Sustainability Report 2016

JX Nippon Mining & Metals Corporation

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

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, industry-government-academia groups, and local communities. As an important communication tool, this report is designed to enhance stakeholders' understanding of our CSR activities.

Sustainability Report 2016 has been prepared in accordance with the GRI G4 Guidelines* and the GRI Mining and Metals Sector Disclosures document, 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.

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

Publication Date

November 2016 (publication date of previous report: November 2015; publication date of next report: November 2017)

Reporting Period

In principle, this report covers our business activities for the period from April 2015 to March 2016 (fiscal 2015). To ensure comprehensive disclosure, however, it also includes certain information regarding important events that occurred prior to or after this period.

Definitions of Terminology

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

"The JX Nippon Mining & Metals Group" ("the Group"): The terms "the JX Nippon Mining & Metals Group" or "the Group" refer to JX Nippon Mining & Metals Corporation and all its subsidiaries, as well as Toho Titanium Co., Ltd., a JX Holdings subsidiary engaged in the metals business, and its subsidiaries. However, the companies subject to reporting vary among different sections of the report (see "Group Companies Covered by This Report" on the next page for details).

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

Boundary of the Report

This report covers JX Nippon Mining & Metals Corporation as well as domestic and overseas Group companies.

The companies for which main indicators must be reported are detailed below, according to the corresponding sections of the report.

Corresponding sections	Boundary of the Report
Business Overview	Companies included in the consolidated financial statements of JX Nippon Mining & Metals. (The Company and its consolidated subsidiaries on the right indicated by ®.)
Environment	The Company, its directly controlled operating sites that engage in production activities, and companies that operate factories classified as Type 2 Designated Energy Management Factories under the Act on the Rational Use of Energy or operating sites of equivalent scale. (Companies on the right indicated by *.)
Employees, Society, Corporate Governance	The Company and 68 companies in which the Company has 50% or greater voting rights directly or indirectly. (The main companies covered by this report are those on the right indicated by ★.)

The Oshima cherry trees of Hitachi in full bloom (see page 13 for details).

Contents

Group Companies Covered by This Report

Domestic

Oya Mines Co., Ltd. *
Kasuga Mines Co., Ltd.●*
Kaneuchi Mining Co., Ltd. *
Kamikita Mines Co., Ltd. *
Shakanai Mines Co., Ltd. *
Shin-Takatama Mining Co., Ltd. *
Toho Titanium Co., Ltd.●**
Toyoha Mine Co., Ltd. *
Namariyama Mining Co., Ltd. *
Japan Copper Casting Co., Ltd. **
Nippon Marine Co., Ltd.●**
Hanawa Mines Co., Ltd. *
Pan Pacific Copper Co., Ltd. ●**
Hitachi Mines Co., Ltd. *
Hibi Kyodo Smelting Co., Ltd.●**
Hokushin Mining Co., Ltd. *
Hokuriku Mines Co., Ltd. *
JX Nippon Mining & Metals Corporation●**
JX Nippon Mining Ecomanagement, Inc. *
JX Nippon Environmental Services Co., Ltd.●**
JX Nippon Coil Center Co., Ltd.●*
JX Metals Trading Co., Ltd.●*
JX Nippon Takasho Co., Ltd.●*
JX Nippon Exploration and Development Co., Ltd.●*
JX Nippon Tsuruga Recycle Co., Ltd.●**
JX Nippon Tomakomai Chemical Co., Ltd.●**
JX Metals Precision Technology Corporation●**
JX Nippon Mikkaichi Recycle Co., Ltd.●**

Overseas

Changzhou Jinyuan Copper Co., Ltd.●**
Nikko Metals Taiwan Co., Ltd.●*
Japan Korea Joint Smelting Co., Ltd.●*
Nippon Mining & Metals (Suzhou) Co., Ltd.●**
Pan Pacific Copper (Shanghai) Co., Ltd.●*
Nikko Fuji Precision (Wuxi) Co., Ltd.●*
Caserones Finance Netherlands B.V.●
Compania Minera Quechua S.A.●*
Gould Electronics GmbH●*
Gould Electronics Inc.●*
High Performance Copper Foil, Inc.●
Japan Frontera Resources B.V.●
JX Nippon Mining & Metals Dongguan Co., Ltd.●*
JX Nippon Mining & Metals Europe GmbH●*
JX Nippon Mining & Metals Korea Co., Ltd.●*
JX Nippon Mining & Metals Philippines, Inc.●**
JX Nippon Mining & Metals USA, Inc.●*
Materials Service Complex Malaysia Sdn. Bhd.●*
MFN Investment LLC●
MLCC Finance Netherlands B.V.●
Nippon LP Resources B.V.●
Nippon Mining of Netherlands B.V.●
Osorno Ship Holding S.A.●
PPC Canada Enterprises Corp.●
Rupanco Inc.●
SCM Minera Lumina Copper Chile●**

Shigeru Oi
President and Chief Executive Officer
Chairman of the CSR Committee
JX Nippon Mining & Metals Corporation

JX Nippon Mining & Metals is a company in the field of nonferrous metals and a core company of the JX Group, which aims to become one of the world's leading energy, resources, and materials business groups. Our mission is to provide to society stable supplies of materials, including copper, precious metals, rare metals, and other nonferrous metal resources, as well as electronic materials. Based on this social mission, our business operations cover the full range, from upstream resources development to midstream smelting and refining, and, as downstream operations, electronic materials fabrication and recycling and environmental services.

Current State and Challenges of the Copper Business

Copper is the key material on which our business operations are founded and is widely used in electrical wires and electrical circuits for electronic products, vehicles, and other applications because of its good electrical conductivity, ease of processing, thermal conductivity, and other advantages. Copper is an indispensable metal resource for the future growth of society, but its deposits are distributed unevenly and reserves are finite. We therefore need to make effective use of the reserves available by increasing the extraction percentage and pursuing recycling initiatives, among other means.

Solving the Problems of Society through Our Business Activities

Against this background, the JX Nippon Mining & Metals Group considers its corporate social responsibility to be the stable and efficient supply of high-quality copper through innovation in the productivity of resources and materials. Based on our understanding that CSR activities are "nothing more or less than our business activities," we pursue such innovation by drawing on the technology and knowledge we have accumulated over our history spanning more than a century.

In our resources development business and smelting and refining business, we pursue the efficient mining, concentration, and refining of copper ores, a finite natural resource. In our recycling and environmental services business, we seek to supplement natural resources by making use of end-of-life products discarded by society from so-called urban mines. In our electronic materials business, we support progress in state-of-the-art devices by supplying advanced-function metallic materials manufactured from copper and other metals. We are also contributing to the development of an IoT (Internet of Things)-based society.

In carrying out these business operations, we take all due care to minimize any negative impact on society. We also endeavor to deepen communications with relevant stakeholders in order to ensure that we protect the environment, maintain occupational health and safety, enhance compliance, coexist and prosper along with local communities, and respect human rights.

Carrying Out Operations Based on a Corporate Code of Conduct That Meets International Standards

The business operations of the Group are carried out in accordance with the JX Nippon Mining & Metals Code of Conduct created in line with the JX Group Mission Statement. This Code of Conduct—which is shared by both management and employees—is also compliant with international guidelines, including the principles of the International Council on Mining and Metals (ICMM), of which we are a member, and the Ten Principles of the United Nations Global Compact. We believe that carrying out our daily operations with a common sense of purpose will maximize the success of the Group as a whole in terms of innovation in the productivity of resources and materials. We are therefore focusing effort on instilling the Code of Conduct even more deeply, through such means as distributing this sustainability report to all employees and conducting training.

Review of Fiscal 2015 and the 2nd Medium-Term Management Plan

The Group's ordinary income in fiscal 2015 (excluding inventory valuation factor) was ¥19.0 billion, a year-on-year decrease of ¥36.1 billion. The electronic materials business and the titanium business posted higher profits, but these were outweighed by reduced profits in the resources development business and the smelting and refining business as a result of the drop in copper prices and other factors. Whilst the 2nd Medium-Term Management Plan (fiscal 2013 to 2015) had brought increasing Group profits during fiscal 2013 and 2014, fiscal 2015 brought a reversal. As a result of the sudden drop in copper prices, a significant deterioration in profitability became unavoidable, particularly in mines in which the Group holds mining rights. Meanwhile, the key challenge we set ourselves during the 2nd Medium-Term Management Plan was ramping up production in the Caserones Copper Mine. However, progress has failed to meet expectations, and we are still working to achieve stable operation. (See pages 19-25 for details.)

		2nd Medium-Term Management Plan			Forecasts*2
Fiscal year		2013	2014	2015	2016
Ordinary income (excluding inventory valuation factor) (¥ billions)	**Actual**	**44.2**	**55.1**	**19.0**	30
	According to Medium-Term Management Plan*1	55 →		130	
LME copper price (US cent/pound)	**Actual**	**322**	**297**	**237**	230
	Premise*1	360	360	360	
Exchange rate (JPY/USD)	**Actual**	**100**	**110**	**120**	110
	Premise*1	90	90	90	

*1 Ordinary income according to Medium-Term Management Plan and premises are as announced on March 28, 2013.

*2 Forecasts for fiscal 2016 are as announced in May 2016.

The following reviews each of the goals of the 2nd Medium-Term Management Plan and outlines related initiatives going forward.

❶ Prioritizing Compliance and Safety

We believe that compliance, occupational health and safety, and environmental protection should be priorities in all our operations. We therefore take steps to ensure that employees are rigorous in prioritizing compliance and safety, and that they do so throughout our organization. Relevant meetings are used to share information on achievement in this regard and the measures taken to deal with accidents, noncompliance, and other issues within the Group.

During the 2nd Medium-Term Management Plan, we established an Internal Control Office in 2013 as part of efforts to improve the effectiveness of the Group's internal controls. In 2014, we put into effect rules to shut out relations with antisocial forces and rules for preventing bribery. Then in 2015, we established a Risk Management Council and Risk Management Office to identify a broader range of risks and draw up measures for handling them. In the area of occupational health and safety, no fatal accidents occurred during fiscal 2015, but the number of occupational accidents was higher than in the previous fiscal year. In fiscal 2016, we will pursue our key policy measures—"Building a culture of safety" and "Issue-based accident prevention activities"—and continue to offer the training that we have provided at the JX Safety Education Center since 2013.

❷ Completion of the Caserones Copper and Molybdenum Deposit Development Project

Construction for this project commenced in 2010 and refined copper production using the solvent extraction and electrowinning (SX-EW) process started in 2013, followed by copper concentrate production from 2014. Currently, we are devoting every effort to ramping up production on the way to stable operation. We took steps to reduce equipment faults, sending a team of plant engineers from Japan, and as a result an operating rate of approximately 80% in terms of crude ore production volume was achieved by March 2016.

In an effort to make the mine more competitive, we implemented a program of improvements devised by a consulting firm, further cutting costs and enhancing productivity. Full operation of the mine will enable a production of copper concentrate equivalent to approximately 10% of the volume currently imported by Japan, contributing to Japan's stable procurement of copper resources over an extended period of 28 years.

❸ Further Enhancing and Raising the Profitability of Midstream and Downstream Businesses

The 2nd Medium-Term Management Plan brought progress on a number of fronts. In the smelting and refining business, we started using two combination carrier ships designed to transport both copper concentrate and sulfuric acid, and we boosted production capacity at the Tamano Smelter of Hibi Kyodo Smelting by switching the electrorefining process to the permanent cathode (PC) method. In the electronic materials business, we maintained and expanded market shares of our main products and enhanced our business base with the start of operations at the Kakegawa Works of JX Metals Precision Technology and other new production bases inside and outside Japan. In the recycling and environmental services business, JX Nippon Tomakomai Chemical commenced its low-concentration PCB waste detoxifying service, while we endeavored to increase the collection of recycled materials from Southeast Asia, North America, and other parts of the world. In the titanium business, we made progress in restructuring our domestic production bases and devoted effort to promoting a project in Saudi Arabia with a view to further growth in the future.

This progress continued throughout fiscal 2015. In the smelting and refining business, we established the capacity to ensure a certain level of profitability by raising the treatment charge and refining charge and implementing process improvements within smelters and refineries, among other measures. In the electronic materials business, we were successful in expanding profits by capturing growing demand for existing products such as semiconductor targets and treated rolled copper foil. In the recycling and environmental services business, we increased the proportion of recycled materials collected overseas through measures

such as expanding our network for collecting recycled materials and industrial waste, and establishing a collection site in North America. In the titanium business, the benefits of restructuring and other initiatives resulted in positive operating income and ordinary income figures being recorded for the first time in three fiscal years, while net income was in the black for the first time in seven fiscal years.

④ Developing Global Human Resources

We endeavor to obtain and develop human resources to prepare for the further globalization of our business. Efforts to that end comprise continuation of the overseas training program including graduate-level study aimed mainly at younger employees, the active hiring of mid-career professionals, and the periodic rotation of personnel in Japan and overseas. In 2015, we set up the Council for Utilization of Human Resources to consider and draft specific measures with the aim of energizing both individuals and organizations. Following on from discussions within the Council for Utilization of Human Resources, we are working to achieve that end by implementing measures from two perspectives starting in fiscal 2016: strengthening personnel management and development, and creating environments in which a diverse range of personnel can do fulfilling work.

Major Advances toward Becoming a Global Resources and Materials Company Centering on Copper

The JX Group and the TonenGeneral Group are aiming to integrate their businesses around April 2017. The new corporate group resulting from the business integration is set to improve profitability by more than ¥100 billion within three years of the integration and to develop as an internationally competitive and prominent Asian corporate group with operations encompassing energy, resources, and materials. As the entity that will take on the core operations of the post-integration corporate group, the JX Nippon Mining & Metals Group is tackling pending issues with a view to bringing these goals to fruition.

We selected the following six items as material issues for CSR activities during fiscal 2016.

① Innovating the productivity of resources and materials
② Insisting on full compliance
③ Protecting the environment
④ Using resources effectively
⑤ Ensuring occupational health and safety
⑥ Developing and utilizing human resources

As we go forward carrying out our business with these six themes as focal points, we will strive to solve the problems facing society, thereby increasing the presence of the JX Nippon Mining & Metals Group in the nonferrous metals industry and maximizing our corporate value.

President and Chief Executive Officer
Chairman of the CSR Committee
JX Nippon Mining & Metals Corporation

CSR Activities of the JX Nippon Mining & Metals Group

In accordance with our JX Group Mission Statement and our Code of Conduct, we engage in CSR activities on the understanding that they are nothing more or less than our business activities.

JX Group Mission Statement

JX Group Slogan

The Future of Energy, Resources and Materials

JX Group Logo

JX Group Mission Statement

JX Group will contribute to the development of a sustainable economy and society through innovation in the areas of energy, resources, and materials.

JX Group Values

Our actions will respect the **EARTH**.

Ethics

Advanced ideas

Relationship with society

Trustworthy products/services

Harmony with the environment

JX Nippon Mining & Metals Code of Conduct

Ensuring a stable supply of nonferrous 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. Based on "JX Group Mission Statement" and complying with Code of Conduct stipulated below, we will continue to pursue technical rationality and efficiency and make improvements in quality & product properties and 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.

Our Relationships with Stakeholders

Taking into consideration the JX Group Mission Statement, the Code of Conduct, and the Group supply chain, the Group has identified the following stakeholders of relevance in undertaking its CSR activities:

Stakeholders	The Group's stance toward each stakeholder category
Shareholders and investors	As a core business company of the JX Group, we strive for proper and timely disclosure of information through JX Holdings, a publicly listed company.
Global society (Global environment)	We go beyond simply observing laws to respond proactively, paying close attention to issues affecting the world as a whole, such as global warming.
Nonprofit organizations (NPOs) and nongovernmental organizations (NGOs)	We reflect the approaches of NPOs and NGOs, undertaking distinctive programs in the Group's CSR activities as necessary.
Industry-government-academia groups	We recognize these groups as important partners in creating new technologies and nurturing the next generation of human resources. We cooperate with such groups in developing technologies and human resources in fields related to the Group's business.
Local communities*	We promote mutually beneficial coexistence with the community at all our locations, taking advantage of various opportunities for exchange to deepen understanding and build cooperative relations.
Customers/consumers*	We recognize that enhancing customer satisfaction by providing products and services reliably and improving their quality is a key issue in carrying out our business as well as in realizing an abundant society.
Employees*	We endeavor to provide a working environment and education programs that will empower employees to make the most of their abilities as the main participants in CSR activities.
Suppliers*	We seek to build relationships of trust with suppliers as partners in carrying out our business, and to realize fair and equitable trading throughout the supply chain.

* See pages 76–84 regarding the methods and results of communication with each stakeholder.

CSR Promotion System

CSR Committee and Subcommittees

The JX Nippon Mining & Metals Group has a CSR Committee, an advisory body to the president that formulates basic policies and action plans relating to its CSR activities. It also evaluates progress in implementing the plans and the Group's performance from economic, environmental, and social perspectives. The committee meets twice a year in principle, and in addition to formulating basic policies, promotion systems, and action plans for CSR activities, it reviews progress in implementing the relevant action. The findings of these reviews are used when formulating new policies, systems, and plans. In fiscal 2015, the committee met twice, on April 17 and October 13, 2015.

Under the CSR Committee are the Compliance Committee, the Safety and Environment Committee, the Citizenship Committee, and the Energy Conservation Subcommittee. These committees formulate action plans for their respective areas of responsibility and review progress in implementing the relevant action, among other activities.

CSR Promotion System

President

CSR Committee (Secretariat: Public Relations & CSR Dept.)

Compliance Committee
- Promotes compliance education and draws up action plans
- Assesses and manages compliance status

(Secretariat: Legal Dept.)

Safety and Environment Committee
- Draws up action plans on safety and health and on environmental protection
- Reviews the status of activities in the areas of safety and health and environmental protection

(Secretariat: Environment & Safety Dept.)

Citizenship Committee
- Draws up action plans on social contributions
- Reviews the status of activities in the area of social contribution

(Secretariat: Public Relations & CSR Dept.)

Energy Conservation Subcommittee
- Draws up action plans on energy conservation, CO_2 emissions reduction, etc.
- Reviews the status of activities in the areas of energy conservation, CO_2 emissions reduction, etc.

(Secretariat: Facilities Engineering Dept.)

CSR Promotion Managers

CSR promotion managers are appointed at each of the Group's operating sites and companies to ensure that basic policies, promotion systems, and action plans for CSR activities are employed in line with actual conditions at each site and company. The CSR promotion managers formulate their own individual CSR plans and report on progress at CSR promotion manager meetings.

CSR promotion manager meeting

Initiatives for Increasing CSR Awareness

CSR Workshops

We offer ample opportunities for face-to-face CSR training targeting Group officers and employees. In fiscal 2015, the following training was provided.

Workshop on business and human rights (June 3, 2015)

A speaker from Ernst & Young Sustainability Co., Ltd., was invited to hold a workshop on the latest trends in human rights, an area of growing importance in recent years.

CSR training for employees at each operating site

Interactive workshops were provided with the main focus on making the JX Nippon Mining & Metals Code of Conduct an integral part of daily operations. These were held at 11 sites in Japan, for approximately 570 persons.

E-learning course on human rights

In the second half of fiscal 2015, an e-learning course was offered to Group employees for the first time. The course, comprising a series of six sessions, was designed to deepen employees' understanding of human rights from a global perspective.

Publication of *Sustainability Report 2015*

Once a year, the Group publishes a sustainability report that compiles the policies and results of its CSR activities. This report is distributed to all Group officers and employees and to stakeholders. In fiscal 2015, 10,500 copies of the full report were printed in Japanese and 250 were printed in English. In addition, a total of 1,000 copies of the condensed digest version were printed in several languages, including English, Chinese (simplified and traditional), Korean, and Spanish.

CSR Surveys

Employee surveys were conducted as outlined below to determine the extent of employee awareness of CSR and involvement in its practice.

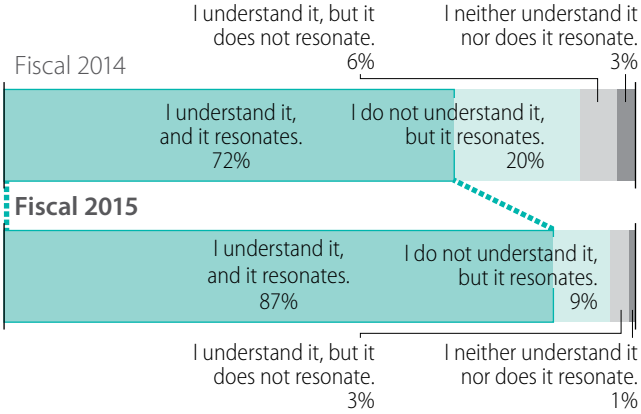
1. Companywide CSR Survey

Method	Conducted by means of a questionnaire distributed together with *Sustainability Report 2015*.
Timing	October to December 2015
Respondents	5,122 employees at 33 domestic operating sites (94.6% of 5,414 employees who received the questionnaire)

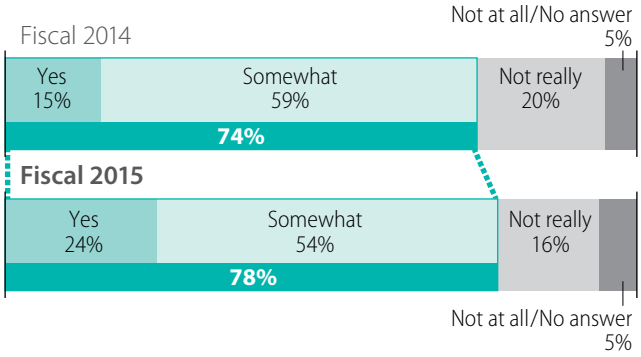
(1) Results relating to employee awareness and understanding of the JX Group Mission Statement and the JX Nippon Mining & Metals Code of Conduct

Compared with fiscal 2014, more employees were aware of the Mission Statement and the Code of Conduct and felt that they understood the guidelines and they resonated with them.

A. Understanding/resonance (whether respondents felt that they understood the Code of Conduct and it resonated with them)



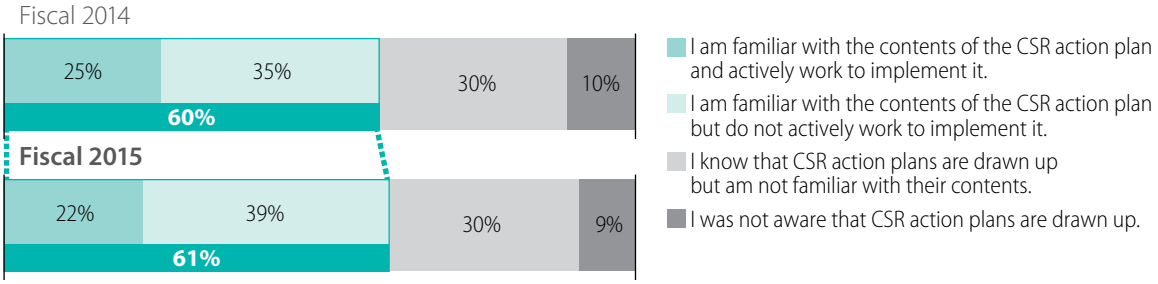
B. Employee awareness (whether respondents felt that all employees were aware of the Code of Conduct in their own organizations and workplaces)



(2) Results relating to employee awareness of CSR action plans

The number of employees familiar with the CSR action plans was on a par with fiscal 2014.

The JX Nippon Mining & Metals Code of Conduct is implemented by drawing up CSR action plans. Are you familiar with the CSR action plan in your own organization, and how are you putting it into practice?

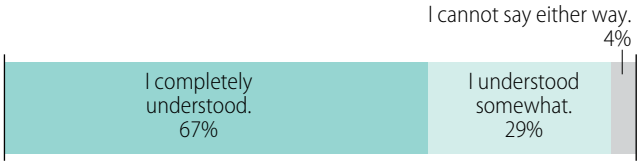


2. Surveys following CSR Training

Method	Conducted by means of a questionnaire immediately after finishing CSR training.
Timing	Fiscal 2014 to fiscal 2015
Respondents	1,306 employees at 16 operating sites in Japan and overseas

The surveys conducted following CSR training during fiscal 2014 and fiscal 2015 enabled us to verify the extent to which employees had achieved the training objective of making the Code of Conduct an integral part of daily operations. The results were largely as targeted.

A. Did you come to understand that the JX Nippon Mining & Metals Code of Conduct can be put into practice through the work you do personally on a day-to-day basis?



B. Do you feel more pride in your work?

Our Six Material Issues

For *Sustainability Report 2016*, we followed the GRI G4 Guidelines (G4 Sustainability Reporting Guidelines of the Global Reporting Initiative) to select six CSR issues that we consider particularly material to the business activities of the JX Nippon Mining & Metals Group as material issues on which to report.*1 During the selection process, we investigated and identified the G4 Aspects and their Boundaries that relate to the Group's material issues.

Our Six Material Issues

*1. For details on the Group's approach and initiatives with regard to each issue, refer to the relevant pages indicated above.

*2. We regard this issue as conditional to the other five material issues, and as a challenge that the Group must constantly seek to address for as long as it is operating its business. This issue is not therefore treated as a separate issue for reporting purposes within this sustainability report.

Procedure for Selecting Material Issues

JX Nippon Mining & Metals periodically revises the material issues to reflect changes in both the Group's business activities and the needs of society. The procedure followed is shown below. In fiscal 2016, we reinvestigated and reassessed the issues revised in fiscal 2015 and decided to continue with the same issues.

1. Identifying CSR issues relevant to the Group's business activities

Based on the CSR issues emphasized in the GRI G4 Guidelines and ISO 26000,* we identified 14 matters that are CSR issues relevant to the Group.

* An international standard of the ISO (International Organization for Standardization) providing guidelines relating to social responsibility.

2. Assessing and identifying the materiality of the CSR issues from internal and external standpoints

The materiality of the 14 CSR issues listed below was quantitatively assessed from internal and external standpoints, using the following resources.

Internal (Company) standpoint:

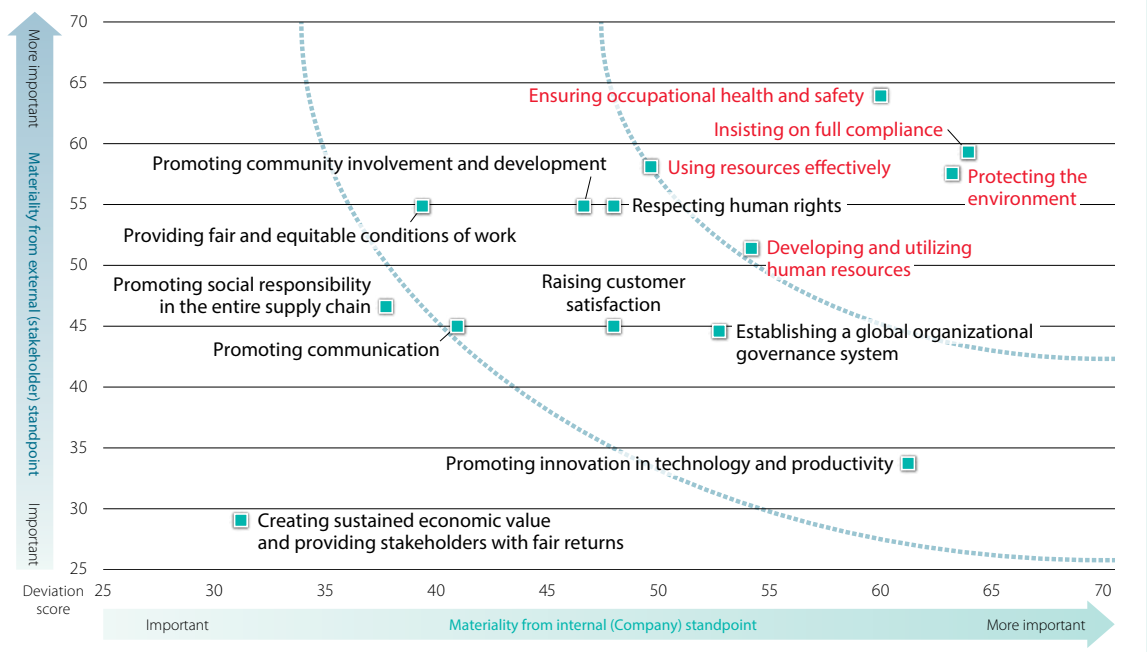
- The JX Group Mission Statement and the JX Nippon Mining & Metals Code of Conduct
- Management policy statements
- Status of CSR initiatives to date
- Employee surveys
- Interviews with CSR promotion managers

External (stakeholder) standpoint:

- Customers (items on supply chain surveys issued by the EICC*)
- Investors (items on socially responsible investment surveys)
- Industry experts (results of mining industry risk analyses)
- Competing companies (each company's behavior guidelines and commitment statements of top management)
- Employees (employee surveys)

* Electronic Industry Citizenship Coalition (trade association of the electronic industry in the United States)

Results of materiality assessment relating to CSR issues



Five issues regarded as material from both internal and external standpoints (shown in red in the chart above) were judged to be of particularly high materiality. To these we added "innovating the productivity of resources and materials," which we regard as an issue to be pursued over the long term, resulting in the identification of six material issues.

In addition, we realize that from the stakeholder standpoint increasing importance is now placed on respecting human rights and promoting community involvement and development. Although these issues were not included in the material issues, we intend to pay attention to them going forward.

3. Obtaining the approval of management

The above selection procedure and the material issues selected were referred to the CSR Committee for discussion at its April 2016 meeting and received the approval of the Executive Meeting members comprising the committee, including the president.

The Roots of CSR in the JX Nippon Mining & Metals Group

Living in harmony with local communities and protecting our greatest asset—our employees

The roots of the JX Nippon Mining & Metals Group's CSR go back to where JX Nippon Mining & Metals was founded—the Hitachi Mine (in Ibaraki Prefecture), first developed more than 110 years ago. Throughout the process of working to resolve the problem of smoke pollution at the Hitachi Mine, the Company maintained its stance of promoting community involvement and development as it strove to develop its business. It also created an environment in which mine employees could work with peace of mind and cultivated an ethos of respect for its employees. This approach was ahead of its time in the early days, but it lives on in the Group of today.

Living in Harmony with Local Communities

The early years of the mining industry—the smoke pollution problem

The early history of Japan's mining industry at the beginning of the 20th century was also the history of the problem of smoke pollution. At the time, there was no established technology to effectively recover the sulfur dioxide emitted from smelting. The Hitachi Mine was no exception and the smoke it emitted, which contained sulfur dioxide, caused withering of trees in the surrounding forests and damage to crops over an increasingly wide area.

The management of the Hitachi Mine addressed this challenge by acting in good faith toward the local residents. They paid damage compensation and worked on measures to address the issue, such as effectively dispersing or diluting the sulfur dioxide that was the source of the smoke. However, they initially met with no obvious success; indeed, the damage increased and eventually placed the continued operation of the mine in jeopardy.

Staking the future of the Company on the construction of the 155.7-meter giant stack

The Company's founder Fusanosuke Kuhara had his back against the wall, but the solution he put forward was to minimize the effects of the smoke pollution by building what at the time was the world's tallest smokestack in order to disperse the smoke over a wide area. This method was based on an analysis of a variety of scientific data, but it was regarded as being too far removed from the accepted methods for dealing with smoke pollution at that time, and it attracted widespread opposition within industry, government, and academic circles. Nonetheless, Kuhara faced down the opposition and decided to proceed.

Construction of the giant stack required a total of about 37,000 workers and a massive financial investment; without a doubt, the project put the future of the Company at stake. But December 1914 heralded the completion of the 155.7-meter giant stack—then the tallest in the world—and as a result the smoke pollution reduced dramatically.

The world's tallest smokestack in its day

Embarking on tree-planting programs to reforest the devastated mountains

The next project the Hitachi Mine undertook for the local community was to embark on full-scale tree-planting programs to restore forests to the surrounding mountains that had been devastated by smoke pollution. It set up an agricultural testing station near its smelter and stationed a forestry expert there to cultivate smoke-resistant trees and crops. The resulting saplings were not only planted in forestland owned by the Hitachi Mine but also distributed to local residents free of charge. Subsequently, the saplings were distributed for planting elsewhere, including in the housing and school areas provided for employees and their children, along roads, by the mine railway tracks, and eventually within the city itself.

The first smoke-resistant tree developed was the Oshima cherry. During the 15 years between 1917 and 1929, the Hitachi Mine planted five million saplings. These included 3.3 million Oshima cherry trees, which are said to have eventually covered a total area of about 1,200 hectares. Another five million saplings were planted by local residents, bringing the combined total including trees planted by the mine to 10 million.

Planting Oshima cherry trees

The Hitachi giant stack: still a symbol of community building

Every year in April, the streets of Hitachi turn pink with cherry blossoms, making it famous throughout Japan as "the city of cherry trees." In retrospect, the construction of the giant stack and the planting of cherry trees were perhaps the main driving forces that delivered the local residents from the suffering caused by the early smoke pollution into the happiness of the city filled with blossoms that they enjoy today. Ever since the founding of the Hitachi Mine, our CSR activities have been rooted in the ethos of living in harmony with local communities, and the city of Hitachi we see today bears testament to the fact that this ethos has survived for over a hundred years.

In 1993, the giant stack suddenly collapsed, leaving only the bottom one-third in place. The repaired stack currently stands at a height of 54 meters, but its presence as a symbol of Hitachi continues to this day.

In the words of the mayor of Hitachi at the time, "The scale of the giant stack represented the scale of our predecessors' aspirations. Even if the stack itself doesn't look the same, the spirit of community building that it stands for remains as strong as ever."

Hitachi cherry blossom festival

The giant stack today

Protecting Our Greatest Asset—Our Employees

Hitachi Mine was a community as well as a workplace

Another CSR legacy on which the Group is founded is protecting our greatest asset—our employees.

Kuhara realized that to achieve business success at the Hitachi Mine, which was located in an area distant from urban regions, it would be important to provide an environment in which employees could work with peace of mind. He therefore focused his efforts on raising the standard of living at the mine, and set about putting in place the infrastructure to enable employees to live with their families. He accordingly built an entire community, providing not only housing but also schools, hospitals, railroads, and recreational facilities.

In this town that combined work and home, employees shared their joys and sorrows with each other, nurturing a sense of togetherness, while a spirit of respect for employees took root within the Company itself.

This philosophy lives on in the Group even today. Guided by these principles, we maintain an open, supportive working environment in which employees feel free to exchange opinions regardless of position, age, or gender.

A Company store for Hitachi Mine employees

The ideology of the first head of general affairs gives rise to the "friendly discussion group"

Yataro Kado held a series of posts at the Hitachi Mine, including head of general affairs and general manager of the mine, and in the early days it was he who did his best to provide compensation to local residents for the smoke pollution from which they were suffering. It was Kado's ideology and belief that moral principles should always be adhered to. When it came to protecting employees as an asset and providing a working environment in which they could perform their jobs with peace of mind, that meant encouraging simplicity and fortitude, as well as simple hard work, but thinking about the happiness of each individual mine worker. Specific measures he put into practice included immediately investigating and promptly resolving any dissatisfaction or complaints regarding the mine, and maintaining harmony and mutual respect both in the workplace and the employee housing.

The culmination of these efforts was the "friendly discussion group" he launched in 1920. The aim of the group was for management and employees to hold talks focusing primarily on employee welfare and to make improvements. In an era when feudalism still clearly existed, the focus of their efforts was literally to achieve "friendly discussion." The Nippon Mining Museum offers the opportunity to learn more about the friendly discussion group and the Hitachi Mine's other institutions, as well as life at the mine at that time.

