Sustainability Report 2014

JX Nippon Mining & Metals Corporation







To Our Readers

Editorial Policy

The JX Nippon Mining & Metals Group ("the Group") is committed to fulfilling its corporate social responsibility (CSR). In every facet of our business activities, we are therefore dedicated to assisting the sustainable development of society.

We issue a sustainability report each year in order to disclose appropriate corporate information to a broad range of stakeholders, including customers, suppliers, shareholders and investors, industry-government-academia groups, local communities, and other interested parties. As an important communication tool, this report is designed to enhance stakeholders' understanding of our CSR activities.

Sustainability Report 2014 has been prepared in accordance with the GRI G3 Guidelines (G3 Sustainability Reporting Guidelines of the Global Reporting Initiative), the GRI Mining and Metals Sector Supplement, as required by the 10 sustainable development principles of the International Council on Mining and Metals (ICMM), and by the ICMM's Assurance Procedures. This report also describes to which of the 10 issues of the JX Nippon Mining & Metals Code of Conduct that each activity relates.

☑ The indicators that are externally assured are marked with a ☑.

For a more detailed explanation of the underlined text throughout this report, please refer to the "Glossary" on pages 97 to 100.

Boundary of the Report

The report covers JX Nippon Mining & Metals Corporation ("the Company") as well as its 52 major domestic and overseas affiliated companies as of April 1, 2014. Further, the reporting boundaries of respective indicators are as follows. For more details, please refer to "Group Companies Covered under This Report" below.

Boundaries of the Data	Domestic	Overseas	Total
Economic Data*1	14	11	25
Environmental Data*2	11*3	4*4	15
Social Data*5	35	18	53

*1. This represents the number of reporting companies covered in the "Economic Effects on Stakeholders" section of the "Economic Activities Report." Consolidated subsidiaries are included, except those that do not conduct business activities.

*2. This represents the number of reporting companies covered in the "Environmental Activities Report" and the "Environmental Data" section.

*3. Included are operating sites that engage in production activities and which the Company controls directly and companies that have a relatively substantial environmental impact, specifically companies that operate factories classified as a Type 1 or Type 2 Designated Energy Management Factory or companies for which reporting is required under the laws and regulations pertaining to the Pollutant Release and Transfer Register (PRTR) system.

*4. The four companies included are Changzhou Jinyuan Copper Co., Ltd., Nippon Mining & Metals (Suzhou) Co., Ltd., JX Nippon Mining & Metals Philippines, Inc., and Gould Electronics GmbH.

*5. This represents the number of reporting companies covered in the "Commitment to Our Employees" section of the Company's "Social Activities Report" and the "Human Resources Data" section.

Group Companies Covered under This Report*1 (Company names as of April 1, 2014)

JX Nippon Mining & Metals Corporation ○ ● ◎

Resources Development
- Kasuga Mines Co., Ltd. ○ ◎
- JX Nippon Exploration and Development Co., Ltd. ○ ◎
- SCM Minera Lumina Copper Chile ○ ◎
- Compania Minera Quechua S.A. ◎
- Pan Pacific Copper Exploration Chile Limitada* ◎
- Pan Pacific Copper Exploration Peru S.A.C. ◎

Smelting and Refining
- Pan Pacific Copper Co., Ltd. ○ ● ◎
- Hibi Kyodo Smelting Co., Ltd. ○ ● ◎
- Hibi Smelting Logistics Co. Ltd. ◎
- Nissho Ko-un Co., Ltd. ◎
- Pan Pacific Copper Shanghai Co., Ltd. ○ ◎
- Japan Copper Casting Co., Ltd. ● ◎
- Changzhou Jinyuan Copper Co., Ltd. ○ ● ◎

Recycling and Environmental Services
- JX Nippon Environmental Services Co., Ltd. ○ ● ◎
- Kamine Clean Service Co., Ltd. ◎
- JX Nippon Tomakomai Chemical Co., Ltd. ○ ● ◎
- JX Nippon Tsuruga Recycle Co., Ltd. ○ ● ◎
- JX Nippon Mikkaichi Recycle Co., Ltd. ○ ● ◎

Electronic Materials
- JX Nippon Mining & Metals USA, Inc. ○ ◎
- JX Nippon Mining & Metals Europe GmbH ◎
- JX Nippon Mining & Metals Philippines, Inc. ○ ● ◎
- JX Nippon Mining & Metals Singapore Pte. Ltd. ◎
- Gould Electronics GmbH ○ ● ◎
- Ichinoseki Foil Manufacturing Co., Ltd. ◎
- Materials Service Complex Malaysia Sdn. Bhd. ○ ◎
- JX Nippon Mining & Metals Korea Co., Ltd. ○ ◎
- JX Nippon Coil Center Co., Ltd. ○ ◎
- Nippon Mining & Metals (Suzhou) Co., Ltd. ○ ● ◎
- Nikko Fuji Precision (Wuxi) Co., Ltd. ○ ◎
- Nikko Metals Shanghai Co., Ltd. ◎
- JX Metals Precision Technology Co., Ltd. ○ ● ◎
- JX Nippon Foundry Co., Ltd. ◎

Other Business
- Toho Titanium Co., Ltd.* ○ ● ◎
- JX Metals Trading Co., Ltd. ○ ● ◎
- Nippon Marine Co., Ltd. ○ ◎
- JX Nippon Mining Ecomanagement, Inc. ◎
- Yoshino Mines Co., Ltd. ◎
- Oya Mines Co., Ltd. ◎
- Hokuriku Mines Co., Ltd. ◎
- Shin-Takatama Mining Co., Ltd. ◎
- Kaneuchi Mining Co., Ltd. ◎
- Hitachi Mines Co., Ltd. ◎




Publication Date

November 2014 (Publication date of previous report: November 2013)

Reporting Period

In principle, this report covers our business activities for the period from April 2013 to March 2014 (fiscal 2013). In order to ensure comprehensive disclosure, however, certain information regarding important events that occurred prior to and/or after this period has been included.

Definitions of Terminology

"The Company": The term "the Company" refers to JX Nippon Mining & Metals Corporation (JX Metals).

"The JX Nippon Mining & Metals Group" ("the Group"): The term "the JX Nippon Mining & Metals Group" or "the Group" refers to JX Nippon Mining & Metals Corporation and all of its subsidiaries. However, the boundary of reporting companies varies by section of the report (see "Boundary of the Report" for details).

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

Shakanai Mines Co., Ltd. ◎
Hanawa Mines Co., Ltd. ◎
Hokushin Mining Co., Ltd. ◎
Namariyama Mining Co., Ltd. ◎
Kamikita Mines Co., Ltd. ◎
Shimoda Hot Spring Inc. ◎
Toyoha Mine Co., Ltd. ◎
JX Nikko Art & Craft Co., Ltd. ◎
Nikko Metals Trading & Services (Shanghai) Co., Ltd. ◎
Nikko Metals Taiwan Co., Ltd. ○ ◎

* Companies newly added within the reporting boundary of this report (two companies)

○ Group companies contained within the reporting boundary for the "Economic Activities Report"

● Group companies contained within the reporting boundary for the "Environmental Activities Report"

◎ Group companies contained within the reporting boundary for the "Social Activities Report"

Contents

Message from the President

We contribute to the development through innovation in the areas of

Aiming to Realize a Sustainable Society through Business Activities for Resources and Materials Productivity Innovation

JX Nippon Mining & Metals is a company in the field of nonferrous metals and a core company of the JX Group, which is striving to become one of the world's leading integrated energy, resources, and materials business groups. Aware of our social mission to provide stable supplies of resources and materials, including copper, precious metals, rare metals, and other nonferrous metal resources as well as electronic materials, 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.

The business activities of the JX Nippon Mining & Metals Group are conducted in accordance with the JX Group Mission Statement and with the JX Nippon Mining & Metals Code of Conduct that we created based on the Mission Statement. The approach to CSR incorporated in the Mission Statement and the Code of Conduct is to take the initiative in solving issues for the economy, society, and environment, thereby contributing to the realization of a sustainable society. In other words, CSR activities are for us "nothing more or less than our business activities."

Applying these concepts, we will continue to pursue technological rationality and efficiency and make improvements in quality and product properties and other matters in all aspects of our operations, and to encourage recycling aimed at zero emissions. In such ways, we are continually working to achieve innovation in the productivity of resources and materials. I believe that these efforts will contribute toward the sustainable development of society on a global scale, while also raising our own corporate value.

# of a sustainable economy and society resources and materials.

Putting CSR into Practice by Instilling Awareness in Each Employee

For CSR to be carried out effectively, along with leadership from top management it is necessary for each Group employee to engage in their work every day with an awareness of CSR. This is exactly what it means to put into practice the concept of CSR activities as "nothing more or less than our business activities." Important to this end is to instill in all Group employees an understanding of the JX Group Mission Statement and the JX Nippon Mining & Metals Code of Conduct, thereby deepening their understanding of CSR.

In fiscal 2013, we provided Group Mission Statement Training for the entire Group. Around 4,000 employees, or approximately 80% of our personnel, took the courses. The training included explanations and discussions of the JX Group Mission Statement and the JX Nippon Mining & Metals Code of Conduct, while demonstrating how actual CSR activities are carried out based on these. I believe this training helped to form in employees the mind-set needed for thinking about and implementing specific ways of incorporating CSR concepts in their daily work. Through continued regular training, we intend to have CSR awareness permeate every part of the Group.

Selection of Six Material Issues for Fiscal 2014

When preparing the 2nd Medium-Term Management Plan in fiscal 2013, we reviewed and selected five material issues for the Group's CSR activities. For fiscal 2014, we followed up by adding to these a high-priority environment-related theme, resulting in the six material issues below. By focusing our efforts on these issues, we are moving closer to achieving the 2nd Medium-Term Management Plan and to becoming a global resources and materials company centering on copper, as called for in our Long-Term Vision.

1. **Improving and strengthening the internal control system**
2. **Creating a culture of safety**
3. **Enhancing the development program for full utilization of diverse human resources**
4. **Establishing a recycling-oriented society**
5. **Innovating the productivity of resources and materials**
6. **Implementing environmental protection initiatives**

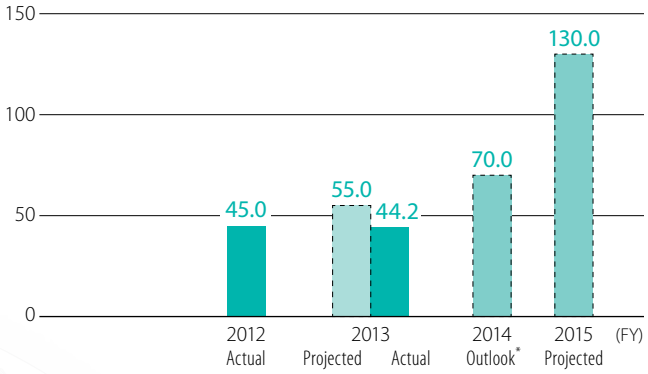
Looking to Meet the Fiscal 2015 Targets of the 2nd Medium-Term Management Plan

Looking at our progress in meeting the 2nd Medium-Term Management Plan (fiscal 2013 to 2015), in fiscal 2013, while we benefited from a weak yen, copper prices trended below expected levels, and the prices of by-products of smelting and refining operations fell. As a result, ordinary income excluding the inventory valuation factor was ¥44.2 billion, coming in below the target of ¥55.0 billion.

For fiscal 2014, we expect ordinary income to be ¥70.0 billion, likewise below initial targets, due to the same market factors as in fiscal 2013 plus the delay in starting operations at the Caserones Copper Mine.

The outlook is better for fiscal 2015, however. In addition to the year-long, full operation of the Caserones Copper Mine, where copper concentrate production began in May 2014, various measures implemented in midstream and downstream operations are progressing well, so that when market factors are excluded we are on track to achieving our ordinary income target of ¥130.0 billion.

Progress in Meeting the 2nd Medium-Term Management Plan (Ordinary income excluding inventory valuation factor)



	2012 Actual	2013 Projected	2013 Actual	2014 Outlook*	2015 Projected
LME copper price (cent/pound)	356	340	322	317	360
Exchange rate (JPY/USD)	83	95	100	101	90

* The outlook for fiscal 2014 is as announced at the time of the 1Q financial results report on July 31, 2014.

Progress toward each of the goals of the 2nd Medium-Term Management Plan is as follows.

Prioritizing Compliance and Safety

In May 2013, we established an Internal Control Office as part of efforts to improve the effectiveness of the Group's internal controls. In July 2014, we put into effect rules to shut out relations with antisocial forces. On the safety front, we are carrying out a regular program of education at the JX Safety Education Center, which went into operation in January 2013.

Completion of the Caserones Copper and Molybdenum Deposit Development Project

At the Caserones Copper and Molybdenum Deposit, in development since 2010, production of copper concentrate was started in May 2014, following the production in March 2013 of refined copper using the SX-EW process. With these developments, the initially planned production structure is now in place. This operation is expected to contribute over the next 28 years to our profitability as well as to the stable procurement of copper concentrate, the raw material for our smelting and refining business. To further expand our copper mining interests, we are studying development of the Frontera Copper and Gold Deposit (Chile and Argentina) and other sites, while aiming to acquire new interests that will allow us to exploit our innovative processing technologies, including biomining techniques for which commercial application was decided in August 2014, and our Nikko Chloride (N-Chlo) Process that is currently under development.

Opening ceremony of the Caserones Copper Mine, on July 30, 2014 (in Santiago, Chile)

Further Expanding and Raising the Profitability of Midstream and Downstream Businesses

As the various measures in our 2nd Medium-Term Management Plan advance, we are steadily building up a well-balanced business structure not dependent on upstream business.

In the smelting and refining business, we have become more competitive now that we have two combination carrier ships in operation designed to transport both copper concentrate and sulfuric acid, and thanks also to efforts toward better smelter efficiency. At the same time, we are seeing improvements in the conditions for the purchase of copper concentrate and the sale of refined copper.

In the electronic materials business, besides working to maintain and increase our top-share products, we are enhancing our business base with the start-up of new factories in Kakegawa (Shizuoka Prefecture) and Taiwan.

In the recycling and environmental services business, we have improved efficiency by consolidating metal production sites and are also taking steps to expand our business operations, such as starting a low-level PCB waste detoxifying service. Through measures such as increasing the collection of recycled raw materials from North America, we are looking for further profit base expansion.

In the titanium business, we are seeking to become more competitive by restructuring our domestic production organization, while devoting efforts to promoting overseas projects with a view to future market expansion.

Developing Global Human Resources

The continuation of the overseas training program aimed mainly at younger employees, the active hiring of mid-career professionals, and provision of training in Japan to personnel hired abroad are among the efforts to foster and obtain human resources fit for the further globalization of our business.

Becoming a Global Resources and Materials Company Centering on Copper

Fulfilling the 2nd Medium-Term Management Plan and building a business structure for stably creating ordinary income of ¥100 billion or more will put in place a firm foundation toward our goal of becoming a global resources and materials company centering on copper, as called for in our Long-Term Vision. Of course, our journey will not end there. By putting into practice CSR in our business activities, we will push on toward realizing a structure balanced among each area of operations, including resources development, smelting and refining, electronic materials, and recycling and environmental services business.

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

JX Group Mission Statement

JX Group Slogan

The Future of Energy, Resources and Materials

JX Group Symbol

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

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 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 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 a reoccurrence, disclose information to the public promptly and accurately, and be held accountable for the event.

The Code of Conduct in this report refers to the related articles in our Code of Conduct.

Six Material Issues of the JX Nippon Mining & Metals Group

The JX Nippon Mining & Metals Group conducts CSR activities in accordance with the JX Group Mission Statement as well as the JX Nippon Mining & Metals Code of Conduct, which breaks down and reorganizes the core concepts of the Mission Statement to match our business. At the heart of both of these documents is the fundamental stance toward the CSR of contributing to the realization of a sustainable society by voluntarily giving consideration to economic, social, and environmental issues through our business activities as a good corporate citizen.

Review of Material Issues

In compiling Sustainability Report 2014, we collected topics from economic, social, and environmental standpoints, based on their high degree of materiality to the Group's management. We then prioritized them to report these topics to our stakeholders.

In Sustainability Report 2013, we prioritized the five issues selected when formulating the 2nd Medium-Term Management Plan. For Sustainability Report 2014, we added the sixth issue of implementing environmental protection initiatives.

Six Material Issues

Improving and strengthening the internal control system

We are constructing an internal control system to ensure that the Group adequately conducts its business pursuant to relevant laws and regulations as well as in-house rules. The effectiveness of this system will be periodically evaluated, and revisions and improvements will be implemented as necessary.

P73 – 75

Establishing a recycling-oriented society

The recycling and environmental services business utilizes our nonferrous metal smelting technologies that the Group has been developing for years. In this business, we contribute to the establishment of a recycling-oriented society by efficiently recovering value-bearing metals from recycled materials so that these resources can be reused effectively.

P22 – 24

Creating a culture of safety

Maintaining employees' health and safety is an essential requisite for continuing our business. We will continue our efforts to create a culture of safety along with a system that will prevent any occurrence of material accidents.

P47 – 52

Innovating the productivity of resources and materials

The Group's social mission is to supply society with valuable nonferrous metals and materials in a stable and efficient manner. By improving the technological rationality, efficiency, quality, and other characteristics of our operations, we are developing our business while constantly pursuing innovation in the productivity of resources and materials.

P25 – 34

Enhancing the development program for full utilization of diverse human resources

We are currently pressed with the need to cultivate human resources that can manage the recent globalization of the Group's business. With this in mind, we will reinforce human resource development and training programs both in Japan and overseas to lay the foundations that will enable our employees to excel on the global stage.

P17 – 21, 53 – 55

Implementing environmental protection initiatives

The Group's Basic Environmental Policy places importance on preventing global warming and reducing waste volume, and it defines numerical goals in these areas. In addition to strict compliance with all relevant regulations, we are developing technologies to further reduce the environmental impact of our operations.

P35 – 38, 63 – 64

Communication with Stakeholders

The business activities of the JX Nippon Mining & Metals Group are supported by many stakeholders—individuals, organizations, and communities that have interests in the Group. The major responsibilities and communication methods regarding our stakeholders that have close and regular ties with us are listed in the table below. We aim to establish and maintain strong relationships of trust with our various stakeholders through close communication.

Stakeholders of the Group

Customers

We consider it crucial to respond to the opinions and wishes of our customers, with whom we have frequent contact through our business activities.

We are actively improving quality and further enhancing services while also providing a stable supply to customers.

Suppliers

We strive to foster relationships of mutual trust with our suppliers—one of our key business partners—to ensure the continuity of the Group's business.

In accordance with its basic procurement policy and Green Purchasing Guideline, the Group is committed to continuing fair business practices while contributing to environmental conservation and responding to the conflict minerals issue.

Shareholders and investors

As a core operating company of the JX Group, we make every effort to practice proper accountability toward shareholders and other investors by providing appropriate and timely disclosure, and we are thereby ensuring the transparency of corporate management.

Employees

While also key stakeholders in the Group's overall activities, employees play a central role in our CSR activities. We are therefore constructing a workplace environment and creating the human resources education systems needed to help all employees reach their fullest potential.

At the same time, we conduct various education programs to ensure that employees are instilled with our views on CSR.

Industry-government-academia groups

We recognize that these groups are important partners in efforts to build new technologies and nurture the next generation of human resources.

We coordinate with such groups in order to develop technologies and human resources in fields related to the Group's business.

Nonprofit organizations (NPOs) and nongovernmental organizations (NGOs)

We promote dialogue and collaborative ties with NPOs and NGOs that undertake distinctive programs and projects. The fruits of these discussions and this cooperation are reflected in the Group's CSR activities.

Local and global communities (Global environment)

Making the most of opportunities for exchange, we listen carefully to a multitude of voices from both local and global communities to efficiently develop our business activities. Also, we have taken steps to clarify our preferred policies and stance for addressing global environmental issues. These policies and our stance are reflected in our business activities.

CSR Promotion System and Activity Results

The JX Nippon Mining & Metals Group's CSR activities revolve around the CSR Committee, an advisory body to the president. All Group officers and employees play a constant and active role in advancing these activities.

CSR Promotion System

The Group's CSR activities revolve around the CSR Committee, an advisory body to the president. This committee is chaired by the president and consists of the members of the Company's Executive Meeting. The committee meets twice a year in principle and is responsible for establishing basic policies, promotion systems, and action plans for CSR activities. In addition, the committee reviews activity progress, and the findings of these reviews are used when formulating new policies, systems, and plans. In fiscal 2013, the committee met twice, on April 18 and October 28, 2013.

Under the CSR Committee are the Compliance Committee, the Safety and Environment Committee, the Citizenship Committee, and the Energy Conservation Subcommittee. These committees are responsible for conducting focused promotion and management of activities targeting the material CSR issues that they have been assigned. Results of deliberations at these committees and the subcommittee are reported to the CSR Committee, which issues instructions as necessary.

CSR Promotion System

President

CSR Committee

Public Relations & CSR Dept.
Administration

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

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

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

Energy Conservation Subcommittee
Draws up action plans on energy conservation
Reviews the status of energy conservation activities

CSR Activity Results

We are implementing the following initiatives to disseminate our views on CSR throughout the Group and to facilitate more enriched CSR activities.

Publication of Sustainability Reports

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. In fiscal 2013, 7,000 copies of the full report were printed in Japanese and 200 were printed in English. In addition, a total of 2,000 copies of the condensed digest version of the report were printed in a wide range of languages, including English, both simplified and traditional Chinese characters, Korean, German, and Spanish.

CSR Promotion Managers

In order to facilitate more practical CSR activities, CSR promotion managers have been assigned at each Company operating site as well as major Group companies. These managers are assembled for CSR training sessions at which they report on the specific CSR activity policies in place at their respective operating site and the results of their activities. The training sessions also serve as an opportunity for information to be exchanged among participants and for them to receive education on the latest CSR trends. The fiscal 2013 training session was held on November 11, 2013.

CSR Workshops

The Group actively holds theme-specific CSR workshops for officers and employees. Notable workshops in fiscal 2013 included the following.

- Human rights risk management workshop (April 18, 2013)
  This workshop was conducted by Kazuhiko Saito, managing partner of KPMG AZSA Sustainability Co., Ltd., and attended by approximately 80 people.
- JX Group Mission Statement workshops (second half of fiscal 2013)
  Workshops designed to help disseminate the JX Group Mission Statement and the JX Nippon Mining & Metals Code of Conduct were conducted at 34 operating sites under the jurisdiction of JX Metals and 13 Group companies. A total of 3,981 employees, or roughly 80% of all Group employees, participated in these workshops.

CSR training session for CSR promotion managers

Human rights risk management workshop

CSR workshop

Employee Survey on CSR Activities

An employee survey was conducted to find out how Sustainability Report 2013 was received by the employees for whom it is mainly intended, and to gather their views in order to reflect them in enhancements to future reports and to our CSR activities.

Outline of the Survey

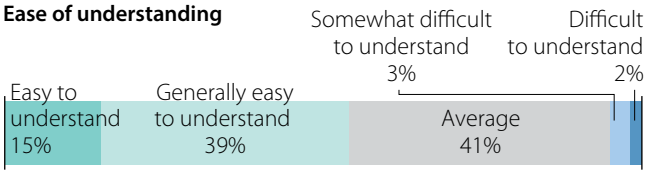
Survey period	January to February 2014
Survey scope	JX Nippon Mining & Metals Group officers and employees in Japan as well as officers and local employees at overseas operating sites Completely anonymous surveys submitted via the Internet or in paper format
Survey results	Valid responses to Japanese-language surveys: 4,780 (response rate: 94.4%) Valid responses to multi-language surveys (English / simplified and traditional Chinese and surveys in Korean, German, and Spanish): 327

Results and Response of the Employee Survey on Our CSR Activities

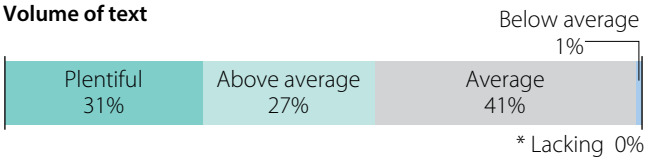
Survey Item

1. Structure and content of Sustainability Report 2013

Ease of understanding



Volume of text



Number of pages

Response to Survey Results

Sustainability Report 2014 was made easier to understand by reducing the volume of text, including more pictures, and adding subheadings.

2. Sections of Interest in Sustainability Report 2013

Respondents were asked to select three of the 12 sections in Sustainability Report 2013 that they found to be of particular interest and then to rank them by giving three points to their first choice, two points to their second choice, and one point to their third choice. The top five sections of interest were as follows.

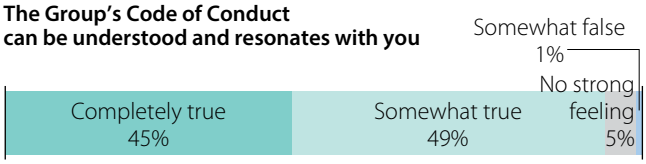
Rank	Section	Score
1st	Message from the President (pages 3–8)	4,456
2nd	CSR Activities of the JX Nippon Mining & Metals Group (pages 9–12)	3,331
3rd	Special Feature 2: Creating a Culture of Safety (pages 17–19)	3,187
4th	Special Feature 3: Enhancing the Human Resource Development Program for Full Utilization of Diverse Human Resources (page 20)	2,780
5th	Special Feature 5: Innovating Productivity of Resources and Materials (pages 25–32)	2,685

Response to Survey Results

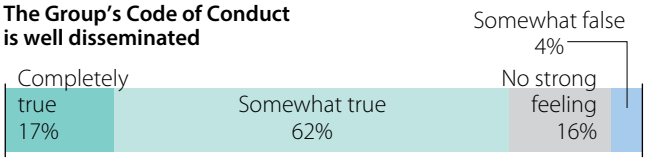
The survey found the most popular section to be "Message from the President," which had been enhanced for Sustainability Report 2013 by adding more pages and making the message more easily conveyed. At the same time, a number of special features on material CSR issues occupied the top-ranking slots. The sections that garnered popularity in Sustainability Report 2013 have been further improved in Sustainability Report 2014.

3. Level of Understanding and Dissemination of the JX Group Mission Statement and the JX Nippon Mining & Metals Code of Conduct

The Group's Code of Conduct can be understood and resonates with you



The Group's Code of Conduct is well disseminated



The Group's CSR activities are pursuant to its Code of Conduct

Response to Survey Results

After conducting the survey, we held workshops on the JX Group Mission Statement to disseminate the statement and explain its connection to the JX Nippon Mining & Metals Code of Conduct. In a survey conducted following the training, 93% of respondents stated that the session proved to be helpful in understanding the Mission Statement. Going forward, we plan to continue such workshops in order to spread awareness regarding the JX Group Mission Statement and the JX Nippon Mining & Metals Code of Conduct among all Group employees.

CSR Activities and Self-Evaluation for Fiscal 2013

Code of Conduct	Specific measures
1 **Our social mission**	Facilitate to develop products toward innovation, including quality and unique features Conduct improvement activities for innovation in productivity
	Obtain certifications Obtain the satisfaction and trust of our customers
	Obtain the trust of society Prevent global warming Recycle resources and reduce waste volume
2 **Compliance with laws and regulations and engagement in fair trade**	Comply with laws and regulations
	Eradicate misconduct
	Engage in fair, transparent, and free competition and trade
3 **Disclosure of corporate information and protection of personal information**	Disclose corporate information in an active and equitable manner
	Protect personal information
4 **Creation of an optimum working environment**	Create a culture of safety
5 **Environmental conservation**	Conserve energy and resources
	Prevent pollution
	Conserve the global environment, including biodiversity
6 **Enhancement and strengthening of risk management**	Establish a risk management system based on substantial data
7 **Harmonious relationship with society**	Actively promote social contribution activities
8 **International business operations**	Protect the fundamental human rights of people in the countries and areas in which we operate
	Respect cultures and customs of people in the countries and areas in which we operate
9 **Elimination of antisocial activities**	Stand firm against all antisocial forces and groups
10 **Management responsibilities**	Dissemination of the JX Group Mission Statement and the JX Nippon Mining & Metals Code of Conduct to employees Dissemination of the CSR Activity Plan to employees

○: Achieved ×: Not achieved

	Examples of activities in fiscal 2013	Relevant pages	Self-evaluation
	Launched the manufacture and sale of the world's strongest titanium copper foil	P33	○
	Supported the Endowed Research Unit for Nonferrous Metals Resource Recovery Engineering (JX Metals Endowed Unit)	P22–24	
	Receipt of certification from the Minister of the Environment to provide a service to treat low-concentration PCB waste	P35	○
	Advanced quality management system	P59–60	
	Received six awards from customers	P94	
	Permanent protective measures at closed mines	P77–78	○
	Commenced operation of copper concentrate/sulfuric acid combination ships (*Koryu*)	P29–30	
	Created an environmentally viable resource recycling business designed for zero emissions	P36, 44	
	Appropriately operated environmental management system and internal control system	P65, 73–75	○
	Managed various systems to ensure stringent compliance	P74–75	○
	Responded to the conflict minerals issue	P61–62	
	Published Sustainability Report 2013	P11–12	○
	Held plant tours, participated in exhibitions, etc.	P89–93	
	Disclosed financial results via JX Holdings, Inc.	P39–45	
	Adhered to the Personal Information Protection Rules	P76	○
	Utilized the JX Safety Education Center and implemented safety initiatives at operating sites based on past case studies Fatal accidents: 1 (Goal: 0) Occurrence of accidents: 28 (Goal: less than 26, reduction of 10% or more relative to the least number of accidents in the past three years) Explosions and fires: 4 (Goal: 0) Occupational diseases: 0 (Goal: 0)	P47–52	×
	Advanced the 3rd Medium-Term Action Plan (for fiscal 2013 to 2015) based on the Basic Environmental Policy Energy consumption intensity: Achieved by 9 of 21 applicable operating sites (Goal: 1% year-on-year reduction at each operating site) Domestic CO_2 emission volume: 840 thousand tons (Goal: Below the defined acceptable limit for fiscal 2013 of 1,086 thousand tons) Ratio of non-value-bearing waste volume: 0.6% (Goal: Maintain a ratio of less than 0.7%)	P63–64	×
	Incurred no administrative penalties due to legal violations	P65	○
	Conducted tree-planting activities at sites of closed mines	P72	○
	Operated management systems based on international standards (ISO, OHSAS, etc.)	P60, 65, 81, 87	○
	Conducted voluntary inspections and construction subsequently deemed at closed mining impoundments	P77–78	
	Held event commemorating dismantlement of First Giant Stack at Saganoseki Smelter & Refinery	P56	○
	Conducted factory tours and participated in convivial events and cleanup activities	P88–90	
	Participated in UN Global Compact	P96	○
	Strictly prohibited unjust discrimination, child labor, and compulsory labor	P53	
	Conducted education program for global readiness	P55, 82	○
	Formulated and implemented response program for antisocial forces and groups	P76	○
	Convened meetings of the CSR Committee and other committees	P11	○
	Held JX Group Mission Statement workshops (participated in by approx. 4,000 employees, or approx. 80% of all Group employees)	P4, 11	

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

Two Giant Stacks, Symbols of Coexistence with Local Communities

The Hitachi Giant Stack—A Revolutionary Approach to Smoke Pollution

The history of JX Nippon Mining & Metals traces back to 1905, when founder Fusanosuke Kuhara set out to develop the Hitachi Mine. Against the background of Japan's rise as an industrial power, the Hitachi Mine came to have among the highest production levels in the nation. A smelting and refining business also grew up to produce refined copper gas from the copper ores mined there. At the time, however, there was no technology for effectively recovering the sulfurous acid gas emitted in the process, resulting in severe smoke pollution. As the damage from the exhaust smoke that contained sulfurous acid gradually spread, causing forests and farm crops to wilt, the Hitachi Mine paid out compensation to local residents and tried hard to monitor the situation, actively gathering information on smoke pollution. At the same time, the Company provided guidance to farmers on planting crops that were resistant to sulfurous acid gas.

Based on an analysis of various data gathered on the flow of exhaust smoke, Kuhara proposed building a giant smokestack to diffuse the smoke. The resulting giant stack, requiring a total of 36,800 workers and considerable cost to build, was completed in December 1914. What was then the world's tallest stack at 155.7 meters succeeded in significantly reducing smoke pollution.

The Hitachi Giant Stack, unusual at the time for its steel-reinforced concrete construction

From a Town of Smoke Pollution to One of Cherry Trees

Right after the Hitachi Mine completed the construction of the giant stack, stopping the spread of smoke pollution, the Company began an ambitious program of reforestation in the surrounding mountains that had been devastated by the pollution. Saplings of trees highly resistant to sulfurous acid gas, including Oshima cherry, black pine, Japanese green alder, and black locust, were raised on farms. Then lime was mixed into the soil to neutralize the acidity, grass resistant to dryness was planted in the bare earth, and tree planting began after the grass took root. This program continued until around 1931 and an approximate total of five million trees was planted in an area of about 1,200 hectares. Saplings were delivered to the surrounding areas for free during this time, numbering 5.13 million in total.

Of this number, at the Hitachi Mine 2.6 million Oshima cherry trees were planted, and another 0.7 million were distributed for free, becoming the main tree of the planting project. In 1917, trees bred from grafting Oshima cherry saplings with Yoshino cherry saplings were planted for the first time around the employee housing of the Hitachi Mine and the surrounding facilities. The cherry trees of Hitachi trace their roots to this activity. Local companies and residents continued planting these trees after that. Today, cherry trees can be viewed everywhere in the city of Hitachi, and the cherry blossom has been designated as the city's official flower.

Planting Oshima cherry trees

The Hitachi Giant Stack: Still a Symbol of the City of Hitachi

The Hitachi Giant Stack came to be a familiar symbol of the city of Hitachi, forming an indelible landmark in the memories of locals. It also became a symbol of the coexistence of the Hitachi Mine with the local community and with nature. While this giant stack perched on a mountaintop seemed to be a permanent fixture in the landscape, the day came when it reached its end. On February 19, 1993, the 79-year-old stack suddenly collapsed, leaving only the bottom one-third in place. "It fell over slowly and majestically over a short time. For a second I had a solemn feeling," reported an eyewitness to the moment of its collapse. The repaired stack currently stands at a height of 54 meters, but its presence as a symbol of Hitachi continues to this day.

In 2013, the plaza in front of JR Hitachi Station was refurbished, and in it the city of Hitachi constructed a circular bench replicating the top portion of the Hitachi Giant Stack (8.17 meters in circumference), along with two reliefs. One of the reliefs depicts the history of coexistence and mutual prosperity between the local community and the Hitachi Mine, which overcame the smoke pollution problem. The other relief depicts the Hitachi Giant Stack symbolizing this history. (The reliefs are by Tokyo University of the Arts President Ryohei Miyata.)

Another Big Stack: The "Giant Stack of Seki"

In 1916, two years after the Hitachi Giant Stack was completed, Hitachi Mine operator Kuhara Mining opened the Saganoseki Smelter & Refinery in Oita Prefecture, in a move toward strengthening the smelting and refining division as a key business base. At this facility, the Saganoseki Smelter & Refinery Giant Stack was built, its height of 167.6 meters besting the 155.7 meters of the Hitachi Giant Stack and making it the world's tallest stack. A year later, the world's number one position was taken over by a stack in the United States, but for some time this stack remained number one in the East. As with the Hitachi Giant Stack, its steel-reinforced concrete construction was unusual for the time. The stack's imposing appearance made it a symbol of industrial and economic prosperity and of the flourishing city of Oita, where it was located. Known as the Giant

Stack of Seki, it was long a sight even people who had left Oita for other places associated closely with their hometown.

Saganoseki is an excellent harbor facing the Seto Inland Sea, making it convenient for receiving ores not only produced in western Japan but also imported from abroad. The town's position on the tip of a promontory also made it a good candidate for the location of a refinery, as exhaust smoke would have a limited influence on land areas. At the time of its construction, the opinions of locals were divided. Saganoseki, which had prospered as a maritime port, was at the time starting to fade, losing out to the growing popularity of railway and truck transportation. The construction of a smelting and refining plant was seen by some as hopeful for reviving local industry, while others were concerned about the effects of smoke pollution on crops and the fishing industry. Faced with initially fierce opposition, the Company considered withdrawing the plan, but eventually the understanding and cooperation of the local community were obtained.

What helped encourage this understanding was the success of the Hitachi Giant Stack, which was built the previous year. Seeing how the giant smokestack had been able to reduce pollution by causing exhaust smoke to rise with updrafts and be dispersed, it was decided to build a stack in a similar way to the stack in Hitachi at the Saganoseki Smelter & Refinery. The smoke monitoring system was also patterned after the stack in Hitachi, with stations installed for weather and smoke plume observation along with a test farm around the giant stack, as well as two test farms within 20 km of the refinery for measuring smoke pollution farther away. As it turned out, the effectiveness of the giant stack was such that almost no smoke pollution was observed.

Like the Hitachi stack, the Giant Stack of Seki gave way to nearly a century of wind and rain, suffering increasing deterioration of the top part in particular. To ensure safety, it was dismantled in 2012. (See p. 56 for details.) The school song of the Saganoseki Municipal Elementary School in Oita, which overlooks the Giant Stack of Seki, includes a phrase about the "gold-melting smokestack towering against the deep blue skies." Even today, after it has disappeared from the skyline, the giant stack remains in the local lore as a symbol of coexistence and mutual prosperity with the people of Saganoseki.

The town of Saganoseki during the Giant Stack's construction

The Giant Stack of Seki under construction

The Giant Stack of Seki, which adopted the same steel-reinforced concrete construction as the Hitachi stack

View from Saganoseki harbor

Two Giant Stacks Remaining as the Roots of CSR in the JX Nippon Mining & Metals Group

The construction of two giant smokestacks to solve the problem of smoke pollution took place well before pollution came to be seen as a major issue for Japanese society in the 1960s. This was also long before companies adopted the CSR thinking that achieving coexistence and mutual prosperity with local communities—by preventing and solving pollution problems, in our case—is an essential requirement for the long-term existence of a company. The same thinking has been passed down in the DNA of the Group over nearly a century. While the splendid figure of the two giant stacks is no longer to be seen, they continue to live on in each employee as the roots of the Group's CSR.

Pollution problems are ever new. They are like an eternal cross that the human race must bear.

Pollution problems are ever new. They are like an eternal cross that the human race must bear. As science advances, pollution becomes more diverse.

How many people have devoted strenuous efforts and pains to stopping this problem from growing? Yet when we consider that these efforts have been a driving force for human progress, we might even say that pollution is what taught us the concept of 'overcoming.'"

"The same can be said for the Hitachi Mine. Without the pollution problem, the history of the mine could not be told. In December 1914, the Hitachi Mine finished building on its own what is said to be the world's tallest smokestack at the time, marking an end to the problem. This was a valuable experience, through which, over a period of around 10 years, together with the local citizens, the Company suffered, anguished, and then came up with a solution on their own. Just as Mt. Fuji is more than a tall mountain, the Hitachi Giant Stack is more than simply tall."

Preface by Fusanosuke Kuhara to a 1963 book by Umanojo Seki on the story of the Hitachi Mine's smoke pollution

Special Feature 1:

Code of Conduct 8. International Business Operations

Material Issue Enhancing the Development Program for Full Utilization of Diverse Human Resources

United States
Masago Kuwabara
President
JX Nippon Mining & Metals USA, Inc.

Taiwan
Takeshi Suwabe
President
Nikko Metals Taiwan Co., Ltd.

Suzhou, China
Kazuaki Aramaki
Chairman and President
Nippon Mining & Metals (Suzhou) Co., Ltd.
Chairman and President
Nikko Fuji Precision (Wuxi) Co., Ltd.

South Korea
Kazushige Takahashi
Managing Director
JX Nippon Mining & Metals Korea Co., Ltd.

Nobuyuki Yamaki
Director, Deputy Chief Executive Officer
JX Nippon Mining & Metals Corporation

Tatsuji Ohta
Executive Officer,
General Manager of the Public Relations & CSR Department
JX Nippon Mining & Metals Corporation

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

Moderator
Nao Kaneda
Staff member of the Public Relations & CSR Department
JX Nippon Mining & Metals Corporation

Developing Global Human Resources:

Roundtable Discussion by Global Group Executives

The goal of the JX Nippon Mining & Metals (JX Metals) Group is to become a global resources and materials company centering on copper. Essential to achieving this goal is the development of human resources inside and outside Japan capable of making the global business more competitive. This process demands leaders who can maintain the difficult balance between appreciating the different cultures and customs of each region and instilling Japanese values.

For this year's sustainability report, top executives active in managing our global operating sites discussed their approaches to these issues and the problems involved.

Date
Wednesday, June 4, 2014

Place
Boardroom, Head Office

Overview of Each Operating Site

Kaneda: For the Group to grow further globally, it will be essential to draw on the talents of people outside Japan with diverse backgrounds and values that differ from those in Japan. To begin, please give us an overview of your operating site and your hiring situation.

Kuwabara (USA): JX Nippon Mining & Metals USA is located in Arizona, in the U.S. Southwest. We have around 80 employees, of whom seven are Japanese. Established in 1990, our company manufactures and markets sputtering targets and other electronic materials. We hire new employees whenever needed to fill shortages. I believe our employee turnover rate is low by local standards, since we are recognized as a company that provides stable employment as a Japanese company.

Suwabe (Taiwan): Nikko Metals Taiwan is located near Taipei. Of our approximately 230 employees, 13 are Japanese. We started out in 1989 as a coil center for precision rolled materials. From there, we expanded our business to include the fabrication of sputtering targets, collection of recycled materials, and other activities. We enjoy a low employee turnover rate, and when we moved our head office and plant in 2013 we were fortunate not to lose any of our managerial staff.

Takahashi (South Korea): JX Nippon Mining & Metals Korea is located approximately 80 km south of Seoul. We have around 90 employees, three of whom are Japanese. Established in 2004, our company manufactures and markets mainly sputtering targets. We hire employees as needed, but due to our location within commuting distance of Seoul we are not as fortunate as Taiwan in terms of turnover.

Aramaki (Suzhou): I'm in charge of two companies in the Shanghai vicinity, Nippon Mining & Metals (Suzhou) and Nikko Fuji Precision (Wuxi). Of these, the Suzhou company employs around 350 people, including 12 Japanese. Since 2003, we have been engaged in the precision rolled materials and precision fabrication businesses, including stamping and plating. The rapid economic growth in Suzhou has resulted in a tight labor market, making it very difficult to hire locally. We have had to hire by sending our human resources people directly to schools in rural areas, but turnover is a problem. Although we have been able to improve the situation to a degree by tweaking the system for promotion and remuneration, the level is still not satisfactory.

Raising Motivation of Local Staff and Associated Issues

Kaneda: To reduce employee turnover, presumably it is important to maintain and improve motivation, making people want to continue working at your company and perform at a higher level. This is also key in raising productivity. How do you provide an environment in which locally hired employees can thrive?

Takahashi (South Korea): From the time of our founding in 2005, we have made it a point to localize manufacturing, production management, and quality assurance operations. As a result, from a relatively early stage all our general manager-level employees have been local. I believe that motivation to work derives from the fact that local human resources, along with Japanese staff, have the opportunity to advance. Due to the lack of an employee transfer system, however, we had the problem of human resources becoming stuck in one place, while the lack of contact with people outside the company meant there were almost no chances for objective self-assessment. From fiscal 2014, we therefore plan to select several people in the company for outside training. We hope the trainees will make new discoveries and derive new motivation in their work.

Suwabe (Taiwan): In terms of our administrative systems, we have created a more stratified employee classification system that increases opportunities for pay raises. We also provide various allowances to work-site operators and have introduced benefit packages geared to the situation in Taiwan. In addition, we are trying to delegate as much authority as possible to managers. We plan to continue carrying out measures to raise motivation, such as job rotation and skill-improvement training. One concern, though, is how we can make a career at JX

attractive to the local managers in the case when Japanese staff make up the management class.

Kuwabara (USA): Being a small company, it would be difficult for us to introduce more stratified employee categories as in Taiwan. On the other hand, we have been in business for more than 20 years and have established a certain level of employment stability, which would seem to indicate that our employees have a high degree of attachment to the company anyway.

Aramaki (Suzhou): To increase motivation among local operators, in 2011 we launched an educational program called Skill-Up Campaign. The program comprises five skill levels, with manuals used for each level.

It starts out with the basic skills for equipment operation and progresses step by step to the highest level, at which employees can suggest improvements. The levels reached by each employee are posted on a list, and assessments have

been increased from once a year to four times a year, providing more opportunities for wage increases. This is also helping to reduce the turnover rate.

As we move to promote more local staff to managerial positions, we are expanding this program to all section managers and some departmental general managers. Just the other day, we rotated our staff to new areas of responsibility, but as in Taiwan, we have the issue of how to present managers with options for future career design. I see the ideal future structure as one where the company is completely localized apart from top management and the person in charge of the accounting division. We have good candidates for management positions, but the key will be for them to gain an understanding of Japanese-style governance, by which I mean our corporate culture, or the JX Metals way of doing things.

Blending Each Country's Culture with the JX Metals Corporate Culture through Mutual Understanding

Kaneda: In talking about turning authority over to local managers, you say that the key is for such managers to gain an understanding of Japanese-style governance or the JX Metals corporate culture. Could you be a bit more specific about this?

