation development structure to improve commercialization rates and shorten development times.
 E.g.: Joint research with universities and research institutes, utilization of open innovation and corporate venture capital, business alliances with other companies, M&A
- 2) Building the organizational structure and promoting human resources development for technology-based management**

We will build a flexible organizational structure that enables rapid decision-making and the proactive use of high-level human resources, etc. At the same time, the group will secure and develop human resources who are capable of creating new value and who will manage our organization.
 E.g.: Significant expansion of technical personnel, changes in organizational culture, fundamental review of career paths, establishment of a global management system

Summary: Previous Medium-Term Management Plan (Fiscal 2017 - 2019)

In its Medium-Term Management Plan for the fiscal years from 2017 to 2019, the JX Nippon Mining & Metals Group set out to become a global resources and materials company centering on copper, working to achieve a stronger, more stable Group foundation.

Fundamental Policies and Key Measures

In the previous medium-term management plan, we executed strategies reflecting the plan's policies *making current core businesses more profitable* and *cultivating and strengthening next-generation core businesses*. With regard to the major task of strengthening profitability at the Caserones Copper Mine, we achieved an operating profit in fiscal 2018 and thereafter. With regard to the task of growing

our advanced materials business, we were able to successfully bolster production capacity for sputtering targets used with semiconductors as well as treated rolled copper foils and high-performance copper alloys. For our overall performance, if we exclude the impairment loss booked for the Caserones Copper Mine, we have been generally able to meet our initial targets.

Making Current Core Businesses More Profitable	Cultivating and Strengthening Next-Generation Core Businesses (Developing technology-based business)
<ul style="list-style-type: none"> ■ Strengthen profitability of the Caserones Copper Mine <ul style="list-style-type: none"> • Maintain high operating rate • Strengthen competitiveness by thoroughly reducing costs ■ Expand the scale of advanced materials businesses <ul style="list-style-type: none"> • Expand production capacity • Utilize IoT/AI to strengthen competitiveness ■ Copper smelting and refining, recycling <ul style="list-style-type: none"> • Safe, stable operations • Strengthen cost competitiveness and pursue efficiency 	<ul style="list-style-type: none"> ■ Develop markets, strengthen sales, and develop technologies in anticipation of the arrival of the IoT society ■ Actively invest in management resources in promising areas <ul style="list-style-type: none"> • Execute strategic investment in inhouse development projects • Actively utilize Group-owned technologies, M&A, corporate venture capital

Operating Profits per Fiscal Year (excl. Inventory Impact) and Underlying Assumptions

	FY2017	FY2018	FY2019	Total
Functional Materials, Thin Film Materials, Other Businesses (Focus Businesses)	33.8	33.1	14.5	81.3
Mineral Resources Business (Base Business)	15.9	25.1	14.7	55.7
Metals & Recycling Business (Base Business)	19.4	19.4	22.9	61.7
Common Business Expenses	▲2.7	▲9.4	▲4.2	▲16.4
Total	66.4	68.1	47.9	182.4

* Results for fiscal 2017 exclude impairment loss of ¥128.6 billion recorded for the Caserones Copper Mine.

* Figures are based on segment classifications in the Medium-Term Management Plan from fiscal 2020 to fiscal 2022.

Underlying Assumptions

Exchange Rate (USD/JPY)	111	111	109
LME Copper Price (US cents/GBP)	292	288	266

Summary of Business Results for Fiscal 2019

The global economy continued to grow at a moderate pace in 2019 amid the deterioration of bilateral relations due to U.S.-China trade friction and uncertainty about the future of Britain's withdrawal from the EU. However, after January 2020, economic activity fell sharply due to the global spread of COVID-19. On the other hand, the Japanese economy began to fall versus the previous year in the latter half of fiscal 2019 due to the consumption tax hike in October, and further deteriorated due to the spread of COVID-19.

Copper prices trended around 290 to 300 US cents per pound at the beginning of the year; however, since May 2019, these have changed to a downward trend due to trade frictions between the United States and China, falling to the 250 cent range in August. Though they recovered to the 280 cent level at the end of the year, copper prices plummeted again in late January 2020 due to the spread of COVID-19

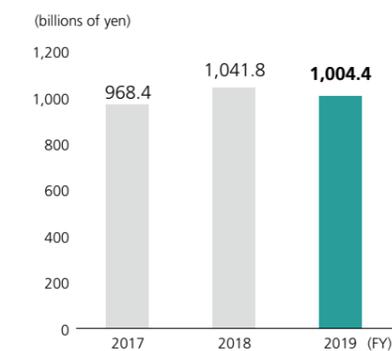
in China, reaching 218 cents at the end of the fiscal year. As a result, the average price during the year was 266 cents, a little less than 22 cents lower than in the previous year. The electronics market was in an inventory adjustment phase during the first half of fiscal 2019. This inventory adjustment period concluded in the second half of the year, and fifth-generation communications (5G) were more actively being introduced. Despite these gradual signs of recovery, the rapid spread of COVID-19 in the beginning of the calendar year exerted a major impact on demand.

The yen's exchange rate against the US dollar was 109 yen, up 2 yen from the previous year on average.

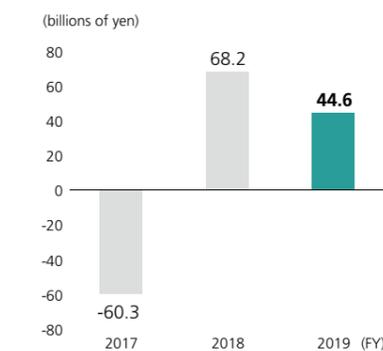
Amid this business environment, the Group's net sales in fiscal 2019 decreased 3.6% year-on-year to ¥1,004.4 billion, with operating income at ¥44.6 billion due to the impact of falling copper prices.

Financial Performance (Consolidated, IFRS)

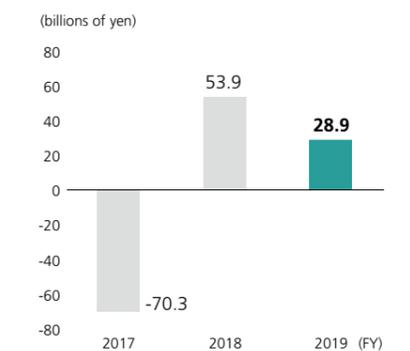
Revenue



Operating Profit

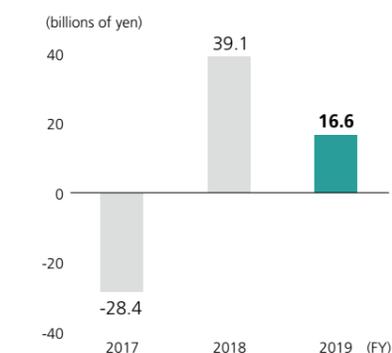


Profit before Tax

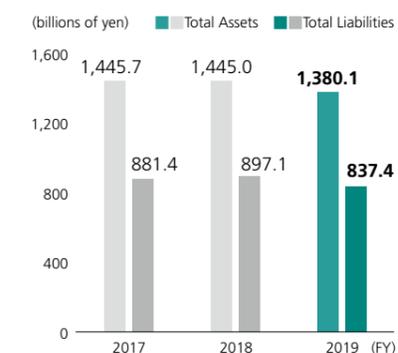


* Data for fiscal 2017 includes impairment loss of ¥128.6 billion recorded for the Caserones Copper Mine.
* Includes impact from inventory.

Net Income Attributable to Owners of Parent



Total Assets and Total Liabilities



Overview: Fiscal 2020 - 2022 Medium-Term Management Plan

We are executing a medium-term management plan that positions the three years from fiscal 2020 as a period of sowing the seeds for transformation into a technology-based company toward achievement of the Long-Term Vision.

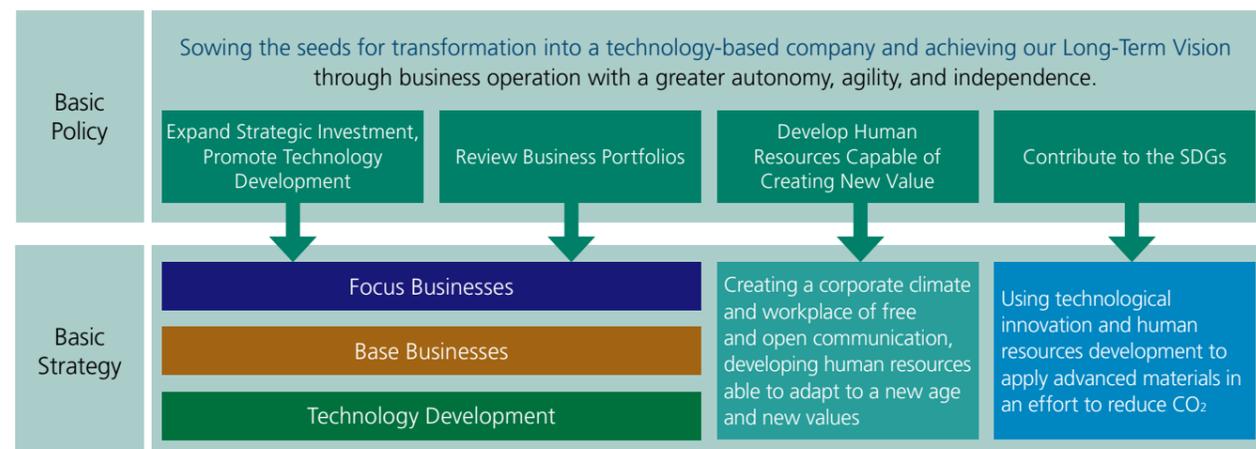
Role of the Current Medium-Term Plan



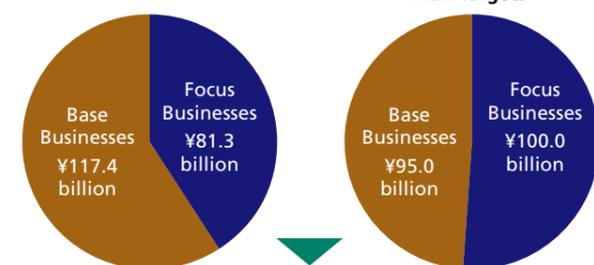
Basic Policies and Strategies

In the current medium-term plan, our fundamental strategies in the interest of transforming into a technology-based company, as set forth in the JX Nippon Mining & Metals Group Long-Term Vision 2040, includes expanding strategic investments, promoting technological development, reviewing business portfolios, developing human resources capable of creating new value, and contributing to the

SDGs. Under these, we will accelerate various actions, including human resources development and measures matched with the various business characteristics, and work to develop our organizational culture. In order to take speedy, decisive action, we will engage with business management with greater autonomy, agility, and independence.



Current Medium-Term Plan Targets: Operating Income



Enhance focus business product lines with high profit margins

Fundamental Data

		2019	2020	2021	2022
Exchange Rate	(USD/JPY)	108.7	105	105	105
Price of copper	(EUR/GBP)	266	250	270	270

Business Strategies under the Current Medium-Term Plan

Focus Businesses

Be sure to capture demand growth from arrival of the data-driven society

- **Dynamic increases in production capacity with eye on market trends**
 - Sputtering targets
 - Treated rolled copper foils, high-functionality copper alloys (thin)
- **Create a more robust supply chain**
 - Strengthen overseas sites in readiness for disasters and geopolitical risks
 - Collaborate with other firms in securing raw materials

Facilities bolstered through fiscal 2019. We will continue flexible enhancement of these in response to growing market demand.



Expanded production equipment for treated rolled copper foils and advanced copper alloy (Kurami Works)



Expanded production equipment for sputtering targets for semiconductors (Isohara Works)

Base Businesses

Boost profitability of the Caserones Copper Mine and become more adaptable to changes in the market environment

- **Mineral Resources: Improvement of operations at the Caserones Copper Mine and ongoing cost reductions in all processes**
 - Target recording a net profit and production of 171,000 tons in fiscal 2022 (vs. fiscal 2019 performance of 152,000 tons)
- **Metals and Recycling: Strengthen competitiveness through integrated management of smelting, refining, and recycling**
 - Saganoseki Smelter & Refinery made wholly owned subsidiary in April 2020; Metals and Recycling businesses integrated



Physical sorting equipment (HMC Department, Hitachi Works) Leveraging IoT and AI to increase treatment of recycled raw materials

Technology Development

Establish a mechanism for creating new businesses as a technology-based company

- **Build an organization able to handle growth in cross-division projects**
 - Toward a system more mindful of function
- **Promote development through co-creation between our core technologies and outside resources**
- **Discover and pursue new topics**
 - E.g. OI (Open Innovation), cross-organizational marketing, industry-academia collaboration, the Stage-Gate® process, etc.
- **Promote adoption of IoT and AI**
 - Support for digital transformation, implementation at production sites
- **Develop human resources**
 - Dispatching employees to universities/research institutes, AI support

Specific Successes

- **Launch of new products** (To become profitable on/after FY2023)
 - Metal powders for additive manufacturing
 - CVD precursor base materials
 - Shielding materials and more
- **Intensive area cultivation**
 - Lithium battery recycling for electric vehicles (ongoing)
 - Next-generation telecommunications materials (under examination)



Bench scale equipment for EV lithium battery recycling



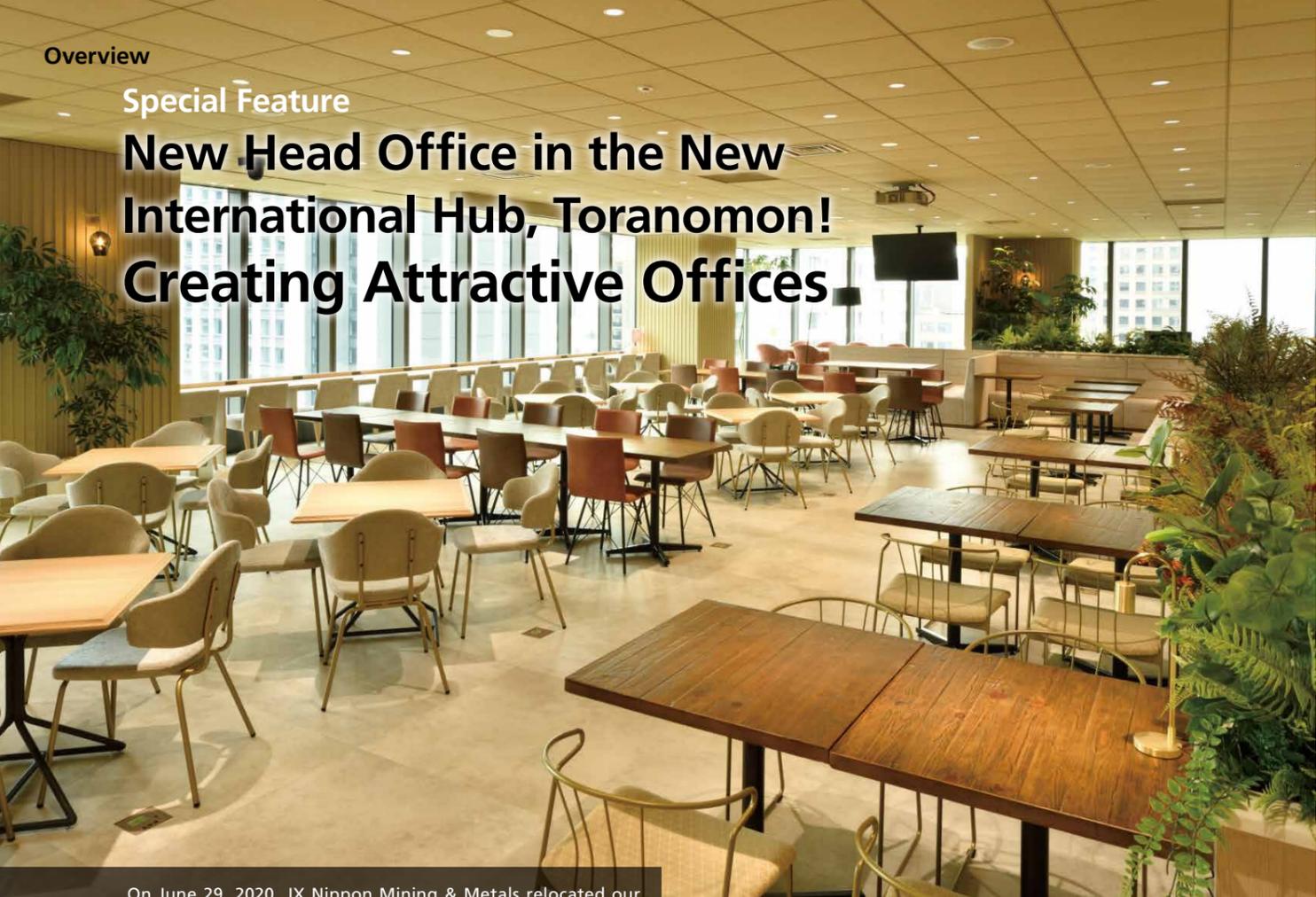
A research facility donated to Tohoku University



Pure copper powder for additive manufacturing

Special Feature

New Head Office in the New International Hub, Toranomon! Creating Attractive Offices



On June 29, 2020, JX Nippon Mining & Metals relocated our head office from Otemachi, Chiyoda-ku (Tokyo) to The Okura Prestige Tower (11F-14F) in Toranomon, Minato-ku (Tokyo). The move of our head office is one measure toward achieving the JX Nippon Mining & Metals Group Long-Term Vision 2040. In so doing, we aim to create an innovative office space that will enhance our ability to continue to grow flexibly, even in the face of social change and adversity.



New Head Office in The Okura Prestige Tower

Three Key Words Toward the Creation of New Value

The JX Nippon Mining & Metals Group long-term vision states that we aim to transition to a technology-based group that offers advanced materials and high-value-added products and technologies that contribute to the creation of a recycling-oriented society. As a global company, we also have a mission to meet the expectations and demands of society, including the Sustainable Development Goals. To achieve these goals, it is essential that we engage in flexible business operations and developing human resources capable of adding value.

To be the center of group operations, we have developed the new head office to reflect three key concepts to take on the challenge of creating new, unprecedented value: 1) Interact with technology, 2) Improve productivity, and 3) Encourage interpersonal relationships.

What kind of area is Toranomon?

Toranomon is a district in Tokyo known for many historical sites, shrines, and temples from Japan's Edo period. Beginning with the 2014 completion of the Toranomon Hills project, the area has transformed into an international business hub. Toranomon is also attracting attention as a new source of innovation. In October 2020, one of the world's largest innovation communities, CIC Tokyo, opened for operations in the district.

Interact With Technology

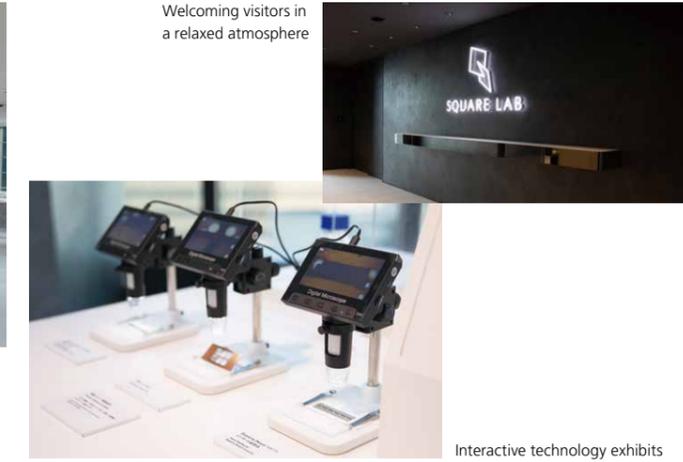


SQUARE LAB

The new JX Nippon Mining & Metals Group head office features the SQUARE LAB, a space for interacting with technology. The SQUARE LAB consists of *the Gallery* showroom and *the Arena* event space. We have designed our head office to welcome a diverse range of visitors. The SQUARE LAB will serve as a space to provide an overview of our business and show off the advanced technologies that represent our strengths. At the same time, we will use this space as a training facility to deepen employee understanding about our business. In these ways, the SQUARE LAB will accelerate our transformation into a technology-based group.



A space for sharing technology and business



Welcoming visitors in a relaxed atmosphere



Interactive technology exhibits

The Gallery Showroom

In addition to powerful video content that communicates our business and future vision, the Gallery showroom also provides ways for visitors to experience the technological capabilities of the group through interactive exhibits that demonstrate functions including our pursuit of technologies to make things smaller.

We also intend the Gallery showroom to be a space for our own employees to experience our technologies, while also showing our customers and business partners the potential technological value we offer. In so doing, we hope to inspire new collaborative ideas and concepts, including ways to apply technologies in new fields.



Extensive video content

The Arena Event Space

The Arena is an open, calming space for events and workshops that sow and nurture seeds of future value. The Arena is also equipped with online conferencing technology allowing us to coordinate with our operations throughout the world.



A space to inspire creativity

Improve Productivity

A New Work-Style: ABW

As Japan's working-age population declines due to fewer births and aging demographics, raising productivity per capita has become one of the most important issues faced by management.

Our new head office will offer new measures for greater efficiency to raise work productivity and create value.

Independent Choice

Activity-Based Working (ABW) is a work style that allows employees to use mobile tools and select on their own how they work in terms of work hours, location, time, and methods in accordance with the nature of their job. For example, an employee might relax on a sofa when they want to be creative and generate ideas, working in a quiet place that facilitates concentration. Telework, including working from home, is another work style employees could select according to the nature of the task and other circumstances.

At the same time, we have adopted a group address system to address concerns about reduced work efficiencies when supervisors and subordinates work in separate locations. Under this system, organizations have a generally assigned location. The system is designed to maintain flexibility by creating a sense of loose connection through physical visibility, as well as to create opportunities for interactions across departmental boundaries.



ABW for increased efficiency!

ABW for increased autonomy

Open, Free Spaces

The office space is designed to provide open areas with unobstructed views, facilitating quick meetings at any time. In addition to a variety of desks available for different purposes, our offices provide open space for multiple purposes, as well as private booths for focused concentration. Meeting rooms are glass-enclosed, contributing to the sense of open space.



Encouraging more flexible work styles

Open areas for meetings



Private booths with LINK technology for external communications

ICT Tools

Robust ICT tools are essential for effective ABW. In addition to web conferencing and electronic decision-support systems, we provide employees with company smartphones installed with an in-office location identification app. In these and other ways, we offer an office environment free from location restrictions.

JX Nippon Mining & Metals will continue to pursue advanced tools for flexible and efficient work styles.



Web conferencing on a large-screen monitor

Encourage Interpersonal Relationships

The Value of Face-to-Face

The office of the future will be more than simply a place to work. New office environments will be required to function as spaces that encourage interaction between employees and between departments to create new value.

The new head office features a number of measures to deepen face-to-face interactions among employees.

A Lounge for Creating Connections

We designed the lounge area located next to the SQUARE LAB to be a space not only for meals, but also for meetings using large monitors and events for 100 people or more using our online conferencing system. Our new offices also feature a café and a convenience store for a quick pick-me-up. The space serves a variety of other purposes, as well, including after-work social gatherings for employees and others.

This is a space where employees can gather and connect at any time of the day and for a variety of purposes.



Relaxing with a cup of coffee

Concierge Counter Provides Help With Everyday Tasks

The lounge also features a concierge counter offering help for a variety of everyday tasks, including equipment rental, mail and post procedures, questions about ICT tools, and even travel arrangements for business trips.

In addition to encouraging employees to meet on a regular basis, the lounge concierge counter takes care of non-core tasks, allowing employees to concentrate on their real work and contributing to overall office productivity improvements.



The concierge counter even arranges business trips

TOPICS

Managing the Head Office Relocation: Shigefusa Muraki

The JX Nippon Mining & Metals head office relocation was a large-scale project involving more than 50 people from across the company and taking place in a relatively short period of about one year. We were able to adapt to the challenges of ABW and other new measures thanks to teamwork represented by a foundation of the long-term vision established by senior management, active discussions among young and mid-level employees, the strong support of older employees and specialist departments.

During the second half of the project, we overcame the negative impact of COVID-19 through the coordinated efforts of project members and employees. In the process, we confirmed the potential for full-scale telework, which also reconfirmed the importance of face-to-face interaction in creating new value.

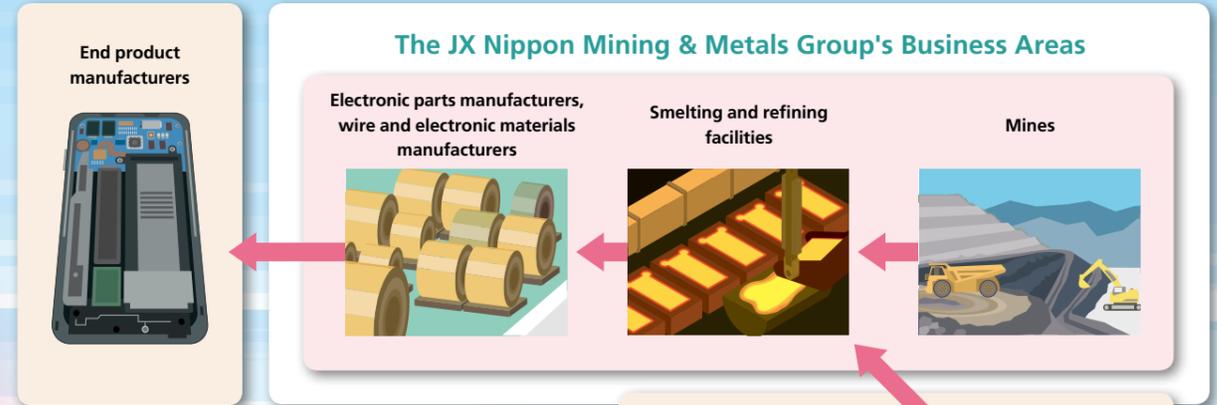
One of measures we adopted to address this issue was the quick drink service available in the lounge. To encourage employee interaction after work, we offer free beverages and a wide variety of food choices in the lounge. We will continue to improve our offices on a day-to-day basis as we stay on top of future developments, creating an attractive office space that encourages active cross-department interchange.



JX Nippon Mining & Metals Corporation
General Affairs and CSR Department
Shigefusa Muraki

Group Products All Around Us

Nonferrous metals are indispensable materials in modern life. Among them, copper has uses in a variety of fields due to its excellent electrical conductivity and ease of processing. Minor metals, such as the light, strong, and corrosion-resistant titanium, are also found in a wide range of applications from industrial use to everyday goods.



Bullet trains

Copper, with its high thermal resistance and durability against wear and abrasion, is used in overhead wires supplying power via pantograph units to bullet trains.

Electric vehicles

Compact, lightweight, and fast-charging lithium-ion batteries feature copper foil, a material with excellent conductivity.

Personal computers

Processor coolers utilize copper's excellent heat dissipation to effectively transfer generated heat to the coolant.

Smartphones

Our treated rolled copper foil can be found inside increasingly slimming smartphone bodies.

Aircraft

Titanium alloys are used in aircraft fuselages, an area demanding light weight, high strength, and high resistance to corrosion.

Medical cables

Copper is the preferred choice for medical devices with complex wires thinner than human hair.

Electric wires

Copper's strong conductivity and flexibility play key roles in the stable supply of electricity.

Automobiles

Copper is used in wire harnesses connecting in-vehicle electric wiring.

Business Portfolio

We believe the social mission of the Group is to provide a stable supply of nonferrous metal resources and materials to society, as well as to promote zero-emission recycling.

To fulfill this mission, we treat CSR activities as part and parcel of our business activities, constantly pursuing innovation in the productivity of resources and materials in each of our business areas.

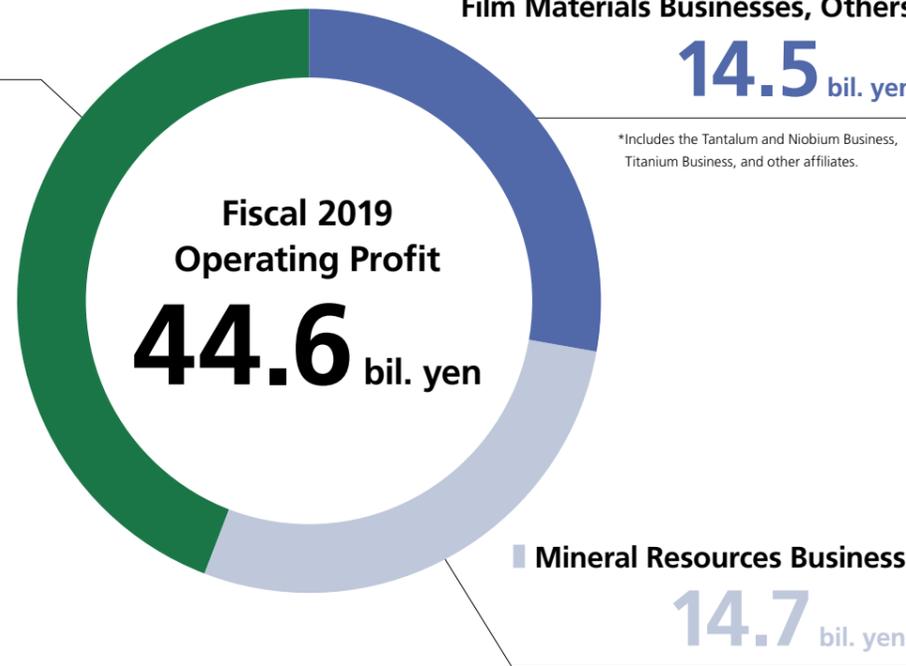
Profit Structure

Metals & Recycling Business

22.9 bil. yen

Functional Materials and Thin Film Materials Businesses, Others

14.5 bil. yen



*Includes the Tantalum and Niobium Business, Titanium Business, and other affiliates.

Mineral Resources Business

14.7 bil. yen

* Includes inventory valuation impact of -3.3 billion yen and other business and shared expenses of -4.2 billion.

* Data from fiscal 2019 is divided into the Mineral Resources Business, Metals Business, Recycling and Environmental Services Business, Functional Materials Business, Thin Film Materials Business, Tantalum and Niobium Business, and Titanium Business.