Yataro Kado

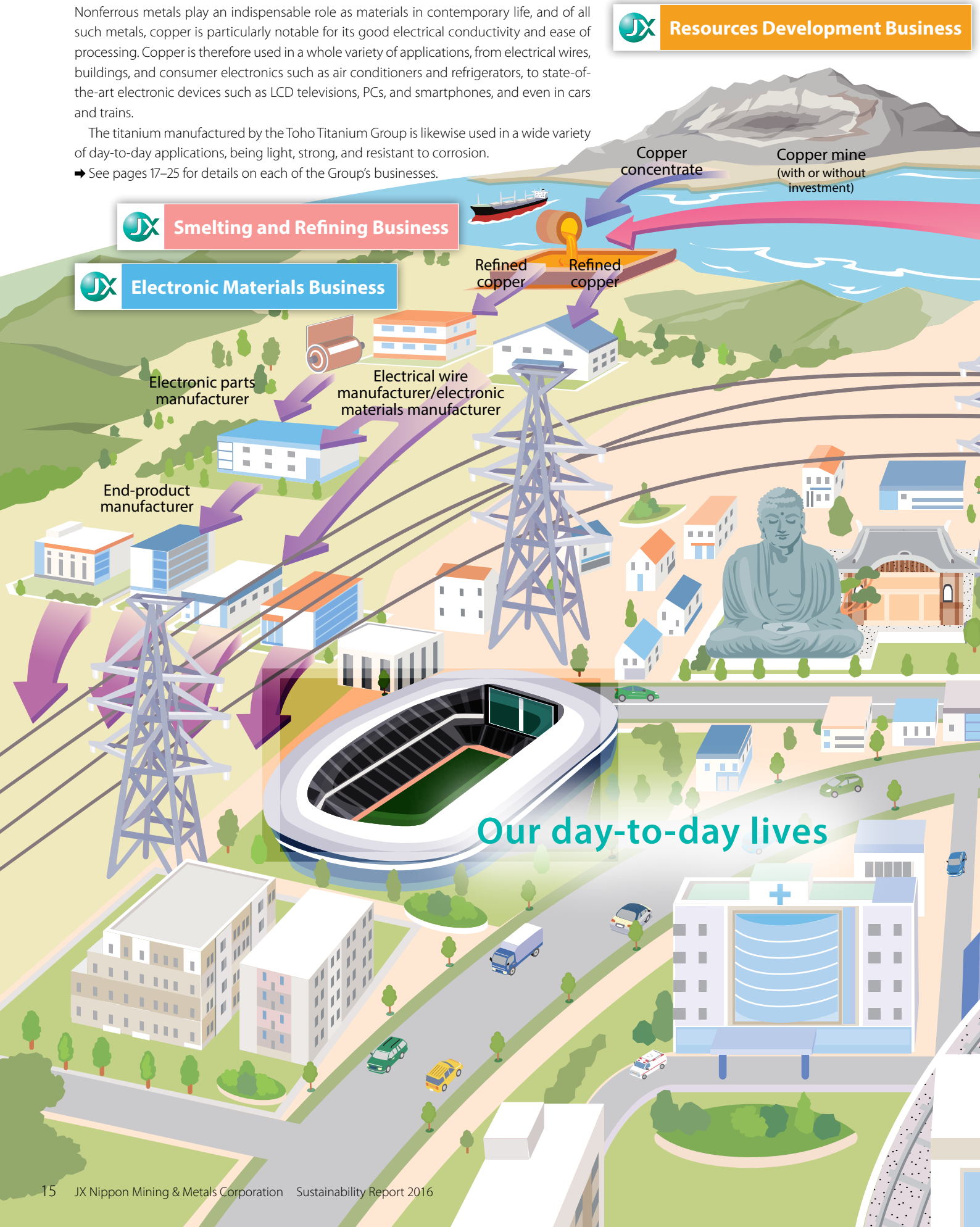
The Nippon Mining Museum

Relationship between the JX Nippon Mining & Metals Group and Society

Nonferrous metals play an indispensable role as materials in contemporary life, and of all such metals, copper is particularly notable for its good electrical conductivity and ease of processing. Copper is therefore used in a whole variety of applications, from electrical wires, buildings, and consumer electronics such as air conditioners and refrigerators, to state-of-the-art electronic devices such as LCD televisions, PCs, and smartphones, and even in cars and trains.

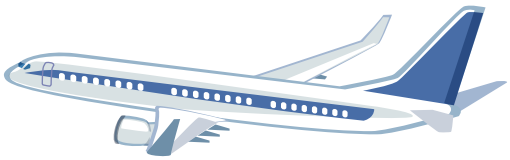
The titanium manufactured by the Toho Titanium Group is likewise used in a wide variety of day-to-day applications, being light, strong, and resistant to corrosion.

➡ See pages 17–25 for details on each of the Group's businesses.



Titanium Business

* Light, strong, and corrosion-resistant titanium is used in aircraft fuselages and other applications.



Recycling and Environmental Services Business

Urban mines
(end-of-life consumer electronics)

Overview of JX Nippon Mining & Metals Business Segments

We regard the mission of the Group as providing stable supplies of nonferrous metal resources and materials to society and also as promoting zero-emission recycling. To fulfill this mission, seeing CSR activities as "nothing more or less than our business activities," we are pursuing innovation in the productivity of resources and materials in each of our business areas, namely resources development, smelting and refining, electronic materials, and recycling and environmental services.

Resources Development Business

Equity entitled copper mine production
Approx. 200,000 tons per year (fiscal 2015)

We mine copper ores by developing mines with a view to the mineral deposit potential.

Exploration to development

- Following exploration to narrow down prospective sites to those with promising mineral deposits, we conduct more detailed studies to consider the feasibility of mine development from technical and economic standpoints. When the decision is made to go ahead with development, construction work starts on the infrastructure and ore processing facilities.

Operation

- Mined ores having a copper grade of around 1% go through processes of crushing and grinding, followed by flotation to select the usable contents, producing copper concentrate with a grade of around 30%.

Exploration

Mining

Grinding

Flotation

Smelting and Refining Business

Refined copper sales volume of
Pan Pacific Copper (PPC)
Approx. 600,000 tons per year (fiscal 2015)

Copper concentrate with a grade of around 30%, imported from overseas, is used as the raw material. From this, we produce refined copper by upgrading it to a purity of 99.99% in flash smelting furnace, converter, anode furnace, and electrorefining processes.

Copper concentrate is poured successively into a flash smelting furnace, converter, and anode furnace, removing iron and sulfur content to create blister copper having a purity of around 99%. Electrolysis is then applied to the blister copper to produce refined copper of 99.99% purity for shipment.

Copper concentrate

Converter

Blister copper casting

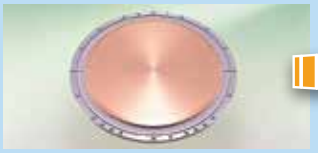
Electrorefining

Refined copper

Electronic Materials Business

Products with the top global market share
Treated rolled copper foil: 70%
Sputtering targets for semiconductors: 60% (fiscal 2015)

Starting with refined nonferrous metals manufactured in the smelting and refining processes, we perform the necessary processing, such as alloying, high purification, surface treatment, and rolling. We provide electronic materials with a wide range of properties for use in electronic equipment, automotive, medical device, and other industries.



Copper sputtering targets for semiconductors

Applications: Integrated circuits

Treated rolled copper foil

Applications: Flexible printed circuit boards

Examples of electronic materials product manufacturing processes

Each of the products is manufactured based on advanced metal processing technologies developed over many years.

Copper sputtering targets for semiconductors

- Sputtering targets are made from refined copper by further purifying it and then employing processes that include forging, rolling, and surface treatment. In their final use, they are utilized as a material for the extremely fine interconnects of semiconductor integrated circuits.

Treated rolled copper foil

- Refined copper is melted and cast, followed by repeated rolling until its thickness is only about 5 to 150 microns. Being more bendable than electro-deposited copper foil, treated rolled copper foil is used in flexible printed circuit boards inside smartphones, for example.

Recycling and Environmental Services Business

Annual volume of gold recovered
Approx. 6 tons (fiscal 2015)

By recovering and reusing nonferrous metal resources from end-of-life electronic devices and industrial waste, we are contributing to environmental conservation and to the realization of a recycling-oriented society.

End-of-life electronic devices and other items for recycling

Making use of domestic and overseas networks, we collect end-of-life electronic devices and industrial waste, which first undergo preprocessing as necessary, such as crushing, incineration, and melting. The resulting materials are then put through smelting and refining processes to recover refined copper, precious metals, rare metals, and other metals.

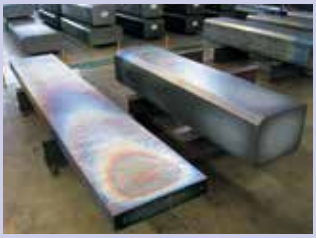
Refined metals

Titanium Business

Annual titanium sponge production capacity
25,200 tons

A variety of titanium materials are manufactured from titanium ore and supplied to society.

Titanium sponge



Titanium ingots

Our products include titanium sponge, which is produced through smelting using a magnesium reduction method called the "Kroll process"; titanium ingots, which are made by melting and casting titanium sponge; high-purity titanium; and fabricated titanium products. In addition, we are engaged in the functional chemicals business based on the titanium smelting technology and the raw materials obtained from that process.

Business Results in Fiscal 2015

(April 1, 2015, to March 31, 2016)

Global demand growth for refined copper slowed, the main factors being delayed public investment and the sluggish automotive and consumer electronics markets in China, which accounts for around half of worldwide copper consumption. The international copper price (London Metal Exchange (LME) price) began the fiscal year at 274 U.S. cents per pound. With the uncertain global economic outlook and overall slump in resource prices, the copper price was generally weak during 2015, moving within the range of 200 cents to 290 cents per pound. The price briefly fell below 200 cents in early 2016 with fears of declining demand due to a slowdown in the Chinese economy. Thereafter, it moved within the range of 200 to 220 cents, averaging 237 cents for the entire fiscal year. On the foreign exchange market, the value of the yen to the U.S. dollar averaged ¥120 over the fiscal year.

Against this background, consolidated net sales of the JX Nippon Mining & Metals Group declined 9.2% from the previous fiscal year, to ¥1,049.7 billion, while ordinary income fell 76.6%, to ¥13.3 billion. A special loss of ¥90.8 billion was recognized, mainly due to impairment of assets relating to resources development, resulting in a net loss of ¥47.9 billion.

* The Company discloses financial information through its holding company JX Holdings, Inc.

Fiscal 2015 results (consolidated)

(billions of yen)

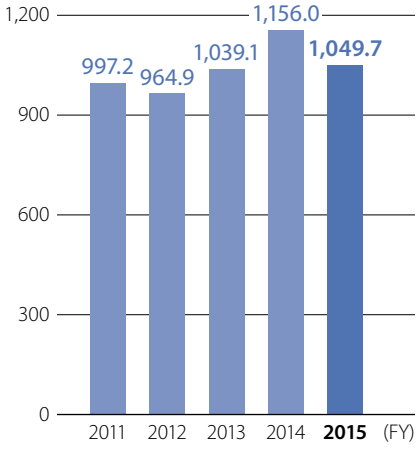
	Fiscal 2014	Fiscal 2015	Year-on-year change
Net sales	1,156.0	1,049.7	–9.2%
Operating income	33.2	14.7	–55.7%
Ordinary income	56.6	13.3	–76.6%
Net income (loss)	(5.7)	(47.9)	—
Total assets	1,739.6	1,497.9	–13.9%
LME copper price (US cent/pound)	297	237	–20%
Exchange rate (JPY/USD)	110	120	+9%

Financial Performance (Consolidated)

* Figures for fiscal 2011 do not include results of the titanium business.

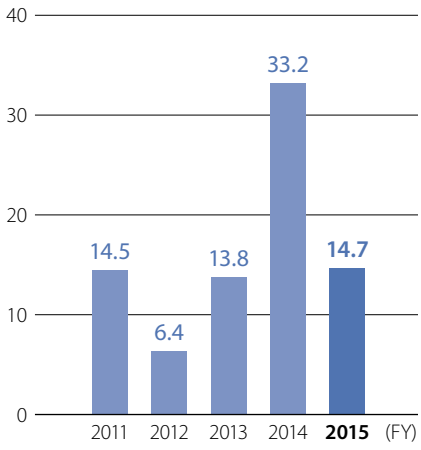
Net sales

(billions of yen)



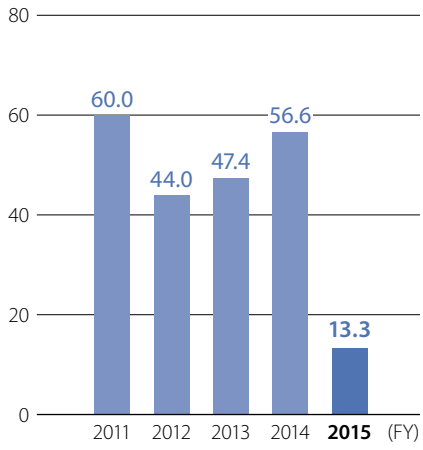
Operating income

(billions of yen)



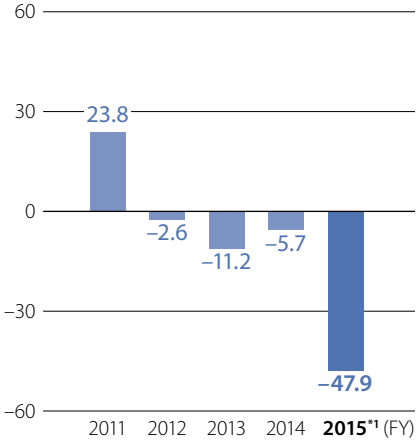
Ordinary income

(billions of yen)



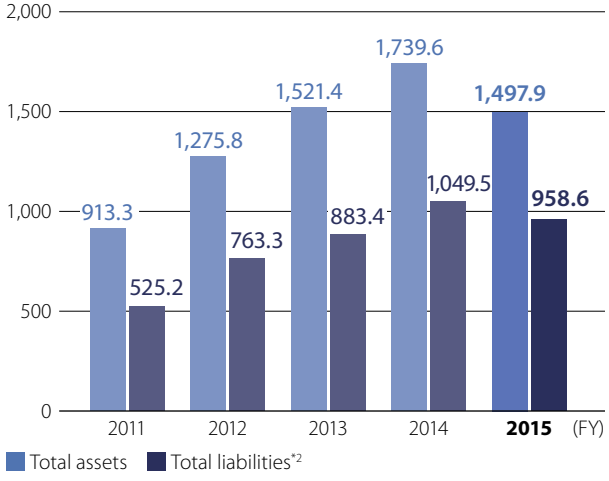
Net income (loss)

(billions of yen)



Total assets and total liabilities

(billions of yen)



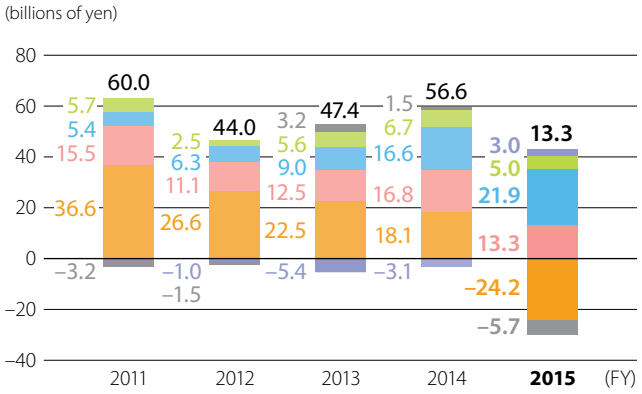
*1 The Group booked a special loss of ¥90.8 billion, mainly due to impairment of assets relating to resources development, resulting in a net loss of ¥47.9 billion.

*2 Figures for past fiscal years have been amended retroactively to correct errors that occurred during transcription from the consolidated financial statements.

Segment Information

The Group's business consists of five segments: resources development, smelting and refining, electronic materials, recycling and environmental services, and titanium.

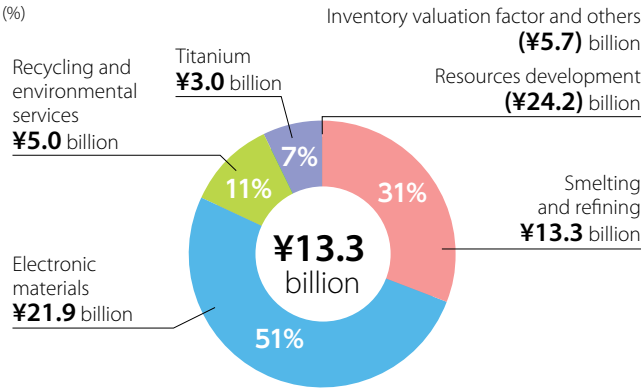
Ordinary income trends per segment*



Resources development | Smelting and refining | Electronic materials | Recycling and environmental services | Titanium | Inventory valuation factor and others

* Figures for fiscal 2011 do not include results of the titanium business.

Ratio of ordinary income by segment* (Fiscal 2015)



Resources development | Smelting and refining | Electronic materials | Recycling and environmental services | Titanium | Inventory valuation factor and others

* Resources development business and inventory valuation factor and others are excluded from the ratio calculations.

Year-on-year change in ordinary income (Fiscal 2015)

(billions of yen)

	FY2014	FY2015	Year-on-year change	Main factors in year-on-year change
Resources development business	18.1	(24.2)	(42.4)	A year-on-year decline in investment income from the three Chilean mines we have invested in, due mainly to lower copper prices, resulted in a sharp drop in income. Currently, we are focusing our efforts on achieving stable full operation of the Caserones Copper Mine.
Smelting and refining business	16.8	13.3	(3.4)	Despite improvement in copper ore purchasing conditions, income declined year on year, impacted chiefly by lower copper prices, reduced production of refined copper at domestic refineries, and recognition of an impairment loss at our South Korean copper smelting company.
Electronic materials business	16.6	21.9	+5.4	Sales volumes of our main products were mostly higher year on year, boosted especially by demand growth in the information technology field. Sales prices, helped largely by a weaker yen, were also mostly higher year on year, resulting in income growth.
Recycling and environmental services business	6.7	5.0	(1.8)	Income was down year on year due to a decline in the volume and margin of recycled materials collected, as low metal prices led to a drop in the generation of recycled materials and fiercer competition over their collection.
Titanium business	(3.1)	3.0	+6.1	Net sales rose strongly from the previous fiscal year due to solid performance by the functional chemical products business that makes and sells catalysts and chemicals, along with gradual recovery in titanium demand. As a result, this segment turned profitable after losses in the previous fiscal year.

Business Climate Indicators

Trends in key factors affecting Group performance are as indicated below.

Segments affected	Indicators	Units	FY2011	FY2012	FY2013	FY2014	FY2015
All segments	Exchange rate	(JPY/USD)	79	83	100	110	120
	LME copper price	(US cent/pound)	385	356	322	297	237
Resources development business	Equity entitled copper mine production	(thousand tons/year)	105	105	127	148	198
Smelting and refining business	Sales volume of refined copper by PPC	(thousand tons/year)	566	551	588	623	595
Electronic materials business	Sales volume of treated rolled copper foil	(thousand kilometers/month)	2.6	2.7	3.0	4.1	4.9
	Sales volume of precision rolled materials	(thousand tons/month)	3.5	3.3	3.4	3.8	3.7
Recycling and environmental services business	Recovered volume of gold	(tons/year)	7.0	5.8	6.1	5.9	6.4

Net Sales by Region

(billions of yen)

	Japan	Rest of world						Total
			China	Rest of Asia	North America	Europe	Other	
FY2014	591.7	564.2	362.9	161.5	26.1	10.4	3.3	1,156.0
FY2015	562.0	487.7	309.7	138.7	26.9	9.6	2.7	1,049.7

Segment Overview and Review of 2nd Medium-Term Management Plan

The JX Nippon Mining & Metals Group drew up its 2nd Medium-Term Management Plan (fiscal 2013 to 2015) aimed at maximizing corporate value, premised on furthering appropriate governance based on strict compliance and the creation of a CSR promotion framework. Following this plan, the Group pursued initiatives in each of the business segments. (See "Message from the President" on pages 3–6 for details.)

Resources Development Business

Business Overview

We are actively involved in promising copper mine development projects from the initial mineral exploration phase. At the Caserones Copper Mine, which the Group has taken the lead in developing since acquiring mining rights in 2006, copper concentrate production began in May 2014. We have also invested in some of the world's largest copper mines, such as Los Pelambres, Escondida, and Collahuasi. Our equity entitled copper mine production totaled around 200,000 tons in 2015.

Caserones Copper Mine

Grinder (semi-autogenous grinding mill)

Key Strategies of the 2nd Medium-Term Management Plan

- **Take steps to expand copper mining rights and interests**
  - Complete Caserones Copper Mine (Chile) development and ramp up production
  - Consider developing the Quechua Copper Deposit (Peru)
  - Carry out mineral exploration in the Frontera district (Chile)
- **Promote commercialization of new smelting technology**
  - Develop N-Chlo (Nikko Chloride) Process*1
  - Develop biomining technology*2

Review of the 2nd Medium-Term Management Plan

We fell far short of our income target due to the sharp decline in copper prices and delay in ramping up production in the Caserones project. (See "Message from the President" on the extent of achieving the income target.)

Initiatives in Fiscal 2016

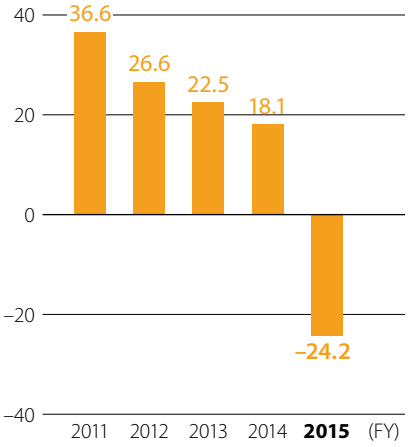
- At the Caserones Copper Mine, we are focusing our efforts on achieving stable full operation. We will continue taking steps to stabilize mine operation, while implementing a program of improvements devised by a leading consulting firm that we have engaged. In this way, we endeavor to achieve further cost reductions and greater productivity so as to boost competitiveness.

*1 Our proprietary hydro-metallurgical refining process using hydrochloric acid to efficiently recover copper, gold, silver, and other metals from low-grade copper concentrate.

*2 A hydro-metallurgical method that uses microorganisms in acidic conditions to accelerate the extraction of copper from ore.

Ordinary income

(billions of yen)



Caserones Project

Acquisition of mining rights	May 2006
Acquisition price	US$137 million
Initial investment amount	Approx. US$4.2 billion (initial investment in production equipment, etc.) (of which a financing agreement was concluded in July 2011 for US$1.4 billion)
Equity shares (as of Mar. 31, 2016)	Pan Pacific Copper (PPC): 77.37% Mitsui & Co.: 22.63%
Mine life	28 years (2013 to 2040)
Total production volume (28-year lifetime)	Copper: 3,550,000 t (copper concentrate, 3,140,000 t; SX-EW refined copper, 410,000 t) Molybdenum: 87,000 t

Production plans

Mar. 2013: Start of SX-EW refined copper production
May 2014: Start of copper concentrate production

		First 10 years	28-year average	Total for 28 years
Copper	Concentrate (copper content)	150,000 t/year	110,000 t/year	3,140,000 t/year
	SX-EW refined copper	30,000 t/year	10,000 t/year	410,000 t/year
	Total	180,000 t/year	120,000 t/year	3,550,000 t/year
Molybdenum		3,000 t/year	3,000 t/year	87,000 t/year

Smelting and Refining Business

Business Overview

Our refined copper production capacity is among the largest in the world, at approximately 920,000 tons per year combined for Pan Pacific Copper's sites in Japan and LS-Nikko Copper in South Korea. We efficiently produce high-quality refined metal products, including copper and precious metals, and provide stable supplies to Asian markets where demand is expanding.

Key Strategies of the 2nd Medium-Term Management Plan

- **Build up the business structure to become one of the world's most cost-competitive suppliers**
  - Achieve safe, stable operations
  - Improve smelting and refining margin

Review of the 2nd Medium-Term Management Plan

Although a certain level of earnings was achieved thanks to a weaker yen and improved smelting and refining margin, the income target was not met, impacted primarily by a production drop resulting from such events as a fire at a domestic smelter and by a taxation problem and an impairment loss at our South Korean copper smelting company.

Initiatives in Fiscal 2016

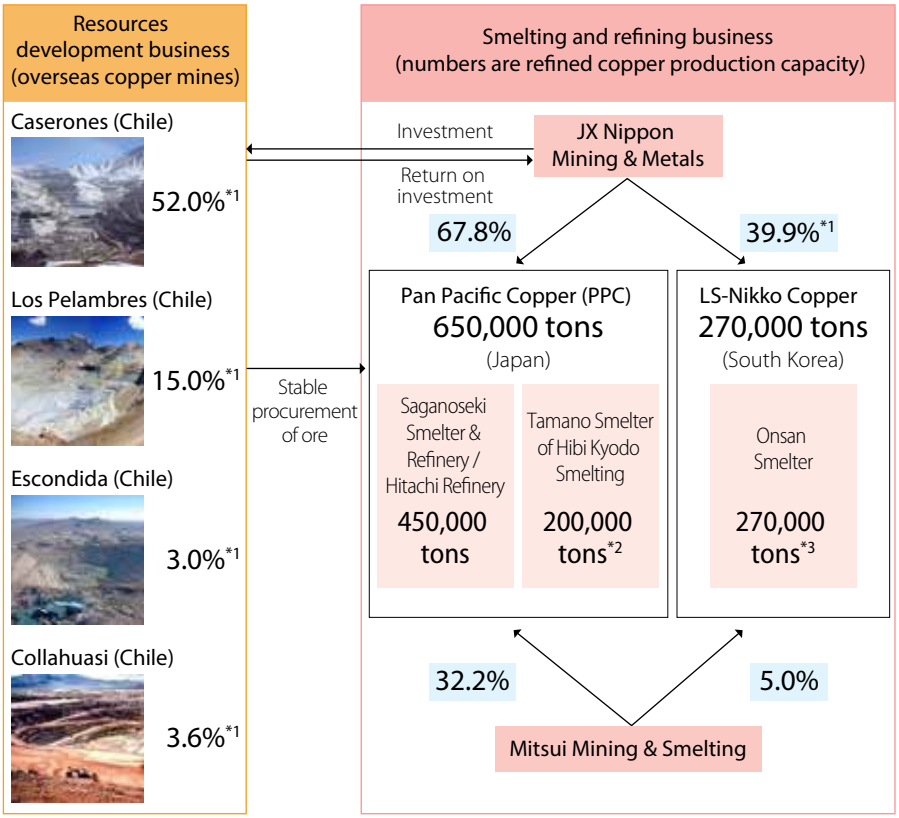
We will continue building up the business structure to become one of the world's most cost-competitive suppliers and seek to achieve stable operation of our smelting and refining facilities.

Saganoseki Smelter & Refinery

Tamano Smelter of Hibi Kyodo Smelting

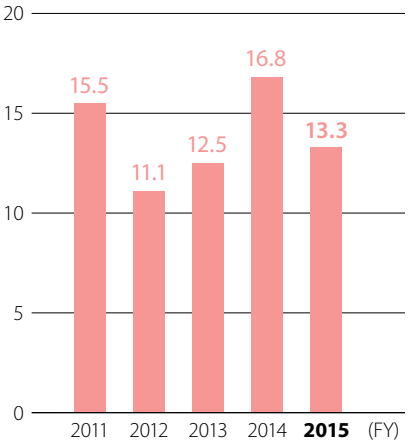
Onsan Smelter

Outline of Resources Development and Smelting and Refining Businesses



Ordinary income

(billions of yen)



*1 Indirect ownership portion of JX Nippon Mining & Metals (as of March 31, 2016)

*2 PPC's offtake of the total production capacity of 290,000 tons

*3 The amount corresponding to JX Nippon Mining & Metals' equity share of the total production capacity of 680,000 tons

Electronic Materials Business

Business Overview

We develop and provide high-quality, high-performance electronic materials in a timely manner, drawing on our technological advantages related to nonferrous metals in areas including high-purity refining, high-density sintering, surface treatment, and precision rolling and fabrication. Our materials are matched to rapidly progressing needs in the electronic equipment and automotive markets, where we maintain high global shares.

Key Strategies of the 2nd Medium-Term Management Plan

- **Maintain and expand global top share in each product market**
  - Achieve profitability of new Kakegawa Works and cathode materials business as early as possible
  - Improve profitability by developing new fields and materials
  - Expand network of overseas sites

Review of the 2nd Medium-Term Management Plan

We were able to achieve earnings growth in line with the goals in the 2nd Medium-Term Management Plan, as sales of sputtering targets for semiconductors, treated rolled copper foil, compound semiconductors, and other value-added products increased steadily, against the background of rapid growth in smartphones, servers, and other IT equipment, and the development of communication services and infrastructure. We further benefited from production at the Kakegawa Works of JX Metals Precision Technology and the Longtan Works of Nikko Metals Taiwan, both of which went into operation in 2013.

Initiatives in Fiscal 2016

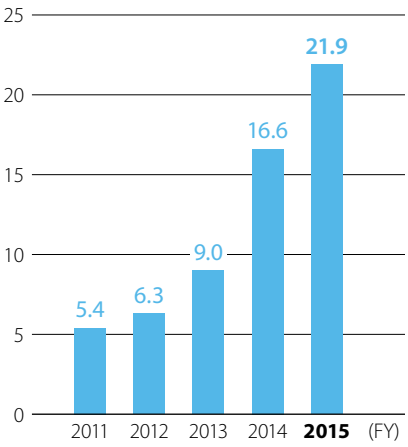
While continuing to maintain and expand our global top share in each product market, we will pursue demand in new markets related to the emerging IoT (Internet of Things)-based society, and devote efforts to expand business in peripheral areas of existing fields.

Ultrathin copper foil with carrier (thickness of 1.5 to 5.0 microns)

Kakegawa Works, JX Metals Precision Technology

Ordinary income

(billions of yen)



Outline of Electronic Materials Business

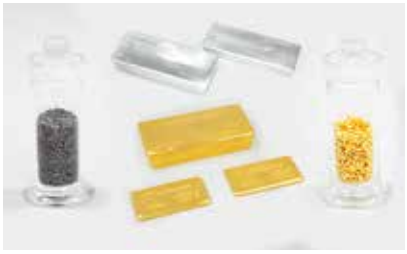
Principal IT-related materials		Global market share (in 2015)	Primary applications	End-use applications				
				PCs	Mobile phones, smartphones	Digital appliances, AV	Communications infrastructure, data centers	Automobiles
	Treated rolled copper foil	**70% No. 1**	Flexible printed circuit boards	○	◎	◎		○
	Sputtering targets for semiconductors	**60% No. 1**	CPUs, memory chips, etc.	◎	◎	◎	○	○
	ITO targets for LCDs	**30% No. 1**	Transparent conductive films	◎	◎	◎		○
	Sputtering targets for magnetic applications	**60% No. 1**	Hard disks, etc.	◎		○	○	
	Phosphor bronze	**20% No. 1**	Connectors, springs for electronic parts	○	◎	○		○
	Corson alloy (C7025)	**45% No. 1**	Lead frames, connectors	◎	○	○	○	○
	Titanium copper	**70% No. 1**	High-end connectors, etc.	○	◎	○		○
	InP compound semiconductors	**50% No. 1**	Optical communication devices, ultrafast ICs			○	◎	○

Recycling and Environmental Services Business

Business Overview

We engage in the recycling business, making use of the equipment and technologies of our smelting and refining operations to efficiently recover copper, precious metals, rare metals, and other resources from recycled materials. We also conduct business in environmental services, providing zero-emissions processing of industrial waste materials to render them harmless without producing any secondary waste. In Japan, we established the Hitachi Metal Recycling Complex (HMC) Department of the Hitachi Works, taking steps to expand the variety of metal elements recovered and to strengthen our nationwide network for collection and processing of recycled materials. Now that the volume of recycled materials generated in Japan has declined, we are increasing collection from outside Japan and endeavoring to build a recycling-oriented business on a global scale.

Low-concentration PCB waste treatment system at JX Nippon Tomakomai Chemical



Precious metals recovered from recycled materials

Key Strategies of the 2nd Medium-Term Management Plan

- **Create a global, environmentally viable resource recycling business designed for zero emissions**
  - Expand collection outside Japan
  - Roll out and expand new businesses
  - Consolidate metal production sites for efficiency and cost reduction

Review of the 2nd Medium-Term Management Plan

Despite a difficult business environment characterized by lower margins amid intensifying competition in recycled materials procurement, we sought to expand our collection network, establishing a recycled materials collection site in North America in 2014 and acquiring shares in Takasho Co., Ltd. (currently JX Nippon Takasho Co., Ltd.), in 2015.

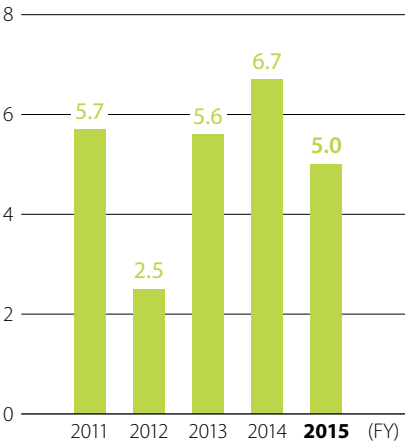
At JX Nippon Tomakomai Chemical, in 2014 we began a low-concentration PCB waste treatment service.

Initiatives in Fiscal 2016

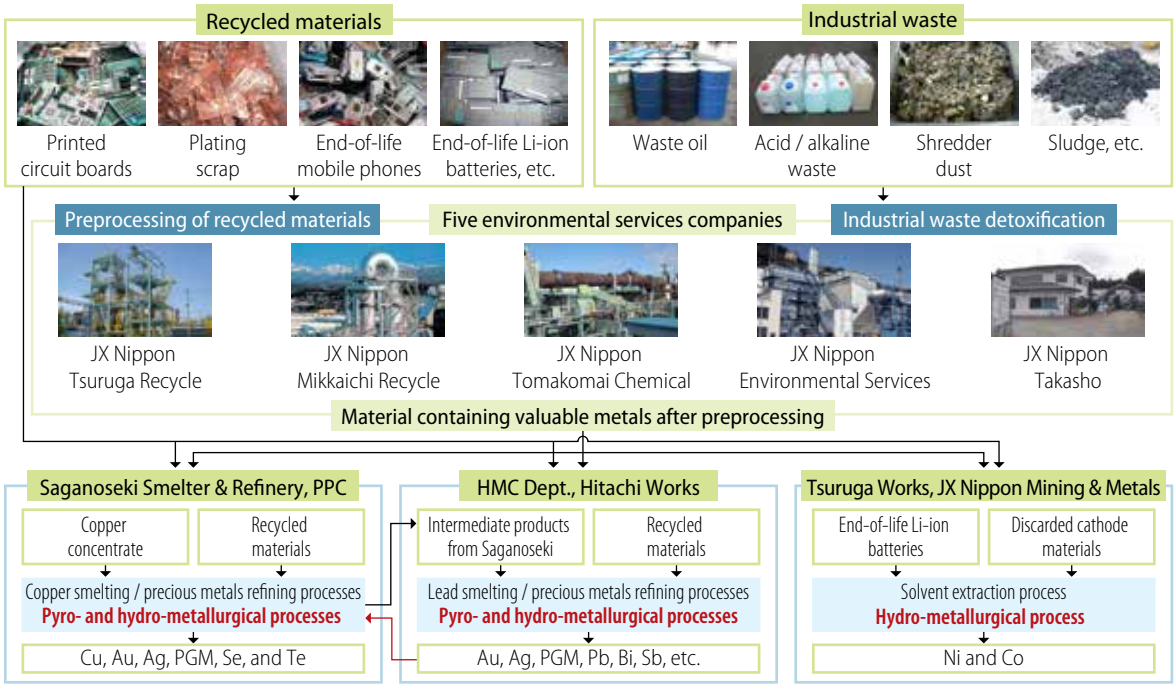
We will continue to build up our collection networks in Japan and abroad and work to achieve a higher margin, in the face of a decline in industrial waste with the hollowing of Japanese industry along with the lower quality of valuable materials in recycled materials.