Kuwabara (USA): In terms of governance, many different rules are sent from Japan, but to be honest, even as a Japanese person I have trouble understanding some of them. The reality is that getting these rules to take hold among local staff will require considerable time. It is also the case that when we provide English-language documents to Japan we sometimes still get asked to translate them into Japanese. I believe we have local people with the ability to be president, but when they are also required to communicate effectively with Japan, it seems to cause a major stumbling block. Perhaps the Japanese side needs to globalize as well?

Takahashi (South Korea): Many times, I feel local staff are not sufficiently aware of safety issues. When reminded about safety, they just say "no problem" in Korean. I personally believe that when it comes to safety and compliance, it's best not to allow for diversity among countries, so I am following Japanese practices here. All we can do is present examples of best practices and allow the necessary time for them to sink in.

Aramaki (Suzhou): In Suzhou, we received technology and know-how from the Kurami Works for the precision rolled materials business, and from JX Metals Precision Technology for the precision fabrication business. All our local managerial staff can speak Japanese, but sometimes it is hard to get across nuances that cannot be communicated by words alone. This is more of a problem with the Japanese side's ability to communicate than any problem with the local employees on the receiving end.

Suwabe (Taiwan): Localization is the ultimate goal to be aimed for, but for now I believe we will need to keep a minimum number of Japanese staff because of the problem of communication with Japan. It's not necessary to have a Japanese person in charge of each business locally, but someone is necessary to act as a bridge.

Ohta: The point is that there are some values that should not

change, such as safety and compliance, but there are also some things on both the Japanese and local sides that do need to change. To this end, I believe it is important to take measures that will further enhance mutual understanding through actual experience.

Aramaki (Suzhou): Even just having local staff take a business trip to Japan greatly improves motivation. In fact, our employees who visited the Hitachi Works or Kurami Works were really impressed by their experience, and this had a positive influence on their work. It would be nice if we could have long-term training in Japan, but there are cost and other issues that make this difficult.

Fujii: Currently, we are conducting language training for our young employees in the head office according to their existing levels of ability. This is not simply to help them acquire foreign-language skills but is intended to build their capacity to take on responsibilities for business outside Japan by experiencing and coming to understand cultures that are different from Japan. Listening to the comments here today, though, I believe we will need to set up some kind of arrangement enabling local managerial staff to spend a few months training in Japan, and to enhance the environment for developing human resources both in Japan and locally. This is something we definitely need to consider.

Ohta: Yes, human resource exchanges in both directions are really important. As our business becomes increasingly global in the future, I think we may see the day when human resources from outside Japan are accepted onto the head office

management team and a global headquarters is established outside Japan. What we need to aim for is to develop human resources in line with a vision for the future of the JX Metals Group as a whole, without the dichotomy between the Japan head office and local operating sites, and to blend our original corporate culture with local cultures.

Yamaki: From that standpoint, Japanese employees assigned to operating sites outside Japan also need to play the role of evangelists for the JX Metals corporate culture. Their mission, in other words, does not stop with sharing the technology and know-how from which we derive our competitiveness on the manufacturing and marketing fronts. It extends to sharing the JX Group Values and JX Nippon Mining & Metals Code of Conduct, including compliance and environmental safety, and going beyond that, the JX Metals DNA in which these are contained.

What Skills Are in Demand as Globalization Accelerates?

Kaneda: Today, we have production or marketing bases in more than 10 countries around the world, and around 30% of Group employees work at operating sites outside Japan. As this percentage continues to increase, I believe the sharing of the JX Metals DNA will demand capabilities going beyond language skills. For those of you who are actually in that position, what do you see as being important?

Kuwabara (USA): In the United States, ability is of course considered important, but a forward-looking and positive personality is also valued. It's a culture that tends not to "sweat the small stuff," so it helps if people are able to be flexible in their thinking.

Takahashi (South Korea): I believe it still comes down to communication skills. Of course, being able to speak the local language is great, but even more important is being able to see things from the standpoint of the other person. It's the ability to listen carefully to what the other person has to say before conveying your message.

Aramaki (Suzhou): With my background in the manufacturing field, I tend to emphasize the importance of the shop floor. We need people with the mind-set for doing things properly when it comes to manufacturing, and who are able to pass along, on the shop floor, the DNA that traces back through our long history as a company.

Ohta: Candidates for head office executive positions should obtain experience at overseas operating sites as early as possible, while they are still young. Outside Japan, even though they are young, they will be able to get an overview of our business from a standpoint close to management. They can put this experience to use both after returning to Japan and when they again take overseas assignments, making major contributions to the globalization of the Group.

Yamaki: Today, we have heard from top management from our operating sites outside Japan, but even in our domestic operations we have a large overseas dependence, from raw materials procurement to product sales. As globalization progresses

further, it will be even more important to achieve mutual understanding through close communication between Japan and overseas sites.

The situation for our overseas operations is changing moment by moment, and developing and utilizing human resources who share the DNA of the Group will naturally be essential for keeping up with those changes and ensuring competitiveness. We need to increase the number and quality of personnel sent abroad from Japan, and at the same time to create a better system for inviting overseas human resources to Japan. Up to now the running of operating sites outside Japan has often been left up to each business division, but it is clear that we need to involve the corporate divisions in this more closely and to take a united approach as a Group.

Kaneda: Thank you to everybody for today's discussion.

Company name	JX Nippon Mining & Metals USA, Inc.	Nikko Metals Taiwan Co., Ltd.	JX Nippon Mining & Metals Korea Co., Ltd.	Nippon Mining & Metals (Suzhou) Co., Ltd.
Location	 Chandler, Arizona, United States	 Longtan Township, Taoyuan County, Taiwan	 Pyeongtaek-si, Gyeonggi-do, South Korea	 Suzhou Industrial Park, Suzhou, Jiangsu Province, China
Paid-in capital	US$5 million	NT$63.5 million	₩2,400 million	CNY¥592.8 million
Established	1990	1989	2004	2003
Business operations	Fabrication, import, and marketing of sputtering targets, and import and marketing of compound semiconductors	Manufacture and marketing of electronic materials, slitting and marketing of fabricated metal products, marketing of industrial products, and collection and sale of scrap metal and copper scraps, etc.	Fabrication and marketing of sputtering targets	Precision rolling, stamping, and plating of stainless steel; slitting and welding assembly of copper alloy products
Employees (as of March 31, 2014)	Approx. 80	Approx. 230	Approx. 90	Approx. 350

Special Feature 2:
Material Issue Establishing a Recycling-Oriented Society

Code of Conduct 1. Our Social Mission
5. Environmental Conservation

Hiroshi Ono
Director, Senior Executive Officer
General Manager, Technology Development Group
JX Nippon Mining & Metals Corporation

Toru Okabe
Professor
Director, International Research Center for Sustainable Materials, Institute of Industrial Science
The University of Tokyo

Current and Future Initiatives of the JX Metals Endowed Research Unit:

A Talk with Professor Toru Okabe

(Positions are as of the date of the discussion.)

Date
Monday, June 2, 2014

Place
JX Group Roppongi Club

Toward Establishment of a Recycling-Oriented Society

The JX Nippon Mining & Metals Group practices Material Stewardship through our recycling and environmental services business, recovering nonferrous metal resources from so-called urban mines. As part of these efforts, in January 2012, JX Nippon Mining & Metals established the Endowed Research Unit for Nonferrous Metal Resource Recovery Engineering (JX Metals Endowed Research Unit) jointly with the Institute of Industrial Science, the University of Tokyo. Its objectives are to conduct investigations and research on the smelting/refining and recycling of nonferrous metals and to contribute to the development of human resources in these areas through an alliance between industry and academia. Amid globally growing demand for metal resources, the JX Metals Endowed Research Unit is addressing challenges to build efficient systems for collecting materials to be recycled and to develop technologies for efficiently recovering metals from the collected materials.

We talked with Prof. Okabe, who is engaged in developing new recycling technologies for rare metals at the Unit. The topics discussed were "Review of Fiscal 2013 Activities," "Toward a Recycling-Oriented Society: Rare Metal Recycling Initiatives," and "Contributions of the JX Metals Endowed Research Unit to Human Resource Development."

Review of Fiscal 2013 Activities

Announcement of Leading-Edge Technologies at the Todai Forum; Precious Metals Symposium held with More than 200 Participants

Ono: Two years have passed since the JX Metals Endowed Research Unit was established. Looking back over the activities of fiscal 2013, how have things been going?

Okabe: In January 2013, a year after the Unit was established, we held a symposium to mark this milestone, and again in fiscal 2013 we carried out many different memorable activities. In this fiscal year, we could make research presentations and developed personal networks in the field, as is evident from our participation in the Todai Forum 2013 held in Brazil and Chile, and our co-sponsoring of Precious Metals Symposium in January 2014. As a result, I think we could grow networks encompassing researchers and corporations, not to mention ones in researchers. I am sure that our initiatives have created further solid personal networks between industry and academia.

Ono: I am very happy to see the enhancement of industry-academia exchange, which is one objective of the Unit. I heard that there were lively discussions at each event. How were they?

Okabe: The Todai Forum aims to inform the international community about the results of academic research conducted at the University of Tokyo. At the same time, it is held to promote international exchange. The forum is held regularly in various parts of the world. The Unit took part in the forum held in Santiago, the capital of Chile, and it hosted an industry-academia-government collaboration workshop between Chile and Japan in the fields of nonferrous metal mining and smelting and refining. Nonferrous metal production is a major industry in Chile, and thanks to the cooperation of the Japanese Embassy in Chile, we had a very fruitful and lively workshop. There were eight presentations made by people from industry, academia, and government in both countries, with around 80 persons attending. After the forum, we heard from many Chilean participants that such valuable gatherings on nonferrous metals have been rarely hosted and they would like more of them to be held.

Ono: I think this event could be timely since it was held right before the start of copper concentrate production in May 2014 at the Caserones Copper Mine, which the Company has been developing.

Okabe: In January 2014, we hosted the Precious Metals Symposium on the theme of "The Front Lines of Refining and Recycling Technologies for Precious Metals." This symposium was held at the Institute of Industrial Science, the University of Tokyo as an event co-sponsored by the JX Metals Endowed Research Unit, the Rare Metals Workshop, and the International Research Center for Sustainable Materials. At the symposium, research outcomes of universities and corporates were presented.

Ono: The young staff from our company who attended said it was a highly informative symposium.

Okabe: I was surprised to find more than 200 people, mainly from companies, to come in all. I believe the high participation was because up to now there had been no such workshop dedicated to precious metal smelting and refining and recycling. In addition, many presentations, which were actively made by your company and others, attracted much interest from many people. A result of a survey targeting corporate attendees showed that many people came for the chance to learn about research at other companies. On the other hand, there were those who said that upon hearing the presentations they came away impressed with the university research. Given the success of the first event, we plan to hold a second Precious Metals Symposium in January 2015.

Toward a Recycling-Oriented Society: Rare Metal Recycling Initiatives

Development of New Technology for Environmental Impact Reduction

Ono: Interest in nonferrous metal recycling systems has been growing not limited to Japan but throughout the world. Please tell us about rare metal recycling, which is one of your specialties.

Okabe: The research and development of rare metal smelting and refining and recycling originated in Japan, and a growing number of people are taking more interest in it throughout the world. In the research field, this outspread trend from Japan to the world is quite unusual. When I began my research 20 years ago, this was not a common theme, but today awareness is growing that rare metals are indispensable for high-tech products. At the same time, the rare earth supply crisis, which

became an international issue, created an awareness of the importance of recycling of the metals all over the world. According to the international circumstances surrounding the metals, there may be a high risk that a serious supply shortage could again arise. Also, we should devote undivided attention to the environmental impact of mining and extraction. In view of those, recycling is indispensable even if it costs much. The development of environment-friendly recycling technologies is important from the standpoints of resource protection and environmental conservation. We should know that creating an advanced sustainable society in the future necessitates this development.

Ono: Yes, turning of awareness of overall society to environmental issues and the cost to the environment is needed. As a tool to reduce the environmental burden, recycling is highly effective. We have high hopes for your research and technology development at the Unit.

Okabe: Let me give you one example of our research outputs. We have developed a new technology for scrap containing platinum, with pretreatment (chlorination treatment) and hydrochloric acid to be simply poured on the scrap, enabling the platinum to be perfectly dissolved in a short time. Now we are engaged in developing a new technology through which salt water dissolves platinum and other precious metals. We are also developing a new environment-friendly technology for efficiently extracting and recovering rare metals without releasing toxic waste solutions. At the same time, basic research on recycling technologies for titanium and tungsten is continuously conducted. Furthermore, we are making efforts to obtain a method to purify titanium ore without generating waste solutions. Building a technology that does not emit any hazardous materials or create hard-to-treat waste is of growing importance.

Ono: Since processes that do not produce waste solutions will contribute greatly to reducing environmental impact, we have high hopes for their commercialization.

Contributions of the JX Metals Endowed Research Unit to Human Resource Development

Industry-Academia Collaboration to Develop Human Resources with the Practical Skills to Lead the Future

Ono: One more goal of the JX Metals Endowed Research Unit, alongside technology development, is training human resources, especially younger people who can become future leaders. What are your thoughts about this aspect?

Okabe: In addition to carrying out research that is highly significant for society, I would like to develop human resources capable of thinking seriously about what kind of technologies are needed in that research field. Both technology development and human resource development require efforts with a long-term view. So, we do appreciate that your company has understood the necessity of this sense since the start of the Unit, though the industry has a tendency to seek short-term goals. The multifaceted and long-term view of the Unit is certainly heading in a good direction.

Ono: Your rare metals recycling study—begun 20 years ago when no one else was paying attention to—is an excellent example of research with a long-term view. We would like the JX Metals Endowed Research Unit to support your research and contribute to realize a sustainable recycling-oriented society.

Thank you very much.

Main presentation events in FY2013

Event	Todai Forum (UTokyo Forum) 2013
Date and Place	January 2013, Santiago, Chile

Held by the University of Tokyo with the cooperation of the University of Chile and Catholic University of Chile. It was attended by around 80 people from industry, academia, and government of both countries to strengthen the collaboration between Japan and Chile in the fields of nonferrous metal mining and smelting and refining. Eight presentations were given by the University of Tokyo and the University of Chile as well as JX Metals and other companies.

Event	Precious Metals Symposium
Date and Place	January 2014, Institute of Industrial Science, the University of Tokyo

The JX Metals Endowed Research Unit co-sponsored this special joint symposium together with the Rare Metals Workshop and the International Research Center for Sustainable Materials. Eight lectures, poster sessions, and short presentations were given on the theme of "The Front Lines of Refining and Recycling Technologies for Precious Metals."

Start of Copper Concentrate Production at the Caserones Copper Mine

After eight years of development on the Caserones Copper Mine, in Chile, for which Pan Pacific Copper (PPC), obtained mining interests in 2006, copper concentrate production was begun at last in May 2014. This was celebrated by a mine opening ceremony in the Chilean capital of Santiago on July 30. The success of this project is not only a great milestone for the JX Nippon Mining & Metals Group in its quest to become a global resources and materials company centering on copper; it also has major significance for the economic growth of both Japan and Chile.

Producing Copper, Indispensable to People's Lives, for 28 Years

The Caserones Copper Mine is expected to continue producing copper for 28 years, until 2040, with a total output of 3.55 million tons. The annual production volume in the first decade is forecast at 180 thousand tons, which is in the middle of the scale for the world's mines. As global demand for refined copper exceeded 20 million tons in fiscal 2013 on an annual basis and is expected to continue growing by 2% to 3% per annum, the Caserones Copper Mine fulfills its role as a valuable source meeting worldwide demand for refined copper.

Overview of the Caserones Copper Mine

Location

Approx. 160 km southeast of Copiapó, the capital of the Third Region (Atacama Region) of Chile, at an altitude of 4,200 to 4,600 m

Equity shares (as of June 2014)

Equity shares in Minera Lumina Copper Chile (MLCC), operator of the Caserones Copper Mine
Pan Pacific Copper (PPC): 77.37%
(PPC shareholders: JX Nippon Mining & Metals (66%), Mitsui Mining & Smelting (34%))
Mitsui & Co.: 22.63%

Initial investment amount

Approx. US$4.2 billion

Mine life

28 years (2013 to 2040)

Production volume

		First 10 years	Total for 28 years
Copper	Copper in concentrate*	150,000 t/year	3,140,000 t
	Refined copper	30,000 t/year	410,000 t
	Total	180,000 t/year	3,550,000 t
Molybdenum		3,000 t/year	87,000 t

* Copper grade: approx. 35%

Start of Production after Overcoming Various Difficulties in Eight Years of Development

After PPC acquired mining interests in May 2006, exploratory drilling was conducted to determine the amount of the reserves, production equipment was designed, a construction schedule was drafted, and environmental impact and economic assessments as well as many other studies were conducted. Based on all of these, the final decision to develop the site was made in February 2010.

During the construction, numerous difficulties arose. There were schedule delays due to bad weather, and the amount invested in the development grew for reasons such as changes in exchange rates, rises in energy and steel prices, and enhanced environmental and safety measures. After overcoming each of these difficulties, construction was completed and copper concentrate production began at last in May 2014.

Chronology

May 2006	PPC acquired the shares of Regalito Copper Corporation (Canada), holder of interests in the Caserones Copper Deposit, through a tender offer.
~	In the preliminary surveys prior to the feasibility studies, exploration drilling and conceptual design for multiple development scenarios were carried out, and then economic assessments and other studies were conducted based on the results.
September 2008	Feasibility studies were initiated.
~	The feasibility studies were assessed based on calculations of the amount of reserves, the basic production equipment design, development cost estimates, and other factors. As a result, it was concluded that development would be economically viable, and environmental approval was received from the Environmental Committee of Chile's Third Region, where the site is located.
February 2010	The decision was made to develop the site, and Mitsui & Co. joined the project.
March 2013	Refined copper production started using the SX-EW process.
May 2014	Copper concentrate production was launched.
July 2014	Copper concentrate was loaded onto the *Koryu*, a copper concentrate/sulfuric acid combination ship; initial shipment left the port of Coquimbo in Chile for PPC's Saganoseki Smelter & Refinery. The mine opening ceremony was held in Santiago.


Around 2010


Around 2011


Around March 2013


As of June 2014

Production of Copper Concentrate and Refined Copper by Different Processes

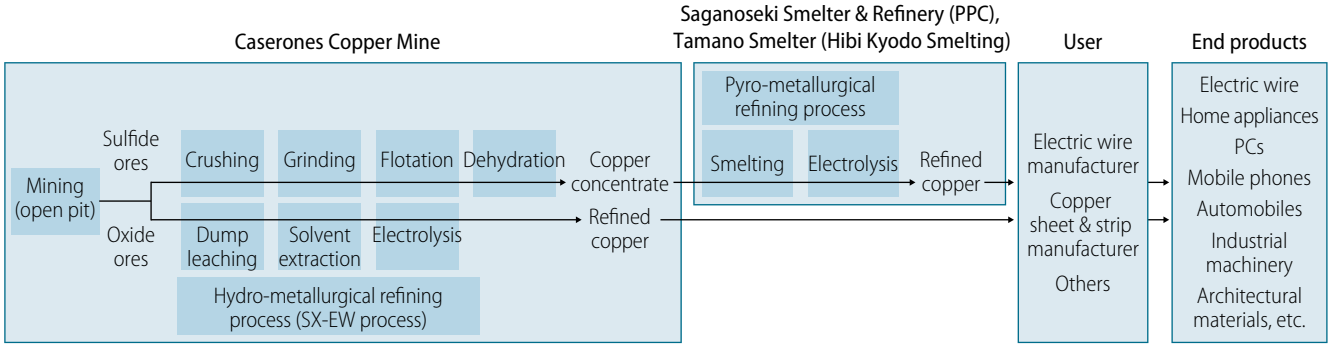
The Caserones Copper Mine produces sulfide ores and oxide ores whose copper grade ranges from 0.25% to 0.34%. These have to be upgraded to the refined copper quality standard of 99.99% or higher for use in electric wire, mobile phones, and other end products.

Sulfide ores are suitable for the pyro-metallurgical refining process, which melts the concentrates from the ores at high temperatures. Ores at the Caserones Copper Mine are processed into copper concentrate, raising them to around 35% copper grade. They are then shipped to PPC's Saganoseki Smelter & Refinery or Hibi Kyodo Smelting's Tamano Smelter in Japan or to other destinations for final processing into refined copper.

Since oxide ores are not suitable for the pyro-metallurgical refining process at a smelter, they are processed into refined copper right at the mine site, using a hydro-metallurgical refining technology known as the SX-EW process, and sold directly to users.

Process Overview

Crushing	Process of crushing the mined raw ores to a size of 200 mm or smaller
Grinding	Process of grinding the crushed ores to a size of around 0.2 mm
Flotation	Process of separating copper concentrate from the waste material ores by taking advantage of differences in the surface wettability of the ground ores
Dump leaching	Process of piling up ores that have not been crushed and pouring dilute sulfuric acid on them to leach out the copper
Solvent extraction	Process of adding a special organic solvent to the copper leachate obtained by dump leaching, and selectively extracting the copper portion
Electrolysis	Process of refining the extracted copper by electrolysis to obtain refined copper with purity of 99.99%



Contributing Not Only to the JX Nippon Mining & Metals Group but to the Economic Growth of Japan and Chile

The start of production at the Caserones Copper Mine is a milestone for the Group as we aim to become a global resources and materials company centering on copper, because it generates return on investment, helps obtain a stable supply of copper concentrate, and contributes to the development of human resources and know-how for further mine development projects.

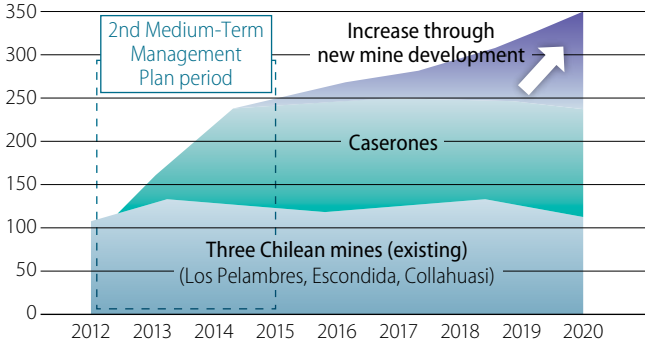
1 Generate return on investment	At full operation, the mine will contribute around ¥40 billion annually to consolidated ordinary income (plan for fiscal 2015 in the 2nd Medium-Term Management Plan, assuming a copper price of US$3.60/pound and an exchange rate of ¥90 to the US dollar).
2 Help obtain a stable supply of copper concentrate, the raw material for our smelting and refining business	The mine will produce approximately 150,000 t relative to PPC's refined copper production volume of 560,000 t (fiscal 2013 actual).
3 Contribute to the development of human resources and know-how for future mine development projects	The start of production at the Caserones Copper Mine will increase our equity entitled copper mine production from less than 120,000 t/year to around 250,000 t/year in fiscal 2015. With an eye to expanding this to 350,000 t/year by 2020, we are looking to develop the Frontera Copper and Gold Deposit (Chile and Argentina) and other sites in which we have mining interests, while aiming to acquire new rights and interests that will allow us to exploit our innovative refining technologies, including biomining techniques (for which we decided in August 2014 to begin commercial application) and the Nikko Chloride (N-Chlo) Process, which is currently under development.

The development of the Caserones Copper Mine has great significance not just for the Group but for both Japan and Chile. For Japan with its lack of natural resources, this mine development project, fully funded by Japanese capital from PPC and Mitsui & Co., means securing copper concentrate corresponding to more than 10% of imports (actual for fiscal 2013). This represents a major accomplishment in the midst of intense resource nationalism and escalating global competition among resource-poor countries.

For Chile, the construction and start of production at the Caserones Copper Mine are contributing significantly to employment, tax revenues, and the development of related industries. Even further contributions are expected as this success leads to new mine development projects.

Equity entitled copper mine production

(1,000 t/year)



The Caserones Copper Mine required the development of a vast land area and will employ a very large number of people over the 28-year life of the mine. Based on environmental approval acquired in 2010, the operator Minera Lumina Copper Chile (MLCC) has endeavored to maintain sound operations by building good relations with the local communities, ensuring the safety and health of workers, preserving the natural environment and cultural heritage, and taking other considerations for various stakeholders.

Building Good Relations with the Local Communities

Aiming to be a good neighbor to the surrounding communities, the Caserones Copper Mine has designed the Community Management Plan around the four objectives described below and is working to build a relationship of trust through active communication with the local communities, extending from local governments to indigenous peoples.

Expanding employment

To provide more employment opportunities for people from the surrounding communities, education is offered particularly to young people. For people without prior experience, Operator Training Programs—doubling also as employment screening—were provided twice during 2012 and 2013 for a total of 400 participants. As a result of such initiatives, 169 people from the local Atacama Region were employed as mine operators as of December 2013, making up 34.9% of the total.

Transportation safety measures

The copper concentrate (gross amount: approx. 500,000 t/year) and refined copper (around 30,000 t/year) produced at the Caserones Copper Mine are carried by truck to a port on the Pacific Ocean for export to Japan and elsewhere. Measures taken by MLCC to ensure safe transportation include providing safety education to drivers and installing equipment on trucks to monitor the transport status. Safety was also greatly enhanced by the completion in 2012 of an approximately 2 km bypass around the Los Loros district on the C35 highway that leads to the mine.

Old road before bypass was completed

After completion of bypass

Social infrastructure provision

Various kinds of social infrastructure are being built to improve the lives of local residents. In addition to the 2011 donation of a rescue truck to the city of Tierra Amarilla for responding to vehicle emergencies, MLCC provided facilities and equipment to the local fire department and built a clinic in the Los Loros district.

Water resource management

Water is an extremely valuable resource in Chile, where rainfall is light. The Copiapó River system, located downstream of the Caserones Copper Mine, serves a thriving agricultural region, where grapes are a main crop. To ensure the efficient use of water resources, in 2010 MLCC established and began implementing the Copiapó River Water Management Improvement Program. Under this program, as of 2013 around US$5 million had been spent in the Copiapó River basin on, for example, the removal of weeds from riverbanks and construction work to control the percolation of river water; provision and repair of irrigation channels, sluice gates, and water pipelines; construction of agricultural wells; and support for an artificial rainmaking program.

MLCC is also striving to provide desalinated seawater to the area: 100 l/sec to Tierra Amarilla City and 50 l/sec to Caldera City.

Irrigation channel repaired with reinforced concrete

Removal of weeds from riverbank

Ensuring the Safety and Health of Workers

The Caserones Copper Mine employed as many as approximately 19,000 people at the peak during the construction, and approximately 2,000 operators will work there now that operations have started (both figures include employees of subcontracting firms). To ensure accident- and disaster-free operation in the harsh conditions at an altitude of more than 4,000 meters, where winter temperatures fall below -20°C, MLCC has drawn up and implemented the Occupational Health and Safety Policy and, through appropriate guidance by managers, works to instill a safety-first awareness in all employees, including those of subcontracting firms.

As a result, during the construction period in Chile from 2010 to 2013 the site achieved one of the world's lowest accident levels in the mining industry, with a frequency rate of 0.58 and a severity rate of 38.

Safety meeting

Preserving the Natural Environment and Cultural Heritage

Various environmental protection systems have been introduced to minimize the impact of Caserones Copper Mine operations on the surrounding area.

Water resource protection

The Caserones Copper Mine uses large amounts of water mainly in the copper concentrate production process, but around 80% of the water is recycled. This is accomplished by various measures, such as installing centrifuges at the end of the process and recovering water from the tailings dam that holds tailings discharged from the process. As a result, new water (groundwater) needed for operations is limited to a maximum of 518 l/sec, and the amount of water used for processing one ton of ore is expected to reach 0.3 m^3, the lowest figure among mines operating in Chile.

In addition, systems have been built for checking the water level of wells used to pump groundwater and for assessing the quality of surface water and groundwater downstream from the mine. The impact of the mine on water resources in the surrounding area is constantly monitored as well.

Air pollution management

Exhaust from heavy machinery and transportation equipment is limited, but since particulate matter is discharged in the mining and processing of ores, efforts are made to maintain the environment inside the mine site, including the employee residential area, by installing measurement instruments and constantly monitoring the levels of particulate matter.

Waste management

Wastewater

Water used in the production processes is in principle recirculated and not discharged outside the mine site. Wastewater from the mine site, including the employee residential area, undergoes proper treatment conforming to environmental standards and is then sprinkled for dust control on roads or used as irrigation water.

Solid wastes

In the case of solid wastes, we not only take measures to reduce their amount but also encourage recycling to further decrease to the greatest extent possible the amount going to landfills. The wastes generated by MLCC are sorted into domestic-type wastes, nonhazardous industrial wastes, and hazardous industrial wastes, with each of these being stored and controlled appropriately. Aggressive programs for metal recycling are carried out, and hazardous industrial wastes requiring especially strict control are registered in an electronic tracking system to confirm that they are transported by qualified carriers to proper treatment centers.

Consideration for biodiversity

Various measures are being taken to minimize the impact of site development and operations on the ecosystem. (See pages 71–72 for details.)

Protection of cultural heritage

When developing the Caserones Copper Mine, preliminary surveys uncovered a large number of cultural assets from indigenous peoples. When such assets were discovered during the construction phase, work was halted and appropriate protection measures were carried out in consultation with local authorities. Items found were also archived and exhibited.

Water jug discovered on the site

Copper Concentrate/Sulfuric Acid Combination Ships to Reduce Environmental Impact and Cost of Transportation

In December 2013, the JX Nippon Mining & Metals Group announced the launch of its third combination ship. These combination ships were developed by the Group as the world's first of their kind, capable of transporting both copper concentrate in bulk and liquid sulfuric acid in a single ship.

Operation and Advantages of Combination Ships

Copper concentrate produced at the Caserones Copper Mine and other Chilean mines is loaded in the cargo holds of the combination ships and transported to the Saganoseki Smelter & Refinery of Pan Pacific Copper (PPC) and other destinations. After discharging the copper concentrate, sulfuric acid produced as a by-product of the pyro-metallurgical refining process at the smelter is loaded into a special tank of the ships and carried to Chile. This sulfuric acid is used in the hydro-metallurgical refining process at the copper mines.

In conventional transport, a bulk carrier is used to carry copper concentrate from Chile to Japan, and a chemical tanker is required to carry sulfuric acid from Japan to Chile. This transportation is constantly exposed to the risk of loss due to waiting time and time spent sailing without any cargo. Combination ships capable of transporting both copper concentrate and sulfuric acid have many advantages, as outlined below, and help reduce both the environmental impact and cost of transportation.

Advantage 1 : The ships are operated along a fixed route and carry a fixed cargo on a stable schedule with minimal loss.
Advantage 2 : The freight costs can be kept stable since the ships are owned by the Company and are not subject to fluctuations in the maritime market.
Advantage 3 : Stable and efficient transport enables reductions in fuel consumption and exhaust emissions.

Environmental Impact Reduction of Around 40%

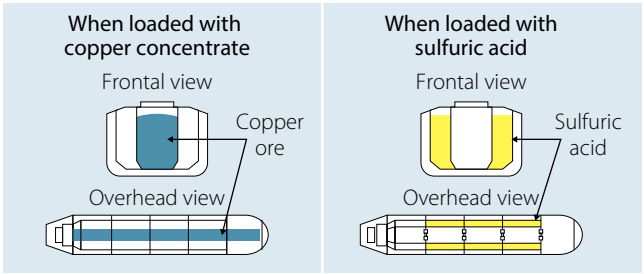
Compared with transportation separately by a bulk carrier and a chemical tanker, transporting the same volume of cargo by a combination ship can reduce both fuel consumption and exhaust emissions (CO_2, SOx, and NOx) by approximately 40% each.

Environmental performance of combination ship

Per round voyage between Japan and Chile (estimate) (t)

	Two dedicated ships (bulk carrier and chemical tanker)	One combination ship (*Mar Camino*)
Fuel	13,000	7,850
CO_2	52,750	31,800
SOx	650	400
NOx	1,150	700

Structure of a combination ship



Sulfuric Acid and Copper Refining (Pyro- and Hydro-Metallurgical Refining)

Copper smelters, such as the Saganoseki Smelter & Refinery of PPC and the Tamano Smelter of Hibi Kyodo Smelting, both of which are the Group's firms, perform the pyro-metallurgical refining process to produce refined copper. The pyro-metallurgical refining process melts concentrate at high temperatures to separate out the valuable metal. When this process is applied to copper, copper concentrate resulting from the processing of sulfide ores (ores in which copper and sulfur are bonded together) is ordinarily used as a raw material, and the sulfur component of the copper concentrate is removed and recovered as sulfuric acid.

Sulfuric acid has a wide range of applications as a raw material for fertilizers and various chemical products, and one of its uses includes hydro-metallurgical refining of copper.

In hydro-metallurgical refining, the valuable metal is extracted by "dump leaching" in sulfuric acid and is concentrated by means of a solvent. In most cases, hydro-metallurgical refining of copper is applied to oxide ores (ores in which copper and oxygen are bonded together), which are not suitable for pyro-metallurgical refining, and generally the production of refined copper takes place in a location adjacent to the mine.

Today, just under 20% of global refined copper production (approximately 20 million tons) is by hydro-metallurgical refining, of which around half takes place in Chile.

Pyro-metallurgical refining

Hydro-metallurgical refining

VOICE

Yasunori Nishikawa
Manager, Marine &
Technical Division
Nippon Marine Co., Ltd.

Ongoing advances in combination ships

The world's first combination ship, the *Cypria*, which was developed by the Group, was launched in 1997. Overturning the conventional wisdom that bulk copper concentrate and liquid sulfuric acid could not be loaded in the same cargo hold, this ship defied that logic in a significant way with the separate installation of cargo holds for copper concentrate and tanks for sulfuric acid in the same ship. As a successor to the *Cypria*, the *Mar Camino* was launched in 2010, followed by the *Koryu*, launched in 2014, when the Caserones Copper Mine commenced copper concentrate production. The *Koryu* was built with a stronger hull than that of the *Mar Camino* and is able to load and unload sulfuric acid at two ports. This gives it greater flexibility and efficiency for transporting sulfuric acid from each smelter based on inventories and customer demand.

As a further advance, the *Koryu* has a system for ballast water treatment. The ballast water treatment system subjects seawater to electrolysis, killing microorganisms in the water before it is loaded onto the ship. The concentration is then checked before discharging it into the sea, so as not to impact the ecosystem where it is released.

Long-term safe and stable operation

Drawing on the knowledge gained until now, the *Koryu* would seem to be close to the ideal combination ship. Now that copper concentrate production has commenced at the Caserones Copper Mine, it is our mission to ensure the safe and stable operation of both ships over the long term.

VOICE From our business partner

Yoshinobu Kashiwagi
Director, General Manager,
Tokyo Business Dept.
Imabari Shipbuilding Co., Ltd.

Katsumi Kawabe
Manager, Tokyo Design Office
Imabari Shipbuilding Co., Ltd.

Challenge of building the world's first combination ship

Even for our company, which builds many new types of ships, building one to carry both copper and sulfuric acid was a technical challenge. The most difficult part in the design was how to arrange cargo holds and tanks in the limited space available. A cargo ship needs a ballast tank for holding seawater, which is used to maintain balance when loading and unloading cargo, as well as a fuel tank for heavy oil. The problem is that, when carrying sulfuric acid, neither the adjacent ballast tank nor the fuel tank can be used. Of course we did not have the option of increasing the ship size or reducing the cargo space, and we had to make it strong enough to sail on the open seas. The design work was carried out in an attempt to solve this complex puzzle.

With growing concern for the environment and rising energy costs, shipbuilders today also need to think about reducing fuel (heavy oil) consumption, lowering CO_2, NOx, and SOx emissions, and properly treating ballast water before it is discharged. Such matters have to be considered at the design stage to comply with increasingly strict regulations. We did our best to meet these requirements in designing the combination ship. A number of additional issues arose when the ship was actually being built, but we managed to resolve these in close coordination with the people involved in ship operation and in loading and unloading.

Material Issue Innovating the Productivity of Resources and Materials

Introduction of the Permanent Cathode Method throughout the Group

We have completed the introduction of the permanent cathode (PC) method in the electrolytic copper refining process of all Group companies involved in refined copper manufacturing. This will enable us to further improve refined copper quality and production efficiency.

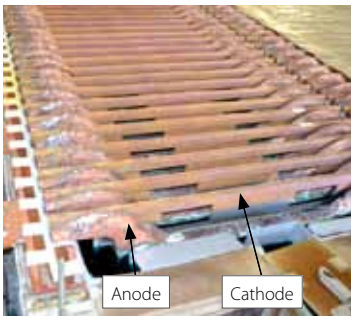
Group company Pan Pacific Copper (PPC) has annual refined copper (grade 99.99% or higher) production capacity of about 610 thousand tons at its Saganoseki Smelter & Refinery and Hitachi Refinery and Hibi Kyodo Smelting's Tamano Smelter. Refined copper is manufactured from blister copper (grade 99.4%) resulting from the smelting process by applying electrolysis in the electrolytic copper refining (electrorefining) process to raise the purity to 99.99% or above.

In the electrorefining process using the PC method, blister copper is used as the anode and a stainless steel plate as the cathode. Cathodes and anodes are interleaved and immersed in an electrolysis tank filled with a copper sulfate solution (electrolyte). When a direct current is passed through these plates, copper ions from the blister copper on the anode side melt out into the copper sulfate solution and migrate to the surface of the stainless steel plates on the cathode side, where they are deposited. Since the components of the blister copper other than copper (gold, silver, etc.) sink to the bottom of the tank, the portion migrating to the stainless steel plates is nearly pure copper. After a fixed amount of copper has collected and reached a certain thickness, the cathodes are removed from the tank. The copper stripped from the surface of the stainless steel plates becomes refined copper.

Prior to the introduction of the PC method, a conventional method was used in which the cathodes were not stainless steel plates but thin pure copper strips, called starting sheets. In this conventional method, the copper deposited on a stainless steel plate surface over a period of one day is stripped off as thin copper strips and used as starting sheets from which refined copper is produced. The starting sheets are again immersed in the electrolysis tank as cathodes and continue to undergo electrolysis until they reach the thickness of refined copper. With the PC method, copper deposition on the stainless steel plate surface is allowed to continue for a period of seven to nine days, directly forming refined copper and allowing the starting sheet manufacturing process to be skipped.

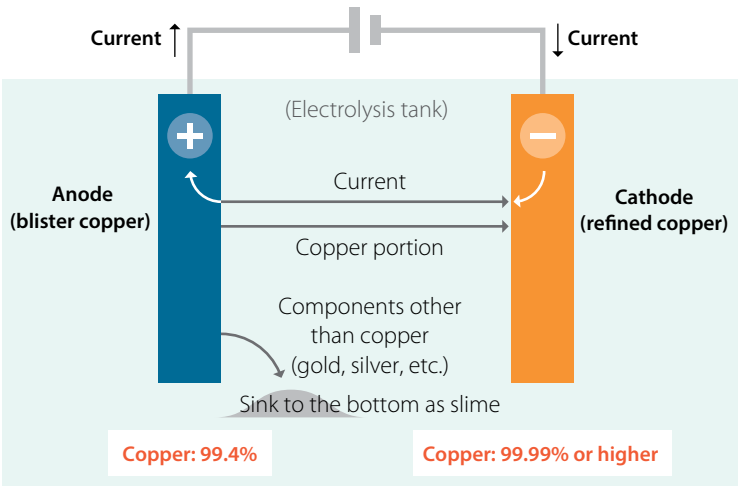
The PC method, aimed at improving both the efficiency and quality of refined copper production, is becoming the standard manufacturing method worldwide in the electrorefining process. In Japan, the Group first introduced it at the Hitachi Refinery in 2003. The method has already been introduced at the No. 2 Refining Plant of the Tamano Smelter, followed by the No. 1 Refining Plant in May 2014, completing the switchover to the PC method for electrorefining throughout the Group.

Stainless steel cathode plate with copper deposited on the surface

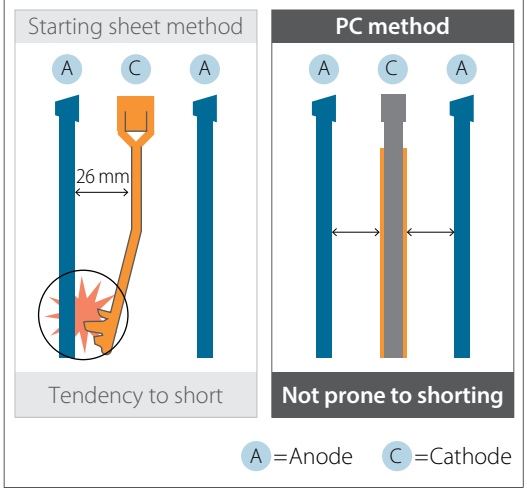


Electrolysis tank (anodes and cathodes are interleaved)

Principles of electrolytic copper refining



Cathodes compared



Permanent Cathode Method Advantages (Compared with Conventional Starting Sheet Method)

1 Eliminates need for starting sheet manufacturing process

The elimination of this process reduces costs and enables refined copper production to be expanded by installing additional PC method electrolysis tanks in the space formerly used for the manufacturing equipment.

2 Reduces electricity usage by improving production efficiency

The stainless steel plates used as cathodes in the PC method are thicker (3 mm) than copper starting sheets (0.77 mm), reducing the risk of shorting due to flexing of the sheets. Moreover, the surface is flat, enabling the current to be applied uniformly across the entire surface for greater efficiency. (See the bottom-right diagram on page 31.)

3 Results in higher refined copper quality

Because of the flat surface of the stainless steel plates, the refined copper formed by deposition on the surface is flatter.

Why the Name Permanent Cathode?

In the conventional method, the starting sheet used as the cathode eventually becomes part of the refined copper (product) itself. The stainless steel plate used as the cathode in the PC method, on the other hand, can be reused an unlimited number of times after stripping off the refined copper deposited on its surface and is therefore called "permanent."

VOICE

Tsuyoshi Nitta
Assistant General Manager,
Manufacturing Division
Tamano Smelter, Hibi Kyodo Smelting Co., Ltd.

Introduction of the PC method at the No. 1 Refining Plant of Hibi Kyodo Smelting

When we introduced the PC method at our No. 1 Refining Plant (first-phase work), there were four main steps.

1. Introducing the PC method equipment (installing an ISA cathode stripping machine and industrial robots for the first time in the PPC Group, changing a starting sheet tank to a general tank, and purchasing stainless steel cathode plates)
2. Improving the electrolyte recirculating system (consolidation of electrolyte recirculation circuits and ultrafilters)
3. Newly installing a holding place for the refined copper (to obtain capacity for accommodating increased production and ensure safe stacking)
4. Adding impurities removal equipment (more chelate resin columns)

Electrolyte recirculation system

Kunio Watanabe
Staff Manager,
Engineering Division
Tamano Smelter, Hibi Kyodo Smelting Co., Ltd.

Special measures taken for the PC method introduction project

Repeated discussions were held involving the manufacturing floor and people doing the installation so that the work could be performed without hindering ongoing operations at the plant. As environmental measures during the work, dry runs were carried out prior to the actual installation, and noise levels were measured so that the actual work could be performed without creating a noise nuisance for nearby residents.

The process from stripping the refined copper from the stainless steel cathode plates lifted out of the electrolysis tank to stacking them up on the packaging line is performed at a rate of six seconds per plate, the fastest in the PPC Group. To achieve this speed, three industrial robots were introduced for the first time in the Group.

For the electrolyte recirculation system, a total of five circuits that had been in place at the No. 1 and No. 2 Refining Plants are being consolidated into one circuit along with the switch to the PC method. This will make it easier to control the electrolyte composition at a fixed concentration.

In advancing the overall project for PC method introduction, we held regular reporting meetings and liaison meetings to ensure a common awareness at the smelter, and we assigned the right human resources to the project, thereby achieving a smooth launch.

Tsuyoshi Hattori
Staff Manager, Engineering
Facilities Engineering Division
Hibi Smelter, Pan Pacific Copper Co., Ltd.

Benefits from the introduction of the PC method

The switch to the PC method improved electrical current and other efficiencies and enabled us to install new electrolysis tanks in the space freed up by the removal of old equipment. As a result, refined copper production at the Tamano Smelter is expected to increase 30 thousand tons per year.

As for refined copper quality, the copper deposited on cathodes in the PC method has a more uniform thickness and a flat surface free of granules. When transported on conveyor belts or other means, the products are less likely to become caught. Such improvements have been well received by our customers, leading to greater reliability of the copper component and other factors.

Launching the Manufacture and Sale of the World's Strongest Titanium Copper Foil

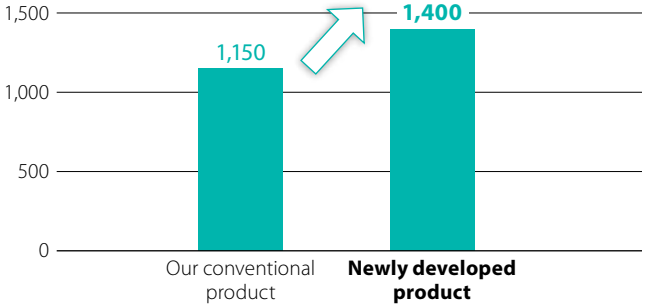
The JX Nippon Mining & Metals Group successfully developed a titanium copper foil having the world's highest level of tensile strength for a copper alloy foil at 1,400 N/mm^2,* and began manufacturing and marketing this product.

