



# Sustainability Report 2012

JX Nippon Mining & Metals Corporation





# In promoting innovation in the productivity of resources and materials, we are committed to assisting the sustainable development of society.

## 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 our stakeholders, including customers, suppliers, shareholders and investors, industry-government-academia groups, local communities, employees and other interested parties. As an important communication tool, this Report is designed to enhance stakeholders' understanding of our CSR activities.

Our *Sustainability Report 2012* has been prepared in accordance with the [Sustainability Reporting Guidelines 2006](#) of the Global Reporting Initiative (GRI) and 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 the ICMM's Assurance Procedures. Taking into consideration our Code of Conduct, this Report details our activities from the perspectives of management as well as economic, environmental and social pursuits.



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

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 53 major domestic and overseas affiliated companies as of April 1, 2012. Further, the reporting boundaries of respective indicators are as follows.

Boundaries of the Data	Domestic	Overseas	Total
Economic Data*1	13	12	25
Environmental Data	12*2	4*3	16
Social Data*4	38	15	53

\*1. This represents the number of reporting companies covered in the "Economic Effects on Stakeholders" section of the *Economic Activities Report*. In addition to consolidated subsidiaries (not including companies that do not conduct business activities), the nonconsolidated subsidiary Nikko Fuji Electronics Dongguan Co., Ltd., is included.

\*2. Included are operating sites that engage in production activities and which the Company controls directly and companies that have relatively substantial environmental impacts, 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).

\*3. 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.

\*4. This represents the number of reporting companies covered in the "Involvement with Our Employees" section of the Company's *Social Activities Report*.

### Publication Date

November 2012 (Publication date of previous report: November 2011)

### Reporting Period

In principle, this Report covers our business activities for the period from April 2011 to March 2012 (fiscal 2011). In order to ensure comprehensive disclosure, however, certain information regarding important events that occurred prior to and/or after this period have been included.





## Group Companies Covered under This Report<sup>\*1</sup> (Company names as of April 1, 2012)

### Resources Development

Kasuga Mines Co., Ltd.  
 JX Nippon Exploration and Development Co., Ltd.  
 JX Nippon Drilling Co., Ltd.  
 SCM Minera Lumina Copper Chile

### Smelting and Refining

Pan Pacific Copper Co., Ltd.  
 Hibi Kyodo Smelting Co., Ltd.  
 Sankin Hibi Harbor Transportation Co., Ltd.  
 Nissho Ko-un Co., Ltd.  
 PPC Plant Saganoseki Co., Ltd.  
 Nissho Maintenance Factory 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.  
 JX Nippon Kurobe Galva 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.

JX Nippon Mining & Metals Korea Co., Ltd.  
 Nikko Metals Hong Kong Ltd.  
 JX Nippon Coil Center Co., Ltd.  
 Nippon Mining & Metals (Suzhou) Co., Ltd.  
 Nikko Fuji Precision (Wuxi) Co., Ltd.  
 Nikko Metals Shanghai Co., Ltd.  
 Sanyu Electronic Industry Co., Ltd.  
 Suzuki Manufacturing Co., Ltd.<sup>\*2</sup>  
 JX Nippon Foundry Co., Ltd.<sup>\*2</sup>

### Other Business

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.  
 Shakanai Mines Co., Ltd.  
 Hanawa Mines Co., Ltd.  
 Hokushin Mining Co., Ltd.  
 Namariyama Mining Co., Ltd.  
 Kamikita Mines Co., Ltd.<sup>\*2</sup>  
 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.  
 Materials Service Complex Malaysia Sdn. Bhd.

\*1. Group companies included within the reporting boundaries of the "Involvement with Our Employees" section of the *Social Activities Report* (not including SCM Minera Lumina Copper Chile).

\*2. Companies newly added within the reporting boundary for this Report (3 companies).

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**We will contribute to the development of a sustainable economy and**



Masanori Okada  
Chairman

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

## society through innovation in the areas of energy, resources and materials.

### As a Global Corporate Citizen Engaged in the Business of Resources and Materials

JX Nippon Mining & Metals Corporation is the core company engaged in the nonferrous metals business in the JX Group, which is aiming to become one of the largest “integrated energy, resources and materials business groups” in the world. As an integrated nonferrous metal manufacturer, the Company is forging ahead with a global mind-set to grow each field of its businesses covering upstream resources development, midstream metals smelting and refining and the downstream areas of electronic materials and recycling and environmental services with copper at its core in a steady and solid way. As a member of the JX Group, we are constantly striving to practice the JX Group Mission Statement of the “JX Group will contribute to the development of a sustainable economy and society through innovation in the areas of energy, resources and materials.”