Ordinary income

(billions of yen)



Outline of Recycling and Environmental Services Business



Titanium Business

Business Overview

Titanium, a light and strong metal resistant to corrosion, has many uses ranging from aircraft to desalination plants and electric power plants. In the Group, business in this segment is carried out by Toho Titanium. Based on the projection that titanium demand will rise steadily, we are taking steps to boost competitiveness through the restructuring of domestic operations and the promotion of overseas projects.

Key Strategies of the 2nd Medium-Term Management Plan

- **Carry out restructuring to meet the changing titanium demand structure**

Review of the 2nd Medium-Term Management Plan

In 2014, a restructuring of the titanium business in Japan was announced and carried out, including a reduction in production capacity for titanium sponge and ingots. Thanks primarily to the streamlined production and cost reductions resulting from these moves, along with recovering demand for titanium metal, the business became profitable in fiscal 2015. Seeking to further boost the competitiveness of the titanium business, in 2014 a joint venture agreement was concluded with Saudi Arabian partners concerning a project to build a new titanium sponge plant in the country.

Initiatives in Fiscal 2016

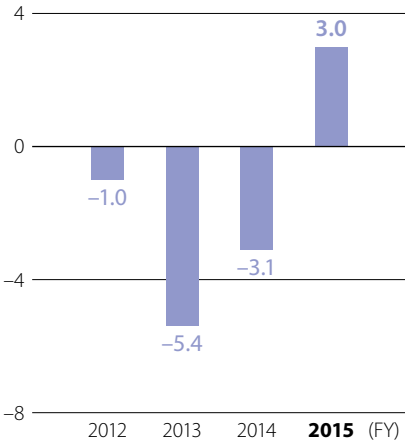
We will strive to raise the quality of products, services, and other elements in the existing business and to maintain and expand long-term profitability, while implementing growth strategies including for the Saudi Arabia project.

Site of new plant in Saudi Arabia (Yanbu)

New plant construction

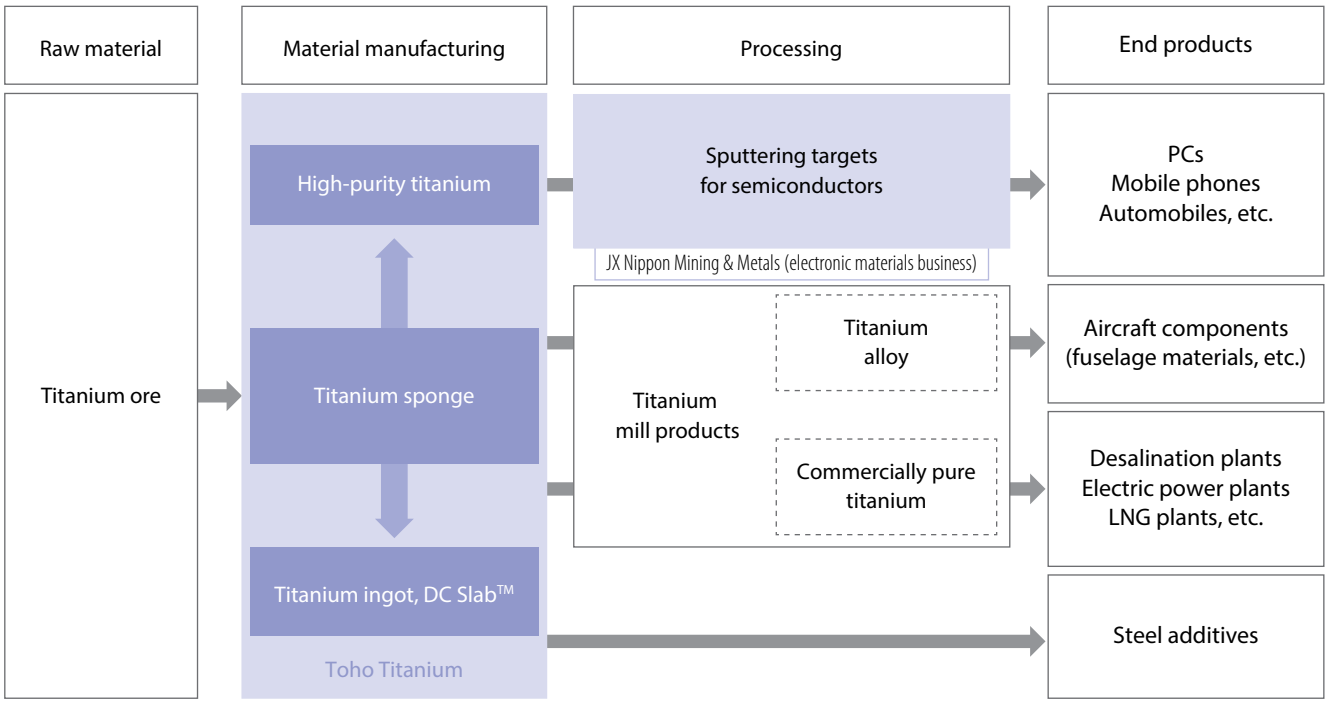
Ordinary income*

(billions of yen)



* JX Nippon Mining & Metals Group consolidated financial results

Outline of Titanium Business



Scope of the Group's business

Production Sites in Japan and Overseas Operating Sites

As of July 1, 2016

Domestic

1 JX Nippon Tomakomai Chemical Co., Ltd.

2 Esashi Works of JX Metals Precision Technology Co., Ltd.

3 Ichinoseki Foil Manufacturing Co., Ltd.

4 Shirakawa Plant of JX Nippon Takasho Co., Ltd.

5 Isohara Works,
JX Nippon Foundry Co., Ltd.

6 Hitachi Works,
Hitachi Refinery of Pan Pacific Copper Co., Ltd.
JX Nippon Environmental Services Co., Ltd.
Kamine Clean Service Co., Ltd.
Hitachi Plant of Toho Titanium Co., Ltd.

7 Tatebayashi Works of JX Metals Precision Technology Co., Ltd.

8 Nasu Works and Metal Mold Production & Development Center of JX Metals Precision Technology Co., Ltd.

9 Kurami Works,
Kurami Office of JX Nippon Coil Center Co., Ltd.
Chigasaki Plant of Toho Titanium Co., Ltd.

10 JX Nippon Mikkaichi Recycle Co., Ltd.
Kurobe Plant of Toho Titanium Co., Ltd.

11 Kakegawa Works of JX Metals Precision Technology Co., Ltd.

12 Tsuruga Plant,
JX Nippon Tsuruga Recycle Co., Ltd.

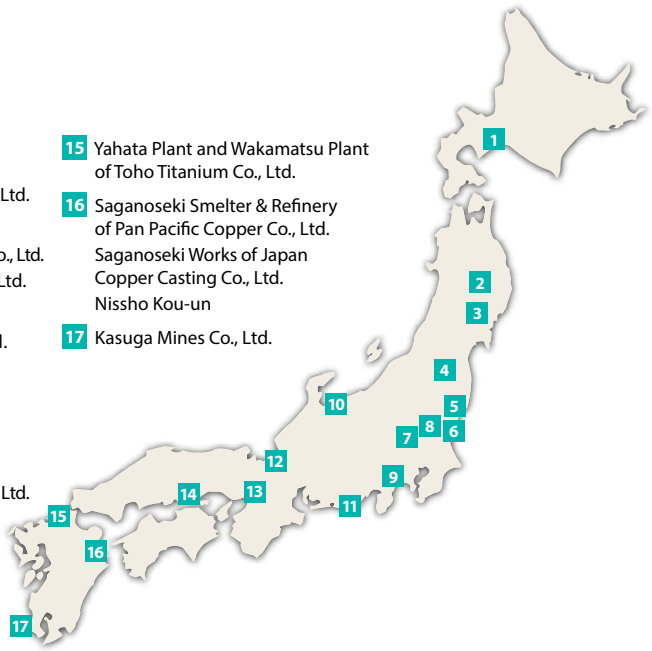
13 Takatsuki Plant of JX Metals Trading Co., Ltd.

14 Hibi Smelter of
Pan Pacific Copper Co., Ltd.
Tamano Smelter of
Hibi Kyodo Smelting Co., Ltd.
Hibi Smelting Logistics Co., Ltd.

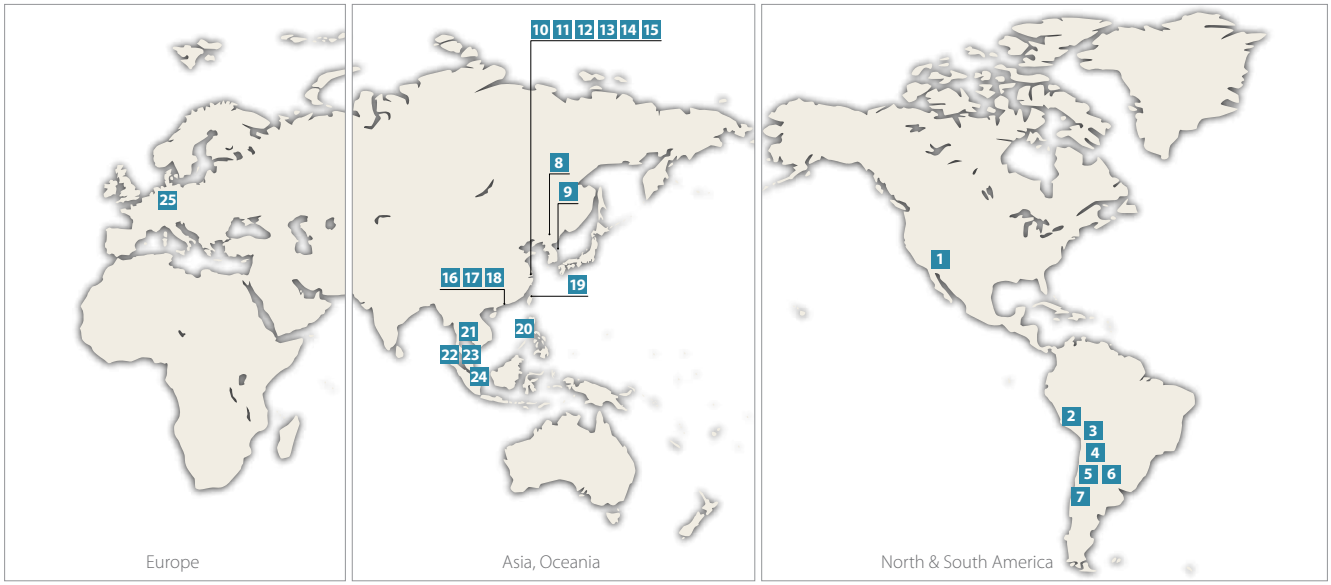
15 Yahata Plant and Wakamatsu Plant of Toho Titanium Co., Ltd.

16 Saganoseki Smelter & Refinery of Pan Pacific Copper Co., Ltd.
Saganoseki Works of Japan Copper Casting Co., Ltd.
Nissho Kou-un

17 Kasuga Mines Co., Ltd.



Overseas



1 JX Nippon Mining & Metals USA, Inc.

2 Pan Pacific Copper Exploration Peru, S.A.C.
Compania Minera Quechua S.A.

3 Collahuasi Mine

4 Escondida Mine

5 Caserones Mine

6 Los Pelambres Mine

7 Chile Office
Chile Office of Pan Pacific Copper Co., Ltd.
Pan Pacific Copper Exploration Chile Limitada
SCM Minera Lumina Copper Chile

8 JX Nippon Mining & Metals Korea Co., Ltd.

9 LS-Nikko Copper Inc.
Poongsan-Nikko Tin Plating Corporation

10 JX Nippon Mining & Metals Shanghai Co., Ltd.

11 Pan Pacific Copper (Shanghai) Co., Ltd.

12 Nikko Metals Shanghai Co., Ltd.

13 Nippon Mining & Metals (Suzhou) Co., Ltd.

14 Nikko Fuji Precision (Wuxi) Co., Ltd.

15 Changzhou Jinyuan Copper Co., Ltd.

16 JX Nippon Mining & Metals Dongguan Co., Ltd.

17 Hong Kong Nikko Shoji Co., Ltd.

18 Shenzhen Nikko Shoji Co., Ltd.

19 Nikko Metals Taiwan Co., Ltd.
Taipei Office of Pan Pacific Copper Co., Ltd.

20 JX Nippon Mining & Metals Philippines, Inc.

21 Thai Office of Pan Pacific Copper

22 Materials Service Complex (Thailand) Co., Ltd.

23 Materials Service Complex Malaysia Sdn. Bhd.

24 JX Nippon Mining & Metals Singapore Pte. Ltd.

25 JX Nippon Mining & Metals Europe GmbH

Corporate Data

Company Name:
JX Nippon Mining & Metals Corporation

Paid-in Capital:
¥20.0 billion (wholly owned by JX Holdings, Inc.)

Representative:
Shigeru Oi, President and Chief Executive Officer

Net Sales:
¥1,049.7 billion (fiscal 2015, consolidated)

Ordinary Income:
¥13.3 billion (fiscal 2015, consolidated)

Head Office:
1-2, Otemachi 1-chome, Chiyoda-ku, Tokyo 100-8164, Japan

Business Lines:
- Resources development
- Smelting and refining
- Electronic materials
- Recycling and environmental services

Employees (Nonconsolidated):
1,355 (as of March 31, 2016)

Employees (Consolidated):
6,723 (as of March 31, 2016)

Domestic Operating Sites:
- Hitachi Works (Ibaraki Prefecture)
- Isohara Works (Ibaraki Prefecture)
- Technology Development Center (Ibaraki Prefecture)
- Kurami Works (Kanagawa Prefecture)
- Tsuruga Plant (Fukui Prefecture)

Overseas Operating Site:*
Chile Office

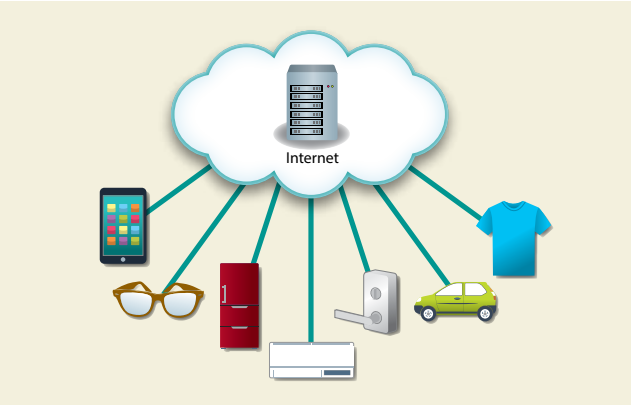
* The JX Nippon Mining & Metals Group conducts business in 11 countries worldwide.

SPECIAL FEATURE How We Are Contributing to an IoT (Internet of Things)-Based Society

Arrival of an IoT-Based Society

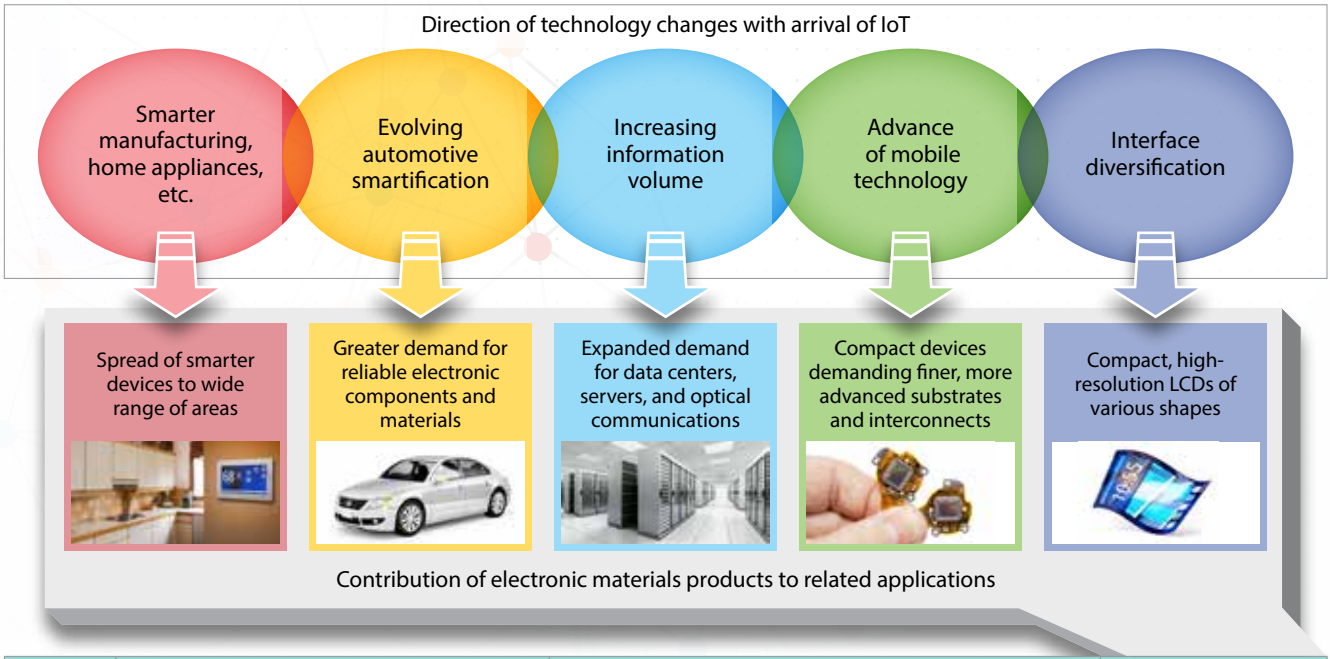
The vision of the IoT is about a future when not just information devices such as smartphones and PCs but all kinds of items—ranging from clothing and accessories to home appliances, automobiles, and roads —are connected to the Internet. Its realization is expected to bring about new, highly innovative services that have never been seen before.

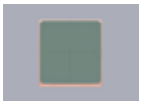
Having so many different things connected on networks will mean many more places for semiconductors, sensors, displays, and other electronic devices to find uses. In response to these changing times, we look forward to contributing significantly to the IoT field with products from our electronic materials business.



An IoT-based society

Correlation between IoT emergence and electronic materials products



	Product		Description	Relation to above applications
Role of our electronic materials products	Sputtering targets for semiconductors UBM (under bump metallurgy) plating		Semiconductor logic, memory, sensors, and communication chips are especially essential to devices used in the IoT. The spread of the IoT should dramatically increase demand.	Related to all applications
	Precision rolled products Precision fabricated products Treated rolled copper foil Electro-deposited copper foil		Devices used in the IoT will continue to need various connectors, switches, and flexible circuits. Highly flexible treated rolled copper foil, as well as strong and highly conductive titanium copper and Corson alloys, will in particular help manufacturers to produce smaller and more advanced IoT devices.	Related to all applications
	Sputtering targets for magnetic recording media		These targets are used in making the recording media of hard disks and will help meet increased demand for disk storage as data centers grow and servers increase.	Increasing information volume
	Compound semiconductor materials Indium phosphide (InP)		The increasing demand for data in optical communication between servers and base stations is in turn boosting demand for InP used in optical communication devices.	Demand growth for sensors and communications
	Sputtering targets for flat panel displays		With the spread of the IoT, displays that are the interface with humans are expected to advance in many ways, becoming smaller, higher in resolution, and more flexible. Contributing to these advances will be our sputtering targets for LCD.	Diversification of various displays

IoT Utilization Policy of the JX Nippon Mining & Metals Group

We have launched an IoT Working Group with members from the Technology Group (IT Dept., Facilities Engineering Dept., and Planning & Administration Dept.) and the Electronic Materials Group (Technology Dept.), and are seeking to apply the IoT to selected operating sites and designated facilities.

As model plants, our electronic materials operating sites are performing a central role and have taken the lead in IoT initiatives. At the same time, analysis of operations data and other efforts are being applied to smelting and refining sites.

IoT initiatives at individual operating sites

Isohara Works

Category Production engineering

Theme Analysis of data from InP monocrystalline growing furnaces

Description Data accumulated over the past 10 years from large growing furnaces is being classified for each crystal pulling stage and analyzed. The correlations will then be studied with the aim of optimizing production.

Kurami Works

Category Production engineering

Theme Corson alloy quality improvement

Description Data on cooling conditions during casting is being automatically gathered using sensors and fed back into quality improvement efforts.

Tatebayashi Works, JX Metals Precision Technology

Category Safety

Theme Safety monitoring

Description Wearable monitoring devices are being used to watch the health state of workers and detect early signs of heat illness or other physical problems.

VOICE Applying IoT Know-How to Support Operation Improvements

Wataru Harada
Senior Engineer
IT Department,
Technology Group

The keyword "IoT" is used by different people with different meanings or scope. Some even seem to see it as a kind of magic wand that will make dreams come true.

Working in the IT Section of the Kurami Works until the end of fiscal 2015, I took part in an IoT promotion project at the plant, carrying out studies along with the general manager and heads of other related departments and sections. We developed the concept of the IoT as being not an end in itself but a means of realizing improvements with an eye on the future. Of the many ideas coming from various departments about applications they would like to try, none was seen at the time as having clear benefits. The reason was that projects sure to have benefits had already received budget approval and had been implemented. Plants pursue cost-effectiveness and tend to hesitate to spend money on projects for which benefits are unclear. The Kurami Works was no exception; at the twice-monthly promotion meetings, there were times when cost grabbed all the attention from the substance of proposals.

In April 2016, I was transferred to the Technology Group, a newly created Head Office unit. There the IoT Working Group was formed as a cross-divisional organization, and each day I sense the seriousness of the Company in addressing the IoT.

While talk about the IoT seems to have preceded actual realization, I see my work right now as somehow joining together the bottom-up ideas from the plants with the top-down ideas from the Head Office to implement each of the themes, and to further develop the technology and experience on multiple fronts.

Ensuring Occupational Health and Safety

From its inception, the Group has always considered the maintenance of occupational health and safety to be an essential condition for the continuation of its business, and it has endeavored to provide an environment where employees can work with peace of mind. The Group drew up the Basic Policy on Health and Safety aimed at the elimination of accidents and illnesses and strives to foster a culture of safety.

TOPIC Experiential Risk Training at Operating Sites

The JX Group opened the JX Safety Education Center in the city of Hitachi, Ibaraki Prefecture, for providing education to employees of the JX Group and subcontractors aimed at raising their safety awareness. In addition to the comprehensive education provided at the center, the JX Nippon Mining & Metals Group is boosting supplementary safety education by providing experiential risk training at individual operating sites tailored to the particular risks associated with the operations performed at each site.

Kurami Works Safety Education Center

At the Kurami Works, a new safety education center featuring experiential risk training was established in fiscal 2015 with assistance from the JX Group Safety Education Center. Two full-time instructors are in charge of the training. A total of 700 persons are eligible for the training, including the employees of the Kurami Works, affiliated companies, and subcontractors (on-site construction firms, etc.). They undergo safety education once every 18 months, timed to the training at the Safety Education Center. The training sessions are designed to maintain and improve their risk sensitivity.

Training session in progress

Safety Education Experiences at the Kurami Works

1. Entanglement in a high-speed rotor
2. Entanglement in a roll
3. Cutting accident
4. Being wedged between rolls
5. Entanglement in a drill
6. Entanglement in a chain
7. Entanglement in a V-belt
8. Risk of welding fumes
9. Mask fitting
10. Hanging from a safety strap
11. Watching a safety DVD

Equipment for experiencing risk of entanglement in a high-speed rotor

VOICE Providing Realistic Training at the Kurami Works Safety Education Center

Akira Shimada
(right)

Yasuharu Ito
(left)

Instructors at the Kurami Works Safety Education Class

A year has passed since the Safety Education Center opened at the Kurami Works. When we were setting it up, we received assistance from the JX Group Safety Education Center on installation of training equipment, curriculum design, and the education of full-time instructors. Using the curriculum of the JX Group Safety Education Center as the core, we made the training more specific to risks associated with operations performed at the Kurami Works, such as entanglement in high-speed rotors, drawing on the experience at the plant and introducing actual cases.

The advantage of training at the operating sites is that it can be offered at any time as called for by the situation at each site. The role of such training is to supplement training at the Safety Education Center by enabling employees to attend the same course repeatedly.

The curriculum for safety education at the Kurami Works starts with warm-up calisthenics. Such exercises take place daily at each site, but we want trainees to understand their importance as a means of building up fitness to avoid injury. We also want trainees to learn the correct method of performing the calisthenics.

We solicit suggestions from trainees as to the content they would like to have included as part of the curriculum. While we continue to solidify the current curriculum, we hope to update it as needed, reflecting these views.

TOPIC Front-Line Supervisor Training at the Safety Education Center

From fiscal 2015, a new program was begun at the Safety Education Center for training front-line supervisors, namely personnel familiar with work, operations, and equipment, with high safety awareness and risk sensitivity, and highly trusted by workers.

This program is for selected personnel of the chief engineer class who hold the key to actually leading and training workers in the workplace. By having them undergo concentrated training in small numbers at the Safety Education Center, the aim is to develop human resources who themselves will become standards of conduct in promoting safety activities, make suggestions concerning major risks at the workplace, educate the next generation, and in other ways be able to promote safety activities.

As a trial of the program in fiscal 2015, four employees of the Hitachi Works took part in training for a total of four days spread out over a six-month period.

In fiscal 2016, we plan to offer training to 16 persons, including personnel of the Isohara Works. Based on the results, we intend to eventually offer the program to at least 50 persons throughout the Company.

Front-Line Supervisor Training

1. Education to be an instructor

Learning directly from instructors of the Safety Education Center, trainees delve deeply into "experiential training items" (e.g., experiencing the risk of heavy machinery) closely related to their own workplace. They acquire an insistence on safety, themselves becoming a standard of safe conduct, and further learn teaching methods that will earn mutual trust with the personnel they supervise. They also heighten their risk sensitivity by learning from the viewpoint of instructors.

2. Safety education provided by senior supervisor for safety

Trainees learn about issues for the Group's safety activities and expectations. Through group work, moreover, they are taught the approach and procedures for putting "Safety First" into practice at their workplace.

3. Safety workshops

Small groups frankly discuss issues, taking up cases of failure to properly address "observing rules and having others observe them" and "major risks."

Instructor-provided education

Follow-up education

4. Follow-up education

Trainees give presentations at the work site about their progress in implementing initiatives they themselves have defined.

5. Lecture course on machinery safety (Safety Basic Assessor course)

Trainees learn the importance of machinery safety for eliminating major accidents.

VOICE My Experience with Front-Line Supervisor Training

Hiroyuki Abe
Coordinator
Copper Foil Department,
Hitachi Works

Finding myself in the role of instructor in this training, I felt anew the importance of gearing instruction to the level of experience. This is now proving useful when training others at my workplace.

The small group taking part in the safety workshop probed such questions as why people fail to follow rules and what can be done to ensure that the rules are followed. This was a new way of approaching these issues for me. I think another big takeaway from this training was gaining new insights in discussions with trainees from different workplaces.

The trainees set their own safety themes as relevant to their respective workplaces and took initiatives aimed at solving problems. At my site, where rolled copper foil is manufactured, there is risk from handling equipment with rotors. Other workplace members and I considered methods for mitigating this risk, enabling us to introduce improvements for which there was a high degree of consensus.

Taking this training broadened my perspective for thinking about safety, raising my awareness not just of risks specific to my own workplace but of the need to think about safety from a Companywide viewpoint.

Manager's Comments
Kazuhiko Iida, Deputy General Manager, Hitachi Works

At the Hitachi Works, we have always tended to preserve and pass on work procedures specific to the circumstances in each workplace. The development of front-line supervisors has enabled such work procedures to be improved from a "Safety First" perspective across entire workplaces where the supervisors are appointed, and as a result I think standards of safety have been enhanced. I am confident that front-line supervisors will continue to lead efforts to develop a better "Safety First"-based culture for other work procedures and other entire workplaces.

Health and Safety Activities

JX Nippon Mining & Metals Basic Policy on Health and Safety

We place the highest priority on ensuring the health and safety of all members 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.

Management Policy on Health and Safety

The Group formulates the Management Policy on Health and Safety each year. The goals and key policy measures are set based on findings following an 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 Fiscal 2015

Goals

1. Fatal accidents: zero
2. Accident occurrences: a reduction by 10% or more from the smallest number of accidents in the past three years
3. Explosions and fires: zero
4. Occupational diseases: zero

Examples of key policy measures

1. Creating a culture of safety
2. Accident-prevention activities for each issue

Organization for Occupational Health and Safety Management

Meetings Related to Health and Safety

In compliance with the Industrial Safety and Health Act, the Group has formed health and safety committees at each operating site and in each Group company. At the Head Office, the Central Health and Safety Committee holds an annual meeting, attended by representatives of each business segment, in addition to the regular meetings held five times a year. Members go over various measures for health and safety, discuss the Management Policy on Health and Safety, and deliberate measures to prevent the recurrence of accidents. Health and safety patrols are conducted once a year, and Group safety staff meetings are held twice a year to discuss health and safety management status and measures and to exchange related information. Starting in fiscal 2015, annual workshops are held for employees performing actual operations. In cases where unique safety measures are found to be in place at a specific operating site or Group company, steps are taken to share these measures across the entire Group, such as by presenting implementation examples at Group safety staff meetings and conducting factory tours.

Environment and Safety Audits

Environment and safety audits are conducted by a team under the supervision of the president to examine operating sites directly run by the Company 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 monitoring progress as a follow-up measure. Audits were conducted at 11 operating sites and companies in fiscal 2015.

Measures for Legal Compliance

To ensure full compliance with the latest revisions to laws and regulations concerning health, safety, and the environment, regular compliance inspections are performed by an outside organization, and a legal compliance monitoring system has been introduced to obtain the latest information on legal revisions on a weekly basis. When information on important legal revisions is obtained under this system, instructional handbooks and manuals are created and issued, facilitating a prompt response by each operating site. In addition, we have compiled instructional handbooks outlining laws, guidelines, notices, and other rules related to particular items in order to enhance understanding of legal requirements by those involved.

Conducting an environment and safety audit at the Kurami Works

Health and Safety Performance in 2015

Occupational Accidents, Etc.*1 ☑

Our health and safety record for 2015 is shown in the table below. The number of domestic occupational accidents increased by 11 from the 2014 level, affected by a large increase in daily life accidents not directly related to work. These include falls, lower back pain, and wounds from cutting implements. We are striving to prevent such accidents by increasing our efforts to alert employees to risks using posters and other means.

Category		2013	2014	**2015**
Safety performance at domestic operating sites*2	Instances of fatal accidents (persons)	1	1	**0**
	Instances of accidents with lost working days (persons)	11	8	**12**
	Instances of accidents without lost working days (persons)	16	17	**25**
	Total (persons)	28	26	**37**
	Frequency rate of industrial accidents*3	0.00	0.28	**0.55**
	Accident severity rate*3	0.00	0.00	**0.05**
	Explosions and fires (occurrences)	4*4	4*4	**4*4**
(For reference) Safety performance at overseas operating sites	Instances of accidents with lost working days (persons)	7	11	**9**
	Instances of accidents without lost working days (persons)	5	5	**8**
	Total (persons)	12	16	**17**

*1 Data on health and safety performance is compiled on a calendar-year basis (Jan. to Dec.).

*2 The figures include the performances of Group companies and subcontractors (but exclude Toho Titanium).

*3 Both the frequency rate of occupational accidents (the number of casualties caused by occupational accidents per million hours of total actual work) and the accident severity rate (the number of work days lost per thousand hours of total actual work) are rates for the Company's employees. (For reference) In 2015, the frequency rate of industrial accidents and the accident severity rate of all businesses in Japan were 1.61 and 0.07, respectively (source: Ministry of Health, Labour and Welfare, "Survey on Industrial Accidents").

*4 There were no physical injuries due to fire or explosion.

Achievements of Health and Safety Activities in 2015 and Remaining Issues

As key policy measures in our Management Policy on Health and Safety for fiscal 2015, we chose "Creating a culture of safety" and "Accident-prevention activities for each issue." The aim was not for these initiatives to be directed by the Head Office, but to have each operating site (workplace) take the lead in creating a culture of safety in their own workplace and eliminating accidents there.

Activities to Build a Culture of Safety

Definition of a Safety Culture

Safety culture is the assembly of characteristics and attitudes in organizations and individuals, which establishes that, as an overriding priority, protection and safety issues receive the attention warranted by their significance.
(Adapted from the definition by the International Atomic Energy Agency (IAEA))

The Group has carried on various activities toward creating a culture of safety, having made "Safety First" part of the Basic Policies on Health and Safety, and having adopted the above definition of safety culture. Individual operating sites continue to hold discussions to obtain a clear picture of their issues, and to address them thoroughly with effective actions. From 2015, activities are being focused on eliminating risks as they emerge and on raising safety awareness and risk sensitivity. Specifically, the key policy measures guiding our safety activities are (1) identifying major risks and thoroughly enforcing safety measures (preventing serious accidents), (2) preventing the recurrence of similar accidents, and (3) improving safety awareness and risk sensitivity.

Senior Supervisor for Safety lecturing on safety practices
(Saganoseki Smelter & Refinery, Pan Pacific Copper)

Issue-Based Accident Prevention Activities

For every major accident, there are many more minor accidents and incidents. Without thoroughgoing efforts to prevent these minor accidents and incidents, it will not be possible to reduce the overall accident rate, making it difficult to prevent fatal or otherwise serious accidents. In 2015, we analyzed trends relating to all the occupational accidents that had occurred in the prior three years and identified five new issues based on those trends. Each operating site was then asked to assign an order of priority for the five issues based on their individual situation (according to risk level and the number of occurrences to date), and to carry out activities aimed at eradicating accidents in a three-year program from 2015 to 2017. As a result of these and earlier such efforts, in 2015 there was a decline in the number of accidents relating to cranes or slinging work as well as in the number of entanglement accidents during work on equipment, etc. The number of accidents for all five new issues also dropped. Further accident prevention efforts are still needed, however, as accidents relating to handling of heavy objects by human effort and cutting or severing accidents from metal materials showed no decrease, and in fact there was an increase in cutting accidents from sharp objects such as box cutters.

Collection of accident cases

For each of these issues, a record of actual accidents is being compiled and other steps are being taken to further our understanding of accident trends and preventive measures.