Companies wanting to make their electronic devices thinner and smaller demand the development of ever-thinner and stronger copper alloys for use in electronic parts. Combining our manufacturing technologies for treated rolled copper foil, for which we have the top share of the global market, and high-strength copper alloys, we developed a titanium copper foil that boasts both high strength and an extremely high-accuracy plate thickness of 30 micrometers. We also established the capability at the Kurami Works for performing all the processes involved in its manufacture, from melting and casting to hot rolling, annealing, cold rolling, and slitting, enabling manufacturing with quick turnaround, while establishing the necessary quality assurance capability.

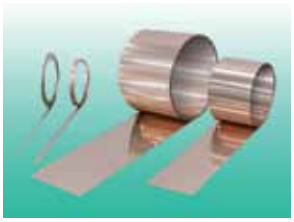
Today, titanium copper foil is increasingly being adopted in and outside Japan as a spring material in auto-focus camera modules for smartphones and feature phones. Since this technology advance enables finer processing not possible with conventional materials, additional uses are expected to be developed.

* N/mm^2: A unit indicating the strength of a material per unit area

Tensile strength levels compared

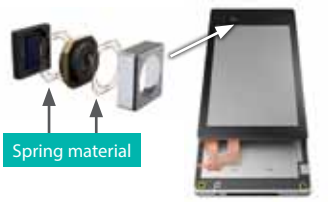


High-strength titanium copper foil

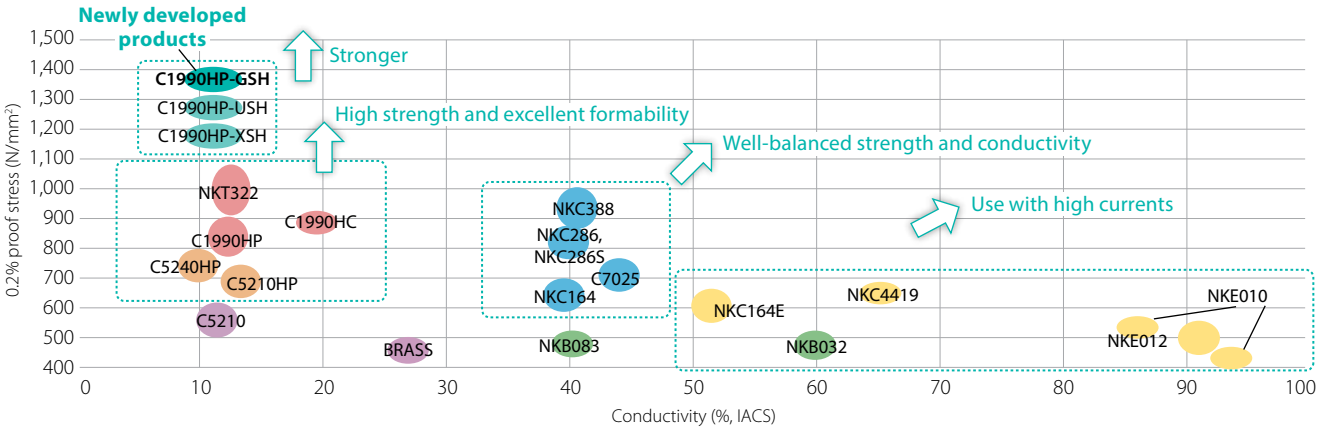


Applications

(Spring material in auto focus camera module for smartphone)



Position of this new product on a copper alloy properties map



VOICE

Kenji Koike
Engineer,
Market Development Department,
Functional Materials Division
Electronic Materials Group

Mobile devices such as smartphones and tablets are becoming thinner and more compact. High reliability in drop tests is also required, raising the demand for materials that are both thinner and stronger. The newly developed titanium copper foil has the highest tensile strength in the world among copper alloy products at 1,400 N/mm^2, 20% higher than earlier products, making it a revolutionary answer to such demands.

How the development came about

In the course of everyday marketing, we became aware of the strong need among customers for thinner and stronger materials. The development was quite a challenge because of the need for brand-new processes and conditions. Thankfully, we were able to draw on the advanced rolling and annealing technologies the Company has built up over the years, enabling this product to be brought successfully to market.

Future issues

The Group has a 70% share of the market for titanium copper, the highest in the world. Our share of the newly developed high-strength titanium copper foil is still only a few percent, but I am confident sales will grow as we continue with efforts to meet customer needs accurately.

Our marketing team is made up of experts in functional materials. Satisfying customer specs is of course important, but I believe that by going beyond this to propose solutions, we can expand the areas of use for the Group's functional materials.

Achieves Capacity for the Stable Supply of High-Quality Sputtering Targets in Taiwan

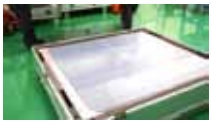
Nikko Metals Taiwan built a new plant in Longtan Township, Taoyuan County, which is situated north of Taipei, for manufacturing sputtering targets for semiconductors and for flat panel displays. The plant went into full operation in December 2013.

The main objectives in building the Longtan Works are to provide customer services quickly in Taiwan, home to the world's largest concentration of electronics industry firms, and also to strengthen the supply capability of the JX Nippon Mining & Metals Group based on a business continuity plan (BCP).

In addition to its existing operations for flat panel displays, the Longtan Works is being used for the downstream processes of sputtering target manufacturing for semiconductors, and has inspection equipment, enabling a full range of operations from manufacturing to marketing and technical service. As a result, the Group now has manufacturing centers for semiconductor sputtering targets in Japan, Taiwan, South Korea, and the United States, helping in its efforts to raise customer satisfaction further and manage risk.

Longtan Works

Display room at the Longtan Works



Sputtering target for flat panel displays

Sputtering target for semiconductors

Overview of the Longtan Works

Location
Longtan Township,
Taoyuan County, Taiwan (ROC)

Employees
Approx. 170

Site area
Approx. 30,000 m^2

Construction period
Began in August 2012,
completed in July 2013

Completion ceremony of the Longtan Works

VOICE

Kevin Chen
Manager, LCD Division
Nikko Metals Taiwan Co., Ltd.

Start-up and operating status at the Longtan Works

The Great East Japan Earthquake of March 2011 made people more conscious of a business continuity plan (BCP) and heightened demands for the production of semiconductor sputtering targets in Taiwan. Meanwhile, the Bade Works, built in 1976 to fabricate sputtering targets for flat panel display use, was no longer able to accommodate business expansion due to inadequate aseismic strength and lack of space.

It was therefore decided to build a new plant in the Longtan area of the Hsinchu Science Park provided by the Taiwanese government to enable expansion of business in both types of sputtering targets in a safe and comfortable environment.

The new plant started operation in December 2013. In a short time, the plant received qualification from customers for its sputtering targets for flat panel displays and soon ramped up production and shipment. Shipments of sputtering targets for semiconductors have likewise grown steadily, and production capacity is now being increased.

Customer expectations for the Longtan Works

Drawing on the experience and knowledge they have acquired over the years, Taiwan's information and communications technology (ICT) companies have built up a key part of the global supply chain through technical innovation and distinctive products. Some of the world's leading companies in the fields of both semiconductors and flat panel displays are located there, and Nikko Metals Taiwan is supporting the country's ICT industry as a main supplier to these firms.

In addition to serving as a BCP base capable of continuing to supply products even at the time of an emergency, the Longtan Works plays the role of a center for flexibly meeting fabrication and technical service needs at all times.

Future issues

At the Longtan Works, the second phase of construction work has begun for accommodating new business while operating with the equipment already in place. Putting to use the experience from the first phase, we are aiming for a smooth launch of operations.

Through even safer and stabler operations, and the provision of precisely targeted marketing and technical services, we are committed to meeting customer needs swiftly and surely.

Code of Conduct 1. Our Social Mission

Receipt of Certification from the Minister of the Environment to Provide a Service to Treat Low-Concentration PCB Wastes

In March 2014, JX Nippon Tomakomai Chemical received certification from the Minister of the Environment to provide a service to treat low-concentration PCB wastes. The company became the first certified firm for low-concentration PCB waste disposal in Hokkaido.

What Are PCBs (Polychlorinated Biphenyls)?

Due to their excellent electrical insulating properties, PCBs were used extensively as insulating oils mainly in transformers and capacitors, as heat transfer media in various industries, and in pressure-sensitive copiers and other equipment, but today their use in new manufacturing or import is banned.

Transformers

Pole-mounted transformers

Capacitors

Disposal of PCB Wastes

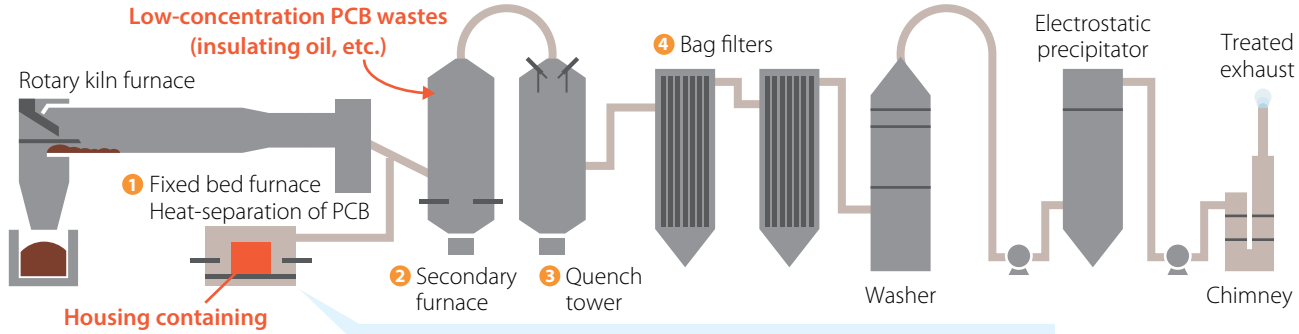
A deadline of March 31, 2027, has been prescribed by law for the disposal of waste materials containing PCBs. By that date, the owner must either dispose of them or have their disposal handled by an agent.

PCB wastes are classified as either high-concentration or low-concentration wastes depending on the amount of PCB they contain, with different disposal methods prescribed for each.

High-concentration wastes (PCB content exceeding 0.5%)	These can be disposed of only at one of the five regional treatment facilities operated by Japan Environmental Safety Corporation.
Low-concentration wastes (PCB content of 0.5% or less)	The certification of treatment facilities throughout Japan is currently being carried out.

As of May 2014, there were only eight locations in Japan, including JX Nippon Tomakomai Chemical, capable of treating not only low-concentration PCB waste materials such as insulating oils but also the transformers and capacitor housings containing them. Given the amount of low-concentration PCB wastes in circulation, the number of treatment facilities is still too low to keep up with the demand.

Flow of complete treatment service for low-concentration PCB wastes



VOICE

Toshiyuki Yamaoka
General Manager,
JX Nippon Tomakomai Chemical Co., Ltd.

We acquired certification for low-concentration PCB waste disposal in response to requests from authorities and companies in Hokkaido. As the first such treatment company in Hokkaido, we are working on behalf of environmental protection for local communities, giving priority to the disposal of low-concentration PCB wastes received from power companies and private companies in Hokkaido. As a member of the JX Group with its operating sites throughout Japan, we also see our role as promoting the disposal of low-concentration PCB wastes possessed by Group companies.

In carrying out this disposal, we are taking every measure to ensure safe handling, such as digging ditches around the treatment facility and using impermeable materials in the floors of indoor waste storage areas. We are also prepared for emergencies, having drawn up manuals for responding to fires, earthquakes, power outages, and other disasters.

Meeting Growing Social Needs for the Treatment of Waste Asbestos

What Is Asbestos?

Asbestos is a fibrous mineral resulting naturally from changes in igneous rock. Because of its excellent thermal resistance, abrasion resistance, sound insulation, electrical insulating properties, and chemical resistance, it was formerly used in construction materials and industrial products. Its manufacture and use have been totally banned, however, because of the damage to human health from inhaling the acicular crystals. Today, a major issue for society is how to deal with the waste materials containing asbestos that remain from the days when it was widely used.

The lifetime of construction materials containing asbestos is said to be approximately 30 to 40 years, and the wasted amount is expected to be 1.2 to 1.6 million tons a year, peaking around 2020. In Tokyo, moreover, securing the substantial capacity for stable and proper treatment will become an even greater assignment as the amount of waste asbestos is forecasted to increase further, affected primarily by an April 2011 ordinance from the Tokyo Metropolitan Government promoting the seismic retrofitting of buildings along emergency transport roads, and by preparations for the 2020 Summer Olympics and Paralympics in Tokyo.

JX Nippon Environmental Services' Process for Complete Treatment by High-Temperature Melting

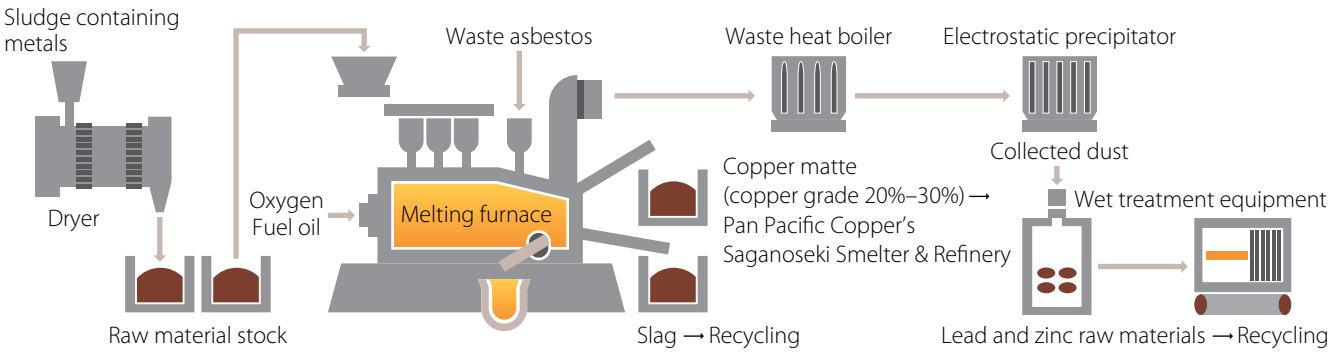
JX Nippon Environmental Services has been providing disposal services of friable asbestos by high-temperature melting since 1994 and is highly regarded by customers and local communities for the 20 years of disposal operation and technological expertise it has accumulated over the years. The company's high-temperature melting process produces slag that is 100% recyclable and is the only asbestos treatment process with no secondary waste. The company intends to continue to meet growing demand in society for this treatment.

JX Nippon Environmental Services

Melting furnace

Double-wrapped waste asbestos

Flow of complete treatment service for waste asbestos



VOICE

Yoshiaki Suzuki
Director, Plant Manager,
JX Nippon Environmental
Services Co., Ltd.

From our transportation routes to our high-temperature melting treatment equipment, we are very thorough in implementing safety measures. Since the waste asbestos is collected in overlapping bags and remains tightly enclosed as it is put in the furnace for treating, no asbestos has been detected in work environment measurements.

Given growing environmental awareness, the mainstream method of treating waste asbestos may well shift away from landfills, which stands to increase the environmental burden, to melting methods such as ours, which do not discharge secondary waste materials; however, the number of companies performing this type of zero emission treatment is still limited. As a pioneer in this field, we will keep providing services that do not leave an environmental burden for the next generation and that contribute to the formation of a recycling-oriented society.

Saving Resources and Energy with New Titanium Manufacturing Technology

Strong, light, and corrosion-resistant titanium is a metal material with broad applications, especially in aircraft but also in industrial plants, building materials, golf clubs, and even eyeglass frames. Toho Titanium, the JX Nippon Mining & Metals Group member engaged in the titanium business, endeavors to maintain a stable supply of titanium as it is one of the few manufacturers in the world able to deliver the high-quality titanium demanded for aircraft.

Titanium—a high-potential metal	
Features	Titanium has endless potential. Besides its many advantages including strength, lightness, corrosion resistance, low coefficient of thermal expansion, and biocompatibility, there are said to be practically unlimited reserves.
Applications	Along with its leading-edge uses in the aerospace industry, titanium has broad applications in industrial plants (desalination plants, electric power plants, chemical industry plants, etc.), building materials, eyeglass frames, as well as golf clubs and other sports equipment. Because of its excellent biocompatibility, moreover, recently its uses have expanded to medical materials such as artificial bones. It can be considered an all-purpose material. Typical uses  Aircraft jet engine  Eyeglass frames
Future potential	The history of titanium use is surprisingly young; it was first discovered about 200 years ago and has been in commercial production for a mere 60 years. The uses of this all-purpose material titanium have just started to be discovered and are expected to evolve further in the future.

Advanced Commercial Production Technology for Titanium Slab

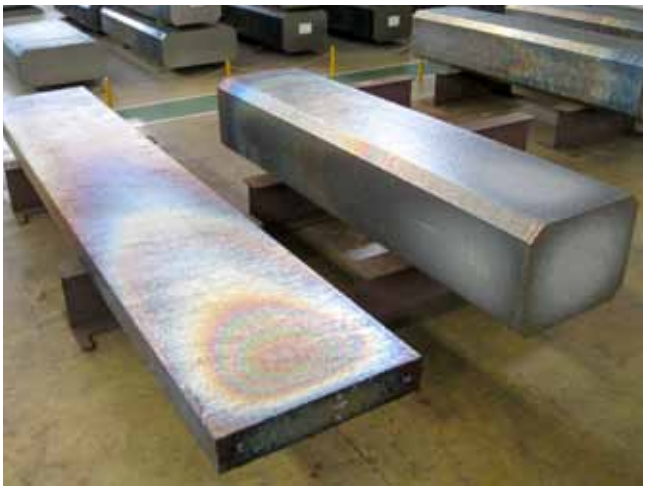
In July 2011, Toho Titanium, together with Nippon Steel (now Nippon Steel & Sumitomo Metals Corporation) successfully developed the world's first titanium slab (DC Slab™) direct casting technology. Titanium slab is an intermediate product for manufacturing titanium thin sheets used mainly in various kinds of industrial plants.

Titanium thin sheets are made from titanium sponge (more than 99% purity) and titanium scrap as feedstock. Typically, such feedstock is melted and cast as titanium ingots first. Then mill manufacturers, who are customers of Toho Titanium, process the ingots into thin sheets of a desired thickness through pressing/slabbing*, hot rolling, and cold rolling processes.

* Some titanium mill manufacturers may use a "forging process." Here we use the term "pressing/slabbing."

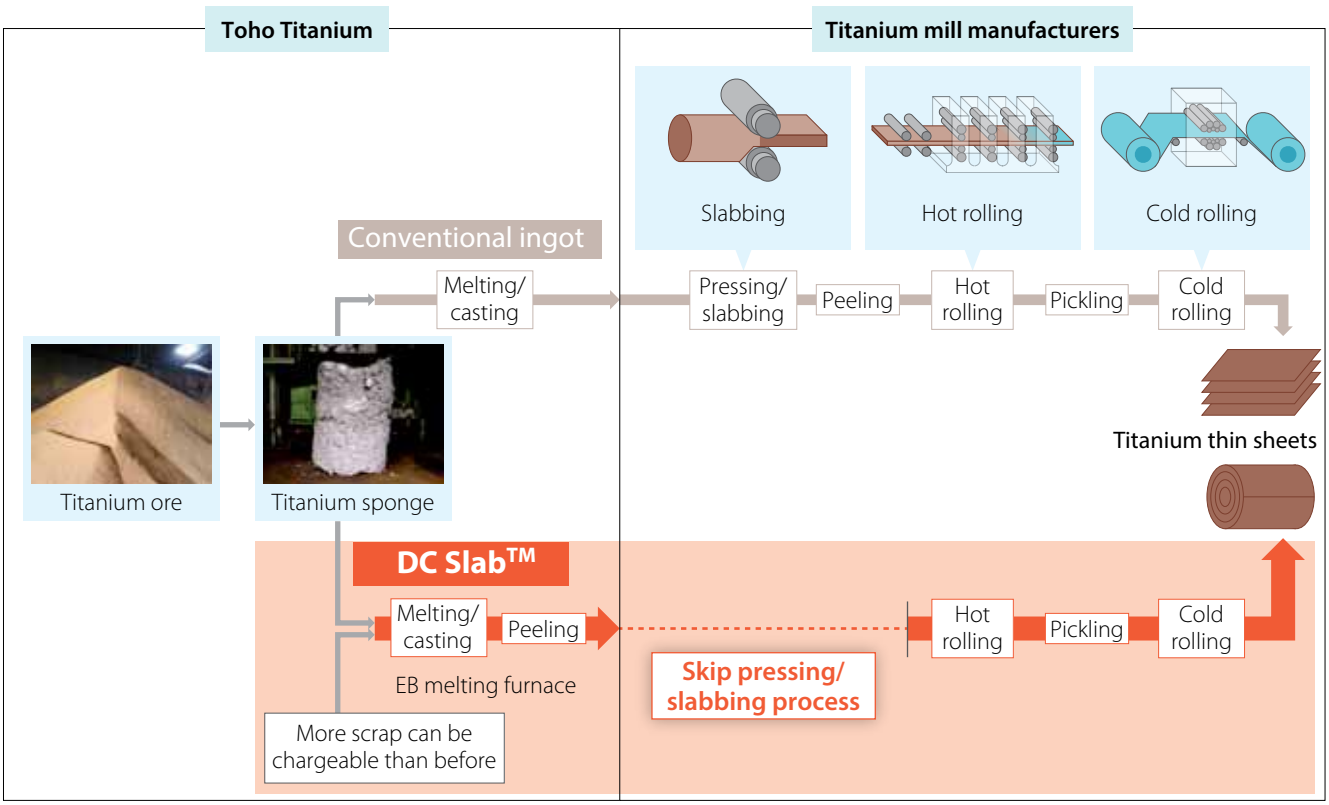
The newly developed DC Slab™, on the other hand, is thinner than conventional ingots and can go directly to the hot rolling process at the mill manufacturer. As a result, the pressing/slabbing process for reducing the thickness of the ingot to slab size can be omitted.

The creation of DC Slab™ mass-production technology, by which slabs are cast directly from titanium sponge or scrap raw materials, was made possible by bringing together the technological expertise of both companies involved. Thanks to the optimization of the casting conditions for high-level control of the slab's surface characteristics and internal microstructure, the quality of the thin sheet product is equal or superior to that using the conventional ingot method.



DC Slab™ (left), conventional ingot (right)

Titanium thin sheet manufacturing process



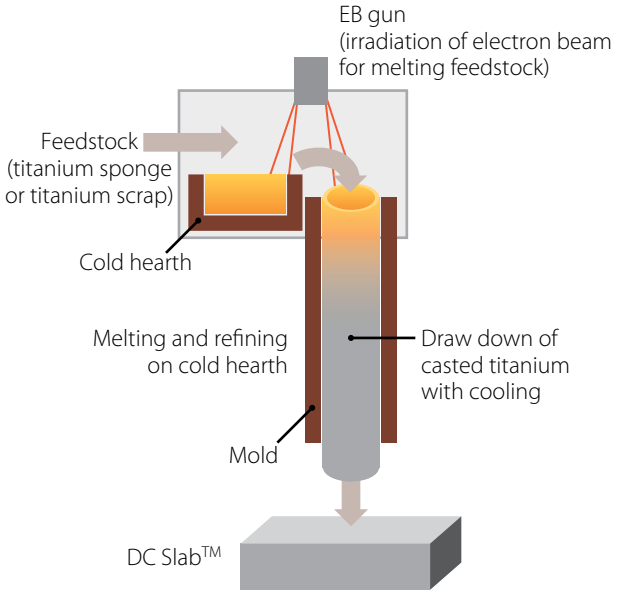
Contribution for Energy Saving and Recycling

Unlike the previous ingot system, the DC Slab™ is able to skip the pressing/slabbing process. Through the energy saved from skipping that process—for example, heating energy for pressing/slabbing—and the elimination of scrap generation, the DC Slab™ conserves resources.

The DC Slab™ also utilizes electron beam melting (EBM). EBM is able to utilize large-scale titanium scraps, which were difficult for previous systems to utilize, therefore reducing the amount used of titanium sponge smelted from titanium mines. As a result, the DC Slab™ contributes to effective titanium resource utilization and the reduction of energy used when smelting titanium sponge.

Toho Titanium installed an additional large-scale EB furnace in Yahata, Kitakyushu City, and started operation in December 2013. The new EB furnace has a double-strand design enabling casting of two slabs at the same time for higher production efficiency.

Slab casting by electron beam melting (EBM)



Economic Activities Report

Code of Conduct 3. Disclosure of Corporate Information and Protection of Personal Information

Business Results in Fiscal 2013 (April 1, 2013, to March 31, 2014)

Global demand for copper continued to grow. This was driven by demand that was steady—albeit growing at a slower rate—in China, the world's largest consumer of copper. Copper prices on the London Metal Exchange (LME), regarded as a global indicator, trended below the levels of the previous fiscal year, averaging US$3.22 per pound, as supply is expected to remain above demand for the time being. On the foreign exchange market, meanwhile, the value of the yen versus the U.S. dollar continued the downward trend that began at the end of 2012, averaging ¥100 per dollar.

Against this background, consolidated net sales of the JX Nippon Mining & Metals Group rose 8% from the previous fiscal year, to ¥1,039.1 billion, while ordinary income also rose 8%, to ¥47.4 billion. With the drop in copper prices, we posted an impairment loss of ¥34.6 billion for the assets relating to two development projects, the Caserones Copper and Molybdenum Deposit in Chile and the Quechua Copper Deposit in Peru. As a result of this and other factors, fiscal 2013 ended with a net loss of ¥11.2 billion.

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

Fiscal 2013 results (consolidated)

(billions of yen)

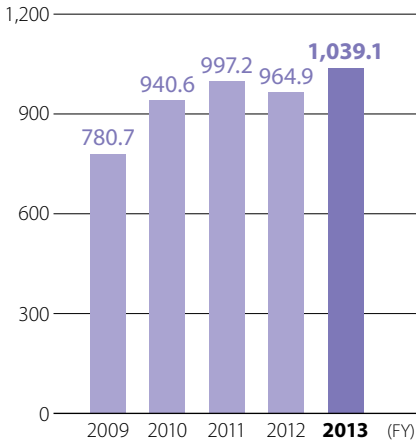
	Fiscal 2012	Fiscal 2013	Year-on-year change
Net sales	964.9	1,039.1	+8%
Operating income	6.4	13.8	+116%
Ordinary income	44.0	47.4	+8%
Net income (loss)	(2.6)	(11.2)	—
Total assets	1,275.8	1,521.4	+19%
LME copper price (US cent/pound)	356	322	–34
Exchange rate (JPY/USD)	83	100	+19%

Financial Performance (consolidated)

* Data for Toho Titanium has been added retroactively to fiscal 2012.

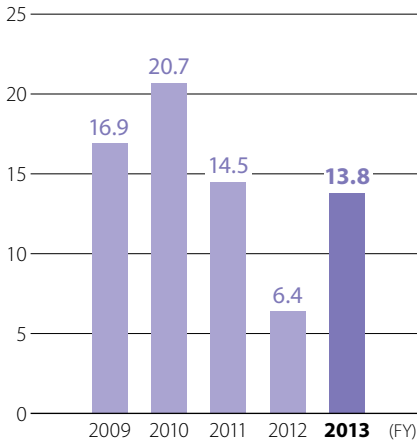
Net sales

(billions of yen)



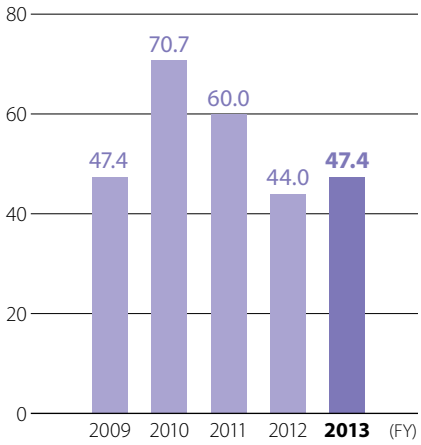
Operating income

(billions of yen)



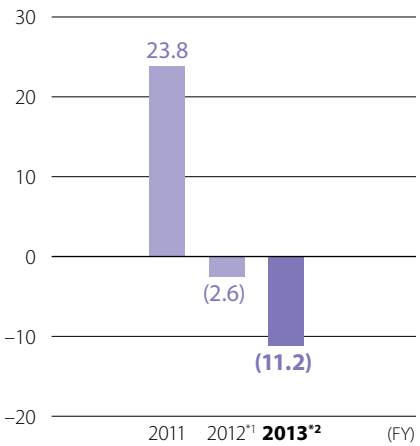
Ordinary income

(billions of yen)



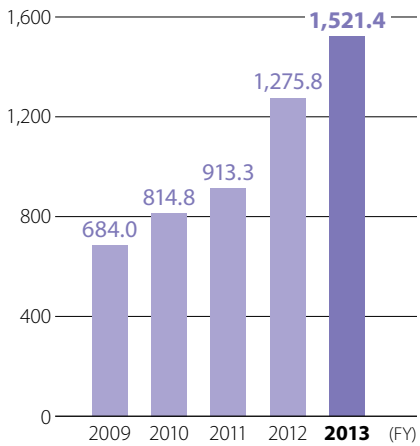
Net income (loss)

(billions of yen)



Total assets

(billions of yen)



*1 The Group booked a special loss of ¥32.7 billion, mainly due to impairment of goodwill following a decline in Toho Titanium's stock price, resulting in a net loss of ¥2.6 billion.

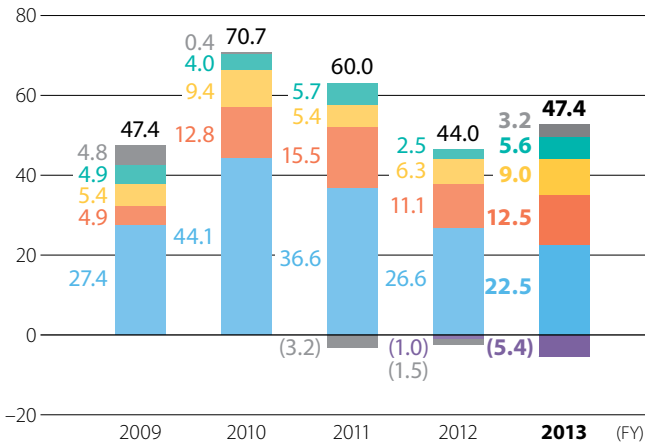
*2 The Group booked a special loss of ¥56.0 billion, mainly due to impairment of assets relating to resources development, resulting in a net loss of ¥11.2 billion.

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*

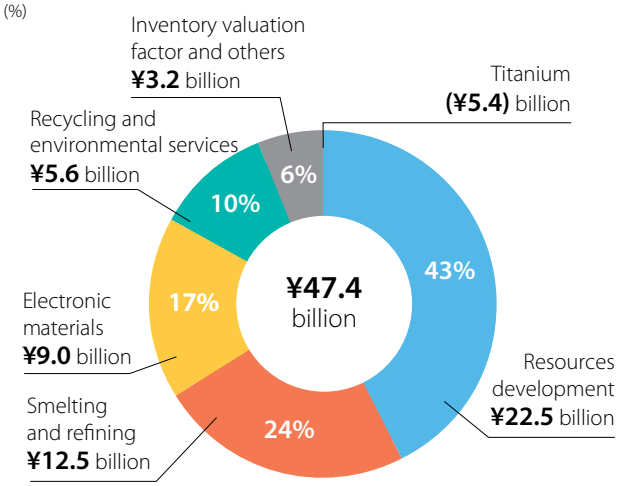
(billions of yen)



* Data for Toho Titanium has been added retroactively to fiscal 2012.

Ratio of ordinary income by segment* (FY2013)

(%)



* Titanium is excluded from the ratio calculations.

Year-on-year change in ordinary income (FY2013)

(billions of yen)

	FY2012	FY2013	Year-on-year change	Main factors in year-on-year change
Resources development business	26.6	22.5	–4.1	The benefits of a weak yen could not offset negative factors, including lower copper prices, a rise in operating costs, and a decline in molybdenum revenue, resulting in a year-on-year decline in income of ¥4.1 billion.
Smelting and refining business	11.1	12.5	+1.4	Income grew ¥1.4 billion, as the benefits of a weak yen outweighed the negative effects of the worsening global market for sulfuric acid and by-products.
Electronic materials business	6.3	9.0	+2.7	Income grew ¥2.7 billion, as the benefits of a weak yen overcame factors causing a drop in income for some products.
Recycling and environmental services business	2.5	5.6	+3.1	Income grew ¥3.1 billion, mainly due to the reduction in costs resulting from consolidation of production sites.
Titanium business	(1.0)	(5.4)	–4.4	Losses increased ¥4.4 billion, mainly due to declining sales of titanium products while customers drew down their inventories.

Business Climate Indicators

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

Segments affected	Indicators	Units	FY2009	FY2010	FY2011	FY2012	FY2013
All segments	Exchange rate	(JPY/USD)	93	86	79	83	100
	LME copper price	(US cent/pound)	277	369	385	356	322
Resources development business	Equity entitled copper mine production	(thousand tons/year)	101	111	105	105	127
Smelting and refining business	Sales volume of refined copper by PPC	(thousand tons/year)	605	588	566	551	588
Electronic materials business	Sales volume of treated rolled copper foil	(thousand kilometers/month)	2.7	3.3	2.6	2.7	3.0
	Sales volume of precision rolled materials	(thousand tons/month)	3.5	3.8	3.5	3.3	3.4
Recycling and environmental services business	Recovered volume of gold	(tons/year)	6.3	6.5	7.0	5.8	6.1

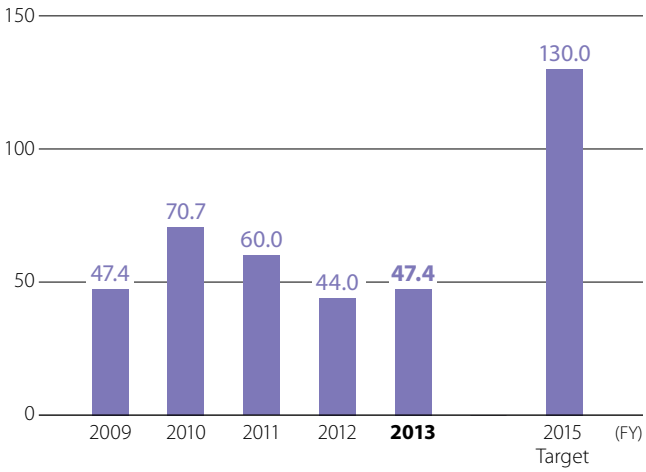
Segment Overview and Progress in Meeting 2nd Medium-Term Management Plan

Code of Conduct 3. Disclosure of Corporate Information and Protection of Personal Information

The JX Nippon Mining & Metals Group drew up the 2nd Medium-Term Management Plan (fiscal 2013 to 2015) aimed at maximizing corporate value, premised on the furtherance of appropriate governance based on strict compliance and on the creation of a CSR promotion framework. We are now working to achieve the target of ¥130 billion in consolidated ordinary income in fiscal 2015. (See pages 3–6 for details.)

Ordinary income (including inventory valuation factor)

(billions of yen)



Resources Development Business


Caserones Copper Mine


Grinder (semi-autogenous grinding mill)

Business Overview

We are actively involved in promising mine development projects from the initial mineral exploration phase. We have invested in some of the world's largest copper mines—Los Pelambres, Escondida, and Collahuasi—with a combined equity entitled copper mine production volume of nearly 120 thousand tons per year. We began copper concentrate production in May 2014 at the Caserones Copper Mine, which the Group has taken the lead in developing as its own project since acquiring mining rights in 2006.

Key Strategies of the 2nd Medium-Term Management Plan

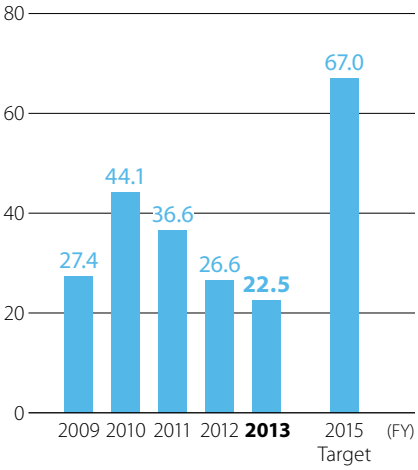
- Grow business aimed at equity entitled copper mine production of 350,000 tons/year
  - Complete Caserones Copper and Molybdenum Deposit Development Project (Chile)
  - Consider starting development of Quechua Copper Deposit Project (Peru)
  - Carry out mineral exploration in the Frontera district (Chile and Argentina)
- Promote commercialization of new smelting technology
  - Develop N-Chlo (Nikko Chloride) Process
  - Develop biomining technology

Advances in Fiscal 2013

- We started producing copper concentrate at the Caserones Copper Mine in May 2014. The initially planned production structure is now in place, thanks to this development combined with the March 2013 start of refined copper production using a hydro-metallurgical refining technology known as the SX-EW process. The production volume from a full-year of operation in fiscal 2015 is expected to be 180 thousand tons (copper concentrate: 150 thousand tons, refined copper: 30 thousand tons). This will bring our total equity entitlement copper mine production volume including existing mines to around 250,000 tons per year. (See pages 25–28 for details.)

Ordinary income

(billions of yen)



Smelting and Refining Business


Saganoseki Smelter & Refinery


Converter furnace at Saganoseki Smelter & Refinery

Business Overview

Our refined copper production capacity is among the largest in the world, at 1.17 million tons a year combined for Pan Pacific Copper (PPC)'s sites in Japan and LS-Nikko Copper Inc. in South Korea. We provide a stable supply of high-quality refined metal products, including copper and precious metals, to Asian markets where demand is expanding.

Key Strategies of the 2nd Medium-Term Management Plan

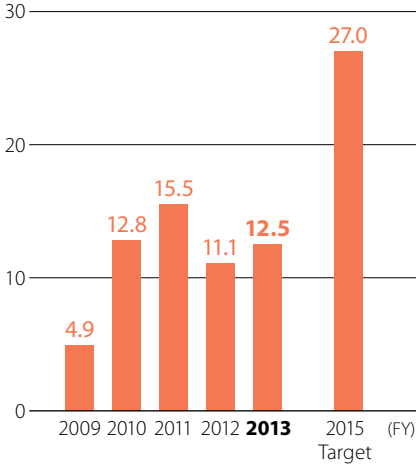
- **Build up the business structure to become one of the world's most cost-competitive suppliers**
  - Achieve safe, stable operations
  - Improve smelting margin

Advances in Fiscal 2013

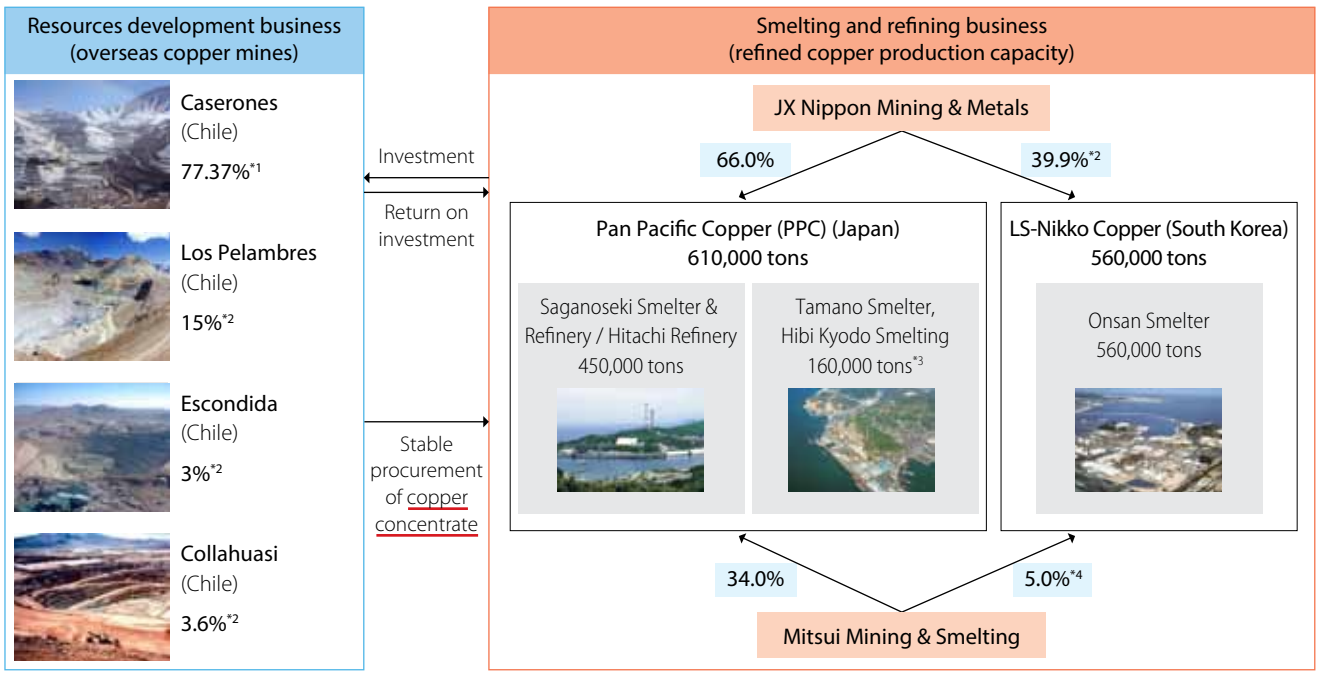
- In December 2013, we completed building the *Koryu*, our second copper concentrate/sulfuric acid combination ship, with the aim of further improving the efficiency of transportation between Japan and Chile. (See page 29 for details.)
- We also took measures to raise efficiency and lower costs at our smelting and refining facilities, such as by switching the electrorefining process of Hibi Kyodo Smelting's Tamano Smelter to the permanent cathode method. (See pages 31–32 for details.)

Ordinary income

(billions of yen)

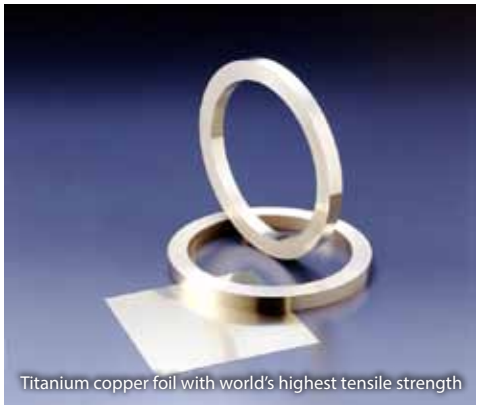


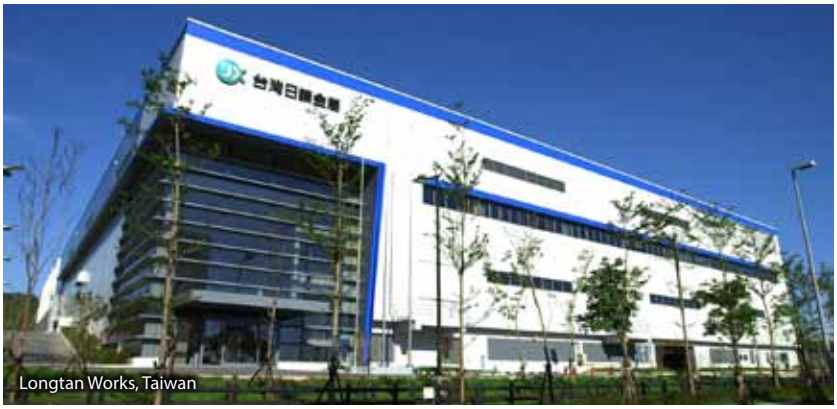
Outline of Resources Development and Smelting and Refining Businesses



*1 PPC equity share
*2 Indirect ownership portion of JX Nippon Mining & Metals
*3 Of the total production capacity of 260,000 tons, the portion corresponding to PPC's equity share
*4 Indirect ownership portion of Mitsui Mining & Smelting
(All as of June 2014)

Electronic Materials Business


Titanium copper foil with world's highest tensile strength


Longtan Works, Taiwan

Business Overview

We develop and provide high-quality, high-performance electronic materials in a timely manner, drawing on our technological advantages 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

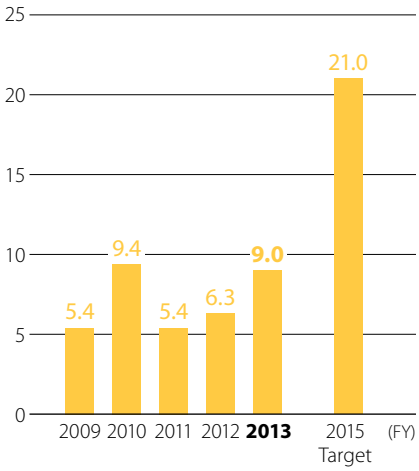
- Maintain and expand top-class share globally in each product market
  - Achieve profitability of new Kakegawa Works and cathode materials business as early as possible
  - Improve profitability by developing new fields and materials
  - Expand network of overseas sites

Advances in Fiscal 2013

- The Kakegawa Works of JX Metals Precision Technology started production in April 2013. It is engaged mainly in the OEM production of automotive connectors through the full-process production of precision rolled materials, from stamping and plating to assembly. The supply of high-quality products especially for the eco-car market, which is expected to see further growth, is a key to achieving profitable operations at an early date.
- In July 2013, we completed construction of the Longtan Works in Taiwan—where the world's leading semiconductor manufacturers are concentrated—thereby boosting our capacity to produce and market sputtering targets. (See page 34 for details.)
- In September 2013, we began marketing titanium copper foil with the world's highest level of tensile strength for a copper alloy foil, to meet needs for thinner, smaller smartphones and other electronic devices. (See page 33 for details.)