### Reconstruction from the Damage Caused by the Great East Japan Earthquake

Many people were seriously devastated by the Great East Japan Earthquake that occurred on March 11, 2011, but the victims have stepped forward with restoration and reconstruction activities while receiving nationwide support despite some services being insufficient. As for the JX Nippon Mining & Metals Group, we too were affected, suffering damage to some of our facilities located in areas of the Tohoku and northern Kanto regions of Japan. Because of these damages, we were forced to suspend operations at the affected facilities. Repairs, however, were made smoothly and operations gradually restarted by July 2011 through concerted efforts within the Group to cope with this emergency. Regarding the outflows of [tailings](#) from two impoundments at the closed mines, tailings removal and disaster preventive operations have been promoted under the guidance of administrative authorities and with the understanding and cooperation of local residents. We are confident that the bond of solidarity and the long-cultivated trust of local residents, which have been demonstrated in the course of recovering from the disaster, are now valuable assets of the Group. At the same time, it is clearly our intent for the JX Nippon Mining & Metals Group to assist in the reconstruction process of the devastated areas.

### Looking Back on Fiscal 2011

Fiscal 2011 was a year during which we implemented “a harmonious relationship with stakeholders,” which is one element of our Code of Conduct, in many fields. For example, we held a joint exhibition with the Gold Ecological Park, a museum located at an ancient mine in Taiwan that was operated by Nippon Mining Co., Ltd., the predecessor of the Company, and completed the acid mine drainage treatment plant at the Toyoha Mine in Sapporo, Hokkaido. In addition, we set up the Endowed Research Unit for Non-ferrous Metals Resource Recovery Engineering (JX Metals Endowed Unit) with the University of Tokyo in the pursuit of a [recycling-oriented society](#) through our research on metals resource [recycling engineering](#) and the enhanced development of human resources.

We also believe that safety and disaster prevention measures as well as compliance are prerequisites to the continuation of our business and form the basis of our CSR activities. We enhanced our compliance inspection activity within the Group to further disseminate and carry out compliance on overall activities. Despite our best efforts to conduct safe, disaster-free operations, however, we did suffer three severe accidents in fiscal 2011. Consequently, we appreciate that our efforts in safety and disaster prevention require ongoing improvement and reform. We are determined to again exert our utmost efforts to implement thorough safety and disaster prevention measures in order to ensure that such grave accidents never happen again.

### Our CSR Activities Are Nothing More or Less Than Our Business Activities

Our action goal for fiscal 2012 is to “increase corporate value through CSR activities that are a reflection of our business activities.” We have formulated as to our social mission “to acquire the satisfaction and trust of society based on our strenuous technological development.” In other words, developing our operations is the equivalent of “contributing to the sustainable development of the economy and society”; therefore, our CSR activities are nothing more or less than our business activities. We believe that recognizing the specific features of our business engaged in at each office or worksite and implementing activities by taking advantage of such features will widen the scope and increase the quality of Groupwide CSR activities, thereby leading to increasing the corporate value of the Group. It is critical, therefore, that our employees – the main actors in carrying out our business activities – constantly address measures to contribute to the sustainable development of the economy and society through their daily activities.

### Deepening Your Understanding, Welcoming Your Opinions Regarding the Group’s CSR Activities

The Group has endorsed the 10 sustainable development principles and the position statements of the [ICMM](#) (International Council on Mining and Metals), which is devoted to developing a sustainable society, agreed with the thoughts of the [EITI](#) (Extractive Industries Transparency Initiative), and supported the 10 principles of the United Nations [Global Compact](#). [Sustainability Report 2012](#), which has been compiled in accordance with the [Sustainability Reporting Guidelines 2006](#) of the Global Reporting Initiative (GRI) and the [GRI Mining and Metals Sector Supplement](#), reflects the initiatives listed above.

The Group clearly recognizes its social responsibilities. In addition to verifying the substance of our previous CSR activities internally, we are actively working to communicate information about these activities both inside and outside of the Group. By absorbing a wide range of views and opinions, we are determined to further deepen and advance our CSR activities.

We hope that this sustainability report will help readers deepen their understanding of our CSR activities and, at the same time, encourage them to candidly voice their opinions.



## About 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.

### 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.

## Employees' Roundtable Meeting

### JX Nippon Mining & Metals' Business Activities and CSR



This meeting is intended to deepen our understanding of the JX Nippon Mining & Metals Group's belief that "our CSR activities are nothing more or less than our business activities." To this end, the participants discussed how they were carrying out CSR activities through their routines and how they would implement CSR activities in ways appropriate to their business activities and ensure those activities contribute to enhancing our corporate value.

**Date:**

May 8, 2012 (Tuesday)

**Place:**

The conference room of the executive committee in the JX building

### What Does "Our CSR Activities Are Nothing More or Less Than Our Business Activities" Mean?

**Moderator:** Our CSR activities are nothing more or less than our business activities. First, I would like to hear any comments on this belief about the Group's CSR activities.

**Kozuka:** Many people think that CSR activities are special activities you do other than your daily work. In fact, however, your engagement in daily jobs eventually leads to social contributions. Explaining that in plain words to the employees at the Kurami Works is my responsibility as the general manager of the Kurami Works.

**Oka:** In my view, CSR activities refer to the corporate activities for enhancing customer satisfaction, because I am engaged in marketing jobs. Through the development of materials, we help customers develop semiconductors, which results in the creation of electric and electronic products that enhance convenience in society and change people's lifestyles. With that understanding, I am doing my daily job.