1. Preventing accidents relating to handling of heavy objects by human effort
2. Preventing accidents relating to cranes or slinging work
3. Preventing accidents relating to forklifts, front-end loaders, backhoes, and other vehicle-type heavy machinery
4. Preventing entanglement accidents during equipment repairs or inspections, etc.
5. Preventing cutting or severing accidents

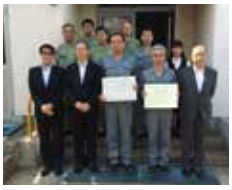
Promoting Physical and Mental Health

The Group realizes how important it is that all employees are able to maintain good physical and mental health as they work. We also recognize the significance of good mental health in ensuring an enjoyable life for employees and their families as well as heightening productivity and making the work experience more fulfilling. The Group carries out measures supporting employees and their families in maintaining good mental health. Specifically, we drew up the Mental and Emotional Health Maintenance Plan in 2008, followed this up with the establishment of implementation organizations at each operating site, including domestic and overseas Group companies, and set up counseling services for providing face-to-face, telephone, and online counseling. Employee stress checks and organization diagnoses instituted in 2009 were initially given once every two years. As of fiscal 2015, these became annual services. In fiscal 2015, they were provided for 2,656 JX Nippon Mining & Metals employees and 2,349 employees of Group companies. Workshops on improving the working environment and other such events are held as necessary, as we take various measures to reduce stress and provide a better place to work.

Other Activities

Introduction of a Safety Commendation System

We commend operating sites and companies that have continuously operated without an accident for a designated period, the length of the period being determined according to the number of personnel. Eligibility for commendation applies to operating sites directly run by the Company and domestic affiliated companies. In fiscal 2015, the three entities on the right received commendations.



Keihin Kaseihin Center

JX Metals Trading, Kyushu Office

Kamine Clean Service

Operating Sites That Have Obtained OHSAS 18001

Fiscal year certification was acquired	Operating sites
Fiscal 2006	Hibi Smelter, Pan Pacific Copper Co., Ltd. (including Hibi Kyodo Smelting Co., Ltd., Tamano Smelter, Sankin Hibi Harbor Transportation Co., Ltd.)
Fiscal 2008	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.)
Fiscal 2009	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., Gould Electronics GmbH
Fiscal 2010	Tatebayashi Works of JX Metals Precision Technology Co., Ltd.
Fiscal 2011	Esashi Works of JX Metals Precision Technology Co., Ltd.
Fiscal 2013	Nasu Works and Kakegawa Works of JX Metals Precision Technology Co., Ltd.
Fiscal 2014	Longtan Works of Nikko Metals Taiwan Co., Ltd.

JX Group Safety Education Center

Role as an Educational Facility of the JX Group

To eliminate accidents, enhancing the risk sensitivity and safety awareness of individual employees is essential. Risk sensitivity means the ability to recognize risks as dangerous. Sharpening this ability leads employees to follow rules and keep away from dangers. The Safety Education Center attempts to raise risk sensitivity by providing trainees with simulated experiences of accidents that have actually occurred in the past so that they can come to recognize the dangers instinctively. Around half of all accidents are recurrences of past accidents. For this reason, undergoing training at the center is an effective way to reduce the number of accidents that occur.

The center actively takes in trainees from overseas operating sites, not only domestic sites. To date, trainees have come from affiliated companies in China, Taiwan, and Saudi Arabia, enabling them to improve safety programs back in their home countries. Further efforts are being made to raise the quality of the education by building a more effective curriculum while improving the teaching skills of instructors.

Examples of Experiential Training at the Safety Education Center

1. Experiencing the Risks of Working in High Places

This training teaches the advantages of wearing a safety harness (see photo) while working at elevated heights, which in case of a fall imposes less of a burden on the wearer than a safety waist belt. Currently, this experience is limited to representatives, but we plan to make the safety harness experience available to all in 2017.

Experiencing the risks of working in high places (safety harness)

2. Experiencing Liquid Chemical Splattering

A pressure gauge may indicate zero if the instrument is broken or a pipe or tube is blocked. Trainees experience being splattered with a liquid when they perform an operation thinking there is no pressure remaining. This experience teaches them to work with the awareness that the contents might spurt out at any time and the importance of properly wearing protective clothing.

Experiencing liquid chemical splattering

Benefits of Training at the Safety Education Center and Strengthening of Supplementary Education at Operating Sites

During the period from January 2013 when the center was established to April 2016, the total number of trainees from the JX Nippon Mining & Metals Group had reached 4,837 (in the JX Group as a whole, there were 5,266 trainees). The annual accident rate per 1,000 employees for those who have undergone the training is around one-third that of those who have not; moreover, the types of accidents covered by the curriculum have been declining in frequency. Such results show the clear benefits of this education. Due to the center's limited capacity to accommodate trainees, however, it currently takes three to four years to provide training to all employees and others working in the Group, including subcontractors. To prevent a drop in risk sensitivity during this time among those who have undergone training, a supplementary education system is being put in place, including the provision of simple risk simulation facilities at each operating site and the education of more instructors.

Developing and Utilizing Human Resources

It is essential for the JX Nippon Mining & Metals Group to develop and utilize the employees involved in day-to-day operations if it is to maximize its corporate value through business activities. By creating personnel systems that value the diversity of employees working in various domestic and overseas locations and by enhancing education programs, we are providing a foundation empowering employees to make the most of their abilities.

TOPIC

Strategy to Energize Individuals and Organizations

At JX Nippon Mining & Metals, we came to the conclusion that at a time when our operating environment is changing rapidly, we need to transform ourselves in order to adapt to the changes, bolstering our businesses to propel ourselves toward the future. In August 2015, we set up a Human Resources Council comprising the president and other officers of the Company, which held numerous meetings to discuss measures for energizing individuals and organizations. The result was a concrete strategy whereby the Company decided to make major changes to its personnel systems from two perspectives: strengthening personnel management and development, and creating environments in which a diverse range of personnel can do fulfilling work.

Pamphlet on energizing individuals and organizations distributed to employees

Strengthening Personnel Management and Development

(1) Updating personnel and evaluation systems for managerial staff

We are updating the relevant personnel and evaluation systems to ensure that they are better calibrated to individual performance. In doing so, we aim to make it clear that the most important roles of managerial staff are personnel development and workplace supervision, while also ensuring that all managers are paid fairly according to the capabilities they demonstrate.

(2) Defining job categories more broadly and personnel development transcending job categories

In order to actively develop personnel who can see the big picture, we are defining job categories more broadly and making greater efforts to rotate staff among different job categories.

Creating Environments in Which a Diverse Range of Personnel Can Do Fulfilling Work

(1) Changing mind-sets

To improve work-life balance, we are calling on managerial staff to keep workplace management uppermost in their minds, while we ask general employees to strive for equilibrium between work and other pursuits within the time constraints placed on them.

(2) Allowing the time necessary for healthy, fulfilling lives

To allow time for employees to live healthy, fulfilling lives, we ensure appropriate staffing levels and implement a range of measures. For instance, we ensure rigorous compliance with laws and regulations relating to working hours, and we set targets for improving work hours, checking the extent to which they are achieved.

In fiscal 2016, we changed our core flextime hours (from 10 a.m.–3 p.m. to 1 p.m.–3 p.m., thereby enhancing flexibility for workers), and we are trialing a telecommuting system with a view to eventually adopting it formally.

(3) Creating systems to support diverse work styles

Japan's working population is being eroded by a declining birthrate and an increasing proportion of senior citizens, presenting a challenge that is now critical. If companies are to secure and retain talented personnel within such an environment, they must consider the needs of employees who become unable to work due to the demands of child rearing, elderly care, or other commitments. The following measures are examples of the ways in which the Company addressed this issue in fiscal 2016.

- **Updating the child-rearing and elderly-care leave systems**
  We took a number of steps to extend and improve these systems, including making flextime available to more employees.
- **Encouraging employees to make good use of the child-rearing/elderly-care leave systems**
  We aim to regularly inform all employees about these systems to make as many people as possible aware that we have structures in place to enable them to work with peace of mind. We are also encouraging our male employees to take child-rearing leave.
- **Establishing a new system for returning to work**
  Sometimes employees become unable to work and have to leave their job due to child-rearing or elderly-care commitments, a spouse's job transfer, relocation following marriage, or some other change in circumstances. We set up a new system for such employees, enabling them to return to work within five years provided they register beforehand.

TOPIC

Progress toward "Energizing Individuals and Organizations"

Under the guiding theme of "energizing individuals and organizations," JX Nippon Mining & Metals is implementing a range of measures to create workplace environments that are easy for all employees to work in. We held a roundtable discussion, gathering together people representing a variety of different standpoints to talk about issues such as efforts under way at individual work sites to energize individuals and organizations, and the challenges currently faced.

Date: July 19, 2016

Place: JX Nippon Mining & Metals Corporation Head Office

Attendees:

Shigeru Oi, President and Representative Director, Chairman of the CSR Committee, JX Nippon Mining & Metals Corporation

Makoto Uchiito, President, JX Nippon Mining & Metals Workers Union

Hirohiko Sato, General Manager, Kurami Works, JX Nippon Mining & Metals Corporation

Kazuhiko Iida, Deputy General Manager, Hitachi Works, JX Nippon Mining & Metals Corporation

Hironobu Fujii, General Manager of the Human Resources Department, JX Nippon Mining & Metals Corporation

Michie Sunayama, Sputtering Target Department, Thin Film Materials Division, Electronic Materials Group, JX Nippon Mining & Metals Corporation

Mai Noguchi, Assay Team, Technology Development Center, JX Nippon Mining & Metals Corporation

Yutaka Yasuda, General Manager, Saganoseki Smelter & Refinery, Pan Pacific Copper Co., Ltd.

Kentaro Tanaka, Marketing Department, Pan Pacific Copper Co., Ltd.

(Moderator) Yuji Narazaki, General Manager, Public Relations & CSR Department, JX Nippon Mining & Metals Corporation

* Attendees are listed in no particular order.

Yuji Narazaki
General Manager
Public Relations & CSR Department
JX Nippon Mining & Metals Corporation

Moderator (Narazaki) For JX Nippon Mining & Metals Corporation to continue contributing to the sustainable development of society by ensuring a steady supply of metal materials and products, it needs to rally all its resources to pursue its Long-Term Vision. That vision is to occupy the top position in Japan, as well as a leading position internationally, as a company handling non-ferrous metals centering on copper, and to grow globally with a strong presence in all areas of business from upstream, through midstream, to downstream operations.

I believe that one essential aspect of putting this into practice is energizing individuals and organizations, which is something we started working on in April 2016. Today, I hope we can reaffirm the significance of these efforts and hear some comments from a variety of standpoints about improving work-life balance to create environments that motivate people to work, and about measures related to enhancing work performance.

Aspiring to Energize Individuals and Organizations

Shigeru Oi
President and Representative Director
Chairman of the CSR Committee
JX Nippon Mining & Metals Corporation

Oi Since I first took up my current position, I have expected everybody in the Company to be scrupulous about always saying hello and goodbye to each other, and to generally be proactive about communication. I hoped that if everybody could exchange opinions freely and frankly—not just vertically along lines of management, but also among peers—it would end up energizing the Company as a whole. Ever since the Company first started business, its distinctive ethos has been passed on from generation to generation. That ethos is about maintaining an open atmosphere in which we pool our ingenuity, think hard, and face up to difficulties, and I believe it is now firmly established as an unchangeable part of our corporate DNA.

Since last year, we have been working on drawing up our Long-Term Vision, but the only way we can make the vision a reality is through our employees, and without energetic workplaces, there is no way we will be successful. When I look at the Company's current situation, not everything has necessarily turned out as I envisaged when I first took up my position. It was my feeling that this wasn't good enough that triggered these efforts to energize individuals and organizations.

When it comes to energizing the Company, I think the role of the managerial staff who make up the organization's middle layer is paramount. That is one reason why we updated our evaluation system in April 2016 so that from now on managers will be given more comprehensive assessments that evaluate not only their own personal level of performance, but also how much they have contributed to energizing the organization, and to what extent they have nurtured the personnel who will succeed them.

Now that an increasingly diverse range of values is evident in society at large, we also urgently need to discuss diversity in work styles. Some of Japan's leading companies are already making steady progress with initiatives in this regard. As a company, we have an important obligation to create environments in which all our employees can play active roles in a variety of different ways.

Whatever happens, we must not allow our new systems to end up being no more than superficial gestures; that is why I intend to personally take the lead and give my all to implementing the measures necessary to bring these systems to life. I look forward to hearing a range of comments from the people here today, which I intend to bear in mind as I progress with this task.

Working toward Diversified Work Styles and Improved Work-Life Balance

Moderator So, I would like to start by asking you whether the Company is implementing sufficient measures to address diversity in work styles, and whether the measures implemented are user-friendly.

Michie Sunayama
Sputtering Target Department,
Thin Film Materials Division
Electronic Materials Group
JX Nippon Mining & Metals Corporation

Sunayama I think the recent updates to the policy relating to pregnancy, childbirth, child rearing, elderly care, and so on have made it easier for employees to qualify for reduced working hours or flextime, and as a result employees are now better able to structure their work flexibly in line with their own individual circumstances. I also hear that the Head Office is considering adopting a telecommuting system, and has started investigating the options, testing the system, and operating it on a trial basis. Given the need to ensure information security and set up a suitable communications environment, it may take time until the system can be adopted fully, but I am keen to see it introduced, and look forward to employees with a range of circumstances being able to work with peace of mind.

Measures to encourage work-life balance in the Sputtering Target Department, where I work, include making every Wednesday a no-overtime day. It is also relatively easy for employees to take their annual paid leave, because work duties are coordinated by communicating with others in the department.

However, I do sense that employees are not very familiar with the Company's measures, including the ones that have recently been updated. I think that it might perhaps be easier to make use of the leave systems if information could be provided more frequently, including specific examples of how people have used the systems in the past, Q&A, and data on the percentage of employees actually taking the leave.

Moderator Thank you. I would now like to ask Kentaro Tanaka and Mai Noguchi, both of whom recently took child-rearing leave, how they feel about the system after having actually used it.

Kentaro Tanaka
Marketing Department
Pan Pacific Copper Co., Ltd.

Tanaka I took child-rearing leave for about a month when my son was two to three months old. I think taking leave and actually experiencing looking after our baby probably enabled me to feel more genuine empathy for what my wife was going through. As her husband—the person who spent the most time with her—I could understand and empathize with how difficult it was for her, and show her that I recognized how hard she was trying. I think perhaps by doing that, I was able to support my wife emotionally when she was anxious about looking after a baby for the first time. Recently, there seem to be online social networks and so on for mothers to make friends, but I felt that a new mother really does need support from her husband.

Another benefit of taking the leave was that afterwards, even when work commitments like overtime and business trips took me away from home, my wife would look happy to see me when I came back and our communication improved. That enabled me to give more to my work in turn.

I think there are two keys to increasing the number of men who take child-rearing leave in future. One is to encourage employees to plan for the leave as far in advance as possible. By that I mean that if an employee can ask the Administration Department or his manager to explain the system to him and ask for their help about six months before he needs to take the leave, then it should be easy for him to be flexible when making the necessary arrangements. The other key is for the Company to look into offering a more diverse range of options with regard to child-rearing leave. Circumstances vary from one individual to another, so I think it would be good if the system could offer more choice. For example, under the current system, child-rearing leave cannot be taken in more than one go, but this could be changed to enable employees to take their leave in "installments" whenever possible.

Mai Noguchi
Assay Team
Technology Development Center
JX Nippon Mining & Metals Corporation

Noguchi I took a year and a half off work as child-rearing leave. I had originally planned to take just a year, but I couldn't find a place in daycare, so I had to take longer leave than I had initially planned. I thought that in a suburban city there would be daycare places, but it eventually became all too obvious that even in suburban cities, daycare facilities in city centers are completely full. However, I was very lucky that the Company had a system for extending child-rearing leave up to two years.

When I did go back to work, I was worried about whether it would be possible to work as I had before with reduced working hours, but thanks to the support I get from everybody around me, I am managing to get the work done.

I think that if the system made it easier to return to work than it does now, then the number of people taking child-rearing leave would increase. For example, the Company could allow employees on reduced working hours to also use the flextime system. In my case, I am using daycare now, but my child often gets a fever in the evening, and when the fever reaches 37.5℃ or higher, the daycare center phones, asking me to go there. Sometimes, if I could work another 30 minutes or an hour, it would be time to go home under the reduced working hours system anyway, but even if there is less than an hour until the time to go home, I still have to go and pick up my child. And at the moment, my only option is to take a half-day of annual leave in those cases. So I think that if employees on reduced working hours could also use the flextime system, they would be able to work in a way that is more suited to the realities of parenting.

Perception of the Current Situation Regarding Work-Life Balance, and Ongoing Issues

Moderator I would now like to ask Hironobu Fujii, General Manager of the Human Resources Department, what challenges we currently face in implementing our measures to energize individuals and organizations, and what direction our efforts will take from now on.

Hironobu Fujii
General Manager of the Human Resources Department
JX Nippon Mining & Metals Corporation

Fujii Our plan to energize individuals and organizations has two focal points: one is strengthening personnel development and management, and the other is creating environments in which a diverse range of personnel can do fulfilling work.

The conversation up to now has been about the second of these. And I think that from an overall perspective, although everybody's situation is different, work-life balance at the Company is currently somewhat skewed toward the work side.

From now on, we will be trying to gradually redirect some of this time spent on work toward "life" instead, but we can't really just allow people to go home the minute their working hours are done. Instead, it is important for us to work together to make more time by changing the type of work we do and how we do it. For instance, departments that contribute directly to profitability, such as manufacturing, could make improvements such as changing their setup and the way work is performed to shorten the time required.

And, given that unexpected complications and emergency situations are causes of overtime, we could take steps to eliminate these. We also have a structural problem at the moment: when a shift worker wants to take leave, the person covering for them has to work on their days off. I think that is something else we need to give some thought to.

When it comes to back-office departments, on the other hand, it can be harder to quantify workloads than it is in manufacturing departments. There is, moreover, a tendency for certain tasks to always be handled by the same people, and I would like to remedy that. In order to do so, it will be important to develop versatility among our employees and take other steps to establish the capacity for different people to perform those tasks.

It will probably be individual operating sites that are fundamental to implementing these energizing measures. As with other areas for improvement, such as safety and TPM (Total Productive Management), it will be necessary to persevere and keep on reminding everybody, and we intend to carry on doing that by every means possible.

As we heard from various people earlier on, in April 2016 we extended and improved our systems to enable more diversity in work styles. I want us to continue treating child rearing and elderly care as issues that affect men and women alike, while proactively revising those aspects of the systems that need revising. I would like to hear what others have to say about this.

Looking ahead, our society is set to become even more diverse. In the past, it has been usual for Japanese people—and men, in particular—to work long hours, and the same tendency has been evident in this company too, but in future it will become increasingly difficult to survive that way. That is why I think we need to create environments in which people facing a range of different circumstances can do fulfilling work.

Initiatives at Operating Sites to Develop Personnel and Energize Organizations

Moderator We have heard that individual operating sites will play a central role in energizing measures, so I would now like to call on Yutaka Yasuda, General Manager of the Saganoseki Smelter & Refinery, and Hirohiko Sato, General Manager of the Kurami Works, to tell us about specific initiatives currently being implemented at their operating sites.

Yutaka Yasuda
General Manager
Saganoseki Smelter & Refinery
Pan Pacific Copper Co., Ltd.

Yasuda There are two things I would like to tell you about: an example of a situation in which actively promoting machine operators to the position of supervisor resulted in more energetic individuals and organizations, and an issue we currently face with regard to improving productivity in our administrative work.

Around 1970, the number of workers at the Saganoseki Smelter & Refinery was increased dramatically, and as a result the cohort hired at that time remained an unusually large one within the workforce for some time. However, during the past ten years most of them have retired, and as a result, we were left with too few people who could perform a supervisory-type role and make on-the-spot decisions if a problem occurred during the usual course of operations. So we decided to hire machine operators in their 30s to take on that role. At first, we had reservations about handing responsibility over to these younger employees, but they managed to acquire leadership skills and get groups working together. In hindsight, it seems to me now that this was a good way of replacing one generation with another and handing down skills. So, while energizing the Company obviously requires that we actively promote our office workers to the position of manager or coordinator, I also feel strongly that I would like to continue actively promoting outstanding machine operators to the position of supervisor. Having said that, it is not simply a question of promoting someone, of course; it is also necessary for others to support that person adequately. And at the same time, I would like to increase the frequency with which personnel are transferred among different processes to enable holistic development and improve their capacity to perform in the actual workplace.

The other topic I wanted to talk about is the issue of improving productivity in our administrative work, which is giving me cause for concern. We have been pursuing productivity and increasing efficiency in our manufacturing processes, where productivity is directly linked to our ability to compete. However, I sense that even within the same refinery, the work performed in administrative departments, such as accounting, administration, logistics, and general affairs seems to have been somewhat left behind in this efficiency drive. Although we are talking about how we can improve work efficiency in each section and for each process, we are struggling to come up with any good ideas. But I think the key to dealing with this is IoT (the Internet of Things). If we make good use of IT systems, surely we can change the actual type of work we do and reduce time spent working on administration to focus our efforts more on work that offers high added value. I believe that would make us more competitive, or to put it another way, more efficient.

Hirohiko Sato
General Manager
Kurami Works
JX Nippon Mining & Metals Corporation

Sato We set up the Safety Education Classroom at the Kurami Works to enable employees to learn through experience about topics such as accidents that have occurred in the past (see page 30 for details). We use this facility to educate new hires and younger employees; teaching them in an environment that is very similar to their actual workplaces enables them to hone skills they can use in their day-to-day work, helping to prevent occupational accidents. I think that by eliminating lost work days and other adverse effects of such accidents, we can reduce absences, creating an environment in which appropriate levels of staffing are ensured, and I think this is another important factor in energizing an organization. Furthermore, output at the Kurami Works has recently been increasing more than we planned, and we are just in the process of new hiring. I feel that a pressing issue for us at the moment is how quickly we can help those who have recently joined forces with us to learn what they need to know about safety and related matters in order to do their jobs.

As these initiatives have resulted in more time being spent on education and subsequent follow-up, there has been a tendency for veteran workers, and certain individuals in particular, to end up doing more than their fair share of after-hours work. I would therefore like to see know-how imparted quickly so we can even out the workload as soon as possible.

Meanwhile, to energize communication at the Kurami Works, we are actively encouraging employees to communicate across different levels of seniority by taking advantage of employee welfare facilities such as the employees' club, as well as cultural and sporting events. I want us to continue doing this in order to make our workplace environments more open to exchange of opinions.

What We Should Learn from Overseas Operating Sites about a Culture of Diversity

Moderator I would like to move on now to Kazuhiko Iida, Deputy General Manager at the Hitachi Works, who for a long time managed a factory for JX Nippon Mining & Metals Philippines. Perhaps Mr. Iida could tell us about initiatives implemented at this overseas operating site?

Kazuhiko Iida
Deputy General Manager
Hitachi Works
JX Nippon Mining & Metals Corporation

Iida I worked in the Philippines for about seven years, and as you might expect, I did feel that in many ways people in the Philippines had different values from people in Japan. When taking steps to energize the workplace, I made a point of communicating in ways that took account of such differences.

For example, people in the Philippines have a tendency to prefer stronger leadership than people in Japan. That being the case, I brought all the company's employees together once every three months and explained my thoughts about the company's present situation and the challenges it was facing. I think the fact that I directly communicated what I was thinking helped to create a reassuring atmosphere for the employees. On a different note, many people in the Philippines like to take advantage of educational opportunities, so we planned a large variety of educational programs and made a point of getting the employees actively engaged in safety- and quality-related activities. As a result, the employees' awareness of safety was transformed to such an extent that somebody told me our factory was safer than walking along the average Philippine street.

On the other hand, there was also plenty for us to learn from the Philippines. One example is the fact that social participation by women is extremely advanced, possibly because the country has such well-designed mechanisms for supporting women through pregnancy and childbirth. It is also a tolerant country when it comes to diversity; the atmosphere is such that LGBT (lesbian, gay, bisexual, and trans-gender) individuals, for instance, are very openly accepted. I think these are areas in which Japan would do well to learn from the Philippine example.

Employees and Management Should Join Forces to Forge Our Future Corporate Ethos

Moderator Finally, I would like to call on Makoto Uchiito, president at JX Nippon Mining & Metals Workers Union to tell us his opinion of the current initiatives from a labor union standpoint.

Makoto Uchiito
President
JX Nippon Mining & Metals Workers Union

Uchiito Throughout the 70 years since it came into being, the main concern of the Company's labor union has been the creation of environments that enable employees to maintain their physical and mental health as they work more energetically, more safely, and with greater peace of mind. We therefore regard measures to energize individuals and organizations as a key issue that employees and management must join forces to tackle.

From an international perspective, Japan is currently said to have a high degree of disparity between men and women, while its labor productivity is seen as low. Considering this situation, the development of outstanding personnel and measures to energize individuals and organizations that we have discussed today are on the one hand exactly what is needed to respond to the changing times and the demands of society, but at the same time, I think they are also extremely important in terms of enhancing the Company's competitive strength. Particularly when it comes to active participation by women, I believe that there is going to be an even greater need to create environments in which women can participate more energetically, even within manufacturing work sites.

Today, we have heard a number of personal experiences and comments, and I think it will be essential to listen to the opinions of other people in the Company's various workplaces as we join forces with the Company to tackle the issue of creating workplace environments where employees can maintain their physical and mental health as they work energetically, safely, and with peace of mind. This was what prompted us to organize a lecture about work-life balance just the other day, inviting the three top-ranking officials from each branch of the labor union to attend.

The Company already boasts a history spanning more than a century, and I believe that if it is to sustain enduring and stable development on toward its 150th and 200th year, we need to be determined to transform the mind-set of everybody who works here to create a new atmosphere in our workplaces. In other words, we should be determined to work together to forge a new corporate ethos and culture.

Conclusion

Oi Today, we have heard some honest opinions from everybody here. If I could add something to what Mr. Uchiito just said about working more energetically, more safely, and with greater peace of mind, it would be that I aspire to make our company one in which everybody can also enjoy their work more. Enjoyment is, I believe, the ultimate source of motivation that enables us to work hard.

I envisage our company as one in which profits resulting from business activities are returned to employees, while we also live in harmony with the wider society and pursue long-term, stable operations in a sustainable manner. If we all share that same vision of the company we are striving to achieve, I think the solutions to many issues should become apparent.

Today, I have heard some very valuable and informative comments, from the experiences of younger employees to accounts of the situations in other regions and another country. I intend to make use of what I have heard when considering specific measures. Thank you very much.

Moderator Thank you, everybody.

Developing and Utilizing Human Resources

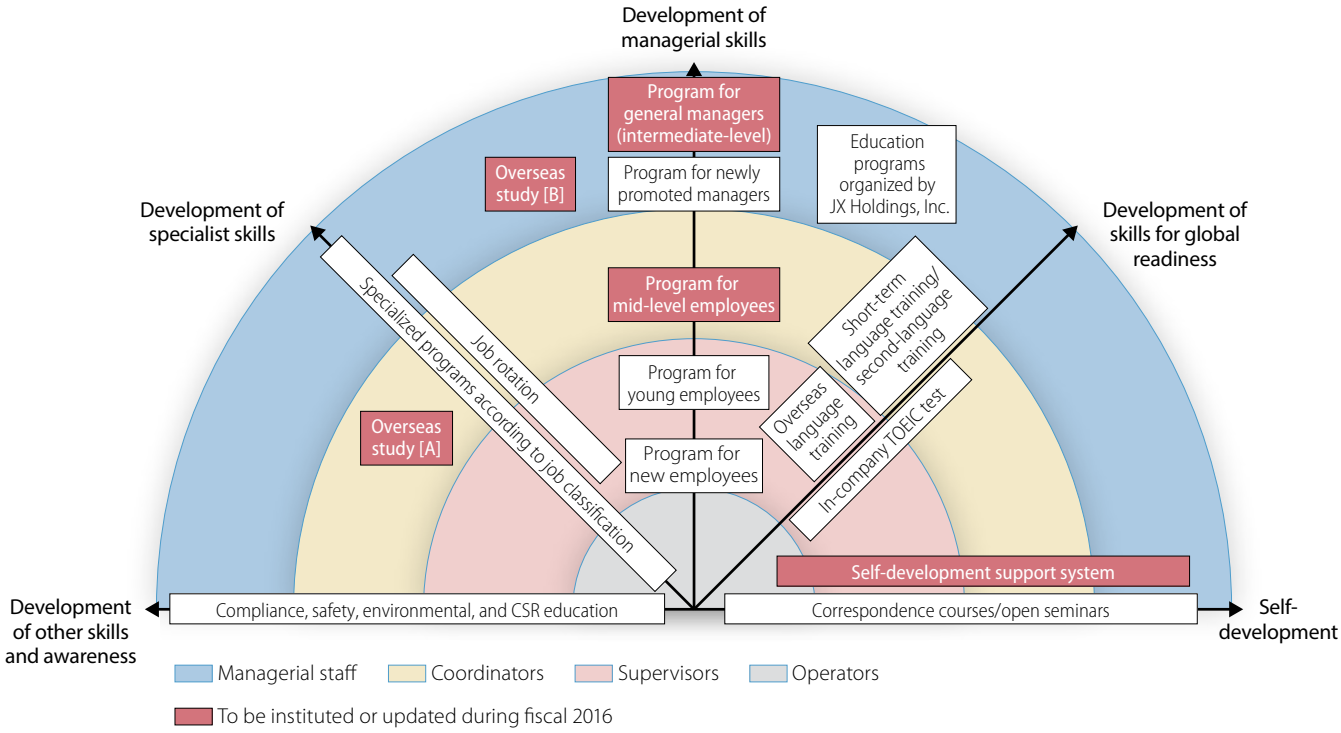
The JX Nippon Mining & Metals Education System

The Company takes a proactive approach to developing its employees, who are important stakeholders. We endeavor to provide a wide-ranging education to our personnel, offering a variety of educational programs addressing five key areas of development: managerial skills, specialist skills, skills for global readiness, self-development, and other skills and awareness.

Strengthening the Education System to Support the Energizing of Individuals and Organizations

In fiscal 2016, we have decided to implement a new education system and new forms of developmental support to transform the mind-set and improve the skills of every single one of our employees. Efforts to that end include (1) boosting managerial skills by setting up new training programs for mid-level employees (targeting the coordinator class) and for intermediate-level managers (targeting the general manager class); (2) facilitating overseas study to boost specialist skills and managerial skills (either to earn specialized course credit in an overseas graduate school [A], or to obtain an MBA [B]); and (3) boosting the Company's provision of support for self-development by setting up a new system for that purpose.

Our Education System



Training Programs Implemented in Fiscal 2015 ☑

(hours)

	Managerial staff			General employees			All staff and employees		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Total hours of programs (annual)	5,906	71	5,977	72,135	8,378	80,513	78,041	8,449	86,490
Per employee	12	24	12	38	40	38	33	40	34

Survey scope: JX Nippon Mining & Metals, JX Nippon Environmental Services, and Pan Pacific Copper (Saganoseki Smelter & Refinery, Hitachi Refinery)

Education Programs Implemented in Fiscal 2015 (Training for Young Employees Who Completed University or Graduate School)

Program for new employees	1 Understanding the Company's organization, current business conditions, and management issues. 2 Acquiring basic skills requisite to a businessperson, including business manners, financial accounting, etc. 3 Developing a sense of cooperation and camaraderie among employees entering the Company at the same time.
First-year follow-up program	1 Looking back at personal progress since entering the Company and acknowledging one's current situation and role expectations of one. 2 Ascertaining issues with one's own way of working (using the G-PDCA* cycle) and defining future challenges to growth. 3 Comprehending one's own thinking style, and understanding and using stress to cultivate strength in adversity, making it possible to rise to a challenge even in difficult circumstances. * Goal-Plan-Do-Check-Act
Third-year program	1 Deepening understanding of the current business conditions and management issues of the Company. 2 Acquiring leadership and mentoring skills necessary in the workplace. 3 Acquiring communication skills necessary to reach out to co-workers while performing one's work (logical thinking and presentation skills). 4 Understanding role expectations and enhancing motivation.
Fourth-year program (Corporate DNA training)	1 Deepening understanding of the Company's social responsibility in relation to operational management and its CSR initiatives through activities including a study tour of the Toyoha Mine, a closed mine that represents one example of such initiatives. 2 Deepening understanding of the Company's corporate philosophy (its management approach), and at the same time encouraging trainees to think like employees of the Company by considering how their own work and the work of their business relates to this framework.
Fifth-year program	1 Deepening understanding of the current conditions and issues facing the Company. 2 Developing a vision for one's own career to shed new light on one's approach to work. 3 Cultivating problem-solving skills by learning the problem-solving process and taking action to deal with issues in one's own work. 4 Using the program to identify current deficiencies in one's skills or approach, acknowledging those deficiencies to facilitate future personal growth.

Program for newly promoted managers

A study tour of the acid mine drainage treatment facilities at the Toyoha Mine during the fourth-year program (Corporate DNA training)

Enhancing Educational Programs for Global Readiness

The JX Nippon Mining & Metals Group has prepared various educational programs for global readiness aimed at developing human resources that can advance its global operations and making the Group as a whole more globally minded.

Overview of the Educational Programs for Global Readiness at JX Nippon Mining & Metals

	Target employee group	Details
Second-year overseas training	All graduates of university or graduate school in their second year with the Company	Twelve weeks of study at overseas language schools, etc., matched to foreign-language level (TOEIC score); university-level classes in Europe or North America or training in Chinese, Korean, or Spanish at overseas language schools.
Short-term study-abroad language program	Persons requiring a certain level of language competence for their work	Four to 12 weeks of study in English, Chinese, Korean, or Spanish at overseas language schools, etc.
Second-language training	Persons requiring a certain level of language competence for their work	Language training outside work hours for persons desiring to study Chinese, Korean, Spanish, or another language for self-development who have received approval from their manager (two-hour weekly classes, tuition paid by the Company).
In-company TOEIC test	Those interested (mandatory for graduates of university or graduate school up until their 10th year of employment)	TOEIC tests administered annually.

Personnel Systems

The Company has designed personnel evaluation systems, consisting mainly of Competency Evaluation, Performance Evaluation, and Self-Statement systems.

Creating Appropriate Personnel Evaluation Systems

The Company has introduced a Competency Evaluation System based on competency models and a Performance Evaluation System centered on the management of goals.

For Competency Evaluation, employees are interviewed by their supervisors based on competency items determined by the nature of their work and job position. The resulting assessment of whether they have the necessary competency is used for deciding promotions.

For 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. In fiscal 2016, we restructured the competency model for managerial staff so that 50% of the items evaluated relate to personnel management.

By implementing these personnel evaluation systems properly, we seek to improve fairness in the treatment of employees and the development of their abilities so that employees themselves can better appreciate the benefits of the process.

Self-Statement System

A Self-Statement System was introduced to help the Company understand the aspirations of individual employees and reflect them in human resource development and elsewhere. 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.

Initiatives Targeting Diversity

The Group values diversity in both human resources and work approach. In compliance with relevant laws and regulations in Japan and overseas, the Group is pursuing initiatives including the reemployment of workers aged 60 and older, and promotion of active participation in the workplace of women. By creating programs enabling employees to take leave for child rearing, elderly care, and international volunteering, we provide an environment that supports various work styles.

Compliance with the Act on Promotion of Women's Participation

In accordance with Japan's Act on Promotion of Women's Participation and Advancement in the Workplace, JX Nippon Mining & Metals has drawn up a five-year plan for the period until fiscal 2021 to develop environments in which even more female employees can take on significant roles and to provide all its employees with the motivation to perform to the best of their abilities.

Targets

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

Specific Initiatives

(1) Increase the number of women applying for employment at the Company by making use of the corporate website and other means to actively offer information about work opportunities for women. In addition, secure personnel to work in technical positions—where the rate of female participation is particularly low—by offering workplace tours and similar opportunities for female students. In this way, the Company can help to nurture female specialists in science and technology, whose numbers are currently insufficient throughout Japan.