Ordinary income

(billions of yen)



Outline of Electronic Materials Business

Principal IT-related materials	Global market share (in 2012)	Primary applications	End-use applications				
			PCs	Mobile phones, smartphones	Digital appliances, AV	Communi-cations infrastructure	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	50% **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-class connectors, etc.	○	◎	○		
In-P compound semiconductors	50% **No. 1**	Optical communication devices, ultrafast ICs			○	◎	○

Recycling and Environmental Services Business


JX Nippon Tsuruga Recycle


Precious metals recovered from recycled materials

Business Overview

The recycling business makes use of our smelting and refining equipment and technologies to efficiently recover copper, precious metals, rare metals, and other resources from recycled materials. The environmental services business provides zero emissions processing of industrial waste materials to render them harmless without producing any secondary waste. The HMC (Hitachi Metal Recycling Complex) Department of the Hitachi Works was established in 2009 to strengthen our nationwide network for the collection and processing of recycled materials. In 2010, we set up a recycled materials collection center in Taiwan, and in 2014 we established a business base in the United States, as we continue building up our recycling-oriented business inside and outside Japan.

Key Strategies of the 2nd Medium-Term Management Plan

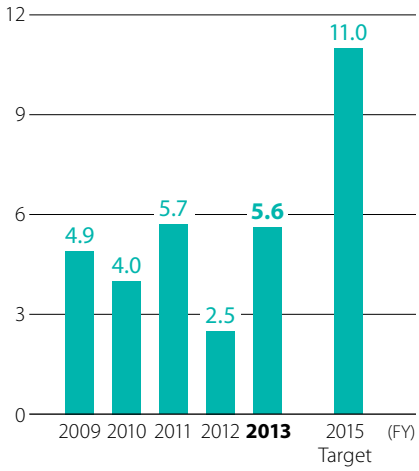
- Create a global, environmentally viable resource recycling business designed for zero emissions
  - Expand collection outside Japan
  - Roll out and expand new businesses
  - Consolidate metal production sites for efficiency and cost reduction

Advances in Fiscal 2013

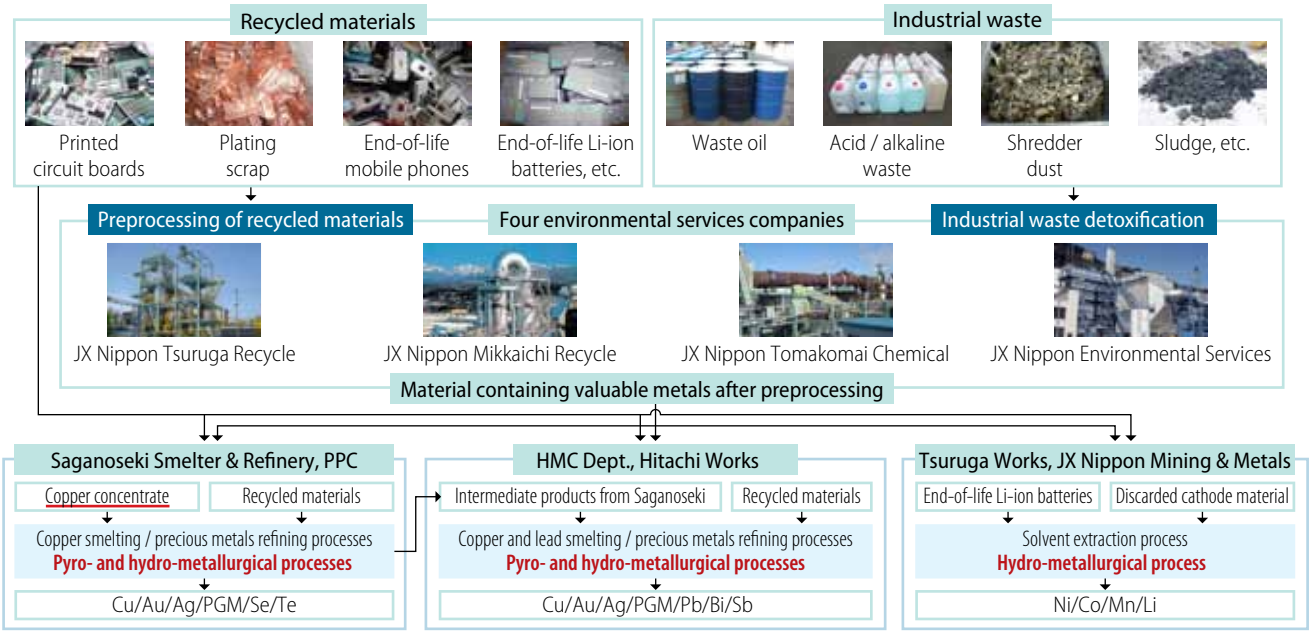
- In March 2014, JX Nippon Tomakomai Chemical received certification from the Minister of the Environment and began providing a service to treat low-concentration PCB wastes. (See page 35 for details.)
- We reorganized metal recovery centers, including the consolidation of nickel and cobalt at JX Nippon Tsuruga Recycle, for greater efficiency and lower costs.

Ordinary income

(billions of yen)



Outline of Recycling and Environmental Services Business



Titanium Business

Titanium sponge


Titanium ingot

Business Overview

Titanium, a light and strong metal resistant to corrosion, has many uses from aircraft to desalination plants and electric power plants. In the Group, Toho Titanium is responsible for this business segment. In fiscal 2013, the segment saw a significant drop in production and sales, as aircraft manufacturers continued to draw down their inventories and demand in general industry fields was slow. Future demand, however, is expected to rise steadily, while we move to boost competitiveness through restructuring.

Key Strategies of the 2nd Medium-Term Management Plan

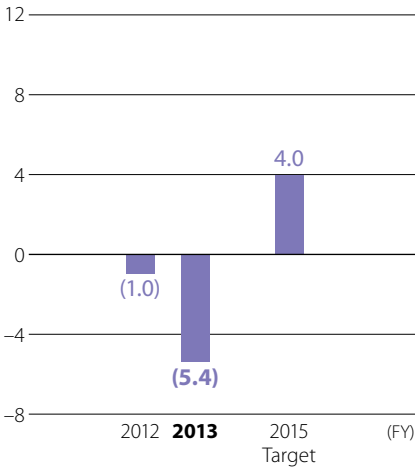
- Carry out restructuring to meet the changing titanium demand structure

Advances in Fiscal 2013

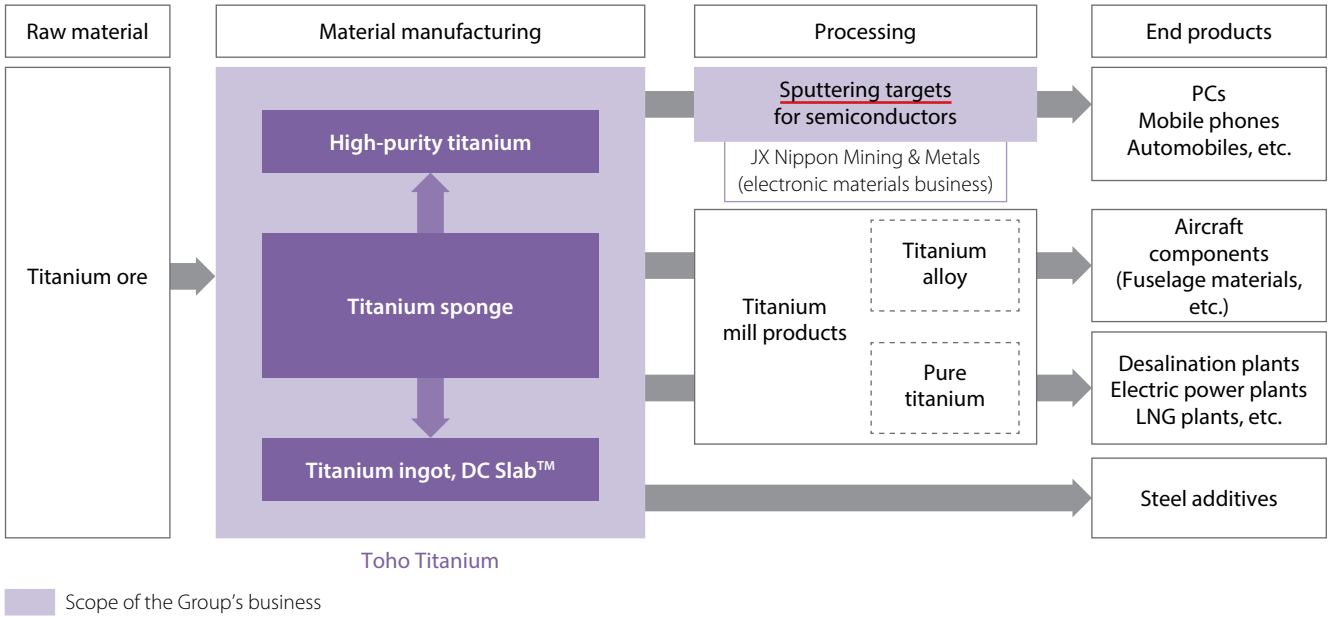
- In December 2013, a second EB furnace went into operation in Yahata. This newly designed furnace is capable of mass-producing DC Slab™ and recycling titanium scrap. It shortens the time for manufacturing titanium ingots and saves resources and energy. (See pages 37–38 for details.)
- In January 2014, we reached a basic agreement on a joint venture to build a new titanium sponge manufacturing facility with a company in Saudi Arabia, where titanium demand is expected to grow for use in petroleum plants and desalination plants. Plans call for the start of commercial production in 2017 and an annual capacity of 15,600 tons.
- In April 2014, we announced the restructuring of our titanium business in Japan, including a reduction in production capacity for titanium sponge and ingots.

Ordinary income

(billions of yen)



Outline of Titanium Business



Scope of the Group's business

Economic Effects on Stakeholders

Code of Conduct 3. Disclosure of Corporate Information and Protection of Personal Information

The JX Nippon Mining & Metals Group develops its business activities by becoming involved in the business of various stakeholders. The economic effects can be identified by stakeholders in the form of financial flows that represent how much the economic value, which is created through such operations as sales of products to customers, will be distributed to each stakeholder.

Quantified Economic Effects on Stakeholders

The economic effects of specific items pertinent to stakeholders are quantified in the table below. Financial flows are identified by stakeholder and by the geographical area in which Group companies operate.

In fiscal 2013, sales revenue from customers was ¥1,296.7 billion, 79% of which was recognized as from sales in Japan, while 98% was the sum of sales in Japan and other Asian countries.

Other revenue totaled ¥52.4 billion. The breakdown of this amount included dividends received from investments and interest received from financial institutions.

We paid ¥1,222.7 billion for raw and other materials procured and services rendered by suppliers and contractors.

Personnel expenses, including legal welfare expenses, totaled ¥52.7 billion.

The postretirement benefit plan, which JX Nippon Mining & Metals and its domestic Group companies have adopted, includes an approved retirement annuity system, a contract-type corporate pension plan, and a corporate pension plan under the severance indemnity plan as defined-benefit pension plans. Also, JX Nippon Mining & Metals and some domestic Group companies employ a defined-contribution corporate pension plan. Furthermore, under certain circumstances, premium severance payments are provided to employees.

Additionally, some overseas Group companies have defined benefit plans and defined contribution plans.

The projected benefit obligation was ¥22.3 billion for the severance indemnity plans and ¥2.4 billion for the defined benefit plans (turned over by different funds from the Group). Of the total of ¥24.7 billion, ¥5.8 billion was contributed to funds outside the Group as pension assets. After adding ¥0.3 billion to reflect unrecognized actuarial loss, the resulting ¥19.2 billion was recognized as accrued retirement benefits for employees. The projected benefit obligation is calculated as of the end of the fiscal year, and the estimated pension benefit was allocated over the period of the pension plan with a discount rate of 2.0% for the most part.

Dividends paid to shareholders totaled ¥7.5 billion. In addition, ¥5.3 billion was interest on loans paid to creditors.

The Group recorded income taxes of ¥5.2 billion on the financial statements in fiscal 2013. Additionally, we posted ¥3.9 billion as other taxes and public charges, which we included as an expense. In total, we recognized ¥9.1 billion as payments to national and municipal government administrations.

An amount totaling ¥320 million was donated to society as part of our social contribution program.

Financial Flows by Geographical Area and Stakeholder in Fiscal 2013 (Value Added through Operations)

(billions of yen)

	IN		OUT					
Item	Sales revenue	Other revenue	Operating costs and expenses	Personnel expenses	Dividends	Interest paid	Taxes	Donations
Stakeholder	Customers	Investments / Borrowers	Suppliers	Employees	Shareholders	Creditors	National and municipal governments	Society
Item used to calculate amounts	Net sales*	Dividends received, interest received, gain on sales of fixed assets and marketable securities, etc.	Cost of goods sold, selling, general and administrative expenses (excluding personnel expenses, taxes, and public charges and donations)	Labor costs (including wages and salaries, welfare expenses, and postretirement benefit expenses)			Income tax and other tax and public charges borne as an expense and posted on the income statement	
Japan	1,026.3	52.3	964.0	44.5	6.9	3.3	8.0	0.09
Asia (excluding Japan)	239.5	0.0	233.2	2.7	0.6	1.8	0.8	0.00
North America	14.4	0.0	13.4	0.5	0.0	0.0	0.2	0.00
Europe	6.9	0.0	6.4	1.3	0.0	0.2	0.0	0.00
Central and South America	9.6	0.1	5.8	3.6	0.0	0.0	0.1	0.23
Total	1,296.7	52.4	1,222.7	52.7	7.5	5.3	9.1	0.32

* Figures in the table above are calculated according to the geographical areas in which companies of the Group operate. Figures are the sums of amounts for each company.

Revenues from National and Municipal Governments

Revenues from national and municipal governments not included in the table above (in the form of subsidies, tax deductions, etc.) amounted to ¥1.3 billion. One specific source of revenue was funding received from Japan Oil, Gas and Metals National Corporation (JOGMEC) by the Technology Development Group for conducting geothermal resource development surveys. In addition, the Isohara Works received subsidies for capital investments in facilities to produce cathode materials for lithium batteries from the Ministry of Economy, Trade and Industry as part of its funding program for the construction of operating sites in Japan. Also, JX Metals Precision Technology received subsidies from Kakegawa City to fund capital investments for new facilities at the Kakegawa Works through the city's program for supporting projects that contribute to local industry development.

Social Activities Report

Health and Safety Activities

Code of Conduct 4. Creation of an Optimum Working Environment

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 JX Nippon Mining & Metals Group, acting in line with its Basic Policy on Health and Safety, sets the Management Policy on Health and Safety each fiscal year. The goals and focal measures of the policy in any particular fiscal year are set in view of an analysis of the performance results for health and safety in the previous fiscal year. The Management Policy on Health and Safety for any particular fiscal year should be discussed and approved by the Central Health and Safety Committee and then promulgated across the Group.

Management Policy on Health and Safety for Fiscal 2013

Goals

1. Fatal accidents: zero
2. Occurrences of accidents: reduction of 10% or more relative to the least number of accidents in the past three years
3. Explosions and fires: zero
4. Occupational diseases: zero

Examples of focal measures

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

Performance of Health- and Safety-Related Activities in 2013

Health- and Safety-Related Performance in 2013*1

Our health and safety record for 2013 is shown in the table below. At domestic operating sites, although there was a decrease in industrial accidents in 2013, one fatal accident occurred.

Category		2011	2012	2013
Safety performance at domestic operating sites*2	Fatal accidents (people)	3	0	1
	Instances of accidents with lost work days (people)	7	9*3	11
	Instances of accidents without lost work days (people)	24	24*3	16
	Total (people)	34	33	28
	Frequency rate of industrial accidents*4	0.27	0.26	0.00
	Accident severity rate*4	0.00	0.00	0.00
	Explosions and fires (occurrences)	2*5	2*5	4*5
(Reference) Safety performance at overseas operating sites	Instances of accidents with lost work days (people)	9	3	7
	Instances of accidents without lost work days (people)	5	5	5
	Total (people)	14	8	12

*1 Data on health and safety performance is compiled on a calendar-year basis.

*2 The figures include the performances of affiliated and cooperative companies.

*3 There were two occurrences of occupational diseases in 2012. Lung ailments caused by dust inhalation occurring in the past (one resulting in work leave and one involving no leave) were certified as industrial accidents and were therefore included in the numbers here for occupational diseases. We are continuing to take countermeasures including preventing flying dust, providing medical examinations, and educating workers.

*4 Both the frequency rate of industrial 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) were calculated on the basis of performances of the Company's employees.
(Reference) From January through December 2013, the frequency rate of industrial accidents and the accident severity rate of all businesses in Japan were 1.58 and 0.10, respectively. (Industrial Accident Trend Survey by the Ministry of Health, Labour and Welfare)

*5 There was no physical injury due to fire and explosion.

Occurrence of Fatal Accidents

On October 17, 2013, a fatal accident occurred on the grounds of the Hitachi Works when an employee of a scrap collection company died due to being caught between two trucks, one of which was rolling out of control after having the stoppers removed from its wheels. The accident occurred because the employee, who was the driver of the out-of-control truck, attempted to stop the truck by standing in front of it. The truck's engine was off at the time of the accident, and the vehicle was stopped on a 2.3° slope (2%–4% grade). In consideration of this accident, we reviewed the rules for stopping vehicles on Company premises in place at all Group operating sites, not only the Hitachi Works, and evaluated the extent to which these rules were followed. Aiming to avoid the reoccurrence of such accidents, we took steps to ensure that proper measures were taken to prevent vehicles from rolling out of control (engine stopping, proper gearing positioning, side brake usage, wheel stopper usage, etc.). To this end, we revised rules and strengthened the management of these rules and also began providing more comprehensive instruction to drivers.

On June 3, 2014, a fatal accident occurred at the Saganoseki Smelter & Refinery, of Pan Pacific Copper, in which a Group employee died due to becoming entangled in a belt conveyor. The victim was an employee of

Nissho Ko-un, a Group company responsible for handling ore cargo. As of August 1, 2014, efforts to uncover the cause of the accident and prevent reoccurrence were ongoing. In addition, efforts to prevent the reoccurrence of such accidents are being conducted at all Group companies and include a comprehensive examination of measures to avoid employees becoming entangled in belt conveyors.

Special Safety Lecture

As part of the Group's Safety Promotion Month, a lecture was held on safety measures on July 9, 2013. From the organization Supporting Safety and Developing Human Resources, representative Noboru Furusawa, a former safety division manager at Toyota Motor Corporation, discussed how to introduce safety measures to create a lively workplace. Mr. Furusawa talked for two hours on how to develop healthy workplaces and human resources through safety activities, and also on safety management policies and stances. Approximately 140 people attended the lecture, including then President Adachi, other executives, senior managers from Group companies, and personnel in charge of safety issues, listening enthusiastically to the practical safety proposals put forth by Mr. Furusawa based on his years of experience. Aiming to take further advantage of Mr. Furusawa's robust background in on-site safety measures, since the lecture, we have continued to invite him to conduct other lectures and provide actual on-site safety guidance at various operating sites.

Mr. Furusawa providing on-site safety instruction (Kurami Works)

Mr. Furusawa conducting his lecture

Health- and Safety-Related Conference (Overall Company)

The Central Health and Safety Committee meeting is held once a year, and the Central Health and Safety Committee's ordinary meeting is held five times a year to summarize various measures for health and safety, discuss health and safety management policy for the next year, and deliberate measures to prevent the reoccurrence of accidents (both committees are chaired by the general manager of the Environment & Safety Department). We also conduct a health and safety patrol once a year and the Group safety staff meeting twice a year to discuss the health and safety management status and related measures and exchange related information. In cases where unique safety measures are found to be in place at a specific operating site or Group company, steps are taken to introduce these measures at other Group companies. Such steps include introducing implementation examples at the Group safety staff meeting and conducting factory tours.

Environmental and Safety Audit

The environment and safety audit has been conducted at operating sites directly run by the Company and major domestic affiliated companies of the Group by the environment and safety audit team directly supervised by the president. Issues discovered as a result of the audit are reported to the president and to each operating site to facilitate improvements, which are monitored as a follow-up measure.

In fiscal 2013, environment and safety audits were conducted at a total of 11 operating sites in Japan and overseas.

Measures for Legal Compliance

We conducted an Inspection on Environment and Safety-Related Compliance, with the cooperation of an external organization's attorneys and consultants, to keep up with the revisions to laws and regulations related to safety, health, and the environment and to take appropriate measures. In addition, we introduced a legal compliance monitoring system to obtain the latest information on legal revisions on a weekly basis and compile and issue instructional handbooks and manuals regarding important legal revisions to ensure a full understanding of the content of the revisions to laws and regulations and complete legal compliance at each operating site.

We also issue instructional handbooks that outline laws, regulations, directions, and notices related to particular items to enhance the related personnel's understanding of laws and regulations.

Health and safety patrol (Saganoseki Smelter & Refinery, Pan Pacific Copper)

Group safety staff meeting

People gathered for 5S activity presentation (Tatebayashi Works, JX Metals Precision Technology)

Creating a Culture of Safety and Eliminating Accidents

Activities to Build a Safety Culture

Definition of a Safety Culture

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

Upholding the Basic Policies on Health and Safety, which stipulate "safety first," the Group has continued to conduct various activities aimed at the creation of a safety culture. During fiscal 2012, we defined "safety culture" as described above, individual operating sites held discussions to determine where they were lacking in the pursuit of this safety culture, and what they needed to do in order to create this culture. Based on these discussions, operating sites clearly defined the issues they faced and have since pushed forward with a comprehensive range of initiatives geared toward overcoming these issues.

Activity Examples

- Reinforcing safety education for new and inexperienced operators and organizing follow-up training programs
- Reinforcing safety patrols and prevention of near-misses by systematically improving details of instructions and suggestions
- Promoting thorough observation of rules by giving safety instructions after confirming employees' levels of understanding of basic safety rules

In addition, we are continuing activities to reinforce educational programs for various employee ranks (including programs for management), along with activities to learn from previous errors (such as remembering fatal accidents in the past to prevent reoccurrence).

Collection of cases regarding significant accidents

Thorough Accident-Prevention Activities for Each Issue

Until 2011, the Group was committed to activities to prevent the reoccurrence of fatal accidents. However, we realized that without working to prevent minor accidents, we cannot reduce the number of accidents. It would also be difficult to prevent fatal accidents without addressing minor accidents, since for every major accident there are many more minor accidents, as indicated by Herbert Heinrich (Heinrich's Law). In recognition of this, we analyzed all accidents that took place at worksites in the three years prior to 2012 and extracted the following five issues that are essential in addressing risks of accidents. Individual operating sites have been instructed to determine the order of priority of the five issues in consideration of their respective situations (risks and previous accidents at their worksites) and to work to eradicate accidents related to the five issues in a three-year program. Moreover, we have published reports of previous accidents to communicate the types of processes most likely to cause a particular type of accident and the key points for preventing accidents.

In 2013, along with activities to build a safety culture, the Group placed priority on the accident-prevention activities for each of the five issues. For these as well, it is the individual operating sites, rather than the head office, that take the initiative in creating a safety culture and eradicating accidents from their respective workplaces.

Issues to address to prevent accidents extracted from the accident occurrence tendencies of the past three years

1. Prevention of accidents related to heavy object handling operation and equipment operation
2. Prevention of accidents caused by contact with hazardous substances and high-temperature objects
3. Prevention of accidents related to operations at high locations (preventing a person or an object from falling)
4. Prevention of being caught in equipment
5. Prevention of cutting and scraping

Promoting Physical and Mental Health Maintenance

Mental Health Care

The Group realizes how crucial it is that all employees are able to maintain proper physical and mental health as they work. We also recognize that good mental health is an important factor in creating a happy life for each employee and his or her family as well as heightening productivity and creating lively workplaces. Taking a broad sense of mental health care, we have taken a wide range of initiatives, including facilitating communication at workplaces.

In July 2008, we implemented the Mental and Emotional Health Maintenance Plan and subsequently worked to spread the awareness of this plan throughout the Group, including domestic and overseas affiliated companies. Each operating site has launched a system to support employees in maintaining good mental health. Some measures involved in this plan cover the families of employees.

Principal Measures

1. Face-to-face counseling
2. Telephone counseling
3. Online counseling
4. Mental health training
5. Workplace stress checks

Mental health training

JX Safety Education Center

The JX Group opened the JX Safety Education Center in January 2013. The center was set up to teach safety by providing simulated experiences of the risks lurking in the workplace. Based on our own experiential learning curriculum, we implement thorough education on safety using a small-class system.

Overview of the JX Safety Education Center

Opened

January 23, 2013

Purpose of establishment

Provision of safety education to employees of JX Group companies and subcontractors

Location

Hitachi City, Ibaraki Prefecture

Facility

Site area: 5,000 m^2; total floor area: 1,900 m^2
(some sections of the building are two stories)

Training

- Experiential learning of the risks of working in high places, working with rotary equipment, crane slinging, high voltages, etc.
- Small classes of six trainees each; two classes trained at the same time; seven hours a day

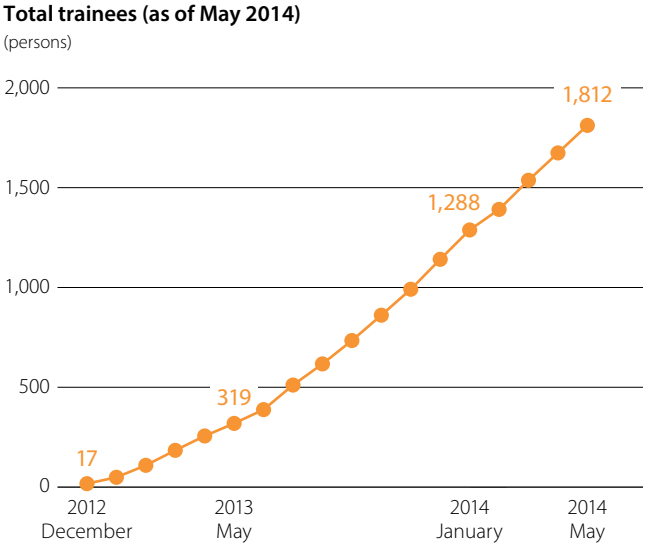
Initiatives of the JX Safety Education Center

As of May 2014, the center, which opened in January 2013, had trained a total of 1,812 persons from JX Group operating sites and affiliates throughout Japan.

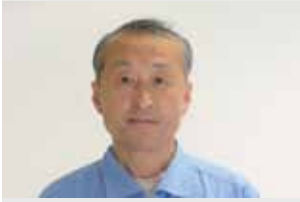
The training at the center is based on the belief that enhancing risk sensitivity and safety awareness is vital to eliminating accidents. Risk sensitivity means the ability to recognize risks as dangerous. This ability is enhanced by having trainees experience actual risks and come to understand them instinctively. The training also attempts to create occasions for raising safety awareness in various ways that include specific examples and that look at the psychological state of workers, so that they can understand why they do not always follow rules and what they need to do to prevent accidents.

Further efforts are being made to raise the quality of the education, including building more effective training programs and improving the teaching skills of instructors.

Total trainees (as of May 2014)



VOICE



Yuji Nishikawa
Assistant Center Director
JX Safety Education Center

More than a year has passed since the center started operation. The pseudo-experience with actual equipment and the adherence to the basic manual are the core of the training program. We are striving to improve our program in every possible way. For example, our enthusiastic trainers always try to introduce recent incidents as a vivid example to the trainees and explicitly explain to them what the main issues are, using well-thought-out materials.

Questionnaire surveys after the training program are the barometers of our performance. Nothing encourages us more than hearing positive feedback, such as "It is quite useful." We value "To learn together" highly. Each session consists of a small number of trainees so that the trainer and the trainees can interact with each other more effectively.

Examples of experiential training at the Safety Education Center

Experiencing the Danger of Impact from Falling Five Meters

Sandbags made to look like a person are dropped from a height of five meters. Trainees experience the loud sound and vibration of the impact close up, while seeing the impact from the fall in statistical numbers, to help them understand instinctively the danger of working in high places.

Experiencing the Danger of Hanging from a Safety Strap

Trainees put on a safety strap and are suspended from a bar, experiencing the difference between wearing it correctly and incorrectly. They discover that when the strap is worn incorrectly, they can only withstand the pain for a brief moment, driving home the importance of using it correctly.

Experiencing the Danger of Entanglement in a High-Speed Shaft

A towel is used to simulate how contact with a rotating shaft can result in entanglement in an instant. Trainees are asked to imagine the scenario where that towel is their own clothing. This helps them to appreciate the risks involved in using rotating objects and also to experience how easily clothing can become entangled in them if not worn properly.

VOICE From Participants

Miho Kikuchi
Inspector,
Quality Assurance Section,
Kakegawa Works
JX Metals Precision Technology Co., Ltd.

I am responsible for rewind inspections of stamped products. This involves visually inspecting the products for scratches and dirt by unwinding and rewinding the products.

I was able to experience many kinds of risks at the center, but in the training on entanglement in rotary shafts, which relates to my own work, I came to appreciate anew that when an accident occurs in actual work, it can really become a major accident. The training reinforced the dangers lurking in the work we do every day. As I engage in my work, I want to continue striving to meet the goals of not becoming injured and making sure others are not injured either.

Kiyonari Katamata
Staff Member
Smelting Section,
Saganoseki Smelter & Refinery
Pan Pacific Copper Co., Ltd.

At our workplace, we are always carrying out safety education. This education is highly important and indispensable, but we cannot go to the extent of actually experiencing the risks, which means the education lacks a certain realism.

The training at the center fills this gap nicely by providing a full-body experience of the dangers, which adds a realistic dimension to the knowledge gained through the workplace education. Having had this training along with the workplace education, I have renewed my determination to strive for workplace safety.

Establishment of the Post of Senior Supervisor for Safety to Ensure and Further Improve Workplace Safety

To further reinforce the Groupwide health and safety management system, while ensuring and improving safety at individual operating sites, in December 2012 we established the post of senior supervisor for safety, reporting directly to the president.

VOICE

Jun Ogata
Senior Supervisor for Safety

Looking Back over the Year

While "safety first" is a clear and simple phrase, understanding it properly and carrying it out are not so easy. Regretfully, there are still many workplaces where "production first" is the norm, and safety is slighted in the name of maintaining production goals.

The matters I myself have pointed out in the workplace or incidents that caused actual accidents during this past year have included directly touching a spinning shaft, reaching out to a suspended load, and working unprotected near an open blade, and in most of these cases the supervisor either was unaware of the risk or was aware of it but allowed the worker to continue without taking remedial measures.

What Does "Safety First" Mean?

The manufacturing floor needs to maintain a high-level balance among the three requirements of safety, quality, and productivity. However, in many cases the actual order ends up being productivity, quality, and finally safety, in terms of the timeline until actual measures are taken against a problem that occurred in the workplace. This could be because of the following two factors; firstly the time it takes for a problem to be revealed after it actually occurs, and secondly whether a quantitative evaluation can be made for the identified problem.

It doesn't take a genius to figure out that there are trade-offs among safety, quality, and productivity on the manufacturing floor, but the meaning of "safety first" is that when faced with the decision between one or another of these, the first choice always must be safety, even if it means sacrificing one or more of the others. Many supervisors, however, when required to improve safety tend to consider it without significantly sacrificing productivity. As a result, in case they cannot find a good solution, supervisors might either give up or simply tell workers to be careful and put off effective improvements.

In many cases, I believe that the reason for overlooking risks and not going ahead with improvements is insufficient awareness on the part of the supervisor of "safety first." In other words, ensuring safety is the top priority in making improvements; when a problem comes to the fore (of course, it is best if this does not happen in the first place), the thinking always has to be to first of all ensure safety, even if it means a temporary drop in productivity, then take measures, if necessary, to raise productivity again.

"Safety First" Is "Human Life First."

Once again this year, there were some accidents in the Group, including those that took lives. These accidents remind us anew that putting safety first turns out to be a matter of giving priority to human life. It all comes down to how seriously we decide to face up to the importance of human lives. In adopting "safety first" as a fundamental policy, all managers and workers are called on to properly understand its meaning and to be ready to implement it.

Presentation at an operating site
(Saganoseki Smelter & Refinery, Pan Pacific Copper)

Commitment to Our Employees

Code of Conduct 4. Creation of an Optimum Working Environment

"People"—Our Greatest Asset

Fusanosuke Kuhara, the Company's founder

The Group's philosophy toward employees dates back to 1905, when the Hitachi Mine was founded. Similar to many other mines, the Hitachi Mine was located deep in the mountains. The Company's founder, Fusanosuke Kuhara, realized that it would be imperative to provide employees with an environment in which they could work with peace of mind in order to build business success at the Hitachi Mine, which was also located in a desolate area distant from urban regions. For this reason, he focused his efforts on raising the standard of living at the mine. The Group's philosophy of "respect for employees" originates with this initiative.

Striving to create an environment in which employees could live with their families, Mr. Kuhara built a town that offered not only housing but also schools for children, hospitals, railroads, and recreational facilities. Living in the area, which was equipped with workplaces and residences, employees shared all their joys and sorrows with each other, while fostering a sense of togetherness. At the same time, a spirit of "respect for employees" was nurtured.

Mr. Kuhara's philosophy lives on in the Group even today. Guided by these principles, we aim to maintain a working environment in which employees feel free to exchange opinions regardless of position, age, or gender.

Respect for Human Rights

Since fiscal 2008, the Company has participated in the United Nations Global Compact, an international initiative that advocates 10 universal principles, including human rights and labor. Furthermore, the JX Metals Group Compliance Regulation specifies to strictly prohibit unjust discrimination and sexual harassment in order to ensure the Group's attitude of respecting human rights.

Developing its business in overseas locations, where approximately 2,200 employees work, the Group has implemented strict control on employee age, especially through pre-employment examinations. As a result, no issues regarding child labor have been reported. The Group also rigorously inhibits forced labor, and no occurrences of this issue have been found.

Going forward, we will globally expand our operations. We aim to build workplaces where employees can be involved in their operation by complying with laws and regulations in countries where overseas operating sites are located and enhancing harmonious relationships with local communities.

Initiatives toward Diversity ☑

The Nippon Mining & Metals Group values diversity in both human resources and work habits. In compliance with relevant laws and regulations in Japan and overseas, the Group is promoting the reemployment of retirees and creating workplaces where women can play significant roles. We have set up an environment that supports various types of workers that includes systems for child rearing, elderly care, and international volunteering.

Creating Workplaces Where Women Can Play Significant Roles

The Group aims to create workplaces that empower female employees to play active and significant roles. As of March 31, 2014, a total of 970 female employees were working at domestic and overseas operating sites in the Group. Of this, approximately 19% occupy managerial positions. JX Nippon Mining & Metals employed 189 female employees (including non-full-time employees), of whom approximately 17% were currently active in managerial roles. Regardless of gender, fair treatment and base pay compensation are strictly controlled.

Work-Life Balance

The Company believes that measures to help employees achieve a balance between their professional and family lives is essential. In fiscal 2013, four employees newly used child-rearing leave systems.

Reemployment of Retirees

The Company is promoting the reemployment of retirees based on its reemployment program. We expect that the reemployment program will not merely engage retirees in day-to-day duties but also enable them to pass on their technological know-how and skills to younger employees as well as contribute to operational management by maintaining and improving safety and quality control.

Status of Rehiring Efforts (JX Nippon Mining & Metals)

(April 1, 2013, to March 31, 2014)

Number of age-limit retirees (people)	Number of those reemployed (people)	Reemployment ratio (%)
24	19	79%

Initiatives to Raise the Number of Employees with Disabilities

The Company is actively increasing the percentage of employees with disabilities in its workforce.

Consequently, in fiscal 2013, those with disabilities accounted for 2.05% of the Company's employees, satisfying the 2.0% legal requirement.

Maintaining a Good Relationship between Labor and Management

Labor unions are organized at most domestic affiliated companies of the Group.

Based on mutual trust, a sound relationship is maintained between management and employees. At all regular meetings between representatives of management and the labor union of each company, management discloses details of the business conditions of the company to the union. Also, joint committees on health and safety issues at each company thoroughly discuss causes and other factors involved in any accidents and any necessary remedial measures. The union thus plays an important role as a partner with management.

For the smooth change of a company's organization or business activities, adequate explanation and discussion are preliminarily made with sufficient duration to obtain deeper understanding of the labor union in line with the labor agreement.

In fiscal 2013, there were no strikes or lockouts.

Human Resources Management and Personnel Systems

Currently, the Company is developing and conducting Companywide educational programs based on themes to enhance expertise and improve the judgment of those who work on the manufacturing floor as well as cultivate problem-solving skills among employees. Additionally, we encourage employees to participate in a wide range of educational programs, including studying at overseas graduate schools or institutes for foreign-language education in Japan as well as self-enlightenment seminars designed to improve financial analysis or presentation skills.

Further, we have in place various personnel systems, including the Competency Evaluation System, Performance Evaluation System, and Self-Statement System. We strive to foster a better working environment by integrating functions to improve communication between the Company and its employees into these systems.

DNA Training

Program in the fifth year after joining the Company (university / graduate program graduates)

Training Programs Implemented in Fiscal 2013 ☑

(hours)

	Managerial staff			General employees			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Total hours of programs	6,508	2	6,510	78,825	3,898	82,723	85,333	3,900	89,233
Average hours per employee	16	2	16	41	21	40	37	21	36

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

Enhancing Education Programs by Job Category

We have developed a system to promote education and training programs that are headed by executives. These programs are designed for the enhancement of specialized skills requisite to professionals in order for them to carry out duties in their job categories. In this system, specialized education programs are developed and implemented for each job category. For each employee, an individual job rotation plan is made, and an education program is designed in accordance with the plan. Through these initiatives, we are working to cultivate human resources that possess a wide range of professional experience.

Ensuring Appropriate Personnel Evaluation

The Company has introduced the Competency Evaluation System based on competency models and a Performance Evaluation System with management goals. The evaluation of the Competency Evaluation System requires each employee to have an interview with his or her supervisor.

The interview is conducted in line with competency items determined by the work that each employee is responsible for and the job position. This system aims to evaluate efforts to produce significant results required in the competency models. Results of the evaluation are taken into consideration in relation to employee promotion.

Under the Performance Evaluation System, employees set work-related goals at the beginning of each fiscal year. The challenge levels of goals and goal-attainment levels are discussed with their supervisors and subsequently evaluated. The results of these evaluations are reflected in employee bonuses.

By properly managing the employee evaluation system, we are working to build a sense of fairness and understanding through a long-term view of the treatment of employees and development of abilities.

Self-Statement System

The aim of this system is for the Company to identify each employee's career interests and aspirations, and reflect them in the human resources development programs to the utmost extent. Once a year, looking back at his or her performance, each employee completes and submits the Self-Statement sheet, filling in his or her business affairs, skills they would like to improve and business lines they are willing to challenge, and also any private circumstances they want to let the Company know.

Education Program for Globalization

The JX Nippon Mining & Metals Group has prepared various education programs for internationalization to develop human resources that can advance its global operations and at the same time shift the in-house sentiment in the direction of globalization. (See page 82 for details.)

VOICE Messages from Overseas Training Returnees

An overseas language-training program is provided for all employees in management-track positions after graduating from a university or graduate school in their second year at the Company. They are dispatched to overseas language schools or other educational facilities for 12 weeks of study.

Takahiro Ishibashi
Staff Member,
Accounting Section, General Administration Department
Isohara Works

Study at a Language School in the Philippines

To summarize my time in the Philippines, I would have to say that it was period in which I was fully immersed in English. My classes began at 8AM and ran until 9PM each day, and my only means of communication during class was in English. The majority of classes consisted of one-on-one English conversations with instructors and presentations. Rather than "studying English," the classes were more like "studying with English." I had previously only viewed English as something to study. As such, this experience was incredibly fresh to me.

During the first month, I found myself facing difficulty in getting my point across. However, I gradually became able to communicate with my instructors and classmates, and near the end of the study period, my language abilities had improved to the point where I was making jokes in English.

I think the greatest reward of the overseas training was the fact that I am no longer hesitant to speak with people from other countries in English. I shall continue to refine my English skills in the future to make good use of the language abilities gained by this training when I go on a business trip or assignment to an overseas operating site.

Tomoya Kawasaki
Staff Member,
Smelting Section,
Saganoseki Smelter & Refinery
Pan Pacific Copper Co., Ltd.

Study at a Language School in England

When studying in England, I honed my English skills while learning difficult grammar or discussing assigned topics with groups of five to 10 classmates.

My classmates hailed from around the world, and each spoke with a different accent. This sometimes made communication difficult, but in conversing with this diverse range of people, my listening abilities improved greatly. I believe that temporarily stepping out of my usual duties to train myself in speaking and thinking entirely in English for an extended period of time was an incredibly beneficial experience.

Shortly upon returning to Japan, I had an opportunity to speak English with an overseas manufacturer and found how much I had improved over the study period. Going forward, I hope to utilize my experience with the overseas language-training program to conduct my work duties more smoothly.

Commitment to Local Communities

Commemorating the Dismantling of the First Giant Stack at the Saganoseki Smelter & Refinery

Familiar to local residents as the "Giant Stack of Seki," the First Giant Stack of Pan Pacific Copper's Saganoseki Smelter & Refinery existed for nearly a century to support the refinery and watch over the town's history, from the time it was erected in 1916 until 2013, when it had to be torn down. As a symbol of the flourishing city of Oita, where it was located, it was a sight many people associated closely with their hometown. The work of dismantling the giant stack, carried out amid feelings of regret, was completed without accident and was commemorated at an event on June 25, 2013.

At the commemorative event, held with the participation of around 100 people, including local government officials, local residents, and representatives from the Company, a monument to the stack was unveiled. Inscribed on it were the words, "The Giant Stack Soars into the Heavens." The monument was the work of Ryohei Miyata, a renowned artist working with metal, who is also president of Tokyo University of the Arts and Councilor of Nitten. Featuring dolphins swimming toward the sky, the work depicts the First Giant Stack that was torn down. The pedestal is made from concrete that was actually used in the giant stack. The monument stands in the Saganoseki Community Center near the Saganoseki Smelter & Refinery. In the background of the dolphins swimming toward the sky, the currently active Second Giant Stack can be seen.

Prior to the ceremony, people went to view the remnant of the giant stack, and everyone posed for a commemorative photo. The remnant consists of the base of the giant stack (1.5 meters from the ground), which was kept to remind people of the splendid figure of the First Giant Stack of old.

The Giant Stack Soars into the Heavens
(3.7 meters tall, including the pedestal)

Commemorative photo inside the giant stack remnant (115 meters in diameter)

VOICE From the Local Community

Seiji Ono
Shinto Priest of the
Hayasuihime Shrine

Every morning, when I would leave home on my way to the shrine, I could see the giant stack towering in front of me to the right. Thinking about it now, I realize that it was part of my daily life, an essential presence. Now that it is gone, I want to say, "Thank you, Giant Stack of Seki, for your long service."

Dismantling the First Giant Stack

Initiatives at the Kurami Works

As we expand the business at our operating sites in Japan and around the world, we strive for good relations with local communities. Here we describe what this means for the Kurami Works, which celebrated its 50th anniversary in 2014.

Initiatives as an "Urban Factory"

The Kurami Works is located in Samukawa town, right about in the middle of Kanagawa Prefecture. It was established in 1964 as we sought to gain a foothold in the metal fabrication business. Today, it is a production center for precision rolled materials and is one of the main plants in our electronic materials business. Being an "urban factory" surrounded by residential areas, it has made coexistence with society a goal of the entire site and carries out various initiatives to this end.

There were a small number of residences in the vicinity of the works when it first went into operation, which was in a pastoral setting surrounded mainly by rice paddies. In the late 1970s, however, at the same time as its production capacity was being expanded, housing developments began springing up nearby and noise from the works became an issue from time to time.

To deal with this, soundproof walls were installed, and restrictions were placed on the nighttime operation of forklifts. More recently, equipment causing noise is identified and upgraded to low-noise models, or measures are taken such as enclosing the equipment and piping to shut out noise, while also enhancing equipment management. As a result, the noise levels at the perimeter of the site have fallen steadily.