The Competitive Superiority of Our Businesses (Fiscal 2019)

Treated rolled copper foil

Approx. **80%** of global market share

Our outstanding production and quality control systems, as well as our advantageous integrated production capabilities, mean our treated rolled copper foil products boast superior flexibility, thermal resistance, strength, conductivity, and more.



Sputtering targets for semiconductors

Approx. **60%** of global market share

The key factor for sputtering targets for semiconductors is a high degree of purity; JX leverages its highly stable processes to provide these targets, whether in mass production or special development.



Equity entitled copper mine production

Approx. **200,000** tons

The Mineral Resources Business is actively involved in promising mine development projects as early as planning stages, contributing greatly to the stable supply of copper resources to Japan.



Refined copper production (by Pan Pacific Copper Co., Ltd.)

Approx. **600,000** tons per year

We use a large-scale copper smelting process to efficiently refine and reclaim gold, copper, and other nonferrous metal components from copper concentrate and recycled raw materials. By providing a stable supply of high-quality metals and creating a recycling-oriented system worldwide, we are contributing to the creation of a sustainable society.



Reclaimed gold

Approx. **7** tons per year

High-purity tantalum powder for electronic materials

No.1 in global market share

TANIOBIS GmbH is a core supplier of high-purity tantalum powder, used in applications such as high-capacity miniaturized tantalum capacitors. In this way, we contribute to the miniaturization of smartphones, computers, and other electronic products.



Titanium sponge production capacity

Approx. **25,000** tons per year

Toho Titanium Co., Ltd. manufactures titanium sponge by adding its own unique technology to the Kroll process, a method for reducing titanium tetrachloride with metal magnesium.



Business Overview

Functional Materials Business

We produce copper foil, an essential product in leading-edge electronics industries, as well as precision rolled products such as those made from copper alloys and special steels. We are also engaged in the plating and stamping of precious metals.

Thin Film Materials Business

We supply various types of sputtering targets and other products for use in advanced electronics devices, leading-edge IT equipment, medical instruments, and electric vehicles.

Mineral Resources Business

We identify mineral deposit potential in our exploration activities, and then develop mines at promising sites. We grind up extracted ores with a copper grade of around 1%, filtering usable minerals to produce copper concentrate with a copper grade of about 30%.

Metals & Recycling Business

Through the copper smelting process, we take copper concentrate and recycled raw materials reclaimed and sorted from end-of-life appliances and electronic devices, producing high-purity copper, precious metals, and rare metals. We also use incineration and melting technologies cultivated in copper smelting in zero-emissions treatment of industrial waste materials, eliminating secondary waste.

Tantalum and Niobium Business

Primarily driven by TANIOBIS GmbH, we contribute to the evolution of the IoT/AI society through stable provision of such products as metal powders used in capacitors and semiconductor materials, high-purity oxides for SAW devices and optical lenses, chlorides for semiconductors, and advanced powder materials.

Titanium Business

The Toho Titanium Group produces and supplies a variety of titanium materials made from titanium concentrate, used in aircraft, general industry, and electronic materials. In addition, the Group is engaged in the catalyst and chemicals business based on titanium smelting technology and the raw materials obtained from that process.

Functional Materials Business

Key Strategies

- Expand applications of the treated rolled copper foil and advanced copper alloy products, and improve profitability
- Strengthen production capacity to expand business

Business Overview

Employing advanced metal fabrication technology honed and perfected over years of business, the Company has become a global supplier of treated rolled copper foil, our mainstream product used in flexible printed circuit boards, as well as of precision rolled alloy products including titanium copper, Corson alloy, and phosphor bronze - all used in connectors and other parts. We are also engaged in precious metal plating and stamping, as well as other processes, on a global scale.

Review of Fiscal 2019

With the advancement of the smart society, we have worked to bolster products such as our treated rolled copper foils and advanced copper alloys, products with superior attributes and quality that achieve high flexibility, thermal resistance, as well as both strength and conductivity. These products are designed to target the various devices, communications infrastructure, and power supply markets that support evolution and efficiency in home, automotive, and industry use cases. In fiscal 2019, sales declined due to the U.S.-China trade conflict and a plateauing of the smartphone market. However, we forecasted expanding demand for our products as a result of factors such as the spread of fifth-generation communication networks (5G) and the advance of IoT/AI society in the medium to long-term. Therefore, we strengthened our business foundations and expanded our production structures, including bolstering Group manufacturing facilities.

Outlook for Fiscal 2020

Demand is expected to decline in markets such as those for smartphones and devices used in automobiles due to the spread of COVID-19. However, we forecast greater year-on-year sales of our mainstay products as a result of factors like expanding telecommuting and other Internet-related demand. In addition, although there are concerns present over such issues as intensifying trade friction between the United States and China, uncertainty about the global economy due to the spread of COVID-19, and delays in the full-scale permeation of 5G, we expect an acceleration in the advancement of data and smart societies in the medium to long-term. As such, our outlook sees increasing demand for our products, primarily centered on treated rolled copper foils, titanium copper, Corson alloy, and phosphor bronze.

With regard to the installation of facilities with boosted manufacturing capacity in fiscal 2019, these have already launched full-scale operations to meet recent increases in demand. We will continue our efforts to further strengthen our production systems.

TOPICS

Installation of New Facilities to Meet Growing Demand for Advanced Functional Materials

With the advancement of data and smart societies, there will be a greater spread of smartphones, tablets, and other mobile devices, with the subsequent explosive growth in data usage resulting in development of communications infrastructure; these and other factors are expected to drive demand for our advanced functional materials. In order to respond to such growing demand, we have installed new facilities for our treated and rolled copper foil and advanced copper alloys. These facilities have been implemented in all processes, ranging from surface roughening treatment lines to melting and casting to rolling mills, annealing furnaces, and more.

We will continue to flexibly increase our capacity, meet market expectations, and contribute to the achievement of the SDGs advocated by the United Nations by supplying advanced functional materials, which are indispensable to the realization and development of the data society.



Manufacturing equipment for treated rolled copper foils and advanced copper alloy (Kurami Works)

Thin Film Materials Business

Key Strategies

- Establish a dynamic supply system to meet demand
- Promote use of digital technologies for greater efficiency in manufacturing processes

Business Overview

Employing world-class nonferrous metal manufacturing technologies, we are a supplier of a wide variety of sputtering targets, compound semiconductor materials, high-purity metals, and surface treatment. These and many other materials and services, provided on a global scale, find use cases in end products such as advanced devices, leading-edge IT equipment, medical instruments, and electric vehicles.

Review of Fiscal 2019

In recent years, as society has incorporated IoT and AI to greater degrees, demands have grown for devices utilizing semiconductors to be faster and consume less power. Amid this situation, demand remained sluggish in fiscal 2019 as markets corrected from rapid growth through fiscal 2018 and as trade frictions between the United States and China hindered markets. Despite this, we saw medium to long-term demand on the rise driven by factors such as investments in fifth-generation communication networks (5G) and growth in datacenter-related markets as a result of future evolution toward IoT and cloud technologies. To meet these demands and continue to provide a stable supply of high-quality products, we made investments at Isohara Works, a core location, investing to develop technology for advanced materials used in advanced fields, as well as to expand production of the same. In this way, we have advanced the construction of a system that will aid us in realizing future sustainable growth.

Outlook for Fiscal 2020

In fiscal 2020, there is uncertainty about the economic environment as a result of such impacts as the U.S.-China decoupling and Japan-South Korea relations. However, despite concerns about a slowdown in the electronic device market due to the spread of COVID-19, there is expected to be a firm uptrend centered on the semiconductor sector because of greater telecommuting and demand from stay-at-home workers. Further, in the medium to long-term, growing needs can be expected for advanced materials as a result of 5G, cloud and edge computing, the shift toward electric and automated technology in mobility, and the transition to the new normal. Therefore, we will strengthen the development of various advanced materials required by our customers, anticipating a myriad of changes in markets and preparing for necessary capacity expansions with a view to further demand growth going forward.

TOPICS

Expanding production capacity focused on targets for copper and copper alloys

Sputtering targets used for semiconductors are a mainstay product for the Thin Film Materials Business. Demand is expanding for these advanced materials, indispensable for improving performance in leading-edge electronic devices, and we believe this trend will only gain momentum with the future evolution toward IoT and AI. In order to respond to this growing demand, we have implemented equipment to increase production capacity by approximately 30% compared to fiscal 2017, centered on our processes for targets used with copper and copper alloys.

We will continue to flexibly increase our capacity, meet market expectations, and contribute to the achievement of the SDGs advocated by the United Nations by supplying advanced functional materials, themselves indispensable to the realization and development of the data society.



Melting furnaces, equipment used for semiconductor-use sputtering targets (Isohara Works)

Mineral Resources Business



Key Strategies

- Achieving greater competitiveness through greater utilization and cost improvements of the Caserones Copper Mine
- Examining and promoting new and existing projects with a view to supplying raw materials to the midstream and downstream businesses

Business Overview

Since acquiring equity at the Caserones Copper Mine in 2006, the Group has taken a central role in its development, with copper concentrate production beginning in May 2014. We have also invested in some of the world's largest copper mines, including Los Pelambres and Escondida. Our equity entitled copper mine production totaled around 210,000 tons in fiscal 2019.

Review of Fiscal 2019

In April of fiscal 2019, we merged the Caserones Division and Resources Development Department, building a system for efficient and unified management of the Mineral Resources Business. At the Caserones Copper Mine, we brought in outside expertise to promote implementation of automatic control programs, and continued to focus on cost improvement efforts. Though production was curtailed due to riots in Chile in October, operations were favorable for the full year of fiscal 2019, and we once again achieved an operating profit this year, following fiscal 2018's profit. In addition, we continued operations at low cost at the Los Pelambres Mine and Escondida Mine, copper mines we have invested in.

Outlook for Fiscal 2020

With the onset of COVID-19, at the Caserones Copper Mine and other mines in which we have invested, we are working to maintain operating levels and production volumes whilst limiting personnel counts to prevent the spread of the virus. In addition to achieving both infection prevention measures and the continuation of stable operations, we will establish operations systems at the Caserones Copper Mine in the COVID and post-COVID eras, using greater utilization and cost improvements in a bid to quickly secure profitability for the full year. In addition, we will examine and promote research and development, including as it pertains to minor metals and silicified ore, for stable supply of raw materials based on future needs in our midstream and downstream businesses. At the Los Pelambres Copper Mine, we continue our work that began in November 2018 to bolster facilities for increased production.

TOPICS

Promoting automation in ore processing at the Caserones Copper Mine

One aspect of our measures to improve operation of the Caserones Copper Mine is our activities promoting automation leveraging AI and IoT technologies. In these activities, we aim to improve operational efficiency by automating various production processes at the mine. In fiscal 2019, we developed and introduced an advanced control program, realizing more stable operation in the fine grinding of ore (SAG mill). In addition, in the (flotation) process of separating copper from ore, optimizing our control of this process contributed to greater copper yields, one of our KPIs in mine operation. We plan to continue these activities going forward, promoting those that will lead to improved mine operations. These may include further evolution and automation of controls of the aforementioned processes, as well as automation of other processes and equipment maintenance.



Advanced control program for the Caserones Copper Mine

Metals & Recycling Business



Key Strategies

- Optimizing raw material composition at the Saganoseki Smelter & Refinery
- Achieving greater differentiation in our industrial waste detoxification business

Business Overview

We are able to efficiently use our smelting processes to take copper concentrate and recycled raw materials and supply high-quality copper, precious metals, and other metals. These products are then provided in a stable fashion in Japan and parts of Asia. In addition, our detoxification business for industrial waste applies incineration and melting technologies cultivated in smelting. This business is unique for its zero-emission treatment that eliminates secondary waste that would otherwise require landfill disposal, contributing to pollution prevention in Japan.

Review of Fiscal 2019

■ **Metals Business:** Sales of various metals products were generally favorable, but international market prices for copper remained on a downward trend due to the effects of U.S.-China trade frictions and the spread of COVID-19. In addition, purchase terms for copper concentrate remained at poor levels with tightening balance of supply and demand, with an ongoing severe business environment overall.

■ **Recycling and Environmental Services Business:** Collection of recycled raw materials trended favorably with Chinese import restrictions and proactive marketing activities overseas.

■ **Transition to new structure:** Amid these circumstances, we newly established the Metals & Recycling Division to collectively manage both businesses in April 2020. At the same time, we transferred the Saganoseki Smelter & Refinery, a core operating location for both of these businesses, from Pan Pacific Copper Co., Ltd. to JX Metals Smelting Co., Ltd., a wholly owned subsidiary of the Company. This response has established a structure where we can pursue a total

maximization of both businesses centered on the Saganoseki Smelter & Refinery and founded in our company strategy.

Outlook for Fiscal 2020

With minor impact on raw material procurement volumes from the spread of COVID-19, we will continue operations smoothly at the Saganoseki Smelter & Refinery and other locations. However, purchase conditions will remain stagnant for copper concentrate as falling demand for metals products becomes evident. Under these circumstances, we are taking measures to elicit positive impact from our transition to the new structure as soon as possible. At the Saganoseki Smelter & Refinery, in order to optimize raw material composition (increase recycled raw materials ratio), we decided to add pretreatment equipment (kiln furnace) and establish a location away from the smelter for receiving recycled raw materials. Furthermore, for greater collection of recycled raw materials, we are increasing the capacity of Nikko Metals Taiwan's Changpin Recycle Center.

TOPICS

Leveraging unique traits of each location to differentiate our industrial waste detoxification business

The Group conducts zero-emissions detoxification treatment of industrial waste materials at five operating locations*. Each location, excluding JX Nippon Takasho Co., Ltd., has different types of treatment equipment (incineration and melting furnaces), and we use the unique traits of each of these to differentiate in the objects we can treat. JX Nippon Tomakomai Chemical Co., Ltd. provides detoxification treatment services for low-concentration PCB waste, which requires proper treatment under the law until 2027. Meanwhile, JX Nippon Environmental Services Co., Ltd. treats asbestos waste, an agent causing lung cancer.

* JX Nippon Tomakomai Chemical (Hokkaido), the Shirakawa Plant of JX Nippon Takasho (Fukushima), JX Nippon Environmental Services (Ibaraki), JX Nippon Mikkaichi Recycle (Toyama), and JX Nippon Tsuruga Recycle (Fukui)



Z furnace at JX Nippon Environmental Services

Tantalum and Niobium Business



Key Strategies

- Improving productivity and quality for greater competitiveness in existing businesses
- Generation of items and acceleration of commercialization in new businesses for the expansion of our business foundations

Business Overview

TANIOBIS GmbH (hereinafter "TANIOBIS"), our Germany-based Group company, is one of the world's leading manufacturers of tantalum and niobium materials, with manufacturing and sales locations all around the globe. Primarily driven by TANIOBIS, we contribute to evolution of the IoT/AI society through stable provision of such products as metal powders used in capacitors and semiconductor materials, high-purity oxides for SAW devices and optical lenses, chlorides for semiconductors, and advanced powder materials.

Review of Fiscal 2019

In our existing businesses, sales of some products were sluggish compared to the previous year primarily due to inventory adjustments by customers. However, during this period, we progressed several activities to strengthen our business foundations and competitiveness by proactively taking actions such as considering and implementing productivity improvement measures, and advancing quality improvements based on customer needs. In new business development, we are also working to expand our business foundations by promoting activities for product development and synergizing through stronger cooperation between TANIOBIS and JX, especially via Isohara Works. Through these activities, we are meeting the various demands of several customers and creating steady results ahead of market launch. Furthermore, we have strengthened our business management system by merging what is now TANIOBIS with JX Metals Deutschland GmbH, its former management company, to streamline its organization and accelerate decision-making.

Outlook for Fiscal 2020

Though there is growing uncertainty regarding the global economy due to impact from such factors as U.S.-China trade frictions and the spread of COVID-19, demand is expected to grow in the field of electronic parts, where tantalum and niobium are used. This growth of demand is to happen due to the spread of technologies such as fifth-generation communication networks (5G) and advanced driver assistance systems (ADAS).

Under these circumstances, we are actively working to improve competitiveness of existing businesses and to develop new businesses through such activities as sharing our business expertise with TANIOBIS and conducting joint marketing in Europe. Particularly in new businesses, in order to rapidly build future revenue pillars, we will seek to build a framework for market entry without delay, by proactively leveraging Group-held technologies and market information, shifting resources from existing to new businesses, and encouraging collaboration with external partners such as universities and research institutions.

TOPICS

"H. C. Starck Tantalum & Niobium GmbH" Becomes "TANIOBIS GmbH"

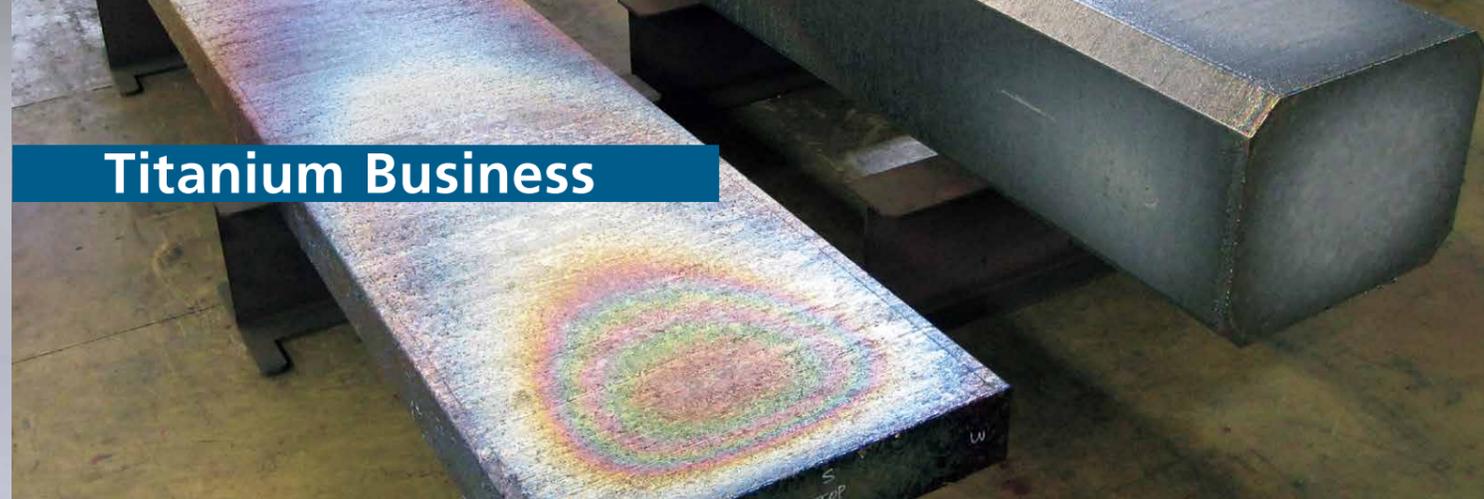
On July 1, 2020, TANIOBIS's company name was changed from H.C. Starck Tantalum & Niobium GmbH to TANIOBIS GmbH. The name "TANIOBIS" combined the names of tantalum and niobium, the two core elements of its business. Appended to the end of this fusion is "IS," short for "Innovative Solutions," signifying our desire to play a central role in realizing future innovation.

Under this new brand, TANIOBIS will further accelerate the proposal of innovative solutions by providing tantalum and niobium-focused, advanced power materials, which are indispensable for the realization of IoT and AI societies.

The new TANIOBIS logo



Titanium Business



Key Strategies

- Strengthening revenue base by focusing investment in growth fields
- Rapidly generating revenue from the Saudi Arabia joint venture firm (ATTM)
- Generation and promotion of new businesses

Business Overview

Titanium, a light, strong metal resistant to corrosion, has wide-ranging uses, from aircraft to desalination plants, electric power plants, and other applications. Group company Toho Titanium Co., Ltd. is engaged in the smelting of titanium, and leverages related materials and technologies to manufacture such products as catalysts (for propylene polymerization) and chemicals (e.g. materials for electrodes and dielectrics in multilayer ceramic capacitors).

Review of Fiscal 2019

Our titanium business enjoyed strong demand from key overseas customers, with overall sales trending well despite slowdowns in demand for general industry applications.

In regard to demand for products in our chemicals business, there was a slowdown especially for electronic component materials (e.g. ultra-fine nickel) due to factors such as sluggish smartphone sales. However, in the catalyst business, sales remained strong for catalysts for propylene polymerization.

Outlook for Fiscal 2020

In our titanium business, despite unprecedented plunges in demand for titanium used in aircraft with the COVID-19-driven sharp drop in air passengers, we will continue to secure sales volume through strengthening alliances with our key customers and make efforts to reduce production costs, including leveraging AI and IoT. In the catalyst business, we will improve existing products and develop new ones that meet customer needs. In the chemicals business, full-scale recovery of demand for fifth-generation communications (5G) is expected to occur in the latter half of the fiscal year. In order to meet that demand, we are currently constructing a plant for ultra-fine nickel, which is to begin operations in April 2021. Going forward in the catalyst and chemicals businesses, we will pursue further business expansion and seek growth that outperforms the market.

TOPICS

Shipping Titanium Sponge to Japan A Joint Titanium Sponge Manufacturing Venture in the Kingdom of Saudi Arabia

Our new titanium sponge plant built at Yanbu Industrial City in the Kingdom of Saudi Arabia launched operations in September 2019, with a capacity of 15,600 tons of sponge production per year. This plant is modeled on Toho Titanium's Wakamatsu Plant. It produces titanium sponge using titanium tetrachloride supplied from an adjoining titanium oxide plant. For the time being, its produced sponge is shipped to Toho Titanium's Yahata Plant, where it is melted down and sold as titanium ingots. Going forward, we will continue to provide stable quality and supply, aiming to make this a factory with outstanding cost competitiveness worldwide.



Company Name:	Metal Industries Cluster and Toho Titanium Metal Company Limited
Head Office:	Yanbu, Saudi Arabia
Business Lines:	Manufacture and sale of titanium sponge
Capital:	450 million Saudi riyal (equivalent to 120 million US dollars)
Established:	February 29, 2016
Fiscal Closing Date:	December 31
Equity Shares:	Toho Titanium - 35%, Advanced Metal Industries Cluster Company Limited - 65%

CSR Roots

The history of the JX Nippon Mining & Metals Group began with the opening of the Hitachi Mine in 1905 by our founder, Fusanosuke Kuhara.

We endeavored to resolve the smoke pollution problem at the Hitachi Mine, committed to a stance of growing with the local community, while also fostering a culture of respect for our employees.

This is just one example of how we have stayed ahead of the times.

This approach to anticipating the future is something that has become a part of our DNA to this very day.

Working With the Local Community in Addressing Pollution

At the time, the technology to recover the sulfur dioxide gas generated during smelting did not exist. Smoke from the factory spread to the surrounding forests and crops. Although there were no laws to limit pollution, the company's first general affairs section chief, Yataro Kado, provided financial compensation to local residents.

Along with the compensation, the company made efforts to control the pollution. However, it was difficult to diffuse and dilute the flue gas with the technology at that time. Repeated attempts continued to fail. Kuhara proposed the construction of a large chimney that would be the tallest in the world (at that time) to spread the smoke exhaust over a wider area and mitigate the pollution. In 1914, with an enormous labor force of about 37,000 people, the company completed a large chimney 155.7 meters in height, drastically reducing pollution from the factory. Kuhara launched a large-scale tree planting project to restore greenery to the devastated mountains. The company planted a total of about 1,200 hectares of trees, which included the highly smoke-resistant Oshima cherry tree.

Creating an Environment Where Employees Work With Peace of Mind

Kuhara set out to create an environment where employees can work with peace of mind, based on the idea that people are assets for companies. In addition to housing for families, the company aided in comprehensive town planning, including schools, hospitals, railroads, entertainment facilities, and more.

Kado, who embraced that idea, aimed for harmony among employees not only in the workplace, but also in company housing. He never stopped thinking about the happiness of all employees while encouraging simple and diligent work. This integrated environment of work and housing fostered a culture of respect and sense of solidarity among the employees. This approach, called the *Ichizan Ikka* (one mountain, one house), is still used by the group, as we maintain an open work environment in which employees freely exchange opinions regardless of job title, age, or gender.

SPECIAL FEATURE

A Town and a Tall Chimney Invited to the 6th Silk Road International Film Festival

The movie *A Town and a Tall Chimney* is based on the novel of the same name by Mr. Jiro Nitta. The movie depicts the true story of a community region and companies striving for coexistence and coprosperity, while overcoming smoke pollution. The movie premiered in China on October 15, 2019, at the 6th Silk Road International Film Festival held in Fuzhou, Fujian Province. JX Nippon Mining & Metals special director Oi, along with the deputy mayor of Hitachi City, director Katsuya Matsumura, and Asato Ide, who starred in the film, were invited to attend the premiere.

The invitees sponsored a panel discussion after the movie screening held on the 19th. On the following day, special director Oi and director Matsumura gave lectures in front of a large audience at a forum on the theme of the movie and regional revitalization. In his lecture, Oi explained that our current CSR initiatives are based on what the founder of our company implemented more than 100 years ago. He then explained the spirit at the heart of the film that is embedded in our DNA: Doing your best for people you love and persisting until the end. He also conveyed to the audience how JX Nippon Mining & Metals engages in a wide range of human resources development.



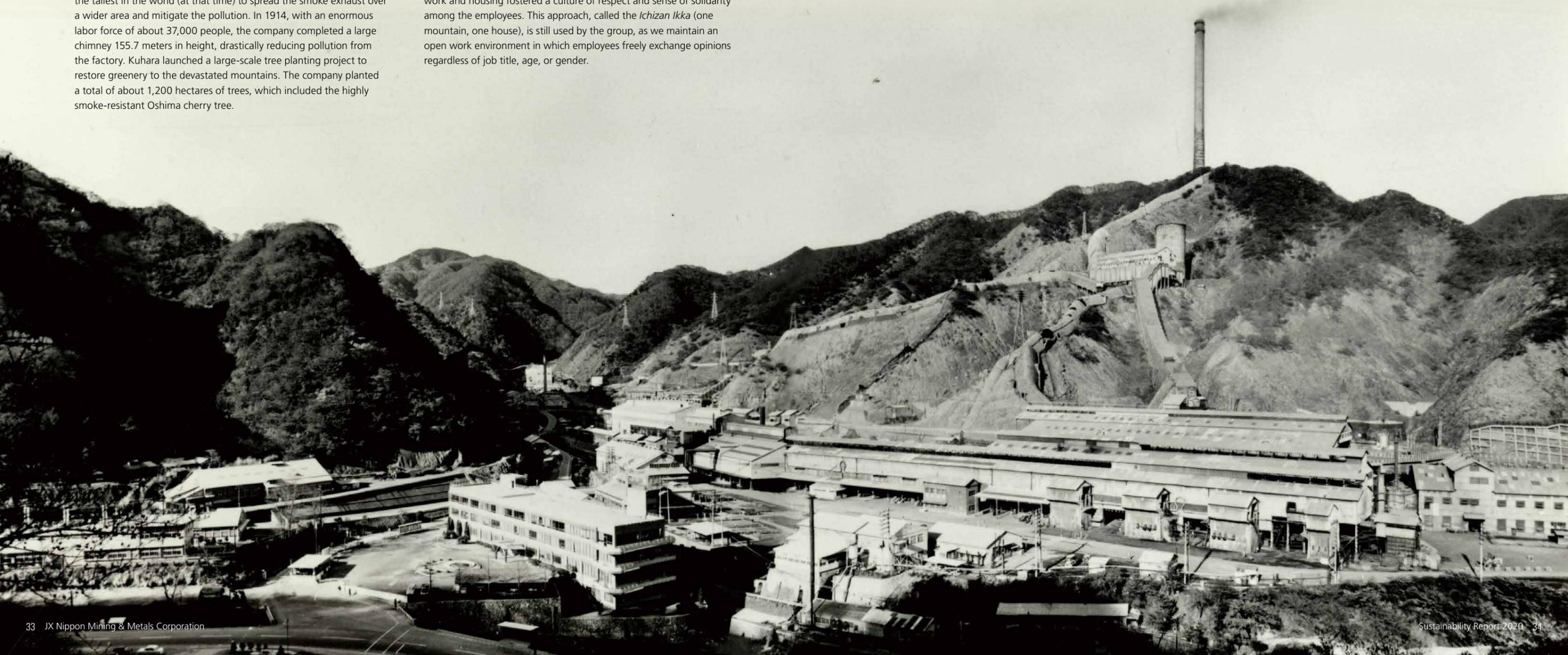
Commemorative Photo After Stage Greeting



Lecture by Special Director Oi



Media Interviews After Lecture Presentations



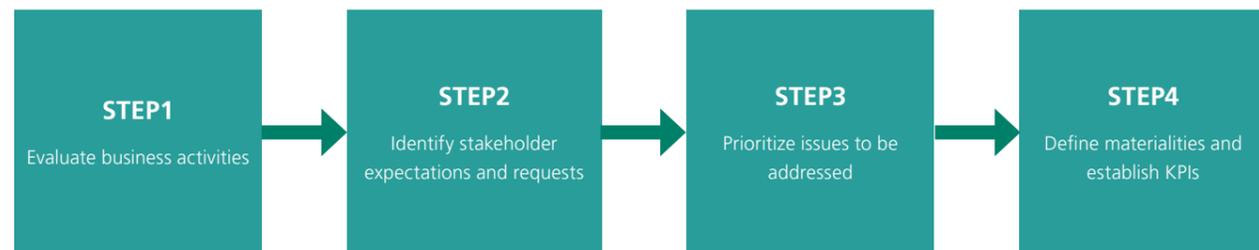
JX Nippon Mining & Metals Group Materialities

In light of changes in the business environment and social trends, the group reviewed the important CSR matters (materialities) that we first identified in fiscal 2018. For each new material, the group plans to set and operate according to key performance indicators (KPIs), while the CSR Committee measures and evaluates progress.