(2) Create workplace environments in which a diverse range of personnel can do fulfilling work so that all employees including women have the opportunity to perform to the best of their abilities. (As mentioned previously, we have already taken steps to achieve this by setting up a new system for returning to work after leaving due to personal commitments, by updating our child-rearing and elderly-care leave systems, and by testing a telecommuting system with a view to its adoption.) In addition, we are working to change attitudes by offering a variety of educational programs to employees.

Workplaces Where Women Take on Significant Roles ☑

As of March 31, 2016, a total of 1,141 female employees were working in the Group worldwide. Of these, approximately 21% occupy managerial positions (supervisor class and above). JX Nippon Mining & Metals employs 212 female employees (including part-time employees), of whom approximately 19% are in managerial roles. We ensure that all employees are treated equally, with no gender differences in base pay.

Data Relating to Diversity (JX Nippon Mining & Metals)

Use of child-rearing leave program in fiscal 2015

	No. of employees using program in fiscal 2015	No. of employees eligible to use program*	Usage rate (%)
Male	2	102	2
Female	3	3	100
Total	5	105	5

* For convenience, eligible employees are defined as employees with a child less than one year of age.

Rate of return from child-rearing leave
(Percentage of employees who took leave and then returned to their jobs)

	No. of employees returning to work in fiscal 2015	No. of employees planning to return	Return rate (%)
Male	1	1	100
Female	5	5	100
Total	6	6	100

Retention rate after return from child-rearing leave
(Percentage of those still employed 12 months after return from leave)

	No. of employees returning to work in fiscal 2014	No. of employees still employed 12 months later	Retention rate (%)
Male	0	0	—
Female	3	3	100
Total	3	3	100

Status of rehiring efforts in fiscal 2015

No. of age-limit retirees	No. of reemployed	Reemployment rate (%)
28	25	89

Persons with disabilities as a percentage of the workforce in fiscal 2015

Percentage of employees with disabilities
2.12% (the legal requirement is 2.0%)

Maintaining Good Labor-Management Relations

Labor unions have been formed at nearly all Group companies in Japan.

At each Group company, good relations built on mutual trust are maintained between management and employees. At regular meetings between representatives of management and the labor union, management discloses details of the company's business, while at the Health and Safety Committee meetings, causes of accidents and incidents are analyzed thoroughly. Thus, labor unions play an important role as a partner with management, including by conveying information and gathering views within the organization.

Recognizing health and safety as a particularly important theme to be confirmed between management and labor, 95% of Group companies with labor unions include matters relating to health and safety in their labor agreements.

When changes are made in the company organization or business activities, adequate time is given for preliminary explanations and discussions before conducting the necessary procedures in accordance with the labor agreement. In fiscal 2015, there were no strikes or lockouts in the Group.

Membership in labor unions (as of March 31, 2016)

	Male	Female	Total
No. of union members	4,749	620	5,369
Membership rate	60%	54%	60%

Age 29 or younger	Age 30 to 49	Age 50 or older	Total
1,271	3,278	820	5,369
72%	63%	40%	60%

VOICE Comments from an employee who took child-rearing leave

Kentaro Tanaka
Marketing Department
Pan Pacific Copper Co., Ltd.

The most gratifying outcome of taking the leave was my wife's change of heart

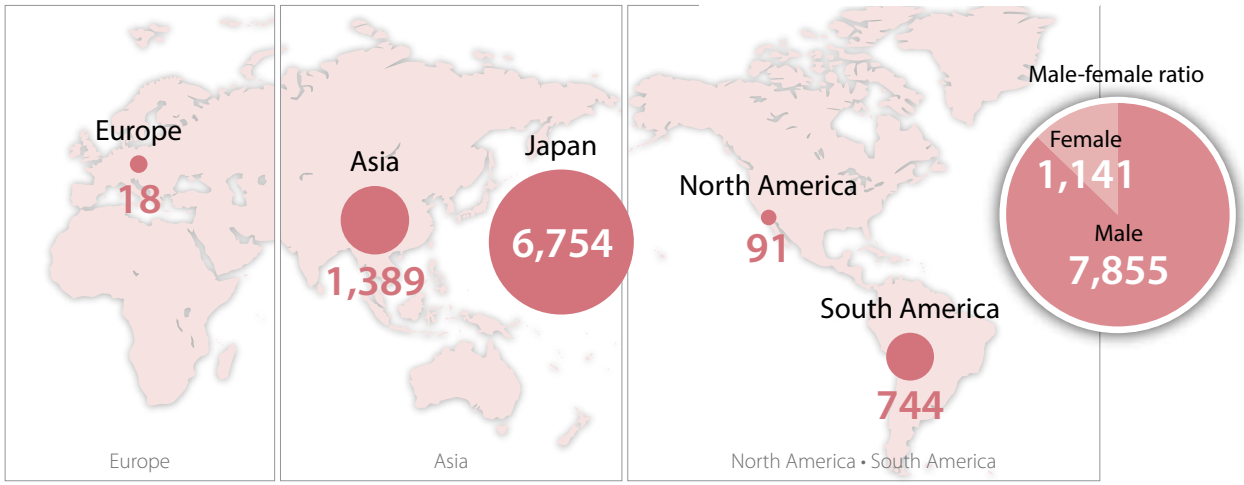
During my leave, I spent the whole time taking turns with my wife to do housework or look after our son. One day, when my wife went out and I was left in charge, our son cried nonstop. Not knowing why he wouldn't stop crying, I was seized by unspeakable anxiety, and it really brought home to me how amazing my wife was for being the one who usually looked after him. At first, she found parenting so challenging that she said she didn't want any more children, but around the time my leave ended she had started saying that she wanted to have a girl next. Her change of heart made me feel that I had actually managed to be of some help, so I was glad that I had taken child-rearing leave.

Child-rearing leave helped me understand how to use time efficiently

To deal with housework and looking after a child, you have to get things done while the child is in a good mood, so I made an effort to keep in mind a schedule of things that needed doing as I went about my day. When I went back to work, I was more aware of the need to understand the flow of my workday so I could tackle tasks more efficiently than before, enabling me to spend as long as possible with my son when I got home at night.

Employees Active in Japan and Overseas

Survey scope: Companies in which JX Nippon Mining & Metals has 50% or greater voting rights directly or indirectly



As of March 31, 2016

No. of employees (by employment status and employment contract type; as of March 31, 2016)

	Full-time			Part-time			Total	Temporary staff	Total workforce
	Open-ended contract	Fixed-term contract	Subtotal	Open-ended contract	Fixed-term contract	Subtotal			
Male	7,048	663	7,711	11	133	144	7,855	169	8,024
Female	891	182	1,073	12	56	68	1,141	91	1,232
Total	7,939	845	8,784	23	189	212	8,996	260	9,256

No. of employees (by region; as of March 31, 2016)

	Japan	North America	South America	Asia	Europe	Total
Male	6,112	75	669	987	12	7,855
Female	642	16	75	402	6	1,141
Subtotal	6,754	91	744	1,389	18	8,996
Temporary staff	230	7	0	23	0	260
Total workforce	6,984	98	744	1,412	18	9,256

No. of employees (by employment category; as of March 31, 2016)

	Male	Female	Total
Managerial	2,554	244	2,798
Non-managerial	5,301	897	6,198
Subtotal	7,855	1,141	8,996

	Age 29 or younger	Age 30 to 49	Age 50 or older	Total
Managerial	280	1,505	1,013	2,798
Non-managerial	1,493	3,661	1,044	6,198
Subtotal	1,773	5,166	2,057	8,996

	Japan	North America	South America	Asia	Europe	Total
Managerial	2,045	20	328	399	6	2,798
Non-managerial	4,709	71	416	990	12	6,198
Subtotal	6,754	91	744	1,389	18	8,996

No. of locally hired managers at overseas operating sites (as of March 31, 2016)

Employees at overseas operating sites who are local citizens	2,176
Of whom are in managerial positions	188

No. of newly hired employees (April 1, 2015, to March 31, 2016)

	Male	Female	Total
New hires	815	142	957
Percentage of total number employed as of March 31, 2016	10%	12%	11%

	Age 29 or younger	Age 30 to 49	Age 50 or older	Total
New hires	385	412	160	957
Percentage of total number employed as of March 31, 2016	22%	8%	8%	11%

	Japan	North America	South America	Asia	Europe	Total
New hires	588	12	182	173	2	957
Percentage of total number employed as of March 31, 2016	9%	13%	24%	12%	11%	11%

No. of employees ending employment (April 1, 2015, to March 31, 2016)

	Male	Female	Total
Departing employees	630	99	729
Percentage of total number employed as of March 31, 2016	8%	9%	8%

	Age 29 or younger	Age 30 to 49	Age 50 or older	Total
Departing employees	174	274	281	729
Percentage of total number employed as of March 31, 2016	10%	5%	14%	8%

	Japan	North America	South America	Asia	Europe	Total
Departing employees	385	15	112	161	56	729
Percentage of total number employed as of March 31, 2016	6%	16%	15%	12%	311%*	8%

* Due to restructuring of the electro-deposited copper foil business resulting in the cessation of the business of Gould Electronics GmbH

Protecting the Environment

The preservation of the earth's environment is a common challenge for all human beings, not just corporations. The JX Nippon Mining & Metals Group seeks to reduce the environmental burden of its business pursuits as much as possible. Our Basic Environmental Policy goes beyond compliance with environmental regulations, calling for technology development in such areas as energy saving, resource conservation, and environmental protection toward the prevention of global warming and reduction of waste materials. Our efforts in these areas are managed by setting environmental targets in our Medium-Term Action Plan and other strategies.

TOPIC Setting of New Environmental Targets

With the end of the 3rd Medium-Term Action Plan (fiscal 2013 to 2015), the JX Nippon Mining & Metals Group has set new environmental targets. This time, two sets of targets were decided on: medium-term targets for the period from fiscal 2016 to 2018, and long-term targets with fiscal 2030 as the final year.

❶ CO_2 Reduction and Energy Conservation

Long-term target (by fiscal 2030):
Reduction in CO_2 emissions by 18% from fiscal 1990 levels

Medium-term target (fiscal 2016 to 2018):
Cumulative allowable CO_2 emissions of less than 3,060,000 tons

(The target at individual operating sites is an average annual reduction in energy consumption intensity of 1%.)

The 3rd Medium-Term Action Plan (fiscal 2013 to 2015) set reduction of CO_2 emissions and reduction of energy consumption intensity as two separate indicators. Because of the correlation between the two, this time CO_2 emissions is set as an indicator for the entire Group and energy consumption intensity is an indicator for individual operating sites.

Since the Act on the Rational Use of Energy calls for an annual year-on-year reduction in energy consumption intensity of at least 1%, this indicator is adopted for individual operating sites in the 4th Medium-Term Action Plan as it was in the previous plan. Achieving this target for three consecutive years should result in cumulative CO_2 emissions of less than 3,060,000 tons for the period from fiscal 2016 to 2018. Moreover, if the same pace of reduction is kept up through fiscal 2030, and assuming the current forecasts for production volume, the amount of reduction in CO_2 emissions from 1990 levels is estimated to be 18.2%. This would also meet the current Japanese government's target for fiscal 2030 of a 26% reduction in CO_2 emissions from fiscal 2013 levels.

❷ Ratio of Non-Value-Bearing Waste Volume

Long-term target (by fiscal 2030):
Ratio of non-value-bearing waste volume of less than 0.5%

Medium-term target (fiscal 2016 to 2018):
Ratio of non-value-bearing waste volume of less than 0.7%

The Group defines "ratio of non-value-bearing waste volume" as the ratio of volume incinerated and volume of final disposal to the total volume of waste and sellable materials generated, and sets targets for reducing this ratio. A target of less than 0.7% was set in the 3rd Medium-Term Action Plan for fiscal 2013 to 2015. While this target was achieved (see page 53 for details), a close look at the results shows a certain amount of variability from one fiscal year to another. In the 4th Medium-Term Action Plan, the target of maintaining a ratio of less than 0.7% remains, but we will also aim to achieve a low ratio in a consistent manner. The long-term target is to achieve a ratio of less than 0.5% by fiscal 2030.

❸ Environmental Management

Medium-term target:
Compliance with revisions to ISO 14001 (Environmental Management Systems), and scheduled implementation of compliance inspections and environmental audits

Renewal of ISO 14001 certification to comply with the revised standard is required by September 2018. Efforts will be focused on ensuring that compliance is achieved. At the same time, scheduled compliance inspections and environmental audits will be carried out to make sure proper environmental management is being implemented.

VOICE Raising Group-Wide Awareness toward Achievement of Long-Term Targets

Hideyuki Mori
Senior Engineer
Environment & Safety Department, JX Nippon Mining & Metals

After the Japanese government's new targets were incorporated in the Paris Agreement at COP 21 in fiscal 2015, we set our own new long-term targets for fiscal 2030.

The targets of the 4th Medium-Term Action Plan can be seen as the first step toward achieving these long-term targets. The annual 1% reduction in energy consumption intensity by each operating site in particular is a prerequisite for reducing CO_2 emissions in the fight against global warming. To meet our long-term targets, it will be important to take effective measures at each operating site from now on.

I am currently in my fifth year in the department, but looking at the Group as a whole, I still feel there are people who have the impression that environmental measures and business activities are incompatible. Energy conservation leads to a reduction in CO_2 emissions, and raising productivity helps to reduce the release of waste materials. I believe one of our jobs in the Environment & Safety Department is further raising awareness of environmental targets throughout the Group. We will also need to consider new indicators in such areas as water usage and chemical management, with an eye on world trends.

TOPIC

Completion of Upgrades to the Kakinosawa Hydroelectric Power Plant

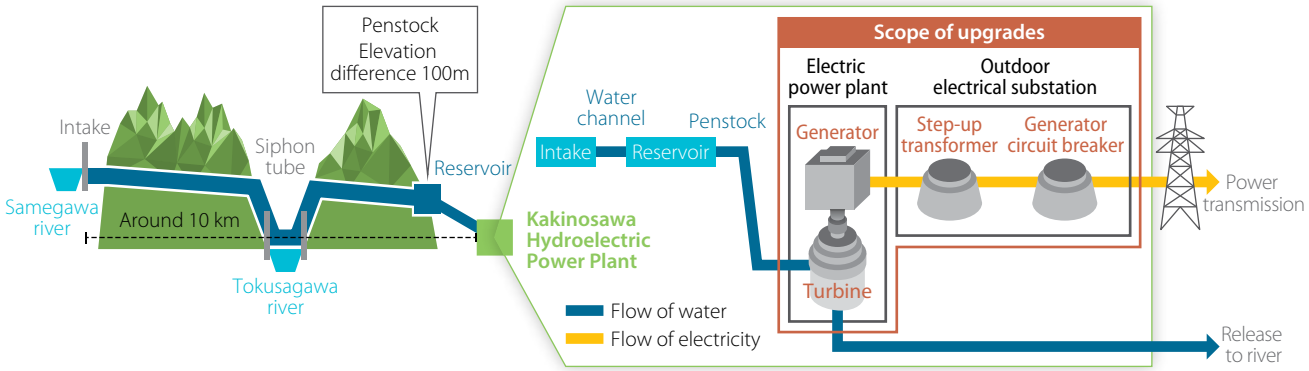
In July 2015, upgrades to the Kakinosawa Hydroelectric Power Plant (Iwaki City, Fukushima Prefecture) were completed. These upgrades were made to aging facilities that had been in operation for 60 years. They resulted in an improvement in power generation efficiency by around 6%, raising the generation capacity to a maximum 5,120 kilowatts.

Hydroelectric Power Generation in the JX Nippon Mining & Metals Group

The Group has been engaged in hydroelectric power generation for more than a century, having used hydropower originally as an energy source for driving rock drills and other equipment at the Hitachi Mine. The Kakinosawa Hydroelectric Power Plant was built in 1955 to provide cheaper electricity for use in the copper electrorefining processes. Today, the electricity generated at the plant is sold outside the Group.

Operation of the Kakinosawa Hydroelectric Power Plant

The Kakinosawa Hydroelectric Power Plant generates electricity by the run-of-river method, taking advantage of the elevation difference between the water intake position and the power plant. The length of the channel from the intake to the reservoir is 10 kilometers, and the elevation difference between the reservoir and turbines in the power plant is 100 meters. Electricity is generated by rotation of the turbines, which are driven by water flowing from the reservoir through penstocks.



Facilities that were upgraded


Overall view of turbine room


Turbine


Generator room

VOICE

Working to Maintain Stable Operation of the JX Group's Only Hydroelectric Power Plant

Yoshifumi Endo
Supervisor
Facilities Engineering Department,
Hitachi Works

The recent upgrades covered equipment involved in power receiving and transforming, from the turbine inlet to the connection to power transmission lines. Improvements were made to the turbines and generators that resulted in around 6% better power generation efficiency than before the upgrades. Also, the hydraulic equipment used to adjust water flow to the turbines was replaced with electrical equipment, eliminating the risk of oil being released to the rivers.

To ensure a stable flow of water from the intake to the power plant, we remove sediment and leaves from the waterways. Keeping a watchful eye on the river status and weather information, we conduct regular inspections of the water intake and maintenance of facilities.

Hydropower is an electricity generation method with very little impact on the environment, one that does not emit CO_2. It is also a form of renewable energy well suited to Japan with its many mountainous areas and wealth of water resources. We will continue working to maintain stable operation of the Kakinosawa Hydroelectric Power Plant, the only hydro plant in the JX Group.

Basic Environmental Policy

As a comprehensive manufacturer of nonferrous metal resources and materials, the JX Nippon Mining & Metals Group is carrying out the following initiatives aimed at 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

Not to mention compliance with environmental regulations, we will strive to further reduce 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.

Note on numerical data in this section

Due to rounding, numbers presented here may not add up precisely to the totals provided.

Action Plan for Environmental Protection

We have drawn up an Action Plan for Environmental Protection as outlined below, pursuant to the Basic Environmental Policy.

Approach to environmental protection

1. Environmental management organization
The general manager of the Company's Environment & Safety Department is in charge of coordinating and promoting environmental protection efforts in the Group. Recognizing that on-site personnel should be responsible for ensuring environmental protection, the top managers at each operating site serve as supervisory environmental managers. 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 protection.

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
Supervisory environmental managers at each operating site carry out reviews of the results of internal audits to verify their site's environmental management and compliance with environmental regulations. Additionally, the Head Office 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 continually strives to improve accident prevention and environmental conservation measures.

Measures to be taken

We undertake the measures indicated below to minimize the environmental impact of the Group's business activities.
- Help prevent global warming
- Promote resource efficiency and recycling
- Reduce waste materials
- Manage chemical substances
- Maintain biodiversity
- Provide recycling services
- Develop environmentally friendly technologies and products, and introduce new technologies
- Promote green purchasing
- Conduct training, public relations initiatives, and social activities to communicate our Action Plan for Environmental Protection and raise awareness of our environmental protection measures

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 promote a thorough understanding of the need to be aware of our environmental impact and to observe environmental regulations.

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

Emergency response measures

1. Emergency response manuals and drills
Reporting procedures are in place at the Group-wide level, as well as at the business-group and operating-site levels. 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.

Numerical Targets of 3rd Medium-Term Action Plan

We positioned the prevention of global warming and the reduction of waste materials as key issues, and set numerical targets related to these issues for the three-year period from fiscal 2013 to 2015. Targets for all items were achieved in fiscal 2015, the final year of the plan.

A new 4th Medium-Term Action Plan went into effect from fiscal 2016, with new environmental targets including long-term targets for fiscal 2030. (See page 50 for details.)

Results for the 3rd Medium-Term Action Plan (fiscal 2013 to 2015)

Target area	Numerical targets	Performance in fiscal 2013	Performance in fiscal 2014	Performance in fiscal 2015	Summary
Energy consumption intensity	Achieve 1% year-on-year reduction at more than one-half of operating sites	Achieved by 9 of 21 operating sites (Target not achieved)	Achieved by 14 of 23 operating sites (Target achieved)	Achieved by 12 of 23 operating sites (Target achieved)	The target was not achieved in fiscal 2013, impacted by a production decline and other factors. In fiscal 2014 and 2015, the target was achieved thanks to improved yield and equipment efficiency.
Domestic CO_2 emissions*1	Cumulative emissions of less than 3.17 million tons for fiscal 2013 to 2015*2	2.53 million tons (Target achieved)			By implementing energy-saving measures, among other efforts, the target of less than 3.17 million tons was achieved.
Ratio of non-value-bearing waste volume*3	Maintain a ratio of less than 0.7%	0.6% (Target achieved)	0.6% (Target achieved)	0.4% (Target achieved)	By continuing with efforts to thoroughly separate waste materials for reuse and recycling, the ratio of non-value-bearing waste volume was reduced to 0.4% in fiscal 2015, achieving the target for the three-year period.

The 3rd Medium-Term Action Plan covered the below-listed operating sites, where energy use is at or above the level of Type 2 Designated Energy Management Factories under the Act on the Rational Use of Energy.

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: SCM Minera Lumina Copper Chile (from fiscal 2014); Changzhou Jinyuan Copper Co., Ltd.; JX Nippon Mining & Metals Philippines, Inc.; Nippon Mining & Metals (Suzhou) Co., Ltd.; and Gould Electronics GmbH (up to fiscal 2014)

*1 We have limited the scope of evaluation to CO_2 emissions at domestic operating sites in order to monitor achievement relative to the goal of a 25% reduction in CO_2 emissions from fiscal 1990 levels by fiscal 2020, given in the Fourth Basic Environment Plan of the Japanese government.

*2 We are aiming to reduce CO_2 emissions from these domestic operating sites in stages, starting with a 6% reduction from the fiscal 1990 level in fiscal 2012 and aiming for a 25% reduction from the fiscal 1990 level by fiscal 2020. Emission reduction targets were accordingly set for a three-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 CO_2 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.

*3 Ratio of non-value-bearing waste volume = (Volume incinerated + Volume of final disposal) ÷ Total volume of waste and sellable materials generated. SCM Minera Lumina Copper Chile is not included.

Our Business Activities and the Environment

The JX Nippon Mining & Metals Group monitors and analyzes the impacts of its business activities on the environment and endeavors to reduce these impacts. An overview of our efforts in this area is given here.

Mass Balance Table for the Group (Fiscal 2015)

INPUT

Raw materials
(1,000 tons)

PRIMARY RAW MATERIALS

Total of domestic operating sites	2,102
Total of overseas operating sites	295

RECYCLED RAW MATERIALS

Total of domestic operating sites	245
Total of overseas operating sites	1

Energy
(terajoules)

FUEL

Total of domestic operating sites	3,756
Total of overseas operating sites	1,955

ELECTRICITY

Total of domestic operating sites	14,059
Total of overseas operating sites	6,010

Water resources
(1,000 cubic meters)

FRESHWATER

Total of domestic operating sites	20,776
Total of overseas operating sites	6,744

SEAWATER

Total of domestic operating sites	94,032
Total of overseas operating sites	—

JX Nippon Mining & Metals Group

OUTPUT

Principal products

Copper concentrate*	43 thousand tons
Refined copper	638 thousand tons
Sulfuric acid	1,667 thousand tons
Gold	41 tons
Silver	311 tons
Platinum	568 kg
Palladium	3,173 kg
Other metals (selenium, tellurium)	234 tons
Electro-deposited and treated rolled copper foil	7 thousand tons
Copper alloy and special steel strips, etc.	35 thousand tons
Titanium sponge	22 thousand tons

Emissions

CO_2 (1,000 tons)

Total of domestic operating sites	1,105
Direct emissions	254
Indirect emissions	852
Total of overseas operating sites	433
Direct emissions	126
Indirect emissions	307

SOx (tons)

Total of domestic operating sites	4,828
Total of overseas operating sites	256

NOx (tons)

Total of domestic operating sites	532
Total of overseas operating sites	205

CHEMICAL SUBSTANCES (RELEASE AND TRANSFER)
(tons)

Total of domestic operating sites (domestic only)	263

FINAL LANDFILL DISPOSAL
(tons)

Total of domestic operating sites	1,007
Total of overseas operating sites	3,224

WASTEWATER
(thousand m^3)

Total of domestic operating sites	144,433
Total of overseas operating sites	818

* Not including the Group's equity share.

Energy Conservation

Fundamental Policy

Global warming is causing changes in many aspects of the climate, from frequent abnormal weather to rising sea levels. Furthermore, it may undermine the sustainable development of society as a whole by having a major impact on ecosystems. The JX Nippon Mining & Metals Group has defined long-term targets for reducing emissions of CO_2 and other greenhouse gases, which it is pursuing by promoting energy conservation and expanding the usage of renewable energy. (See page 50 for details.)

Activity Results in Fiscal 2015

Energy Consumption and Energy Consumption Intensity in Manufacturing Activities

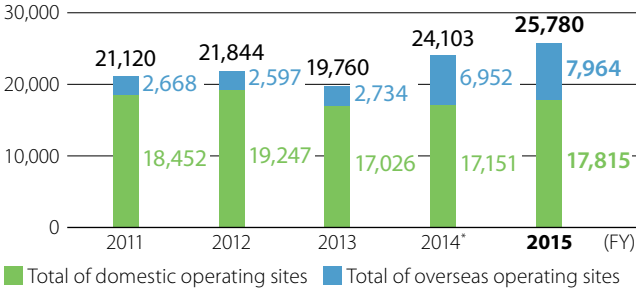
In fiscal 2015, the Group's overall energy consumption in terms of its calorific value was 25,780 terajoules,* compared with 24,103 terajoules in fiscal 2014. The ramping up of Caserones Copper Mine operation in the second half of fiscal 2014 was a major factor resulting in an increase of 1,677 terajoules. Around 47% of the Group's total energy consumption in Japan is accounted for by energy consumed at smelters and refineries, where energy consumption intensity in fiscal 2015 increased 0.8 point year on year. The Group continues to take active measures for reducing energy use and improving efficiency. As an example of such measures, at JX Nippon Tsuruga Recycle, improvements to the stationary furnace burner flame resulted in more stable combustion temperatures and reduced fuel usage by a total annual calorific value of 26 terajoules. At the Saganoseki Smelter & Refinery of Pan Pacific Copper, switching 3,100 interior lighting fixtures to LED technology reduced electricity usage by a total annual calorific value of 22 terajoules. At our overseas operating sites as well, we are taking steps to reduce energy consumption, such as installing pump-inverter control equipment and carrying out phased replacement of conventional lighting with LED lamps. We will continue to pursue additional energy conservation means and to recover waste heat by installing energy-efficient equipment.

* Energy consumption is calculated using coefficients in accordance with the Act on Rational Use of Energy, for both domestic and overseas operating sites.
A breakdown of energy consumption in fiscal 2015 is as shown below (terajoules).
Electricity (indirect): Domestic 14,059 Overseas 6,010
Fuel (direct): Domestic 3,756 Overseas 1,955
Note: A terajoule is one trillion joules.

Site where LED lighting was introduced
(Saganoseki Smelter & Refinery, Pan Pacific Copper)

Energy Consumption (Fuel and Electricity) ☑

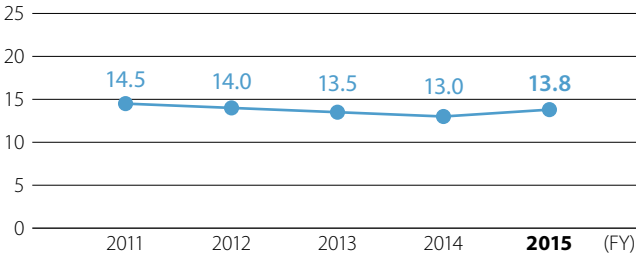
(calorific value in terajoules)



* Totals reflect retroactive revisions to data from past years to correct errors in reporting scope.

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

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



Breakdown by Fuel Type

	Domestic	Overseas
Kerosene (kl)	2,440	—
Light oil (kl)	2,522	27,303
Class A heavy oil (kl)	9,176	781
Class B and C heavy oil (kl)	41,578	8,776
Reclaimed oil (kl)	2,004	—
LPG/butane (t)	5,225	7
LNG (t)	4,594	—
Coke (t)	8,495	—
City gas (1,000 m^3)	13,768	12,108

CO_2 Emissions from Energy Consumption for Manufacturing Activities[*1]

In fiscal 2015, the Group's total CO_2 emissions from energy consumption in Japan and overseas were 1,539 thousand tons of CO_2. While there was a slight rise in CO_2 emissions from energy consumption over fiscal 2014, this was the result of having added the Caserones Copper Mine to the totals on a full-year basis from fiscal 2015.

Nearly half of the Group's total energy consumption in Japan is accounted for by energy consumed at smelters and refineries. Through the consolidation of facilities, improved production efficiency, and other efforts, the Group reduced CO_2 emission intensity at these sites to 0.93 in fiscal 2015, down approximately 30% from 1.34 in fiscal 1990.

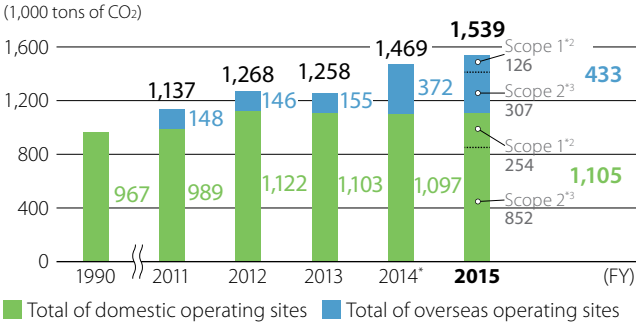
*1 Emissions are calculated using emission coefficients in accordance with the Act on Promotion of Global Warming Countermeasures. Coefficients that individual power companies made public and statistical data released by the International Energy Agency are used to calculate emissions from electricity consumption at domestic and overseas operating sites, respectively. In addition to the CO_2 emissions from energy consumption regulated under the above Act, the Group includes in its calculations CO_2 emissions from burning fuel that was used as a reducing agent (with the exception of those emissions from titanium operations), which are outside the scope of the Act.

*2 Emissions from fuel consumption are converted to equivalent CO_2.

*3 Emissions from electricity consumption are converted to equivalent CO_2.

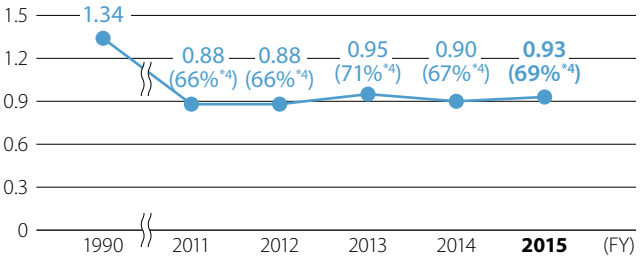
*4 In relation to fiscal 1990 level.

CO_2 Emissions from Energy Consumption



* Totals reflect retroactive revisions to data from past years to correct errors in reporting scope.

CO_2 Emission Intensity at Smelters and Refineries



Expansion of Renewable Energy Usage

Hydroelectric power generation in the Group traces back to 1907 when its predecessor Kuhara Mining operated. Today, we carry out power generation operations at the Kakinosawa Hydroelectric Power Plant and sell the electricity generated to specified-scale electricity utilities. From October 2014 to June 2015, the facilities of the Kakinosawa Hydroelectric Power Plant were upgraded to enable more effective use of valuable water resources. The plant is now operating stably with increased power generation capacity thanks to upgraded facilities such as turbines, generators, and power receiving and transforming equipment (see page 51 for details). A photovoltaic power generation facility with capacity of 240 kilowatts went into operation in April 2013 at the Kakegawa Works of JX Metals Precision Technology. Photovoltaic power generation is also carried out at the Hibi Smelter of Pan Pacific Copper.

Solar panels at the Kakegawa Works, JX Metals Precision Technology

Results in Fiscal 2015 (megawatt-hours)

	Total generated electricity	Generated electricity sold
Hydroelectric power (Kakinosawa Power Plant)	21,251	21,192
Photovoltaic power (Kakegawa Works)	652	645

CO_2 Emissions Other than from Energy Consumption, and Other Greenhouse Gas Emissions from Manufacturing Activities*

Three operating sites in the recycling and environmental services business submit reports on the emissions of CO_2 from sources other than energy consumption as well as the emissions of other greenhouse gases. In fiscal 2015, we reduced such emissions to around 54 thousand tons of CO_2 (consisting entirely of CO_2 emissions other than from energy consumption), from around 56 thousand tons in fiscal 2014.

* Emissions are calculated using emission coefficients in accordance with the Act on Promotion of Global Warming Countermeasures. CO_2 emissions other than from energy consumption resulted from treatment of waste oil, waste plastic, and waste rubber tires. In fiscal 2015, the emissions of greenhouse gases excluding CO_2 from sources other than energy consumption were below the reporting threshold or there were no such emissions.

Energy Consumption and CO_2 Emissions in the Logistics Stage

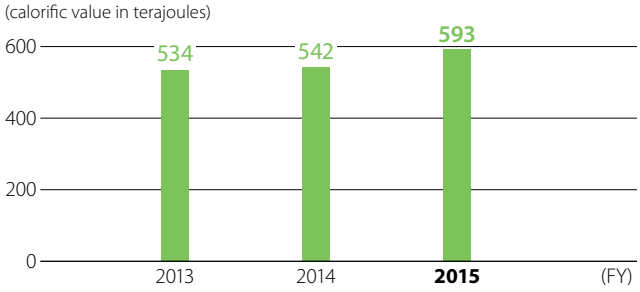
In fiscal 2015, energy consumption in the logistics stage of applicable Group companies in Japan*1 was 593 terajoules and CO_2 emissions in that stage were 41.7 thousand tons of CO_2, compared with 542 terajoules and 38.1 thousand tons, respectively, in fiscal 2014. The year-on-year increase in both indicators reflects the addition of JX Nippon Mining & Metals to the totals from fiscal 2015.

The Group operates two combination carrier ships, the *Mar Camino* and *Koryu*, which transport copper concentrate from the west coast of South America to Japan, and carry sulfuric acid on the return trip to South America. Using the same ship to transport both copper concentrate and sulfuric acid enables reductions in fuel consumption and greenhouse gas emissions. Energy consumption by the two ships in fiscal 2015 was 14,017 tons of marine fuel oil and 1,245 tons of marine diesel oil. Total CO_2 emissions were 47.6 thousand tons of CO_2, up from 41.8 thousand tons in fiscal 2014.

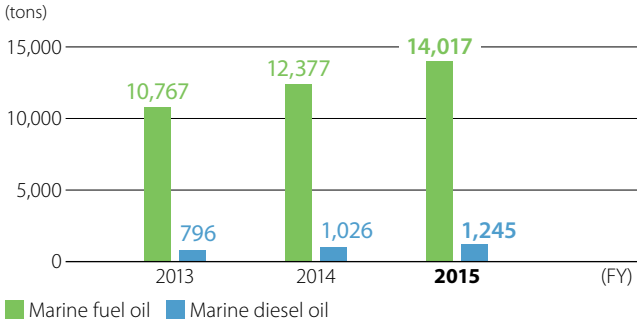
The Group will continue with efforts to reduce energy consumption and CO_2 emissions in the logistics stage, not only by improving loading ratios and enlarging lot sizes but also by adopting additional innovative approaches to optimizing transport methods such as by its combination carrier ships.