Area around the Kurami Works in 1967

Current surroundings

Examples of Noise Prevention Measures

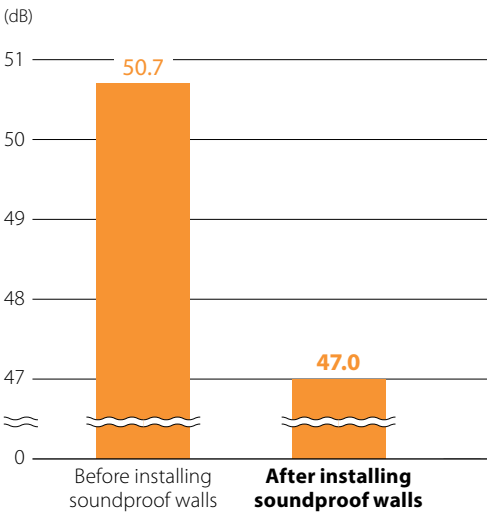
Change to low-noise cooling tower

Before change　　After change

Soundproofing of intake pipes in melting building

Before change　　After change

Examples of noise measures:
Effectiveness of soundproof wall installation
(changes in noise levels at site perimeter)



Dedication to good communication with local residents is another aspect. When construction work and the like might result in noise, besides taking measures to minimize the effects on the surroundings, local residents are contacted in advance and their understanding is requested. If a complaint should arise, it is taken care of immediately, as every effort is made to deal openly and sincerely with the local community. Thanks to such initiatives, the number of complaints has fallen steadily, and operations take place with the trust of the local residents.

Other ways in which active engagement with the local community is encouraged are annual plant tours inviting local resident associations and participation in local events.

Plant tour for local resident associations

Engagement through Local Events

Besides taking part in four annual events in the local area, the Kurami Works actively participates in events put on by Samukawa town, including cleanup campaigns, industry festivals, and fire brigade skills contests, making active efforts to engage with and contribute to the local community. The Hazuki-Sai summer festival in August is sponsored by the JX Labor Union Kurami Works Chapter. With the backing of the works, it has been held every year since 1989. These days, when the festival draws near, inquiries start coming in from local residents asking who the guests will be, as the event has become firmly established as a seasonal tradition of the town. When it was held in 2013 for the 25th time, it was again hugely successful, with around 7,000 people showing up despite the rainy skies right up to the start.

We plan to strengthen ties with the local community even further through initiatives such as these.

Participation in events

When held	Festival or event name
April	Cherry Blossom Festival
May	Sagami River Cleanup Campaign
June and November	Samukawa Cleanup Campaign
July	Hamaori-Sai Festival
August	Hazuki-Sai Festival (sponsored by our company)
September	Shinko-Sai Festival
October	Fire Brigade Skills Contest

Kurami Works staff carry the *mikoshi* through the town (Shinko-Sai Festival)

Visitors throng to see the Hazuki-Sai Festival despite rainy skies

Sagami River Cleanup Campaign

VOICE

Mitsuru Sakamoto
Manager, Administration Section, Administration Department
Kurami Works

Except for the river zone to the west where the Sagami River (classified as a first-class river) runs, the Kurami Works is adjacent to residential areas on the north (boundary of Ebina City), east, and south (Kurami district of Samukawa town). It is an "urban factory" surrounded by residential areas, so the people living near the works are directly impacted by any noise, vibrations, and odors that emanate from it.

For an "urban factory" such as ours to continue operating, the important things are not only taking measures to physically limit our impact on the surrounding environment but also keeping in regular contact with the people living in the area and getting to know each other.

From the time of my assignment to the works, I have also served as auditor, for nearly 10 years now, in a local resident association. Through that work, I have made the acquaintance of numerous people who are genuinely working on behalf of the community, devoting large amounts of time and effort to planning and carrying out one event after another.

When inviting these people to events sponsored by our works, and when taking part in events put on by the community, I have received advice in many different forms and have been supported in tangible and intangible ways.

Up to now, many of our events, like plant tours, have been aimed at adults, including people in local resident associations. In the future, we will think of ways to attract the interest of children as well, and participate and cooperate in the kinds of events that will help to advance the community. In such ways, we want to get the message out about the Group's stance and commitment to the community and raise the level of our contributions even further.

Code of Conduct 2. Compliance with Laws and Regulations and Engagement in Fair Trade

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. We also accurately meet customers' needs for high-quality products. In this manner, we place utmost importance on building trusting relationships with our customers.

Promoting Groupwide Quality Management

Customer demand for better quality has been becoming increasingly sophisticated and diverse each year. To address such demand quickly and effectively, the Group has a Basic Quality Policy and Quality-Management Rules in place. At the same time, we are streamlining a quality-management structure by holding quality-assurance managers meetings to share and effectively use quality-related knowledge and experience within the Group.

Establishment of a Companywide Quality-Management System

1. Established the Basic Quality Policy on October 1, 2009
2. Established the Quality-Management Rules on October 1, 2009, and revised these rules on November 1, 2013

JX Nippon Mining & Metals Corporation Basic Quality Policy

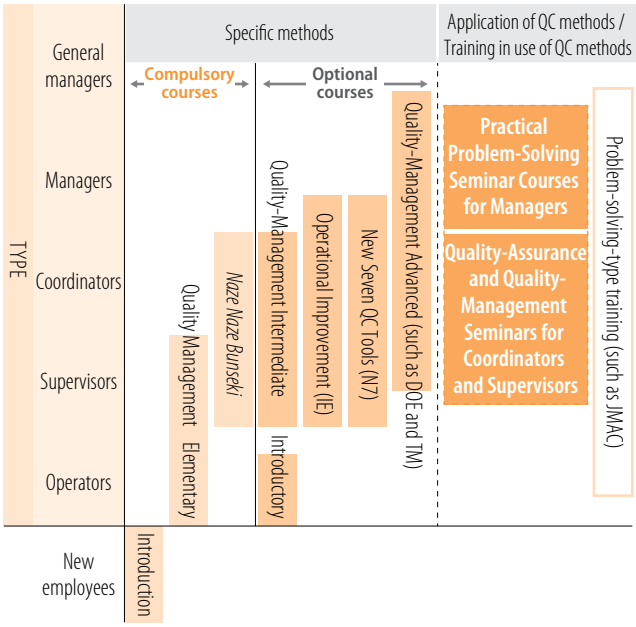
The JX Nippon Mining & Metals Group hereby sets forth, and acts in observance of, this Basic Quality Policy in order to contribute to the development of a sustainable society while recognizing that its social mission is to stably supply nonferrous metals and materials.

1. Correctly grasp the requirements of customers and society in order to offer products and services that customers will trust and be satisfied with.
2. While paying due attention to safety and environmental conservation, improve and maintain quality at all processes from development, designing, and production to delivery.
3. Establish a quality-management system, and carry out continual improvements and train human resources.
4. Comply with all pertinent laws of Japan and overseas countries, and offer to customers and society transparency with regard to quality.

The Group's Quality-Related Education Programs

In fiscal 2011, we reviewed our quality-management education systems primarily to standardize and raise Groupwide quality-management levels. In addition to our conventional elementary, intermediate, and operational improvement courses, we established a new analysis course called *Naze Naze Bunseki* (Curiosity and Analyses). We also made it compulsory for all employees in the Group to take the elementary quality-management and *Naze Naze Bunseki* courses to create a shared awareness of quality management. In fiscal 2012, we added two practical-application courses designed to improve problem-solving capabilities and nurture quality-oriented leadership and management capabilities for managers, coordinators, and supervisors.

Quality-Management Education System



Sharing of Quality-Related Information throughout Operating Sites

Quality-assurance managers meetings are organized by the general manager of the Technology Development Group twice a year for operating sites directly run by the Company and Group companies. Quality-assurance managers in attendance explain the status of quality loss, quality complaints, and quality improvement activities from their operating sites, facilitating the sharing of information and enabling admirable practices to be introduced at other sites. In fiscal 2013, the eighth such meeting was held in May and the ninth meeting was held in December.

Ninth quality-assurance supervisor meeting

Quality-Control and Assurance Systems at Operating Sites

The Group's quality improvement initiatives are not simply limited to products and services; the Group views quality improvement with a broader perspective that includes administration and management. In view of this concept, quality improvement initiatives are being advanced principally based on the ISO 9001 standard, as well as on conducting TPM and other improvement activities. Taking into consideration the specific characteristics of the businesses that each operating site engages in, we have established quality-control structures that involve representatives responsible for sales, manufacturing, production management, technology, and product development. Implementing the PDCA cycle while operating these quality-control structures, each operating site is pursuing goals for reducing the percentage of defective products, lowering the number of quality-related complaints, and other matters.

Furthermore, several domestic and overseas operating sites have obtained ISO 9001 certification, the international standard for quality-control systems.

Operating Sites That Have Obtained ISO 9001 Certification

Domestic	Hitachi Works (Precision Plating Dept., 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), Toho Titanium Co., Ltd. (head office and Chigasaki Works, Hitachi Works, Yahata Works, Wakamatsu Works, Kurobe Works)
Overseas	JX Nippon Mining & Metals Korea Co., Ltd., Changzhou Jinyuan Copper Co., Ltd., Nikko Metals Hong Kong 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., Gould Electronics GmbH, JX Nippon Mining & Metals Korea Co., Ltd.

Quality-Control Initiatives for Electronic Materials

Our customers require a high level of quality and reliability in our electronic materials. In order to meet these requirements, we have employed stringent quality-control measures at all stages of product provision, from product development and manufacturing to shipping.

Product development stage	Manufacturing stage	Pre-shipping stage
Quality-evaluation systems have been developed to analyze physical properties, surface conditions, purities, and other characteristics of products (introduction of analytical equipment, establishment of analysis procedures, etc.). Only products that have been confirmed to possess the necessary levels of quality can move to mass-production stages.	With systems of travel sheets and statistical process control (SPC) systems, we have developed a stringent quality-control structure, which covers everything from the acceptance of raw materials to the shipping of products.	We have developed a system that allows for thorough and continuous inspections of products by using fine-tuned analytical equipment, and we strictly adhere to internal standards that we have developed for each product. The data from inspections is fed back to development and manufacturing departments through the statistical quality-control (SQC) system to improve the quality and reliability of our products.

Product Safety Initiatives

To provide customers with safe products, the Group thoroughly complies with applicable laws and regulations. We employ a preventive approach toward product safety by conducting analyses of product safety awareness, a factor we need to consider in all stages of product provision, from development to manufacturing and sales. These analyses are tailored to the characteristics of each product, and any measures deemed necessary are put into place to ensure product safety.

In fiscal 2013, there were no reported violations of any laws or regulations with regard to product safety or the provision of products and services.

Examples of specific initiatives

- Developing environmentally friendly products to reduce environmental impact
- Performing necessary quality control to ensure safety
- Providing customers with safety data sheets (SDSs) for all products
- Developing stringent safety measures for shipping heavy materials as well as substances that require special care (establishing and implementing Logistic Safety Action Plans and sharing information regarding safety measures between Group companies, etc.)
- Implementing education and training programs to ensure product safety

Commitment to Our Suppliers

Code of Conduct 2. Compliance with Laws and Regulations and Engagement in Fair Trade

Partnership with Our Suppliers

The JX Nippon Mining & Metals Group aims to develop win-win relationships with its suppliers based on mutual trust. To realize efficient procurement, purchasing functions for the entire JX Group are consolidated within the common function subsidiary JX Nippon Procurement Corporation. We have similarly entrusted most of our procurement functions to this company.

JX Nippon Mining & Metals Group's 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.

JX Nippon Procurement Basic Purchasing Policy

Basic Purchasing Policy

JX Nippon Procurement is committed to pursuing purchasing operations based on the JX Group Values (EARTH) to develop good partnerships with business partners and to fulfill its corporate responsibility to society.

Ethics

- Respect for 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 work together diligently to contribute to society through relationships of mutual trust.

Trustworthy products / services

- Provide JX Group companies with high reliability and satisfaction through fast, accurate, and highly transparent activities.

Harmony with the environment

- Work persistently to create a sustainable society by promoting the purchase of equipment and services with low environmental impact.

Confronting the Problem of Conflict Minerals

The Company and Group company Pan Pacific Copper (PPC) have established and are implementing a management system for supply chain due diligence of gold in accordance with the Responsible Gold Guidance of the London Bullion Market Association (LBMA)[*1] to avoid contributing to conflicts. The implementation status is reported to the LBMA via an annual compliance report that is assured by a third party. Due to these efforts, the gold bullion produced at PPC's Saganoseki Smelter & Refinery is included in the LBMA's Good Delivery List.[*2] In addition, PPC itself has been included on the Conflict-Free Smelter List, compiled by the Electronic Industry Citizenship Coalition (EICC) and the Global e-Sustainability Initiative (GeSI).[*3]

*1 The LBMA is an association composed of financial institutions that deal in gold bullion and other organizations. The bullion included on this association's Good Delivery List is guaranteed to have high quality and reliability.

*2 The Good Delivery List is a compilation of refiners that comply with standards and specifications such as the LBMA Responsible Gold Guidance.

*3 The EICC and the GeSI have collaborated to create the Conflict-Free Smelter Program.

Conflict Minerals at Issue

The conflict minerals at issue are the four minerals collectively known as 3TG (tungsten, tantalum, tin, and gold) that have been mined illegally in the Democratic Republic of the Congo and surrounding countries. Contraband trade of conflict minerals is a source of the funds that supply weapons to armed groups and anti-government insurgents in these countries and, consequently, the cause of several human rights violations and dehumanizing acts as well as ongoing conflict in this area. A global movement to address the conflict minerals issue began in the late 1990s. Today, several rules and programs have been created by international institutions to combat this issue.

Global Response to the Conflict Minerals Issue

In response to the conflict minerals issue, the Organisation for Economic Co-operation and Development (OECD) has established the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas. In addition, the United States has enacted the Dodd-Frank Wall Street Reform and Consumer Protection Act. This act requires companies listed on the U.S. stock exchanges to submit reports on their usage of conflict minerals to the U.S. Securities and Exchange Commission (SEC). In this manner, the United States is working to stop companies from using non-conflict-free minerals through disclosure and social pressure. Other initiatives in effect include the abovementioned Conflict-Free Smelter Program and the LBMA Responsible Gold Guidance, which pertain to the Group's products.

Group Responses to the Conflict Minerals Issue

In light of these global responses to the conflict minerals issue, the Group has established a management structure to respond to the issue, based on the Group's basic procurement policy, which now incorporates the conflict minerals clause. Specifically, we are working to comply with the LBMA Responsible Gold Guidance, and we have developed a due diligence management system and are advancing measures in the following three areas to achieve this compliance.

1. Supply chain due diligence: Identification of suppliers of raw materials, risk assessment, monitoring of raw materials at the Saganoseki Smelter & Refinery, traceability measures, storage of documentation, etc.
2. Dissemination of policies: Dissemination of the Group's supply chain policies among suppliers
3. In-house education and internal audits: In-house education and internal audits related to supply chain due diligence initiatives and the conflict minerals issue behind these initiatives

In addition, we report to customers using the EICC's conflict minerals reporting template. In this manner, we are taking steps to eliminate the usage of non-conflict-free minerals on the product supply side of operations.

VOICE

Kazuhiro Nitta
Assistant Manager, Legal Affairs Section, Administration Dept.
JX Nippon Mining & Metals Corporation / Pan Pacific Copper Co., Ltd.

We have constructed a management system for conducting the Groupwide procurement of raw materials in a manner that is pursuant to the global movement to address the conflict minerals issue. This system is built upon our basic procurement policy and our provisions for supply chain due diligence. The Group is thereby equipped to take appropriate steps to address this problem in accordance with the basic procurement policy across all areas of the supply chain, from upstream raw materials procurement to downstream product provision.

The most direct goal of these activities is to maintain our listings on the Good Delivery List and the Conflict-Free Smelter List. We thereby aim to prevent damage to the brand image of Group products and provide customers with products that can be used with peace of mind. However, it is always important that we reaffirm the underlying meaning of these activities: to avoid supporting human rights violations and conflicts and stop dehumanizing acts.

In the near future, the European Union is expected to launch a program geared toward eliminating the usage of non-conflict-free minerals. The Group will carefully monitor the trends in discussions regarding this issue. By responding to these trends, we aim to further improve upon our CSR activities and compliance promotion systems.

Environmental Activities Report

Basic Environmental Policy

Code of Conduct 5. Environmental Conservation

As a global manufacturer of nonferrous metal resources and materials, the JX Nippon Mining & Metals Group will drive forward the following activities based on the basic policy that it will contribute to environmental conservation on a global scale through innovation in the productivity of resources and materials.

Numerical Data of the Environmental Activities Report

In some tables, summations of individual figures and figures in total columns differ due to rounding.

Autonomous Action Plan for Environmental Conservation

Code of Conduct 5. Environmental Conservation

Environmental management system

1. Environmental management organization

The general manager of the Environment & Safety Department is responsible for coordinating environmental efforts. Based on the conviction that personnel on-site should be responsible for ensuring environmental protection, the top managers at each operating site serve as supervisory environmental managers. At the same time, we will further invigorate the Environment Measures Committee and advance mutual understanding between labor and management in relation to environmental protection.

2. Environmental management system

Through Groupwide commitment, from top management to frontline employees, and through appropriate implementation of the ISO 14001-compliant environmental management systems, we will continuously strengthen environmental conservation measures and reduce environmental risks.

3. Environmental auditing

Supervisory environmental managers at each operating site will carry out reviews of the results of internal audits conducted at each operating site to verify the status of environmental management and of compliance with environmental regulations. Additionally, the Environment & Safety Department's environment and safety audit team will carry out periodic environmental audits of each operating site, research and identify problems as well as areas requiring remediation from an environmental management perspective, and continually strive to improve accident prevention and environmental conservation measures.

Measures to be taken

We will undertake the following measures to minimize the environmental impact of the Group's business activities:

- Help prevent global warming
- Promote resource efficiency and recycling
- Reduce waste materials
- Better manage chemical substances
- Maintain biodiversity
- Promote our recycling business
- Promote technology and product development and introduce new technologies
- Promote green purchasing
- Conduct training, public relations initiatives, and social activities to communicate our Autonomous Action Plan and raise awareness of our environmental protection measures

Environmental conservation at our overseas businesses

1. Environment-friendly operations in our overseas business activities

We will ensure an appropriate approach to environmental conservation at overseas operating sites by promoting a thorough understanding of the need to take into account our environmental impact and of the need to strictly observe environmental regulations.

2. Environment-friendly importing and exporting activities

In addition to adhering to the Basel Convention on waste materials, we will strive to ensure that our exporting and importing partners cause no harm in the area of environmental conservation.

Emergency response measures

1. Emergency response manuals and drills

Emergency reporting systems are in place at the Companywide, business group, and operating site levels, and we have revised and organized emergency response manuals from the perspective of minimizing the environmental impacts of accidents. In addition, emergency response drills are conducted on a regular basis.

2. Responses to environmental accidents

Should an environmental accident occur during 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 other provisions.

Numerical Goals

We have defined the prevention of global warming and the reduction of waste materials as key issues to be tackled under our Basic Environmental Policy and set numerical goals related to these issues. Under the 3rd Medium-Term Action Plan (for fiscal 2013 to 2015), we will work to accomplish the following goals.

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

	Numerical goals for fiscal 2013	Performance in fiscal 2013	Overview
Energy consumption intensity*1	1% year-on-year reduction (at each operating site)	Achieved by 9 operating sites	Energy consumption intensity increased at several operating sites due to the impact of reduced production, and only nine out of 21 operating sites (approximately 40%) achieved the goal. Going forward, we will continue to improve equipment efficiency and enhance utility facilities in order to reduce energy consumption intensity.
Domestic CO_2 emission volume*2	Domestic cumulative emissions of less than 3.17 million tons for fiscal 2013 to 2015*3	840 thousand tons (Goal achieved)	Energy-saving measures resulted in a decrease in energy consumption, resulting in domestic CO_2 emissions falling approximately 246 thousand tons below the defined acceptable limit for fiscal 2013 (1,086 thousand tons). We will continue working to keep emissions below our defined acceptable limits for fiscal 2014 and onward.
Ratio of non-value-bearing waste volume*4	Maintain a ratio of less than 0.7%	0.6% (Goal achieved)	In fiscal 2013, the ongoing practice of expanding the separation of waste materials for reuse and thermal recovery resulted in the goal for the ratio of non-value-bearing waste volume being achieved at 0.6%. In fiscal 2014 and beyond, we will continue to reduce the volume of non-value-bearing waste.

Boundary

Domestic: The domestic Group operating sites that are classified as a Type 2 Designated Energy Management Factory or a higher level under the Act on the Rational Use of Energy (the Energy Saving Act), as listed below, are covered under the 3rd Medium-Term Action Plan.
Hitachi Works (HMC Dept., Copper Foil Dept., Precision Plating 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); Toho Titanium Co., Ltd. (head office, Chigasaki Works, Yahata Works, Wakamatsu Works, Kurobe Works) * The three operating sites marked with an asterisk are managed as one operating site.

Overseas: Changzhou Jinyuan Copper Co., Ltd.; JX Nippon Mining & Metals Philippines, Inc.; Gould Electronics GmbH; Nippon Mining & Metals (Suzhou) Co., Ltd. (precision rolling business)

*1 Under the 2nd Medium-Term Action Plan (for fiscal 2011 to 2012), energy consumption intensity was evaluated by utilizing indexed intensities for the entire Group. Conversely, from fiscal 2013, intensities will be evaluated on an individual operating site basis under the 3rd Medium-Term Action Plan.
The Group's overall performance will be evaluated based on whether or not the number of individual operating sites achieving energy consumption intensity goals increases or whether or not this number remains above a certain level going forward.

*2 Under the 2nd Medium-Term Action Plan (for fiscal 2011 to 2012), CO_2 emission intensity was evaluated by utilizing indexed intensities for the entire Group. Conversely, under the 3rd Medium-Term Action Plan, we have limited the scope of evaluation to CO_2 emissions volume from domestic operations. This decision was made based on the Fourth Basic Environment Plan released by the Japanese government, which states the goal of realizing a 25% reduction in CO_2 emissions from fiscal 1990's levels by 2020.

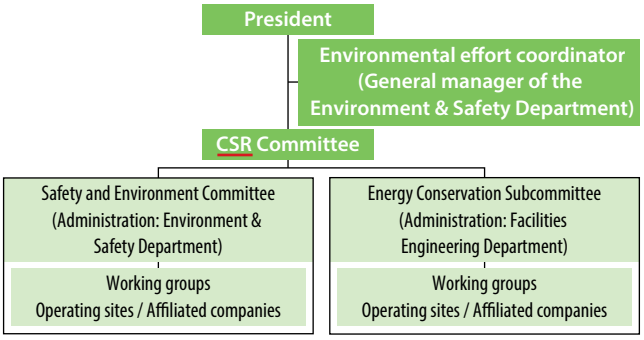
*3 Aiming to reduce CO_2 emissions volume from domestic operations in a phased manner, we targeted a 6% reduction from fiscal 1990's level in fiscal 2012 and are targeting a 25% reduction in CO_2 emissions from fiscal 1990's level by fiscal 2020. Based on this objective, we have determined a long-term goal for total emissions volumes over the period from fiscal 2013 to 2020. The 3rd Medium-Term Action Plan contains a medium-term target for the three-year period spanning fiscal 2013 to 2015. Emissions from fuel usage are calculated using the coefficients stipulated by the Act on Promotion of Global Warming Countermeasures. Emissions from electricity usage are calculating using the coefficient of 0.417 t-CO_2/MWh (the figure listed for fiscal 1990 in the Environmental Action Plan of the Federation of Electric Power Companies). This coefficient is applied uniformly to all domestic operating sites to make clear the successes of individual sites.

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

Environmental Management System

The JX Nippon Mining & Metals Group has established a Groupwide environmental management system in line with its Basic Environmental Policy on contributing to global environmental conservation and its Autonomous Action Plan for Environmental Conservation, which takes future environmental risks into account. By operating an environmental management system based on ISO 14001 standards, everyone within the Group, from senior management to on-site employees, is working together to continually improve environmental conservation activities and reduce environmental risks.

Environmental Management System Overview



Compliance with Environmental Laws and Regulations

Through the sound operation of environmental management systems at each operating site, the Group is enhancing compliance with environmental laws and regulations. The Environment & Safety Department at the corporate head office is the umbrella administration for compliance, working with supervisory departments at each operating site.

In fiscal 2013, there were no administrative penalties, such as the revocation of licenses, orders to suspend operations, orders to suspend the use of facilities, orders to improve operations, or fines incurred from regulatory bodies, due to violations of environmental laws or regulations.

Environmental Audit

The Group conducts internal audits at each operating site at least once a year. At the same time, the environment and safety audit team of the Environment & Safety Department undertakes periodic environmental audits. Through these efforts, we are working to continually improve pollution prevention and environmental conservation activities.

Environmental Education

The Group conducts periodic environmental education, training, and drills for all levels of employees at each operating site in order to spread awareness regarding the Basic Environmental Policy and the Autonomous Action Plan for Environmental Protection. Further, several employees have acquired qualifications regarding the environment. (See page 87 for details on the numbers of employees holding qualifications regarding the environment.)

Environmental Accidents

In fiscal 2013, the following environmental accidents occurred. However, necessary steps have been taken to address these accidents, and measures are in place to prevent reoccurrence.

Data of occurrence	Operating site	Overview
June 2013	Head office and Chigasaki Works of Toho Titanium Co., Ltd.	Titanium tetrachloride leaked from the pipe and released white smoke outside.
December 2013	JX Nippon Mining & Metals Philippines	Diesel oil leaked from a storage tank into a nearby river.
March 2014	Tamano Smelter of Hibi Kyodo Smelting Co., Ltd.	Electrolytic solution overflowed from a tank and flowed into a river via drainage channels.

Response to Environment-Related Complaints

We respond earnestly to any complaints from the local community. We make sincere efforts to rectify the situation by working to quickly assess the situation and develop necessary improvement measures. In fiscal 2013, a total of 16 environment-related complaints were received. In all cases, corrective measures were taken to resolve each of these issues (examples are provided in the chart below). Going forward, we will work to avoid incurring further complaints by preventing issues from occurring.

Operating site	Complaint	Response measures	Improvement measures
JX Nippon Mikkaichi Recycle Co., Ltd.	Release of particulate	Dust was released from the bag filter equipment that is used to collect workplace dust. Usage of the equipment in question was ceased, and an alternative was employed to eliminate dust release.	Monitoring measures were strengthened, including double-checks for the filter portion of the bag filter equipment and the monitoring of air pressure differences between the filter chamber and surrounding air.
JX Nippon Tsuruga Recycle Co., Ltd.	Release of foul odors	The foul-odor-producing sludge was disposed of, and the ore storage facility was cleaned with scrubbing brushes laced with deodorant.	Cleaning with scrubbing brushes laced with deodorant was made procedural.
Kasuga Mines Co., Ltd.	Release of particulate	Sprinklers were installed for use during loading operations at the port, and gravel was laid.	Sprinkler use was made procedural.

Environmental Evaluations of Suppliers

When purchasing the materials and equipment necessary for our business endeavors, we consider it essential to make purchasing decisions from the standpoint of reducing environmental impact. To that end, we practice green purchasing and have drawn up the Green Purchasing Policy together with the Green Purchasing Guideline based on this policy.

Green Purchasing Policy

Green purchasing initiatives contribute to the formation of a recycling-oriented society, prevention of global warming, and the promotion of reducing, reusing, and recycling.

In the purchasing of all materials and equipment, when the functions, price, and delivery date are similar, items to be purchased are evaluated based on the mandatory conditions and voluntary conditions as to the extent of environmental impact reduction, and the superior item is purchased.

Green Purchasing Survey

We conducted green purchasing surveys targeting our suppliers in fiscal 2013 with regard to matters such as their use of banned substances in the manufacturing process, the inclusion of banned substances in supplied products, procurement from companies with human rights problems, and procurement from conflict-affected regions. The surveys were conducted from October 2012 to September 2013, targeting 433 vendors that accounted for 95% of the value of the items purchased and accepted by the Company, JX Nippon Environmental Services, and Pan Pacific Copper. Responses were received from 354 vendors, for a response rate of 81%.

Our Business Activities and the Environment ☑

Code of Conduct 5. Environmental Conservation

The JX Nippon Mining & Metals Group strives to reduce the environmental impact arising from its business activities by precisely identifying and analyzing the impact.

Mass Balance Table for the Group

Raw materials (thousand tons)

PRIMARY MATERIALS	
Total of domestic operating sites	2,312
Total of overseas operating sites	290
RECYCLED RESOURCES	
Total of domestic operating sites	224
Total of overseas operating sites	16

Energy (TJ)

ELECTRIC POWER	
Total of domestic operating sites	12,827
Total of overseas operating sites	1,797
FUEL	
Total of domestic operating sites	4,199
Total of overseas operating sites	937

Water (thousand m³)

FRESHWATER	
Total of domestic operating sites	20,722
Total of overseas operating sites	1,868
SEAWATER	
Total of domestic operating sites	105,330
Total of overseas operating sites	0

INPUT

JX Nippon Mining & Metals Group

Principal products

Refined copper	634 thousand tons
Sulfuric acid	1,676 thousand tons
Gold	36 tons
Silver	297 tons
Platinum	540 kg
Palladium	2,905 kg
Other metals, such as selenium and tellurium	216 tons
Electro-deposited and treated rolled copper foils	17 thousand tons
Copper alloy and special steel strips and other related products	32 thousand tons
Titanium (sponge, ingots)	20 thousand tons

Emissions

CO_2 (thousand tons)	
Total of domestic operating sites	1,103
Direct emissions	291
Indirect emissions	812
Total of overseas operating sites	155
Direct emissions	56
Indirect emissions	99
SOx (tons)	
Total of domestic operating sites	4,336
Total of overseas operating sites	302
NOx (tons)	
Total of domestic operating sites	581
Total of overseas operating sites	196
CHEMICAL SUBSTANCES (RELEASE AND TRANSFER) (tons)	
Total of domestic operating sites (Domestic only)	589
FINAL LANDFILL DISPOSAL (tons)	
Total of domestic operating sites	1,686
Total of overseas operating sites	290
WASTEWATER (thousand m³)	
Total of domestic operating sites	150,878
Total of overseas operating sites	1,195

OUTPUT

Initiatives to Address Global Warming

Code of Conduct 5. Environmental Conservation

Fundamental Policy

The continued advance of global warming causes changes in the environment, such as a rise in the sea level and abnormal weather, and exerts an impact on ecosystems. Climate change may thus have some financial implications on the business of the JX Mining & Metals Group.

The initiative to address global warming is indispensable for not only the continuity of the Group's business but also the sustainable development of society. The Group has defined long-term targets for reducing emissions of CO_2 and other greenhouse gases, which it will pursue by promoting energy conservation and expanding the usage of renewable energy. In April 2012, the cabinet of the prime minister of Japan approved the Fourth Basic Environment Plan, which states the goal of realizing a 25% reduction in CO_2 emissions from fiscal 1990's levels by fiscal 2020. Our long-term goals have been set to match. To accomplish these goals, the 3rd Medium-Term Action Plan (for fiscal 2013 to 2015) defines the targets of decreasing energy consumption intensity by 1% each year and keeping the three-year total for CO_2 emissions volumes from domestic operations over the period of the plan to below 3.17 million tons.

Activity Results in Fiscal 2013

Energy Consumption and Energy Consumption Intensity in Manufacturing Activities

In fiscal 2013, the Group's overall energy consumption in terms of its calorific value was 19,760 TJ, compared with 21,843 TJ in fiscal 2012.*1 Currently, energy consumed at smelters and refineries accounts for approximately 50% of the Group's total energy consumption in Japan. The Group's energy consumption intensity at smelters and refineries for fiscal 2013 decreased by 0.5 point compared with fiscal 2012. This decrease in intensity was the result of the increased production of refined copper (up 2.6% year on year, or 15,897 tons) and the improvement in product yield rates at the Tamano Smelter of Hibi Kyodo Smelting.

The Group is working to realize more efficient use of energy by streamlining smelting and sulfuric acid processes and effectively using waste heat at the Tamano Smelter of Hibi Kyodo Smelting as well as at the Saganoseki Smelter & Refinery of Pan Pacific Copper. In addition, we introduced the permanent cathode method into the refining process to improve current efficiency. (See pages 31 and 32 for details.)

*1 The Group uses coefficients in correspondence with the Energy Saving Act at both domestic and overseas operating sites.

A breakdown of energy consumption is shown below.

FY2013	Electricity (indirect):	Domestic 12,827 TJ	Overseas 1,797 TJ
	Fuel (direct):	Domestic 4,199 TJ	Overseas 937 TJ

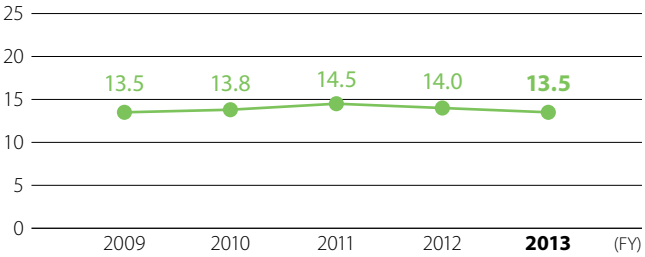
TJ: 10^{12} J

Energy Consumption (Fuel + Electricity)*2 ☑

(calorific value in TJ)

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

(GJ per ton of refined copper produced)



*2. Figures for Toho Titanium have been retroactively added to figures for past fiscal years.

Initiatives to Reduce Energy Consumption for Manufacturing Activities

In the 3rd Medium-Term Action Plan, we have defined the goal of decreasing energy consumption intensity by 1% per operating site for each fiscal year.

Initiatives targeting the accomplishment of this goal are being implemented at various operating sites. At the Saganoseki Smelter & Refinery of Pan Pacific Copper, we boosted our sulfuric acid processes. This move has increased the rate of boiler steam recovery, simultaneously raising the amount of electricity generated in-house and decreasing the amount of heavy fuel oil used for drying ore. These improvements have helped realize a reduction in energy usage of 147 TJ on a calorific value basis. At the Tamano Smelter of Hibi Kyodo Smelting, meanwhile, we installed additional heat-exchange equipment for sulfuric acid processes, which also increased the rate of boiler steam recovery and resulted in a reduction in energy usage of 178 TJ.

At other domestic operating sites, we are striving to reduce energy consumption by increasing yield rates, boosting facility efficiency, and improving operating conditions.

At overseas operating sites, energy consumption reductions are being targeted through the installation of pump-inverter control equipment and high-efficiency compressors. Going forward, we will pursue higher levels of energy conservation while installing energy-efficient equipment to realize better levels of heat recovery.

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

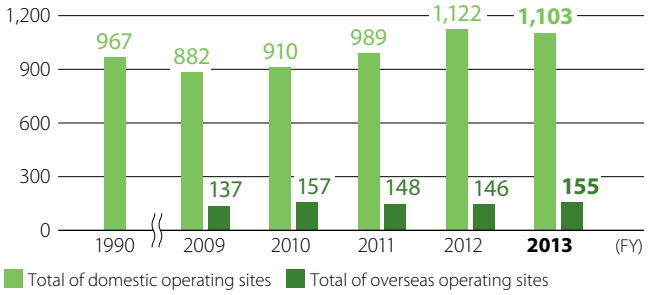
In fiscal 2013, the Group's total CO_2 emissions from energy consumption in Japan and overseas were 1,259 thousand tons. Despite a decrease in energy consumption volumes, CO_2 emissions from energy consumption were relatively unchanged from fiscal 2012. This result was due to an increase in electric power companies' CO_2 emission coefficients.

Energy consumed at smelters and refineries accounts for approximately 50% of the energy the entire Group consumes. The Group reduced CO_2 emission intensity at these sites to 0.95 in fiscal 2013, down approximately 30% from 1.34 in fiscal 1990. This reduction was a result of the consolidation of facilities and improved production efficiency.

*1 Emissions are calculated using emission coefficients in correspondence 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 (IEA) are used to calculate amounts of emissions from the electricity consumption of domestic and overseas operating sites, respectively. In addition to the emissions from energy consumption regulated under the abovementioned act, the Company includes in its calculations the CO_2 emissions from burning fuel that was used as a reducing agent with the exception of those emissions from titanium operations. These emissions are not included within the scope of the abovementioned act.

CO_2 Emissions from Energy Consumption[*2]

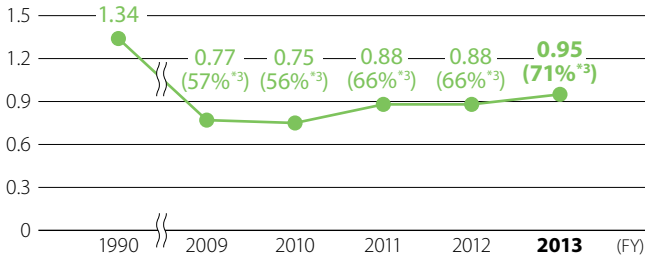
(thousand tons of CO_2)



*2 Figures for Toho Titanium have been retroactively added to figures for past fiscal years, with the exception of fiscal 1990.

CO_2 Emission Intensity at Smelters and Refineries

(tons of CO_2 per ton of refined copper produced)



*3 Percentage figures are calculated in comparison with the intensity of fiscal 1990.

CO_2 Emissions from Sources Other Than Energy Consumption[*1] and Other Greenhouse Gases[*2] from Manufacturing Activities

Operating sites in the recycling and environmental services business are required to 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 2013, such emissions totaled approximately 67 thousand tons of CO_2.[*3]

*1 Emitted during the disposal of waste oil, plastic, and rubber tires.

*2 Emissions are calculated using emission coefficients in correspondence with the Act on Promotion of Global Warming Countermeasures.

*3 With regard to greenhouse gases other than CO_2 from non-energy consumption sources, emissions of these gases in fiscal 2013 were either non-existent or below the levels requiring reporting.

Energy Consumption and CO_2 Emissions in the Logistics Stage

In fiscal 2013, energy consumption in the logistics stage of applicable Group companies in Japan[*1] was 534 TJ, and CO_2 emissions were 37.6 thousand tons, compared with 551 TJ and 38.9 thousand tons, respectively, in fiscal 2012. The ratio of sulfuric acid and slag exported was up slightly, resulting in domestic energy consumption and CO_2 emissions both decreasing by approximately 3% year on year.

In December 2013, we commissioned the *Koryu* multipurpose carrier, which shuttles between Japan and the west coast of South America. From Japan, the vessel carries sulfuric acid; from South America, it carries copper concentrate. Together with the *Mar Camino*, a ship already in service, *Koryu* is our second multipurpose carrier. The Group will continue to reduce logistics-related energy consumption and CO_2 emissions by improving loading ratios and enlarging lot sizes. In addition, our efforts will be directed toward optimizing transport methods by adopting fresh and innovative ideas, such as using multipurpose carriers. (See pages 29 and 30 for details.)

*1 Figures are the sums of energy consumption and CO_2 emissions of two Group companies—Kasuga Mines and Pan Pacific Copper—that are specified consigners as defined by the Act on the Rational Use of Energy.

Expansion of Renewable Energy Usage

The Group has engaged in hydroelectric power generation since 1907, during the days of Kuhara Mining, which was the predecessor of JX Nippon Mining & Metals. Today, we are carrying out power generation operations at the Kakinosawa Power Plant and selling the power generated to specified-scale electricity utilities (as defined by the Act on Special Measures Concerning Procurement of Electricity from Renewable Energy Sources by Electricity Utilities). In addition, we launched photovoltaic power generation operations (with a scale of 240 kW) at the Kakegawa Works of JX Metals Precision Technology in April 2013. Photovoltaic power generation is also being conducted at the Hibi Smelter of Pan Pacific Copper.

Renewable Power Generation in Fiscal 2013

Site	Total generation volume	Total volume of electricity sales
Kakinosawa Power Plant	25,974 thousand kWh	25,667 thousand kWh
Kakegawa Works photovoltaic power generation installation	409 thousand kWh	409 thousand kWh

Initiatives to Use Resources Effectively

Code of Conduct 5. Environmental Conservation

Fundamental Policy

If society is to develop in a sustainable manner, it is crucial that finite natural resources be used effectively.

The JX Nippon Mining & Metals Group is committed to helping prevent the depletion of natural resources and to reducing waste. To this end, we are pursuing the effective use of water resources and lowering the amount of waste put to final disposal by using recycled resources as raw materials, more effectively utilizing by-products, and recycling waste materials. For example, in the recycling and environmental services business we are leveraging the sophisticated technologies we have accumulated through our mining and nonferrous metal smelting operations to detoxify waste materials and recover value-bearing metals from these materials. Through these efforts, we are contributing to the creation of a society that conserves resources and has zero emissions. As part of our efforts to reduce waste volume, we adopted the concept of a non-value-bearing waste ratio to guide efforts to decrease incinerated waste to the volume of waste in addition to waste for final disposal. We have set the goal of keeping this ratio to less than 0.7% during the period of the 3rd Medium-Term Action Plan (for fiscal 2013 to 2015).

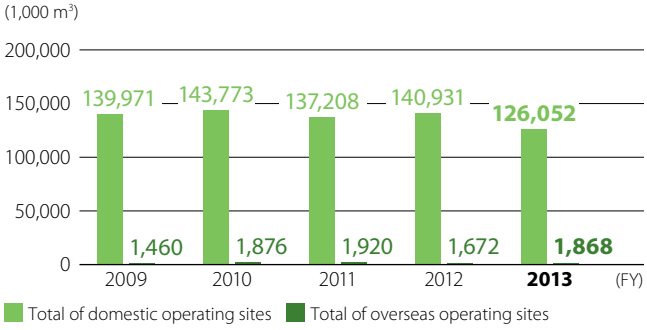
Activity Results in Fiscal 2013

Effective Use of Water Resources

The Group's water usage in fiscal 2013 amounted to 127,920 thousand m^3, of which 82% was seawater. The volume of water discharged was 152,073 thousand m^3, of which 89% was discharged into the sea.

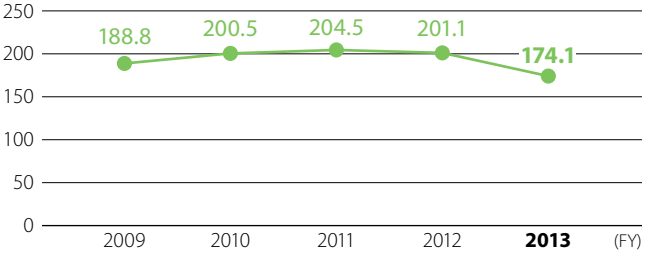
The volume of seawater usage at the Group's smelters and refineries, which are responsible for 86% of the Group's total water usage, decreased substantially in fiscal 2013 due to certain facilities reusing water for cooling purposes, as opposed to drawing in additional seawater. As a result, the total volume of seawater used declined approximately 14 million m^3, or 12%, year on year, and water usage intensity was down roughly 13%. The volume of seawater discharged decreased by around 13 million m^3 for the same reason, and water discharge intensity dropped by approximately 11% accordingly.

Water Usage*1

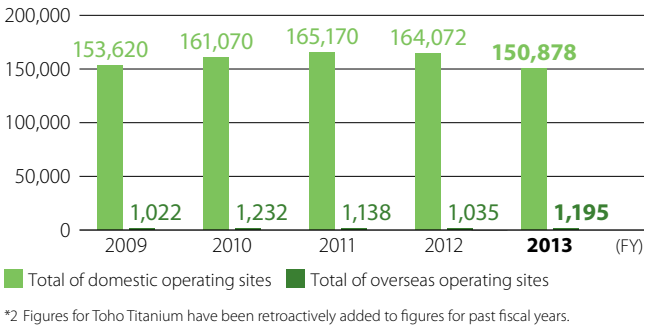


*1 Figures for Toho Titanium have been retroactively added to figures for past fiscal years.

Water Usage Intensity at Smelters and Refineries

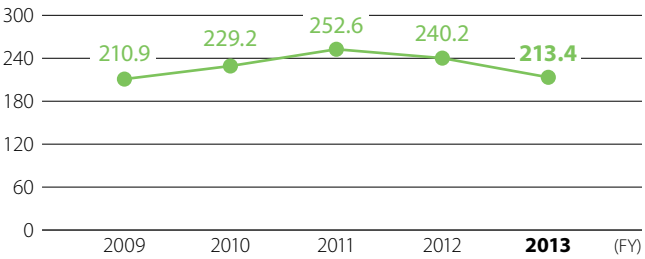


Discharge Volumes*2



*2 Figures for Toho Titanium have been retroactively added to figures for past fiscal years.

Discharge Intensity at Smelters and Refineries



Usage of Recycled Resources as Raw Materials

Unfortunately, the ores and other resources extracted from the natural environment are limited, and as a result these resources must be preserved for future generations. Based on this recognition, the Group is expanding its usage of recycled resources as raw materials to minimize the rate at which it consumes resources that are extracted directly from nature. In fiscal 2013, the Group's total material input was 2,843 thousand tons. Of this amount, recycled resources accounted for 240 thousand tons, or approximately 8.5% of the total material input.