	Materiality	Initiatives	Related SDGs
ESG	Contribute to Environmental Conservation	· Contribute to global environmental conservation by creating a carbon-free and recycling-oriented society.	12 RESPONSIBLE CONSUMPTION AND PRODUCTION, 13 CLIMATE ACTION
	Provide Advanced Materials That Support Lives and Lifestyles	· Advance development of new technologies and contribute to an IoT / AI society.	7 AFFORDABLE AND CLEAN ENERGY, 8 DECENT WORK AND ECONOMIC GROWTH, 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
	Create Attractive Workplaces	· Create a healthy, safe, and peaceful working environment for all employees. · Create an environment in which diverse employees feel fulfilled and fully express their talents.	3 GOOD HEALTH AND WELL-BEING, 8 DECENT WORK AND ECONOMIC GROWTH, 10 REDUCED INEQUALITIES
	Respect Human Rights	· Conduct business activities that respect the human rights of all throughout the supply chain, including local community residents, customers, employees, and business partners.	5 GENDER EQUALITY, 10 REDUCED INEQUALITIES
	Promote Community Involvement and Development	· Foster relationships of trust with local communities through community-based social contribution activities and communications in every business location in Japan and abroad.	11 SUSTAINABLE CITIES AND COMMUNITIES, 15 LIFE ON LAND
G	Strengthen Governance	· Ensure sound, transparent business management via thorough compliance and risk management activities.	—

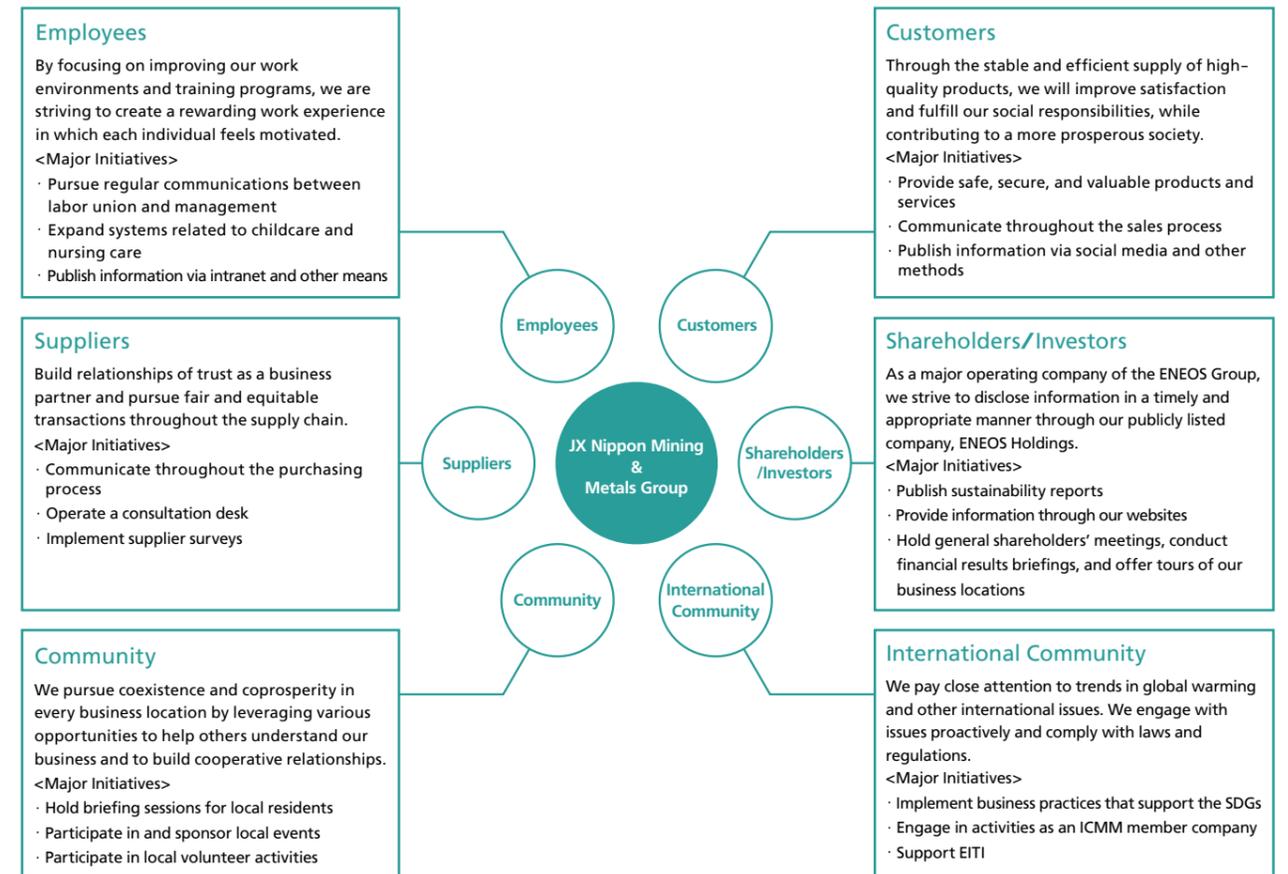
Materialities Review Process

In the past, we defined materialities based on international guidelines (GRI Standards, etc.) and domestic and overseas initiatives (SDGs, Corporate Behavior Charter, etc.). We believe these issues are still applicable to the current social situation. However, to achieve better support and pursue materialities both inside and outside the group, we believed a higher level of effort was required. Therefore, we decided to revise the definitions of our materialities and establish KPIs.



Stakeholder Engagement

The group believes that understanding the demands of various stakeholders accurately, responding in good faith, and building relationships of trust will lead to an increase in corporate value. To this end, we take advantage of opportunities for dialogue with each stakeholder and engage in active two-way communications.



CSR Promotion System

Structure of CSR councils, committees, and subcommittees

The group CSR Committee is an advisory body to the president that formulates basic policies and action plan relating to CSR activities. The committee also assesses progress in plans implementation and group performance. The president of the company serves as chair of the committee, which consists of members of the company management. In principle, the committee meets twice a year to formulate CSR activity plans, review activity status, and provide feedback (2019 meeting dates: May 16th and November 26th). Under the CSR Committee are the Compliance Committee, Safety and Environment Committee, and Citizenship Committee. These committees devise plans and review the status of activities in their respective areas of responsibility.

CSR Promotion Manager

We assign local CSR promotion managers to ensure the basic policy, promotion system, and activity plan for CSR activities are developed according to the conditions of each business site and company. In addition to formulating specific CSR plans, CSR promotion managers report to the CSR Promotion Manager meeting, which is held twice a year. The meeting functions as a place for information exchange between attendees.

CSR Promotion System



Materiality 1

Contribute to Environmental Conservation

Well aware of how its business activities can impact the environment, the Group endeavors to mitigate environmental risk at all stages of those activities. To that end, we decided on a Basic Environmental Policy that calls for contribution to environmental conservation on a global scale through development of technologies that improve resource and material productivity. We furthermore seek to reduce the environmental impact of our business pursuits at every stage in our supply chains. Our Basic Environmental Policy goes beyond compliance with environmental regulations, calling for development of energy-saving technology to help prevent global warming. We make clear our management of environmental targets in our Medium-Term Action Plan and elsewhere, endeavoring to reduce our environmental burden each fiscal year.

Basic Environmental Policy of the JX Nippon Mining & Metals Group

As a comprehensive manufacturer of nonferrous metal resources and materials, the JX Nippon Mining & Metals Group is carrying out the following initiatives in accordance with the basic policy of contributing to environmental conservation on a global scale through innovation in the productivity of resources and materials.

1. Promotion of technology development that will improve productivity of resources and materials

We will work to utilize resources effectively by developing technologies that will enable higher yield and extraction percentage, quality improvement, shorter process steps, recycling, and energy saving, as well as by developing environment-friendly materials and products.

2. Active engagement in environmental conservation

Going beyond compliance with environmental regulations, we will strive to further reduce the impact of our operations on the environment. To this end, we will work to develop technologies for environmental conservation and work actively and continuously for environmental conservation.

3. Elimination of waste in operations

We will work to eliminate waste and save resources and energy at every stage of our operations.

4. Enhancement of employees' awareness of environmental conservation

We will work to raise each employee's awareness of environmental conservation through provision of environmental management education.

5. Disclosure of information

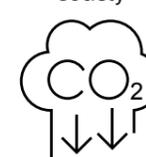
We will disclose the state of our environmental conservation-related operations in an active and fair manner in order to further enhance communication with stakeholders.

Main Initiatives in Fiscal 2019

Environmental Management



Establishing a Decarbonized Society



Establishing a Recycling-Oriented Society



Fiscal 2020 KPIs

- Promote initiatives for a total GHG emissions reduction of 50% by fiscal 2040 vs. fiscal 2018 and net-zero emissions by fiscal 2050
- Increase percentage of raw materials that are recycled, expand number of commodities made with recycled raw materials
- Landfill disposal rate (fiscal 2020: less than 1%)



JX Nippon Mining & Metals Group Action Plan for Environmental Conservation

We have drawn up the Action Plan for Environmental Conservation based on the Basic Environmental Policy and are following that to advance the Group's environmental protection initiatives. Following is an excerpt of the Action Plan for Environmental Conservation.

1. Approach to environmental conservation

(1) Environmental conservation organization

The general manager of the Company's Environment & Safety Department is in charge of coordinating and promoting environmental conservation efforts in the Group and promotes environmental conservation comprehensively. Responsible persons at each operating site work to maintain and enhance environmental conservation and avert environmental risk at their sites. At the same time, we are aiming to enhance the effectiveness of the Environment Measures Committee and to advance mutual understanding between labor and management regarding environmental conservation.

(2) Environmental management systems

Through Group-wide commitment, from top management to frontline employees, and through appropriate implementation of ISO 14001-compliant environmental management systems, we are continuously strengthening environmental conservation measures and working to reduce environmental risks.

(3) Environmental auditing

Responsible persons at each operating site review the results of internal audits to verify their site's environmental management and compliance with environmental regulations. Additionally, the Environment & Safety Department's environment and safety audit team conducts periodic environmental audits of each operating site, detects and identifies problems as well as areas requiring remediation from an environmental management perspective, and continuously strives to improve accident prevention and environmental conservation measures.

2. Measures to be taken

The Group complies with environmental regulations and in addition takes the following initiatives to minimize the environmental impact of the Group's business activities.

(1) Responding to individual issues

1) Help prevent global warming, 2) promote resource efficiency and recycling, 3) reduce waste materials, 4) manage chemical substances, 5) maintain biodiversity, 6) provide recycling services, 7) develop environment friendly technologies and products, and introduce new technologies, 8) promote green purchasing

(2) Training, public relations initiatives, and social activities

Promote 1) training, 2) public relations, and 3) social activities

Environmental Management Systems

The JX Nippon Mining & Metals Group has established environmental management systems in line with ISO 14001 standards for ensuring achievement of the Action Plan for Environmental conservation, which was drawn up reflecting the Basic Environmental Policy. A multi-level organizational structure has been created, including various committees and subcommittees, in which everyone, from senior management headed by the president to employees at operating sites and affiliated companies, is working together to promote environmental conservation and avoid environmental risk. No environmental accidents occurred in the Group in fiscal 2019.

3. Environmental conservation at our overseas businesses

(1) Environmentally friendly operations in our overseas business activities

To ensure an effective approach to environmental conservation at overseas operating sites, we ensure that all concerned at our business locations understand environmental considerations and observe environmental regulations.

(2) Environmentally friendly importing and exporting

In addition to adhering to the Basel Convention, we take steps to ensure that our exporting and importing partners do not harm the environment.

4. Emergency response measures

(1) Emergency response manuals and drills

Reporting procedures are in place at the Group-wide level, along with those at the business-group and operating-site levels. Additionally, emergency response manuals are reviewed and updated to minimize the environmental impact of accidents, and regular emergency drills are carried out.

(2) Response to environmental accidents

Should an environmental accident occur in business activities or due to a product defect, we will take steps to minimize the environmental impact of such an accident by acting in accordance with emergency response manuals and procedures.

Operating Sites That Have Obtained ISO 14001 Certification (as of March 31, 2020)

Domestic

Hitachi Works (including Hitachi Refinery of Pan Pacific Copper Co., Ltd. and JX Nippon Environmental Services Co., Ltd.); Copper Foil Dept. of Hitachi Works (including Ichinoseki Foil Manufacturing Co., Ltd.); Isohara Works; Kurami Works (including JX Nippon Coil Center Co., Ltd. and the Kurami Office of JX Metals Trading Co., Ltd.); Saganoseki Smelter & Refinery of Pan Pacific Copper Co., Ltd. (including Japan Copper Casting Co., Ltd., and Nissho Kou-un Co., Ltd.); Hibi Smelter of Pan Pacific Copper Co., Ltd. (including Hibi Kyodo Smelting Co., Ltd. and Hibi Smelting Logistics Co., Ltd.); JX Nippon Tomakomai Chemical Co., Ltd.; JX Nippon Tsuruga Recycle Co., Ltd.; JX Nippon Mikkaichi Recycle Co., Ltd.; Headquarters & Chigasaki Plant of Toho Titanium Co., Ltd. (including its Kurobe Plant and Wakamatsu Plant); JX Metals Precision Technology Co., Ltd. (Esashi Works, Tatebayashi Works, Nasu Works, and Kakegawa Works); Headquarters, Amagasaki Office, and Takatsuki Plant of JX Metals Trading Co., Ltd.; and Shirakawa Plant of JX Nippon Takasho Co., Ltd.

Overseas

JX Nippon Mining & Metals Philippines, Inc.; JX Nippon Mining & Metals USA, Inc.; Materials Service Complex Malaysia Sdn. Bhd.; JX Nippon Mining & Metals Korea Co., Ltd.; Nikko Fuji Precision (Wuxi) Co., Ltd.; Longtan Works of Nikko Metals Taiwan Co., Ltd.; Nippon Mining & Metals (Suzhou) Co., Ltd.; JX Nippon Mining & Metals (Dongguan) Co., Ltd.; and H.C. Starck Tantalum & Niobium GmbH (now TANIJOBIS GmbH)

Environmental Targets and Results

The JX Nippon Mining & Metals Group sets environmental targets that guide its environmental conservation initiatives. Fiscal 2016 to 2019 environmental targets and initiative results are outlined below.

Long-term targets

(1) Help prevent global warming

By fiscal 2030, reduction in CO₂ emissions by 18% from fiscal 1990 levels (a target set after the Japanese government's new targets were incorporated in the Paris Agreement at COP21 in 2015)

(2) Reduce waste materials

By fiscal 2030, ratio of non-value-bearing waste volume of less than 0.5%

Results for the 4th Medium-Term Action Plan (fiscal 2016 to 2019)

Target area	Environmental targets	Fiscal 2016	Fiscal 2017	Fiscal 2018	Fiscal 2019
Energy and CO ₂	Cumulative allowable CO ₂ emissions in Japan of less than 4.07 million tons for the four years from fiscal 2016 to fiscal 2019*1	853 thousand tons (Target achieved)	858 thousand tons (cumulative 1.71 million tons) (Target achieved)	900 thousand tons (cumulative 2.61 million tons) (Target achieved)	888 thousand tons (cumulative 3.50 million tons) (Target achieved)
Waste	Ratio of non-value-bearing waste volume**2 of less than 0.7%	0.5% (Target achieved)	0.4% (Target achieved)	0.4% (Target achieved)	0.5% (Target achieved)
Environmental management	Compliance with revisions to ISO 14001 (Environmental Management Systems) (by fiscal 2018), and scheduled implementation of compliance inspections and environmental auditing	Comprehensive compliance inspections performed at 9 operating sites, along with environmental and safety audits at 11 sites (Target achieved)	Compliance with revisions to ISO 14001 (Environmental Management Systems) completed by 10 operating sites, comprehensive compliance inspections performed at 12 operating sites, and environmental and safety audits at 12 sites (Target achieved)	Compliance with revisions to ISO 14001 (Environmental Management Systems) completed by 6 operating sites, comprehensive compliance inspections performed at 17 operating sites, and environmental and safety audits at 11 sites (Target achieved)	Comprehensive compliance inspections performed at 12 operating sites, along with environmental and safety audits at 12 sites (Target achieved)

As part of the 4th Medium-Term Action Plan, data on energy and CO₂ (domestic only) as well as waste is collected for the operating sites listed below, where the total annual amount of energy consumption is equivalent to 1,500 kiloliters of crude oil or more.

Domestic

Hitachi Works (HMC Dept., Copper Foil Dept.); Isohara Works; Kurami Works; Pan Pacific Copper Co., Ltd. (Saganoseki Smelter & Refinery, Hitachi Refinery); Hibi Kyodo Smelting Co., Ltd. (Tamano Smelter); Japan Copper Casting Co., Ltd.; JX Nippon Environmental Services Co., Ltd.; JX Nippon Tomakomai Chemical Co., Ltd.; JX Nippon Mikkaichi Recycle Co., Ltd.; JX Nippon Tsuruga Recycle Co., Ltd.; JX Metals Precision Technology Co., Ltd. (Esashi Works, Tatebayashi Works, Kakegawa Works); and Toho Titanium Co., Ltd. (Headquarters & Chigasaki Plant, Yahata Plant, Wakamatsu Plant, Kurobe Plant)

Overseas

JX Nippon Mining & Metals Philippines, Inc.; Nippon Mining & Metals (Suzhou) Co., Ltd.

*1 We are working to reduce annual allowable emissions from the above-listed domestic operating sites in stages year by year, starting with the 13.1% reduction from the fiscal 1990 level by fiscal 2015 that was targeted in the 3rd Medium-Term Action Plan, and aiming for an 18% reduction from the fiscal 1990 level by fiscal 2030. Emission reduction targets were accordingly set for a four-year period. Emissions from fuel usage are calculated using the coefficients stipulated by the Act on Promotion of Global Warming Countermeasures. Emissions from electricity usage are calculated using the coefficient of 0.417 tons of CO₂ per megawatt-hour (the actual figure for fiscal 1990 as given in the Environmental Action Plan of the Federation of Electric Power Companies of Japan) to reflect the efforts made by individual operating sites.

*2 Ratio of non-value-bearing waste volume = (Volume incinerated + Volume of final disposal) / Total volume of waste and sellable materials generated

Compliance with Environmental Laws and Regulations

Through the effective operation of environmental management systems at operating sites and affiliated companies, the Group is ensuring compliance with environmental laws and regulations. The Environment & Safety Department in the Head Office monitors and supervises the state of compliance and reports to the CSR Committee through the Safety and Environment Committee. At their annual meeting, environmental management supervisors work to strengthen the compliance system by providing information on legal and regulatory trends and reporting on the status of compliance efforts at each operating site. We additionally reinforce employees' knowledge of laws and regulations by holding rank-specific education and training regularly at the Head Office and operating sites.

In fiscal 2019, there were no adverse dispositions from regulatory authorities (license revocation, orders to cease operations, orders to cease use of facilities, orders for improvement, fines, etc.) for violations of environmental laws and regulations.

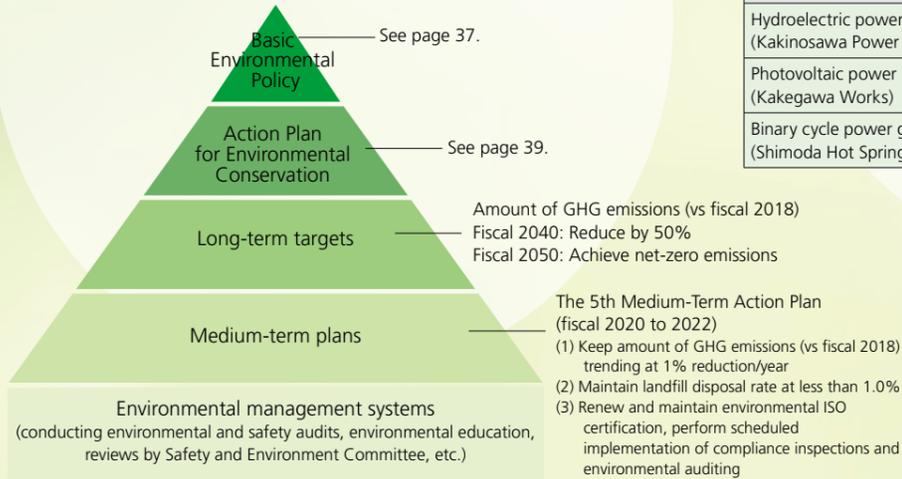
Environmental and Safety Auditing

Individual operating sites implement internal environmental audits at least once a year. In addition, they periodically undergo environmental and safety audits by the Environment & Safety Departments of the Head Office and of Pan Pacific Copper. Audits were conducted at 12 sites in fiscal 2019.

Activities in the areas of health and safety and environmental conservation are planned, promoted, and reviewed by the Safety and Environment Committee, an organization under the CSR Committee. The Safety and Environment Committee meets once every six months.

Initiatives for Establishing a Decarbonized and Recycling-Oriented Society

The JX Nippon Mining & Metals Group's Basic Environmental Policy calls on us to help promote the establishment of a decarbonized and recycling-oriented society. We make clear our management of environmental targets in our Medium-Term Action Plan and elsewhere and endeavor to reduce our environmental burden.



Making Use of Renewable Energy



The Group generates hydroelectric power at the Kakinosawa Power Plant and binary cycle power using the heat from hot springs at Shimoda Hot Springs. We sell the power from the two facilities to specified-scale electricity utilities. Additionally, photovoltaic power generation facilities are in operation at the Kakegawa Works of JX Metals Precision Technology.

Renewable Power Generation in Fiscal 2019

(thousand kilowatt hours)

	Total generated electricity	Generated electricity sold
Hydroelectric power (Kakinosawa Power Plant)	23,340	23,293
Photovoltaic power (Kakegawa Works)	648	642
Binary cycle power generation (Shimoda Hot Springs)	277	235



Binary cycle power generation system using heat from Shimoda Hot Springs

Management of Closed Mines



From its founding in 1905, the JX Nippon Mining & Metals Group has been engaged in mining operations across Japan. By ensuring a steady supply of nonferrous metals and other resources, we contributed to Japan's economic growth. Today, however, operations have ceased in nearly all mines as their mineral resources have dried up.* However, in closed mines we provide acid mine drainage (AMD) treatment and work to maintain and restore the natural environment.

Under the Mine Safety Act, AMD treatment is an ongoing obligation at 12 of the 39 closed mines managed by the Company. JX Nippon Mining Ecomanagement oversees the process. The work mainly consists of detoxifying the highly acidic mine drainage generated from the mines and tailings dams, which contain heavy metals, and maintaining and preserving the tailings dams and galleries of the mining sites. AMD occurs when rainwater or other water comes into contact with materials such as ores remaining after the mine is closed or the rubble and slag of tailings dams. Treatment facilities have to operate 365 days a year, as AMD is generated continuously. This is one way we work to protect the natural environment by managing closed mines.

*Currently, our only mine operating in Japan is the Kasuga Mine in Kagoshima Prefecture



The AMD treatment facility at Toyoha Mine (Hokkaido)

Decontaminating PCB-Containing Equipment



The Group has disposed of equipment containing high levels of polychlorinated biphenyls (PCBs), using the services of Japan Environmental Storage & Safety Corporation. This work will be complete in fiscal 2020 with the exception of operating sites in Tokyo, where treatment has been delayed. We also systematically treat equipment with lower PCB levels using private treatment businesses, such as the Group's Tomakomai Chemical. The Group expects to finish treatment of all PCB equipment by fiscal 2024, two years before the deadline.

Toward Closed-Loop Recycling of Automotive Lithium-Ion Batteries



Lithium-ion batteries are made with minor metals like nickel, cobalt, and lithium. Electric vehicles equipped with lithium-ion batteries have become widespread in recent years, and vast numbers of automotive batteries will reach the end of their lives in the future. Recovering the minor metals from the end-of-life lithium-ion batteries is an important issue for both effective use and stable supply of resources.

In 2010, JX Nippon Mining & Metals launched a demonstration plant for lithium-ion battery recycling at Tsuruga and we have established the technology to recover minor metals from not only scrap cathodes but also from scrap lithium-ion batteries themselves. As the next step, based on this technology, bench-scale equipment for continuous, small-scale testing was built at Hitachi Works and started operation in February 2020 to develop the technology to recover high-purity minor metals that can be used directly as battery raw materials (closed-loop recycling).

The purpose of the equipment is to produce recycled product samples using materials provided by automobile and battery manufacturers and to establish a mass production process at a reasonable cost. For recycling of automotive lithium-ion batteries to become firmly established, a society-wide system that extends to recovery and dismantling is essential.

Fully establishing recycling of automotive lithium-ion batteries will

require social schemes that include battery recovery and dismantling. By establishing recycling technology, JX Nippon Mining & Metals will play an active role in realizing these schemes.



Bench-scale equipment



Nickel sulfate (liquid)

Cobalt sulfate (liquid)

Promoting Green Purchasing



The Group has set a Green Purchasing Policy, aimed at reducing environmental and other social impacts when procuring materials and equipment. Based on this policy, we have drawn up Green Purchasing Guidelines setting out specific requirements for choosing suppliers. In fiscal 2019, we began conducting CSR Purchasing Questionnaire surveys to further these initiatives and their objectives.

Green Purchasing Policy

We pursue green purchasing initiatives to contribute to the formation of a recycling-oriented society, prevention of global warming, and promotion of a "reduce, reuse, and recycle" approach. This policy applies to all materials and equipment purchased. When items have similar functions, prices, and delivery dates, we evaluate their potential to reduce environmental impact based on mandatory and voluntary conditions, and purchase the item with superior environmental performance.

Maintaining Biodiversity



In endeavoring to maintain and improve biodiversity, the Group has been carrying out reforestation activities, especially at the sites of closed mines in Japan, with the cooperation of local communities. Overseas, primarily at the Caserones Copper Mine in Chile, we have been reforesting with native plants to protect biodiversity.

Sites of Activities in Japan



Materiality 2

Provide Advanced Materials That Support Lives and Lifestyles

The excellent properties of the major base metal of copper and a variety of minor and precious metals have supported the evolution of electronic devices. The JX Nippon Mining & Metals Group continues to pursue technical rationality and efficiency and to make improvements in product quality and properties of these materials so we can rapidly offer society products and technologies that enrich lives and lifestyles. We have also formed a Technology Council as an advisory body to the president, which discusses future possibilities for technology from the standpoint of business administration.

Policy on Research and Development

We persistently seek innovation by advancing and using our accumulated core technologies and co-creating with external resources

Our Core Technologies

High Purity

We have a variety of melting technologies for different applications. We make wide use of these technologies for purposes ranging from high-level purification of raw materials for our own products to production of miscellaneous high-purity metals we offer to the market.

Powder Control

We have powder production technologies suited to different materials. We can meet customer needs for high-function powders, including special functions made possible by surface treatment and particle size control through granulation.

Separation, Extraction, and Refining

We have technologies to offer a stable supply of 4N (99.99% pure) electrolytic copper, precious metals, minor metals, sulfuric acid, etc., and technologies to efficiently recover minor metals from recycled materials.

Precision Rolling and Machining

We established technology to mass-produce the world's thinnest treated rolled copper foil at just 5 μm thick. Additionally, we offer not only materials but a wide range of machining services with our high-precision press technology.

Composition and Structure Control

Based on the manufacturing expertise and simulation technology we have developed over the years, we study alloy composition and crystal state. We then combine these elements through our own processing and heat treatment techniques to achieve the characteristics required.

Surface Control

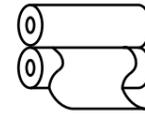
We perform final machining that yields the required properties, from etching-roughed surfaces to mirror finishes, helping to bring out new value from materials.

Analysis, Evaluation, and Examination

We have the latest analysis equipment and work to develop analysis technology. We also value traditional analysis technology, such as dry assay analysis of gold and silver.

Main Initiatives in Fiscal 2019

Developing Leading-Edge Materials



Building a Development Framework



Fostering Development Personnel



Fiscal 2020 KPIs

- Develop leading-edge materials needed by the IoT/AI society
- Build a framework to support technology-based management



Selling Corson Alloys with Greater Strength and Conductivity Than Conventional Products

Portable product terminals have grown thinner and smaller. At the same time, battery capacities have grown larger in recent years. This has created a need for stronger, more conductive copper alloys for connector terminals and other electronic components. In particular, more sophisticated functions and quick-charging mean more current passing through. Meanwhile, connector terminals are growing smaller. All of this heightens the need to control increases in heat generation and energy consumption. To address that need, JX Nippon Mining & Metals developed Corson alloys* with greater conductivity and strength than conventional products. Sales launched in November 2019.

A large quantity of additive elements is usually required to increase the strength of Copper alloy products, but increasing additive elements lowers conductivity. We successfully developed Corson alloys with both high strength and conductivity by combining our years of expertise in developing proprietary alloys with precision process control technology. The two products we began selling each have properties superior to our C7025 Standard Corson Alloy. Customers can choose the product that best fits their needs.

*Copper alloys that add nickel and silicon to copper

High Conductivity Corson Alloy NKC4820 (CDA: C64810)

The product has as much strength (0.2% yield strength, or about 700 MPa) as C7025, while electrical conductivity has risen to 60% IACS. It is especially ideal for applications with high currents, such as certain connectors for onboard, consumer electronics, and information equipment.

High Strength Corson Alloy NKC1816

NKC1816 has improved conductivity while maintaining the strength of the conventional product. We added it to the lineup for use in connector terminals. With more strength (0.2% yield strength, or about 820 MPa) than C7025, the alloy has also boosted electrical conductivity to 50% IACS, making it suitable for applications requiring both high strength and conductivity.

Pure Copper Powder for Additive Manufacturing Makes Minute, Complex Shapes of High Density

Metal 3D printers and additive manufacturing, as they become practical, have abundant potential in the aeronautics, automotive, and medical fields. They can form complex shapes and are well suited to small-lot or made-to-order production. The metal powders used for metal 3D printing, however, still present many technical challenges. One particular issue up to now is that parts formed with pure copper powder have had low relative density.*1

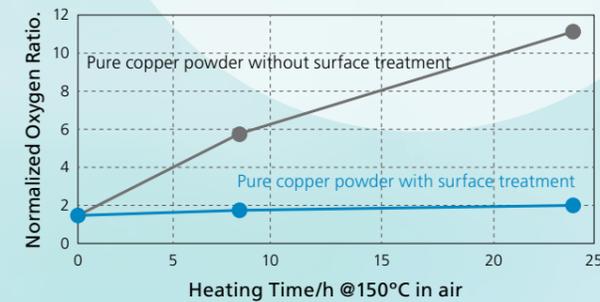
JX Nippon Mining & Metals addressed the issue by applying a special surface treatment to the powder that prevents the surface from oxidizing. With this approach, we successfully developed a pure copper powder for additive manufacturing with greater relative density. The product achieves relative density of 99.94% with parts formed by electron beam melting and 98.56% by laser metal deposition. Moreover, pre-sintering (adhesion of fine copper particles to each other during the preheating process prior to forming) is prevented.*2 The result is a high degree of freedom for forming.