Koryu

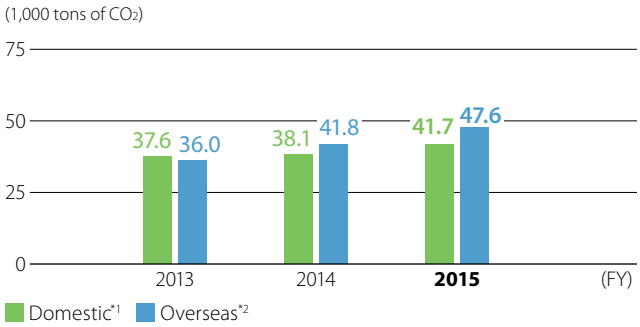
Energy Consumption: Domestic*1



Energy Consumption: Overseas*2



CO_2 Emissions



*1 Specified consigners as defined by the Act on the Rational Use of Energy. This applies to the following three companies in the Group: JX Nippon Mining & Metals, Kasuga Mines, and Pan Pacific Copper.

*2 These are the actual values (Jan.–Dec.) for the two ships *Mar Camino* and *Koryu* operated by the Company. CO_2 emissions are calculated using coefficients announced by the International Maritime Organization.

Initiatives for Effective Resource and By-Product Use and Waste Reduction

Fundamental Policy

The JX Nippon Mining & Metals Group is committed to helping prevent the depletion of natural resources and reducing the discharge of waste materials. We therefore strive to make effective use of water resources, use recycled resources as raw materials, utilize by-products, and reduce the volume of final disposal by recycling waste materials.

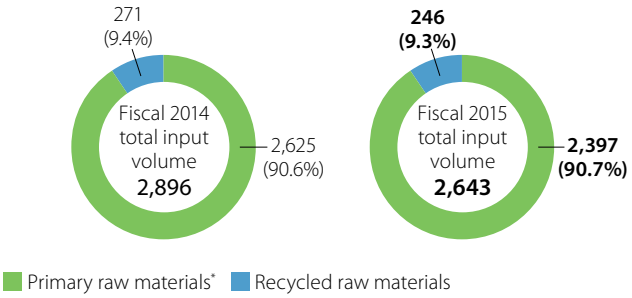
Activity Results in Fiscal 2015

Usage of Recycled Resources as Raw Materials ☑

The ores and other resources extracted from the natural environment are finite and must be preserved for future generations. The Group is expanding usage of recycled resources as raw materials.

Material Input

(1,000 tons)



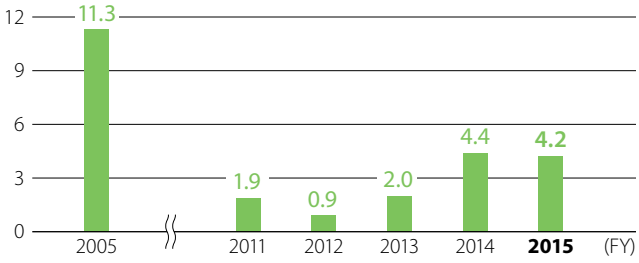
* Of the copper concentrate produced at the Caserones Mine, the Group's equity share is not included.

Reuse and Reduction of Waste Materials ☑

Of the total volume of waste materials the Group generated in fiscal 2015, 83% was reused internally. Of the final volume of waste materials discharged, the volume of final disposal, excluding the volume recycled externally or otherwise used, was approximately 4.2 thousand tons and changed little from the previous fiscal year. To achieve future reductions in waste discharge volume, we will continue to make repeated reuse of all neutralized slag generated at smelters and refineries. We are also continuing to expand uses for waste materials at all operating sites, including those manufacturing electronic materials, through proper waste separation.

Volume of Final Disposal of Waste Materials*1, *2

(1,000 tons)

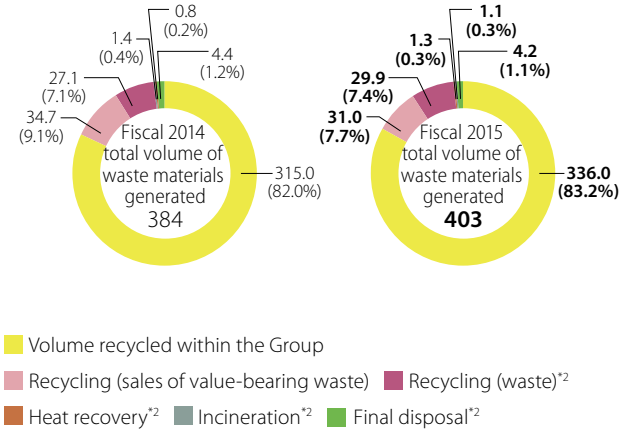


*1 These figures do not include the approximately 8 thousand tons disposed of in offshore landfills by Toho Titanium.

*2 These figures do not include the approximately 11.5 million tons of slag from the Caserones Copper Mine.

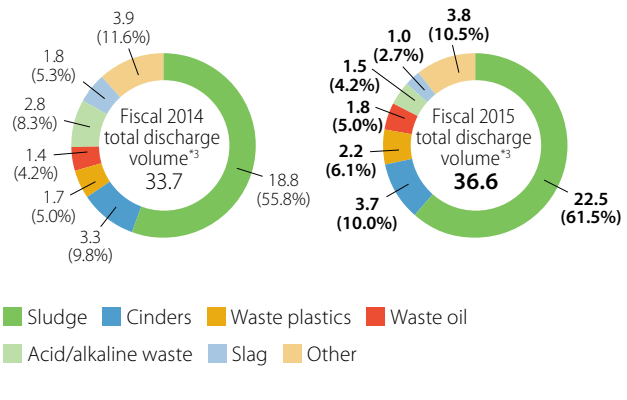
Total Volume of Waste Materials Generated

(1,000 tons)



Discharge Volume by Type of Waste Materials

(1,000 tons)

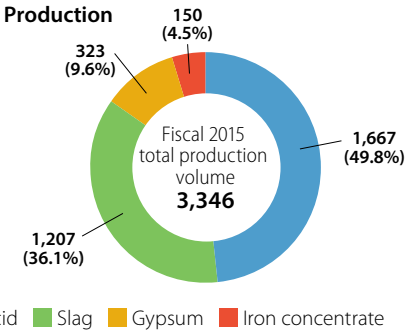


Use of By-Products

In fiscal 2015, the Group produced 3,346 thousand tons of by-products. Slag is utilized as sandblasting materials, cement materials, caisson fillers, or aggregates for wave-dissipating blocks. Iron concentrate and gypsum are used in cement. (See page 69 for details of slag.)

By-Product Production

(1,000 tons)



Effective Use of Water Resources

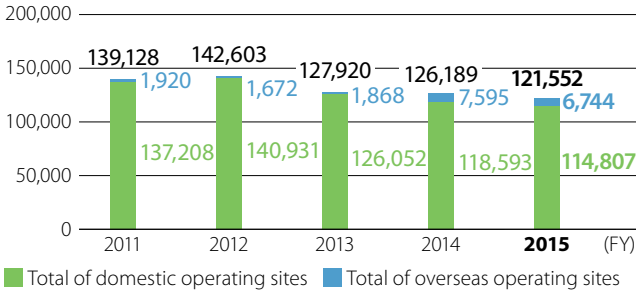
A feature of the Group's water usage in fiscal 2015 is that seawater accounted for 77% of the total. Of the volume of water discharged, 89% was discharged into the sea.

In Japan, some smelters and refineries that were using seawater for cooling have been using recycled water since fiscal 2013, reducing the amount of seawater use. Because of this and other factors, water usage at domestic operating sites in fiscal 2015 was around 19% below fiscal 2012 levels. Due mainly to the addition of Caserones Copper Mine data to the totals from fiscal 2014, water usage at overseas operating sites increased approximately fourfold from fiscal 2012 levels.

The decline in refined copper production by around 10% caused both water usage intensity and water discharge intensity at smelters and refineries to worsen by approximately 3% to 5%, since these are tied to production volume.

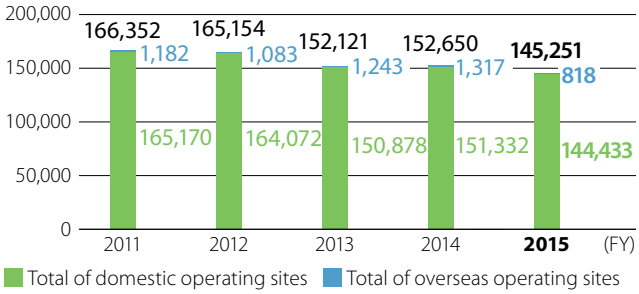
Water Usage*1, *2

(1,000 cubic meters)



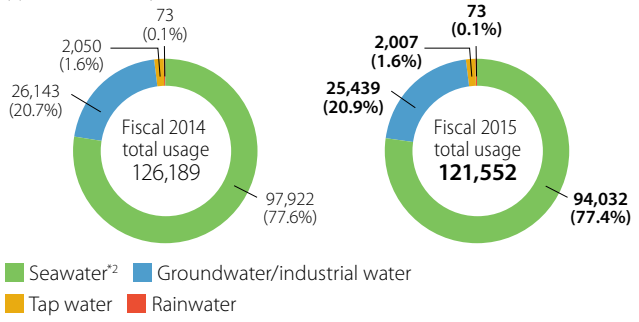
Water Discharge Volume*3

(1,000 cubic meters)



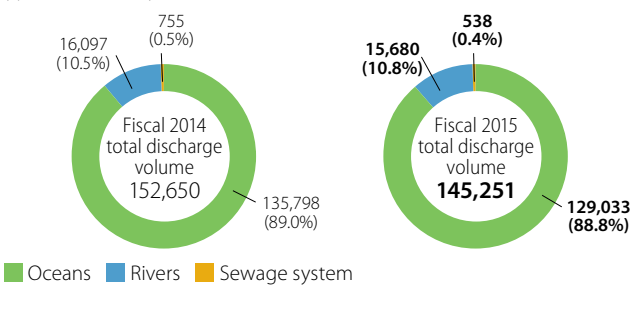
Water Usage*1

(1,000 cubic meters)



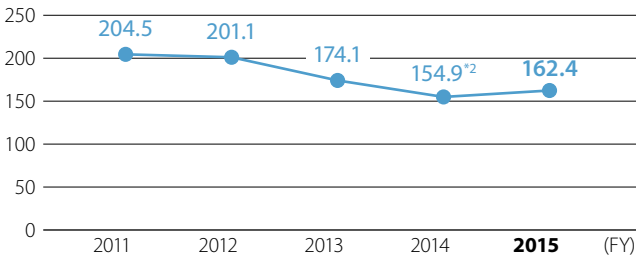
Water Discharge Volume*3

(1,000 cubic meters)



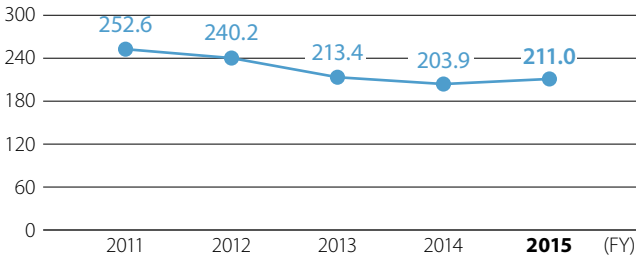
Water Usage Intensity at Smelters and Refineries

(cubic meters per ton of refined copper produced)



Water Discharge Intensity at Smelters and Refineries

(cubic meters per ton of refined copper produced)



*1 Seawater usage at the Saganoseki Smelter & Refinery of Pan Pacific Copper is calculated based on pumping capacity. Groundwater usage at JX Nippon Mikkaichi Recycle is calculated by multiplying water discharge volume by a fixed rate. Freshwater usage at the Saganoseki Smelter & Refinery of Pan Pacific Copper, and water usage at the other operating sites, are based on flowmeter readings or on invoices from the water company.

*2 Totals for domestic operating sites reflect retroactive revisions to data from past years to correct errors in the figures reported by some sites.

*3 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, JX Nippon Tomakomai Chemical, and JX Nippon Mikkaichi Recycle); an amount obtained by multiplying groundwater usage by a fixed rate (Kurami Works, Chigasaki Plant of Toho Titanium); an amount otherwise calculated (Yahata Plant of Toho Titanium); and an amount based on flowmeter readings (the other operating sites). The volume of water discharged into the sewage system is as measured by a water treatment company for Changzhou Jinyuan Copper, and is based on flowmeter readings or on invoices from the sewage company for the other operating sites.

Environmental Risk Management

Fundamental Policy

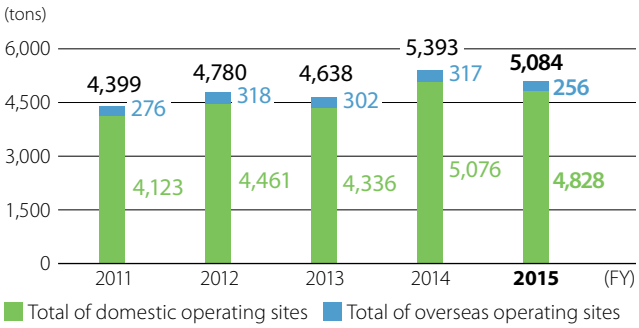
Air and water systems are key means of affecting human health and living environments. In carrying out its business operations, the JX Nippon Mining & Metals Group gives top priority to protecting the environment relating to these two systems. In addition to abiding by all relevant laws, regulations, ordinances, and agreements, we have set and monitor our own voluntary standards to reduce environmental impact. At the same time, we implement the plan-do-check-act cycle to reduce environmental risks.

Activity Results in Fiscal 2015

Preventing Air Pollution ☑

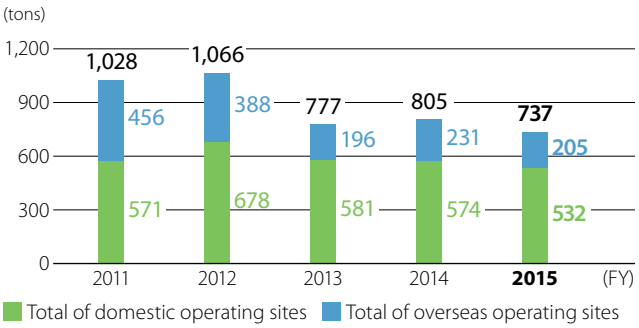
The Group monitors waste gas emissions at all operating sites in compliance with laws, regulations, ordinances, agreements, and voluntary standards. In fiscal 2015, emissions of both sulfur oxides (SOx) and nitrogen oxides (NOx) in the Group decreased from fiscal 2014 levels, due largely to the decline in refined copper production volume at smelters and refineries.

SOx Emissions*1



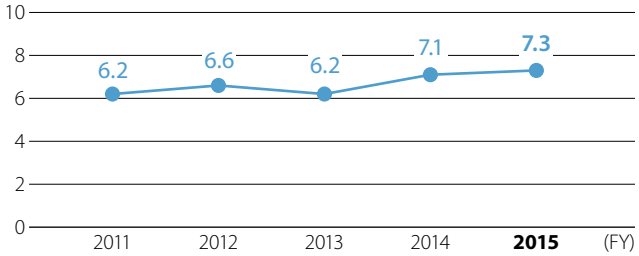
*1 Totals are for operating sites subject to legal requirements.

NOx Emissions*2

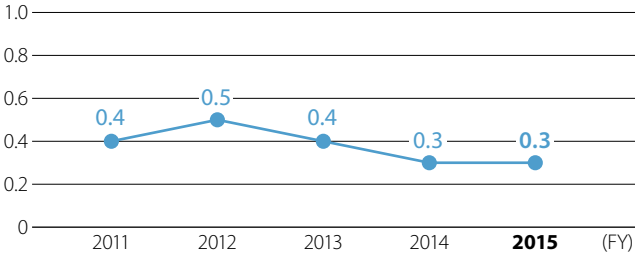


*2 Totals are for operating sites subject to legal requirements. Fiscal 2014 figures included data for overseas operating sites not subject to legal requirements, and have therefore been corrected.

SOx Emission Intensity at Smelters and Refineries (kilograms of SOx emissions per ton of refined copper produced)



NOx Emission Intensity at Smelters and Refineries (kilograms of NOx emissions per ton of refined copper produced)

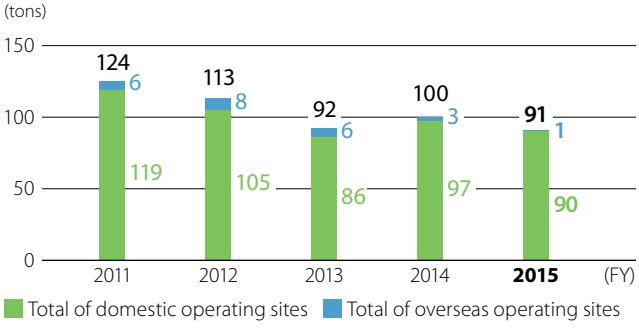


Preventing Water Pollution ☑

The Group monitors water discharge at all operating sites in compliance with laws, regulations, ordinances, agreements, and voluntary standards. The COD*1 and BOD*2 levels are shown below.

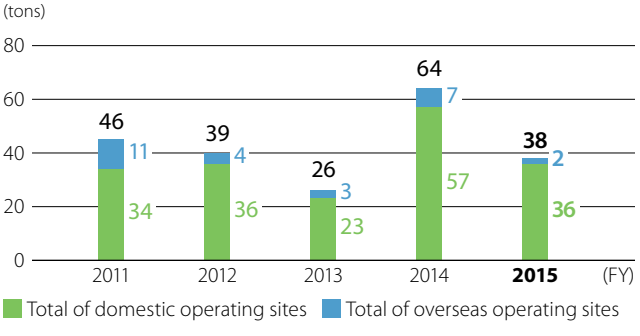
*1 Chemical oxygen demand: An index of water quality indicating the amount of oxygen needed to oxidize substances in water. This is a representative indicator for measuring contamination by organic substances in oceans and lakes.
*2 Biochemical oxygen demand: An index indicating the amount of oxygen needed for organic matter in water to be broken down by microorganisms. This is a representative indicator for measuring contamination by organic substances in rivers and streams.

COD*3



*3 Totals are for operating sites subject to legal requirements (sites that discharge water into the ocean or lakes in the case of domestic operating sites).

BOD*4



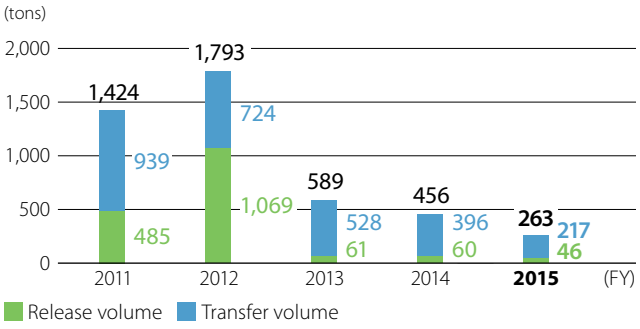
*4 Totals are for operating sites subject to legal requirements (sites that discharge water into rivers or streams in the case of domestic operating sites).

Chemical Management

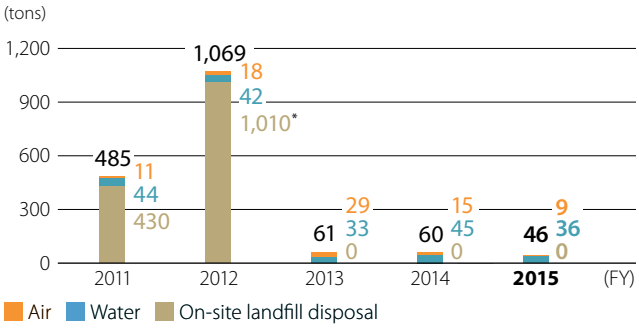
At operating sites with significant release and transfer of chemicals, the Group strictly adheres to the Act on Confirmation, Etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (PRTR Act). Also, as part of our environmental management activities, we are working to reduce our environmental impact by setting targets for decreasing the release and transfer volumes of specific chemical substances.

Regarding the Group's total release and transfer volumes of specific chemical substances to be reported in compliance with the PRTR Act, the release volume in fiscal 2015 decreased 15 tons from fiscal 2014. Transfer volume decreased approximately 179 tons. These decreases were achieved by recycling waste solvent into resources and by introducing process changes to reduce the volume of sludge.

Release and Transfer Volumes in the Group



Breakdown of Release Volumes in the Group



* Neutralized sludge generated after the Motoyama drainage treatment facility went into full operation in fiscal 2012 at the Toyoha Mine. As the smooth operation of the facility reduced labor requirements, the mine has been exempted from reporting requirements under the PRTR Act since fiscal 2013.

Volumes of Release and Transfer of Major PRTR Substances in Fiscal 2015

(tons)

No.	Cabinet order no.	Chemical substances	Release volume			Transfer volume	
			Air	Water	On-site landfill disposal	Waste	Sewage system
1	75	Cadmium and its compounds	0.0	0.2	0.0	25	0.0
2	132	Cobalt and its compounds	0.0	0.3	0.0	14	0.0
3	300	Toluene	3.1	0.0	0.0	121	1.0
4	305	Lead compounds	0.6	0.3	0.0	8.0	0.0
5	309	Nickel compounds	0.1	0.9	0.0	6.6	0.1
6	332	Arsenic and its inorganic compounds	0.4	1.3	0.0	9.1	0.0
7	374	Hydrogen fluoride and its water-soluble salts	0.0	10	0.0	2.3	0.0
8	405	Boron compounds	0.0	8.3	0.0	1.1	0.0
9	412	Manganese and its compounds	0.0	1.5	0.0	17	0.0

(grams of toxic equivalents)

10	243	Dioxins	0.08	0.005	0.0	0.8	0.0

* The values given are totals for the following companies with operating sites subject to reporting requirements under the PRTR Act: JX Metals Trading; Kasuga Mines; and the domestic companies defined on page 1 as "companies subject to reporting" with regard to the "Environment" section.

* Of the 56 chemical substances subject to reporting, those totaling at least 5.0 tons in any category, and dioxins, are listed above.

* There were no cases of chemical substances released into the soil.

Detoxification of PCB-Containing Equipment

The Group carries out systematic disposal of equipment containing high levels of PCBs using the services of Japan Environmental Storage & Safety Corporation. Disposal at the Saganoseki Smelter & Refinery and other sites has already been completed.

We also have been detoxifying equipment containing low levels of PCBs by entrusting a private-sector treatment facility starting in fiscal 2012. In March 2014, JX Nippon Tomakomai Chemical received certification from the Minister of the Environment to provide a low-concentration PCB waste treatment service, and carries out detoxification of Group equipment containing low levels of PCBs.

Compliance with the REACH Regulation

The European Union's Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH Regulation) came into effect in June 2007. Based on precautionary principles, the purpose of this regulation is to standardize the management and identification of chemicals that are distributed within the EU and to monitor their risks and clarify their environmental impact. The Group respects the intent of the REACH Regulation, has completed preliminary registration of products that are subject to the regulation, and plans to complete official registration by 2018.

Environmental Management System

The JX Nippon Mining & Metals Group has established an environmental management system in line with ISO 14001 standards for ensuring achievement of the Action Plan for Environmental Protection, which was drawn up reflecting the Basic Environmental Policy. A multilevel 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.

Operating Sites That Have Obtained ISO 14001 Certification

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 Kurami Office of JX Nippon Coil Center Co., Ltd.); Saganoseki Smelter & Refinery of Pan Pacific Copper Co., Ltd. (including Japan Copper Casting Co., Ltd., and Nissho Ko-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); Esashi, Tatebayashi, Nasu, and Kakegawa Works of JX Metals Precision Technology Co., Ltd.; and JX Metals Trading 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.; and Longtan Works of Nikko Metals Taiwan Co., Ltd.

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. The Group seeks to strengthen its compliance systems by such means as environmental manager meetings, held each year to share information on legal and regulatory trends and to hear compliance status reports from operating sites.

Environmental Auditing

In addition to internal environmental audits at each operating site at least once a year, environmental audits are carried out periodically by the Head Office Environment & Safety Department. Audits were conducted in eight areas in fiscal 2015.

Environmental Education

Periodic education, training, and drills are conducted for each employee level at individual operating sites, in order to spread awareness regarding the Basic Environmental Policy, the Action Plan for Environmental Protection, and applicable laws and regulations.

Environmental Accidents

In fiscal 2015, the below-listed environmental accidents occurred. In each case, necessary measures have been taken to address these accidents and prevent their recurrence.

Date	Place	Description
May 2015	Headquarters & Chigasaki Plant of Toho Titanium	Damage to a pH meter electrode resulted in excessive chemical inflow, leading to the release of highly alkaline process water into the public sewage system.
July 2015	Isohara Works	Insufficient processing capacity of a water purification tank and other factors caused the BOD concentration of factory process water to rise above ordinance limits.
July 2015	Kakegawa Works of JX Metals Precision Technology	Malfunctioning of a back pressure valve for injecting a phosphorus neutralizer resulted in release of process water to the sewage system containing phosphorus levels above ordinance limits.
March 2016	Hibi Kyodo Smelting	The soot and dust concentration at the outlet of flue gas desulfurization equipment exceeded limits set in the Air Pollution Control Act.

Environmental Assessment of Suppliers

The Group promotes environmental conservation in the entire supply chain including suppliers. Based on the Group's Green Purchasing Guidelines, suppliers are asked to create an environmental management system to reduce their environmental impact.

Additionally, green purchasing surveys are conducted periodically to confirm implementation by major suppliers. (See page 79 for details.)

Initiatives for Biodiversity Conservation

Fundamental Policy

The Hitachi Mine, to which the JX Nippon Mining & Metals Group traces its history, worked to ensure that the rich greenery of the surrounding mountains would be preserved for future generations, by actively combatting smoke pollution and carrying out reforestation programs. Our operations, particularly mining and smelting, may have a significant impact on the nearby environment. Given this nature of our business, we consider biodiversity conservation to be an important theme that we must pursue to conduct business in a sustainable manner.

Initiatives at the Caserones Copper Mine

Of the total 385 square kilometers (38,500 hectares) of land owned by Minera Lumina Copper Chile (MLCC), operator of the Caserones Copper Mine, MLCC has designated 0.87 square kilometers (87 hectares) as an area to be protected from the impact of construction of the mining equipment and other such activities, and takes steps to preserve biodiversity by protecting the animals and plants in this area.

MLCC observes the following rules for the protected area: (1) If trees are cut in a certain area, another area 1.6 times larger than the felled forest area must be planted; and (2) if it is necessary to cut any protected plant, 10 times the number of the same type of plant must be planted. Under the guidance of experts, plants in a wetland plant zone spanning 9,400 square meters of the Caserones Valley were wholly transplanted to the La Ollita Valley, the nearest place with an appropriate habitat. The vega plant, one of the protected plants at the Caserones Valley site, was then confirmed to have taken root at the transplanted site. In addition, due to severe depletion of water resources in the Copiapó River system located downstream from the Caserones Copper Mine, MLCC took steps to control water consumption, buying an alfalfa farm to halt its cultivation and cutting weeds along the river bank to limit evaporation. To offset new water usage by the mine, the company also provides desalinated seawater for downstream irrigation use.

Reforestation Activities in Japan

The Group has been promoting reforestation activities, especially at the sites of closed mines. An update on our reforestation activities in fiscal 2015 at the closed Takatama, Oe, Toyoha, and Kameda mine sites is provided below. We are working to maintain and improve the natural environment by continuing to plant trees and vegetation, clear underbrush, and conduct other necessary work at each site.

Closed Takatama Mine Site (Koriyama City, Fukushima)

Starting in fiscal 2005, efforts are centering on reforestation and maintenance of areas prepared earlier. A total of 2,400 broadleaf chestnut, zelkova, konara oak, and flowering cherry saplings were planted in a 1.2-hectare area where the ground had been prepared in the previous fiscal year for tree planting. Underbrush was cleared in a 5.6-hectare area where trees had been planted earlier, and ground spanning 1.06 hectares was prepared for tree planting in the current fiscal year.

About the Takatama Mine

The Takatama Mine produced gold and other metals from the time it was acquired in 1918 up to its closure in 1976. The closed mine is currently managed by Group company Shin-Takatama Mining.

Closed Oe Mine Site (Niki Town, Hokkaido)

Building on the success of an initial five-year reforestation plan (fiscal 2008 to 2012), a new five-year plan was begun in fiscal 2013. In fiscal 2015, obstructive trees were thinned in 20.90 hectares of forest area, and underbrush was cleared in a 14.58-hectare area that had been reforested up to fiscal 2014.

About the Oe Mine

The Oe Mine was acquired in 1915 and closed in 1984. During that time, it produced manganese, gold, silver, copper, lead, and zinc. At present, Hokushin Mining is treating acid mine drainage at the site.

Closed Toyoha Mine Site (Sapporo City, Hokkaido)

With the aim of transforming the tailings dam site at the closed Toyoha Mine into a scenic forest, Japanese white birch growing naturally on this site have been thinned and trees planted in the resulting spaces. These efforts have been made in response to requests from local community associations. Activities in fiscal 2015 focused on preserving the scenic appearance, such as cutting trees and weeding.

About the Toyoha Mine

Acquired in 1914, the Toyoha Mine was one of Japan's leading metal mines, producing indium, zinc, lead, silver, and other metals. The mine was closed in 2006 after its ore reserves were depleted. Wastewater from the mine site has been managed strictly, since it is located next to the Toyohira River, which supplies water to the residents of Sapporo. For this purpose, a large facility to treat acid mine drainage was built in 2011.

Closed Kameda Mine Site (Hakodate City, Hokkaido)

Reforestation of this site has continued since fiscal 2007. In the five-year period from fiscal 2007 to 2011, approximately 31,300 saplings were planted in an area spanning some 14.52 hectares. In fiscal 2015, underbrush around the planted saplings in an 11.52-hectare area was cleared, and field mice were exterminated on 14.52 hectares of ground.

About the Kameda Mine

The Kameda Mine produced gold, silver, and copper from the time it was acquired in 1915 up to its closure in 1919.

Management of Closed Mines

From its founding in 1905, the JX Nippon Mining & Metals Group was 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, nearly all the mining operations have been stopped* due to the depletion of mineral resources. Currently, the Group is working to maintain and restore the natural environment in and around the closed mines. One such effort is the treatment of acid mine drainage (AMD).

* Currently, the Kasuga Mine in Kagoshima Prefecture is the only Group mine in Japan still operating.

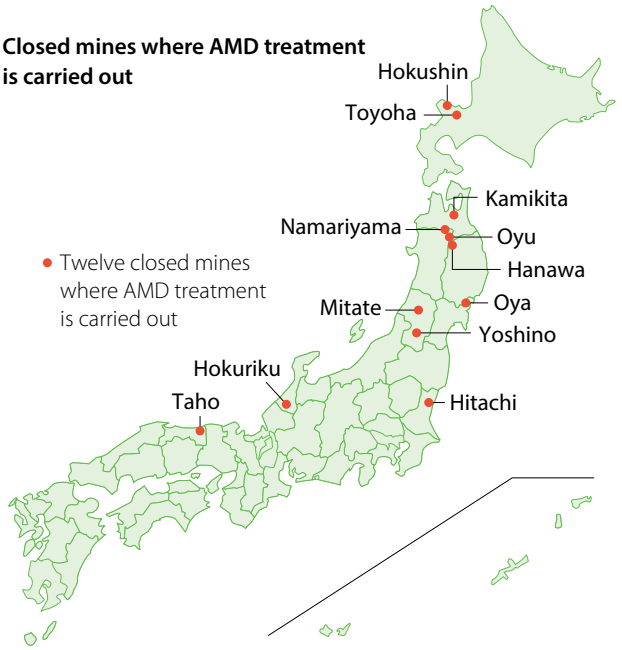
Management Work at Closed Mines

Of the 39 closed mines managed by the Company, AMD treatment is an ongoing obligation at 12 mines pursuant to the Mine Safety Act. JX Nippon Mining Ecomanagement is responsible for the work at these mining sites, including AMD treatment and the management of tailings dams.

The work mainly consists of treating the highly acidic mine drainage generated from the mines and tailings dams, which contain heavy metals, and maintaining and preserving the tailings dams, underground drives, and shafts of the mining sites, making sure harmful water does not flow into the surrounding environment.

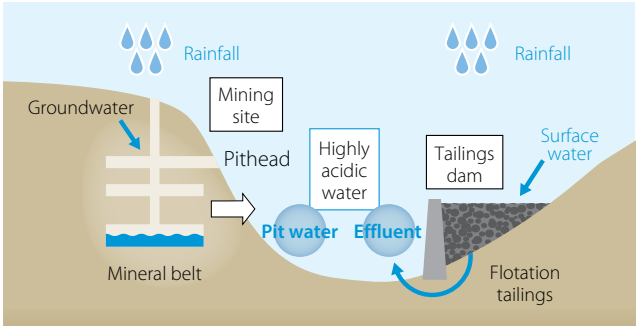
The operation of treatment facilities has to be kept up 365 days a year, since AMD is generated continuously after a mine is closed. This is a result of the chemical reaction of rainwater and other water with ores remaining in the mine and tailings in the dams.

Closed mines where AMD treatment is carried out



How AMD Occurs

AMD from closed mines consists of pit water rising up from inside the mine and effluent discharged from tailings dams or other mine facilities. It occurs as a result of rainwater and other water coming into contact with such materials as ores remaining after the mine is closed, the nearby altered rock, and flotation tailings that have accumulated in the dams. These ores and altered rock contain iron, zinc, manganese, and other metals in the form of sulfide minerals, as a result of bonding with sulfur. These sulfide minerals are oxidized in the presence of oxygen and dissolve in water in the form of metal ions, hydrogen ions, or sulfuric acid ions, causing the drainage water to become highly acidic.



Motoyama AMD treatment facility at Toyoha Mine

Gallery inspection at Hanawa Mine

Construction Work to Protect Tailings Dams from Earthquakes and Torrential Rain

After the Great East Japan Earthquake, starting in fiscal 2012 we began conducting voluntary risk assessments of all tailings dams under management of the Group relative to a Level 2 earthquake (seismic motion of the maximum intensity conceivable for the particular area both now and in the future). At the same time, we assessed their stability in localized torrential rain of the kind that has become increasingly common in recent years, as well as the possible downstream impact of the outflow of tailings from the dams.

After determining the risks by means of these voluntary inspections, we set priorities for those tailings dams identified as requiring further measures and began the necessary construction work starting in fiscal 2013.

The construction work includes soil stabilization to ensure earthquake resistance and building new drains to obtain sufficient drainage capacity during torrential rain.

Earthquake countermeasures being implemented at Oya Mine

Completed drain as torrential rain countermeasure at Tashiro Mine

1. Locations of countermeasures implemented in fiscal 2015

Earthquake-related: three locations	Mitsuzawa Mine, 4th Tailings Dam (upstream method; completed)
	Oya Mine, Takasegamori Tailings Dam (upstream method; ongoing)
	Namariyama Mine, waste rock storage facility (ongoing)
Torrential rain-related: four locations	Tashiro Mine, 1st and 2nd Tailings Dams (downstream method; ongoing)
	Tada Mine, Shiroishi Tailings Dam (downstream method; ongoing)
	Komori Mine, 2nd Tailings Dam (upstream method; ongoing)
	Fujigatani Mine, 2nd and 3rd Tailings Dams (upstream and downstream methods; ongoing)

2. Location of countermeasures planned for fiscal 2016

Torrential rain-related: one location	Yoshino Mine, Osagasawa Tailings Dam (upstream method)

Using Resources Effectively

Copper, used in electrical wires and electronic materials, and other nonferrous metals are essential resources on which the abundant life enjoyed by modern society depends. As their reserves are finite, however, their effective use is an important issue for preserving the earth's environment and achieving the sustainable development of society. Drawing on the technologies and knowledge in nonferrous metals that JX Nippon Mining & Metals has accumulated over more than a century, we are working on many fronts toward achieving effective use of resources. Efforts to that end include efficient extraction, concentration, and refining in our resources development business and our smelting and refining business; efficient recovery and reuse of resources from end-of-life products discarded by the public in our recycling and environmental services business; and drawing out potential properties in our electronic materials business.