Effective Utilization of By-Products

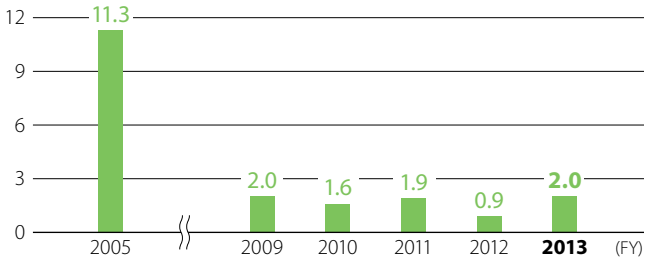
In fiscal 2013, the Group produced 3,435 thousand tons of by-products, including 1,676 thousand tons of sulfuric acid, 1,253 thousand tons of slag, 160 thousand tons of iron concentrate, and 347 thousand tons of gypsum. Slag is utilized as sandblasting materials, cement materials, caisson fillers, or as aggregates for wave-dissipating blocks. Iron concentrate and gypsum are used in cement.

Reuse and Reduction of Waste

The total volume of waste materials generated in fiscal 2013 was 360 thousand tons, of which 83%, or 299 thousand tons, was reused within the Group. As a result, the total volume of final waste discharge, including sales of value-bearing waste, was approximately 60 thousand tons. The volume of final disposal,*1 excluding the volume recycled externally or otherwise used, was approximately 2 thousand tons in fiscal 2013.The volume of final disposal was up year on year at certain operating sites due to external factors. However, the total volume of final disposal was down significantly from fiscal 2005. This result is attributable to our efforts to continuously and repeatedly reuse all neutralized slag generated at smelters and refineries. Another contributing factor was the expansion of applications for waste materials at smelters and operating sites manufacturing electronic materials through effective waste separation.

*1 The volume of final disposal is defined as the volume of materials disposed of in landfills directly by the Group as well as those materials for which the purpose of discharge could not be clearly identified as either recycling, heat recovery, or incineration.

Volume of Final Disposal*2



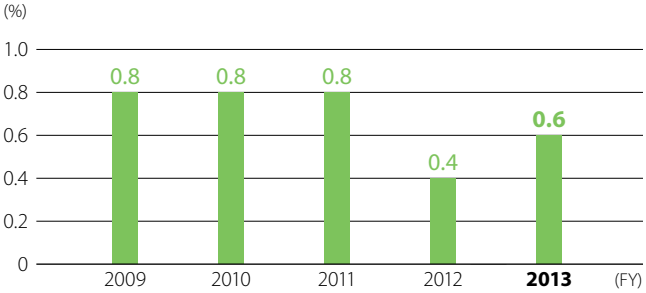
*2 Figures for Toho Titanium have been retroactively added to figures for past fiscal years. Figures for the volume of final disposal do not include Toho Titanium's offshore landfills.

Initiatives to Reduce Waste from Manufacturing Activities

With the launch of the 2nd Medium-Term Action Plan in fiscal 2011, the Group adopted the new concept of a non-value-bearing waste ratio, which accounts for the combined volume of waste for final disposal as well as incinerated waste that is not reused as recycled material. At the time, a goal was set for this ratio in order to facilitate the reduction of non-value-bearing waste. The 2nd Medium-Term Action Plan targeted a ratio of less than 1.0%, which was successfully accomplished. The current 3rd Medium-Term Action Plan aims to keep this ratio to less than 0.7%.

In fiscal 2013, this goal was accomplished with a ratio of 0.6%. Going forward, we will work to contribute to the creation of a society that conserves resources and has zero emissions by improving product yield rates and resource recovery rates and properly separating waste to raise the amount of waste that is recycled.

Ratio of Non-Value-Bearing Waste Volume*3



*3 Data for the ratio of non-value-bearing waste volume is collected for Group operating sites classified as a Type 2 Designated Energy Management Factory or a higher level under the Act on the Rational Use of Energy due to their energy usage (listed on page 64).

Environmental Risk Management

Code of Conduct 5. Environmental Conservation

Fundamental Policy

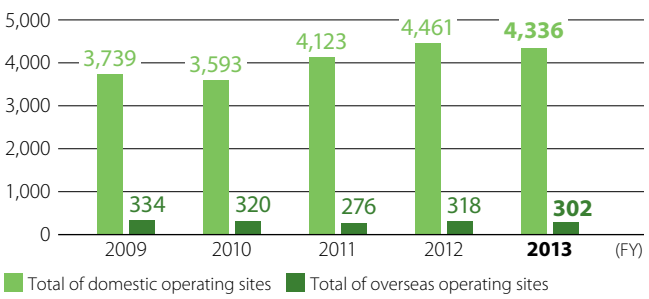
Air and water systems have a great influence on people's health and daily lives. The JX Nippon Mining & Metals Group places utmost importance on protecting the environment relating to these two systems. In addition to abiding by all relevant laws, regulations, and other ordinances to reduce the environmental impact, we have developed our own voluntary standards to monitor air and water emissions at our operating sites. We also implement the PDCA cycle to reduce environmental risks.

Activity Results in Fiscal 2013

Preventing Air Pollution

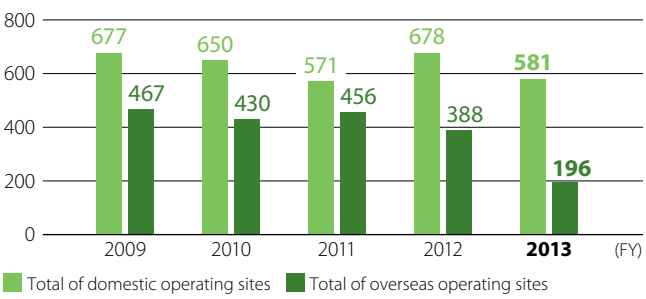
The Group monitors waste gas emissions at all operating sites in compliance with laws and regulations, ordinances, and agreements as well as its own voluntary standards. In fiscal 2013, emissions of both sulfur oxides (SOx) and nitrogen oxides (NOx) decreased year on year. SOx emissions decreased 142 tons due to a recovery in the level of desulfurization in sulfuric acid processes at domestic smelters and refineries following periodic maintenance. In recent years, we have been forced to refine more ores with high sulfur content, but we will continue taking various initiatives to reduce SOx emissions from smelters and refineries, including efforts to maintain consistently high sulfur inversion rates and to introduce environmentally friendly facilities. NOx emissions declined 288 tons year on year. This result was mainly due to a substantial decrease in emissions at an overseas electronic materials factory that maintained a low load operation for its electric power generation.

SOx Emissions Volume*1



*1 Figures are the total of emissions volumes from operating sites subject to legal requirements. Figures for Toho Titanium have been retroactively added to figures for past fiscal years.

NOx Emissions Volume*2

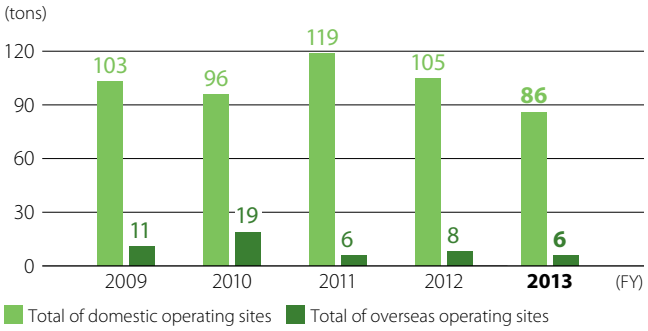


*2 Figures are the total of emissions volumes from operating sites subject to legal requirements. Figures for Toho Titanium have been retroactively added to figures for past fiscal years.

Preventing Water Pollution

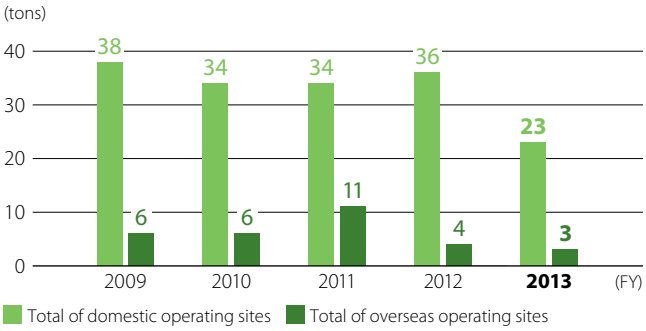
The Group monitors water discharge at all operating sites in compliance with laws and regulations, ordinances, and agreements as well as its own voluntary standards. The amounts of chemical oxygen demand (COD) and biochemical oxygen demand (BOD) are outlined in the graphs below.

COD*1



*1 Totals are for volumes from operating sites subject to legal requirements (sites that discharge wastewater into the ocean or lakes for domestic operating sites). Figures for Toho Titanium have been retroactively added to figures for past fiscal years. In addition, figures for past fiscal years have been restated due to mistakes regarding point of wastewater discharge for certain overseas operating sites.

BOD*2



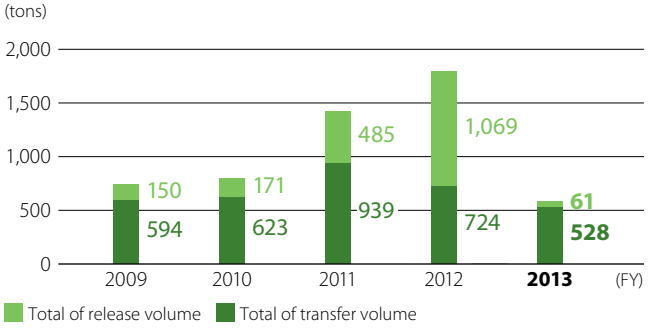
*2 Totals are for volumes from operating sites subject to legal requirements (sites that discharge wastewater into the ocean or lakes for domestic operating sites). Figures for Toho Titanium have been retroactively added to figures for past fiscal years. In addition, figures for past fiscal years have been restated due to mistakes regarding point of wastewater discharge for certain overseas operating sites.

Chemical Management

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 its environmental management activities, the Group is working hard to reduce its environmental impact by setting targets for decreasing the release and transfer volumes of specified chemical substances at each operational site. Further, the Group applies the standards of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS classification) in the compilation of safety data sheets (SDSs). We thereby strive to provide easy-to-understand information regarding the characteristics of chemical substances used and their handling.

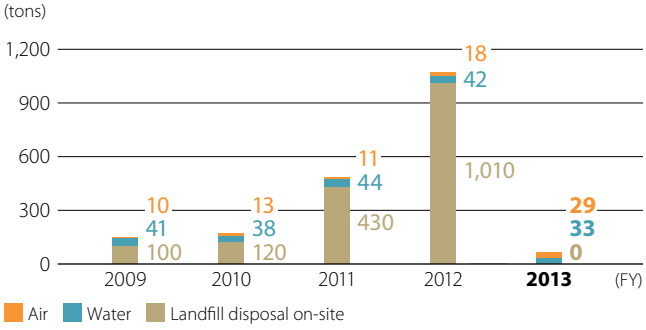
Regarding the Group's total release and transfer volumes of chemical substances to be reported in compliance with the PRTR Act, the release volume in fiscal 2013 decreased 1,008 tons from fiscal 2012. At the Toyoha Mine, the operation of the Motoyama Mine drainage treatment plant, which went onstream in fiscal 2012, resulted in approximately 1,000 tons of neutralized sludge being directed to its landfills. However, the smooth operation of the Motoyama Mine drainage treatment plant reduced the labor requirements of this facility, and the Toyoha Mine was removed from the scope of PRTR Act applicability during fiscal 2013 as a result. This led to the decrease in release volume for the year. Meanwhile, transfer volume decreased 196 tons, as certain operating sites in the recycling and environmental services business ceased usage of regulated substances.

Volume of Release / Transfer*1



*1 Figures for Toho Titanium have been retroactively added to figures for past fiscal years.

Breakdown of Release Volumes*2



*2 Figures for Toho Titanium have been retroactively added to figures for past fiscal years.

Initiatives Regarding Biodiversity

Code of Conduct 5. Environmental Conservation

Fundamental Policy

The JX Nippon Mining & Metals Group recognizes that initiatives for environmental issues are essential to corporate sustainability, and is actively and continually conducting voluntary environmental conservation activities based on this recognition. Biodiversity is one area for these activities.

Activities at the Caserones Copper Mine

Of the overall 385 km^2 (38,500 ha) of land owned by Minera Lumina Copper Chile (MLCC), which operates the Caserones Copper and Molybdenum Deposit Development Project, MLCC has designated 0.87km^2 (87ha) as protected area that is affected by the development work. Accordingly, animals and plants inhabiting this area are protected from the standpoint of biodiversity.

MLCC is in compliance with the following local regulations: 1) "In case trees are cut in a certain area, planting must be done for an area 1.6 times

larger than the trimmed forest area," and 2) "In case any protected plant is cut out of necessity, 10 times the number of the same type of plant must be planted." Under experts' guidance, plants in a wetland plant zone spanning 9,400 m^2 (9.4 ha) of the Caserones Valley were wholly transplanted to La Ollita Valley, the nearest place with an appropriate habitat.

The vega plant, one of the protected plants at the Caserones Valley site, has been confirmed to have rooted at the transplanted site. In February 2014, a survey was conducted to determine the rate of survival of the transplanted vegetation, which was found to be more than 90%.

Activities in Japan

The Group has been promoting reforestation activities mainly at the sites of closed mines. This report provides information on our reforestation activities in fiscal 2013 at the closed Takatama, Ryushoden, Oe, Toyoha, and Kameda mine sites. (See pages 77 and 78 for details of the administration of our closed mines.)

Closed Takatama Mine Site (Koriyama City, Fukushima)

At the site of the closed Takatama Mine, tree-planting activities have been conducted together with a local forest owners' cooperative since 2012. In fiscal 2012, test planting was conducted in which some 250 broadleaf saplings of five species (chestnut, zelkova, konara oak, kousa dogwood, and flowering cherry) were planted on a site of approximately 1,000 m^2 (0.1 ha) that was formerly a part of the mine site. The trees planted on this site are growing healthily, despite suffering some damage from wild boars. In fiscal 2013, steps were taken to prepare for full-fledged tree-planting efforts on a 15,000 m^2 (1.5 ha) area. For the previous nine years, thinning and other forest maintenance had been carried out around the site. Going forward, the planting of broadleaf trees will be conducted over a wider area with the aim of maintaining and improving the natural environment.

About the Takatama Mine

The Takatama Mine was acquired in 1918 and closed in 1976. During its operation, the mine produced gold. The closed mine is managed by Group company Shin-Takatama Mining.

Closed Ryushoden Mine Site (Monbetsu City, Hokkaido)

Reforestation activities commenced at the site of the closed Ryushoden Mine in fiscal 2011 and will continue until fiscal 2015, spanning a period of five years. In fiscal 2013, weeding was conducted around saplings planted on a site of approximately 48,000 m^2 (4.8 ha).

About the Ryushoden Mine

The Ryushoden Mine was acquired in 1960 and closed in 1974. During its operation, the mine produced mercury. Currently, Group company Hokushin Mining is conducting the treatment of wastewater at the site of this mine.

Closed Oe Mine Site (Niki Town, Hokkaido)

In July 2013, we planted roughly 6,300 Sakhalin Spruce saplings at the closed Oe Mine site in an area of approximately 30,000 m^2 (3 ha). The reforestation activities at this site started in fiscal 2008. Advancing a five-year-period plan that ended in fiscal 2012, approximately 24,500 saplings were planted in an area of 117,000 m^2 (11.7 ha). In fiscal 2013, a new reforestation plan was begun, and we conducted weeding around saplings planted on a site of approximately 106,000 m^2 (10.6 ha).

About the Oe Mine

The Oe Mine was acquired in 1915, and its operation was stopped in 1984. During the period of its operation, the mine produced manganese, gold, silver, copper, lead, and zinc. At present, Group company Hokushin Mining, is conducting the treatment of acid mine drainage from this site.

Ishiyama Impoundment at the Closed Toyoha Mine (Sapporo City, Hokkaido)

Aiming to transform the Ishiyama mining impoundment at the closed Toyoha Mine into a scenic forest, we have been thinning out the Japanese white birch growing naturally on this site and planting trees in the resulting spaces. Carried out in response to requests from local neighborhood associations, activities during fiscal 2013 included transplanting 15 North Japanese hill cherry trees.

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. In 2011, a water treatment plant was constructed at the former mine site through an investment of ¥10.0 billion. This plant is stringently treating wastewater from the mine, partially in consideration of the mine's location neighboring the Toyohira River, which supplies water to the citizens of Sapporo.

Closed Kameda Mine Site (Hakodate City, Hokkaido)

Reforestation activities commenced at the site of the closed Kameda Mine in 2007. In the four-year period from fiscal 2007 to fiscal 2011, approximately 31,300 saplings were planted in an area spanning roughly 145,200 m^2 (14.52 ha). In fiscal 2013, we conducted weeding around saplings planted on a site of approximately 115,200 m^2 (11.52 ha).

About the Kameda Mine

The Kameda Mine was acquired in 1915 and closed in 1919. When it was in operation, the mine produced gold, silver, and copper.

Management

Corporate Governance

Code of Conduct 2. Compliance with Laws and Regulations and Engagement in Fair Trade

The Group's basic aim in corporate governance is to enable us to go forward as a Group in implementing growth strategies and meeting the challenges of a changing business environment. The keys to these ends include being prompt and agile in making decisions and in carrying out operations, along with ensuring sound and transparent business management that earns the trust of stakeholders.

Corporate Governance System of the Group

Board of Directors

The Company has a Board of Directors to discuss issues stipulated in laws, regulations, and its Articles of Incorporation, as well as other important management issues. The Board is composed of the president and nine other directors.* Corporate auditors also attend Board of Directors meetings, where they offer opinions as necessary.

* All 10 directors are internal directors and serve concurrently as executive officers. The president and representative director of the Company concurrently serves as the chairman of the Board. Appropriate supervisory functions have been performed by the Company's holding company, JX Holdings, Inc.

Executive Meeting

The Company has established the Executive Meeting as an advisory body to the president. The Executive Meeting has consultations regarding important issues related to the management of the Company. The status of operational implementation is also reported to it. The Executive Meeting consists of the president and executive officers designated by the president. Full-time auditors can also attend the Executive Meeting and offer their opinions.

Corporate Auditors

Corporate auditors attend Board of Directors meetings, Executive Meetings, and other important meetings, offering their views as necessary for raising the effectiveness of audits. They also read important documents and meet with officers and employees of the Company and each Group company, with the aim of staying abreast of the status of the performance of officers and employees in their duties.

In addition, corporate auditors receive regular reports from the Internal Auditing Office and independent auditors regarding auditing plans and their implementation status and results, while exchanging views and information in order to pursue coordination with these parties.

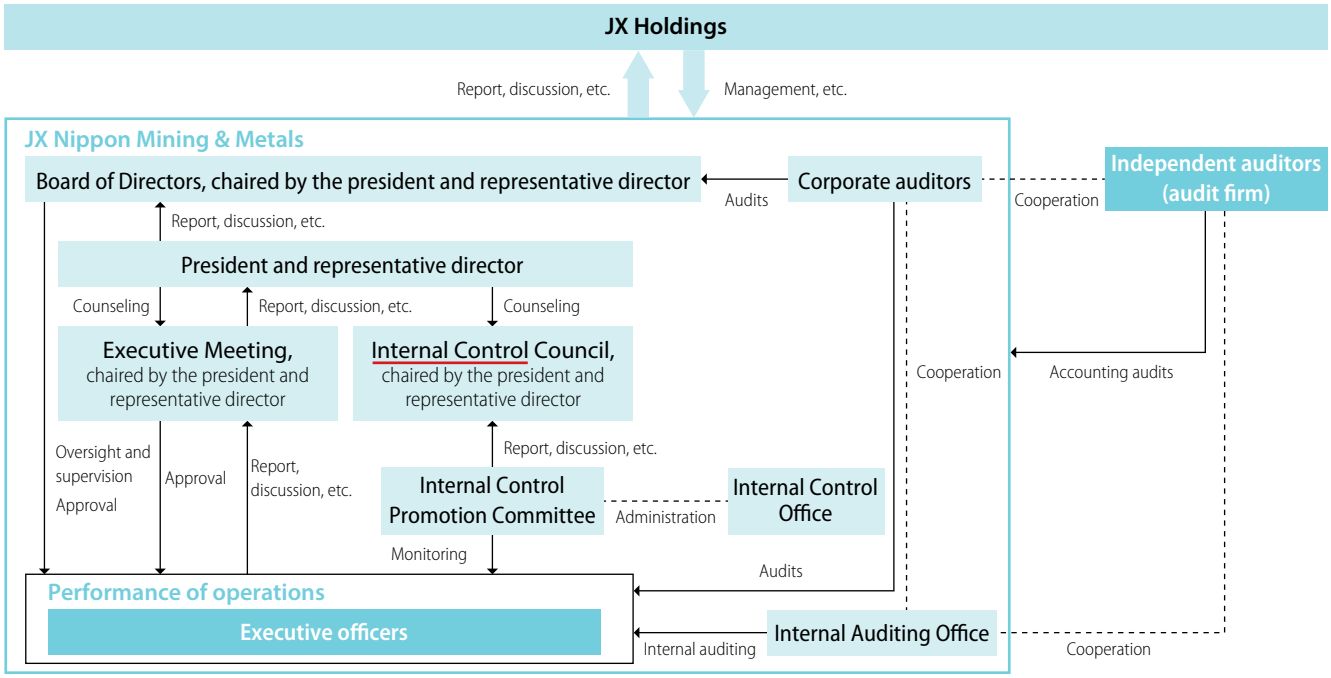
Compensation for Directors

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. Retirement benefits and stock options are not offered.

Management of Group Companies

Each Group company is placed under the jurisdiction of the appropriate operating or corporate division based on its business line, and the operational execution of each company is managed and monitored by the governing body. Important matters pertaining to the management of Group companies are communicated to the Company via the appropriate governing body, and these matters are reported to and discussed by the Board of Directors and the Executive Meeting and at 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 Internal Control Systems, laying out rules on such matters as corporate governance, compliance, internal auditing, and risk management. Based on this policy, we are establishing internal control systems that will ensure operations are carried out effectively 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 education

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.

Enhancing the internal control system

On May 1, 2013, we established an Internal Control Office in the Administration Department as part of efforts to improve the effectiveness of internal controls in the Group.

The Internal Control Office is engaged in providing education concerning internal control, helping Group companies create rules concerning organizational structure and authority, and building a system for reporting major incidents in the Group.

The following education on internal control was carried out in fiscal 2013.

- **Education for all officers and employees** (on the Mission Statement, etc.)
- **Education for officers** (on the responsibility of officers concerning misconduct, essential management issues relating to business administration, etc.)
- **Education for managers** (on the duties of managers, etc.)
- **Education for Group companies** (on the basics of internal control, etc.)
- **Education for administrative and accounting staff** (on the basics of internal control, etc.)

Compliance

We make sure that officers and employees of the Group comply with laws and regulations.

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.

Compliance Committee

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

Compliance education

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 displayed posters to introduce the program at operating sites, handed out pocket editions of the Mission Statement to all employees, created a section on the Company intranet dedicated to the program, and included the program in compliance education sessions.

Matters reported under the program are all treated appropriately in accordance with relevant rules and regulations.

In fiscal 2013, multiple reports were confirmed and were handled appropriately. There were no reports concerning discrimination.

Performance regarding Key Compliance Goals in Fiscal 2013

1 Survey of compliance status

We ask each department and operating site of the Group to fill out a questionnaire every six months in order to keep track of their compliance status, including the existence of compliance issues and concerns. In fiscal 2013, these surveys were conducted in September 2013 and March 2014.

2 Provision of compliance rules

We identified the roles of the Company's departments with regard to the rules and regulations of the Group as a whole. Under the leadership of the relevant departments, we devised a program for dealing with antisocial forces and clarified duties and authority across the entire Group.

3 Inspection of Environment and Safety-Related Compliance

With the cooperation of attorneys and consultants, we conduct an Inspection of Environment and Safety-Related Compliance, consisting of reviews to confirm the status of compliance with laws on the environment and safety, and awareness surveys to gauge the institutional climate of each workplace.

In fiscal 2013, we reviewed compliance with laws and regulations at seven of the Group's operating sites. Overall, laws and regulations on the environment and on workers' safety and health were well understood at these sites, and the reviews did not find any significant deficiencies in comprehension.

Meanwhile, the results of the fiscal 2012 awareness surveys enabled us to continue implementing effective measures at each operating site according to individual circumstances.

4 Labor compliance inspections

Labor compliance inspections are conducted to check various systems related to working conditions and how they are operated. In fiscal 2013, inspections were implemented at 19 Group companies as part of efforts to expand them to the entire Group during the three years from fiscal 2012 to fiscal 2014. A public consultant corporation specializing in social and labor insurance, which was chosen as the company to carry out the inspections, adopted the approach of reviewing the rules of each company and interviewing people responsible for administering general affairs as well as employees and others.

5 Interviews on compliance with laws

In individual and group interviews and by other means, employees were asked to report frankly any concerns they had about matters that might lead to legal infractions, accidents, or quality problems, so that compliance issues and concerns could be identified and addressed at an early stage. In fiscal 2013, these interviews took place in December 2013 and March 2014.

6 Compliance education

The Group carries out systematic educational programs on a broad range of compliance issues, at all levels including officers. To further understanding of compliance as a whole, we conduct training geared to each level and each operating site, while providing education tailored to the nature of operations at each department and site on issues such as security trade control and the Authorized Exporters' Program.

The following compliance education was carried out in fiscal 2013.

Compliance education in level-based training:

Programs for officers, general managers, newly promoted managers, newly promoted supervisors, university (graduate school) graduates in their third year, newly hired university (graduate school) graduates, and persons hired as mid-career professionals

Compliance education specific to domestic operating sites:

Head office, Pan Pacific Copper (Saganoseki Smelter & Refinery, Hibi Smelter), JX Nippon Tomakomai Chemical, JX Nippon Mikkaichi Recycle, JX Nippon Tsuruga Recycle, JX Metals Precision Technology (head office, Kakegawa Works, Tatebayashi Works), Kasuga Mines

Compliance education on specific themes:

- Security trade control and the Authorized Exporters' Program (for head office, Isohara Works, and Hitachi Works)
- Act on Prohibition of Private Monopolization and Maintenance of Fair Trade (Antimonopoly Act) (for head office, Hitachi Works, and JX Nippon Tomakomai Chemical)
- Conflict minerals (for Pan Pacific Copper)
- Waste Management and Public Cleansing Act (for recycling and environmental services business group personnel, etc. (JX Nippon Tsuruga Recycle, JX Nippon Tomakomai Chemical, and JX Nippon Mikkaichi Recycle))
- Stamp Tax Act (for marketing and accounting personnel in head office)
- Contracts (for marketing personnel in head office)

Internal Auditing

Internal auditing, performed for the Group as a whole, is the responsibility of the Internal Auditing Office. The purpose is to investigate, study, and assess the status of business administration, operations, and assets preservation from the standpoints of their legality, efficiency, and effectiveness.

The Internal Auditing Office draws up a medium-term internal auditing policy at about three-year intervals and an internal auditing plan for each fiscal year, carrying out internal auditing on a fixed schedule. In addition to these internal audits, in fiscal 2013 we instituted new annual audits of Group companies, conducted in collaboration with corporate auditors sent from the Company, so as to expand the coverage and frequency of audits.

Risk Management

Code of Conduct 6. Enhancement and Strengthening of Risk Management

The JX Nippon Mining & Metals Group endeavors to enhance and strengthen risk management by establishing an appropriate system based on substantial data.

Response to Crises and Emergencies

The JX Metals Group Crisis and Emergency Response Regulation describes our response when a crisis or emergency threatens to have a major impact on Group management.

Based on the disaster response guidelines under these rules, employees are provided with helmets and other disaster-prevention equipment and emergency kits. In addition, emergency provisions are stocked, including food, drinking water, and materials for overnight stays on Company premises.

Standard rules are also drawn up for reporting in cases of natural disasters, environmental pollution, fires, explosions, or other emergencies, and a structure is in place so that necessary information can be gathered in a timely manner to enable a prompt and smooth response to all crises and emergencies.

Protection of Personal Information

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

Information Security

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

Strengthening Institutional Measures for Eliminating Associations with Antisocial Forces (Organized Crime Groups)

Code of Conduct 9. Elimination of Antisocial Activities

The JX Nippon Mining & Metals Group has made the elimination of antisocial activities part of its Code of Conduct, and it takes measures to prevent any association with antisocial forces.

As the Tokyo Metropolitan Ordinance for Eliminating the Organized Crime Groups came into effect in October 2011, all prefectures in Japan now have similar ordinances in place. As a result, companies doing business anywhere in Japan must strive to confirm that their business partners do not comprise antisocial forces, and they must incorporate in contracts provisions on the termination of transactions with antisocial forces ("antisocial forces elimination clauses").

The Group referred primarily to the objectives of these ordinances to draw up the JX Metals Group Basic Regulation on Handling of Antisocial Forces. Besides incorporating clauses to eliminate antisocial forces in contracts with business partners, we have introduced screening investigations by external specialist organizations and are in the process of creating and implementing a program for eliminating associations with antisocial forces. In March and April 2014, we held explanatory meetings at our head office and operating sites to present this new program and the procedures for its implementation. A total of around 500 persons attended these meetings, including participants from Group companies, as we attempted to create a common awareness in the Group.

Principles of the Program for Dealing with Antisocial Forces

1. **Carry out the following for all business partners at the start of transactions:**
   - Screening by an external specialist organization;
   - Conclusion of a memorandum of understanding (MoU) on elimination of antisocial forces that includes provisions representing and warranting that the party does not comprise an antisocial force.
2. **Promptly report and seek advice if a business partner is found to comprise an antisocial force, or is suspected of comprising an antisocial force.**

VOICE

Masahide Tamura
Staff member,
Legal Affairs Section,
Administration Department

The importance of creating organizational readiness

With the increasing number of reports in newspapers, on TV, and in other media about improper relationships between companies and antisocial forces, I get the impression that the public is becoming more interested in how companies deal with this issue.

If a company mishandles how it deals with antisocial forces, it faces a variety of risks, including administrative sanctions, but the most serious risk of all is reputational risk. There have been actual cases, in fact, where a company failed to deal properly with an issue that started out as a minor incident, but ended up having a huge impact on its business. For companies, it is increasingly important not just to focus on taking urgent action in a crisis but to build effective organizational readiness from the start.

Facing up to antisocial forces as an organization

In dealing with antisocial forces, it is important to follow predetermined rules and to respond and make decisions as an organization, not as individuals. Sticking to the rules is also a way of ensuring that not only the company but the people directly involved will be protected when a crisis arises.

In the Group as well, now that we have drawn up rules for dealing with antisocial forces, we need to make sure people are familiar with them so that they carry out their duties properly in accordance with the rules.

Risk Management at Closed Mines

Management measures taken at closed mines are described here to illustrate the types of risk management conducted by the JX Nippon Mining & Metals Group.

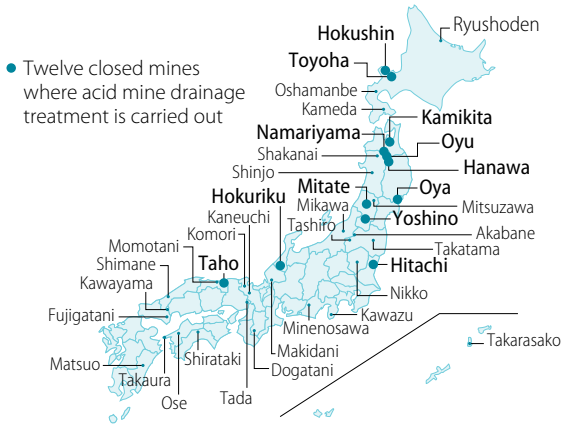
Management of Closed Mines

From the founding of our business in 1905, the 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, which includes the processing of acid mine drainage.

As part of the DNA Training program conducted each year, employees visit the acid mine drainage treatment facility at the Toyoha Mine and hear presentations by top management, increasing awareness of the Group's history of environmental initiatives and the environmental management being carried out today at closed mines.

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

Closed mines managed by the Company



Permanent Protective Measures at the Kayakari Impoundment of the Oya Mine

After the Great East Japan Earthquake of March 2011 damaged the Kayakari Impoundment of the Oya Mine, we undertook a major construction project aimed at permanently protecting the surrounding environment from mine tailings. When the work was completed in December 2013, we held a ceremony and invited local residents to view the site.

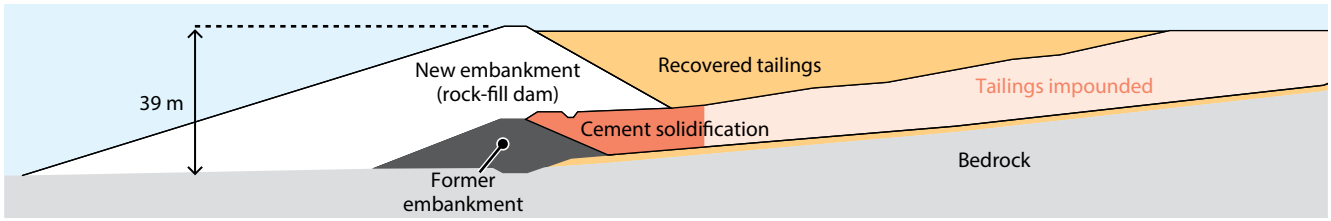
Completed Kayakari Impoundment

Liquefaction from the earthquake had caused an outflow of tailings from the Kayakari Impoundment into the nearby Kayakari Stream basin. Moreover, the backwash from the tsunami accompanying the earthquake carried some of the tailings close to the mouth of the Akaushi River.

In consultation with the relevant authorities and experts, we removed the tailings and proceeded with work to restore the waterways and agricultural land. By May 2013, we had returned all agricultural and other land to its owners. During this time, we held explanatory meetings for local residents, describing the nature of the restoration work and progress toward its completion.

As a permanent protective measure, the height of the embankment around the impoundment was raised from the original 15 meters to 39 meters, ensuring that no outflow of tailings would occur even in the event of an earthquake of similar or greater scale to the one of March 2011.

Illustration of permanent protective measures



Voluntary Impoundment Inspections

The Great East Japan Earthquake prompted the government to adopt stricter building standards in the form of technical guidelines for impoundments. In the case of impoundments with an upstream raised embankment,* the new guidelines require studies to assess their stability in a Level 2 earthquake (seismic motion of the maximum intensity conceivable for the particular area both now and in the future).

Starting in fiscal 2012, we began conducting voluntary risk assessments of all impoundments under management of the Group relative to a Level 2 earthquake. At the same time, we assessed their stability in localized torrential rain of the type that has become increasingly common in recent years, as well as the possible downstream impact from the outflow of tailings from the impoundments. After determining the risks by means of these voluntary inspections, we set priorities for those impoundments identified as requiring further measures and began the necessary construction work starting in fiscal 2013.

* Built by piling up tailings against the inside of the embankment

Voluntary inspections carried out

(1) Earthquake risk assessment

We assessed a total of 46 impoundments—not limited to those with an upstream raised embankment—as to their stability in a Level 2 earthquake.

(2) Torrential rain risk assessment

We assessed 46 impoundments for drainage capacity, landslide risk, and risk from fallen trees in case of localized torrential rain.

(3) Assessment of downstream impact

To determine the impact if tailings were to flow out of an impoundment, we conducted surveys, primarily targeting dwellings, important facilities, and water intake locations downstream from impoundments, and performed tailing runoff analyses for 39 impoundments.

Countermeasures

For those impoundments determined by the voluntary inspections to require countermeasures, we are proceeding with construction work. The work includes soil stabilization to ensure earthquake resistance and building new water channels to ensure drainage capacity during torrential rain.

1 Locations of countermeasures implemented in fiscal 2013

Earthquake-related: two locations	Kamikita Mine, Shimonosawa Impoundment (upstream raised embankment; ongoing)
	Fujigatani Mine, 1st Impoundment (upstream raised embankment; completed)
Torrential rain-related: two locations	Kamikita Mine, Tashirodaira 1st Impoundment (downstream raised embankment; ongoing)
	Hanawa Mine, Tanosawa Impoundment (downstream raised embankment; ongoing)

2 Locations of countermeasures planned for fiscal 2014

Earthquake-related: one location	Mitsuzawa Mine, 4th Impoundment (upstream raised embankment; planned)
Torrential rain-related: four locations	Tada Mine, Shiroishi Impoundment (downstream raised embankment)
	Komori Mine, 2nd Impoundment (upstream raised embankment)
	Fujigatani Mine, 2nd Impoundment (upstream raised embankment; planned)
	Fujigatani Mine, 3rd Impoundment (downstream raised embankment; planned)

Kamikita Mine, Tashirodaira 1st Impoundment, where torrential rain countermeasures were implemented

VOICE

Hiroyuki Taguchi
Engineer,
Facilities Engineering Department

Implementation of Voluntary Impoundment Inspections

The maintenance of closed mines is something we do year round, but the recent large-scale voluntary inspections of impoundments were occasioned directly by the damage to the Oya Mine's Kayakari Impoundment and Takatama Mine's Zenigami Impoundment in the Great East Japan Earthquake. This prompted us to determine what kinds of similar risks are faced by other impoundments.

We began implementing countermeasures based on the results of these inspections in fiscal 2013. In the work at the Fujigatani Mine's 1st Impoundment, completed in March 2014, tailings in the impoundment were solidified with cement to reinforce them for better earthquake resistance. Meanwhile, measures to deal with torrential rain were implemented at several locations including the Kamikita Mine and Hanawa Mine; this entailed modifying or repairing water channels to give them more drainage capacity to handle the recent rise in rainfall levels.

Management of Closed Mines

Many of the mines in Japan are in remote mountainous locations lacking public telephone and electricity infrastructure, making the task of maintaining equipment at closed mines a difficult one.

The actual maintenance work at closed mines managed by the Company is the responsibility of JX Nippon Mining Ecomanagement. The main duties are maintaining the mine equipment and treating acid mine drainage flowing out of the mines and impoundments. To make sure no acid mine drainage flows untreated into rivers or other waterways, treatment continues 24 hours a day, and the status is reported as necessary to the government agency responsible for oversight.

The treatment of acid mine drainage from closed mines is a responsibility that must be borne by the company that operated the mine and developed its resources. As we strive for coexistence with local communities, therefore, we are taking environmental measures that address both infrastructure and remedial action, such as upgrading the drainage treatment facilities and boosting their capacity, in addition to planting trees at former mining sites.

Production Sites in Japan and Overseas Operating Sites

As of June 1, 2014

Domestic

1 JX Nippon Tomakomai Chemical

2 Esashi Works,
JX Metals Precision Technology

3 Ichinoseki Foil Manufacturing

4 Isohara Works
JX Nippon Foundry

5 Hitachi Works
Hitachi Works, Pan Pacific Copper
JX Nippon Environmental Services
Kamine Clean Service
Hitachi Plant, Toho Titanium

6 Tatebayashi Works,
JX Metals Precision Technology

7 Nasu Works, Metal Mold
Production & Development Center,
JX Metals Precision Technology

8 Kurami Works, Kawasaki Plant
Kawasaki Office, JX Nippon
Coil Center

9 Kurami Works
Kurami Office, JX Nippon Coil Center
Chigasaki Plant, Toho Titanium

10 Shimoda Onsen

11 JX Nippon Mikkaichi Recycle
Kurobe Plant, Toho Titanium

12 Kakegawa Works,
JX Metals Precision Technology

13 Tsuruga Plant
JX Nippon Tsuruga Recycle

14 Takatsuki Plant, JX Metals Trading

15 Tamano Smelter,
Hibi Kyodo Smelting
Hibi Smelting Logistics

16 Yahata Plant, Toho Titanium
Wakamatsu Plant, Toho Titanium

17 Saganoseki Smelter & Refinery,
Pan Pacific Copper
Saganoseki Works,
Japan Copper Casting
Nissho Ko-un

18 Kasuga Mines

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 Copper Mine

6 Los Pelambres Mine

7 Chile Office
Chile Office, 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 Nikko Metals Trading & Services (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 Nikko Metals Taiwan Co., Ltd.
Taipei Office, Pan Pacific Copper Co., Ltd.

17 JX Nippon Mining & Metals Philippines, Inc.

18 Thai Office, Pan Pacific Copper Co., Ltd.

19 Materials Service Complex Malaysia Sdn. Bhd.

20 JX Nippon Mining & Metals Singapore Pte. Ltd.

21 Pan Pacific Copper Exploration Australia Pty Ltd.

22 Gould Electronics GmbH

23 JX Nippon Mining & Metals Europe GmbH

Corporate Data

Company Name:
JX Nippon Mining & Metals Corporation

Paid-in Capital:
¥40.0 billion (Ownership: JX Holdings, Inc. (100%))

Representative:
Shigeru Oi, President and Chief Executive Officer

Net Sales:
¥1,039.1 billion (consolidated result for fiscal 2013)

Ordinary Income:
¥47.4 billion (consolidated result for fiscal 2013)

Head Office:
6-3, Otemachi 2-chome, Chiyoda-ku,
Tokyo 100-8164, Japan

Business Lines:
- Resources Development
- Smelting and Refining
- Electronic Materials
- Recycling and Environmental Services

Total Number of Employees (Non-consolidated):
1,317 (as of March 31, 2014)

Total Number of Employees (Consolidated):
6,700 (as of March 31, 2014)

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 Sites:*
Chile Office

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

Management Data

Health and Safety Data

Establishment and Operation of a Health and Safety Management System

Our Basic Policy on Health and Safety calls on us to pursue the "establishment and efficient operation of a health and safety management system." Based on this policy, we have obtained and currently manage the OHSAS 18001 certification at operating sites directly run by the Company and major domestic affiliated companies as described in the table below.

Operating Sites That Have Obtained OHSAS 18001

Fiscal year certification was obtained	Operating sites
Fiscal 2006	Hibi Smelter, Pan Pacific Copper Co., Ltd. (including Tamano Smelter, Hibi Kyodo Smelting Co., Ltd., 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 Ko-un Co., Ltd., PPC Plant Saganoseki Co., Ltd.), Nikko Metals Taiwan Co., Ltd. (Bade Works)
Fiscal 2009	Isohara Works (including Isohara Administration Office of JX Nippon Foundry Co., Ltd.), Isohara Fabricating Works, 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.

Introducing a Safety-Related Commendation System

In September 2011, we introduced a safety-related commendation system at operating sites directly run by the Company and domestic affiliated companies. Through this system, the president officially commends operating sites that have continuously operated without an accident for a designated period, which is determined according to the number of personnel. In fiscal 2013, the following four operating sites received commendations.

Operating Sites Officially Commended for Safe Operations (Fiscal 2013)

	Operating sites
Commended for complete eradication of accidents	Isohara Works, JX Nippon Foundry Co., Ltd., Nasu Works, Metal Mold Production & Development Center, JX Nippon Tomakomai Chemical Co., Ltd.
Commended for zero serious accidents	Tatebayashi Works, JX Metals Precision Technology Co., Ltd.

Operating Sites Officially Commended for Safe Operations

Isohara Works, JX Nippon Foundry

Nasu Works, JX Metals Precision Technology

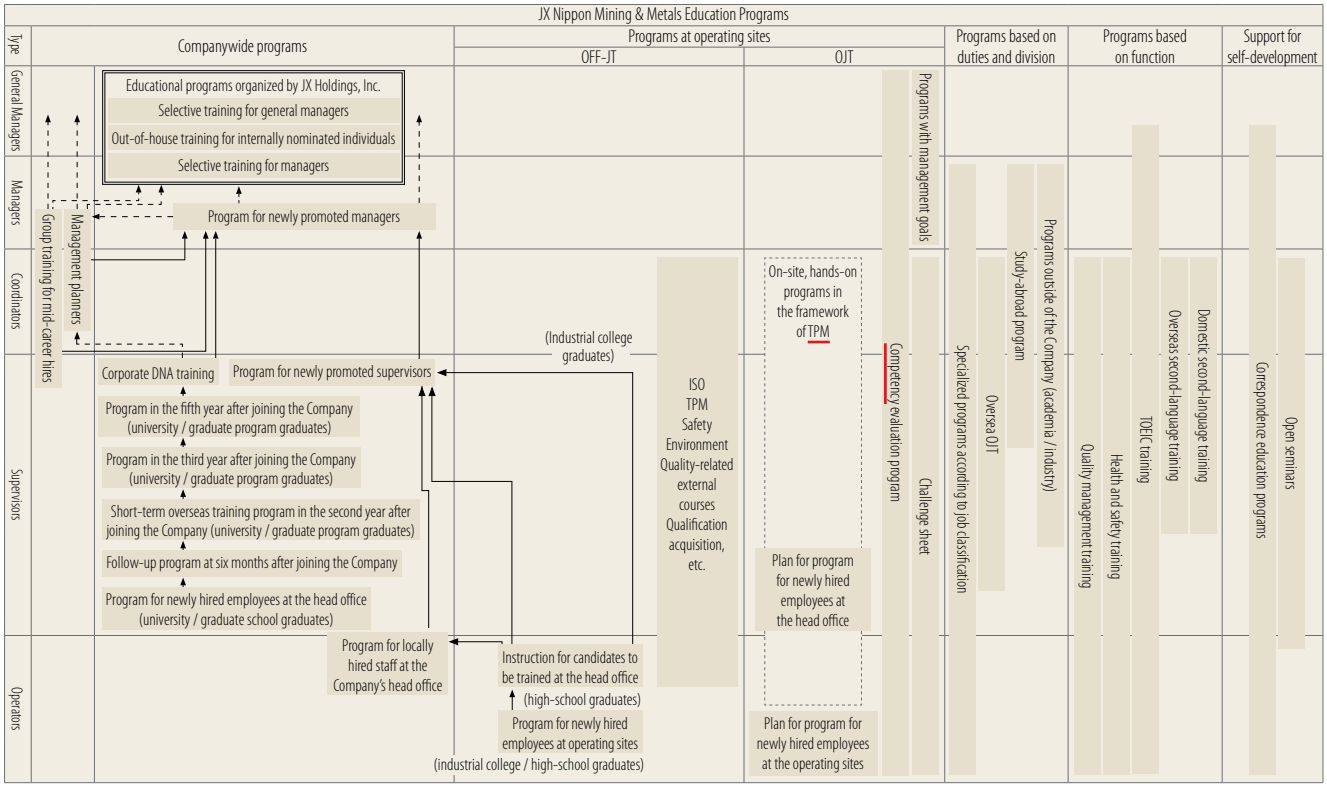
JX Nippon Tomakomai Chemical

Tatebayashi Works, JX Metals Precision Technology

Human Resources Data

Human Resources Development Systems

JX Nippon Mining & Metals　Human Resources Development Systems and Education Programs



Systematic Education Programs for University and Graduate School Graduates

University and graduate school graduates take part in systematic education programs that carry on for a certain number of years after they join the Company. These programs are designed to endow employees with specific business skills and deepen their understanding of the Company's business.