The Company began providing samples in fiscal 2020. The powder is expected to find use in various applications such as heat spreaders in servers and water-cooled cooling units in automobiles.

*1 The actual measured density of a laminated object expressed as a percentage of the theoretical density

*2 Collaborative research with Prof. Akihiko Chiba of Deformation Processing, Institute for Materials Research, Tohoku University

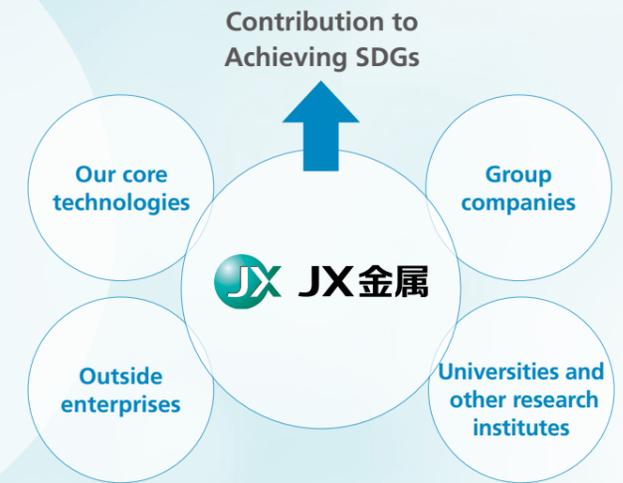
Prevention of oxidation by surface treatment



Partnerships in and beyond the Group Drive Open Innovation

Today we are facing great social shifts that include industrial structure change, global environmental problems, and the rise of the information society. The JX Nippon Mining & Metals Group pursues R&D proactively, seeking to be a technology-based corporation that can respond to these changes and promptly provide society with products and technologies that help the world advance.

We conduct R&D on two fronts: the Group's Technology Development Center, which is our "corporate lab" for next-generation R&D, and each division's R&D department, where development is closely connected to current business. We furthermore pursue joint development in a variety of forms by working in collaboration with our Group companies and their unique technologies, doing joint research with universities and other research institutes, and partnering with outside enterprises. In each case, we aim to build a framework for creating new technologies and value.



Agreement with Kyoto University Graduate School for Joint Research on Achieving SDGs

In January 2020, we signed an agreement with the Graduate School of Advanced Integrated Studies in Human Survivability (commonly referred to as "Shishu-Kan") of Kyoto University to pursue comprehensive collaborative research to achieve the SDGs. Established in 2013, Shishu-Kan offers a five-year integrated PhD program. It seeks to produce the next generation of leaders who can confidently help resolve the many issues confronting modern society, including climate change, disasters, regional conflicts, energy, food and water, the super-aging of society, poverty and disparity, and artificial intelligence. For our own part, the JX Nippon Mining & Metals Group Long-Term Vision 2040 calls for us to achieve SDGs. We signed the agreement with Shishu-Kan to uncover, select, and research specific joint research topics with the combined wisdom of the industrial and academic worlds.

To this partnership, we bring our overall strength in the nonferrous metals industry. We will combine this with Shishu-Kan's forte in fostering knowledge spanning different fields and bridging the humanities and sciences, as well as the ability to imagine and implement practical social solutions. In doing so, we aim to help solve global problems and promote sustainable social development.

Establishment of Muroan Copper Alloy to Step up Production of Titanium Copper Alloys, Other Copper Alloys

Muroan Copper Alloy Co., Ltd. was established August 1, 2019 jointly with The Japan Steel Works, Ltd. to melt and cast copper alloy to establish a framework for supplying high-quality copper alloy ingots. Titanium copper alloys are expected to see growing demand as precision electronic components in a wide range of areas including smartphones, tablet PCs, automobiles, and medical instruments. Our aim for Muroan Copper Alloy is to strengthen our production capacity for high-function materials by tapping the supply of high-quality copper alloy ingots from the JV.

Presently, the two companies are providing the necessary personnel and technologies and building new melting and casting facilities, which aim to start operating in September 2021.

[Overview]

Name: Muroan Copper Alloy, Co., Ltd.
 Head office: 9-1 Chatsu Town, Muroan City, Hokkaido (located within The Japan Steel Works Muroan Plant)
 Operations: Melting and casting of copper alloy

[Overview of Agreement]

Period: 5 years
 Content: Uncover and select joint research topics; hold mutual exchanges between Shishu-Kan faculty, researchers, and students and our employees; host internships; etc.

Showcasing Function at 6th Highly-functional Metal Expo

The Company exhibited at the 6th Highly-functional Metal Expo at Makuhari Messe in Chiba Prefecture on December 4-6, 2019. Our exhibit featured various products we have developed, including Corson alloys with both high strength and conductivity and pure copper powder for metal 3D printers. Based on the number of persons who signed up to get catalogs (about 1100 over three days), the number of visitors to our booth was up 20% over the previous year.

*Joint exhibition: JX Metals Trading, H.C. Starck (now TANIOWIS), Toho Titanium, and TATSUTA Electric Wire and Cable Co., Ltd.



The exhibition booth welcomed many visitors



At the signing ceremony (right: Naotaka Miyauchi, Representative Director and President of The Japan Steel Works)



Signing ceremony (right: Kaoru Takara, Dean of Kyoto University Graduate School of Advanced Integrated Studies in Human Survivability (Shishu-Kan))

Final Review of Entries to Accelerator Program Innovation Challenge for the Next Generation



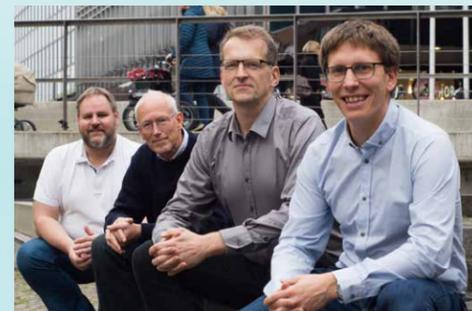
In fiscal 2019, JX Nippon Mining & Metals held the Innovation Challenge for the Next Generation accelerator program with a focus on innovation in nonferrous metals. Open to startups, the program recruits ideas for new businesses in a wide range of areas relating to nonferrous metals and seeks to commercialize those ideas.

No fewer than 71 startups from around the world but mainly from Europe submitted a rich variety of innovative ideas. On March 13, 2020, we joined the French company Agorize* in holding the final review of entries. Ideas were evaluated for technological superiority, attractiveness as a business, and potential for synergy with our Group businesses. The three companies earning the highest score were named winners. Going forward, we will investigate the possibilities for various types of partnerships with the winners, including joint development, financial assistance, capital tie-up, providing materials, and providing sales routes.

*The company, based in France and with sites in Japan and other countries, holds various Open Innovation Challenges around the world

Review Results

Rank	Business name	Country	Business plan
Challenge Winner	RadiSurf	Denmark	Develop technology to improve adhesiveness between metal surfaces and plastic film
2nd Place	Genesink	France	Manufacture and sell nano-inks and other products for printed electronics
3rd Place	AddiFab	Denmark	Develop components by freeform injection molding (a technology combining the advantages of 3D printing and injection molding)



Founders of RadiSurf, winner of the Challenge

Web [Program Site](https://www.agorize.com/ja/challenges/jx-challenge)

<https://www.agorize.com/ja/challenges/jx-challenge>

Material Innovation Center Completed in Collaboration with Tohoku University



Through an organizational collaboration and cooperation agreement formed with Tohoku University in September 2018, the Company has been promoting R&D and professional development in the field of nonferrous metals. The areas covered include interconnected advanced technologies (ICAT). The purpose of the collaboration is to contribute to the development of society as a whole. As part of this, we have been building the Material Innovation Center, a research building on the Aobayama New Campus of Tohoku University. Construction was finished in July 2020.

The partners aim to develop the new building into an international hub for open innovation by bringing together Tohoku University researchers, university-originated venture companies from Japan and abroad, research institutes, and more. Tohoku University has one of the world's largest groups of material science researchers, while the Company is a leader in the nonferrous metals industry. By sharing personnel, research findings, facilities, and equipment, we can conduct strategic R&D and professional development.



Material Innovation Center

[Facility Overview]

Name: Material Innovation Center
 Total cost of construction: ¥1 billion
 Total floor space: about 2,700 m² on four floors
 Facilities, etc.: research labs, experimental labs, multipurpose room, etc.

Initiatives of the Endowed Research Unit for Nonferrous Metal Resource Recovery Engineering (JX Metals Endowed Unit)



In recent years, the number of researchers and engineers in Japan working in fields related to smelting, refining, and recycling nonferrous metals has been continually decreasing. In response to this situation, JX Nippon Mining & Metals, in collaboration with the Institute of Industrial Science at The University of Tokyo, launched the Endowed Research Unit for Nonferrous Metal Resource Recovery Engineering (JX Metals Endowed Unit). The purpose of this organization is to develop new environmentally friendly recycling technologies for base metals and minor metals while also developing the human resources responsible for the work in this field.

During the five-year period of Phase 1 activities, starting in January 2012, symposiums, workshops, and other opportunities for learning about nonferrous metals were held nine times, attended by a total of 1,600 persons from industry, government, and academia. Phase 2, starting in January 2017, continues the Phase 1 initiatives while also emphasizing public relations to highlight the importance and future potential of the nonferrous metals field to the general public. Central to this appeal are young people of high school age and below, as we seek to secure human resources who will lead the next generation.

Members (Fiscal 2019)



Toru H. Okabe, Project Professor
 Vice President, The University of Tokyo;
 Director and Professor, Integrated Research Center for Sustainable Energy and Materials, Institute of Industrial Science, The University of Tokyo
[Principal research theme]
 Development of efficient recycling technologies for minor metals



Takashi Nakamura, Project Professor
 Professor Emeritus, Tohoku University;
 Director, Fukuoka Research Commercialization Center for Recycling Systems
[Principal research theme]
 Development of new metal recycling systems



Chiharu Tokoro, Project Professor
 Professor, Faculty of Science and Engineering, Waseda University
[Principal research theme]
 Development of advanced resource separation and concentration technology

[Major Activities in Fiscal 2019]

- Titanium Symposium 2019 (November 15, 2019)
- Symposium of Industry - Academia Collaboration for Materials Processing (including Recycling and Environment), a nonferrous metal symposium planned by Project Professor Nakamura (November 28, 2019)
- Special Joint Symposium: Frontier of Refining and Recycling Technologies for Precious Metals (January 10, 2020)
- The 3rd Special Seminar on Resource, Smelting, and Recycling of Non-ferrous Metals @UT-NYO (March 2020)
- The 15th Workshop on Reactive Metal Processing (March 2020)

JX Metals Endowed Unit Awarded Prizes for Science and Technology (Public Understanding Promotion Category) by the Minister of Education, Culture, Sports, Science and Technology



Each year, Japan's Minister of Education, Culture, Sports, Science and Technology presents the Commendation for Science and Technology to organizations and individuals making significant contributions to R&D and promotion of public understanding of science and technology. In April 2019, awards in the Public Understanding Promotion Category for fiscal 2019 were given to Professor Toru H. Okabe, Professor Takashi Nakamura, Professor Chiharu Tokoro, and former Professor Masafumi Maeda of the JX Metals Endowed Unit, as well as Shigeru Oi, former President (now Executive Chairman) of JX Nippon Mining & Metals.

These awards recognize their efforts to educate the next generation that will continue the work in the nonferrous metal resources field, including public awareness activities of various kinds, aimed especially at students up to high school level and their parents, to convey the importance of this field and its future potential. The JX Metals Endowed Unit will continue to promote understanding of nonferrous metal resources to nurture future human resources.

Note: Masafumi Maeda, who served as Project Professor from Phase 1, stepped down as of March 31, 2018, having reached retirement age.



At the awards ceremony

Column

Initiatives to Cultivate a New Generation for the Future of Nonferrous Metals

Our industry supplies nonferrous metal resources and materials that are absolutely essential to modern life, but to ensure we can stably supply these things into the future, we have to develop a new generation of professionals.

Our Group provides opportunities, particularly to young people from elementary to senior high school age, to engage in a range of experiences that teach them about nonferrous metals.

Helping Produce Educational Manga About Copper

Publishing house Gakken Plus Co., Ltd. produces the *Gakken Manga de Yoku Wakaru* series. The educational manga collection explains a vast range of topics in terms simple enough for children to get answers to their questions and learn about their world. JX Nippon Mining & Metals helped to produce *The Secrets of Copper*, the 168th installment in the series.

The Nippon Mining Museum, Saganoseki Smelter & Refinery, HMC Department of Hitachi Works, JX Nippon Environmental Services, and Kurami Works contributed information and photos. The volume uses familiar products to introduce copper's outstanding electrical and thermal conductivity and workability. Through images from factories, readers learn visually how the copper goods that go into the materials and components of various products are made.

Gakken Plus donated 25,500 copies to elementary schools and

public libraries throughout Japan. As our own initiative, we give copies of the book to employees and their families and to facilities near our operating sites. We also plan to hand them out at future events we will hold for young people. This book will help us teach the general public and especially children the appeal and importance of copper.



Gakken Plus posts entire series on its web site!
Volumes are free for anyone to read.

Electronic bookstore (Japanese Only)

Gakken BookBeyond
<https://bpub.jp/bookbeyond/item/500000518037>



Gakken Kids Net (Japanese Only)

Manga Himitsu Library
<https://kids.gakken.co.jp/himitsu/library168/>



Factory Tours and Experiments for Junior High School Students at Summer STEM Challenge 2019

The Group supports Riko-Challe (STEM Challenge), an event promoted primarily by the Gender Equality Bureau of the Japanese Cabinet Office to give young people a taste of STEM careers. We have held summer STEM Challenge events each year since 2015. During the 2019 summer vacation, five operating sites around Japan held factory tours and hands-on experiments for junior high school students.

Events are designed to give participants the experience of being in an actual operating site. Young people learn how nonferrous metals, especially copper, contribute to society, and they get to hear the thoughts of science and technology employees who work in our factories. We will continue to use activities like these to familiarize students with STEM fields and teach them the role of nonferrous metals in supporting lifestyle convenience and the potential for a future career in science and technology.



Children run an experiment at Hitachi Works



Watching an experiment at Isohara Works

Special Lecture on "The SDGs and the Nonferrous Metals Industry" at Waseda University

On December 23, 2019, Executive Chairman Shigeru Oi gave a special lecture at Waseda University for a course on science, technology, and society in the 21st century. Open to undergraduate science and engineering students, the course is a partnership with the Keizai Koho Center and features representatives from various enterprises as lecturers.

Executive Chairman Oi spoke on "The SDGs and the Nonferrous Metals Industry." He talked about the environment facing the industry, the history of JX Nippon Mining & Metals, how we contribute to society with advanced materials and recycling, and the importance of taking challenges. During the Q&A session, students showed how interested they were in the talk. One asked about the Company's vision for helping to achieve the SDGs in industrializing nations, while another asked about our initiatives to conserve resources.



About 200 students packed the classroom



Executive Chairman Oi speaks on contributing to achieving the SDGs

Teaching at Nikkei Inc.'s "Nikkei Education Challenge"

Tsuruga Plant General Manger, Kazuhiro Hatano gave a lesson at this event, which is designed to teach senior high school students the current state of Japan's economy and technology and express the fun and enthusiasm that comes with working. In his lesson, Hatano spoke about JX Nippon Mining & Metal's recycling and environmental services business and how the Company is helping to achieve the SDGs and solve society's challenges. He focused particularly on lithium ion battery recycling. He also had students take apart tablet devices and think which components use copper. The experience helped them understand the high level of technology that supports our information-based society and how difficult and important it is to extract and recycle metals.



Factory Manager Hatano delivers his message with enthusiasm



Copper used in components like conducting wires and circuit boards

Materiality 3

Create Attractive Workplaces

Dynamic workplaces where employees can demonstrate their unique capabilities and be healthy in mind and body are essential for any enterprise seeking sustained growth.

The JX Nippon Mining & Metals Group strives to create workplaces that are attractive from many perspectives. Examples include our work to ensure occupational health and safety, provide an appropriate personnel evaluation system, and offer human resources training.

■ JX Nippon Mining & Metals Basic Policy on Health and Safety

We place the highest priority on ensuring the health and safety of all people working at the JX Nippon Mining & Metals Group and thereby strive to create a safe and secure workplace.

1. We will continuously improve health and safety management levels through the establishment and efficient operation of the health and safety management system.
2. We will work to identify, eliminate, and reduce hazards and harmful factors in all areas of business operations and to ensure no accidents occur.
3. We will work to maintain and improve employees' mental and physical health by ensuring good communication and a comfortable working environment.
4. We will actively provide information and education in order to develop human resources that can act spontaneously and have strong safety competencies.
5. We will not only comply with health and safety laws and regulations but also establish and observe necessary voluntary standards.

■ Approach to Human Resources Development

We work to develop our human resources broadly, providing various educational programs in the five key areas of managerial skills, specialist skills, skills for global readiness, self-development, and other skills and awareness. In addition, we have worked to energize individuals and organizations since fiscal 2016. We have implemented a new training system and offered an array of support to help each employee change their way of thinking and increase their skills.

■ Approach to Diversity

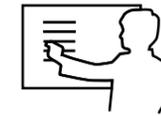
The Group values diversity in both human resources and work style. In compliance with relevant laws and regulations in Japan and overseas, the Group is pursuing initiatives including the continued employment of workers aged 60 and older, hiring of persons with disabilities, and women's empowerment. We are also developing a personnel system for sexual minority employees in mind. Moreover, we drew up and are acting on a plan for the five-year period to fiscal 2020 in accordance with Japan's Act on Promotion of Women's Participation and Advancement in the Workplace.

Main Initiatives in Fiscal 2019

Foster a Culture of Safety



Expand Human Resources Development



Promote Diversity



Fiscal 2020 KPIs

- Reduce serious workplace accidents [fiscal 2020: 0.7 or fewer per 1,000 persons annually (accidents with 4 or more lost work days)]
- Increase rate of yearly paid vacation taken [fiscal 2020: 80% or higher]
- Initiatives to promote employee health [fiscal 2020: 70% or more take cancer screening]
- Initiatives to energize individuals and organizations
- Increase rate of employment of persons with disabilities [fiscal 2020: 2.3% or higher]



Management Policy on Health and Safety for 2019



The Group formulates the Management Policy on Health and Safety each fiscal year. The goals and key policy measures are set based on analysis of health and safety performance in the previous year. The policy is discussed and approved by the Central Health and Safety Committee and then promulgated across the Group.

Management Policy on Health and Safety for 2019

Goals

1. Accidents with lost work days or worse: zero
2. Explosions and fires: zero
3. Cases of occupational diseases: zero
4. Rate of lost work days due to illness (not work-related): a reduction by 10% or more from the average in the past three years

Key Policy Measures

- Creating a safety culture (preventing serious accidents, strengthening construction safety management)
- Maintaining and improving mental and physical health
- Expanding safety training to raise safety awareness and sensitivity to hazards

Key Safety Activities

Identifying all possible hazards and promoting prevention of serious accidents based on anticipated accident scenarios

Safety Training at Safety Education Center



The Group operates the Safety Education Center, located next to the Nippon Mining Museum in Hitachi City, Ibaraki Prefecture. Here, we give training that raises each employee's sensitivity to hazards and enhances their safety awareness. Sensitivity to hazard is the ability to correctly recognize hazards as such. Sharpening this sensitivity helps employees to avoid hazards.

Around half of actual occupational accidents are recurrences of similar accidents in the past. Therefore, the Center offers programs that simulate past occupational accidents so employees learn to recognize the dangers and improve their sensitivity to hazards. Moreover, we have introduced a curriculum using virtual reality (VR) technology to enable more realistic experiences of hazardous situations. We work continuously through initiatives like these to prevent occupational accidents.



Accident training using VR

Organization for Occupational Health and Safety Management



The Group maintains health and safety committees and other bodies at operating sites and Group companies in keeping with the Industrial Safety and Health Act. In addition, the Central Health and Safety Committee meets once a year at head office, attended by representatives from the operating sites, while a Central Health and Safety Standing Committee meets five times a year. Members review health and safety measures, discuss health and safety policies, and consult on measures to prevent recurrence of accidents. Joint labor/management health and safety visitations happen once a year and Group safety supervisors' meetings twice a year to exchange health and safety information. Also, workshops are held once a year for safety staff while safety lectures by outside experts likewise happen once a year for executives.

Environment and safety audits are conducted periodically by a team under direct supervision of the president at operating sites directly run by the Company (including Group companies inside the sites) and major domestic Group companies. Issues discovered in the audits are reported to the president. The team also notifies the operating site of the issues, requesting improvements and following up by monitoring progress. Audits were conducted at 12 sites in fiscal 2019. No major issues were identified.

Further, 11 operating sites in Japan have earned OHSAS 18001 certification. As such, we are using our management system to promote safety. We are preparing to switch to the ISO 45001 (JIS Q 45100) international certification standard by June 2021.

Operating Sites That Have Obtained OHSAS 18001

Fiscal year certification was acquired	Operating sites
FY2008	Hitachi Works (including Technology Development Center, Hitachi Refinery of Pan Pacific Copper Co., Ltd., JX Nippon Environmental Services Co., Ltd., Hitachi Office of JX Nippon Foundry Co., Ltd.), Kurami Works (including JX Nippon Coil Center Co., Ltd., Kurami Office of JX Metals Trading Co., Ltd.), Saganoseki Smelter & Refinery of Pan Pacific Copper Co., Ltd. (including Japan Copper Casting Co., Ltd., Nissho Kou-un Co., Ltd., PPC Plant Saganoseki Co., Ltd.)
FY2009	Isohara Works (including Isohara Administration Office of JX Nippon Foundry Co., Ltd.), JX Nippon Tomakomai Chemical Co., Ltd., JX Nippon Mikkaichi Recycle Co., Ltd., JX Nippon Tsuruga Recycle Co., Ltd.
FY2010	Tatebayashi Works of JX Metals Precision Technology Co., Ltd.
FY2011	Esashi Works of JX Metals Precision Technology Co., Ltd.
FY2013	Nasu Works and Kakegawa Works of JX Metals Precision Technology Co., Ltd.
FY2014	Longtan Works of Nikko Metals Taiwan Co., Ltd., JX Nippon Mining & Metals Philippines, Inc.
FY2018	Began preparing to switch to ISO 45001
FY2019	Conducted initiatives with aim of earning ISO 45001 certification by June 2021 (gap analysis, internal auditor training, etc.)

Raising Safety Awareness by E-Learning



The Group is working to ensure the safety and health of all persons concerned with our business and to elevate safety-first awareness and sensitivity to hazards. We periodically conduct safety training by e-learning for all Group company employees in Japan and abroad. Training consists of safety basics and knowledge that people can absorb in a short time. In fiscal 2019, 2,921 persons, or 73% of our workforce, took the training.



E-learning screen

Safety Awareness Posters



The Company produces safety awareness posters that draw on examples of accidents that have happened in and beyond the Group. We display the posters primarily in our production plants to raise safety awareness there and prevent recurrence of accidents. Posters are designed to catch the eye of everyone from young staff to long-time employees. The viewer can quickly understand the important safety points for each theme, related laws and ordinances, and an example of the accident.



Examples of safety awareness posters

Videos to Reproduce Accidents

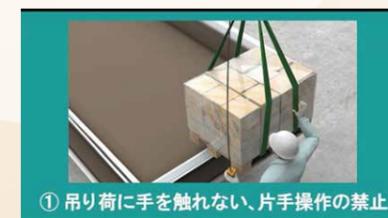


In addition to setting up safety training facilities at each operating site, we produce videos that teach safety by reproducing accidents visually. The videos are based on actual past accidents. We take opportunities such as our safety lectures to use these materials and raise safety awareness and sensitivity to hazards.

The accidents on which the videos are based happened both within the Group and beyond. They let viewers understand emotionally how disastrous an accident can be. They teach the viewer what causes accidents and countermeasures to them, and facilitate communication at Group companies.



Examples of accident reproduction videos



"Safety Senryu" Contest



In fiscal 2019, the Group held its second Safety Senryu [comedic haiku poem] contest. This is a safety event in which everyone can participate. The purpose is to raise safety awareness company-wide. We received about 770 entries from Group company employees and published the winners in our employee newsletter.

👑 Safety Senryu Haiku Poem Winners

"Copper is heavy and so is gold, but life carries more weight."

👑 Award for Particular Excellence

"Unreported hazards are like fresh food: do something before they go bad."

"When something's amiss, you don't want to blow it. Check out the problem, let someone know it."

"Every shortcut increases risk (not to mention body weight)."

"Be careful! 'I want to, but tell me how exactly!'"

"See something wrong? Point it out and call it out, or you may regret it."

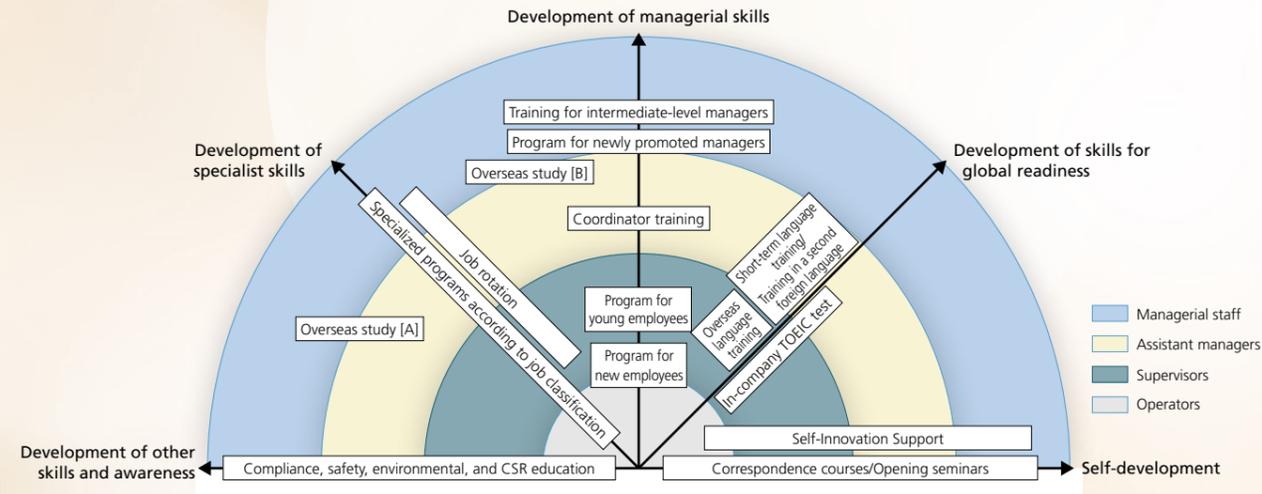
Strengthening the Training System to Energize Individuals and Organizations

Energizing individuals and organizations is a big part of our basic policy for human resources development. We work to develop our human resources broadly, providing various educational programs in the five key areas of managerial skills, specialist skills, skills for global readiness, self-development, and other skills and awareness.

In addition, we have implemented a new training scheme and

offer an array of support to help each employee change their way of thinking and increase their skills. One example is our “Self-Development Support Program.” To encourage employees to build up their specialist and managerial skills, we also offer two courses in overseas study: [A] to earn a PhD or master’s degree at an overseas graduate school and [B] to earn an MBA.

Our Training System



Self-Innovation Support

To address the desire of employees for further self-growth, the Company reviewed its existing self-development programs and established the Self-Innovation Support scheme. Employees apply for and take part in their chosen external self-development program. Upon completion, the Company subsidizes half the costs, up to 500,000 yen. Previously, employees chose from programs readied by the Company in advance. Under the new scheme, employees can choose from a broader range of programs.

A feature that sets this scheme apart from previous self-development programs is that it offers broad latitude, so that employees can make effective use of the private time freed up

by improving work-life balance—something the Company is also promoting.

Applications for Self-Innovation Support

	Applications made	Examples of programs applied for
FY2017	18	English conversation, online Spanish studies, U.S. certified public accountant, patent attorney, small and medium-sized enterprise management consultant, university leadership program, MBA, etc.
FY2018	30	
FY2019	52	

Overseas Study Programs

Each year, the Company sends some assistant manager-level engineering staff to overseas graduate schools to enhance their expertise. We also send some assistant manager-level or manager-level engineering and administrative staff to overseas graduate schools to obtain an MBA, aiming to strengthen their managerial skills. With the business environment expected to change significantly, we plan on continuing to send employees abroad for such training, in the hope that this will further deepen the engineering expertise or managerial skills of those responsible for management of the Company in the next generation.

Overseas Study Programs

Fiscal year sent	Course	Destination
FY2018	Enhancing Engineering Expertise*1	University of Washington Carnegie Mellon University
	Strengthening Managerial Skills (MBA)*2	University of Washington
FY2019	Enhancing Engineering Expertise*1	University of Queensland University of Illinois
	Strengthening Managerial Skills (MBA)*2	University of Michigan
FY2020	Enhancing Engineering Expertise*1	The University of British Columbia Boston University

*1 Enhancing Engineering Expertise course
Earning a degree (master’s or doctorate) at an overseas graduate school (sent for two years in principle)
Eligibility: Assistant managers

*2 Strengthening Managerial Skills (MBA) course
Earning an MBA degree at an overseas graduate school (sent for one year in principle)
Eligibility: Junior managers, assistant managers

Women Play an Active Role in the Workplace

We aim to provide workplaces where all types of people can play an active role. For women in particular, we drew up and are acting on a plan for the five-year period until the end of fiscal 2020 in accordance with Japan’s Act on Promotion of Women’s Participation and Advancement in the Workplace. This fiscal year, the final year under the plan, we are making workplace changes that give women more opportunities to participate. These include expanding telecommuting, introducing a flextime system with no core time, and making increased use of childcare centers.

[Targets]

1. Steadily increase the number of female employees, and ensure that at least 30% of newly hired university graduates are women, to cultivate female managers early on.
2. Improve working environments to create workplaces in which all employees including women can do fulfilling work.