TOPIC

Endowed Research Unit for Nonferrous Metal Resource Recovery Engineering

(JX Metals Endowed Research Unit)

The JX Nippon Mining & Metals Group practices materials stewardship by recovering metal resources from so-called urban mines, aimed at establishing a recycling-oriented society. As part of these efforts, in January 2012 we established the Endowed Research Unit for Nonferrous Metal Resource Recovery Engineering (JX Metals Endowed Research Unit) in cooperation with the University of Tokyo's Institute of Industrial Science.

The growing global demand for metal resources has created a need to build efficient systems for collecting recycled materials and to develop technology for efficiently recovering metals from the collected materials. To address this need, the research unit is engaged in various initiatives with the aim of conducting investigations and research on the smelting, refining, and recycling of nonferrous metals and contributing to the development of human resources in these areas through an alliance between industry and academia.

Overview of the JX Metals Endowed Research Unit

Duration	Five-year period from January 2012 to December 2016
Activities	Holding symposiums, forums, workshops, and seminars, primarily for engineers and scientists in the fields of nonferrous metal smelting, refining, and recycling in industry and academia
Objectives	Conducting investigations and research on the smelting, refining, and recycling of nonferrous metals and contributing to the development of human resources in these areas through an alliance between industry and academia
Organization	JX Nippon Mining & Metals + Collaboration Institute of Industrial Science, the University of Tokyo → Endowed Research Unit for Nonferrous Metal Resource Recovery Engineering (JX Metals Endowed Research Unit)

Research themes of project professors

Masafumi Maeda, Project Professor
(Professor, Institute of Industrial Science, the University of Tokyo)
Optimizing metal production processes and developing recycling methods for valuable metals

Toru Okabe, Project Professor
(Professor and Director of the Integrated Research Center for Sustainable Energy and Materials, Institute of Industrial Science, the University of Tokyo)
Development of efficient recycling technologies for rare metals

Takashi Nakamura, Project Professor
(Professor, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University)
Metal recycling based on the new concept of "artificial deposit"

Institute of Industrial Science, the University of Tokyo

Main Activities in Fiscal 2015

1 Investigations and research on the smelting, refining, and recycling of nonferrous metals

Opportunities are provided for people from industry, government, and academia to meet under the same roof. Most commonly, these are regular symposiums where research results are presented. Two symposiums were held in fiscal 2015.

November 10, 2015 Event

Special Symposium
"Copper Smelting: International Trends and Role for Realizing the Sustainable Society"

Nine persons from industry, government, and academia were invited as lecturers at a special symposium, where discussions centered on issues for copper and other nonferrous metal smelting and refining and on the future vision for resource recycling. Approximately 200 persons from industry, government, and academia attended. JX Nippon Mining & Metals was represented by Executive Officer Yoshitsugu Miyabayashi, who described how the Company is recycling precious metals by making use of copper smelting and refining processes that it has established over three decades of endeavors. The use of copper smelting and refining processes to treat recycled materials enables larger-scale treatment at a lower cost than using specialized recycling processes, and therefore has an important role to play in establishing a recycling-oriented society.

Talk by Executive Officer Yoshitsugu Miyabayashi

January 8, 2016 Event

Special Joint Symposium
"Frontier of Extraction and Recycling Technology for Precious Metals" (The 3rd KIKINZOKU Symposium)

This symposium, focusing on the latest technologies for the smelting, refining, and recycling of precious metals, drew more than 250 attendees from industry, government, and academia.

Representing JX Nippon Mining & Metals, Kazunori Tajiri, manager at Manufacturing Section 2, HMC Department, Hitachi Works, introduced technology being used in the department to recover tellurium produced as a by-product of precious metal refining at the Saganoseki Smelter & Refinery of Pan Pacific Copper.

Five presentations were given by people from industry, including nonferrous metals manufacturers and recycling firms. There were also 14 poster presentations, mainly from people conducting research on precious metal refining at universities and research institutes, as well as lively discussions.

Presentation by Kazunori Tajiri

2 Development of human resources

The smelting and refining (and recycling) of precious metals and other nonferrous metals are an essential endeavor of Japan's industrial world, which supplies society with scarce metals of high value. Yet the number of young researchers in these fields is declining year by year. We are therefore engaged in developing the next generation of human resources, not only by training young engineers but also by conveying the importance of these fields to the younger generation and to the general public.

March 25, 2016 Event

Special Workshop for High School Students
"Miracle Material—Rare Metal"

Toru Okabe, project professor at the JX Metals Endowed Research Unit, conducted a special workshop for high school students, explaining the properties of rare metals and introducing technologies for their manufacture and recycling. Through a lecture and experimentation, the approximately 80 students attending learned about the importance of titanium and other rare metals essential to modern society, while also coming to appreciate the high level of technology in Japan's nonferrous metals industry.

Lecture by Project Professor Toru Okabe

Experiment with a shape-memory alloy made from rare metals

TOPIC Promoting Effective Use of Copper Slag

JX Nippon Mining & Metals is actively pursuing effective uses for copper slag, a by-product of copper smelting. Copper slag is used in making cement and as a concrete aggregate,* among other uses. Since the sand normally used as a concrete aggregate is a natural resource, the use of slag as an alternative can help lower the environmental burden.

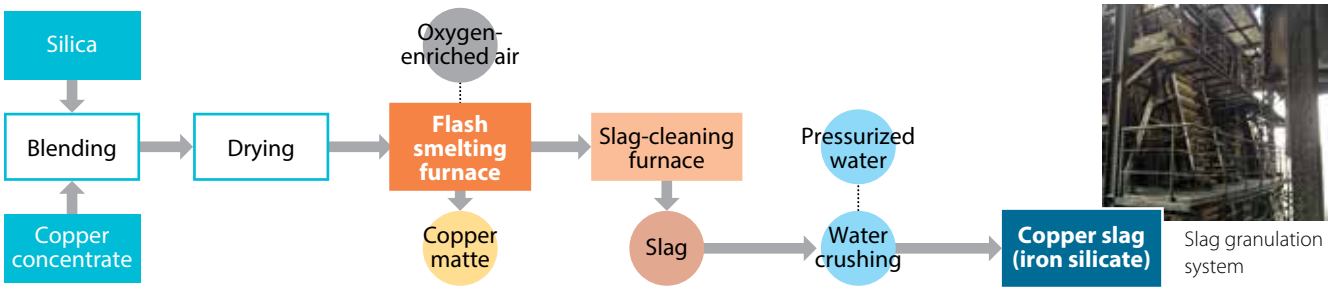
* Material such as sand and gravel used when making concrete and asphalt mixtures. It accounts for 65%–80% of the overall volume of concrete.

What Is Copper Slag?

- Copper slag is iron silicate resulting from the bonding of iron in copper ore with silica during the copper smelting process. It is crushed by high-pressure water to form black, glassy granules.
- The components are highly stable both physically and chemically, and do not dissolve thanks to the slag's glass-like properties.

Copper slag

Process by which copper slag is generated



Slag granulation system

Main Uses of Copper Slag

Copper slag is being used effectively in various situations as a replacement for sand and is supporting many kinds of infrastructure.

Filler for caissons (hollow concrete structures)
Since copper slag has a higher specific gravity than sand, it is a more compact and lower-cost filler for caissons.

Filling a caisson with slag

Sandblasting material
The hardness and sharp angularity of copper slag make it well suited for use as a sandblasting material for polishing ships, bridges, tanks, and other large structures.

Ship sandblasting

VOICE Copper Slag Drawing Attention as a New Resource

Daisuke Asano
Manager, Marketing Dept., Chemicals Team
Pan Pacific Copper Co., Ltd.

We recognize that growing environmental awareness is driving year-by-year rises in demand for copper slag as an alternative to natural resources. With the revision of Japan Mining Industry Association guidelines concerning the sale and purchase of copper slag, the requirements for its environmental safety and quality have become more stringent, but the copper slag Pan Pacific Copper produces meets these requirements.

The amount of copper slag the company produces annually is around 1.5 million tons, among the top in the industry. Approximately 80% of it is shipped abroad, mainly to Asian countries and to the Middle East. Especially in the Middle East, Japanese-made copper slag is highly acclaimed due to its superior quality and is used in making cement and as a sandblasting material.

We have succeeded in making copper slag a more profitable product through such efforts as lowering shipping costs by using larger ships and lots. We intend to further boost sales in Japan and abroad, promoting effective use of copper slag as a basic material with superior environmental and cost advantages.

Insisting on Full Compliance

The JX Nippon Mining & Metals Group recognizes that earning the trust of stakeholders is essential to carrying out its business, and it therefore endeavors to enhance the integrity and transparency of its management through corporate governance. To make sure those efforts are effective, we have established and implement an appropriate internal control system, carry out periodic checks, and take a proactive approach to compliance, risk management, and other internal control activities.

TOPIC Compliance Education

The Group is enhancing its educational provision to improve compliance-related knowledge and awareness among its officers and employees. In doing so, the aim is to enable them to take appropriate action from a compliance perspective in the course of performing business processes. Within Japan, compliance education takes three forms: level-specific education targeting improvements in awareness and knowledge with reference to particular work duties; education specific to individual domestic operating sites, whereby employees are taught about related laws, regulations, and other requirements at each workplace; and education on laws and legal affairs designed primarily to raise awareness of specific laws and regulations. Outside Japan, the Group provides education specific to overseas bases. The sessions are taught by lawyers or other experts, or by employees, depending on the content.

In fiscal 2015, the various types of education were provided as listed below, in line with their respective implementation plans. In the surveys administered afterwards, participants generally described the sessions as useful.

1. Level-specific education

Compliance education tailored to specific roles and duties was provided for officers, employees at the general manager level, and newly promoted managers, among others. A total of 25 sessions were offered, attended by approximately 450 participants in all.

2. Education specific to domestic operating sites

Recent years have witnessed a general increase in reports of harassment within corporations. We addressed this issue by providing harassment-related education to both managers and general employees at 11 of the Group's operating sites. The sessions took place on 34 occasions and were attended by approximately 2,200 employees. The lawyer we employed to teach the sessions explained harassment in terms of the respective roles and statuses pertaining to various job categories within workplaces, focusing on the mind-set required to prevent harassment.

3. Education on laws and legal affairs

We held 18 sessions attended by approximately 600 employees at four operating sites. Topics covered included the law preventing late payments to subcontractors, internal control, security trade control, the Stamp Tax Act, and competition.

4. Education specific to overseas bases

We held explanatory meetings on our rules to ensure compliance with competition laws, as well as on dealing with anti-bribery requirements, on 11 occasions at nine of the Group's overseas operating sites. These sessions targeted both Japanese and local staff and were attended by approximately 150 employees. The sessions for local staff were taught by lawyers well versed in the relevant country's laws, who provided explanations in the local language based on legislation in the country in question.

Training for officers (Head Office)

Education specific to domestic operating sites (Head Office)

Education specific to domestic operating sites (Saganoseki Smelter & Refinery)

Corporate Governance System

Board of Directors

The Company has established the Board of Directors to discuss matters stipulated in laws, regulations, and the Articles of Incorporation, as well as other important management issues. The Board is composed of the president and eight other directors* (all male). Corporate auditors also attend Board of Directors meetings and can offer their opinions.

* All nine directors are internal directors and serve concurrently as executive officers.

Executive Council

The Company has established the Executive Council as an advisory body to the president. The Executive Council consults on matters important to the management of the Company. The status of execution of operations and other issues are also reported and communicated to it. The Executive Council consists of the president and executive officers designated by the president. Full-time corporate auditors also attend the Executive Council and can offer their opinions.

Corporate Auditors

Corporate auditors attend Board of Directors meetings, Executive Council meetings, and other important meetings, offering their views as necessary for raising the effectiveness of audits. They also review important documents and meet with officers and employees of the Company and each Group company, with the aim of understanding the status of execution of duties by officers and employees.

In addition, corporate auditors receive regular reports from the Internal Audit Department and independent auditors regarding auditing plans and their implementation status and results, while coordinating with these parties by exchanging views and information.

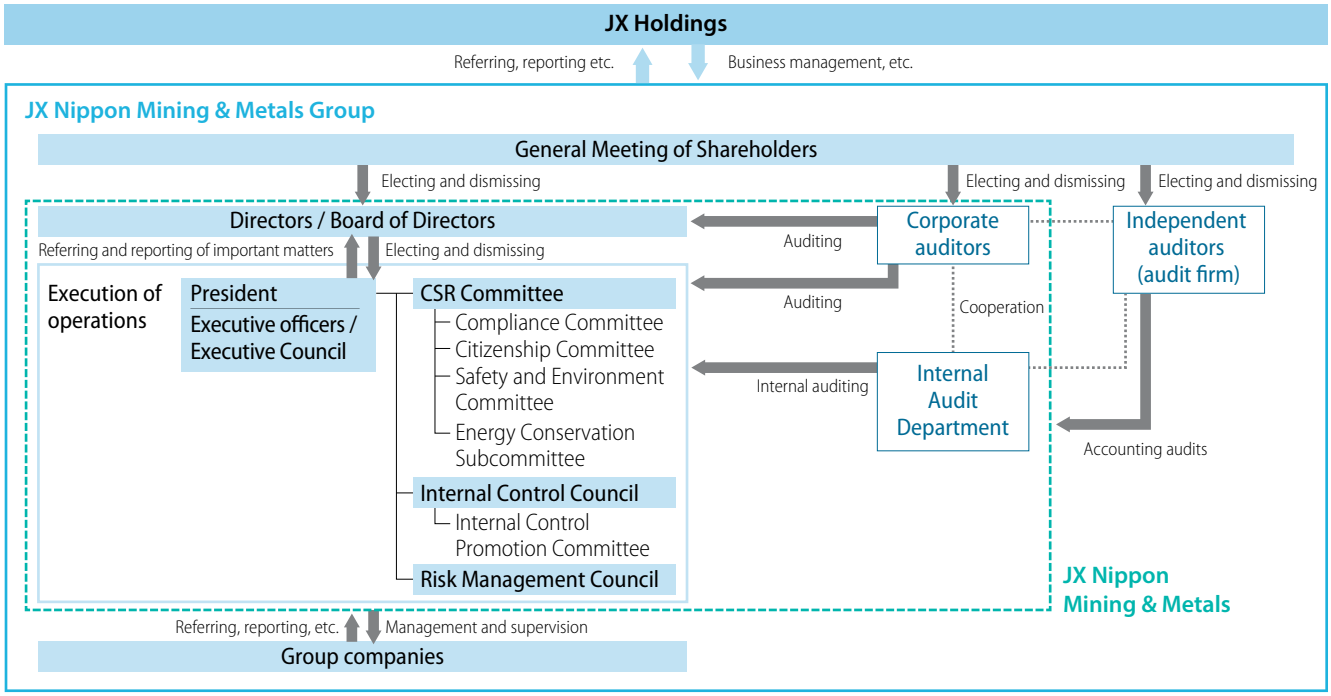
Compensation for Directors

Bonuses for the directors of JX Nippon Mining & Metals are determined on the basis of the consolidated business results of the Company as well as JX Holdings. We have neither a retirement benefit program nor a stock option 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 pertaining to the management of individual Group companies are communicated to the Company via the supervisory department, and these matters are referred and reported to the Board of Directors, the Executive Council, and other important meetings as necessary.

Corporate Governance Structure of the JX Nippon Mining & Metals Group



Internal Control System

The JX Nippon Mining & Metals Group has drawn up a basic policy for the establishment and operation of an internal control system, laying out rules on such matters as corporate governance, compliance, internal auditing, and risk management. Based on this policy, we have established an internal control system that ensures operations are carried out efficiently and properly.

Internal Control Council

To develop and operate the Group's internal control system, we set up the Internal Control Council as an advisory body to the president, with the role of monitoring the status of internal controls and holding discussions to address issues as necessary. As a rule, the council meets once a year.

Internal Control Promotion Committee

The Internal Control Promotion Committee was set up for advising and assisting with the duties of the Internal Control Council. The committee's responsibilities include monitoring internal control activities. As a rule, the committee meets twice each fiscal year, once in the first half and once in the second half of the year.

Compliance Initiatives

We make sure that the officers and employees of the Group comply with laws, regulations, and other rules. We are building an organizational structure for compliance, aimed at ensuring corporate activities are conducted fairly and at increasing public trust in the Group. To those ends, we are implementing a multilayered system of checks, providing relevant rules and regulations, and enhancing education to raise awareness, among other initiatives.

Performance regarding Key Compliance Goals in Fiscal 2015

1. Provision of compliance rules and ensuring full compliance

(1) Checking and improving the implementation of compliance rules

We determined the extent to which compliance rules were being implemented at each Group company, and took steps to rectify organizational or operational issues that were identified.

(2) Taking steps to eliminate association with antisocial forces and implementing anti-bribery measures

In relation to measures for eliminating association with "antisocial forces" (the term used to refer to organized crime groups in Japan) and for preventing bribery, in the second half of fiscal 2015 we conducted an audit of our Head Office and elsewhere to verify the extent to which relevant measures had taken hold and were being implemented. We also took the opportunity to revise related rules of association with antisocial forces. From July through August 2015, we offered explanatory meetings and training sessions for three Group companies in Japan and overseas; approximately 60 employees took part in the sessions.

(3) Rules to ensure compliance with competition laws

Given the growing trend in countries around the world to make competition laws more rigorous, the JX Nippon Mining & Metals Group established a set of internal rules to ensure compliance with such laws. The rules, implemented from July 2015, include such requirements as making specific checks prior to attending gatherings of competing firms or engaging in transactions that may violate competition laws, and regular reporting by managers to the secretariat. Before the measures went into operation, we held 17 explanatory meetings at the Head Office as well as at Group companies in Japan and overseas, in the latter case including Japanese and local staff. Approximately 300 employees attended the meetings.

2. Effective response to matters identified in inspections of environment and safety-related compliance and labor compliance

In fiscal 2015, we conducted inspections of environment and safety-related compliance at eight of the Group's operating sites to confirm their compliance with laws and regulations relating to the environment and safety. For the most part, laws and regulations on the environment and on occupational health and safety were well understood at these sites, and the inspections did not find any significant deficiencies in comprehension. Appropriate measures were taken to address matters identified in these inspections.

Moreover, the Group conducted inspections of labor compliance at 27 of its operating sites during fiscal 2015 in order to check legal compliance with regard to human resources and labor. As a result of the inspections, we verified that laws and regulations on human resources and labor were being implemented appropriately for the most part.

3. Enhancing compliance knowledge and awareness among officers and employees

A total of 91 compliance education sessions were held in the form of level-specific education, education specific to domestic operating sites, education on laws and legal affairs, and education specific to overseas bases. These sessions were attended by around 3,300 people in total.

4. Implementation of compliance inspections and effective response to matters identified

Besides addressing matters identified in the compliance inspections conducted in fiscal 2014, we carried out inspections in fiscal 2015 aimed at determining the status of legal compliance in each department, operating site, and affiliated company. These included investigations, questionnaires, interviews, self-statements, environment and safety audits, reports of close calls, and the abovementioned inspections of environment and safety-related compliance and labor compliance.

Compliance Committee

Measures related to compliance in the Group, including basic policy, priority issues for the fiscal year, and education, are determined at meetings of the Compliance Committee (held twice a year as a rule). The committee consists mainly of the officers in charge of compliance at each department of the Company and at major Group companies in Japan and overseas. It receives reports on the status of compliance from each department of the Company and from Group companies. Based on these reports, the committee evaluates the risk of fraudulent acts, legal violations, and other misconduct related to business operations and reflects its conclusions primarily in setting priority issues and formulating educational plans.

A meeting of the Compliance Committee

Whistleblower Program

To increase the reliability of the whistleblower program in the Group, we asked an external organization to take over responsibility for accepting reports under the program and adopted a policy of accepting anonymous reports. To spread awareness of the program throughout the Group, we have taken a range of measures, such as displaying posters to publicize the program at operating sites, handing out pocket editions of the JX Group Mission Statement to all employees, creating a section on the Company intranet dedicated to the program, and including the program in compliance education sessions.

In fiscal 2015, multiple reports were confirmed. Necessary measures were carried out for all incidents in accordance with relevant rules and regulations, while due care was taken to protect the whistleblowers.

Information Management

1. Protection of personal information

The Group strives to properly handle personal information by setting forth Personal Information Protection Rules and taking other necessary measures based on the situation at each Group company.

2. Information security

We have drawn up the JX Metals Group Information Security Regulations and accompanying Information Security Guidelines, and we implement security measures governing the use of computers, networks, and USB memory devices in the Group.

Internal Auditing

Internal auditing is carried out to investigate, study, and assess the status of business administration, operations, and assets preservation throughout the Group from the standpoints of their legality, efficiency, and effectiveness. The Internal Audit Department is responsible for these functions.

The Internal Audit Department draws up a medium-term policy at about three-year intervals and drafts auditing plans for each fiscal year, carrying out internal auditing systematically. We endeavor to optimize the efficacy of monitoring, expanding the coverage and frequency of audits across the entire Group by conducting audits with the collaboration and cooperation of corporate auditors sent from the Company to Group companies.

Risk Management

The JX Nippon Mining & Metals Group is creating and putting into operation an organizational structure for further enhancing risk management from a Group-wide perspective.

Risk Management Council

In fiscal 2015, a Risk Management Council was established as an advisory body to the president. Besides the comprehensive identification of risks for the Group, the council selects material risks and deliberates ways of responding to them. Given the diverse risks that exist in operating a business, we have engaged the services of Attorney Hideaki Kubori, founding partner of Hibiya Park Law Offices and leading authority on corporate governance, as an advisor to the council, which is expected to help to energize the discussions.

As a rule, the council meets twice a year, but it met five times during fiscal 2015 as it was the first year.

Meetings of the Risk Management Council

Activities in Fiscal 2015

We endeavored to further bolster the Group's risk management by engaging in the following activities during fiscal 2015.

1. Selecting material risks (risk surveys)

We used questionnaires to investigate hidden risks within the Group, and from these we selected material risks to be tackled at the Group level during fiscal 2016.

2. Proactively addressing material risks (improvement of investment control processes)

We took action to improve investment control processes, which are of particular importance to Group administration. We organized a working group to research existing investment control processes, make revisions to the system, and report to the Risk Management Council as a precursor to undertaking improvements.

3. Raising risk awareness

In support of our efforts to establish and implement a risk management system, we conducted training to enhance risk sensitivity among the Group's officers and employees. This comprised "top management training" for officers and "risk management training" for employees at the general manager level (comprising eight sessions in total, held at the Head Office, Hitachi Works, Isohara Works, Kurami Works, Saganoseki Works, and Hibi Works). The training raised risk awareness through lectures by external consultants on the significance of risk management and related topics, as well as through group work employing specific examples.

Risk management training

VOICE Our efforts to address risk management

Shotaro Takahashi
Assistant Manager
Risk Management Office
Administration Dept.

It is essential for any business entity to identify risk within its organization and deal with it appropriately (through risk management) if it is to sustain its operations and maintain stable development. The JX Nippon Mining & Metals Group aims to be a robust organization that can discern risk accurately and make appropriate operational decisions, and its Risk Management Council, set up in 2015, is therefore leading efforts to pursue risk management-related activities.

By its very nature, risk management must be put into practice by individual companies and entities according to the particular characteristics of their own businesses and organizations. It is, moreover, crucial for every single officer and employee to be highly sensitive to risk in the course of performing his or her work. The Risk Management Office will continue striving to help the Group sustain its operations and develop in a stable manner by establishing and implementing an appropriate risk management system. Activities to that end include enhancing risk sensitivity among the Group's officers and employees through training and other means, as well as conducting risk surveys and dealing with material risks.

Other Matters for Reporting

Commitment to Customers

Quality Management Report

The JX Nippon Mining & Metals Group is dedicated to being the best partner to its customers. Accordingly, we work to supply high-quality, safe products and to meet the precise quality improvement needs of customers, thereby building relationships of trust with them.

Promoting Quality Management Systems

Customer demands for quality continue each year to become more advanced and diverse. To address these demands quickly and efficiently, the Group has instituted the Basic Quality Policy and Quality Management Rules.

JX Nippon Mining & Metals Basic Quality Policy

The JX Nippon Mining & Metals Group hereby sets forth, and acts in observance of, this Basic Quality Policy in order to contribute to the development of a sustainable society while recognizing that its social mission is to stably supply nonferrous metals and materials.

1. Correctly grasp the requirements of customers and society in order to offer products and services that customers can trust and that satisfy their needs.
2. Improve and maintain quality at 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.

Quality Management Education

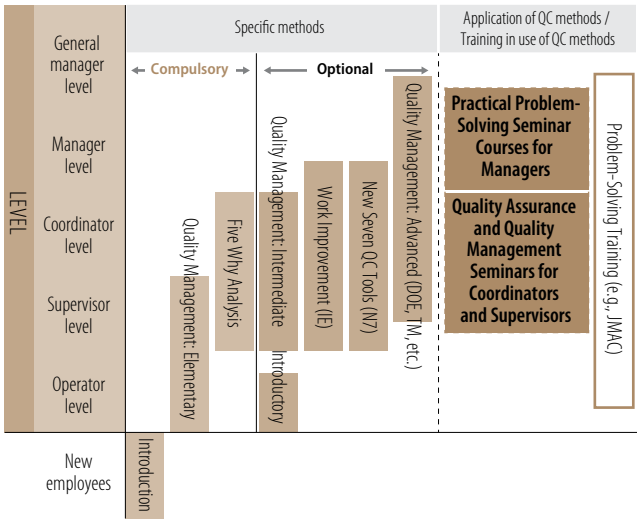
A quality management education system has been developed with the following three objectives:

- To standardize and raise quality management levels across the Group;
- To improve problem-solving capability, enabling employees to logically deduce the causes of problems and take the lead in solving them; and
- To pass along and inculcate quality management techniques.

To achieve these objectives, we have made it compulsory for all employees to take the Elementary and "Five Why Analysis" quality management courses.

Quality management education

Quality Management Education System



Sharing of Quality-Related Information across Operating Sites

Quality assurance managers' meetings are organized by the general manager of the Technology Development Group twice a year for Group companies and operating sites directly run by JX Nippon Mining & Metals. At these meetings, quality assurance managers report on the quality loss and complaints status and introduce quality improvement efforts being made at their sites, enabling this information to be shared throughout the Group. In fiscal 2015, the 12th such meeting was held in June and the 13th meeting was held in December.

Quality Assurance Systems at Operating Sites

The Group does not limit quality improvement efforts to products and services but broadens the concept to include operations and administration. Based on quality management systems such as those defined in ISO 9001 and on various quality improvement programs such as total productive maintenance, quality assurance systems are established as appropriate to the characteristics of operations at each site. These systems are made up of personnel responsible for sales, manufacturing, production management, technology, and product development. Applying the plan-do-check-act cycle, each operating site is pursuing goals for reducing the percentage of defective products, lowering the number of quality-related complaints, and other matters.

Many domestic and overseas operating sites have obtained ISO 9001 certification, the international standard for quality management systems.

Operating Sites That Have Obtained ISO 9001 Certification

Domestic	Hitachi Works (Copper Foil Dept.); Isohara Works; Kurami Works; JX Nippon Exploration and Development Co., Ltd.; Pan Pacific Copper Co., Ltd. (Hibi Smelter, Saganoseki Smelter & Refinery, Hitachi Refinery); Hibi Kyodo Smelting Co., Ltd.; Japan Copper Casting Co., Ltd.; JX Nippon Coil Center Co., Ltd.; JX Metals Trading Co., Ltd. (Takatsuki Plant); Ichinoseki Foil Manufacturing Co., Ltd.; JX Metals Precision Technology Co., Ltd. (Tatebayashi Works, Esashi Works, Nasu Works, Kakegawa Works); and Toho Titanium Co., Ltd. (Headquarters/ Chigasaki Plant, Hitachi Plant, Yahata Plant, Wakamatsu Plant, Kurobe Plant)
Overseas	Changzhou Jinyuan Copper Co., Ltd.; Nippon Mining & Metals (Suzhou) Co., Ltd.; Nikko Fuji Precision (Wuxi) Co., Ltd.; Nikko Metals Shanghai Co., Ltd.; Nikko Metals Taiwan Co., Ltd.; JX Nippon Mining & Metals Philippines, Inc.; Materials Service Complex Malaysia Sdn. Bhd.; JX Nippon Mining & Metals USA, Inc.; and JX Nippon Mining & Metals Korea Co., Ltd.

Quality Management of Electronic Materials Products

Customers demand a high level of quality and reliability in the electronic materials products of the Group. To meet these demands, we employ meticulous quality-control measures at all stages of product provision, from development and manufacturing to shipment.

Product development stage	Manufacturing stage	Pre-shipping stage
Quality-evaluation systems have been developed to analyze physical properties, surface conditions, purity, and other characteristics of products, by introducing analytical equipment and establishing evaluation techniques, for instance. Only products that have been confirmed to possess the necessary levels of quality can move to mass-production stages.	By introducing systems utilizing travel sheets, statistical process control, and other methods, we have developed a stringent quality-control regime, which covers every stage from the acceptance of raw materials to the shipping of products.	We have developed analysis systems that enable thorough and continuous inspections of products. We adhere strictly to internal standards developed for each product. Data from inspections is fed back to development and manufacturing divisions through a statistical quality control system to maintain and improve the quality and reliability of our products.

Awards Received from Our Customers

Each year, we receive awards from customers in recognition of our stable supply of high-quality products, promotion of business continuity plans, and other efforts. In fiscal 2015, we received the awards shown below.

HGST Outstanding Supplier Award

Samsung Electronics Best Partner Award

Commitment to Our Suppliers

The JX Nippon Mining & Metals Group is committed to fulfilling its corporate social responsibilities throughout the entire supply chain. Based on the JX Nippon Mining & Metals Group Basic Procurement Policy, we strive to build relationships of cooperation and trust with suppliers by conducting transparent and fair transactions with them.

JX Nippon Mining & Metals Group Basic Procurement Policy

1. Comply with laws, regulations, and rules and engage in fair transactions.
   - Respect the letter and spirit of relevant laws and social norms in executing business operations.
   - Conduct purchasing activities based on fair evaluations.
   - Maintain appropriate relationships with business partners based on the highest ethical values.
2. Protect intellectual property rights.
   - Strictly control personal information obtained in the course of procurement activities.
   - Do not illegally obtain or illegally use intellectual property, including the patents, utility models, designs, and trademarks of third parties, and do not infringe such rights.
3. Build relationships with business partners based on mutual understanding and trust.
   - Provide business partners with high reliability and satisfaction through accurate, fast, and highly transparent activities.
   - Endeavor to achieve robust communication with business partners and consistently promote creativity and innovation through advanced ideas.
   - Contribute to the development of a sustainable society by promoting the purchase of environmentally friendly materials and machinery.
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 infringements through such illegal 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.

Partnering with Suppliers

To ensure efficient procurement, purchasing functions for the entire JX Group are consolidated within the common-function subsidiary JX Nippon Procurement Corporation. The JX Nippon Mining & Metals Group also entrusts most of its procurement operations to that company.

JX Nippon Procurement Basic Purchasing Policy

JX Nippon Procurement is committed to pursuing purchasing operations based on the JX Group Values (EARTH), so as to develop good partnerships with business partners, fulfilling responsibilities to society together with them.

Ethics

- Respect the letter and spirit of relevant laws and social norms in execution of business operations.
- Select business partners based on fair and honest evaluation of their compliance with laws and social norms, concern for the environment, and track record in areas such as quality, price, and delivery.
- Maintain appropriate relationships with business partners based on the highest ethical values.

Advanced ideas

- Consistently promote creativity and innovation through advanced ideas, and strive to adopt new products and services.

Relationship with society

- Endeavor to achieve robust communication with business partners and build relationships of mutual trust, in order to work together to live up to the trust and expectations of society.

Trustworthy products / services

- Provide products and services that deserve the trust of customers through fast, accurate, and highly transparent activities.

Harmony with the environment

- Contribute to the advancement of a sustainable society by promoting the purchase of materials, equipment, and services with low environmental impact.

Promotion of Green Purchasing

The JX Nippon Mining & Metals Group has drawn up the Green Purchasing Policy, which dictates that the reduction of environmental and social impact is taken into account when making decisions on purchasing materials and equipment necessary to its business operations. Based on this policy, we have also drawn up Green Purchasing Guidelines setting out specific requirements for choosing suppliers.

In addition, the Group periodically conducts green purchasing surveys of suppliers, which include items regarding their use of banned substances in the manufacturing process, the presence of banned substances in supplied products, and procurement from companies with human rights problems. In fiscal 2015, the surveys were conducted from January to December 2015, covering 600 suppliers that account for 95% of the value of the items purchased and accepted by the Company, as well as JX Nippon Environmental Services and Pan Pacific Copper. Responses were received from 515 suppliers, for a response rate of 86%. Survey results are reflected in supplier reviews as applicable.

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 to be 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.

Confronting the Problem of Conflict Minerals

The Group's Basic Procurement Policy includes a clause on avoidance of conflict minerals, and we have established and operate management systems to appropriately address this issue.

What Are 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 the prolonging of conflicts and the expansion of human rights abuses and dehumanizing acts.

Global Moves to Impose Trade Restrictions

Global moves to restrict trade of conflict minerals began in the late 1990s, and today various organizations have devised rules and programs. 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. The European Union and other organizations are moving to introduce a conflict minerals management and certification system.


LBMA

RESPONSIBLE GOLD CERTIFICATE

Certificate from the LBMA

Group Response to the Issue

In line with these global trends, industry organizations relevant to the Group (including the LBMA[*1] and EICC) have established monitoring programs for eliminating conflict minerals. These programs request that companies cooperate with surveys and undergo external audits by an independent organization. Pan Pacific Copper, a producer of gold bullion, has established and operates a management system for supply chain due diligence that calls for the following actions to be taken:

1. Performing 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. Notifying suppliers of the policy on exclusion of conflict minerals.
3. Conducting in-house education on supply chain due diligence and its background.
4. Conducting internal audits and undergoing external audits.

The implementation status 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 bullion produced at Pan Pacific Copper's Saganoseki Smelter & Refinery is included on the LBMA's Good Delivery List. At the same time, the Saganoseki Smelter & Refinery has been included on the Conflict-Free Smelter list compiled by the EICC and GeSI[*2]—recognition that it is taking proper measures to exclude conflict minerals.

*1 LBMA: London Bullion Market Association. An industry association composed of financial institutions and others that deal in gold bullion. Inclusion on this association's Good Delivery List is viewed as a guarantee of high quality and reliability.

*2 GeSI: Global e-Sustainability Initiative (a trade association of the information and communications technology industry in Europe)
The EICC and GeSI together created the Conflict-Free Smelter certification program, based on their relationship with the electronic and communications equipment industries, where the risk of conflict mineral use is especially high.

Commitment to Local Communities

Since the inception of business at the Hitachi Mine, the JX Nippon Mining & Metals Group has placed strong emphasis on striving for good relations with local communities in performing its business operations. The Code of Conduct likewise calls for Group companies to proactively carry out social contribution activities, seeking coexistence and coprosperity with society as good corporate citizens. Our operating sites in Japan and overseas endeavor to build relationships of trust by engaging in regular communication with local communities.