Educational Programs Implemented in Fiscal 2013

Program for new employees	1 Understanding the current business conditions and management issues of the Company and its corporate social responsibility. 2 Acquiring basic skills requisite to a businessperson, including business manners, English conversation, financial accounting, team building, etc. 3 Developing a sense of cooperation and camaraderie among employees entering the Company at the same time.
Program at six months after joining the Company	1 Looking back on their lives as members of society after entering the Company and examining current issues. 2 Strengthening basic skills requisite to a businessperson, such as communication and presentation.
Program in the third year after joining the Company	1 Deepening understanding of the current business conditions and management issues of the Company. 2 Acquiring additional business skills, such as logical thinking. 3 Understanding role expectations and enhancing motivation.
Program in the fifth year after joining the Company	1 Cultivating autonomous problem-solving skills by having employees raise issues faced in actual work at training sessions in order to experience first-hand the problem-solving process and uncover issues for self-improvement to foster an ability to solve one's own problems. 2 Acquiring business skills necessary for problem solving, such as problem identification, problem resolution, project management, etc., as the final step in the educational programs for university-graduate employees.
Corporate DNA training	1 Deepening understanding of the Company's social responsibility in relation to operational management and its initiatives through a study tour of the Toyoha Mine, a representative example of these initiatives, and other activities. 2 Deepening understanding of the Company's corporate philosophy and its corporate DNA, and at the same time encouraging trainees to be proud employees of the Company by instilling an awareness of the place of their duties in this framework.

Education Program for Global Readiness

Overview of the Education Program 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 that have received approval from their manager (two-hour weekly classes, tuition paid by the Company).
In-company TOEIC training	Those interested (mandatory for graduates of university or graduate school up until their 10th year of employment)	TOEIC tests administered annually.
Global readiness education geared to job type	Individuals selected from each job type	Global readiness education programs prepared and instituted based on circumstances surrounding each job type.

Workforce and Labor Union Data ☑

JX Nippon Mining & Metals and 53 Group companies (35 domestic, 18 overseas) included in the boundary of reporting

Breakdown of Employees (As of March 31, 2014)

(people)

	Full-time			Others			Total	Temporary employees	Total workforce
	A	B	Subtotal	A	B	Subtotal			
Domestic companies (35)	5,585	534	6,119	33	83	116	6,235	195	6,430
Overseas companies (18)	1,734	414	2,148	6	0	6	2,154	26	2,180
Total	7,319	948	8,267	39	83	122	8,389	221	8,610

* The "domestic companies" category includes the Company. The "full-time" category encompasses regular employees and employees working equivalent hours to regular employees.

A. Employees not on fixed-term contracts

B. Employees on fixed-term contracts

Average Age and Average Number of Years of Service (As of March 31, 2014)

	Age (years)			Years of service (years)		
	Men	Women	Total	Men	Women	Total
Domestic companies (35)	40.9	39.9	40.8	12.8	9.6	12.5
Overseas companies (18)	37.3	34.4	36.7	6.3	6.5	6.3
Average	40.1	37.5	39.8	11.3	8.2	10.9

* The "domestic companies" category includes the Company.

Number of Managers Employed at Overseas Operating Sites (As of March 31, 2014)

(people)

Local employees	Number of which are managers
2,148	153

* Local employees are those that work at overseas Group companies.
* The figures in the table on the left represent the number of full-time employees. Managers are those employees positioned as manager or higher.
* Approximately 97% of local employees possess citizenship of the countries in which they are employed.

Distribution of Managers (As of March 31, 2014)

By Region

(people)

Region	Managers			Others			Total		
	Men	Women	Subtotal	Men	Women	Subtotal	Men	Women	Subtotal
Japan	1,813	51	1,864	3,680	468	4,148	5,493	519	6,012
North America	26	1	27	47	16	63	73	17	90
South America	261	35	296	322	36	358	583	71	654
Asia	264	99	363	729	249	978	993	348	1,341
Europe	20	1	21	129	14	143	149	15	164
Oceania	6	0	6	0	0	0	6	0	6
Total	2,390	187	2,577	4,907	783	5,690	7,297	970	8,267

* The figures in the table on the left represent the number of full-time employees. The "managers" category encompasses general managers, managers, assistant managers, and supervisors.

By Age Group

(people)

Age group	Managers			Others			Total		
	Men	Women	Subtotal	Men	Women	Subtotal	Men	Women	Subtotal
Below 29 years of age	198	53	251	1,359	212	1,571	1,557	265	1,822
30–49 years of age	1,306	117	1,423	2,680	471	3,151	3,986	588	4,574
Above 50 years of age	886	17	903	868	100	968	1,754	117	1,871
Total	2,390	187	2,577	4,907	783	5,690	7,297	970	8,267

* The figures in the table on the left represent the number of full-time employees. The "managers" category encompasses general managers, managers, assistant managers, and supervisors.

Number of Employees Recruited (As of March 31, 2014)

By Region

Region	Number of employees recruited (people)			Percentage of total employees (%)		
	Men	Women	Subtotal	Men	Women	Subtotal
Japan	331	61	392	6	12	7
North America	7	2	9	10	12	10
South America	215	19	234	37	27	36
Asia	149	47	196	15	14	15
Europe	7	2	9	5	13	5
Oceania	0	0	0	0	0	0
Total	709	131	840	10	14	10

* The percentage of total employees represents the percentage of total full-time employees that were newly recruited in fiscal 2013.

■ By Age Group

Age group	Number of employees recruited (people)			Percentage of total employees (%)		
	Men	Women	Total	Men	Women	Total
Below 29 years of age	305	65	370	20	25	20
30–49 years of age	321	58	379	8	10	8
Above 50 years of age	83	8	91	5	7	5
Total	709	131	840	10	14	10

* The percentage of total employees represents the percentage of total full-time employees that were newly recruited in fiscal 2013.

Number of Employees That Left the Companies (As of March 31, 2014)

■ By Region

Region	Number of employees that left the companies (people)			Rate of employees leaving the companies (%)		
	Men	Women	Subtotal	Men	Women	Subtotal
Japan	292	48	340	5	9	6
North America	3	1	4	4	6	4
South America	37	6	43	6	8	7
Asia	163	61	224	16	18	17
Europe	2	0	2	1	0	1
Oceania	0	0	0	0	0	0
Total	497	116	613	7	12	7

* The number of employees that left the companies includes the number of those who left the companies due to retirement based on age, personal circumstances, death, and involuntary retirement.
* The rate of employees leaving the companies is the percentage of the number of full-time employees who left the companies to the total number of employees.

■ By Age Group

	Number of employees that left the companies (people)			Rate of employees leaving the companies (%)		
	Men	Women	Total	Men	Women	Total
Below 29 years of age	171	50	221	11	19	12
30–49 years of age	145	40	185	4	7	4
Above 50 years of age	181	26	207	10	22	11
Total	497	116	613	7	12	7

* The number of employees that left the companies includes the number of those who left the companies due to retirement based on age, personal circumstances, death, and involuntary retirement.
* The rate of employees leaving the companies is the percentage of the number of full-time employees who left the companies to the total number of employees.

Labor Union Members (As of March 31, 2014)

	Number of union members (people)			Percentage of labor union members (%)		
	Men	Women	Total	Men	Women	Total
Below 29 years of age	1,169	182	1,351	75	69	74
30–49 years of age	2,663	334	2,997	67	57	66
Above 50 years of age	679	46	725	39	39	39
Total	4,511	562	5,073	62	58	61

Child-Care Leave System ☑

■ Usage of Child-Care Leave System in Fiscal 2013

	Users of child-care leave system in fiscal 2013 (people)	Employees eligible for usage in fiscal 2013 (people)*	Ratio (%)
Men	0	88	0
Women	4	4	100
Total	4	92	4

* Number of employees eligible for usage in fiscal 2013 is the number of employees with children younger than one year of age.

■ Ratio of Employees Returning to Work after Using Child-Care Leave System

	Employees returning to work in fiscal 2013 (people)	Employees scheduled to return to work (people)	Ratio (%)
Men	0	0	0
Women	4	4	100
Total	4	4	100

■ Retention Rate of Employees Returning to Work after Using Child-Care Leave System
(Percentage of Employees Still at Work One Year after Returning from Using Child-Care Leave System)

	Employees returning to work in 2012 (people)	Employees still at work one year later (people)	Ratio (%)
Men	0	0	0
Women	3	3	100
Total	3	3	100

Environmental Data*

* With the exception of waste-related items, figures for fiscal 2012 include data for Toho Titanium Co., Ltd.

Climate Change and Energy Conservation

Energy consumption volume

Energy consumption volume	Unit	Fiscal 2012	Fiscal 2013
Total consumption	TJ	21,843	19,760
Domestic	TJ	19,247	17,026
Overseas	TJ	2,597	2,734
Energy consumption intensity at smelters and refineries	GJ per ton of refined copper produced	14.0	13.5
Energy consumption in the logistics stage			
Domestic	TJ	551	534
Overseas*	t	Marine fuel oil 8,902 Marine diesel oil 615	Marine fuel oil 10,767 Marine diesel oil 796

* Figures are the totals for two ships (*Mar Camino* and *Koryu*) over the period from January 1 to December 31, 2013. CO_2 emissions are calculated using the coefficients released by the International Maritime Organization (IMO).

CO_2 Emissions

	Unit	Fiscal 2012	Fiscal 2013
CO_2 emissions from energy consumption	Thousand tons of CO_2	1,268	1,259
Domestic	Thousand tons of CO_2	1,122	1,103
Overseas	Thousand tons of CO_2	146	155
CO_2 emission intensity at smelters and refineries	Tons of CO_2 per ton of refined copper produced	0.88	0.95
CO_2 emissions from non-energy consumption sources	Thousand tons of CO_2	83	67
CO_2 emissions in the logistics stage			
Domestic	Thousand tons of CO_2	38.9	37.6
Overseas*	Thousand tons of CO_2	29.7	36.0

Resource Recycling

Water Usage

	Unit	Fiscal 2012	Fiscal 2013
Total usage volume	Thousand m^3	142,603	127,920
Seawater	Thousand m^3	119,475	105,330
Groundwater / industrial water	Thousand m^3	21,113	20,479
Waterworks	Thousand m^3	1,931	2,022
Rain water	Thousand m^3	84	88
Water usage intensity at smelters and refineries	m^3 per ton of refined copper produced	201.1	174.1

Material Input

	Unit	Fiscal 2012	Percentage of total material input (%)	Fiscal 2013	Percentage of total material input (%)
Total input volume	Thousand tons	2,906	–	2,843	–
Primary raw materials	Thousand tons	2,650	91.2	2,602	91.5
Recycled raw materials	Thousand tons	256	8.8	240	8.5

Total Volume of Waste Materials Generated*1

	Unit	Fiscal 2012	Fiscal 2013
Total volume of waste materials generated	Thousand tons	290	360
Volume recycled within the Group	Thousand tons	250	299
Total volume of waste materials generated	Thousand tons	40.5	60.3
Recycling (sales of value-bearing waste)	Thousand tons	29	30.6
Recycling (waste)*2	Thousand tons	9.4	25.9
Heat recovery*2	Thousand tons	0.9	1.4
Incineration*2	Thousand tons	0.4	0.4
Final disposal *2	Thousand tons	0.7	2.0

*1 Figures for fiscal 2012 do not include data for Toho Titanium Co., Ltd.

Water Discharge

	Unit	Fiscal 2012	Fiscal 2013
Total discharge volume	Thousand m^3	165,106	152,073
Ocean	Thousand m^3	148,605	135,583
River	Thousand m^3	15,782	15,767
Drainage systems	Thousand m^3	720	723
Discharge intensity at smelters and refineries	m^3 per ton of refined copper produced	240.2	213.4

By-Product Production

	Unit	Fiscal 2012	Percentage of total material input (%)	Fiscal 2013	Percentage of total material input (%)
Total production volume	Thousand tons	3,342	–	3,435	–
Sulfuric acid	Thousand tons	1,692	51	1,676	49
Slag	Thousand tons	1,219	36	1,253	36
Gypsum	Thousand tons	294	9	347	10
Iron concentrate	Thousand tons	136	4	160	5

Discharge Volume by Type of Waste*3

	Unit	Fiscal 2012	Fiscal 2013
Total discharge volume	Thousand tons	11.5	29.7
Sludge	Thousand tons	4.7	20.5
Cinder	Thousand tons	2.7	2.5
Waste acid / waste alkaline	Thousand tons	0.9	1.5
Glass / concrete / ceramics / porcelain	Thousand tons	0.1	0.5
Waste plastic	Thousand tons	0.9	1.0
Other	Thousand tons	2.2	3.6

*3 Figures for fiscal 2012 do not include data for Toho Titanium Co., Ltd. The figure for total discharge volume in this table is the total of items marked with "*2" in the "Total Volume of Waste Materials Generated" table to the left.

Environmental Risks ☑

Air Pollutants

	Unit	Fiscal 2012	Fiscal 2013
SOx emission intensity at smelters and refineries	kg of SOx per ton of refined copper produced	6.6	6.2
NOx emission intensity at smelters and refineries	kg of NOx per ton of refined copper produced	0.5	0.4

Chemical Substances

(tons)

No.	Material number	Chemical substances	Release volume			Transfer volume	
			Air	Water	Landfill disposal on-site	Waste	Drainage systems
1	1	Zinc compounds (water soluble)	0.2	3.5	0.0	0.0	0.0
2	31	Antimony and its compounds	0.2	0.5	0.0	8.7	0.0
3	48	O-ethyl O-4-nitrophenyl phenylphosphonothioate (EPN)	0.0	0.2	0.0	0.0	0.0
4	75	Cadmium and its compounds	0.1	0.1	0.0	72	0.0
5	80	Xylene	0.1	0.0	0.0	0.0	0.0
6	82	Silver and its water-soluble compounds	0.0	0.4	0.0	0.0	0.0
7	132	Cobalt and its compounds	0.0	0.0	0.0	8.3	0.0
8	144	Inorganic cyanide compounds (except complex salts and cyanates)	0.2	0.3	0.0	0.0	0.0
9	150	1, 4-dioxane	0.0	0.2	0.0	0.0	0.0
10	158	1,1-Dichloroethylene (vinylidene chloride)	0.0	0.2	0.0	0.0	0.0
11	242	Selenium and its compounds	0.0	1.4	0.0	0.0	0.0
12	272	Copper salts (water soluble, except complex salts)	0.4	4.6	0.0	0.0	0.0
13	279	1,1,1-trichloroethane	0.0	0.6	0.0	0.0	0.0
14	296	1,2,4-trimethylbenzene (pseudocumene)	0.1	0.0	0.0	0.0	0.0
15	300	Toluene	0.6	0.0	0.0	268	0.0
16	305	Lead compounds	0.7	0.3	0.0	60	0.0
17	308	Nickel	0.0	0.0	0.0	3.9	0.2
18	309	Nickel compounds	0.1	0.8	0.0	15	0.0
19	332	Arsenic and its inorganic compounds	0.7	0.8	0.0	68	0.0
20	354	Di-n-butyl phthalate	0.0	0.0	0.0	7.3	0.0
21	374	Hydrogen fluoride and its water-soluble salts	0.0	10	0.0	1.5	0.1
22	384	1-bromopropane	24	0.0	0.0	0.4	0.0
23	405	Boron compounds	0.0	6.7	0.0	0.0	0.0
24	412	Manganese and its compounds	0.0	1.3	0.0	14	0.0
25	438	Methylnaphthalene	0.8	0.0	0.0	0.0	0.0

(g-TEQ)

26	243	Dioxins	0.056	0.012	0.0	5.5	0.0

* Number of chemicals subject to reporting: 54

* Except for the figures for dioxins, all figures are the totals of substances of 0.10 ton or more.

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

Treatment of PCB-Containing Equipment

Utilizing the early registration system of the Japan Environmental Safety Corporation (JESCO),* the JX Nippon Mining & Metals Group completed registration of nearly all equipment containing high levels of polychlorinated biphenyls (PCBs) in fiscal 2005. The equipment included condensers and transformers both in storage and in use. The PCB-containing equipment will be treated in a planned manner.

In addition, we began detoxifying equipment containing low levels of PCBs by contracting this to a private-sector detoxification company in fiscal 2012. Furthermore, Group company JX Nippon Tomakomai Chemical, received approval from the Ministry of the Environment with regard to its detoxification methods in March 2014. Accordingly, we plan to further accelerate the detoxification of Group equipment containing low levels of PCBs going forward.

* Japan Environmental Safety Corporation is a company wholly owned by the Japanese government that successively handles the PCB waste disposal program formally conducted by Japan Environment Corporation.

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 of chemicals that are distributed within Europe and to clarify risks and the environmental impact of specified chemicals. The Group assents to the intent of the REACH Regulation, and it has completed preliminary registration of products that are subject to the regulation and plans to complete official registration by 2018.

Environmental Education

(persons)

Environmental Management System (EMS) Provisional Auditor	3
EMS Internal Auditor (Outside training completed)	371
EMS Internal Auditor (In-house training completed)	326
First Grade Air Pollution Control Manager	118
First Grade Water Pollution Control Manager	160
Noise Abatement Manager	27
Vibration Abatement Manager	12
Noise and Vibration Abatement Manager	18
Dioxins Pollution Control Manager	11
Senior Safety Engineer	16
First Grade Mining Pollution Control Manager	63
Certified Environmental Measurer	27
Waste Disposal Facilities Engineering Manager (Others, including waste crushing and treatment facilities)	11
Waste Disposal Facilities Engineering Manager (Intermediate treatment facilities)	31
Waste Disposal Facilities Engineering Manager (Incineration facilities)	25
Waste Disposal Facilities Engineering Manager (Final landfill sites)	9
Qualified Manager of Specially Controlled Industrial Waste	120
Registered Energy Manager (Heat and electric)	118
Operation Chief Handling Specified Chemical Substances	1,896

* As of March 31, 2014

Operating Sites That Have Obtained ISO 14001 Certification

Domestic	Hitachi Works (including the Hitachi Refinery of Pan Pacific Copper Co., Ltd.; 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.); Headquarters, Pan Pacific Copper Co., Ltd. (including Osaka Office, Nagoya Office, and Fukuoka Office), Saganoseki Smelter & Refinery, Pan Pacific Copper Co., Ltd. (including Japan Copper Casting Co., Ltd., and Nissho Ko-un Co., Ltd.); Hibi Smelter, Pan Pacific Copper Co., Ltd. (including Hibi Kyodo Smelting Co., Ltd., Hibi Smelting Logistics Co. Ltd.); JX Nippon Tomakomai Chemical Co., Ltd.; JX Nippon Tsuruga Recycle Co., Ltd.; JX Nippon Mikkaichi Recycle Co., Ltd.; head office, Chigasaki Works, Toho Titanium Co., Ltd. (including Kurobe Works and Wakamatsu Works); Esashi Works, Tatebayashi Works, Nasu Works, Kakegawa Works, JX Metals Precision Technology Co., Ltd.; JX Metals Trading Co., Ltd.
Overseas	JX Nippon Mining & Metals Philippines, Inc.; JX Nippon Mining & Metals USA, Inc.; Materials Service Complex Malaysia Sdn. Bhd.; Gould Electronics GmbH; JX Nippon Mining & Metals Korea Co., Ltd.; Nikko Fuji Precision (Wuxi) Co., Ltd.; Bade Works, Nikko Metals Taiwan Co., Ltd.

Report on Relations with Local and International Communities

Relations with Local Communities

Acting in accordance with its Code of Conduct, the JX Nippon Mining & Metals Group continues to build strong relationships with local communities through communication and interaction as well as through disaster- and crime-prevention activities.

Participation in regional organizations

Organization	Participating operating site / Group company (Position within the organization)
Industrial Waste Association (Hokkaido, Toyama, Ibaraki, Fukui, Osaka)	JX Nippon Tomakomai Chemical Co., Ltd. (Director), JX Nippon Mikkaichi Recycle Co., Ltd., JX Nippon Environmental Services Co., Ltd., JX Nippon Tsuruga Recycle Co., Ltd., Hitachi Works, JX Metals Trading Co., Ltd.
The Foundation for the Advancement of Industrial Technology in the Dohoh Area	JX Nippon Tomakomai Chemical Co., Ltd. (Councilor)
South Iwate Research Center of Technology	Ichinoseki Foil Manufacturing Co., Ltd.
Kitaibaraki-shi Association for Safety of Hazardous Materials	Isohara Works (Director)
Kitaibaraki-shi Boka-Kanri-Kyogikai (Fire Protection and Control Council of Kitaibaraki)	Isohara Works (Director)
Takahagi-chiku Koyo Taisaku Kyogikai (Association for employment measures in Takahagi District)	Isohara Works (Director)
Hitachi-roudoukijunkyokai (Organization to provide information on labor regulations, industrial accidents, and other issues)	Hitachi Works, Isohara Works (Director)
Ibaraki Vocational Ability Development Association	Hitachi Works (Director)
Hitachi Amateur Sports Association	Hitachi Works (Advisor)
Tazumi-chiku Kawa wo Kirenisuru Kai (Association to clean up Tazumi District rivers)	Kurami Works
Samukawamachi Kougyoukyouka (Industrial association for Samukawa Town)	Kurami Works (Vice Chairman)
Chigasaki-chiku Sagami-kawa wo Kirenisuru Kai (Association to clean up the Sagami River in Chigasaki District)	Toho Titanium Co., Ltd. (Vice Chairman)
Chigasaki Kikenbutsu Anzen Kyokai (Organization to promote hazardous substance safety for Chigasaki District)	Toho Titanium Co., Ltd. (Vice Chairman)
Kanagawa-ken Koatsu Gas Reito Bukai (Organization to promote safe freezing of high-pressure gas in Kanagawa Prefecture)	Toho Titanium Co., Ltd. (Chairman)
Kurobe Water Resource Management Committee	JX Nippon Mikkaichi Recycle Co., Ltd. (Director)
Reinan Environmental Conservation Organization	JX Nippon Tsuruga Recycle Co., Ltd.
Tsuruga Mikata Association for Safety of Hazardous Materials	JX Nippon Tsuruga Recycle Co., Ltd. (Vice Chairman)
Uno Kyogikai, Japan Tariff Association	Hibi Smelter, Pan Pacific Copper Co., Ltd. (Vice Chairman)
Saganoseki Machidukuri Kyogikai (NPO Council for Revitalization of Saganoseki)	Saganoseki Smelter & Refinery, Pan Pacific Copper Co., Ltd. (Vice Director)
Saganoseki Donation Allocation Intermediary Association	Saganoseki Smelter & Refinery, Pan Pacific Copper Co., Ltd. (Vice Chairman)
Kyushu-chihou Kouzan-kai (Mining Association of Kyushu District)	Saganoseki Smelter & Refinery, Pan Pacific Copper Co., Ltd. (Chairman), Kasuga Mines Co., Ltd. (Director)
Association of Enterprises with Foreign Investment, Changzhou	Changzhou Jinyuan Copper Co., Ltd.
Jiangsu Metallurgy Committee	Changzhou Jinyuan Copper Co., Ltd.
Taoyuan Waste Committee Changhua Waste Committee	Nikko Metals Taiwan Co., Ltd.
The Japanese Association, Manila, Inc.	JX Nippon Mining & Metals Philippines, Inc.
Laguna Industrial District Organization	JX Nippon Mining & Metals Philippines, Inc.
Atacama Region Mining Association	SCM Minera Lumina Copper Chile (Chairman)
Sociedad Nacional de Mineria (SONAMI)	SCM Minera Lumina Copper Chile

Examples of Communication with Local Communities
Implementation of Plant Tours, Etc.

Operating site / Group company	Participants	Period of implementation (Fiscal 2013)	Number of participants (people)
Hitachi Works	International Wrought Copper Council	May	38
	Japan Federation of Basic Industry Worker's Unions	May	14
Kurami Works	Kadosawabashi Jichikai (Kadosawabashi Neighborhood Association)	June	20
Toho Titanium Co., Ltd.	Factory tours and training related to TPM activities for Thai training organization	February	12
	Special-needs students from Enzou Junior High School	March	28
	Participants in a work-exchange program by Rotary International	March	5
Kasuga Mines Co., Ltd.	Graduate School of Engineering, Kyushu University	June, November, March	53
	Kagoshima-shi Shakai-ka OB-kai (Alumni association for former social studies students of Kagoshima City)	October	20
	Kagoshima Prefectural Museum	December	5
	High-school students on school trips	December	4
JX Nippon Tomakomai Chemical Co., Ltd.	Muroran Institute of Technology	May	13
	Course for Sustainable Resources Engineering, Hokkaido University	July	55
	Tomakomai Zero Emission Network	August	20
	Trainees from the Mining and Materials Processing Institute of Japan	August	5
	Chitose Institute of Science and Technology	February	31
JX Nippon Tsuruga Recycle Co., Ltd.	Sophomores at Tsuruga High School	July	61
	Freshmen at Tsuruga Technical High School	July	41
	Members of neighboring communities (Kinome and Wakaizumi-cho)	October	15
JX Nippon Mikkaichi Recycle Co., Ltd.	JR Kurobe-eki Kasseikai PJ (Project for invigorating the area around West Japan Railway Company's Kurobe Station)	October	5
Hibi Smelter, Pan Pacific Copper Co., Ltd., Hibi Kyodo Smelting Co., Ltd.	Higashi Okayama Technical High School	April	38
	Hibi Smelter Fellowship Association and Alumni Association	October	46
Saganoseki Smelter & Refinery, Pan Pacific Copper Co., Ltd.	International Institute for Mining Technology	August	31
	Chugoku Branch Office, JX Nippon Oil & Energy Corporation	September	24
	Oita Labour Standards Association	November	40
	Tairyukai	March	35
SCM Minera Lumina Copper Chile	Los Loros community representatives	April	8
	Chile's Minister of Mining	May	10
	Heads of Atacama insurance agencies	December	8

Factory tour for members of neighboring communities (JX Nippon Tsuruga Recycle)

Los Loros community representatives (SCM Minera Lumina Copper Chile)

Convivial Events (Summer festivals and other events to which members of the community were invited, fiscal 2013)

Operating site / Group company	Event details, timing, number of participants, etc.
Hitachi Works	Conducted an outdoor event on the company grounds as part of the Sanjin-Sai summer festival and held a martial arts tournament in the Nikko Shido Kan (July 2013, approx. 3,000 participants)
Kurami Works	Hosted part of the Hazuki-Sai summer night festival on the company grounds (August 2013, approx. 6,000 participants)
	Participated in the Shinko-Sai festival (September 2013, approx. 100 participants), opened part of the plant as a stop for the *mikoshi*-carrying event, which employees participated in
Toho Titanium Co., Ltd.	Held summer night festival (August 2013, approx. 1,000 participants)

Sanjin-Sai (Hitachi Works)

Shinko-Sai (Kurami Works)

Hibi District autumn festival (Hibi Smelter, Pan Pacific Copper)

Summer night festival (Saganoseki Smelter & Refinery, Pan Pacific Copper)

JX Nippon Tsuruga Recycle Co., Ltd.	Held firefly-viewing event in cooperation with the local NPO Aqua Sangha (June 2013, approx. 20 participants)
	Held trench-digging event at the Nakaikemi wetlands (July 2013, approx. 10 participants)
	Participated in Tsuruga Eco Fair (March 2014, approx. 10 participants)
Hibi Smelter, Pan Pacific Copper Co., Ltd., Hibi Kyodo Smelting Co., Ltd.	Participated in Hibi District autumn festival (October 2013, approx. 10 participants)
Saganoseki Smelter & Refinery, Pan Pacific Copper Co., Ltd.	Held summer night festival (August 2013)
	Participated in the Seki no Tai-tsuri Odori Taikai festival (September 2013, approx. 40 participants)
	Participated in various other local festivals and events
Kasuga Mine Co., Ltd.	Participated in Kibaran-Kai summer festival (August 2013, approx. 10 participants)
	Participated in a sports festival at a local community center
JX Nippon Mining & Metals Philippines, Inc.	Visited elementary schools (May 2013, approx. 30 participants), visited orphanages (July 2013, approx. 10 participants), visited nursing care homes for senior citizens (September 2013, 10 participants)
SCM Minera Lumina Copper Chile	Participated in fellowship events with members of local communities, such as Children's Day events (August 2013) and local Christmas parties (December 2013)
	Participated in ceremonies for commemorating the start of training for new mine operators (June 2013), signing of support agreement with Tierra Amarilla City (July 2013), presentation of support grants for launching enterprises (September 2013), and signing of collaboration agreement with Universidad de Atacama

Local Cleanup Activities

Operating site / Group company	Event details, timing, number of participants, etc.
Head office, Hitachi Works, JX Nippon Mining & Metals Corporation	Participated in Mt. Kurakake cherry tree restoration project (November 2013, 83 participants)
Isohara Works	Participated in environment beautification activities sponsored by Kitaibaraki City (May 2013, approx. 30 participants)
	Conducted beautification activities in areas surrounding the plant (March 2014, 40 participants)
Hitachi Works	Participated in a campaign to clean up the Miyata River (summer and fall 2013, total of 100 participants)
Kurami Works	Participated in the Sagami River Clean Campaign to clean up alongside the Sagami River, which flows through the community (May 2013, approx. 70 participants)
	Participated in a beautification campaign in Samukawa City, Kanagawa Prefecture (June and November 2013, total of 200 participants)
Toho Titanium Co., Ltd.	Participated in the activities of We Rise Members* to conduct a beautification campaign in front of Kita-Chigasaki Station (once a week, 4 participants) and manage flower beds (2-3 times a year, 4 participants) * Women's working group that acts in cooperation with East Japan Railway Company and the Chigasaki city hall
JX Nippon Tomakomai Chemical Co., Ltd.	Conducted cleanup activities around the plant (April to October 2013, cumulative total of 35 participants)
JX Nippon Tsuruga Recycle Co., Ltd.	Cleaned up the Kehi-no-Matsubara Beach as part of the local community's en masse beautification campaign (June 2013, 34 participants)
	Participated in "Operation Cleanup Fukui" sponsored by Tsuruga City (September 2013, 43 participants)
	Participated in cleanup campaigns in Kinome and Wakaizumi-cho (May 2013, 14 participants) Participated in concerted cleanup campaign at Mikatago Lake (September 2013, 8 participants) Helped remove unlawfully dumped garbage in Mihama town (November 2013, 26 participants)
Hibi Smelter, Pan Pacific Copper Co., Ltd., Hibi Kyodo Smelting Co., Ltd.	Participated in cleanup activities on the banks of the Shibukawa River (June 2013, 20 participants)
Saganoseki Smelter & Refinery, Pan Pacific Copper Co., Ltd.	Conduct concerted cleanup and beautification activities (once a month, approx. 80 participants each month)
	Participated in the ENEOS Forests project (April, July, and October 2013, total of 85 participants)
Kasuga Mines Co., Ltd.	Participated in volunteer activities in the local community (cleanup of the port, mowing of grass along public roads, and cleanup of the coast on Marine Day)
Ichinoseki Foil Manufacturing Co., Ltd.	Participated in concerted cleanup activities at the industrial park (April and October 2013, 4 participants each time)
Esashi Works, JX Metals Precision Technology Co., Ltd.	Participated in the industrial park clean campaign (May and October 2013, cumulative total of 4 participants)
Nasu Works, JX Metals Precision Technology Co., Ltd.	Conducted cleanup activities in areas surrounding the plant (once a month, approx. 15 participants each month)
Kakegawa Works, JX Metals Precision Technology Co., Ltd.	Conducted cleanup activities and weeding in areas surrounding the plant (September 2013 and February 2014, approx. 15 participants each time)
Nippon Mining & Metals (Suzhou) Co., Ltd.	Conducted 5S+M activities (once a month, total of approx. 245 participants)
JX Nippon Mining & Metals Philippines, Inc.	Participated in lakeside cleanup activities (April 2013, 8 participants)
	Participated in tree-planting and hiking-trail cleanup activities (July, 10 participants)

Christmas party
(SCM Minera Lumina Copper Chile)

Lakeside cleanup activities
(JX Nippon Mining & Metals Philippines)

Mt. Kurakake cherry tree restoration project
(Head office, Hitachi Works,
JX Nippon Mining & Metals)

Crime Prevention and Disaster Preparedness Drills

Operating site / Group company	Event details, timing, number of participants, etc.
Hitachi Works	Conducted environmental accident preparedness drill (December 2013, participated in by all employees)
Head office, JX Metals Trading Co., Ltd.	Conducted fire evacuation drill (March 2014, approx. 40 participants)
Kurami Works	Conducted comprehensive disaster preparedness drill (October 2013, approx. 200 participants)
Head office, Toho Titanium Co., Ltd.	Conducted earthquake preparedness drill (October 2013, 470 participants)
	Invited fire departments to conduct disaster-prevention seminar (May 2013, 53 participants) and first-aid seminar (October 2013, 37 participants)
Saganoseki Smelter & Refinery, Pan Pacific Copper Co., Ltd.	Conducted crime prevention patrols as part of Umineko-Tai* (once a month, 8 participants) * Patrol squad organized by the Saganoseki Donation Allocation Intermediary Association
	Conducted a comprehensive disaster preparedness and evacuation drill (June 2013, 300 participants) and a comprehensive disaster preparedness and firefighting drill (September 2013, 100 participants)
	Participated in Oita City Fire Drill Competition (October 2013, 8 participants)
JX Nippon Tomakomai Chemical Co., Ltd.	Conducted training for in-house firefighting squads (June 2013, 8 participants)
JX Nippon Tsuruga Recycle Co., Ltd.	Conducted a night emergency drill (May 2013, participated in by all employees), emergency drills (July 2013 and March 2014, participated in by all employees), and a disaster-prevention and evacuation drill (September 2013, participated in by all employees)
	Participated in a Fire Drill Assembly (August 2013, 7 participants)
Esashi Works, JX Metals Precision Technology Co., Ltd.	Conducted joint-emergency training with fire departments (August 2013, 16 participants)
Tatebayashi Works, JX Metals Precision Technology Co., Ltd.	Conducted fire drills (November 2013 and March 2014, 75 and 70 participants, respectively)
Kakegawa Works, JX Metals Precision Technology Co., Ltd.	Conducted an evacuation drill (September 2013, 100 participants)
Nippon Mining & Metals (Suzhou) Co., Ltd.	Conducted an all-hands firefighting drill (September 2013, 76 participants) and a rolling mill fire extinguishing drill (May 2013, 25 participants)
	Conducted cyanide gas leak evacuation training (June 2013, 46 participants)
Gould Electronics GmbH	Conducted a firefighting and disaster drill (October 2013, 64 participants)
	Conducted an evacuation drill (December 2013, 12 participants)
SCM Minera Lumina Copper Chile	Held hazardous material handling training for Los Loros firefighting squads (November 2013, 22 participants)
Pan Pacific Copper Exploration Peru S.A.C.	Conducted fire extinguisher usage training (February 2014)

Firefighting and disaster drill
(Gould Electronics)

All-hands firefighting drill
(Nippon Mining & Metals (Suzhou))

Donations

Recipients	Amount* (billions of yen)
Local public organizations (including universities and hospitals)	0.17
Other regional organizations (festivals, events, municipal councils, etc.)	0.14
Nonprofit foundations, corporations, charities, etc.	0.01
Total	0.32

* Figures are totals for donations from domestic and overseas Group companies. Donations from overseas Group companies have been denominated in yen using the average exchange rate for fiscal 2013.

Opening of Company facilities

Operating site / Group company	Facility	Activity details
Hitachi Works	Nikko Shido Kan (martial arts training facility), Kamine Baseball Field	Provided a place for children as well as junior high school and high school clubs for *kyudo* (Japanese archery), *kendo* (Japanese fencing), and baseball to practice and hold competitions
Kurami Works	Employees' club	Provided a place for holding farewell parties (used by elementary school soccer clubs)
Toho Titanium Co., Ltd.	Company grounds	Provided an area for soccer practices (used by community members)
	Meeting rooms and research facilities	Provided places for government-sponsored tests (used by Kanagawa Vocational Ability Development Association)
Hibi Smelter, Pan Pacific Copper Co., Ltd., Hibi Kyodo Smelting Co., Ltd.	E-No-Hara Grounds	Provided an area for sports practices and competitions as well as various drills (used by local children's baseball teams, police departments, and fire department branches)
	Kyohi Gymnasium	Provided an area for volleyball, badminton, *kendo*, and other sports tournaments (used by community members)
	Idle land on grounds of company dormitory	Provided an area for elementary school events and for evacuation during disasters
	Training center	Provided a place for health promotion activities and *shodo* (Japanese calligraphy) lessons (used by community members)
Saganoseki Smelter & Refinery, Pan Pacific Copper Co., Ltd.	Oziuki Baseball Field	Provided an area for baseball tournaments and practices
	Fujiu Grounds	Provided an area for Ground Golf tournaments (used by community members)
SCM Minera Lumina Copper Chile	MLCC Los Loros office	Provided a place for community exchange events (used by approx. 200 community members and MLCC employees monthly)
	MLCC Copiapo branch office	Provided a place for job fairs, employment briefings, and company training programs (used by approx. 2,200 community members and MLCC employees monthly)

Involvement with Industry Organizations and Customers

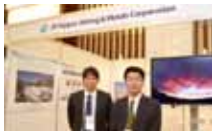
The Group participates in various public and industry organizations and actively communicates with customers as it pursues wide-ranging involvement with society. In fiscal 2013, the Group was presented with a variety of awards as a result of this active involvement. This recognition of our daily efforts will serve to inspire us as we further develop our business.

Organization

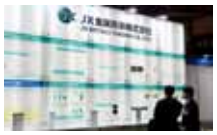
Organization	Participating operating site / Group company (Position within the organization)
Japan Mining Industry Association	JX Nippon Mining & Metals Corporation (Director), Kasuga Mines Co., Ltd., JX Nippon Exploration and Development Co., Ltd., Pan Pacific Copper Co., Ltd. (Director), Hibi Kyodo Smelting Co., Ltd. (Director)
International Council on Mining and Metals (ICMM)	JX Nippon Mining & Metals Corporation
International Copper Association (ICA)	Pan Pacific Copper Co., Ltd.
Mining Safety and Health Association, Japan	Hitachi Works, JX Nippon Mining & Metals Corporation
Shigen Sozai Gakkai	JX Nippon Mining & Metals Corporation, Kasuga Mines Co., Ltd.
Japan Society of Newer Metals	JX Nippon Mining & Metals Corporation (Chairman)
The Japan Institute of Metals and Minerals	JX Nippon Mining & Metals Corporation
Japan Institute of Electronics Packaging	JX Nippon Mining & Metals Corporation
Copper Foil Industries Association	JX Nippon Mining & Metals Corporation
Japan Powder Metallurgy Association	JX Nippon Mining & Metals Corporation
The Japan Society for Analytical Chemistry	JX Nippon Mining & Metals Corporation
Japan Copper and Brass Association	JX Nippon Mining & Metals Corporation (Director)
Japan Catalyst Recovering Association	JX Nippon Mining & Metals Corporation (Chairman)
The Society of Resource Geology	JX Nippon Mining & Metals Corporation
Sulfuric Acid Association of Japan	Pan Pacific Copper Co., Ltd. (Chairman), JX Nippon Tomakomai Chemical Co., Ltd. (Director), Hibi Kyodo Smelting Co., Ltd. (Director)
Japan Plating Suppliers Association	JX Metals Trading Co., Ltd.
Japan Federation of Coastal Shipping Associations	Nippon Marine Co., Ltd. (Special IMO-Related Committee Member, etc.)
The Japanese Shipowners' Association	Nippon Marine Co., Ltd. (Coastal Shipping Committee Member, etc.)
Japan Coastal Cargo Ship-operators Association	Nippon Marine Co., Ltd. (Standing Director, etc.)
The Japan Titanium Society	Toho Titanium Co., Ltd. (Vice Chairman)
The Allied Association for Science Park Industries	Nikko Metals Taiwan Co., Ltd.
Atacama Region Mining Association	SCM Minera Lumina Copper Chile (Member, Chairman)
EXPOMIN	SCM Minera Lumina Copper Chile (Chairman)
Feria ATEXPO 2013 (Industry exhibition in Atacama)	SCM Minera Lumina Copper Chile (Chairman)

Principal Displays in Exhibitions

Exhibitor	The name of Exhibitor and the details
Head office, JX Nippon Mining & Metals Corporation	Displayed indium, indium phosphide, and high-purity metals at International Conference on Indium Phosphide and Related Materials (IPRM) (May 2013)
	Displayed oxide minerals produced at the Caserones Copper and Molybdenum Deposit Development Project in Chile and held a panel discussing mine development and recycling and environmental services business initiatives at the Japan Sustainable Mining, Investment & Technology business forum (J-SUMIT) (May 2013)
	Displayed treated rolled copper foil, electro-deposited copper foil, copper foil for lithium-ion batteries, and other developed products at JPCA Show 2013 (June 2013)
	Displayed various sputtering targets for semiconductors at 16th annual International Interconnect Technology Conference (IITC2013) (June 2013)
	Displayed various sputtering targets at SEMICON Taiwan 2013 in collaboration with Nikko Metals Taiwan Co., Ltd. (September 2013)
	Displayed ultrathin rolled copper foil (6 μ), ultrasmooth surface-treated rolled copper foil (GHY5), copper foil treated with tiny nodules (JDLC), and ultrathin copper foil with carriers (JXUT) at TPCA Show 2013 (October 2013)
	Displayed a total of 12 products at the 5th Advanced Electronic Materials Expo that was part of NEPCON JAPAN 2014, including treated rolled copper foil; electro-deposited copper foil; highly conductive, high-strength copper alloys; products made by processing high-strength titanium copper alloy; JX Metals Precision Technology's plating products; and powdered copper (January 2014)
	Displayed various sputtering targets, including cobalt-iron-boron (CoFeB) targets for next-generation memory (MRAM) and new-grade tantalum (Ta) targets, at SEMICON Korea 2014 in collaboration with JX Nippon Mining & Metals Korea Co., Ltd. (February 2014)
	Displayed surface treatment agents, primarily agents for copper foil, at CPCA Show 2014 (March 2014)
Hitachi Works, JX Nippon Mining & Metals Corporation	Displayed at Eco Festival Hitachi 2013 (July 2013)
JX Metals Trading Co., Ltd.	Displayed semiconductor packaging technologies and various surface treatment agents at the 15th IC Packaging Technology EXPO that was part of NEPCON JAPAN 2014 (January 2014)
JX Nippon Mikkaichi Recycle Co., Ltd., Toho Titanium Co., Ltd.	Participated in Kurobe Fair 2013, hosted by Kurobe City and the Kurobe City Chamber of Commerce and Industry (September 2013)
JX Nippon Tsuruga Recycle Co., Ltd.	Displayed at the Tsuruga City Environmental Fair (March 2014)
JX Nippon Mining & Metals Korea Co., Ltd.	Displayed various sputtering targets at SEMICON Korea 2014 in collaboration with JX Nippon Mining & Metals Corporation (February 2014)
Nikko Metals Taiwan Co., Ltd.	Displayed various sputtering targets for flat-panel displays at Touch Taiwan 2013 (August 2013)
	Displayed various sputtering targets at SEMICON Taiwan 2013 in collaboration with JX Nippon Mining & Metals Corporation (September 2013)


J-SUMIT


JPCA Show 2013


NEPCON JAPAN 2014


SEMICON Korea 2014


SEMICON Taiwan 2013

Touch Taiwan 2013

Awards Received from Industrial Organizations, Etc.