Creating Appropriate Personnel Evaluation Systems

The Company has introduced a Competency Evaluation System based on competency models and a Performance Evaluation System centered on management of missions and goals. In Competency Evaluation, employees are interviewed by their supervisors based on competency items, and the resulting assessment of whether they have the necessary competency is used in deciding promotions. In Performance Evaluation, employees meet with their supervisors to discuss the extent to which they attained missions and goals agreed on with the supervisor at the beginning of the fiscal year, and the degree of challenge presented by the goals. Their performance is then evaluated, and the results of these evaluations are reflected

in employee bonuses. The competency model and performance evaluation items for managerial staff are structured so that 50% of the items evaluated relate to personnel management.

Moreover, a Self-Statement System was introduced to help the Company understand the aspirations of individual employees and reflect them in personnel development and elsewhere. Under this system, employees submit this statement on the specified form once a year, looking back on their work and indicating their ambitions, as well as other matters of relevance, such as any reason why they cannot accept job transfers that would involve moving residence and how long that will remain the case.

Childcare and Family Care Systems Support Diverse Work Styles

As part of energizing individuals and organizations, the Company seeks to ensure that the working environment is one where even employees with circumstances like pregnancy, childbirth, childcare, parenting, or family care can make the most of their abilities. To this end, personnel systems undergo regular review to enable assistance from the two aspects of work style support and financial support.

In addition, we continue taking steps to promote understanding of

these systems and help them become part of the culture. For example, we prepared a handbook on the support available for balancing work with childcare or family care. It provides an overview of the systems, shows how to use them, and describes how managers can give assistance. We will continue to prepare the working environment to make it easy to take advantage of these systems and reconsider them based on how they are used.

Overview of Childcare and Family Care Systems

	Pregnancy/childbirth	Childcare/parenting	Family care
Work style support	Pre- and post-childbirth time off	Time off to care for an ill child	Family care time off
	Special measures for mothers during pregnancy and within one year after childbirth	Childcare leave (length can be shortened, and leave period can be changed more than once)	Family care leave
	Maternity time off	Exemption from overtime work exceeding limit	
		Exemption from late-night work	
		Shorter workday (expanded applicability, enabled use along with flextime)	
		Flextime (revised core time, enabled use along with shorter workday)	
		Exemption from overtime work	
		Childcare time	
		Cumulative annual paid time off (added “childcare” to conditions for use)	
		Telecommuting	
Financial support, etc.	Onetime maternity/childcare benefit, additional onetime maternity/childcare benefit (health insurance)	Childcare/family care subsidies	
	Maternity allowance, additional maternity allowance (health insurance)	Return-to-work grant	Family care leave allowance
	Exemption from paying social insurance premiums (health insurance and employees’ pension) during pre- and post-childbirth leave, childcare leave, etc.	Childcare leave benefit (employment insurance)	Family care leave benefit (employment insurance)
		Childcare concierge service	
		Support for babysitter use	
	Return-to-work system		

Support from social insurance and employment insurance Programs revised or newly offered since fiscal 2016
Note: Telecommuting is also available for reasons other than childcare or family care.

Materiality 4

Respect Human Rights

The Group sees maintaining sound business practices while respecting the human rights of local residents, customers, employees, business partners and all others involved in the supply chain as a major premise for our continued operation. Based on this belief, we aim to conduct our business with due consideration for human rights, using opportunities like explanatory meetings and interviews, and to create a corporate climate where human rights are respected.

Approach to Human Rights

JX Nippon Mining & Metals Group Code of Conduct (excerpt)

8. International business operations

In international business operations, we aim to contribute to sustainable development by protecting the fundamental human rights of people in countries and areas where we operate, and by respecting their cultures and customs.

JX Nippon Mining & Metals Group Compliance Regulation (excerpt)

Prohibition of unjust discrimination

JX Nippon Mining & Metals Group companies and their officers and employees shall not discriminate in their business operations relating but not limited to hiring, salary, working hours, work conditions, and business terms due to reasons that include but are not limited to race, nationality, sex, age, religious belief, social status, or physical characteristics.

Prevention of harassment

JX Nippon Mining & Metals Group companies and their officers and employees shall work proactively to prevent sexual harassment (including gender harassment) and power harassment.

Protection of personal information

JX Nippon Mining & Metals Group companies and their officers and employees shall comply with personal information protection laws, regulations, and internal rules, adequately protect the personal information of parties including but not limited to customers, business partners, and employees, and in situations where personal information needs to be managed for business purposes, manage it with the utmost care.

Prevention of child labor and forced labor

JX Nippon Mining & Metals Group companies and their officers and employees shall not be involved with child labor or forced labor and shall work to help solve these issues.

JX Nippon Mining & Metals Group Basic Procurement Policy (excerpt)

4. Follow the below principles regarding conflict minerals.

- Do not engage in raw materials procurement that contributes to illegal activities in conflict-affected regions or to human rights violations resulting from such activities.
- Respect the guidance of the Organisation for Economic Co-operation and Development related to raw materials procurement from conflict-affected areas, and control supply chains in an appropriate manner.

Main Initiatives in Fiscal 2019

Human Rights Education and Internal Awareness Raising



Consideration of Human Rights in Supply Chains



Fiscal 2020 KPIs

- Percentage of employees taking human rights training [fiscal 2020: 100%]
- Conduct survey of human rights in supply chains



Human Rights Education



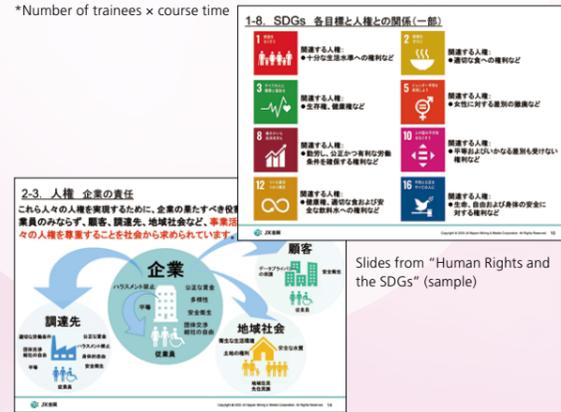
The Company provides and makes known guidelines on human rights including prevention of discrimination, harassment, forced labor, and child labor. We also create opportunities for periodic training to ensure human rights awareness becomes permanent.

We provided training to all Group employees in fiscal 2019. It was titled after the theme for that year: "Human Rights and the SDGs." We chose this theme to raise employee awareness of human rights and increase understanding of the SDGs, since we had written SDG initiatives into JX Nippon Mining & Metals Group Long-Term Vision 2040. Starting with the belief that respect for human rights is the cornerstone of the SDGs, the training was the perfect opportunity for Group employees to re-examine what they could do as individuals. We will continue to do business globally in ways that consider and promote understanding of human rights.

Collective time spent in human rights e-learning (fiscal 2019)

1,552 hours

*Number of trainees x course time



Initiatives Relating to Local Residents



Development and operation of mines can have a particularly significant impact on the surrounding environment. It is therefore essential to pay due consideration to the human rights of local residents and implement measures to ensure coexistence and co-prosperity with local communities.

Today, SCM Minera Lumina Copper Chile, the operator of the Caserones Copper Mine, applies a basic three-point policy for supporting local communities: respect for the lifestyles of local people, protection of the community and environment, and respect for current law. In keeping with this policy, from the project launch in 2007, the operator began holding explanatory meetings and engaging in dialog with the Collas, indigenous people living in the area around the mine site, endeavoring to building trust. As in earlier years, we found no violations of the rights of local people in fiscal 2019.

Confronting the Problem of Conflict Minerals



"Conflict minerals" is the general term for minerals that are mined (illegally, in most cases) in conflict-affected regions, providing a source of funds for local armed groups. The use of these minerals may lead to increasing human rights abuses and inhumane acts. Global moves to restrict trade of conflict minerals began to grow in the late 1990s.

In 2011, the Organisation for Economic Co-operation and Development established the Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas, advising corporations and others to manage their own operations so as to avoid involvement in the trade of conflict minerals. In the United States, from 2013 the Dodd-Frank Wall Street Reform and Consumer Protection Act obligated companies listed on the U.S. stock exchanges to submit reports on their usage of specific conflict minerals (tin, tantalum, tungsten, and gold) to the Securities and Exchange Commission. The aim of such measures is to stop companies from using conflict minerals through information disclosure and social pressure.

In line with these global trends, industry organizations relevant to the Group (including the LBMA*1 and RBA*2) have established monitoring programs for eliminating conflict minerals. These programs request that companies cooperate with surveys and undergo external audits by an independent organization.

*1 LBMA: London Bullion Market Association.
 An industry association composed of financial institutions and others that deal in gold and silver ingot. Inclusion on this association's Good Delivery List is viewed as a guarantee of high quality and reliability.
 *2 RBA: Responsible Business Alliance.
 An alliance of companies formed with the aim of ensuring responsible conduct in the electronics industry supply chain.

Stronger Supply Chain CSR Management



In the conduct of the JX Nippon Mining & Metals Group's global business operations, it is necessary for not only the Group but also our business partners' supply chains to fulfill their responsibility to society. We perform checks on suppliers and other business partners in accordance with the Basic Procurement Policy. Among the matters confirmed are respect for human rights and ensuring workers' rights, the absence of discrimination in hiring and work, the elimination of forced labor and child labor, and compliance with the prohibition against purchasing conflict minerals.

In addition, the Group began sending out CSR procurement questionnaires in fiscal 2019. The purpose is to ensure that entire supply chains are fulfilling their social responsibility by respecting human rights, ensuring occupational safety and health, practicing compliance, protecting the environment, and more. We sent questionnaires to 219 business partners and got responses from 218, for a response rate of 99.5%. We are giving feedback to our business partners based on the survey results as we ramp up CSR activities throughout our supply chains.

Policy for Selecting Procurement Partners

1. Comply with laws, regulations, and social norms, such as those below, and place priority on human rights and environmental impact.
 - Obey laws and regulations related to manufacturing and sales, etc.
 - Comply with labor-related laws and regulations
 - Abide by laws and regulations related to safety and health and develop a proper labor environment
 - Prohibit child labor and forced labor
 - Prohibit discrimination based on race, gender, etc. and respect the human rights, personality, and individuality of employees
 - Comply with environmental laws and regulations
 - Prohibit bribery and other unfair conduct
 - Do not engage in conflict minerals procurement or use that contributes to inhumane acts
 - Preclude all relations with "antisocial forces" (the term used to refer to organized crime groups in Japan)
2. Engage in sound and fair business management.
3. Based on the JX Nippon Mining & Metals Group's Green Purchasing Guideline, build environmental management systems and properly manage specified chemical substances.
4. Offer stable supply capacity and satisfy the quality, price, delivery, and service requirements of the JX Nippon Mining & Metals Group.
5. Possess technological capabilities that meet the requirements of the JX Nippon Mining & Metals Group.

Initiatives in the Gold and Silver Supply Chains

JX Metal Smelting Co., Ltd. as a producer of gold ingots, and JX Nippon Mining & Metals as a producer of silver ingots, have established and operate a management system for supply chain due diligence that calls for actions including the following to be taken.

1. Perform supply chain due diligence before purchasing mineral raw materials (confirming the place of origin of the materials, assessing risks, confirming materials after delivery, confirming distribution route, preserving relevant documents, etc.).
2. Notify suppliers of the policy on exclusion of conflict minerals.
3. Conduct in-house education on supply chain due diligence and its background.
4. Conduct internal audits and undergoing external audits.

Implementation of supply chain due diligence is audited by an independent organization specified by the LBMA, and the results are reported to the LBMA. As a result of following these procedures, the gold ingots produced at Saganoseki Smelter & Refinery of JX Metal Smelting and the silver ingots produced at the Company's Hitachi Works are both included on the LBMA's Good Delivery List. At the same time, they have been included on the RMAP Conformant Smelters list compiled by the RBA and GeSI*—recognition that they are taking proper measures to exclude conflict minerals.

* GeSI: Global e-Sustainability Initiative (a trade association of the information and communications technology industry in Europe)
 The RBA and GeSI together created the Responsible Minerals Assurance Process (RMAP) certification program for the electronic and communications equipment industries, where the risk of conflict mineral use is especially high.

Initiatives in the Tantalum Supply Chain

TANIOBIS GmbH, a producer of tantalum powder, implements a strict program of purchasing checks based on international standards for procuring raw materials from conflict-affected and high-risk areas. For example, it purchases materials with tags that the ITSCI* distributes and tracks to guarantee non-involvement in conflicts, child labor, or other human rights violations within conflict-affected areas. It also performs supply chain due diligence to confirm the tags. As a result of these initiatives, TANIOBIS has been included on the RMAP Conformant Smelters list in recognition that the company is taking proper measures to exclude conflict minerals.

In June 2019, moreover, TANIOBIS began using a supply chain due diligence system similar to the ITSCI, by means of the Better Sourcing Program (BSP) made available by the RCS Global Group, a global responsible sourcing auditor for the raw materials supply chain.

* ITSCI: ITRI Tin Supply Chain Initiative.
 An initiative by the International Tin Research Institute (ITRI), a global industry group for tin. Based on OECD Due Diligence Guidance, it works to enable due diligence from mines to smelters, and to encourage procurement from mines in conflict-affected areas that is free of involvement with local armed groups.

Materiality 5

Promote Community Involvement and Development

Since the inception of its business at the Hitachi Mine, the JX Nippon Mining & Metals Group has emphasized the spirit of maintaining good relations with local communities in conducting its business. Keeping alive that spirit today, we have written coexistence and co-prosperity with society into our Code of Conduct. We additionally set an action plan for each fiscal year and work day to day to fulfill it.

■ Approach to Local Communities

JX Nippon Mining & Metals Group Code of Conduct (excerpt)

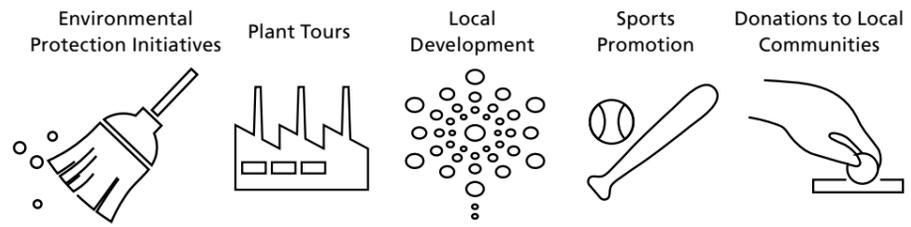
7. Harmonious relationship with society

We will commit ourselves to social contribution activities and work as a good corporate citizen to achieve a harmonious relationship with the rest of the society of which we are part.

Corporate Citizenship Policy (Fiscal 2019)

The Group set “Further strengthen relationships with local communities” as its Corporate Citizenship Policy for fiscal 2019. Under that policy, we have pursued community-based initiatives at each of our operating sites in Japan and overseas. These activities are planned and assessed by the Citizenship Committee, an organization under the CSR Committee, in meetings every six months.

Main Initiatives in Fiscal 2019



Fiscal 2020 KPIs

○ Continue dialog with local communities



Social Contribution Activities in Fiscal 2019

The JX Nippon Mining & Metals Group works to build trust with local communities through community-based initiatives at each of our operating sites in Japan and overseas and through communication with local communities.

	Activity	Site conducting activity	Timing	Description
 Environmental Protection Initiatives	Cleanup around plant	Various Group sites	Throughout the year	Cleaned up along roads near plants
	Sagami River cleanup	Kurami Works	May 2019	100 persons cleaned up in the Sagami River basin (Kanagawa Prefecture)
	Miyata River cleanup	Hitachi Works	June 2019	131 persons cleaned up in the Miyata River basin (Ibaraki Prefecture)
	Toyama Bay cleanup	JX Nippon Mikkaichi Recycle Co., Ltd. and Kurobe Plant of Toho Titanium Co., Ltd.	August 2019	10 persons cleaned up Ishidahama Beach (Toyama Bay)
	Participation in "Fairy Tale Forest" initiative	Saganoseki Smelter & Refinery of JX Metal Smelting Co., Ltd.	October 2019	Participated in the 30th "ENEOS Fairy Tale Forest" initiative for forest conservation. Activities included putting netting in place to keep out deer
	Mangrove tree planting	TANIOBIS Co., Ltd.	June 2019	62 persons planted mangrove trees and cleaned up the beach
	Participation in volunteer tree planting activity	JX Nippon Mining & Metals Philippines, Inc.	December 2019	15 persons participated in tree planting held with local businesses and Boy Scouts
 Plant Tours	Plant tours	Various Group sites	Throughout the year	Sites host plant tours for area students (elementary to senior high), explaining plant facilities and the nature of our work
 Local Development	Participation in Kurobe Fair 2019	JX Nippon Mikkaichi Recycle Co., Ltd.	September 2019	The company ran a booth where it introduced the business and led games at a regional industry event hosted by Kurobe City
	Participation in Saganoseki Furusato Festival	Saganoseki Smelter & Refinery of JX Metal Smelting Co., Ltd.	October 2019	Introduced our business and led crafting activities for children at an event that calls attention to the attractiveness of the Saganoseki area
	Entrepreneur support contest	SCM Minera Lumina Copper Chile	July 2019	Held a contest to support local entrepreneurs, provided support for 67 entrepreneurial projects
 Sports Promotion	Toho Southern Cup	Toho Titanium Co., Ltd.	January 2020	Hosted soccer event to assist development of youth through soccer
	Support for dance event	SCM Minera Lumina Copper Chile	March 2020	Supported dance event hosted by local governments in the area
 Donations to Local Communities	Monetary donation	JXTG Group (currently ENEOS Group)	October 2019	Donated ¥20 million to support victims of Typhoon Krosa of 2019
	Donation of "A Bouquet of Children's Stories"	JXTG Group (currently ENEOS Group)	November 2019	The anthology was given to local governments and schools in areas around JX Nippon Mining & Metals Group companies and operating sites
	Donation of plastic bottle caps, etc.	JX Metals Trading Co., Ltd.	Throughout the year	Plastic bottle caps and used postage stamps were collected and donated
	Fundraising	JX Nippon Mining & Metals Philippines, Inc.	December 2019	Participated in initiative to raise funds to support underprivileged children in the Philippines

Awards Ceremony for "X (Mirai) Essay Contest and Children's X (Mirai) Picture Contest"

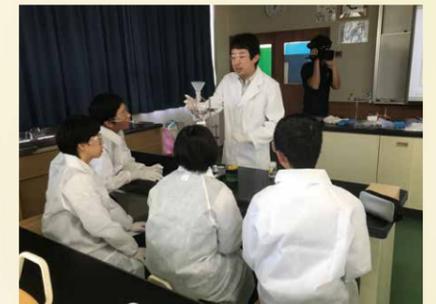
JX Nippon Mining & Metals Corporation
Saganoseki Smelter & Refinery of JX Metal Smelting Co., Ltd.
The Saganoseki Smelter & Refinery of Pan Pacific Copper (currently JX Metal Smelting Co., Ltd.) launched an essay and picture contest in 2016 to mark the 100th anniversary of the smelter's founding. The contest is now held every three years. In its second running, the contest received about 300 entries of essays and pictures from elementary and junior high school students in the Saganoseki area of Oita City. For the winners, judges awarded the "X (Mirai) Grand Prize," "JX Nippon Mining & Metals President's Award," and "PPC President's Award."
Mayor Kiichiro Sato was among the many local persons attending the awards ceremony on December 19, 2019 at the Saganoseki Community Center in Oita City. Local media covered the ceremony, one of the largest events in the area. We will continue to support the healthy development of young people in the region through this activity.



At the awards ceremony

Guest Lecturers at Takeo Junior High School

JX Nippon Mining & Metals Corporation
We presented guest lectures to Takeo Junior High School, a public school in Takeo City, Saga Prefecture on October 8, 2019. This was in response to a request from the school. The lectures gave the students and their parents and guardians more understanding of the importance of the nonferrous metals industry. Our own objective was to help secure future human resources.
The event was our first time to present talks in lecture format outside Tokyo. Speakers included Executive Chairman Shigeru Oi of JX Nippon Mining & Metals, Prof. Toru Okabe of The University of Tokyo, and Prof. Chiharu Tokoro of Waseda University. After the lectures, 16 young people with an interest in science watched experiments in using solvent to extract impurities from a solution and recovering copper by replacement. A student representative commented, "We hope to use your talks today in our own futures." A school official asked us to continue such initiatives going forward.



Students pay close attention during experiment

Summer Festivals

Hitachi Works, Kurami Works, Isohara Works, Saganoseki Smelter & Refinery of JX Metal Smelting Co., Ltd. and Toho Titanium
The Group's major operating sites host summer festivals each year, inviting families of employees as well as residents of surrounding communities. The festivities are enlivened by refreshment stands, lotteries, and local children playing instruments and dancing. Some of the festivals include traditional arts and fireworks shows. For the local residents, these events have become a much-anticipated summer tradition.
*Festivals were canceled in fiscal 2020 to prevent the spread of COVID-19.



Hitachi Works Sanjinsai festival

Occupational Training Support for Residents Near Caserones

SCM Minera Lumina Copper Chile
As part of its community activities, SCM Minera Lumina Copper Chile, operator of the Caserones Copper Mine, offers an occupational skills training program for people living near the mine. The wide range of skills covered includes food product processing, soldering, and making clothes. In fiscal 2019, about 300 people participated. The Chilean company is running the same program in fiscal 2020 and plans to continue initiatives to promote employment of local people into the future.



Local people who participated in the training program

Column

Initiatives Related to COVID-19

The JX Nippon Mining & Metals Group sees COVID-19 as a problem requiring a global response and is undertaking a variety of initiatives on it.

Participation in IP Open Access Declaration Against COVID-19 (Japan)

JX Nippon Mining & Metals Corporation

The Company endorses and is participating in the IP Open Access Declaration Against COVID-19 to support efforts against COVID-19.

The declaration states that participants will not assert any patent, utility model, design, or copyright in their possession against any activities whose sole purpose is stopping the spread of COVID-19.



Web IP Open Access Declaration Against COVID-19
<https://www.gckyoto.com/covid19>

Donations of Equipment to the Community to Fight COVID-19 (Chile)

SCM Minera Lumina Copper Chile

On April 23, 2020, Caserones Copper Mine operator SCM Minera Lumina Copper Chile donated 200 simple novel coronavirus testing kits to the local Atacama health agency. On April 29, it donated two sample extraction machines for the novel coronavirus PCR test to the University of Atacama medical school.

Regional Governor of Atacama Patricio Urquieta expressed official thanks for the gifts, while staff from the health agency remarked that the donations would help Atacama better fight COVID-19 going forward. SCM Minera Lumina Copper Chile has also donated masks, gloves, simple protective clothing, and other hygiene supplies along with temperature scanning cameras to the community around Caserones.



Mr. Claudio Baeza, director of Atacama health agency (second from left) and Patricio Urquieta, Regional Governor of Atacama (center)



Sample extraction machine



Simple test kits donated to Atacama health agency are shown in front. Center: Director Claudio Baeza of the Atacama Health Agency

Donations to Local Governments to Fight COVID-19 (Japan)

JX Nippon Mining & Metals Corporation

As a member of the community, we made donations to Kitaibaraki City and Hitachi City (both in Ibaraki Prefecture), Samukawa Town (Kanagawa Prefecture), and Oita City (Oita Prefecture) on May 27. The donations (¥30 million to each local government, ¥120 million in total) will help fight the spread of COVID-19 and boost local revitalization in these communities where we operate our main production facilities.

Other Support Initiatives in Japan

- Donated 1,500 masks to Chilean embassy
- Donated 1,000 masks to Nikko Memorial Hospital
- Donated 2,500 masks each to Samukawa Hospital, Saganoseki Hospital, and Kitaibaraki City Hospital

4,500 Masks Accepted from Bureau of Commerce of Wuxi Huishan District (China)

Nikko Fuji Precision (Wuxi) Co., Ltd.

Nikko Fuji Precision (Wuxi) in China received 4,500 masks from the Bureau of Commerce of Wuxi Huishan District on March 27, 2020. The donation was given in part as thanks for great support, which includes masks Japan had given China when its COVID-19 cases were spiking. It was also meant to support foreign-owned businesses in China after Japan's mask shortage was widely reported in China. The director of the Commerce Bureau sent a message of support, saying, "Let's work together to get through this challenge!" Nikko Fuji Precision (Wuxi) sent the masks to the JX Nippon Mining & Metals Head Office.

On May 22, President and Chief Executive Officer Seiichi Murayama sent a certificate of appreciation to the director of the Bureau of Commerce of Wuxi Huishan District in thanks for the masks. Nikko Fuji Precision (Wuxi) Director General Manager Ishikawa conveyed a message of gratitude for the masks on behalf of the Company.



From left: Vice-Director Xue and Director Yu of the Bureau of Commerce of Wuxi Huishan District, Director General Manager Ishikawa and Administration Department Manager Wang of Nikko Fuji Precision (Wuxi)



From left: Director Hua of Bureau of Commerce of Wuxi Huishan District and Director General Manager Ishikawa of Nikko Fuji Precision (Wuxi)

Materiality 6

Strengthen Governance

It is essential for companies to gain and maintain stakeholder trust to conduct business and increase long-term corporate value in a drastically changing society.

The Group promotes strict compliance with laws and risk management to increase the soundness and transparency of management and reinforce governance.

Main Initiatives in Fiscal 2019

Insisting on Full Compliance



Risk Management



Global Quality Governance



Fiscal 2020 KPIs

- Steady operation of group-wide risk management
- Compliance training tailored to business characteristics and social movements, etc.

■ Group Compliance Concept

JX Nippon Mining & Metals Group Code of Conduct (excerpt)

2. Compliance with laws and regulations and engagement in fair trade

We will comply with domestic and/or overseas laws and regulations, and will engage in fair, transparent and free competition and trade based on the fulfillment of our social responsibilities.

■ Approach to Risk Management

JX Nippon Mining & Metals Group Code of Conduct (excerpt)

6. Enhancement and strengthening of risk management

We will establish a risk management system based on scientific data to enhance and strengthen risk management.

■ Approach to Quality Management

JX Nippon Mining & Metals Group Basic Quality Policy

Recognizing that our social mission is to ensure a stable supply of nonferrous resources and materials, JX Nippon Mining & Metals Group established its Basic Quality Policy to guide action for the sustainable growth of society.

1. Grasp the requirements of customers and society correctly in order to offer products and services that customers can trust and that satisfy their needs.
2. Improve and maintain quality in all processes, from development, design, and production to delivery, while paying due attention to safety and environmental conservation.
3. Establish a quality management system, carry out continual improvements, and develop human resources.
4. Comply with all pertinent laws and regulations of Japan and other countries, and provide customers and society with accurate information on quality.



Corporate Governance Structure

Board of Directors

The Board of Directors was established to discuss matters specified by laws, regulations, and the Articles of Incorporation as well as other important management issues. The Board of Directors* is composed of the President and six Directors (as of June 2020) (currently all are male). Auditors can also attend the meeting and express their opinions.

* All Members of the Board are inside Directors serving as Executive Officers.

Executive Council

As an advisory organ to the President, the Executive Council was established to discuss important matters regarding company management and to report the state of business execution. The Executive Council is composed of the President and Executive Officers designated by the President. Full-time Auditors can also attend the council meeting and express their opinions.

Auditors

Auditors attend Board of Director meetings, the Executive Council meetings and other important meetings of the Company to express their opinions as needed to increase the effectiveness of audits. In addition, Auditors endeavor to understand the state of business execution by individual Executives of the Company and the Group Companies, through interviews, and through the inspection of documents.

Furthermore, Auditors also receive periodic reports on audit plans, progress, and results from the Internal Auditing Department and the Accounting Auditor while enhancing cooperation through the exchange of information and opinions.

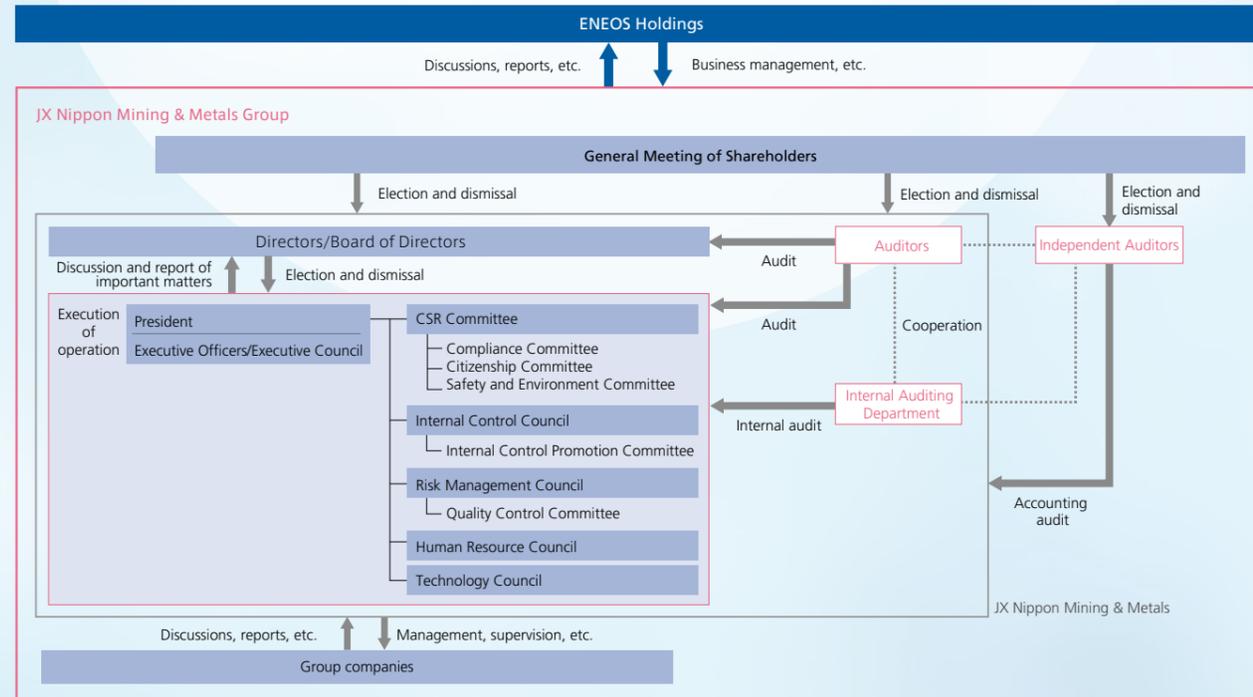
Executive Officer Compensation System

Company compensation for the Executives consists of fixed monthly compensation based on the relevant individual's role, and variable performance-based bonus payments. The bonus is determined by the consolidated business results of the Company as well as ENEOS Holdings. The Company does not have an executive officer retirement benefit program. The share-based payment system was implemented in July 2017. The share-based payment system applies the Board Incentive Plan (BIP) to Board Members, etc. to provide ENEOS Holdings shares according to individual role and performance as part of the incentives program.