Protecting Water Resources of Communities around the Caserones Copper Mine

Water is an extremely valuable resource in Chile, where rainfall is light. Protecting water resources is a major theme for both agriculture and mining in the region. Minera Lumina Copper Chile (MLCC), operator of the Caserones Copper Mine, carries out initiatives for protecting the water resources in the region around the mine.

Donation of Irrigation Channel

In December 2015, a ceremony took place in the Ojanco district of Tierra Amarilla City, marking the donation of an improved irrigation channel to the local community. Of the total costs of the project, MLCC donated 120 million Chilean pesos, amounting to 49%. The channel is 1,245 meters in length and can transport water at 900 liters per second.

Donated irrigation channel

Providing Technology for More Efficient Irrigation

In November 2015, the Caserones Copper Mine operator cooperated with the APECO (Copiapó Valley agricultural producers association) in a project using technology to improve irrigation efficiency in the city of Copiapó. By applying MLCC's irrigation technology using sensors to estimate temperature, salinity, and other conditions, and to adjust irrigation volume, water savings of up to 30% were achieved while maintaining the high quality of the produce, which includes grapes and olives.

A vineyard where MLCC irrigation technology was applied

Reservoir Improvement

Since October 2015, improvements to the Lautaro Reservoir, which supplies water to the city of Copiapó, have been carried out by the JVRC (supervisory board of the Copiapó River and its tributaries), with cooperation provided by MLCC.

The work is mainly for improving reservoir tower access, upgrading the valve system, and creating a procedure manual for operations.

Lautaro Reservoir

Engagement in Youth Education in Local Communities

The Group implements initiatives targeting the youth of the next generation in the communities where we operate.

Hitachi Works: Workplace Tour to Motivate Female Students to Major in Science and Engineering

In August 2015, the Hitachi Works held workplace tours for female middle school students that included various hands-on experiences. Ten students took part from the Hitachi and Tokyo areas. They heard presentations by five female employees of JX Nippon Mining & Metals working in science and engineering jobs; toured plants, such as Pan Pacific Copper's Hitachi Refinery where refined copper is produced; and tried their hand at experiments at the Technology Development Center.

The participants witnessed the vastness of the electrorefining plant, observed the surface of a human hair on an electron microscope, and enjoyed other experiences different from their usual middle school classes, furthering their understanding of work in the science and engineering field.

Experiment at the Technology Development Center

Hibi Smelter, Pan Pacific Copper: Baseball Class at a Kindergarten

In February 2016, seven members of the smelter's baseball team visited a kindergarten in the city of Tamano for a baseball class. The 13 children taking part were given sponge balls and bats, tried batting from a tee, practiced throwing, and joined in an intramural game.

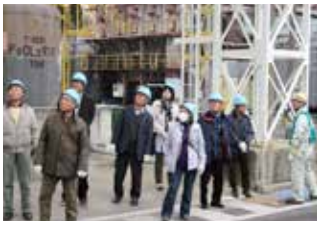
Baseball class

Other Local Activities

The Group takes an active part in local cleanup campaigns and other such programs at each operating site. We also hold plant tours for local residents and employees' families with a view to deepening their understanding of our operations.

Kurami Works (March 2015)

Local residents were invited for a plant tour centering on production equipment. Besides furthering their understanding of our operations and earthquake preparedness, the event offered an opportunity to exchange ideas on matters such as mutual cooperation in case of a disaster.



Plant tour

Hitachi Works (June 2015)

A total of 138 persons from the Hitachi Works took part in a cleanup campaign along the Miyata River, which flows along the periphery of the plant grounds. Covering a wide area from the Daioin to Shibauchi districts, they picked up trash large and small, cut weeds, and took other steps to improve the area's appearance.

Cleanup along the Miyata River

Isohara Works (May 2015)

When the city of Kitaibaraki took action to improve the appearance of the local environment, around 150 people made up of employees from the Isohara Works and affiliates and their family members took part, helping to clean up the area around Otsu Port.

Cleaning near Otsu Port

Hibi Smelter, Pan Pacific Copper (December 2015)

The company provided a site tour for trainees (33 persons from 16 countries) as part of the Sustainable Mining Development course of the Japan International Cooperation Agency (JICA) Knowledge Co-Creation Program 2015. Along with tours of the smelting and electrorefining plants, they learned about copper smelting and refining processes as a whole, including the Hibi Smelter's operational structure and procurement route.

Site tour for JICA trainees

Donations to Local Communities

The Group actively donates to local communities for many different causes, including reforestation around closed mines, academic assistance to universities and other research institutions, and funding for events put on by local organizations. The donations in fiscal 2015 included aid to Chile following damage from torrential rains. The total donations of the Group in fiscal 2015 were ¥0.33 billion* (¥0.13 billion in Japan and ¥0.2 billion outside of Japan).

* The amount of donations by overseas Group companies is converted to yen using the average exchange rates during fiscal 2015.

Aid to Chile following damage from torrential rains

Afforestation and reforestation activities in Ryuju-Satoyama in the city of Nanyo

Respect for Human Rights

The JX Nippon Mining & Metals Code of Conduct states, "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." Carrying out sound business practices, while respecting the human rights of local citizens, employees, customers, business partners, and all others in the supply chain, is seen as a major premise for the continued operation of the Group.

Respect for Human Rights: Principles and Rules

In fiscal 2008, JX Nippon Mining & Metals joined the United Nations Global Compact, agreeing to a set of international principles that include protection of human rights and compliance with labor standards. To instill the spirit of respect for human rights in the Group, its Compliance Regulation likewise states explicitly the commitment to protecting consumers, prohibiting unjust discrimination, preventing harassment, protecting personal information, and preventing child labor, forced labor, and other abuses.

Respecting the Human Rights of All Stakeholders

Employees

Approximately 9,000 employees work in the Group worldwide. We absolutely prohibit any form of forced labor and child labor, and strictly observe local labor laws and regulations governing pay, working hours, and other conditions. As our business becomes even more global, we will continue to create environments where employees can work with peace of mind.

Business partners

We conduct green purchasing surveys each year of suppliers and other business partners based on the JX Nippon Mining & Metals Group Basic Procurement Policy. Among the matters confirmed in these surveys are elimination of forced labor and child labor, and compliance with the prohibition against purchasing conflict minerals. (See page 79 for details.)

Efforts to Raise Employee Awareness of Human Rights

To create a corporate climate where human rights are respected, the Group makes efforts to raise employee awareness and educate workers about relevant issues. In June 2015, we held a workshop on business and human rights for CSR promotion managers, inviting a speaker from Ernst & Young Sustainability. In the second half of fiscal 2015, an e-learning course was offered to all Group employees for the first time. The course taught that human rights violations by corporations can occur as a result of either direct or indirect involvement by the corporation.

Education for preventing harassment is provided at various levels, including for newly promoted managers and supervisors. Additionally, in fiscal 2015, lectures on harassment in the workplace were given at operating sites and affiliates throughout Japan, geared separately to general and managerial employees.

Harassment training at the Nasu Works of JX Metals Precision Technology

Mine Development and Respecting the Human Rights of 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 coprosperity with local communities. Ever since its origins as the Hitachi Mine, the JX Nippon Mining & Metals Group has always made a point of being a good neighbor, and its CSR is rooted in this commitment. (See pages 13–14 for details.)

Reservoir management

Today, Minera Lumina Copper Chile, the operator of the Caserones Copper Mine, applies a basic three-point policy for supporting local communities: respect for life, respect for 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 dialogue with the Collas, indigenous people living in the area around the mine site, endeavoring to build up trust. With respect to water resources in particular, which are vital both to local agriculture and to the mining operations, the operator provides support in various forms such as building irrigation facilities and improving reservoirs. (See page 80 for details.)

Other Communications

Communicating Internationally

As a Member Company of the ICMM

The International Council on Mining and Metals (ICMM) is a global association of companies involved in mining and metal smelting and refining. Its aim is for nonferrous metals industries to help society grow sustainably. As an ICMM member, JX Nippon Mining & Metals has formulated its Code of Conduct in accordance with the ICMM 10 Principles for sustainable development, and works to solve the issues described in these principles and the ICMM Position Statements that supplement them.

ICMM member companies are required to ensure transparency of reporting on their sustainability efforts. The Company prepares its *Sustainability Report* and discloses its initiatives in accordance with the Core option defined in the GRI G4 Guidelines.

ICMM 10 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 risks.
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
International Council on Mining & Metals

ICMM Position Statements

- Mining and Protected Areas
- Indigenous Peoples and Mining
- Principles for climate change policy design
- Transparency of Mineral Revenues
- Mining: Partnerships for Development
- Mercury Risk Management

Endorsement of and Support for the EITI

The Extractive Industries Transparency Initiative (EITI) is a multinational cooperative framework that seeks greater transparency in the flows of funds from extractive industries, such as oil, natural gas, and metal mining, to the governments of resource-producing countries. The aim is to prevent corruption and conflicts, promoting responsible resource development that will lead to poverty reduction and growth.

JX Nippon Mining & Metals, with its involvement in global resources development, endorses the EITI and actively 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 interests of their national development.
3. We recognize that the benefits of resource extraction occur as revenue streams over many years and can be highly price dependent.
4. We recognize 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 recognize that achievement of greater transparency must be set in the context of respect for contracts and laws.
7. We recognize 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 organizations, financial organizations, investors, and non-governmental organizations.

Participation in the United Nations Global Compact

JX Nippon Mining & Metals joined the United Nations Global Compact in August 2008. We support the 10 principles on human rights, labour, the environment, and anti-corruption, and are committed to realizing these ideals.

Ten Principles of the United Nations Global Compact

Human Rights	
Businesses should support and respect the protection of internationally proclaimed human rights; and	Principle 1
make sure that they are not complicit in human rights abuses.	Principle 2
Labour	
Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;	Principle 3
the elimination of all forms of forced and compulsory labour;	Principle 4
the effective abolition of child labour; and	Principle 5
the elimination of discrimination in respect of employment and occupation.	Principle 6
Environment	
Businesses should support a precautionary approach to environmental challenges;	Principle 7
undertake initiatives to promote greater environmental responsibility; and	Principle 8
encourage the development and diffusion of environmentally friendly technologies.	Principle 9
Anti-Corruption	
Businesses should work against corruption in all its forms, including extortion and bribery.	Principle 10

Communication with Industry Organizations

The JX Nippon Mining & Metals Group plays key roles in various industry organizations, making active use of the opportunities for communication with associated stakeholders.

Organization	Role within the organization	Overview and activities of the organization
Japan Mining Industry Association (JMIA)	Chairman, director	JMIA represents companies engaged in the resource development and/or smelting and refining of nonferrous metals. With a view to the sound growth of the industry, it conducts surveys and other research on improving technologies, disseminates and publicizes knowledge, and proposes policies to government agencies, with respect to resource development, smelting and refining, and recycling. JX Nippon Mining & Metals is a governing member, serves on various committees, and participates in running the association.
The Sulphuric Acid Association of Japan	Director	The association works toward the growth of the sulfuric acid industry and promotes friendly relations and mutual benefits for sulfuric acid manufacturers. The Company serves on the Operations Committee and the General Affairs Committee, is involved in surveys and reports on sulfuric acid supply and demand conditions, and takes part in governance of the association.
Japan Copper and Brass Association (JCBA)	Vice chairman	JCBA is an industry association of companies manufacturing copper alloy products, namely plates, strips, pipes, and wires made by melting and rolling copper and copper alloys. By encouraging contacts and cooperation among members, it promotes the progress and growth of the industry as a whole. The Company serves on the Road Map Committee, is involved in developing new demand and improving quality, and as a member of the Statistics Subcommittee, is involved in surveys and reports on market size.
Japan Society of Newer Metals	Director	The society focuses on new metals that are supporting the advance of high-tech industries. By conducting surveys and research, collecting and providing information, and promoting fellowship and cooperation among relevant organizations in Japan and overseas, it aims for the sound growth of the new metals industry and related industries. As a member of the Compound Semiconductors Subcommittee and the Target Subcommittee, the Company is involved mainly in market size surveys and reports, improving health and safety, and making proposals to government agencies.
Japan Catalyst Recovering Association	Chairman	The association is made up of companies engaged in the reuse of catalysts and aims to promote the recycling of precious metals, rare metals, and other metal resources through the proper treatment of spent catalysts, etc. It conducts surveys and compiles statistics on recycling, and holds regular training sessions to improve technologies and promote friendship among members. A Company representative is the chairman of the association and serves on the Public Relations Committee, and is involved in the issuance of survey reports and the organization of general meetings.

Data

The JX Nippon Mining & Metals Group's CSR Issues and GRI G4 Guidelines Categories and Aspects

CSR Issues	Description	Material Issues	Corresponding Categories or Sub-Categories: Aspect	Main Boundaries
Establishing a global organizational governance system	1 Establish internal control systems for ensuring operations are carried out properly and efficiently 2 In assessing the propriety of operations, adopt a broad viewpoint including ethics, global trends, and the views of stakeholders 3 Establish mechanisms for checking progress in implementing 1 and making corrections 4 Include overseas operating sites as well as domestic ones in 1 to 3		—	Within the organization
Promoting communication	1 Maintain close communication with each stakeholder to keep track of developments and problem areas regarding each CSR issue		—	Within the organization
Creating sustained economic value and providing stakeholders with fair returns	1 Continually create an appropriate level of economic value (profit) through the conduct of business 2 Distribute the economic value created to stakeholders in a proper manner		Economic: Economic Performance Economic: Market Presence Economic: Indirect Economic Impacts Economic: Procurement Practices	Within the organization
Respecting human rights	1 Keep the business free of discrimination, child or forced labor, violations of indigenous rights, violations of employee rights, and other human rights abuses 2 Establish mechanisms for checking progress in implementing 1 and making corrections 3 Establish a system for educating employees regarding 1		Human Rights: Investment Human Rights: Non-discrimination Human Rights: Freedom of Association and Collective Bargaining Human Rights: Child Labor Human Rights: Forced or Compulsory Labor Human Rights: Security Practices Human Rights: Indigenous Rights Human Rights: Assessment Human Rights: Human Rights Grievance Mechanisms	Within the organization
Developing and utilizing human resources	1 Promote the use of diverse human resources (including foreign nationals, women, and people with disabilities) 2 Promote worker training and skills improvement 3 Provide a favorable working environment	○	Labor Practices and Decent Work: Diversity and Equal Opportunity Labor Practices and Decent Work: Training and Education	Within the organization
Ensuring occupational health and safety	1 Ensure health and safety in the workplace	○	Labor Practices and Decent Work: Occupational Health and Safety	Within the organization
Providing fair and equitable conditions of work	1 Provide appropriate labor agreements and conditions of work 2 Provide equal employment opportunities regardless of gender, nationality, or place of origin 3 Maintain ongoing dialog with workers and institute necessary corrective measures		Labor Practices and Decent Work: Employment Labor Practices and Decent Work: Labor/Management Relations Labor Practices and Decent Work: Equal Remuneration for Women and Men Labor Practices and Decent Work: Labor Practices Grievance Mechanisms	Within the organization
Using resources effectively	1 Endeavor to reduce the use of raw materials, energy, and water by reducing consumption intensity and promoting recycling and reuse	○	Environmental: Materials Environmental: Energy Environmental: Water	Within and outside of the organization
Protecting the environment	1 Promote reduction in emissions (including greenhouse gases), water discharge, and waste materials, while carrying out proper management 2 Endeavor to protect ecosystems 3 Establish mechanisms for checking progress in implementing 1 and 2 and making corrections 4 When choosing suppliers, take into account their implementation of 1, 2, and 3	○	Environmental: Biodiversity Environmental: Emissions Environmental: Effluents and Waste Environmental: Transport Society: Closure Planning*	Within and outside of the organization
Insisting on full compliance	1 Comply with laws and regulations (on the environment, labor, competition, and anti-bribery) in conducting business 2 Establish mechanisms for checking progress in implementing 1 and making corrections 3 Establish a system for educating employees regarding 1	○	Society: Anti-corruption Society: Anti-competitive Behavior Society: Compliance Environmental: Compliance	Within the organization
Promoting social responsibility in the entire supply chain	1 Address each CSR issue, focusing not just within the Group but broadening the scope to encompass suppliers, employees, and other affected stakeholders		Human Rights: Supplier Human Rights Assessment Labor Practices and Decent Work: Supplier Assessment for Labor Practices Environmental: Supplier Environmental Assessment Society: Supplier Assessment for Impacts on Society	Within and outside of the organization
Promoting innovation in technology and productivity	1 Contribute to the sustainable development of society by providing greater convenience, using resources effectively, and preventing environmental pollution, through innovation in products and production technology		—	Within the organization
Raising customer satisfaction	1 Achieve timely and stable supply of products and services needed by customers 2 In providing products and services, take all due measures to ensure customer health and safety 3 Take steps to protect customer information 4 Always listen to customer views and respond to them as needed		Product Responsibility: Customer Health and Safety Product Responsibility: Marketing Communications Product Responsibility: Customer Privacy Product Responsibility: Compliance Product Responsibility: Materials Stewardship*	Within the organization
Promoting community involvement and development	1 Promote coexistence and coprosperity with local communities by preventing harmful impacts and providing benefits 2 Maintain ongoing dialog and take necessary corrective measures		Society: Local Communities Society: Grievance Mechanisms for Impacts on Society Society: Emergency Preparedness* Society: Artisanal and Small-scale Mining* Society: Resettlement* Environmental: Environmental Grievance Mechanisms	Within the organization

* Sector-specific Aspects

GRI Content Index

This report is in accordance with the Core option defined by the GRI G4 Guidelines.

General Standard Disclosures

GRI indicator	Description of indicator	Page(s)	Relevant contents
Strategy and Analysis			
G4-1	A statement from the most senior decision-maker of the organization about the relevance of sustainability to the organization and the organization's strategy for addressing sustainability	P.3–6	Message from the President
Organizational Profile			
G4-3	Name of the organization	P.26	Corporate Data (Company Name)
G4-4	Primary brands, products, and services	P.17, 18, 21–26	Overview of JX Nippon Mining & Metals Business Segments; Segment Overview and Review of 2nd Medium-Term Management Plan (Resources Development Business, Smelting and Refining Business, Electronic Materials Business, Recycling and Environmental Services Business, Titanium Business); Corporate Data (Business Lines)
G4-5	Location of the organization's headquarters	P.26	Corporate Data (Head Office)
G4-6	Number of countries where the organization operates, and names of countries either where the organization has significant operations or that are specifically relevant to the sustainability topics covered in the report	P.26	Production Sites in Japan and Overseas Operating Sites; Corporate Data (Domestic Operating Sites, Overseas Operating Site)
G4-7	Nature of ownership and legal form	P.26	Corporate Data (Company Name, Paid-in Capital)
G4-8	Markets served (including geographic breakdown, sectors served, and types of customers and beneficiaries)	P.15–18, 20	Relationship between the JX Nippon Mining & Metals Group and Society; Overview of JX Nippon Mining & Metals Business Segments; Segment Information; Net sales by region
G4-9	Scale of the organization, including: • Total number of employees • Total number of operations • Net sales (for private sector organizations) or net revenues (for public sector organizations) • Total capitalization broken down in terms of debt and equity (for private sector organizations) • Quantity of products or services provided	P.48	Employees Active in Japan and Overseas (No. of employees [by employment status and employment contract type])
		P.26	Production Sites in Japan and Overseas Operating Sites
		P.26	Corporate Data (Net Sales, Employees)
		P.19	Financial Performance (Consolidated) (Net sales, Total assets and total liabilities)
		P.54	Our Business Activities and the Environment (Mass Balance Table for the Group [Main products])
G4-10	Total number of employees by employment contract and gender, etc.	P.48	Employees Active in Japan and Overseas
G4-11	Percentage of total employees covered by collective bargaining agreements	P.47	Maintaining Good Labor-Management Relations (Membership in labor unions)
G4-12	Organization's supply chain	P.15, 16, 22, 24, 25	Relationship between the JX Nippon Mining & Metals Group and Society; Smelting and Refining Business; Recycling and Environmental Services Business; Titanium Business
G4-13	Reporting of any significant changes during the reporting period regarding the organization's size, structure, ownership, or its supply chain	—	Not applicable
G4-14	Reporting of whether and how the precautionary approach or principle is addressed by the organization	P.61	Compliance with the REACH Regulation
		P.84	Communicating Internationally
G4-15	List of externally developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes or which it endorses	P.83, 84	Communicating Internationally
G4-16	List of memberships of associations (such as industry associations) and national or international advocacy organizations in which the organization: • Holds a position on the governance body • Participates in projects or committees • Provides substantive funding beyond routine membership dues • Views membership as strategic	P.83, 84	Communicating Internationally; Communication with Industry Organizations
Identified Material Aspects and Boundaries			
G4-17	List of all entities included in the organization's consolidated financial statements or equivalent documents, etc.	P.2	Group Companies Covered by This Report
G4-18	Process for defining the report content and the Aspect Boundaries, etc.	P.11, 12	Our Six Material Issues
G4-19	List of all the material Aspects identified in the process for defining report content	P.85	The JX Nippon Mining & Metals Group's CSR Issues and GRI G4 Guidelines Categories and Aspects

GRI indicator	Description of indicator	Page(s)	Relevant contents
G4-20	For each material Aspect, reporting of the Aspect Boundary within the organization	P.2, 85	Group Companies Covered by This Report; The JX Nippon Mining & Metals Group's CSR Issues and GRI G4 Guidelines Categories and Aspects
G4-21	For each material Aspect, reporting of the Aspect Boundary outside the organization	P.85	The JX Nippon Mining & Metals Group's CSR Issues and GRI G4 Guidelines Categories and Aspects
G4-22	Reporting of the effect of any restatements of information provided in previous reports, and the reasons for such restatements	P.19, 55, 56, 59, 60	Financial Performance (Consolidated); Activity Results in Fiscal 2015 (Energy Consumption and Energy Consumption Intensity in Manufacturing Activities, CO_2 Emissions from Energy Consumption for Manufacturing Activities); Activity Results in Fiscal 2015 (Efficient Use of Water Resources); Activity Results in Fiscal 2015 (Preventing Air Pollution)
G4-23	Significant changes from previous reporting periods in the Scope and Aspect Boundaries	—	Not applicable
Stakeholder Engagement			
G4-24	List of stakeholder groups engaged by the organization	P.8	Our Relationships with Stakeholders
G4-25	Basis for identification and selection of stakeholders with whom to engage	P.8	Our Relationships with Stakeholders
G4-26	Organization's approach to stakeholder engagement	P.8, 10, 38, 47, 78	Our Relationships with Stakeholders; CSR Surveys; Strategy to Energize Individuals and Organizations; Maintaining Good Labor-Management Relations; Commitment to Our Suppliers
G4-27	Key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns	P.43	Progress toward Energizing Individuals and Organizations
Report Profile			
G4-28	Reporting period for information provided	P.1	Reporting Period
G4-29	Date of most recent previous report	P.1	Publication Date
G4-30	Reporting cycle	P.1	Publication Date
G4-31	Contact point for questions regarding the report or its contents	Back cover	Send your views on this report to
G4-32	The "in accordance" option the organization has chosen, the GRI Content Index for the chosen option, and the reference to the External Assurance Report	P.86–89	GRI Content Index
G4-33	Organization's policy and current practice with regard to seeking external assurance for the report, etc.	P.90	Independent Assurance Report
Governance			
G4-34	Governance structure of the organization	P.9, 72	CSR Committee and Subcommittees; Corporate Governance System
Ethics and Integrity			
G4-56	Organization's values, principles, standards and norms of behavior	P.7, 8	JX Group Mission Statement; JX Nippon Mining & Metals Code of Conduct

Specific Standard Disclosures

GRI indicator	Description of indicator	Page(s)	Relevant contents
Category: Environmental			
Aspect: Materials			
DMA	Management approach	P.49, 53, 58, 62	Title page for "Protecting the Environment"; Action Plan for Environmental Protection; Initiatives for Effective Resource and By-Product Use and Waste Reduction (Fundamental Policy); Environmental Management System
EN1	Materials used by weight or volume	P.54, 58	Our Business Activities and the Environment (Mass Balance Table for the Group [Raw materials]); Activity Results in Fiscal 2015 (Usage of Recycled Resources as Raw Materials)
EN2	Percentage of materials used that are recycled input materials	P.58	Activity Results in Fiscal 2015 (Usage of Recycled Resources as Raw Materials)
Aspect: Energy			
DMA	Management approach	P.49, 50, 53, 55, 62	Title page for "Protecting the Environment"; Setting of New Environmental Targets; Action Plan for Environmental Protection; Energy Conservation (Fundamental Policy); Environmental Management System
EN3	Energy consumption within the organization	P.54, 55	Our Business Activities and the Environment (Mass Balance Table for the Group [Energy]); Activity Results in Fiscal 2015 (Energy Consumption and Energy Consumption Intensity in Manufacturing Activities)
EN4	Energy consumption outside of the organization	P.57	Activity Results in Fiscal 2015 (Energy Consumption and CO_2 Emissions in the Logistics Stage)
EN5	Energy intensity	P.55	Activity Results in Fiscal 2015 (Energy Consumption and Energy Consumption Intensity in Manufacturing Activities)
EN6	Reduction of energy consumption	P.55	Activity Results in Fiscal 2015 (Energy Consumption and Energy Consumption Intensity in Manufacturing Activities)

GRI indicator	Description of indicator	Page(s)	Relevant contents
Aspect: Water			
DMA	Management approach	P.49, 53, 58, 62	Title page for "Protecting the Environment"; Action Plan for Environmental Protection; Initiatives for Effective Resource and By-Product Use and Waste Reduction (Fundamental Policy); Environmental Management System
EN8	Total water withdrawal by source	P.54, 59	Activity Results in Fiscal 2015 (Efficient Use of Water Resources [Water Usage]; Our Business Activities and the Environment (Mass Balance Table for the Group [Water resources])
Aspect: Biodiversity			
DMA	Management approach	P.49, 53, 62, 63	Title page for "Protecting the Environment"; Action Plan for Environmental Protection; Environmental Management System; Initiatives for Biodiversity Conservation (Fundamental Policy)
EN11	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	P.63	Initiatives at the Caserones Copper Mine
EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas	P.63	Initiatives at the Caserones Copper Mine
EN13	Habitats protected or restored	P.63	Initiatives at the Caserones Copper Mine; Reforestation Activities in Japan
MM1	Amount of land (owned or leased, and managed for production activities or extractive use) disturbed or rehabilitated	P.63	Initiatives at the Caserones Copper Mine
MM2	Number and percentage of total sites identified as requiring biodiversity management plans according to stated criteria, and the number (percentage) of those sites with plans in place	P.63	Initiatives at the Caserones Copper Mine
Aspect: Emissions			
DMA	Management approach	P.49, 50, 53, 55, 60, 62	Title page for "Protecting the Environment"; Setting of New Environmental Targets; Action Plan for Environmental Protection; Energy Conservation (Fundamental Policy); Environmental Risk Management; Environmental Management System
EN15	Direct greenhouse gas (GHG) emissions (Scope 1)	P.54, 56, 57	Our Business Activities and the Environment (Mass Balance Table for the Group [Emissions]); Activity Results in Fiscal 2015 (CO_2 Emissions from Energy Consumption for Manufacturing Activities [CO_2 Emissions from Energy Consumption]; CO_2 Emissions Other than from Energy Consumption, and Other Greenhouse Gas Emissions from Manufacturing Activities)
EN16	Energy indirect GHG emissions (Scope 2)	P.54, 56	Our Business Activities and the Environment (Mass Balance Table for the Group [Emissions]); Activity Results in Fiscal 2015 (CO_2 Emissions from Energy Consumption for Manufacturing Activities [CO_2 Emissions from Energy Consumption])
EN17	Other indirect GHG emissions (Scope 3)	P.57	Activity Results in Fiscal 2015 (Energy Consumption and CO_2 Emissions in the Logistics Stage)
EN18	GHG emissions intensity	P.56	Activity Results in Fiscal 2015 (CO_2 Emissions from Energy Consumption for Manufacturing Activities [CO_2 Emission Intensity at Smelters and Refineries])
EN21	NOx, SOx, and other significant air emissions	P.54, 60, 61	Our Business Activities and the Environment (Mass Balance Table for the Group [Emissions]); Environmental Risk Management
Aspect: Effluents and Waste			
DMA	Management approach	P.49, 50, 53, 58, 60, 62	Title page for "Protecting the Environment"; Setting of New Environmental Targets; Action Plan for Environmental Protection; Initiatives for Effective Resource and By-Product Use and Waste Reduction (Fundamental Policy); Environmental Risk Management (Fundamental Policy); Environmental Management System
EN22	Total water discharge by quality and destination	P.54, 59, 60	Our Business Activities and the Environment; Activity Results in Fiscal 2015 (Efficient Use of Water Resources [Water Discharge Volume], Preventing Water Pollution)
EN23	Total weight of waste by type and disposal method	P.58	Activity Results in Fiscal 2015 (Reuse and Reduction of Waste Materials [Total Volume of Waste Materials Generated])
EN24	Total number and volume of significant spills	P.62	Environmental Accidents
MM3	Total amounts of overburden, rock, tailings, and sludges and their associated risks	P.58, 64	Activity Results in Fiscal 2015 (Reuse and Reduction of Waste Materials [Volume of Final Disposal of Waste Materials]); Management Work at Closed Mines
Aspect: Compliance			
DMA	Management approach	P.49, 53, 60, 62	Title page for "Protecting the Environment"; Action Plan for Environmental Protection; Environmental Risk Management; Environmental Management System
EN29	Monetary value of significant fines and total number of nonmonetary sanctions for noncompliance with environmental laws and regulations	—	Not applicable
Aspect: Transport			
DMA	Management approach	P.49, 53, 57, 62	Title page for "Protecting the Environment"; Action Plan for Environmental Protection; Energy Consumption and CO_2 Emissions in the Logistics Stage; Environmental Management System
EN30	Significant environmental impacts of transporting products and other goods and materials for the organization's operations, and transporting members of the workforce	—	Not applicable

GRI indicator	Description of indicator	Page(s)	Relevant contents
Category: Social; Sub-Category: Labor Practices and Decent Work			
Aspect: Occupational Health and Safety			
DMA	Management approach	P.29, 32–34	Title page for "Ensuring Occupational Health and Safety"; JX Nippon Mining & Metals Basic Policy on Health and Safety; Management Policy on Health and Safety; Organization for Occupational Health and Safety Management; Achievements of Health and Safety Activities in 2015 and Remaining Issues; Promoting Physical and Mental Health; Other Activities
LA5	Percentage of total workforce represented in formal joint management–worker health and safety committees that help monitor and advise on occupational health and safety programs	P.32	Health and Safety Activities
LA6	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender	P.33	Health and Safety Performance in 2015 (Occupational Accidents, Etc.)
LA8	Health and safety topics covered in formal agreements with trade unions	P.47	Maintaining Good Labor-Management Relations
MM4	Number of strikes and lock-outs exceeding one week's duration, by country	P.47	Maintaining Good Labor-Management Relations
Aspect: Training and Education			
DMA	Management approach	P.36, 44	Title page for "Developing and Utilizing Human Resources"; The JX Nippon Mining & Metals Education System
LA9	Average hours of training per year per employee by gender, and by employee category	P.44	Training Programs Implemented in Fiscal 2015
LA10	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	P.44, 45	The JX Nippon Mining & Metals Education System
Aspect: Diversity and Equal Opportunity			
DMA	Management approach	P.36, 37, 46, 47	Title page for "Developing and Utilizing Human Resources"; Strategy to Energize Individuals and Organizations; Initiatives Targeting Diversity
LA12	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity	P.48, 72	Employees Active in Japan and Overseas (No. of employees [by employment category]); Corporate Governance System (Board of Directors)
Category: Social; Sub-Category: Society			
Aspect: Anti-corruption			
DMA	Management approach	P.70, 71, 73, 74	Title page for "Insisting on Full Compliance"; Compliance Education; Compliance Initiatives (Compliance Committee, Whistleblower Program, Internal Auditing)
SO4	Communication and training on anti-corruption policies and procedures	P.71, 73	Compliance Education (4. Education specific to overseas bases); Performance regarding Key Compliance Goals in Fiscal 2015 (2) Taking steps to eliminate association with antisocial forces and implementing anti-bribery measures
SO5	Confirmed incidents of corruption and actions taken	—	Not applicable
Aspect: Anti-competitive Behavior			
DMA	Management approach	P.70, 71, 73, 74	Title page for "Insisting on Full Compliance"; Compliance Education; Compliance Initiatives (Compliance Committee, Whistleblower Program, Internal Auditing)
SO7	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes	—	Not applicable
Aspect: Compliance			
DMA	Management approach	P.70, 71, 73, 74	Title page for "Insisting on Full Compliance"; Compliance Education; Compliance Initiatives (Compliance Committee, Whistleblower Program, Internal Auditing)
SO8	Monetary value of significant fines and total number of nonmonetary sanctions for noncompliance with laws and regulations	—	Not applicable
Aspect: Closure Planning			
MM10	Number and percentage of operations with closure plans	—	The Caserones Copper Mine started full-scale operation in May 2014. It will close in 2040 due to the depletion of mineral resources.

Independent Assurance Report

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 ☑ for the period from April 1, 2015, to March 31, 2016 (the "Indicators"), included in its *Sustainability Report 2016* (the "Report") for the fiscal year ended March 31, 2016; the Company's self-declaration that the Report is prepared in accordance with the Global Reporting Initiative's G4 Sustainability Reporting Guidelines (the "G4 Guidelines") 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, which are derived, among others, from the G4 Guidelines; self-declaring that the Report is prepared in accordance with the criteria stipulated in the G4 Guidelines; 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 'International Standard on Assurance Engagements (ISAE) 3000, Assurance Engagements other than Audits or Reviews of Historical Financial Information', 'ISAE 3410, Assurance Engagements on Greenhouse Gas Statements', issued by the International Auditing and Assurance Standards Board, and the 'Practical Guidelines for the Assurance of Sustainability Information' of J-SUS. 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 with the Company's responsible personnel to obtain an understanding of its policy for the preparation of 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 reviews of 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 also recalculating the Indicators.
- Visiting the Company's domestic factory selected on the basis of a risk analysis.
- Evaluating the Company's self-declaration that the Report is prepared in accordance with the G4 Guidelines at a core level against the criteria stipulated in the G4 Guidelines.
- Assessing the alignment of the Company's policies to the ICMM's 10 SD Principles and the applicable mandatory requirements set out in ICMM position statements through documentation reviews and interviews.
- Interviewing with the Company's responsible personnel and reviewing documents with respect to the Company's process of identifying and prioritizing its material issues.
- Interviewing with the Company's responsible personnel and reviewing documents with respect to the Company's approach to and management of its material issues.
- Evaluating the overall statement in which the Indicators are expressed.

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 G4 Guidelines at a core level and does not conform to the criteria stipulated in the G4 Guidelines;
- 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 83;
- the Company has not identified and prioritized its material issues as described on page 12; and
- the Company has not approached and managed its material issues as described on pages 17-25, 29-35, 36, 37, 44-46, 49, 50, 52, 53, 58, 62, 66, 70, 71, 73, and 74.

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
November 9, 2016

The Future of Energy, Resources and Materials

JX Nippon Mining & Metals Corporation

We welcome your views and questions regarding *Sustainability Report 2016* as well as suggestions on how to make the next report even better.

Send your views on this report to:

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