Operating site / Group company	Organization	Award details	Reason
Isohara Works	Takahagi-chiku Koyo Taisaku Kyogikai (Association for employment measures in Takahagi District), Hitachi Labor Standard Association	Superior Employee Award	Received for contributing to the development of the plant (target group for award: managers)
Hitachi Works	Hitachi Labor Standard Association	Superior Employee Award	Received by employees who have served a long term of continued service (those that set a good example for other employees)
	Hitachi-shi Bosai Kyokai (Association for disaster prevention in Hitachi City)	Superior Employee Award	Received by employees who have served a long term of continued service and have worked for more than three years in positions responsible for handling hazardous materials or preventing fires (those that set a good example for other employees)
	Japan Crane Association	Superior Crane Operator	Received by crane operators that have achieved significant results in promoting accident prevention and improving their operation of cranes, etc.
Kamine Clean Service Co., Ltd.	Hitachi City	Hitachi City Mayor's Award	Received for providing courteous and easy-to-understand explanations to citizens bringing in hazardous materials of their own accord
Kurami Works	Samukawa Town	Letter of appreciation	Received for donating books of fairy tales to local schools to support improvements in education
	Kanagawa-ken Keisatsukan Tomonokai (Association for fellowship with police officers in Kanagawa Prefecture)	Letter of appreciation	Received for providing support and encouragement to police officers and faithfully cooperating with their activities
	Samukawa Town	Chairman's Award	Received for emerging victorious in the small pump usage competition of the 35th Firefighting Squad Technique Competition
Toho Titanium Co., Ltd.	JIPM-Solutions Co., Ltd.	Award presented at second JIPM-S Consultant Technology Conference in Fiscal 2012	Received for contributing significantly to TPM research through business activities
	Japan Institute of Plant Maintenance	Encouragement award	Received following the announcement of a campaign to create a safe workplace that can serve as a model to others and to eliminate dangers present when working alone
	Japan Crane Association	Superior Crane Operator	Received by crane operators that have achieved significant results in promoting accident prevention and improving their operation of cranes, etc.
JX Nippon Tsuruga Recycle Co., Ltd.	Fukui Industrial Waste Association	Superior Employee Award for the Appropriate Disposal of Industrial Waste	Received by employees who have performed duties diligently for many years and whose work has produced outstanding results
	Fukui-ken Roudoukijunkyokai (Organization to provide information on labor regulations, industrial accidents, and other issues)	Superior Employee Award for Health and Safety	Received by long-term employees who have continued to work without causing accidents or other incidents since joining the company

Hibi Smelter, Pan Pacific Copper Co., Ltd.	Hiroshima-ken Koutsu Anzen Kyoukai (Traffic safety organization in Hiroshima Prefecture)	Chugoku Area Police Commissioner and Chugoku Five-Prefecture Traffic Safety Association Award Fiscal 2013 Superior Business for Traffic Safety Award	Received out of recognition for the high evaluation of traffic safety lectures, hands-on lessons, and other activities conducted to date
Saganoseki Smelter & Refinery, Pan Pacific Copper Co., Ltd.	Japan Boiler Association	Award from the Oita Branch Head	Received in recognition of the management and stable and safe operation of boilers
	Oita Labour Standards Association	Merit award	Received for improving work conditions at Group smelters and refineries
	Japan Mining Industry Association	Chairman's Award	Received in recognition of the superior improvement and development activities guided by on-site representatives • Flash furnace productivity improvement activities • Flash furnace dry-process flow conveyor improvement activities
	Japan Institute of Plant Maintenance	All-Japan bronze medal for the slogan contest held during facility management activity reinforcement month	Received for submitting a superior slogan ("By noticing the precursors to abnormalities, you lead safety.")
Toyoha Mine Co., Ltd.	Ministry of Economy, Trade and Industry Hokkaido Industrial Safety and Inspection Department	Hokkaido Regional Mine Safety Award	Received in recognition of years of steadfast safety efforts contributing to ongoing, accident-free mine operation
Kasuga Mines Co., Ltd.	Kagoshima-ken Kayaku Hoan Kyokai (Association for the safety of explosives in Kagoshima Prefecture)	Superior Employee Award for Safety	People that set a good example for other employees
JX Nippon Mining & Metals Korea Co., Ltd.	Korea Customs Service	Exemplary Tax Payer	Received in recognition of contribution to government finances through steady tax payment and an active stance toward developing a corporate culture that places importance on proper tax paying
Nippon Mining & Metals (Suzhou) Co., Ltd.	Labor and Social Security Bureau of Suzhou Industrial Park	AA-Class Labor Security Credit Unit	Received for excellent labor-management relationship
	Suzhou Industrial Park Authorities	Excellence Award for Management of Hazardous Chemicals	Received for excellent management of poisonous and deleterious substances
Changzhou Jinyuan Copper Co., Ltd.	Changzhou Municipal People's Government	Superior company awards (Hoshi no Shogo-Betsu Kigyo Sho and sales scale award), Outstanding Company Award	Received in recognition of strong performance (sales, income)
	Jiangsu Province Industry and Commerce Administration	Title of superior brand in Jiangsu (2013–2016)	Received for strong reputation in Jiangsu
SCM Minera Lumina Copper Chile	Sociedad Nacional de Mineria (SONAMI)	Fiscal 2013 SONAMI Award	Received due to high evaluation of contributions made to the mining industry through practical and ongoing investment in mines in the Atacama region of Chile (Caserones Copper and Molybdenum Deposit)
	Mining Association	Runner-up award in large-scale mine category	Received in recognition of the successful completion of power line construction while respecting the rights of people in the surrounding communities
	Asociación Chilena de Seguridad (ACHS) CORESEMIN	Safety Award	Received in recognition of superior safety levels allowing for seven years without any accidents causing serious injuries

Awards Received from Our Customers

Operating site / Group company	Organization	Award details	Reason
JX Nippon Mining & Metals Corporation	Intel Corporation	PQS Award	Received in recognition of reliable quality, technological improvements, and a stable supply of sputtering target materials in leading-edge areas
	X-FAB	Vendor of the Year 2012	Received in recognition of large contributions to X-FAB's performance through a global supply of high-quality sputtering targets for semiconductors
	TSMC	Certificate of Appreciation Award (Excellence Award)	Received in recognition of the large contributions made to starting up TSMC's advanced semiconductor processes as a result of the superior quality and supply stability of the sputtering target materials developed by the Company
	Samsung Electronics CO., LTD.	Best Partner Award	Received in recognition of the large contributions made by the Company to the supply of sputtering targets for semiconductors
JX Nippon Mining & Metals Singapore Pte. Ltd.	X-FAB Sarawak Malaysia	Supplier of the Year 2012	Received in recognition of excellent product performance
JX Nippon Mining & Metals USA, Inc.	On Semiconductor	Annual Perfect Quality Award	Received in recognition of the support provided to On Semiconductor's bases around the world through our products and the high level of overall service offered in the United States, Europe, and Japan

Intel PQS Award

X-FAB Vendor of the Year 2012

TSMC Certificate of Appreciation Award

Samsung Electronics Best Partner Award

X-FAB Supplier of the Year 2012

On Semiconductor Annual Perfect Quality Award

As a Member Company of the ICMM

As a member company of the International Council on Mining and Metals (ICMM), JX Nippon Mining & Metals formulated its Code of Conduct based on the ICMM's sustainable development principles. The Company is aggressively addressing issues related to the environment, safety and health, the management of chemical substances, human rights, and relations with communities, including those issues described by the ICMM Position Statements.

Moreover, the Company strives to ensure that its reports on these activities are transparent. To this end, it submitted Sustainability Report 2014 for a third-party evaluation to ensure that this report conformed to the standards of the GRI G3 Guidelines and GRI Mining and Metals Sector Supplement, as required by the 10 sustainable development principles of the ICMM and the ICMM's Assurance Procedures. This evaluation has confirmed that Sustainability Report 2014 has achieved an application level of A+ under the Assurance Procedures.

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

ICMM Principles

1. Implement and maintain ethical business practices and sound systems of corporate governance.
2. Integrate sustainable development considerations within the corporate decision-making process.
3. Uphold fundamental human rights and respect cultures, customs and values in dealings with employees and others who are affected by our activities.
4. Implement risk management strategies based on valid data and sound science.
5. Seek continual improvement of our health and safety performance.
6. Seek continual improvement of our environmental performance.
7. Contribute to conservation of biodiversity and integrated approaches to land use planning.
8. Facilitate and encourage responsible product design, use, re-use, recycling and disposal of our products.
9. Contribute to the social, economic and institutional development of the communities in which we operate.
10. Implement effective and transparent engagement, communication and independently verified reporting arrangements with our stakeholders.

ICMM
International Council on Mining & Metals

WEB ICMM website: **http://www.icmm.com**

Endorsement of and Support for the Extractive Industries Transparency Initiative (EITI)

The Extractive Industries Transparency Initiative (EITI) was first announced at the World Summit on Sustainable Development in Johannesburg, South Africa, in September 2002, by then British Prime Minister Tony Blair. This initiative calls for the revenues and flows of assets of companies in extractive industries, such as the oil, natural gas, and metals industries, to be made transparent. In this manner, the initiative aims to contribute to the development of a sustainable society. Furthermore, it is expected to effectively tackle the so-called resource curse, which refers to a tendency for the national poverty levels of resource-rich countries to actually rise because of their own natural resources. In September 2014, the number of EITI-compliant countries—those meeting all the EITI standards—was 28 and the number of EITI candidate countries was 17.

In 2005, the ICMM announced that it would continue to offer its support to the EITI. Additionally, the JX Nippon Mining & Metals Group endorses the EITI principles and offers its own support.

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 recognise that the benefits of resource extraction occur as revenue streams over many years and can be highly price dependent.
4. We recognise that a public understanding of government revenues and expenditure over time could help public debate and inform choice of appropriate and realistic options for sustainable development.
5. We underline the importance of transparency by governments and companies in the extractive industries and the need to enhance public financial management and accountability.
6. We recognise that achievement of greater transparency must be set in the context of respect for contracts and laws.
7. We recognise the enhanced environment for domestic and foreign direct investment that financial transparency may bring.
8. We believe in the principle and practice of accountability by government to all citizens for the stewardship of revenue streams and public expenditure.
9. We are committed to encouraging high standards of transparency and accountability in public life, government operations and in business.
10. We believe that a broadly consistent and workable approach to the disclosure of payments and revenues is required, which is simple to undertake and to use.
11. We believe that payments' disclosure in a given country should involve all extractive industry companies operating in that country.
12. In seeking solutions, we believe that all stakeholders have important and relevant contributions to make—including governments and their agencies, extractive industry companies, service companies, multilateral organizations, financial organizations, investors, and non-governmental organizations.

WEB EITI website: **http://www.eiti.org/**

Participation in the United Nations Global Compact

The Company joined the United Nations Global Compact in July 2008. It supports the 10 principles on human rights, labour, the environment, and anti-corruption, and is working to realize these ideals.

The UN Global Compact's 10 Principles

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

Glossary

Term	Explanation	Page(s)
Acid mine drainage	Drainage from closed mines, which includes pit water rising up from inside the mine and effluent discharged from impoundments or other mine facilities. Neutralization of the drainage is necessary when it contains heavy metals or is strongly acidic.	72, 77, 78
Approved retirement annuity	A plan whereby a company, with the approval of the National Tax Agency, accumulates retirement benefits using a life insurance company, trust bank, or other outside financial institution. The contributions paid for this purpose receive certain preferential tax treatment, such as being deductible.	46
Bag filter	A bag-shaped filter attached to a precipitator. It captures and collects dust particles from dusty gas, using woven or nonwoven fabric.	65
Basel Convention	A treaty intended to regulate the transfer of hazardous wastes across international borders and their disposal. It defines an international framework and procedures for regulating the cross-border movement of certain hazardous wastes.	64
BCP	Business continuity plan: planning that enables a corporation to continue in operation. Defines the actions to be carried out in the event of a disaster or other unexpected incident for keeping the minimum level of operations going with limited management resources, or for resuming operations within a target recovery time.	34
Biodiversity	The diversity of life forms within a given ecosystem or biome, or on the earth as a whole. Biodiversity became established as a concept after being defined at the 1992 Earth Summit (United Nations Conference on Environment and Development).	2, 8, 13, 28, 64, 71, 95, 103
Biomining	An efficient method of extracting valuable metal from ores using microorganisms.	6, 26, 41
BOD	Biochemical oxygen demand: a water quality index that reflects the amount of oxygen needed for organic matter in water to be broken down by microorganisms. A representative indicator for measuring contamination by organic substances in rivers and streams.	71
Caisson filler	A caisson is a watertight concrete chamber used when building an underwater structure such as a breakwater. A caisson filler is material poured into a caisson to prevent it from floating to the surface due to buoyancy.	69
COD	Chemical oxygen demand: a water quality index that reflects the amount of oxygen needed to oxidize oxidizable substances in water. A representative indicator for measuring contamination by organic substances in oceans and lakes.	71
Competency	Characteristic behavioral features commonly observed in people capable of delivering outstanding work performance.	54, 55, 82
Compliance	Observance of laws and regulations. Laws and regulations include the statutes, ordinances, rules, and conventions prescribed by public institutions, and also in-company rules such as articles of incorporation and various regulations, as well as contracts and agreements made with those outside the company.	5, 8, 9, 11, 13, 14, 19, 20, 41, 48, 53, 54, 59, 61, 62, 63, 64, 65, 70, 71, 73, 74, 75, 86, 102, 103, 104, 105
Conflict minerals	The four minerals—tantalum, gold, tin, and tungsten—defined in the Dodd-Frank Wall Street Reform and Consumer Protection Act, enacted by the United States Congress in July 2010. Because these minerals are seen as funding regional conflicts in the Democratic Republic of the Congo and surrounding countries where they are mined, the U.S. Securities and Exchange Commission has established regulations requiring companies listed on the stock exchanges in the United States to file a Conflict Minerals Report indicating whether they use any of these minerals and disclosing the country of origin.	10, 14, 61, 62, 75, 98
Contract-type corporate pension plan	One type of a defined-benefit pension plan. Based on the pension provisions agreed upon by labor and management, the company contracts with a life insurance company, trust bank, or other outside firm to entrust administration and management of the contributed funds.	46
Copper concentrates	A powdered raw material with a copper grade of 20% to 40%, resulting from the concentration and separation of the copper portion of ore by crushing, grinding, and flotation. It is used as the base material for copper smelting by pyro-metallurgical methods.	2, 5, 6, 14, 23, 25, 26, 27, 28, 29, 30, 41, 42, 44, 68, 99, 105
CSR	Corporate social responsibility: the concept that a company has the responsibility to go beyond mere pursuit of economic gain in its activities, and to work for the sustainable development of society as a whole, including stakeholders. By addressing such areas as environmental conservation, human rights protection, and contributions to local communities, the company itself can continue existing over the long term.	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 41, 62, 65
Defined-benefit pension plan	A pension plan in which the benefits to be received are set in advance. The company is responsible for managing the contributed funds and must make up for any shortfalls that occur as a result of the funds management.	46, 97, 103
Defined-contribution corporate pension plan	A pension plan in which the set contribution is managed either by the company or the individual, as instructed by the individual. The amount received varies based on the result of funds management.	46

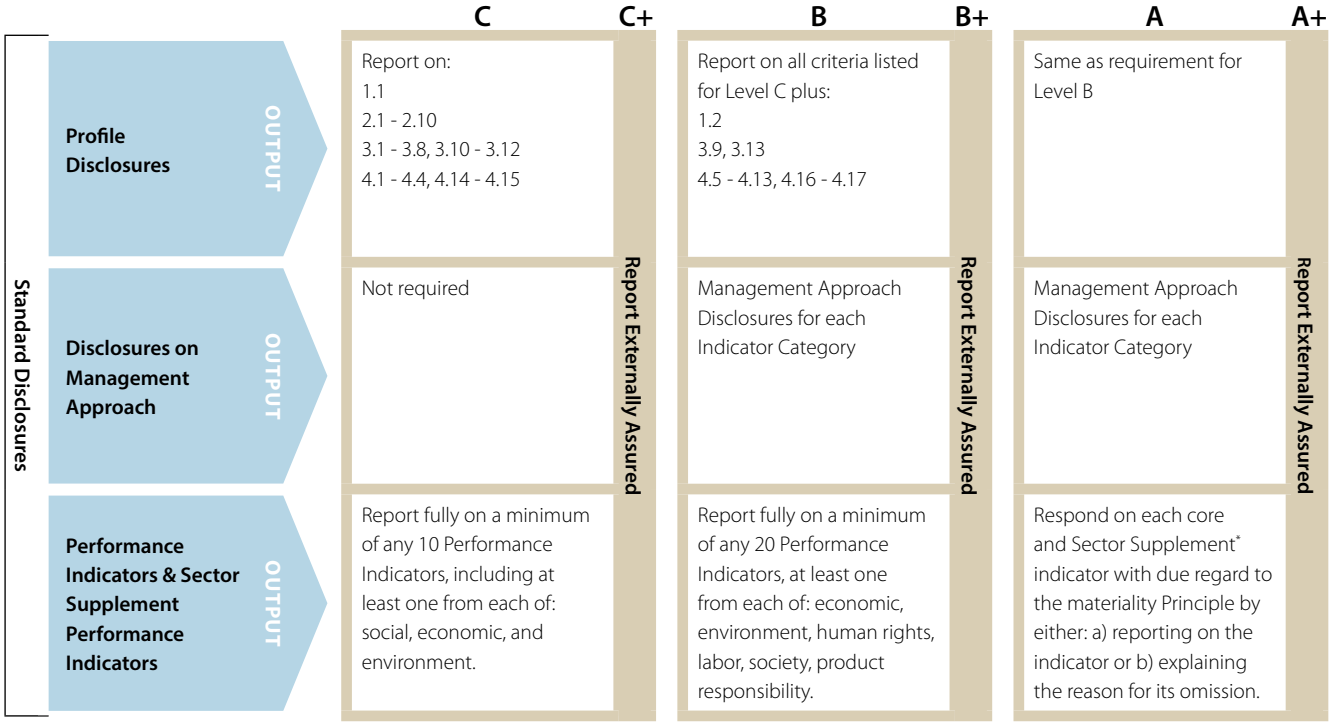
Term	Explanation	Page(s)
Due diligence	Conducting proper investigations when making decisions about a transaction, to determine whether there are any problems with the counterpart company or project, etc.	61, 62, 98
EITI	Extractive Industries Transparency Initiative: an initiative to increase the transparency of capital flows in mining, oil, coal, and other natural resource industries. It was proposed by then UK Prime Minister Tony Blair at the second Earth Summit in Johannesburg, South Africa, in 2002.	96
Feasibility study	Investigation and study conducted in advance to decide whether it is practical to implement a project. Among the matters considered are whether the project is commercially viable, its prospects as an investment, and the profitability.	25
Flat panel display	LCD, plasma, OLED, and other types of planar displays. An advantage over conventional cathode ray tube displays is less surface distortion.	34, 93, 100
Frequency rate	An index of industrial accident occurrence. The number of deaths and injuries due to industrial accidents per one million hours of total work time.	28, 47
GHS classification	Globally Harmonized System of Classification and Labeling of Chemicals: a system that classifies chemicals by the type and level of hazard and promotes the clear presentation of this information on product labels and safety data sheets.	71
Global Compact	A United Nations initiative announced in 1999 by then Secretary-General Kofi Annan, who called upon corporations to voluntarily observe and put into practice 10 principles in the areas of human rights, labor, the environment, and anticorruption.	14, 53, 96
Governance	Used in this report to mean corporate governance, a corporate management system designed to improve competitiveness, prevent fraudulent acts, and enhance corporate value. Typical ways of strengthening corporate governance include introducing an outside director or outside corporate auditor, introducing an executive officer system, and establishing a system of internal control.	2, 19, 41, 73, 74, 95, 102, 104
Green purchasing	Giving priority to purchasing raw materials, products, and services with the smallest possible environmental impact in production and use.	10, 64, 65, 100
GRI	Global Reporting Initiative: an institution established in 1997 aimed at improving the quality, credibility, and comparability of sustainability reporting. It publishes guidelines on global standards of reporting. The United Nations Environment Programme is a GRI partner.	2, 98, 101, 102, 103, 104, 105
GRI G3 Guidelines	The third generation of GRI Sustainability Reporting Guidelines, issued in October 2006. The guidelines call for decisions on information for disclosure to be based on materiality, and for the scope of reporting to be set by taking into account the degree of domination and influence of each organization and the size of the impact.	1, 95, 98, 101
GRI Mining and Metals Sector Supplement	Guidelines not included in the GRI G3 Guidelines, covering supplementary reporting elements specific to the mining and metals industries.	1, 95
Hydro-metallurgical refining	Methods of metal refining involving immersion in liquid. The opposite of pyro-metallurgical refining. Generally, in copper smelting the copper portion of the ore is leached out using sulfuric acid or the like, and the copper is recovered by the SX-EW process.	26, 29, 41, 99
ICMM	International Council on Mining and Metals: an industry association taking up issues of high priority in the mining and metals industries as well as other new issues. It comprises the world's leading mining and nonferrous metals companies, along with mining industry associations and research institutions in various countries.	1, 92, 95, 96, 99
Intensity	A measure assuming standard amounts of production elements such as raw materials, power, and labor necessary for producing a certain volume of products.	14, 64, 67, 68, 69, 77, 85, 86
Internal control	A system for establishing a mechanism in an organization to ensure operations are conducted properly. In other words, the establishment and implementation of rules and work processes applicable to the organization internally, or the system established as a result, so that the organization can achieve its goals effectively, efficiently, and legitimately.	5, 9, 14, 73, 74, 98
ISO 9001	An international standard developed by the International Organization for Standardization (ISO) aimed at raising customer satisfaction through quality assurance.	60
ISO 14001	An international standard developed by the International Organization for Standardization (ISO). It defines the requirements of an environmental management system for reducing and preventing notable environmental impact and environmental risk deriving from an organization's activities, products, and services.	64, 65, 87
LBMA Responsible Gold Guidance	A standard published in December 2011 applicable to all Good Delivery (GD) refiners for preventing a wide range of human rights violations, avoiding the financing of local conflicts, and preventing money laundering. It was drawn up in conjunction with the Supplement on Gold to the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas, published in March 2012. The main purpose is to define the due diligence to be practiced by GD refiners so as not to procure conflict minerals, which can lead to human rights violations and end up funding regional conflicts.	61, 62

Term	Explanation	Page(s)
LME	London Metal Exchange: a futures exchange market founded in London in 1877. Trading in seven metal commodities including copper, nickel, lead, zinc, and aluminum, it is the largest market in the world dedicated to nonferrous metals.	5, 39, 40
Mass balance	Also called material balance. An environmental analysis conducted by the Company in accordance with the Environmental Reporting Guidelines 2007 of the Ministry of the Environment, using data on the amount of energy, raw materials, and water resources consumed in our corporate activities (input) and the amount of waste materials, exhaust gas, and water discharge (output).	66
Material stewardship	The general name for activities designed to make optimal use of metal resources and maximize their value to society. The activities are promoted by the International Council on Mining and Metals (ICMM).	22, 105
Neutralized slag	A product resulting from a neutralization reaction in the smelting and refining process.	70
Nikko Chloride Process	Also called N-Chlo Process. A hydro-metallurgical refining technology using hydrochloric acid to efficiently extract copper, gold, silver, and other metals from low-grade copper concentrate. It is currently under development for commercial application as a proprietary technology of the Group.	6, 26, 41
OHSAS 18001	Occupational Health and Safety Assessment Specification: an international standard prescribing requirements for safety and health management systems, aimed at raising the level of risk management and its performance in organizations.	81
PDCA cycle	A management approach for maintaining and raising quality and promoting ongoing efforts to improve operations by repeating the cycle of plan, do, check, and act.	60, 70
Permanent cathode	One method of copper electrorefining. Using stainless steel plates as the cathode, it can produce electrolytic copper more efficiently and of higher quality than conventional methods. It is called "permanent" because the stainless steel plate can be reused.	31, 32, 42, 67
Precision rolled materials	The overall name given by the Group to the plate-shaped copper, copper alloy, and stainless steel products fabricated by means of our precision rolling and annealing process control technologies. To meet advanced needs for thin and compact parts in the IT field and in car electronics, for example, we are enhancing properties such as strength, bendability, conductivity, and precision plate thickness. (Plate-shaped copper and copper alloy products are both often referred to as copper alloy products.)	18, 19, 40, 43, 57
PRTR Act/system	Pollutant Release and Transfer Register: a legal system for reporting to the government the amounts of hazardous chemical substances released to the environment (air, water, soil, etc.) and the amounts transferred as waste outside the operating site. The government then publicizes the aggregate results of the reported data.	1, 71
Pyro-metallurgical refining	Methods of metal refining other than immersion in liquid. The opposite of hydro-metallurgical refining. Generally, pyro-metallurgical refining of copper consists of melting copper ore or scrap at high temperatures to remove impurities and raise the level of purity.	26, 29, 98
Rare earth	Any of 17 rare metals in the periodic table, namely the 15 lanthanides plus scandium and yttrium, characterized by the difficulty of chemically separating them from their ores.	23
Rare metal	Nonferrous metals commonly used in industry that are considered to be rare either because their reserves in the earth are scarce or because of the technical and/or economic difficulty of extracting them.	3, 22, 23, 24, 44, 99, 100
REACH regulation	The European Union regulation on Registration, Evaluation, Authorization and Restriction of Chemicals. All businesses manufacturing or importing one ton or more of chemical substances or products in a year within the EU are obligated to register all of them and assess their safety.	86
Recycled resources	Waste materials containing components that can be reused as resources or raw materials, or in other words, recycled materials. The Group primarily handles waste materials that contain copper, precious metals, and other valuable metals.	66, 69, 100
Refined copper	A copper plate made from copper ore or scrap as a raw material, refined to a purity of 99.99% or higher. It is often called electrolytic copper because it is manufactured by electrorefining (electrolysis). It is used as the base material for making electrical wire and copper alloy products.	6, 15, 25, 26, 27, 29, 31, 32, 40, 41, 42, 66, 67, 85, 86, 100
Reputational risk	The risk to corporate trust and brand value from the spread of negative perceptions of a company.	76
Resource nationalism	Moves by countries to control and develop the resources in their country on their own, excluding other countries (and corporations).	26
Sandblasting material	A polishing/grinding material, which is blasted by compressed air, etc., at an object to grind its surface. Some of the slag produced at copper smelters is used as a sandblasting material to remove rust from ship hulls.	69
SDS	Safety data sheet: a data sheet provided by chemical suppliers to users giving information about the properties of substances, with the aim of protecting the safety and health of users handling chemical substances.	60, 71
Severity rate	An index of industrial accident occurrence. The number of days lost per 1,000 hours of total work time.	28, 47
Slag	Waste left over after smelting the desired metal from ore. In the case of copper smelting, the slag is iron silicate, which is used as a raw material for making cement.	36, 68, 69, 85, 99

Term	Explanation	Page(s)
SPC system	Statistical Process Control: a technique for predicting significant variations that may result in the production of a substandard product by using statistical methods to measure the efficiency of a production line.	60
Specified chemical substances	Chemical substances stipulated in the Industrial Safety and Health Act as having a high potential for causing harm to human health.	71, 87
Sputtering target	A material used in forming thin metal film on a substrate of glass, silicon, etc. There are sputtering targets for making such products as semiconductors, flat panel displays, and hard disks.	18, 21, 34, 43, 45, 93, 94
SQC system	Statistical Quality Control: a quality control technique using statistical methods that, rather than measuring the quality of individual products, measures the quality-based characteristics of the production process as a whole (materials, equipment and machinery, work, product), and controls quality based on their distribution (variability).	60
Stakeholders	Entities with a direct or indirect interest in a corporation. The Group's stakeholders include customers, business partners, shareholders and investors, employees, industry/government/academic organizations, local and global communities (the global environment), nonprofit organizations, and nongovernmental organizations.	1, 2, 8, 9, 10, 27, 46, 63, 73, 95, 96, 97, 103
Sulfurous acid gas	Sulfur dioxide (SO_2): a colorless toxic gas with a pungent odor. It is a cause of acid rain, becoming sulfuric acid when released into the atmosphere in the presence of other atmospheric compounds such as nitrogen dioxide.	15
Supply chain	The entire chain of interconnected processes relating to a given product or service, from the raw material phase until it reaches the end user. As a recent trend, companies are called on to consider their responsibility for the supply chain as a whole, including those phases outside their direct involvement. An example is the spread of green purchasing.	34, 61, 62, 98
Sustainability	The ability to last. For a company, achieving sustainability demands not just economic growth but carrying out business with a long-term vision that takes into account the company's impact on the environment and on society.	1, 9, 11, 12, 14, 17, 61, 71, 95, 98, 101, 102
SX-EW process	Solvent extraction and electrowinning: the process of adding a special organic solvent to the copper leachate obtained by soaking in sulfuric acid, etc., selectively extracting the copper ions, and then producing refined copper by electrowinning.	6, 25, 26, 41, 98
Tailings	The remainder after extracting valuable metals from ore.	28, 77, 78, 103
Total material input	The total amount of raw materials used in conducting corporate activities. It is the total of natural ores and other virgin raw materials plus recycled resources (materials).	69, 85
TPM	Total productive management: an improvement approach proposed by the Japan Institute of Plant Maintenance aimed at maximizing the overall efficiency of production systems through continuous qualitative improvements with regard to people and equipment.	60, 82, 89, 93
Treated rolled copper foil	Pure copper made very thin by rolling it to a thickness of a few micrometers (the Company's products range from 6 to 150 micrometers). Being more bendable than products made by electrolysis (electrodeposited copper foil), treated rolled copper foils are used primarily in flexible printed circuits.	33, 40, 43, 66, 93
Type 2 Designated Energy Management Factory	As defined in the Act on the Rational Use of Energy (Energy Conservation Act), a production plant consuming an amount of energy (heat and electricity) equivalent to 1,500 kiloliters or more of crude oil per year.	1, 64, 70
Urban mine	End-of-life electronic products, such as mobile phones and PCs, are typical of waste products containing significant amounts of valuable metals, especially high-value precious metals and rare metals. Most of these products are discarded in urban areas, where people congregate, hence these areas are called "urban mines," in contrast to natural mines.	22
Work-life balance	Harmony between professional and personal life. Meeting work responsibilities and finding a sense of accomplishment and satisfaction in work, while also choosing and achieving a satisfying life in the home or from community among diverse possibilities, at each stage of life including child rearing, middle age, and older age.	54
Zero emissions	Discharging no waste that is subject to landfill disposal.	3, 8, 14, 36, 44, 69, 70, 89

GRI Content Index

This report has an A+ application level as defined by the GRI G3 Guidelines.



* Sector supplement in final version

GRI indicator	Aspect	Description of indicator	Page(s)
1. Strategy and Analysis			
1.1		Statement from the most senior decisionmaker of the organization (e.g., CEO, chair, or equivalent senior position) about the relevance of sustainability to the organization and its strategy.	3-6
1.2		Description of key impacts, risks, and opportunities.	5, 6, 9, 17-30, 46, 47, 54, 64, 67, 75
2. Organizational Profile			
2.1		Name of the organization.	80
2.2		Primary brands, products, and/or services.	41-45
2.3		Operational structure of the organization, including main divisions, operating companies, subsidiaries, and joint ventures.	1, 2, 79, 80
2.4		Location of organization's headquarters.	Back cover, 80
2.5		Number of countries where the organization operates, and names of countries with either major operations or that are specifically relevant to the sustainability issues covered in the report.	79, 80
2.6		Nature of ownership and legal form.	80
2.7		Markets served (including geographic breakdown, sectors served, and types of customers/beneficiaries).	41-45
2.8		Scale of the reporting organization.	41-45, 80
2.9		Significant changes during the reporting period regarding size, structure, or ownership.	5, 6, 25-28, 41
2.10		Awards received in the reporting period.	93, 94
3. Report Parameters			
3.1	Report Profile	Reporting period (e.g., fiscal/calendar year) for information provided.	2
3.2		Date of most recent previous report (if any).	2
3.3		Reporting cycle (annual, biennial, etc.).	2
3.4		Contact point for questions regarding the report or its contents.	Back cover

GRI indicator	Aspect	Description of indicator	Page(s)
3.5	Report Scope and Boundary	Process for defining report content.	1, 9
3.6		Boundary of the report (e.g., countries, divisions, subsidiaries, leased facilities, joint ventures, suppliers).	1
3.7		State any specific limitations on the scope or boundary of the report.	1, 2, 64, 70, 71
3.8		Basis for reporting on joint ventures, subsidiaries, leased facilities, outsourced operations, and other entities that can significantly affect comparability from period to period and/or between organizations.	1, 2
3.9		Data measurement techniques and the bases of calculations, including assumptions and techniques underlying estimations applied to the compilation of the Indicators and other information in the report.	46, 47, 64, 67, 68, 70, 71, 83-86, 91
3.10		Explanation of the effect of any re-statements of information provided in earlier reports, and the reasons for such re-statement (e.g., mergers/acquisitions, change of base years/periods, nature of business, measurement methods).	39, 40, 67-71, 85
3.11		Significant changes from previous reporting periods in the scope, boundary, or measurement methods applied in the report.	1, 2, 46
3.12	GRI Content Index	Table identifying the location of the Standard Disclosures in the report.	101-105
3.13	Assurance	Policy and current practice with regard to seeking external assurance for the report. If not included in the assurance report accompanying the sustainability report, explain the scope and basis of any external assurance provided. Also explain the relationship between the reporting organization and the assurance provider(s).	106
4. Governance, Commitments, and Engagement			
4.1	Governance	Governance structure of the organization, including committees under the highest governance body responsible for specific tasks, such as setting strategy or organizational oversight.	73
4.2		Indicate whether the Chair of the highest governance body is also an executive officer (and, if so, their function within the organization's management and the reasons for this arrangement).	73
4.3		For organizations that have a unitary board structure, state the number of members of the highest governance body that are independent and/or non-executive members.	73
4.4		Mechanisms for shareholders and employees to provide recommendations or direction to the highest governance body.	54, 73
4.5		Linkage between compensation for members of the highest governance body, senior managers, and executives (including departure arrangements), and the organization's performance (including social and environmental performance).	73
4.6		Processes in place for the highest governance body to ensure conflicts of interest are avoided.	Based on laws and statutory regulations and the articles of incorporation, for transactions in which there is a conflict of interest between a director and the Company, approval is sought from the General Meeting of Shareholders, which in the Company's case is JX Holdings, Inc.
4.7		Process for determining the qualifications and expertise of the members of the highest governance body for guiding the organization's strategy on economic, environmental, and social topics.	This has not been included because the Company does not have a process in writing for electing directors.
4.8		Internally developed statements of mission or values, codes of conduct, and principles relevant to economic, environmental, and social performance and the status of their implementation.	7, 8
4.9		Procedures of the highest governance body for overseeing the organization's identification and management of economic, environmental, and social performance, including relevant risks and opportunities, and adherence or compliance with internationally agreed standards, codes of conduct, and principles.	11
4.10		Processes for evaluating the highest governance body's own performance, particularly with respect to economic, environmental, and social performance.	11, 73
4.11	Commitments to External Initiatives	Explanation of whether and how the precautionary approach or principle is addressed by the organization.	86, 96
4.12		Externally developed economic, environmental, and social charters, principles, or other initiatives to which the organization subscribes or endorses.	53, 95, 96
4.13		Memberships in associations (such as industry associations) and/or national/international advocacy organizations in which the organization.	88, 95

GRI indicator		Aspect	Description of indicator	Page(s)
4.14		Stakeholder Engagement	List of stakeholder groups engaged by the organization.	10
4.15			Basis for identification and selection of stakeholders with whom to engage.	10
4.16			Approaches to stakeholder engagement, including frequency of engagement by type and by stakeholder group.	10, 12, 88-92
4.17			Key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting.	12, 22-24
5. Management Approach and Performance Indicators				
Economic				
Disclosure on Management Approach				3-6, 11, 39-46
EC1	CORE	Economic Performance	Direct economic value generated and distributed, including revenues, operating costs, employee compensation, donations and other community investments, retained earnings, and payments to capital providers and governments.	46, 91
EC2	CORE		Financial implications and other risks and opportunities for the organization's activities due to climate change.	67
EC3	CORE		Coverage of the organization's defined-benefit pension plan obligations.	46
EC4	CORE		Significant financial assistance received from government.	46
EC6	CORE	Market Presence	Policy, practices, and proportion of spending on locally-based suppliers at significant locations of operation.	61
EC7	CORE		Procedures for local hiring and proportion of senior management hired from the local community at locations of significant operation.	27, 83
EC8	CORE	Indirect Economic Impacts	Development and impact of infrastructure investments and services provided primarily for public benefit through commercial, inkind, or pro bono engagement.	27, 89-92
Environmental				
Disclosure on Management Approach				6, 27-30, 35-38, 59, 60, 63-65, 67-72, 75, 87
EN1	CORE	Materials	Materials used by weight or volume.	66, 69, 85
EN2	CORE		Percentage of materials used that are recycled input materials.	66, 69, 85
EN3	CORE	Energy	Direct energy consumption by primary energy source.	66, 67
EN4	CORE		Indirect energy consumption by primary source.	66, 67
EN6	ADD		Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives.	67
EN8	CORE	Water	Total water withdrawal by source.	66, 69, 85
EN11	CORE	Biodiversity	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.	71
EN12	CORE		Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.	71
EN13	ADD		Habitats protected or restored.	71
EN14	ADD		Strategies, current actions, and future plans for managing impacts on biodiversity.	71, 72
EN16	CORE	Emissions, Effluents, and Waste	Total direct and indirect greenhouse gas emissions by weight.	66, 68, 85
EN17	CORE		Other relevant indirect greenhouse gas emissions by weight.	68, 85
EN19	CORE		Emissions of ozone-depleting substances by weight.	Not applicable
EN20	CORE		NO, SO, and other significant air emissions by type and weight.	66, 70
EN21	CORE		Total water discharge by quality and destination.	85
EN22	CORE		Total weight of waste by type and disposal method.	85
EN23	CORE		Total number and volume of significant spills.	65
EN26	CORE	Products and Services	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation.	24, 37, 38
EN27	CORE		Percentage of products sold and their packaging materials that are reclaimed by category.	Not applicable
EN28	CORE	Compliance	Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with environmental laws and regulations.	65
MM1		Biodiversity	Amount of land (owned or leased, and managed for production activities or extractive use) disturbed or rehabilitated.	71
MM2			The 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.	71, 72
MM3		Emissions, Effluents, and Waste	Total amounts of overburden, rock, tailings, and sludges and their associated risks.	77, 78

GRI indicator		Aspect	Description of indicator	Page(s)
Labor Practices and Decent Work				
Disclosure on Management Approach				11, 13, 14, 17-21, 47-51, 53-55, 75, 81
LA1	CORE	Employment	Total workforce by employment type, employment contract, and region.	83
LA2	CORE		Total number and rate of employee turnover by age group, gender, and region.	84
LA4	CORE	Labor/Management Relations	Percentage of employees covered by collective bargaining agreements.	84
LA5	CORE		Minimum notice period(s) regarding operational changes, including whether it is specified in collective agreements.	54
LA7	CORE	Occupational Health and Safety	Rates of injury, occupational diseases, lost days, and absenteeism, and number of workrelated fatalities by region.	47
LA8	CORE		Education, training, counseling, prevention, and risk-control programs in place to assist workforce members, their families, or community members regarding serious diseases.	49
LA9	ADD		Health and safety topics covered in formal agreements with trade unions.	54
LA10	CORE	Training and Education	Average hours of training per year per employee by employee category.	54
LA11	ADD		Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings.	55, 82
LA13	CORE	Diversity and Equal Opportunity	Composition of governance bodies and breakdown of employees per category according to gender, age group, minority group membership, and other indicators of diversity.	54, 83
LA14	CORE		Ratio of basic salary of men to women by employee category.	54
MM4		Labor/Management Relations	Number of strikes and lock-outs exceeding one week's duration, by country.	54
Human Rights				
Disclosure on Management Approach				8, 11, 53, 54, 61, 62, 75, 95, 96
HR1	CORE	Investment and Procurement Practices	Percentage and total number of significant investment agreements that include human rights clauses or that have undergone human rights screening.	Not applicable
HR2	CORE		Percentage of significant suppliers and contractors that have undergone screening on human rights and actions taken.	61, 62
HR4	CORE	Non-discrimination	Total number of incidents of discrimination and actions taken.	74
HR5	CORE	Freedom of Association and Collective Bargaining	Operations identified in which the right to exercise freedom of association and collective bargaining may be at significant risk, and actions taken to support these rights.	54, 84
HR6	CORE	Child Labor	Operations identified as having significant risk for incidents of child labor, and measures taken to contribute to the elimination of child labor.	53, 61, 62
HR7	CORE	Forced and Compulsory Labor	Operations identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of forced or compulsory labor.	53, 61, 62
MM5		Indigenous Rights	Total number of operations taking place in or adjacent to Indigenous Peoples' territories, and number and percentage of operations or sites where there are formal agreements with Indigenous Peoples' communities.	There are no operating sites in or adjacent to Indigenous Peoples' territories.
Society				
Disclosure on Management Approach				8, 11, 61, 62, 73-76
SO1	CORE	Community	Nature, scope, and effectiveness of any programs and practices that assess and manage the impacts of operations on communities, including entering, operating, and exiting.	27, 58, 77, 78, 88-91
SO2	CORE	Corruption	Percentage and total number of business units analyzed for risks related to corruption.	75
SO3	CORE		Percentage of employees trained in organization's anti-corruption policies and procedures.	75
SO4	CORE		Actions taken in response to incidents of corruption.	Not applicable
SO5	CORE	Public Policy	Public policy positions and participation in public policy development and lobbying.	95
SO8	CORE	Compliance	Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with laws and regulations.	There were no fines or non-monetary sanctions for non-compliance with laws and regulations.

GRI indicator		Aspect	Description of indicator	Page(s)
MM6		Community	Number and description of significant disputes relating to land use, customary rights of local communities and Indigenous Peoples.	There were no significant disputes relating to land use, customary rights of local communities and Indigenous Peoples.
MM7			The extent to which grievance mechanisms were used to resolve disputes relating to land use, customary rights of local communities and Indigenous Peoples, and the outcomes.	There were no significant disputes relating to land use, or the customary rights of local communities and Indigenous Peoples.
MM8		Artisanal and Small-scale Mining	Number (and percentage) of company operating sites where artisanal and small-scale mining (ASM) takes place on, or adjacent to, the site; the associated risks and the actions taken to manage and mitigate these risks.	There are no operating sites on, or adjacent to, ASM sites.
MM9		Resettlement	Sites where resettlements took place, the number of households resettled in each, and how their livelihoods were affected in the process.	There were no operating sites where resettlements took place.
MM10		Closure Planning	Number and percentage of operations with closure plans.	At the Caserones Copper Mine, the production of copper concentrate was started in May 2014. It will close in 2040 due to the depletion of mineral resources.
Product Responsibility				
Disclosure on Management Approach				59-62
PR1	CORE	Customer Health and Safety	Life cycle stages in which health and safety impacts of products and services are assessed for improvement, and percentage of significant products and services categories subject to such procedures.	60
PR3	CORE	Product and Service Labeling	Type of product and service information required by procedures, and percentage of significant products and services subject to such information requirements.	60
PR6	CORE	Marketing Communications	Programs for adherence to laws, standards, and voluntary codes related to marketing communications, including advertising, promotion, and sponsorship.	Promoted as an issue of compliance relating to business activities in accordance with the Compliance Guidebook.
PR9	CORE	Compliance	Monetary value of significant fines for noncompliance with laws and regulations concerning the provision and use of products and services.	60
MM11		Materials Stewardship	Programs and progress relating to materials stewardship.	22-24, 44

Independent Assurance Report

Independent Assurance Report

To the President and Chief Executive Officer 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, social and economic performance indicators marked with ☑ for the period from April 1, 2013 to March 31, 2014 (the "Indicators") included in its Sustainability Report 2014 (the "Report") for the fiscal year ended March 31, 2014; the Company's self-declaration on the Global Reporting Initiative (GRI) application level (A+); 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 Sustainability Reporting Guidelines version 3.0 of the GRI; self-declaring a GRI Application Level in conformance with the application level criteria stipulated by the GRI; 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 to the Company's domestic factory selected on the basis of a risk analysis.
- Evaluating the overall statement in which the Indicators are expressed.
- Evaluating the Company's self-declared GRI application level against the application level criteria.
- Assessing the alignment of the Company's policies to the ICMM's 10 SD Principles and the applicable mandatory requirements set out in ICMM position statements through documentation reviews and interviews.
- Interviewing with the Company's responsible personnel and reviewing documents with respect to the Company's process of identifying and prioritizing its material issues.
- Interviewing with the Company's responsible personnel and reviewing documents with respect to the Company's approach to and management of its material issues.

Conclusion

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

- the Indicators in the 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 on the GRI application level does not conform to the application level criteria stipulated by the GRI;
- 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 95;
- the Company has not identified and prioritized its material issues as described on page 9; and
- the Company has not approached and managed its material issues as described on pages 9, 31-32, 44, 47-52, 54-55, 63-65 and 73-75.

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 6, 2014

The Future of Energy, Resources and Materials

JX Nippon Mining & Metals Corporation

Please feel free to give us your frank opinions about Sustainability Report 2014 to help us make the next report even better.
We welcome any suggestions for improving this report.

Send your reviews on this report to:

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THE GLOBAL COMPACT
COMMUNICATION ON PROGRESS

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

We welcome feedback on its contents.

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VEGETABLE OIL INK

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