Management of Group Companies

Each Group company is placed under the jurisdiction of the appropriate operating or corporate department of the Company based on its business line, and the execution of its operations is managed and supervised by that department. Important matters regarding the business management of individual Group companies are reported to the Company through the relevant supervising departments. If necessary, they are also reported or discussed at the Executive Council Meetings and other important meetings.

JX Nippon Mining & Metals Group Corporate Governance Structure



Internal Control System

The Group has an internal control system to ensure the effectiveness and propriety of operations in accordance with the Basic Policy on Establishment and Operation of Internal Control System.

Internal Control Council

To develop and operate the internal control system of the Group, we established the Internal Control Council as an advisory organ to the President to monitor and discuss the state of internal controls as a means of addressing issues when necessary. In principle, the Council meets once each year.

Internal Control Promotion Committee

The Internal Control Promotion Committee was established to provide advice to and assist with the duties of the Internal Control Council and to monitor internal control activities. In principle, the Committee meets once in the first and once in the second half of the fiscal year.

Internal Audit

We conduct internal audits across the entire JX Nippon Mining & Metals Group to investigate, discuss, and assess the state of business administration, operations, and asset preservation from the standpoints of legality, efficiency, and effectiveness. The Internal Audit Department is in charge of these functions.

The Internal Audit Department establishes a medium-term policy at three-year intervals and drafts auditing plans for each fiscal year to ensure systematic internal audits. Group-wide internal audits are conducted in collaboration and cooperation with auditors dispatched from the Company to Group companies. Based on the results of audits, proposals for necessary improvements are made and the progress of responses is tracked. Audit results and findings are reported as necessary to the relevant Group company, to the President of JX Nippon Mining & Metals and to the Executive Council.

Overseas Compliance Training



The Group facilitates the fulfillment of compliance education to increase awareness and knowledge of compliance among executives and other employees.

The Group held overseas compliance training at Group companies in China* in March 2019, and at Nikko Metals Taiwan Co., Ltd. in January 2020 targeting a total of 70 staff in managerial positions. Lawyers from advisory law firms for each site were invited to lecture about bribery, conflict of interest, the private use of corporate assets, and environmental protection using specific examples in each country. These were excellent opportunities for participants to deepen their understanding of compliance.

The Group continues to plan overseas compliance training in consideration of revised laws and regional characteristics.

* JX Nippon Mining & Metals Shanghai Co., Ltd., Nikko Metals Shanghai Co., Ltd., Pan Pacific Copper (Shanghai) Co., Ltd., Nippon Mining & Metals (Suzhou) Co., Ltd., Nikko Fuji Precision (Wuxi) Co., Ltd., JX Nippon Mining & Metals Dongguan Co., Ltd., Shenzhen Nikko Shoji Co., Ltd.



Training at JX Nippon Mining & Metals Shanghai



Training at Nikko Metals Taiwan

Compliance Promotion Structure



Measures related to compliance in the Group are determined at Compliance Committee meetings (twice yearly in principle). The Committee consists of the executives of the Company and major Group companies in and outside Japan. In response to reports on the state of compliance provided by individual departments of the Company and Group Companies, the Compliance Committee evaluates the risk of fraudulent acts, legal violations, and other misconduct related to business operations, and reflects the results in the setting of priority issues and the formulation of education plans.

Whistleblower Program

To increase reliability, the Company outsourced the Group's whistleblower program to an external organization. This external organization is responsible for accepting anonymous reports from whistleblowers. The Company has also taken a wide range of measures to increase awareness of the program throughout the Group. Such measures include displaying posters at individual Group company sites to publicize the program, posting articles in pocket editions of the Group Philosophy, which is distributed to all employees, opening a special section on the Company intranet, and introducing the program during compliance education sessions. In fiscal 2019, we received several reports through the program. Necessary measures were taken for all incidents in accordance with the relevant rules and regulations while taking due care to protect whistleblowers.

Compliance Priority Target Approaches and Achievements



The Group determines priority targets regarding compliance for each fiscal year to examine the actual application of related rules and regulations by Group companies and improves application when issues are identified in the structure or operation.

Responsible Department Control Council for the Handling of Anti-social Forces and Bribery Prevention

The Company and the Group companies have undergone audits to monitor progress in dissemination and application. In fiscal 2019, there were no adverse dispositions (revocation of permission, order for improvement, fines, etc.) issued by regulators in regard to bribery.

Program for Compliance with Competition Laws

The Group established the Program for Compliance with Competition Laws, which includes rules such as those requiring all employees to report in advance planned transactions or gatherings with competitors to confirm that they do not violate competition laws, and requiring individual managers to submit periodic reports to the head office, etc. In fiscal 2019, we examined the application of the program

and confirmed that employees comply with the program. There were no adverse dispositions for anti-competitive conduct issued by regulators.

Complete Inspections for Compliance with Environment and Safety Laws

We conducted complete inspections for compliance with environment and safety laws at 12 sites of the Group in fiscal 2019. Environment, labor and safety laws were thoroughly understood by employees at all Group company sites and no serious lack of understanding was observed. All the sites have responded appropriately to matters requiring improvement.

Inspections for Compliance with Labor Laws

We conducted inspections for compliance with human affairs and labor laws at 17 Group company sites in fiscal 2019 and confirmed that they were properly managed.

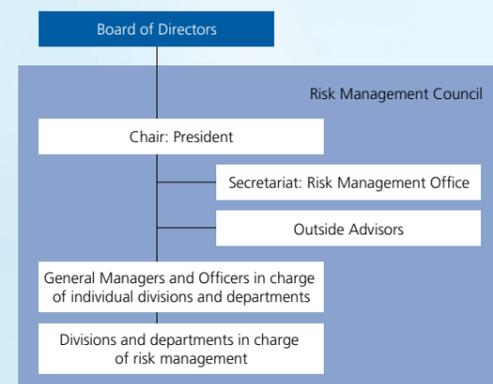
Risk Management Council Activities



The Group's Risk Management Council approves basic risk management policies, selects priority risks, develops countermeasures and plans for individual priority risks, assesses and verifies said measures and plans. The Risk Management Council consists of the Council Chair, held by the President, General Managers and Officers in charge of individual divisions and departments, and Outside Advisors. The Council held a meeting each quarter in fiscal 2019.

Each organization within the individual Group companies in Japan and overseas assesses its business activities to identify risks that may influence business management of the Group and the risks whose group-wide priority and urgency are deemed to be high are selected as priority risks by the Council. Each division and department in charge of risk management establishes and initiates countermeasures for priority risks selected by the Council. The Risk Management Office provides consistent support for such processes. In addition, the progress of individual risk countermeasures is reported, assessed, and verified at the meeting of the Council to ensure further improvement.

Structure of the Risk Management Council



Business Continuity Plan (BCP) Initiatives



The Group established business continuity plans (BCPs*¹) for the head office, other offices and affiliated companies to minimize damage and quickly recover after a major earthquake and any other incident that could disrupt business operations.

In fiscal 2019, the head office, the Hitachi works and Saganoseki Smelter & Refinery of JX Metal Smelting Co., Ltd. held BCP training. The BCP training exercise was conducted for an earthquake measuring 6+ on the Japanese seismic intensity scale to evaluate (1) the establishment of a disaster control headquarters, (2) the confirmation of employee safety, (3) the assessment of damages both inside and outside each company, and (4) the sharing and discussing of information and the initiation of measures. The exercise was carried out without disclosing the scenario in advance. As a result, we identified the need to review the initial response manuals, which we continue to improve.

The Group endeavors to verify BCPs through periodical training and establish a BCM*² system for further improvement.

*1 BCP : Business Continuity Plan *2 BCM : Business Continuity Management



BCP training at the head office



BCP training at Hitachi Works

Establishment & Operation of Quality Management System



The Group has and operates a quality management system (QMS) to realize our Quality Management Policy. We work to continually improve the PDCA cycle aiming to realize better quality through the QMS. Company sites both in Japan and overseas have acquired the QMS third-party certification (ISO9001).

In addition, the Group reviews quality improvement activities and establishes action plans through the Quality Control Committee, which is made up of top management. We also hold Quality Assurance Managers' Meetings twice annually to share information on quality management. At these meetings, action plans adopted by the Quality Control Committee meeting are shared by the quality assurance managers while issues that have been encountered and effective practices that have been implemented at each site are also shared to promote interactions among quality assurance managers.

Implementation of Automated Quality Inspection System



The Quality Control Department promotes the implementation of an automated quality inspection system to improve reliability and efficiency, and to prevent human error in quality inspections for a wide range of products in Group companies. This project involves the introduction of the latest automation-ready inspection equipment, making operational changes to existing inspection equipment, and the modification of core information systems so that measurement data from the equipment can be fed automatically to the core information systems. The Company hopes to put the systems into operation during fiscal 2020, including at overseas business sites.

Manufacturing sites that have acquired the QMS third-party certification

Domestic

Isohara Works; Kitaibaraki Precision Co., Ltd.; Kurami Works; JX Nippon Coil Center Co., Ltd. (Kurami Office, Kawasaki Office); Hitachi Works (Copper Foil Dept.); Ichinoseki Foil Manufacturing Co., Ltd.; JX Metal Smelting Co., Ltd. (Saganoseki Smelter & Refinery, Hitachi Refinery); Japan Copper Casting Co., Ltd. (Saganoseki Works); JX Metals Trading Co., Ltd. (Takatsuki Plant); JX Metals Precision Technology Co., Ltd. (Tatebayashi Works, Esashi Works, Nasu Works, Kakegawa Works); TANI OBIS Japan Co., Ltd.; and Toho Titanium Co., Ltd. (Headquarters/Chigasaki Plant, Hitachi Plant, Yahata Plant, Wakamatsu Plant, Kurobe Plant)

Overseas

Nippon Mining & Metals (Suzhou) Co., Ltd.; Nikko Fuji Precision (Wuxi) Co., Ltd.; JX Nippon Mining & Metals Dongguan Co., Ltd.; Nikko Metals Taiwan Co., Ltd. (Longtan Works, Kuanyin Works); JX Nippon Mining & Metals Philippines, Inc.; JX Nippon Mining & Metals USA, Inc.; JX Nippon Mining & Metals Korea Co., Ltd.; TANI OBIS GmbH (Goslar); TANI OBIS Smelting GmbH & Co. KG (Laufenburg); TANI OBIS Co., Ltd. (Map Ta Phut); Materials Service Complex Malaysia Sdn. Bhd.; Materials Service Complex Coil Center (Thailand) Co., Ltd.; and SCM Minera Lumina Copper Chile

The Quality Control Department is also in charge of design, planning, and promotion to enhance group-wide quality control. As a part of this, we conduct quality audits to confirm that quality control is properly conducted at Group company manufacturing sites. In fiscal 2019, there were no claims pursued under the Product Liability Act due to personal or property damage caused by defects in the products made by Group companies.



Latest automation-ready inspection equipment

Development of Human Resources for Quality Control



While improving the quality control level of the Group, the Group provides quality control education to all employees to improve their ability to estimate the cause of problems logically, identify and solve problems, and improve business quality.

The Group has developed a wide range of training programs, from introductory to advanced, tailored to the level of participants, and systematically provides training to individual employees according to their level and years' service with the companies. Such quality control education is considered a part of employee education. The training helps students to learn basic concepts specific to each program, acquire quality control methodology, analyze data by specific statistical methods using group discussion, etc.



"Five Whys Analysis" training Individuals in each group are assigned roles to identify solutions.

Awards From Our Customers



The stable supply of high-quality products and the promotion of BCP were highly regarded by our customers and received awards. In fiscal 2019, the Company received three awards.

Country	Customer	Award
Domestic	Alps Alpine Co., Ltd.	Supplier Excellence Award
Taiwan	Taiflex Scientific Co., Ltd.	2019 Best Technology Award
	Nanya Technology Corporation	Outstanding Supplier Award 2019

Participation in the Initiatives

Communication with Industrial Associations

As a member of the global community, the Group actively participates in industrial associations to fulfill its corporate social responsibility and contribute to the realization of a sustainable society.

Name of Association	The Role of JX Nippon Mining & Metals in FY2019	Activity Content
Japan Mining Industry Association (JMIA)	Director	The JMIA is an association of companies engaged in the smelting business and nonferrous metal resource development. JMIA promotes the sound growth of the industry by conducting research and publicizing knowledge for technical improvement and making policy proposals to concerned government ministries and agencies. The Group participates in committees and is involved in the administration of JMIA with a representative serving as Director.
The Sulphuric Acid Association of Japan	Chairman	The Association was established to promote the development of the sulfuric acid industry, communication among manufacturers, and the increase of common benefits. JX Nippon Mining & Metals is involved in the administration of the association as well as in the survey and reporting of supply and demand as a member of the Operations Committee and General Affairs Committee.
Japan Copper and Brass Association (JCBA)	Director	The JCBA works with member companies to promote progress and growth throughout the entire copper production industry. The Group sits on the Roadmap Committee to take part in the improvement of quality and the discovery of new demand. The Group is also involved in survey and reporting of market size as a member of the Statistics Committee.
Japan Society of Newer Metals (JSNM)	Director	The JSNM was established to promote the sound growth of new metals that support high-tech and related industries through research and the collection and provision of information. JX Nippon Mining & Metals sits on the Compound Semiconductors Subcommittee and the Target Subcommittee in order to be involved in the survey and reporting of market size as well as to take part in providing opinions and advice to concerned government ministries and agencies. JX Nippon Mining & Metals also sits on the Safety Committee to contribute to the improvement of health and safety throughout the industry.
Japan Catalyst Recovering Association (JCRA)	Chairman	Comprising companies engaged in the reuse of catalysts, JCRA was established to promote the recycling of precious and rare metals through appropriate processing of used catalysts. It holds periodical training for technical improvement and mutual communication among members while engaging in the investigation and collection of statistics relating to recycling. JX Nippon Mining & Metals provides the chairman of the association and is also involved in the publication of survey reports as well as management of general meetings as a member of the PR Committee.

Joining ICMM

The International Council on Mining & Metals (ICMM) is an international organization established to promote the sustainable growth of society through the nonferrous metal industry business.

As a member of the ICMM, JX Nippon Mining & Metals established the Code of Conduct in accordance with the ICMM Mining Principles and works to address issues highlighted in the Position Statements.

ICMM Mining Principles

1. Apply ethical business practices and sound systems of corporate governance and transparency to support sustainable development.
2. Integrate sustainable development in corporate strategy and decision-making processes.
3. Respect human rights and the interests, cultures, customs and values of employees and communities affected by our activities.
4. Implement effective risk-management strategies and systems based on sound science, and which account for stakeholder perceptions of risk.
5. Pursue continual improvement in health and safety performance with the ultimate goal of zero harm.
6. Pursue continual improvement in environmental performance issues, such as water stewardship, energy use and climate change.
7. Contribute to the conservation of biodiversity and integrated approaches to land-use planning.
8. Facilitate and support the knowledge-base and systems for responsible design, use, re-use, recycling and disposal of products containing metals and minerals.
9. Pursue continual improvement in social performance and contribute to the social, economic and institutional development of host countries and communities.
10. Proactively engage key stakeholders on sustainable development challenges and opportunities in an open and transparent manner. Effectively report and independently verify progress and performance.



ICMM Position Statements

- Protected Areas
- Indigenous Peoples
- Climate Change
- Mineral Revenues
- Mining Partnerships for Development
- Mercury Risk Management
- Tailings Governance
- Water Stewardship

Agreement with and Support for EITI

The Extractive Industries Transparency Initiative (EITI) is the multilateral cooperation standard for the promotion of open and accountable management of extractive resources with the goal of reducing poverty and achieving sustainable development in resource-producing countries. Being engaged in resource development at the global level, JX Nippon Mining & Metals agrees to the goals of the EITI and supports its activities.

The EITI Principles

1. We share a belief that the prudent use of natural resource wealth should be an important engine for sustainable economic growth that contributes to sustainable development and poverty reduction, but if not managed properly, can create negative economic and social impacts.
2. We affirm that management of natural resource wealth for the benefit of a country's citizens is in the domain of sovereign governments to be exercised in the interest of their national development.
3. We recognise that the benefits of resource extraction occur as revenue streams over many years and can be highly price dependent.
4. We recognise that a public understanding of government revenues and expenditure over time could help public debate and inform choice of appropriate and realistic options for sustainable development.
5. We underline the importance of transparency by governments and companies in the extractive industries and the need to enhance public financial management and accountability.
6. We recognise that achievement of greater transparency must be set in the context of respect for contracts and laws.
7. We recognise the enhanced environment for domestic and foreign direct investment that financial transparency may bring.
8. We believe in the principle and practice of accountability by government to all citizens for the stewardship of revenue streams and public expenditure.
9. We are committed to encouraging high standards of transparency and accountability in public life, government operations and in business.
10. We believe that a broadly consistent and workable approach to the disclosure of payments and revenues is required, which is simple to undertake and to use.
11. We believe that payments' disclosure in a given country should involve all extractive industry companies operating in that country.
12. In seeking solutions, we believe that all stakeholders have important and relevant contributions to make – including governments and their agencies, extractive industry companies, service companies, multilateral organisations, financial organisations, investors and non-governmental organisations.

Participation in the United Nations Global Compact

The United Nations (UN) Global Compact is a framework which helps individual companies and associations act as good members of society for the realization of sustainable growth. JX Nippon Mining & Metals has been a participant in the UN Global Compact since August 2008, supporting the Ten Principles derived from four fields and striving for their realization.

The Ten Principles of the UN Global Compact

Human Rights

Principle 1 Businesses should support and respect the protection of internationally proclaimed human rights; and

Principle 2 make sure that they are not complicit in human rights abuses.

Labour

Principle 3 Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;

Principle 4 the elimination of all forms of forced and compulsory labour;

Principle 5 the effective abolition of child labour; and

Principle 6 the elimination of discrimination in respect of employment and occupation.

Environment

Principle 7 Businesses should support a precautionary approach to environmental challenges;

Principle 8 undertake initiatives to promote greater environmental responsibility; and

Principle 9 encourage the development and diffusion of environmentally friendly technologies.

Anti-Corruption

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



CSR Questionnaire

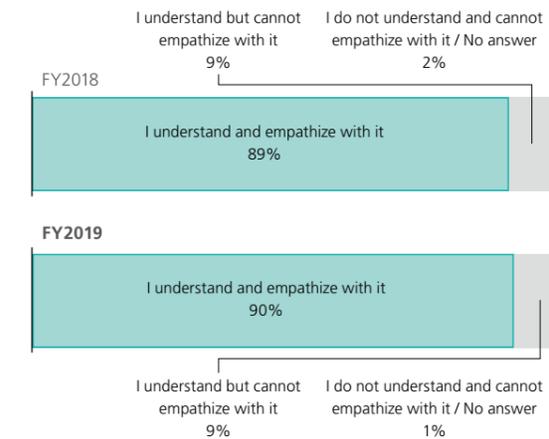
JX Nippon Mining & Metals surveyed employees to understand the level of CSR awareness and the degree of practical involvement. The details are shown below.

Period: October – December 2019
 Method: Distributed questionnaire along with Sustainability Report 2019
 Respondents: 6,005 individuals (Target: 7,079 individuals/Response Rate: 85%)

(1) About the JXTG Group (currently ENEOS Group) Philosophy and Code of Conduct

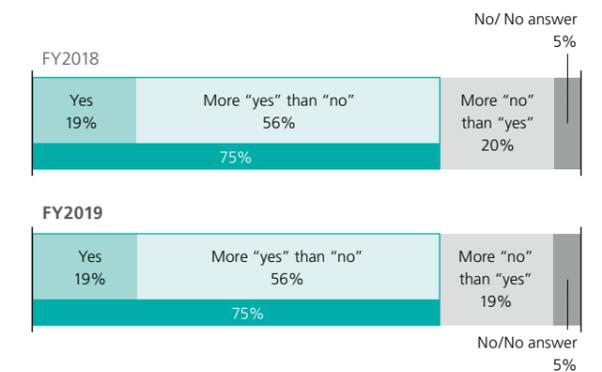
Level of understanding and empathy

(Do you understand/empathize with the Code of Conduct?)



Level of penetration

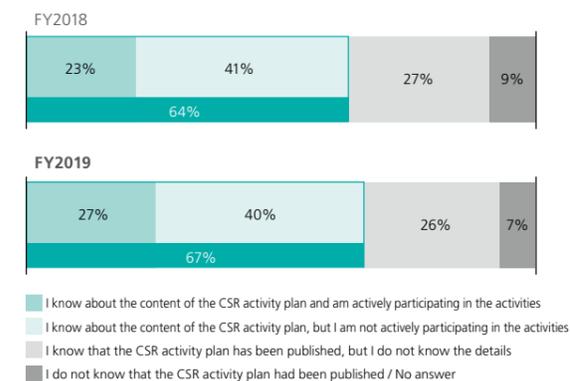
(Do you think the Code of Conduct thoroughly penetrates the organization and workplace?)



(2) About the CSR activity plan

Level of penetration

(Do you know about the content of the CSR activity plan of the organization that you belong to? How are you working on that?)



(3) Requests for and opinions about Sustainability Report 2020

- I would like to read any special features about the long-term vision.
 - ▷ We have written about the relocation of the head office building, which was one of the plans designed to achieve our long-term vision.
- I think it would be much better if we could see the achievement rate for individual goals.
 - ▷ This fiscal year, we have set KPIs for each materiality. We will continue to report our progress next fiscal year using these KPIs.
- I hope that the company reduces the use of abbreviations and industry-specific terminology.
 - ▷ We have tried to use easy-to-understand and common terms as much as possible.
- The type of content was sufficient, but the volume of data was excessive.
 - ▷ We structured the report to meet the needs of both those who prefer detailed data and those who prefer narrative.

* For FY2018 report, the number of respondents was 5,697 (target: 6,059 individuals/Response rate: 94%). The questionnaire period was between October and December 2018, and the method of collecting responses was the same as FY2019.

Data Book

Mass Balance Table for the Group (Fiscal 2019)

INPUT		
Raw materials <input checked="" type="checkbox"/>	Energy <input checked="" type="checkbox"/>	Water resources <input checked="" type="checkbox"/>
Primary raw materials	Fuel	Fresh water
Domestic operating sites 2,429kt	Domestic operating sites 3,489TJ	Domestic operating sites 19.6 million cubic meters
Overseas operating sites 7kt	Overseas operating sites 2,267TJ	Overseas operating sites 9.5 million cubic meters
Total 2,436kt	Total 5,756TJ	Total 29.1 million cubic meters
Recycled raw materials	Electricity*	Seawater
Domestic operating sites 261kt	Domestic operating sites 14,783TJ	Domestic operating sites 89.9 million cubic meters
Overseas operating sites 2kt	Overseas operating sites 9,526TJ	Overseas operating sites — million cubic meters
Total 263kt	Total 24,309TJ	Total 89.9 million cubic meters

*Includes thermal energy (consuming steam, hot water and cold water) supplied by third parties.

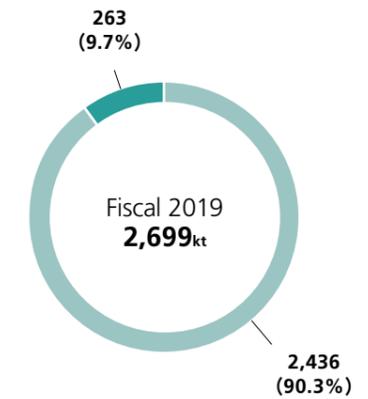
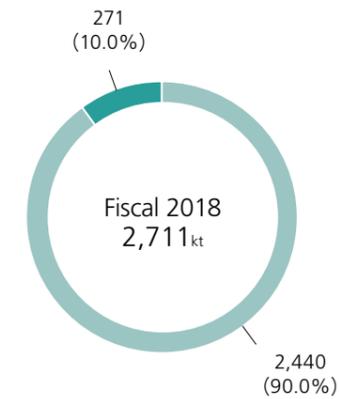
JX Nippon Mining & Metals Group

OUTPUT			
Principal products <input checked="" type="checkbox"/>	Emissions		
Copper concentrate 389kt	CO₂ <input checked="" type="checkbox"/>	SO_x <input checked="" type="checkbox"/>	NO_x <input checked="" type="checkbox"/>
Refined copper 716kt	Total of domestic operating sites	Domestic operating sites 4.5 kt	Domestic operating sites 0.6 kt
Gold 39t	Scope 1 377 kt	Overseas operating sites 0.1 kt	Overseas operating sites 0.1 kt
Silver 349t	Scope 2 672 kt	Total 4.6 kt	Total 0.7 kt
Platinum 525kg	Total of overseas operating sites	Final disposal of waste materials <input checked="" type="checkbox"/>	Wastewater
Palladium 2,809kg	Scope 1 155 kt	Domestic operating sites 1.9 kt	Domestic operating sites 109.4 million cubic meters
Other metals (selenium, tellurium) 289t	Scope 2 441 kt	Overseas operating sites 8.2 kt	Overseas operating sites 0.7 million cubic meters
Electro-deposited and treated rolled copper foil 7kt	Total 1,645kt	Total 10.1 kt	Total 110.1 million cubic meters
Copper alloy, special steel strips, etc. 31kt	Chemical substances (release and transfer) <input checked="" type="checkbox"/>		
Titanium sponge 30kt	Total of domestic operating sites 0.44kt		
Sulfuric acid (by-product) 1,785kt			

Raw materials

Material Input

Primary raw materials Recycled raw materials

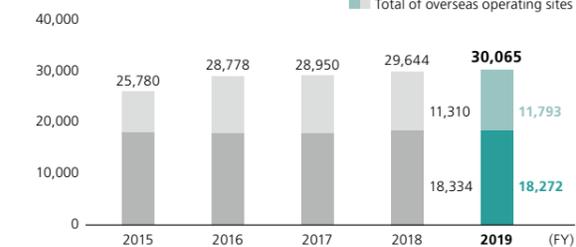


Energy

Energy Consumption

(calorific value, terajoules)

Total of domestic operating sites
Total of overseas operating sites



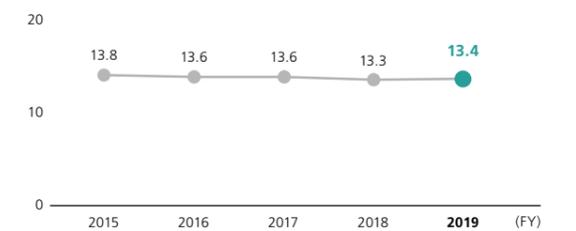
* Energy consumption figures of domestic operating sites and total energy consumption figures of the Group for fiscal 2018 have been corrected due to errors in these figures.

Breakdown by Fuel Type

	Domestic operating sites	Overseas operating sites
Kerosene (kL)	1,847	—
Light oil (kL)	2,746	51,990
Class A heavy oil (kL)	12,229	1,109
Class B and C heavy oil (kL)	29,226	5,129
Reclaimed oil (kL)	1,191	—
LPG/butane (t)	5,087	6
LNG (t)	4,898	—
Coke (t)	5,086	—
Petroleum coke (t)	5,334	—
City gas (thousand cubic meters)	16,215	1,101

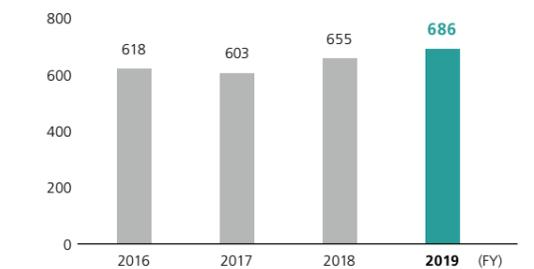
Energy Consumption Intensity at Smelters and Refineries (Fuel and Electricity)

(calorific value in gigajoules per ton of refined copper produced)



Energy Consumption in Logistics Stages (Domestic)

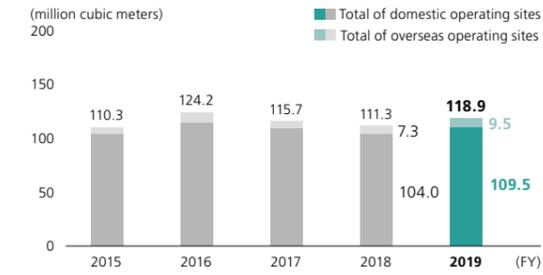
(calorific value, terajoules)



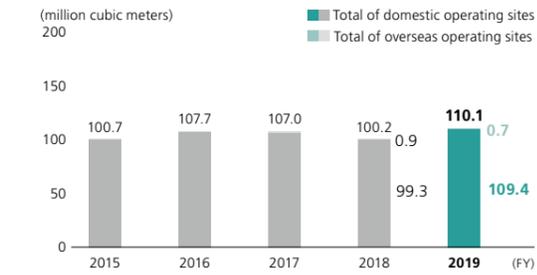
* Applicable to specified consigners as defined in the Act on the Rational Use of Energy. Three Group companies fall under this definition: JX Nippon Mining & Metals Corporation, Kasuga Mines Co., Ltd., and Pan Pacific Copper Co., Ltd.

Water Resources

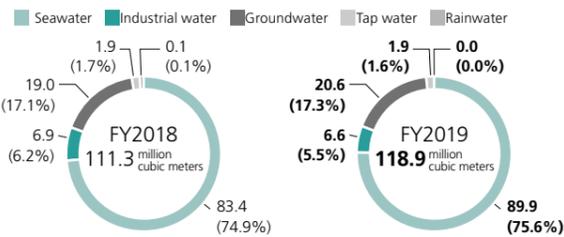
Water Usage*¹



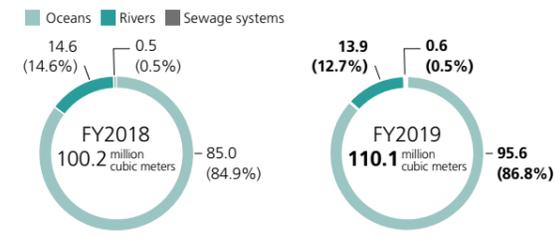
Water Discharge Volume*²



Total Water Usage*¹



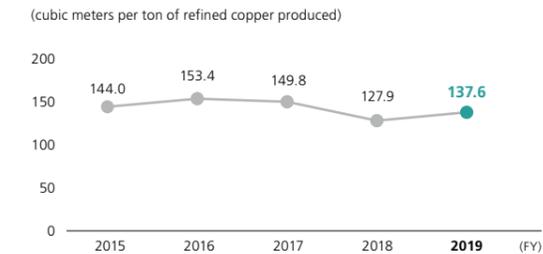
Total Water Discharge*²



*¹ Seawater usage at the Saganoseki Smelter & Refinery of Pan Pacific Copper Co., Ltd. is calculated based on pumping capacity. Groundwater usage at JX Nippon Mikkaichi Recycle Co., Ltd. up to fiscal 2016 was calculated by multiplying water discharge volume by a fixed rate. Freshwater usage at the Saganoseki Smelter & Refinery of Pan Pacific Copper Co., Ltd. and water usage at the other operating sites are based on flowmeter readings or on invoices from the site's respective water utility. We have retroactively revised seawater usage figures for the Saganoseki Smelter & Refinery of Pan Pacific Copper Co., Ltd. as far back as fiscal 2015 due to changes made in the figure's calculation method.

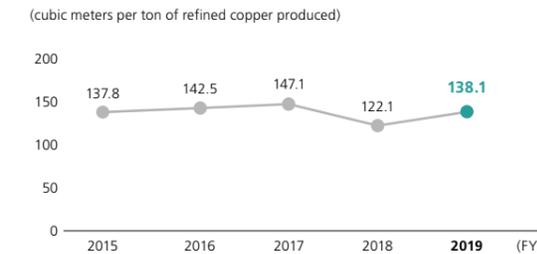
*² The volume of water discharged into public waters (oceans and rivers) at each operating site represents the following: an amount calculated based on drainage weirs (Hitachi Works, Isohara Works, Saganoseki Smelter & Refinery of Pan Pacific Copper Co., Ltd., JX Nippon Tomakomai Chemical Co., Ltd., and JX Nippon Mikkaichi Recycle Co., Ltd.); an amount obtained by multiplying groundwater usage by a fixed rate (Kurami Works, Toho Titanium Co., Ltd.'s Headquarters & Chigasaki Plant); an amount otherwise calculated (Toho Titanium Co., Ltd.'s Yahata Plant); or an amount based on flowmeter readings (other operating sites). The volume of water discharged into the sewage system is based on flowmeter readings or on invoices from the site's respective sewage utility. We have retroactively revised figures for ocean discharge for the Saganoseki Smelter & Refinery of Pan Pacific Copper Co., Ltd. as far back as fiscal 2015 due to changes made in the figure's calculation method.

Water Usage Intensity at Smelters and Refineries



* We have retroactively revised figures for water usage intensity as far back as fiscal 2015 due to changes made in the calculation method for seawater usage volume at the Saganoseki Smelter & Refinery of Pan Pacific Copper Co., Ltd.

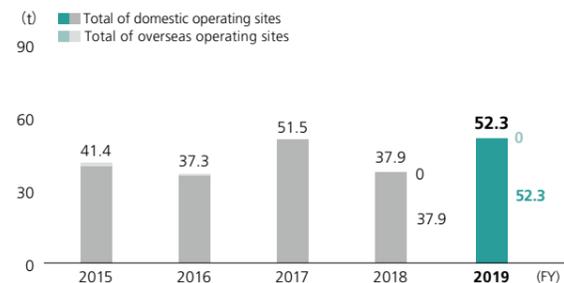
Water Discharge Intensity at Smelters and Refineries



* We have retroactively revised figures for water discharge intensity as far back as fiscal 2015 due to changes made in the calculation method for ocean discharge volume at the Saganoseki Smelter & Refinery of Pan Pacific Copper Co., Ltd.

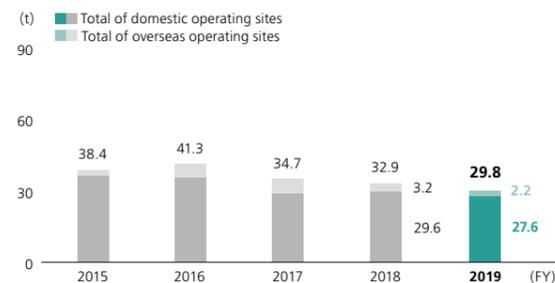
Water Pollutants

COD Load



* We have retroactively revised figures for COD load from domestic operating sites as far back as fiscal 2015 due to changes made in the calculation method for ocean discharge volume at the Saganoseki Smelter & Refinery of Pan Pacific Copper Co., Ltd.

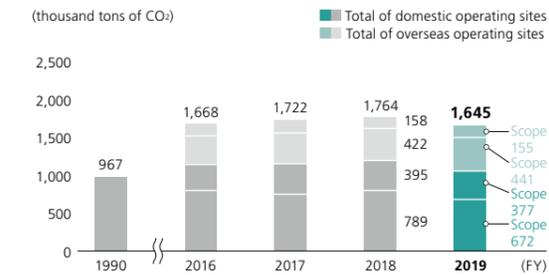
BOD Load



* Totals are for operating sites subject to legal requirements (sites that discharge water into rivers or streams).

Climate Change

CO₂ Emissions from Manufacturing Activities

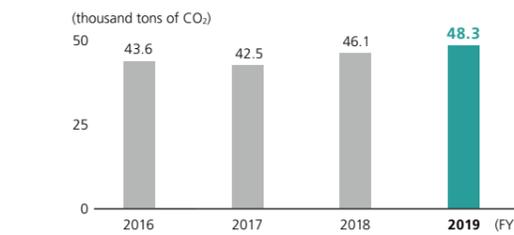


* Scope 1 emissions are those from energy consumption (fuel), emissions other than from energy consumption (waste oil, waste plastic, sludge, waste wood), and emissions from reducing agents, converted to equivalent CO₂.

* Scope 2 emissions are those from electricity consumption converted to equivalent CO₂. Emissions from electricity consumption include those from thermal energy (consuming steam, hot water, cold water) supplied by third parties.

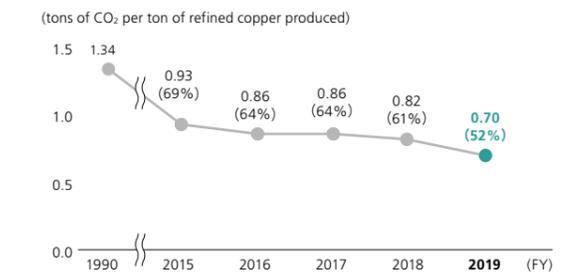
* Domestic Scope 1 emissions figures and combined domestic and overseas CO₂ emissions figures of the Group for fiscal 2018 have been corrected due to errors in these figures.

CO₂ Emissions in Logistics Stages



* Applicable to specified consigners as defined in the Act on the Rational Use of Energy. Three Group companies fall under this definition: JX Nippon Mining & Metals Corporation, Kasuga Mines Co., Ltd., and Pan Pacific Copper Co., Ltd.

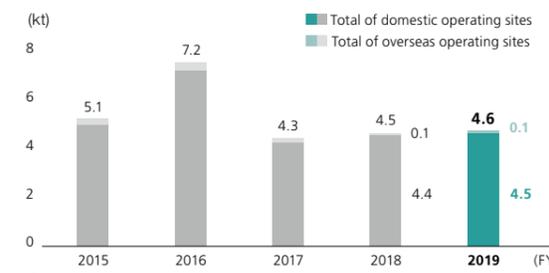
CO₂ Emission Intensity at Smelters and Refineries



* Percentages are in relation to 1990 levels. The emissions covered include Scope 1 and Scope 2.

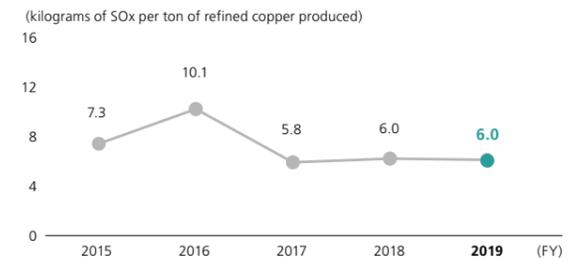
Air Pollutants

SO_x Emissions

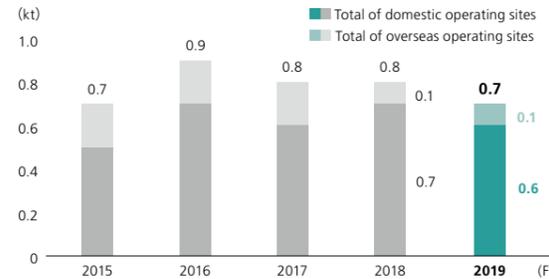


* Totals are for operating sites subject to emissions regulations.

SO_x Emission Intensity at Smelters and Refineries

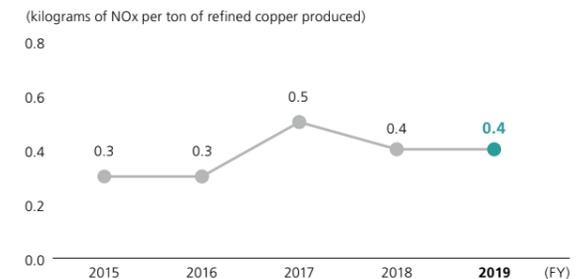


NO_x Emissions



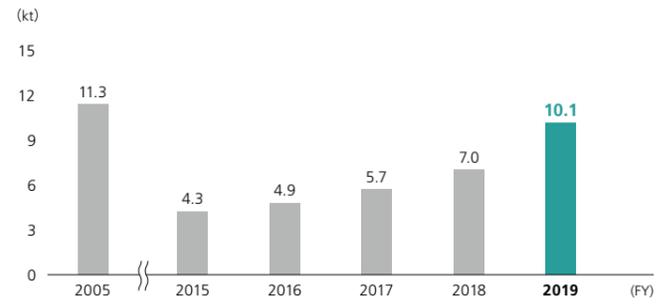
* Totals are for operating sites subject to emissions regulations.

NO_x Emission Intensity at Smelters and Refineries



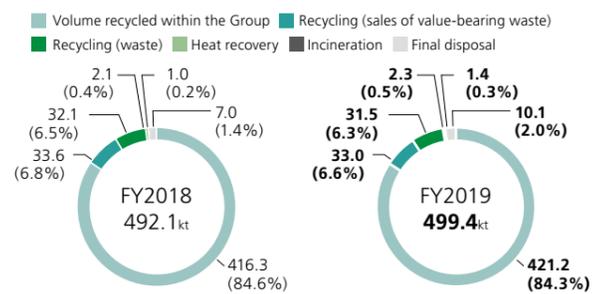
Waste Materials

Volume of Final Disposal of Waste

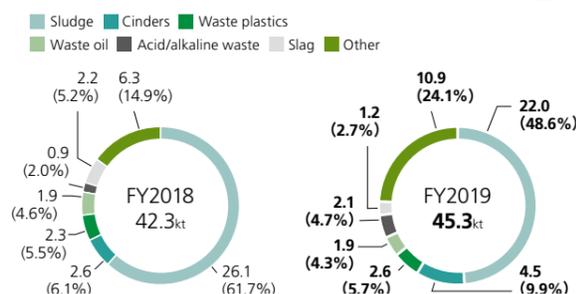


* These figures do not include approximately 6.9 thousand tons disposed of in offshore landfills by Toho Titanium. They also do not include approximately 30.4 million tons of slag from the Caserones Copper Mine.

Total Volume of Waste and Sellable Materials Generated

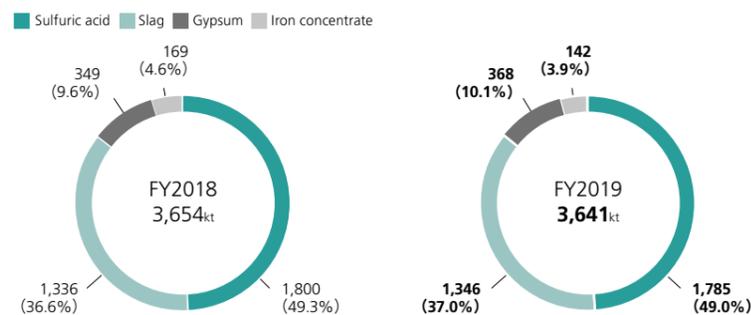


Total Discharge Volume by type of waste materials



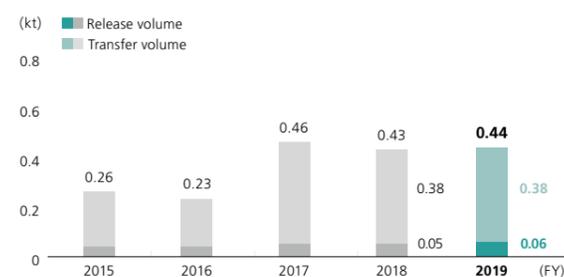
By-Product

By-Product Production



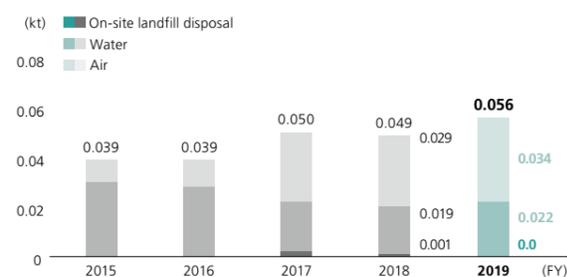
Chemical Substances

Volumes of Release and Transfer of PRTR Substances



* We have retroactively revised figures for PRTR release volumes and PRTR water release volumes as far back as fiscal 2015 due to changes made in the calculation method for ocean discharge volume at the Saganoseki Smelter & Refinery of Pan Pacific Copper Co., Ltd.

Breakdown of Release Volumes of PRTR Substances



* We have retroactively revised figures for PRTR release volumes and PRTR water release volumes as far back as fiscal 2015 due to changes made in the calculation method for ocean discharge volume at the Saganoseki Smelter & Refinery of Pan Pacific Copper Co., Ltd.

Volumes of Release and Transfer of Major PRTR Substances in Fiscal 2019 (t)

No.	Cabinet order no.	Chemical substance	Release volume			Transfer volume	
			Air	Water	On-site landfill disposal	Sewage systems	Waste Materials
1	31	Antimony and its compounds	0.1	0.4	0	0	32.4
2	75	Cadmium and its compounds	0.1	0.1	0	0	21.0
3	132	Cobalt and its compounds	0	0.1	0	0	13.2
4	300	Toluene	22.8	0	0	3.2	250.8
5	305	Lead compounds	0.7	0.2	0	0	5.3
6	309	Nickel compounds	0.1	0.5	0	0	12.7
7	332	Arsenic and its inorganic compounds	0.4	0.5	0	0	14.5
8	354	Dibutyl phthalate	0	0	0	0	6.0
9	384	1-Bromopropane	6.2	0	0	0	0
10	405	Boron compounds	0	11.9	0	0	1.6
11	412	Manganese and its compounds	0	0.8	0	0	16.4
12	243	Dioxins	0.2	0	0	0	2.3

* The values given are totals for companies with operating sites subject to reporting requirements under the PRTR Act (JX Metals Trading Co., Ltd., Kasuga Mines Co., Ltd., and the domestic companies defined in Scope of this Report on page 3 as subject to Environment section reporting). Of the 51 chemical substances subject to reporting, those totaling at least 5.0 tons in any category, and dioxins, are listed here. There were no cases of chemical substances released into the soil.

Occupational Health and Safety

Occupational and Other Accidents*1

Category		2017	2018	2019
Safety performance at domestic operating sites	Fatalities (persons)*2	0	0	0
	Accidents with lost work days (persons)*2	3	10	1
	Accidents without lost work days (persons)*2	8	7	6
	Total(persons)	11	17	7
	Frequency rate of industrial accidents*3	0.25	0.46	0.00
	Severity rate of industrial accidents*3	0.01	0.00	0.00
	Explosions and fires (incidences)*2	0	3*4	2*4
(Reference) Safety performance at overseas operating sites	Fatalities (persons)*5	0	0	1
	Accidents with lost work days (persons)*5	13	16	18
	Accidents without lost work days (persons)*5	3	2	3
	Total (persons) *5	16	18	22

*1 Safety performance data is compiled on a calendar year basis (January to December).

*2 Aggregate values are for the entire Group (but excluding Toho Titanium Co., Ltd.).

*3 Both the frequency rate (the number of casualties in industrial accidents per 1 million total hours actually worked) and the severity rate (the number of working days lost per 1,000 total actual working hours) of industrial accidents are for the Company only.

*4 No physical injuries were caused as a result of explosions/fires.

*5 Figures include performance of Group companies and subcontractors.

(Reference) In 2019, the frequency and severity rate of industrial accidents for all businesses in Japan were 1.80 and 0.09, respectively. (Source: Ministry of Health, Labor and Welfare, "Survey on Industrial Accidents")

Developing Human Resources

Training Programs Implemented in Fiscal 2019

		(hours)		
		Male	Female	Total
Total program hours (annual)	Managerial staff	7,487	161	7,648
	General employees	65,512	8,915	74,427
	Total	72,999	9,076	82,075
Per employee	Managerial staff	13	16	
	General employees	30	31	
	Overall	26	30	

* Survey scope: Employees of JX Nippon Mining & Metals plus those seconded by the Company to JX Nippon Environmental Services Co., Ltd. and JX Metals Smelting Co., Ltd. (Saganoseki Smelter & Refinery, Hitachi Refinery)

Employment and Work Styles

Survey scope: Companies in which JX Nippon Mining & Metals has 50% or more of their voting rights, directly or indirectly (excluding H.C. Starck Tantalum and Niobium GmbH (now TANIOBIS GmbH) Group companies)

Counting of seconded employees: Includes all employees being seconded to or from the companies subject to this survey

No. of employees (by employment status and employment contract type; as of March 31, 2020)

		Male	Female	Total
Full-time	Contracts without fixed terms	7,852	1,058	8,910
	Contracts with fixed terms	515	118	633
	Subtotal	8,367	1,176	9,543
Part-time	Contracts without fixed terms	15	33	48
	Contracts with fixed terms	59	28	87
	Subtotal	74	61	135
Total		8,441	1,237	9,678

		Japan	North America	South America	Asia	Europe	Middle East	Total
Full-time	Contracts without fixed terms	6,666	109	939	1,134	21	41	8,910
	Contracts with fixed terms	467	2	69	92	2	1	633
	Subtotal	7,133	111	1,008	1,226	23	42	9,543
Part-time	Contracts without fixed terms	47	0	0	0	1	0	48
	Contracts with fixed terms	85	0	2	0	0	0	87
	Subtotal	132	0	2	0	1	0	135
Total		7,265	111	1,010	1,226	24	42	9,678

No. of employees (by region; as of March 31, 2020)

	Japan	North America	South America	Asia	Europe	Middle East	Total
Male	6,512	85	930	855	17	42	8,441
Female	753	26	80	371	7	0	1,237
Total	7,265	111	1,010	1,226	24	42	9,678

No. of newly hired employees (April 1, 2019 to March 31, 2020)

	Male	Female	Total	Age 29 or younger	Age 30 to 49	Age 50 or older	Total
New hires	607	120	727	305	342	80	727
Percent of total employee count as of March 31, 2020	7%	10%	8%	23%	6%	3%	8%

	Japan	North America	South America	Asia	Europe	Middle East	Total
New hires	440	10	123	154	0	0	727
Percent of total employee count as of March 31, 2020	6%	9%	12%	13%	0%	0%	8%

No. of employees ending employment (April 1, 2019 to March 31, 2020)

	Male	Female	Total	Age 29 or younger	Age 30 to 49	Age 50 or older	Total
Retiring employees	617	90	707	196	343	168	707
Percent of total employee count as of March 31, 2020	7%	7%	7%	15%	6%	7%	7%

	Japan	North America	South America	Asia	Europe	Middle East	Total
Retiring employees	402	11	123	170	0	1	707
Percent of total employee count as of March 31, 2020	6%	10%	12%	14%	0%	2%	7%

Membership in labor unions (as of March 31, 2020)

	Male	Female	Total	Age 29 or younger	Age 30 to 49	Age 50 or older	Total
No. of union members	5,401	687	6,088	1,001	4,015	1,072	6,088
Membership rate	64%	56%	63%	76%	68%	43%	63%

Strikes or lockouts lasting more than one week: None

Diversity

Representation of Women in the Workforce (as of March 31, 2020)

No. of female employees (total of all Group companies)	1,237
Percentage of female in managerial positions (supervisor class and above)	27.5%
No. of female employees (JX Nippon Mining & Metals)	302
Percentage of female in managerial positions (supervisor class and above)	34.4%

Use of childcare leave in fiscal 2019 (JX Nippon Mining & Metals)

	Male	Female	Total
No. of employees using leave	9	7	16
No. of employees eligible to use leave*	114	7	121
Usage rate (rounded to nearest percent)	8%	100%	13%

* Male: Employees with a child born within the fiscal year

Female: Employees whose post-childbirth leave ended during the fiscal year and who can take childcare leave

Retention rate after return from childcare leave (Percentage of those still employed 12 months after returning from leave) (JX Nippon Mining & Metals)

	Male	Female	Total
No. of employees who returned to work from childcare leave during fiscal 2018	2	5	7
No. of employees still employed 12 months after returning to work	2	5	7
Percentage	100%	100%	100%

Rate of return to work after childcare leave (JX Nippon Mining & Metals)

	Male	Female	Total
No. of employees who returned to work from childcare leave during fiscal 2019	8	10	18
No. of employees scheduled to return to work	8	10	18
Percentage	100%	100%	100%

Status of rehiring in fiscal 2019 (JX Nippon Mining & Metals)

No. of age-limited retirees	23
No. of these rehired	20
Rehiring rate (%)	87%

Persons with disabilities as a percentage of the workforce in fiscal 2019 (JX Nippon Mining & Metals)

Percentage of employees with disabilities (statutory minimum: 2.2%)	2.4%
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Global Network

JX Nippon Mining & Metals operates a number of production sites and oversees several Group companies in Japan and around the world. We utilize this network to meet an ever-evolving, ever-diversifying set of needs, providing new value to our customers and society at large.

Europe

- Frankfurt Office
- JX Nippon Mining & Metals Europe GmbH
- TANIOBIS GmbH
- TANTANIOBIS Smelting GmbH & Co. KG
- Nippon LP Resources UK Ltd.

Middle East

- Advanced Metal Industries Cluster and Toho Titanium Metal Company Limited

Asia

- JX Nippon Mining & Metals Korea Co., Ltd.
- LS-Nikko Copper Inc.
- Poongsan-Nikko Tin Plating Corporation
- JX Nippon Mining & Metals Shanghai Co., Ltd.
- Nikko Metals Shanghai Co., Ltd.
- Nippon Mining & Metals (Suzhou) Co., Ltd.
- Nikko Fuji Precision (Wuxi) Co., Ltd.
- JX Nippon Mining & Metals Dongguan Co., Ltd.
- Nikko Shoji (Hong Kong) Co., Ltd.
- Shenzhen Nikko Shoji Co., Ltd.
- Nikko Metals Taiwan Co., Ltd.
- JX Nippon Mining & Metals Philippines, Inc.
- TANIOBIS Co., Ltd.
- Materials Service Complex Malaysia Sdn. Bhd.
- JX Nippon Mining & Metals Singapore Pte. Ltd.

North America

- JX Nippon Mining & Metals USA, Inc.
- TANIOBIS USA LLC

Central and South America

- JX Nippon Mining & Metals Exploration Peru S.A.C.
- Compania Minera Quechua S.A.
- Escondida Copper Mine
- Caserones Copper Mine
- Los Pelambres Copper Mine
- Chile Office
- JX Nippon Mining & Metals Chile SpA
- JX Nippon Mining & Metals Exploration Chile Limitada
- SCM Minera Lumina Copper Chile

Japan

- JX Nippon Tomakomai Chemical Co., Ltd.
- Esashi Works, JX Metals Precision Technology Co., Ltd.
- Ichinoseki Foil Manufacturing Co., Ltd.
- Shirakawa Plant, JX Nippon Takasho Co., Ltd.
- Isohara Works
- JX Nippon Foundry Co., Ltd.
- Hitachi Works
- Hitachi Refinery, JX Metals Smelting Co., Ltd.
- JX Nippon Environmental Services Co., Ltd.
- Kamine Clean Service Co., Ltd.
- Hitachi Plant, Toho Titanium Co., Ltd.
- Mito Plant, TANIOBIS Japan Co., Ltd.
- Tsukuba Factory, Furuuchi Chemical Corporation
- Tatebayashi Works, JX Metals Precision Technology Co., Ltd.
- Nasu Works, JX Metals Precision Technology Co., Ltd.
- Kurami Works
- Kurami Office, JX Nippon Coil Center Co., Ltd.
- Kawasaki Office, JX Nippon Coil Center Co., Ltd.
- Chigasaki Plant, Toho Titanium Co., Ltd.
- JX Nippon Mikkaichi Recycle Co., Ltd.
- Kurobe Plant, Toho Titanium Co., Ltd.
- Kakegawa Works, JX Metals Precision Technology Co., Ltd.
- Tsuruga Plant
- JX Nippon Tsuruga Recycle Co., Ltd.
- Takatsuki Plant, JX Metals Trading Co., Ltd.
- Osaka Works, TATSUTA Electric Wire and Cable Co., Ltd.
- Yahata Plant, Toho Titanium Co., Ltd.
- Wakamatsu Plant, Toho Titanium Co., Ltd.
- Saganoseki Smelter & Refinery of JX Metals Smelting Co., Ltd.
- Saganoseki Works, Japan Copper Casting Co., Ltd.
- Nissho Kou-un Co., Ltd.
- Kasuga Mines Co., Ltd.

Corporate Profile

Company Name	JX Nippon Mining & Metals Corporation
Paid-in Capital	75.0 billion yen (wholly owned by ENEOS Holdings, Inc.)
Representative	Seiichi Murayama, President and Representative Director
Revenue	1,004.4 billion yen (fiscal 2019, consolidated)
Head Office	10-4, Toranomon 2-chome, Minato-ku, Tokyo 105-8417, Japan The Okura Prestige Tower
Business Lines	<ul style="list-style-type: none"> ● Functional Materials Business ● Thin Film Materials Business ● Mineral Resources Business ● Metals & Recycling Business ● Tantalum & Niobium Business ● Titanium Business

Employees (Non-consolidated)	3,103 (as of March 31, 2020)
Employees (Consolidated)	9,678 (as of March 31, 2020)
Domestic Operating Sites	<ul style="list-style-type: none"> ● Hitachi Works (Ibaraki Prefecture) ● Isohara Works (Ibaraki Prefecture) ● Kurami Works (Kanagawa Prefecture) ● Tsuruga Plant (Fukui Prefecture) ● Technology Development Center (Ibaraki Prefecture)
Overseas Operating Sites*	<ul style="list-style-type: none"> ● Chile Office ● Frankfurt Office

*The JX Nippon Mining & Metals Group conducts business in Japan and 11 other nations, including Chile, Germany, China, South Korea, and the United States.

GRI Standards Content Index (Core Option)

☉=Core

No.	Disclosure	Reporting requirements	Relevant contents
GRI 102: General Disclosures			
☉102-1	Name of the organization	a. Name of the organization.	P85-86: Global Network
☉102-2	Activities, brands, products, and services	a. A description of the organization's activities. b. Primary brands, products, and services, including an explanation of any products or services that are banned in certain markets.	P11-12: Value Creation Model P23-24: Group Products All Around Us P25-26: Business Portfolio P27-32: Strategies by Business
☉102-3	Location of headquarters	a. Location of the organization's headquarters.	P85-86: Global Network
☉102-4	Location of operations	a. Number of countries where the organization operates, and the names of countries where it has significant operations and/or that are relevant to the topics covered in the report.	P85-86: Global Network
☉102-5	Ownership and legal form	a. Nature of ownership and legal form.	P85-86: Global Network
☉102-6	Markets served	a. Markets served, including: i. geographic locations where products and services are offered; ii. sectors served; iii. types of customers and beneficiaries.	P15-18: Medium-Term Management Plan P23-24: Group Products All Around Us P25-26: Business Portfolio P85-86: Global Network
☉102-7	Scale of the organization	a. Scale of the organization, including: i. total number of employees; ii. total number of operations; iii. net sales (for private sector organizations) or net revenues (for public sector organizations); iv. total capitalization (for private sector organizations) broken down in terms of debt and equity; v. quantity of products or services provided.	P15-18: Medium-Term Management Plan P23-24: Group Products All Around Us P25-26: Business Portfolio P77: Data (Mass Balance Table for the Group) P83-84: Data (Employment and Work Styles) P85-86: Global Network
☉102-8	Information on employees and other workers	a. Total number of employees by employment contract (permanent and temporary), by gender. b. Total number of employees by employment contract (permanent and temporary), by region. c. Total number of employees by employment type (full-time and part-time), by gender. d. Whether a significant portion of the organization's activities are performed by workers who are not employees. If applicable, a description of the nature and scale of work performed by workers who are not employees. e. Any significant variations in the numbers reported in Disclosures 102-8-a, 102-8-b, and 102-8-c (such as seasonal variations in the tourism or agricultural industries). f. An explanation of how the data have been compiled, including any assumptions made.	P83-84: Data (Employment and Work Styles)
☉102-9	Supply chain	a. A description of the organization's supply chain, including its main elements as they relate to the organization's activities, primary brands, products, and services.	P11-12: Value Creation Model P23-24: Group Products All Around Us P25-26: Business Portfolio P27-32: Strategies by Business
☉102-10	Significant changes to the organization and its supply chain	a. Significant changes to the organization's size, structure, ownership, or supply chain, including: i. Changes in the location of, or changes in, operations, including facility openings, closings, and expansions; ii. Changes in the share capital structure and other capital formation, maintenance, and alteration operations (for private sector organizations); iii. Changes in the location of suppliers, the structure of the supply chain, or relationships with suppliers, including selection and termination.	P5-8: Message From the President P15-18: Medium-Term Management Plan P19-22: Special Feature
☉102-11	Precautionary Principle or approach	a. Whether and how the organization applies the Precautionary Principle or approach.	P35-36: JX Nippon Mining & Metals Group Materialities P37-42: Contribute to Environmental Conservation P51-56: Create Attractive Workplaces P57-60: Respect Human Rights P67-72: Strengthen Governance
☉102-12	External initiatives	a. A list of externally-developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes, or which it endorses.	P73-75: Participation in the Initiatives
☉102-13	Membership of associations	a. A list of the main memberships of industry or other associations, and national or international advocacy organizations.	P73-75: Participation in the Initiatives
☉102-14	Statement from senior decision-maker	a. A statement from the most senior decision-maker of the organization (such as CEO, chair, or equivalent senior position) about the relevance of sustainability to the organization and its strategy for addressing sustainability.	P5-8: Message From the President
102-15	Key impacts, risks, and opportunities	a. A description of key impacts, risks, and opportunities.	P11-12: Value Creation Model P13-14: Long-Term Vision
☉102-16	Values, principles, standards, and norms of behavior	a. A description of the organization's values, principles, standards, and norms of behavior.	P1-2: JX Nippon Mining & Metals Group Code of Conduct P33-34: CSR Roots
102-17	Mechanisms for advice and concerns about ethics	a. A description of internal and external mechanisms for: i. seeking advice about ethical and lawful behavior, and organizational integrity; ii. reporting concerns about unethical or unlawful behavior, and organizational integrity.	P67-72: Strengthen Governance
☉102-18	Governance structure	a. Governance structure of the organization, including committees of the highest governance body. b. Committees responsible for decision-making on economic, environmental, and social topics.	P36: CSR Promotion System P67-72: Strengthen Governance
102-19	Delegating authority	a. Process for delegating authority for economic, environmental, and social topics from the highest governance body to senior executives and other employees.	
102-20	Executive-level responsibility for economic, environmental, and social topics	a. Whether the organization has appointed an executive-level position or positions with responsibility for economic, environmental, and social topics. b. Whether post holders report directly to the highest governance body.	

No.	Disclosure	Reporting requirements	Relevant contents
102-21	Consulting stakeholders on economic, environmental, and social topics	a. Processes for consultation between stakeholders and the highest governance body on economic, environmental, and social topics. b. If consultation is delegated, describe to whom it is delegated and how the resulting feedback is provided to the highest governance body.	
102-22	Composition of the highest governance body and its committees	a. Composition of the highest governance body and its committees by: i. executive or non-executive; ii. independence; iii. tenure on the governance body; iv. number of each individual's other significant positions and commitments, and the nature of the commitments; v. gender; vi. membership of under-represented social groups; vii. competencies relating to economic, environmental, and social topics; viii. stakeholder representation.	
102-23	Chair of the highest governance body	a. Whether the chair of the highest governance body is also an executive officer in the organization. b. If the chair is also an executive officer, describe his or her function within the organization's management and the reasons for this arrangement.	
102-24	Nominating and selecting the highest governance body	a. Nomination and selection processes for the highest governance body and its committees. b. Criteria used for nominating and selecting highest governance body members, including whether and how: i. stakeholders (including shareholders) are involved; ii. diversity is considered; iii. independence is considered; iv. expertise and experience relating to economic, environmental, and social topics are considered.	
102-25	Conflicts of interest	a. Processes for the highest governance body to ensure conflicts of interest are avoided and managed. b. Whether conflicts of interest are disclosed to stakeholders, including, as a minimum: i. Cross-board membership; ii. Cross-shareholding with suppliers and other stakeholders; iii. Existence of controlling shareholder; iv. Related party disclosures.	
102-26	Role of highest governance body in setting purpose, values, and strategy	a. Highest governance body's and senior executives' roles in the development, approval, and updating of the organization's purpose, value or mission statements, strategies, policies, and goals related to economic, environmental, and social topics.	P35-36: JX Nippon Mining & Metals Group Materialities
102-27	Collective knowledge of highest governance body	a. Measures taken to develop and enhance the highest governance body's collective knowledge of economic, environmental, and social topics.	
102-28	Evaluating the highest governance body's performance	a. Processes for evaluating the highest governance body's performance with respect to governance of economic, environmental, and social topics. b. Whether such evaluation is independent or not, and its frequency. c. Whether such evaluation is a self-assessment. d. Actions taken in response to evaluation of the highest governance body's performance with respect to governance of economic, environmental, and social topics, including, as a minimum, changes in membership and organizational practice.	
102-29	Identifying and managing economic, environmental, and social impacts	a. Highest governance body's role in identifying and managing economic, environmental, and social topics and their impacts, risks, and opportunities – including its role in the implementation of due diligence processes. b. Whether stakeholder consultation is used to support the highest governance body's identification and management of economic, environmental, and social topics and their impacts, risks, and opportunities.	
102-30	Effectiveness of risk management processes	a. Highest governance body's role in reviewing the effectiveness of the organization's risk management processes for economic, environmental, and social topics.	P35-36: JX Nippon Mining & Metals Group Materialities P67-72: Strengthen Governance
102-31	Review of economic, environmental, and social topics	a. Frequency of the highest governance body's review of economic, environmental, and social topics and their impacts, risks, and opportunities.	P35-36: JX Nippon Mining & Metals Group Materialities
102-32	Highest governance body's role in sustainability reporting	a. The highest committee or position that formally reviews and approves the organization's sustainability report and ensures that all material topics are covered.	
102-33	Communicating critical concerns	a. Process for communicating critical concerns to the highest governance body.	
102-34	Nature and total number of critical concerns	a. Total number and nature of critical concerns that were communicated to the highest governance body. b. Mechanism(s) used to address and resolve critical concerns.	
102-35	Remuneration policies	a. Remuneration policies for the highest governance body and senior executives for the following types of remuneration: i. Fixed pay and variable pay, including performance-based pay, equity-based pay, bonuses, and deferred or vested shares; ii. Sign-on bonuses or recruitment incentive payments; iii. Termination payments; iv. Clawbacks; v. Retirement benefits, including the difference between benefit schemes and contribution rates for the highest governance body, senior executives, and all other employees. b. How performance criteria in the remuneration policies relate to the highest governance body's and senior executives' objectives for economic, environmental, and social topics.	
102-36	Process for determining remuneration	a. Process for determining remuneration. b. Whether remuneration consultants are involved in determining remuneration and whether they are independent of management. c. Any other relationships that the remuneration consultants have with the organization.	
102-37	Stakeholders' involvement in remuneration	a. How stakeholders' views are sought and taken into account regarding remuneration. b. If applicable, the results of votes on remuneration policies and proposals.	

No.	Disclosure	Reporting requirements	Relevant contents
102-38	Annual total compensation ratio	a. Ratio of the annual total compensation for the organization's highest-paid individual in each country of significant operations to the median annual total compensation for all employees (excluding the highest-paid individual) in the same country.	
102-39	Percentage increase in annual total compensation ratio	a. Ratio of the percentage increase in annual total compensation for the organization's highest-paid individual in each country of significant operations to the median percentage increase in annual total compensation for all employees (excluding the highest-paid individual) in the same country.	
102-40	List of stakeholder groups	a. A list of stakeholder groups engaged by the organization.	P35-36: JX Nippon Mining & Metals Group Materialities
102-41	Collective bargaining agreements	a. Percentage of total employees covered by collective bargaining agreements.	P83-84: Data (Employment and Work Styles)
102-42	Identifying and selecting stakeholders	a. The basis for identifying and selecting stakeholders with whom to engage.	P35-36: JX Nippon Mining & Metals Group Materialities
102-43	Approach to stakeholder engagement	a. The organization's approach to stakeholder engagement, including frequency of engagement by type and by stakeholder group, and an indication of whether any of the engagement was undertaken specifically as part of the report preparation process.	P35-36: JX Nippon Mining & Metals Group Materialities
102-44	Key topics and concerns raised	a. Key topics and concerns that have been raised through stakeholder engagement, including: i. how the organization has responded to those key topics and concerns, including through its reporting; ii. the stakeholder groups that raised each of the key topics and concerns.	P35-36: JX Nippon Mining & Metals Group Materialities
102-45	Entities included in the consolidated financial statements	a. A list of all entities included in the organization's consolidated financial statements or equivalent documents. b. Whether any entity included in the organization's consolidated financial statements or equivalent documents is not covered by the report.	P3-4: Editorial Policy
102-46	Defining report content and topic Boundaries	a. An explanation of the process for defining the report content and the topic Boundaries. b. An explanation of how the organization has implemented the Reporting Principles for defining report content.	P3-4: Editorial Policy
102-47	List of material topics	a. A list of the material topics identified in the process for defining report content.	P5-8: Message From the President P11-12: Value Creation Model P35-36: JX Nippon Mining & Metals Group Materialities
102-48	Restatements of information	a. The effect of any restatements of information given in previous reports, and the reasons for such restatements.	N/A
102-49	Changes in reporting	a. Significant changes from previous reporting periods in the list of material topics and topic Boundaries.	P5-8: Message From the President P35-36: JX Nippon Mining & Metals Group Materialities
102-50	Reporting period	a. Reporting period for the information provided.	P3-4: Editorial Policy
102-51	Date of most recent report	a. If applicable, the date of the most recent previous report.	P3-4: Editorial Policy
102-52	Reporting cycle	a. Reporting cycle.	P3-4: Editorial Policy
102-53	Contact point for questions regarding the report	a. The contact point for questions regarding the report or its contents.	Back cover: Address
102-54	Claims of reporting in accordance with the GRI Standards	a. The claim made by the organization, if it has prepared a report in accordance with the GRI Standards, either: i. 'This report has been prepared in accordance with the GRI Standards: Core option'; ii. 'This report has been prepared in accordance with the GRI Standards: Comprehensive option'.	P3-4: Editorial Policy GRI Standards Content Index (This page)
102-55	GRI content index	a. The GRI content index, which specifies each of the GRI Standards used and lists all disclosures included in the report. b. For each disclosure, the content index shall include: i. the number of the disclosure (for disclosures covered by the GRI Standards); ii. the page number(s) or URL(s) where the information can be found, either within the report or in other published materials; iii. if applicable, and where permitted, the reason(s) for omission when a required disclosure cannot be made.	GRI Standards Content Index (This page)
102-56	External assurance	a. A description of the organization's policy and current practice with regard to seeking external assurance for the report. b. If the report has been externally assured: i. A reference to the external assurance report, statements, or opinions. If not included in the assurance report accompanying the sustainability report, a description of what has and what has not been assured and on what basis, including the assurance standards used, the level of assurance obtained, and any limitations of the assurance process; ii. The relationship between the organization and the assurance provider; iii. Whether and how the highest governance body or senior executives are involved in seeking external assurance for the organization's sustainability report.	P3-4: Editorial Policy P94: Independent Assurance Report

Specific Standard Disclosures

Contribute to Environmental Conservation			
GRI-103: Management Approach			
No.	Disclosure	Reporting requirements	Relevant contents
103-1	Explanation of the material topic and its Boundary	—	P35-36: JX Nippon Mining & Metals Group Materialities P37-38: Contribute to Environmental Conservation
103-2	The management approach and its components	—	P35-36: JX Nippon Mining & Metals Group Materialities P37-38: Contribute to Environmental Conservation
103-3	Evaluation of the management approach	—	P35-36: JX Nippon Mining & Metals Group Materialities P39-42: Contribute to Environmental Conservation

No.	Disclosure	Reporting requirements	Relevant contents
GRI-301: Materials			
301-1	Materials used by weight or volume	a. Total weight or volume of materials that are used to produce and package the organization's primary products and services during the reporting period, by: i. non-renewable materials used; ii. renewable materials used.	P77-78: Data (Mass Balance Table for the Group / Raw Materials)
301-2	Recycled input materials used	a. Percentage of recycled input materials used to manufacture the organization's primary products and services.	P77-78: Data (Mass Balance Table for the Group / Raw Materials)
301-3	Reclaimed products and their packaging materials	a. Percentage of reclaimed products and their packaging materials for each product category. b. How the data for this disclosure have been collected.	
GRI-302: Energy			
302-1	Energy consumption within the organization	a. Total fuel consumption within the organization from nonrenewable sources, in joules or multiples, and including fuel types used. b. Total fuel consumption within the organization from renewable sources, in joules or multiples, and including fuel types used. c. In joules, watt-hours or multiples, the total: i. electricity consumption ii. heating consumption iii. cooling consumption iv. steam consumption d. In joules, watt-hours or multiples, the total: i. electricity sold ii. heating sold iii. cooling sold iv. steam sold e. Total energy consumption within the organization, in joules or multiples. f. Standards, methodologies, assumptions, and/or calculation tools used. g. Source of the conversion factors used.	P77-78: Data (Mass Balance Table for the Group / Energy)
302-2	Energy consumption outside of the organization	a. Energy consumption outside of the organization, in joules or multiples. b. Standards, methodologies, assumptions, and/or calculation tools used. c. Source of the conversion factors used.	P77-78: Data (Mass Balance Table for the Group / Energy)
302-3	Energy intensity	a. Energy intensity ratio for the organization. b. Organization-specific metric (the denominator) chosen to calculate the ratio. c. Types of energy included in the intensity ratio; whether fuel, electricity, heating, cooling, steam, or all. d. Whether the ratio uses energy consumption within the organization, outside of it, or both.	P77-78: Data (Mass Balance Table for the Group / Energy)
302-4	Reduction of energy	a. Amount of reductions in energy consumption achieved as a direct result of conservation and efficiency initiatives, in joules or multiples. b. Types of energy included in the reductions; whether fuel, electricity, heating, cooling, steam, or all. c. Basis for calculating reductions in energy consumption, such as base year or baseline, including the rationale for choosing it. d. Standards, methodologies, assumptions, and/or calculation tools used.	P77-78: Data (Mass Balance Table for the Group / Energy)
302-5	consumption	a. Reductions in energy requirements of sold products and services achieved during the reporting period, in joules or multiples. b. Basis for calculating reductions in energy consumption, such as base year or baseline, including the rationale for choosing it. c. Standards, methodologies, assumptions, and/or calculation tools used.	
GRI-305: Emissions			
305-1	Direct (Scope 1) GHG emissions	a. Gross direct (Scope 1) GHG emissions in metric tons of CO ₂ equivalent. b. Gases included in the calculation; whether CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆ , NF ₃ , or all. c. Biogenic CO ₂ emissions in metric tons of CO ₂ equivalent. d. Base year for the calculation, if applicable, including: i. the rationale for choosing it; ii. emissions in the base year; iii. the context for any significant changes in emissions that triggered recalculations of base year emissions. e. Source of the emission factors and the global warming potential (GWP) rates used, or a reference to the GWP source. f. Consolidation approach for emissions; whether equity share, financial control, or operational control. g. Standards, methodologies, assumptions, and/or calculation tools used.	P77: Data (Mass Balance Table for the Group) P80: Data (Climate Change / Air Pollutants)
305-2	Energy indirect (Scope 2) GHG emissions	a. Gross location-based energy indirect (Scope 2) GHG emissions in metric tons of CO ₂ equivalent. b. If applicable, gross market-based energy indirect (Scope 2) GHG emissions in metric tons of CO ₂ equivalent. c. If available, the gases included in the calculation; whether CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆ , NF ₃ , or all. d. Base year for the calculation, if applicable, including: i. the rationale for choosing it; ii. emissions in the base year; iii. the context for any significant changes in emissions that triggered recalculations of base year emissions. e. Source of the emission factors and the global warming potential (GWP) rates used, or a reference to the GWP source. f. Consolidation approach for emissions; whether equity share, financial control, or operational control. g. Standards, methodologies, assumptions, and/or calculation tools used.	P77: Data (Mass Balance Table for the Group) P80: Data (Climate Change / Air Pollutants)
305-3	Other indirect (Scope 3) GHG emissions	a. Gross other indirect (Scope 3) GHG emissions in metric tons of CO ₂ equivalent. b. If available, the gases included in the calculation; whether CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆ , NF ₃ , or all. c. Biogenic CO ₂ emissions in metric tons of CO ₂ equivalent. d. Other indirect (Scope 3) GHG emissions categories and activities included in the calculation. e. Base year for the calculation, if applicable, including: i. the rationale for choosing it; ii. emissions in the base year; iii. the context for any significant changes in emissions that triggered recalculations of base year emissions. f. Source of the emission factors and the global warming potential (GWP) rates used, or a reference to the GWP source. g. Standards, methodologies, assumptions, and/or calculation tools used.	P80: Data (Climate Change / Air Pollutants)

No.	Disclosure	Reporting requirements	Relevant contents
305-4	GHG emissions intensity	a. GHG emissions intensity ratio for the organization. b. Organization-specific metric (the denominator) chosen to calculate the ratio. c. Types of GHG emissions included in the intensity ratio; whether direct (Scope 1), energy indirect (Scope 2), and/or other indirect (Scope 3). d. Gases included in the calculation; whether CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆ , NF ₃ , or all.	P80: Data (Climate Change / Air Pollutants)
305-5	Reduction of GHG emissions	a. GHG emissions reduced as a direct result of reduction initiatives, in metric tons of CO ₂ equivalent. b. Gases included in the calculation; whether CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆ , NF ₃ , or all. c. Base year or baseline, including the rationale for choosing it. d. Scopes in which reductions took place; whether direct (Scope 1), energy indirect (Scope 2), and/or other indirect (Scope 3). e. Standards, methodologies, assumptions, and/or calculation tools used.	
305-6	Emissions of ozone-depleting substances (ODS)	a. Production, imports, and exports of ODS in metric tons of CFC-11 (trichlorofluoromethane) equivalent. b. Substances included in the calculation. c. Source of the emission factors used. d. Standards, methodologies, assumptions, and/or calculation tools used.	
305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	a. Significant air emissions, in kilograms or multiples, for each of the following: i. NOx ii. SOx iii. Persistent organic pollutants (POP) iv. Volatile organic compounds (VOC) v. Hazardous air pollutants (HAP) vi. Particulate matter (PM) vii. Other standard categories of air emissions identified in relevant regulations b. Source of the emission factors used. c. Standards, methodologies, assumptions, and/or calculation tools used.	P77: Data (Mass Balance Table for the Group) P80: Data (Climate Change / Air Pollutants) P81-82: Data (Chemical Substances)
Provide Advanced Materials That Support Lives and Lifestyles			
GRI-103: Management Approach			
103-1	Explanation of the material topic and its Boundary	—	P35-36: JX Nippon Mining & Metals Group Materialities P43-44: Provide Advanced Materials That Support Lives and Lifestyles
103-2	The management approach and its components	—	P35-36: JX Nippon Mining & Metals Group Materialities P43-44: Provide Advanced Materials That Support Lives and Lifestyles
103-3	Evaluation of the management approach	—	P35-36: JX Nippon Mining & Metals Group Materialities P43-48: Provide Advanced Materials That Support Lives and Lifestyles
Create Attractive Workplaces			
GRI-103: Management Approach			
103-1	Explanation of the material topic and its Boundary	—	P35-36: JX Nippon Mining & Metals Group Materialities P51-52: Create Attractive Workplaces
103-2	The management approach and its components	—	P35-36: JX Nippon Mining & Metals Group Materialities P51-52: Create Attractive Workplaces
103-3	Evaluation of the management approach	—	P35-36: JX Nippon Mining & Metals Group Materialities P53-54: Create Attractive Workplaces
GRI-401: Employment			
401-1	New employee hires and employee turnover	a. Total number and rate of new employee hires during the reporting period, by age group, gender and region. b. Total number and rate of employee turnover during the reporting period, by age group, gender and region.	P83-84: Data (Employment and Work Styles)
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	a. Benefits which are standard for full-time employees of the organization but are not provided to temporary or part-time employees, by significant locations of operation. These include, as a minimum: i. life insurance; ii. health care; iii. disability and invalidity coverage; iv. parental leave; v. retirement provision; vi. stock ownership; vii. others. b. The definition used for 'significant locations of operation'.	
401-3	Parental leave	a. Total number of employees that were entitled to parental leave, by gender. b. Total number of employees that took parental leave, by gender. c. Total number of employees that returned to work in the reporting period after parental leave ended, by gender. d. Total number of employees that returned to work after parental leave ended that were still employed 12 months after their return to work, by gender. e. Return to work and retention rates of employees that took parental leave, by gender.	P83-84: Data (Employment and Work Styles)

No.	Disclosure	Reporting requirements	Relevant contents
GRI-403: Occupational Health and Safety			
403-1	Workers representation in formal joint management-worker health and safety committees	a. The level at which each formal joint management-worker health and safety committee typically operates within the organization. b. Percentage of workers whose work, or workplace, is controlled by the organization, that are represented by formal joint management-worker health and safety committees.	P51-56: Create Attractive Workplaces
403-2	Types of injury and rates of injury, occupational diseases, lost days, and number of work-related fatalities	a. Types of injury, injury rate (IR), occupational disease rate (ODR), lost day rate (LDR), absentee rate (AR), and work-related fatalities, for all employees, with a breakdown by: i. region; ii. gender. b. Types of injury, injury rate (IR), and work-related fatalities, for all workers (excluding employees) whose work, or workplace, is controlled by the organization, with a breakdown by: i. region; ii. gender. c. The system of rules applied in recording and reporting accident statistics.	P51-56: Create Attractive Workplaces P82: Data (Occupational Health and Safety)
403-3	Workers with high incidence or high risk of diseases related to their occupation	a. Whether there are workers whose work, or workplace, is controlled by the organization, involved in occupational activities who have a high incidence or high risk of specific diseases.	P51-56: Create Attractive Workplaces P82: Data (Occupational Health and Safety)
403-4	Health and safety topics covered in formal agreements with trade unions	a. Whether formal agreements (either local or global) with trade unions cover health and safety. b. If so, the extent, as a percentage, to which various health and safety topics are covered by these agreements.	P51-56: Create Attractive Workplaces
GRI-404: Training and Education			
404-1	Average hours of training per year per employee	a. Average hours of training that the organization's employees have undertaken during the reporting period, by: i. gender; ii. employee category.	P82: Data (Developing Human Resources)
404-2	Programs for upgrading employee skills and transition assistance programs	a. Type and scope of programs implemented and assistance provided to upgrade employee skills. b. Transition assistance programs provided to facilitate continued employability and the management of career endings resulting from retirement or termination of employment.	P51-56: Create Attractive Workplaces
404-3	Percentage of employees receiving regular performance and career development reviews	a. Percentage of total employees by gender and by employee category who received a regular performance and career development review during the reporting period.	
GRI-405: Diversity and Equal Opportunity			
405-1	Diversity of governance bodies and employees	a. Percentage of individuals within the organization's governance bodies in each of the following diversity categories: i. Gender; ii. Age group: under 30 years old, 30-50 years old, over 50 years old; iii. Other indicators of diversity where relevant (such as minority or vulnerable groups). b. Percentage of employees per employee category in each of the following diversity categories: i. Gender; ii. Age group: under 30 years old, 30-50 years old, over 50 years old; iii. Other indicators of diversity where relevant (such as minority or vulnerable groups).	P84: Data (Diversity)
405-2	Ratio of basic salary and remuneration of women to men	a. Ratio of the basic salary and remuneration of women to men for each employee category, by significant locations of operation. b. The definition used for 'significant locations of operation'.	
Respect Human Rights			
GRI-103: Management Approach			
103-1	Explanation of the material topic and its Boundary	—	P35-36: JX Nippon Mining & Metals Group Materialities P57-58: Respect Human Rights
103-2	The management approach and its components	—	P35-36: JX Nippon Mining & Metals Group Materialities P57-58: Respect Human Rights
103-3	Evaluation of the management approach	—	P35-36: JX Nippon Mining & Metals Group Materialities P59-60: Respect Human Rights
GRI-412: Human Rights Assessment			
412-1	Operations that have been subject to human rights reviews or impact assessments	a. Total number and percentage of operations that have been subject to human rights reviews or human rights impact assessments, by country.	
412-2	Employee training on human rights policies or procedures	a. Total number of hours in the reporting period devoted to training on human rights policies or procedures concerning aspects of human rights that are relevant to operations. b. Percentage of employees trained during the reporting period in human rights policies or procedures concerning aspects of human rights that are relevant to operations.	P57-60: Respect Human Rights
412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	a. Total number and percentage of significant investment agreements and contracts that include human rights clauses or that underwent human rights screening. b. The definition used for 'significant investment agreements'.	

No.	Disclosure	Reporting requirements	Relevant contents
Promote Community Involvement and Development			
GRI-103: Management Approach			
103-1	Explanation of the material topic and its Boundary	—	P35-36: JX Nippon Mining & Metals Group Materialities P61-62: Promote Community Involvement and Development
103-2	The management approach and its components	—	P35-36: JX Nippon Mining & Metals Group Materialities P61-62: Promote Community Involvement and Development
103-3	Evaluation of the management approach	—	P35-36: JX Nippon Mining & Metals Group Materialities P63-64: Promote Community Involvement and Development
GRI-203: Indirect Economic Impacts			
203-1	Infrastructure investments and services supported	a. Extent of development of significant infrastructure investments and services supported. b. Current or expected impacts on communities and local economies, including positive and negative impacts where relevant. c. Whether these investments and services are commercial, in-kind, or pro bono engagements.	P61-64: Promote Community Involvement and Development
203-2	Significant indirect economic impacts	a. Examples of significant identified indirect economic impacts of the organization, including positive and negative impacts. b. Significance of the indirect economic impacts in the context of external benchmarks and stakeholder priorities, such as national and international standards, protocols, and policy agendas.	
GRI-411: Rights of Indigenous Peoples			
411-1	Incidents of violations involving rights of indigenous peoples	a. Total number of identified incidents of violations involving the rights of indigenous peoples during the reporting period. b. Status of the incidents and actions taken with reference to the following: i. Incident reviewed by the organization; ii. Remediation plans being implemented; iii. Remediation plans that have been implemented, with results reviewed through routine internal management review processes; iv. Incident no longer subject to action.	P57-60: Respect Human Rights
Strengthen Governance			
GRI-103: Management Approach			
103-1	Explanation of the material topic and its Boundary	—	P35-36: JX Nippon Mining & Metals Group Materialities P67-68: Strengthen Governance
103-2	The management approach and its components	—	P35-36: JX Nippon Mining & Metals Group Materialities P69-70: Strengthen Governance
103-3	Evaluation of the management approach	—	P35-36: JX Nippon Mining & Metals Group Materialities P67-72: Strengthen Governance
GRI-206: Anti-competitive Behavior			
206-1	Legal actions for anticompetitive behavior, anti-trust, and monopoly practices	a. Number of legal actions pending or completed during the reporting period regarding anti-competitive behavior and violations of anti-trust and monopoly legislation in which the organization has been identified as a participant. b. Main outcomes of completed legal actions, including any decisions or judgments.	P67-72: Strengthen Governance
GRI-416: Customer Health and Safety			
416-1	Assessment of the health and safety impacts of product and service categories	a. Percentage of significant product and service categories for which health and safety impacts are assessed for improvement.	P67-72: Strengthen Governance
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	a. Total number of incidents of non-compliance with regulations and/or voluntary codes concerning the health and safety impacts of products and services within the reporting period, by: i. incidents of non-compliance with regulations resulting in a fine or penalty; ii. incidents of non-compliance with regulations resulting in a warning; iii. incidents of non-compliance with voluntary codes. b. If the organization has not identified any non-compliance with regulations and/or voluntary codes, a brief statement of this fact is sufficient.	P67-72: Strengthen Governance



Independent Assurance Report

To the President and CEO of JX Nippon Mining & Metals Corporation

We were engaged by JX Nippon Mining & Metals Corporation (the “Company”) to undertake a limited assurance engagement of the environmental and social performance indicators marked with or the period from April 1, 2019 to March 31, 2020 included in its Sustainability Report 2020 (the “Report”) for the fiscal year ended March 31, 2020, the Company’s self-declaration that the Report is prepared in accordance with the Global Sustainability Standards Board’s GRI Sustainability Reporting Standards (“GRI Standards”) at a core level, 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 Report, self-declaring that the Report is prepared in accordance with the criteria stipulated in the GRI Standards, 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 Report, 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 Report 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.
- Making inquiries and reviewing materials including documented evidence of one of the Company’s domestic factories selected on the basis of a risk analysis, as alternative procedures to a site visit.
- Evaluating the Company’s self-declaration that the Report is prepared in accordance with the GRI Standards at a core level against the criteria stipulated in the GRI Standards.
- 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 the Company’s responsible personnel and reviewing documents with respect to the Company’s process of identifying and prioritizing its material issues.
- Interviewing the Company’s responsible personnel and reviewing documents with respect to the Company’s approach to and management of its material issues.
- Evaluating the overall presentation of the Indicators.

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 Report are not prepared, in all material respects, in accordance with the Company’s reporting criteria as described in the Report;
- the Company’s self-declaration that the Report is prepared in accordance with the GRI Standards at a core level does not conform to the criteria stipulated in the GRI Standards;
- 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 page 74;
- the Company has not identified and prioritized its material issues as described on pages 35; and
- the Company has not approached and managed its material issues as described on pages 35-36, 37-41, 43-44, 51-53, 55-56, 57-60, 61-62 and 67-72.

Our Independence and Quality Control

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

KPMG AZSA Sustainability Co., Ltd.

KPMG AZSA Sustainability Co., Ltd.
Tokyo, Japan
January 27, 2021

We welcome your views and questions regarding this *Sustainability Report 2020*

Any opinions provided will be used to improve future reports even further.

Please use our e-mail or post address below to contact us.

JX Nippon Mining & Metals Corporation

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This is our **Communication on Progress** in implementing the principles of the **United Nations Global Compact** and supporting broader UN goals.

We welcome feedback on its contents.