**Tsukahara:** My job is to clarify, analyze and report on the Group business achievements at the Accounting & Finance Dept. I believe that fulfilling these duties in an appropriate and timely manner provides an overall grasp of the Company's operations in terms of numerical figures, which contributes to enhancing corporate value. The department's duties of ensuring legal compliance and disclosing the financial information of the Group are CSR activities themselves in nature, and therefore I execute my duties with a sense of diligence at all times.

**Sakaguchi:** The Recycling and Environmental Services business of the Group, in which I am engaged, aims to establish a recycling-oriented society. This adheres to the purpose of CSR activities in that it contributes to the sustainable development of society. Because we operate incinerators for industrial waste, the understanding of local communities is essential for conducting the recycling business. It is our view that all efforts to continue this business constitute CSR activities.

**Otsuka:** That we have been able to continue the business of metal surface treatment for 55 years since the Company's establishment is, I believe, the result of our consistent pursuit of customer satisfaction and the fulfillment of their expectations. Gaining the long-term trust of society and brand strength with long-range expectations is indispensable for the continuation of businesses. I feel any efforts to achieve that are CSR activities.

**Kimura:** After I became involved in this series of roundtable sessions, I started thinking, "Do our products help enrich people's lives?" and "Does the expansion of our businesses generate more jobs and eventually help revitalize local communities?" If our businesses are of any help to society, I believe they can be called CSR activities.

**Nakamura:** The value of overseas operating sites lies in what they offer the country in which they are operating. For example, whether they contribute to the industrial development of the country by stably supplying products to local customers is one aspect in judging the value. The creation of jobs and the development of human resources are also important aspects to consider. In line with the key policy of CSR activities, I try to ensure that employees take great pride in and have a good understanding of their jobs.

**Matsui:** At first, I was not entirely comfortable with the idea that "our CSR activities are nothing more or less than our business activities." However, my understanding of CSR has been advanced by knowing that "responsible" can be sometimes restated as "trustworthy" and considering that CSR means a company's offering of responses to justify the trust of society it has earned. Social trust in a corporate entity comes from the entity's achievements in supplying high-quality products and services at appropriate prices and in a stable manner, which exactly represents the entity's business activities.





**Masanori Okada**  
President & CEO, Chairman of  
the CSR Committee



**Hiroshi Matsui**  
Director, Deputy Chief Executive  
Officer



**Nobuyuki Yamaki**  
Director, Senior Executive Officer



**Michiharu Yamamoto  
(Moderator)**  
General Manager, CSR Department



**Yuji Kozuka**  
General Manager, Kurami Works



**Daisuke Oka**  
Manager, Electronic Materials  
Group



**Mitsugu Sakaguchi**  
Director of Plant, General Manager,  
JX Nippon Tsuruga Recycle  
Co., Ltd.



**Yuji Otsuka**  
General Manager, Tatebayashi  
Works, Chief Executive Officer,  
Sanyu Electronic Industry Co., Ltd.



**Aki Tsukahara**  
Assistant Manager, Accounting &  
Finance Department



**Kanji Kimura**  
Manager, Production Department  
4 (Cathode Materials),  
Isohara Works



**Masayuki Nakamura**  
General Manager, Nikko Metals  
Taiwan Co., Ltd.

\*The titles of the participants are  
as of the date of this meeting.

**Yamaki:** When I think of the notion that “our CSR activities are nothing more or less than our business activities,” the following three points come to mind.

First, the Company’s business started with mining and smelting. At that time, many of the mines were located deep in the mountains where there were no houses, roads, electricity or waterworks. To operate in such a place, the Company had to provide the infrastructure, lifeline utilities and even schools and hospitals. Our predecessors built the local community itself as part of their business operations. I believe this is the basis of the notion that “our CSR activities are nothing more or less than our business activities.”

Second, the Company’s history is one of battling environmental problems. There have been few capital investments without attention to the prevention of pollution. Indeed, it has been impossible to keep businesses going without pollution control measures. In that sense, environmental preservation, a major element of CSR activities, has been nothing more or less than a business activity.

Third, the Company engages in businesses relating to copper. Copper was the first metal used by the human race. It contributed

significantly to the civilization of ancient Egypt. In Japan, copper was used to build the giant statue of Buddha at Todai-ji Temple in Nara and has been used in many other ways to support human lives and culture. Copper was essential to the technological innovations in the IT and automotive industries. The supply of copper to society has contributed to the sustainable development of society.

**Okada:** Children cannot grow into people that earn the esteem of others unless they are educated by their parents to obey the rules, not to cause trouble to others and so on. The same applies to corporate entities. Just by pursuing profits, they cannot continue their businesses for a long period of time. The primary reason for the Company’s longevity over the past 100 years lies in its ability to overcome difficulties by earning the trust of local communities and ensuring that its employees take pride in working for the Company. Just as people have character, companies also have their own character. The character of the Company has been refined by our predecessors for the past 100 years to reach its present form. Compared to the education of people, CSR activities can be described as those that develop not only the ability but also the character of children.

## Examples of CSR Activities Implemented in Business Activities

**Moderator:** I believe the recognition that “our CSR activities are nothing more or less than our business activities” has been gradually enhanced throughout the history of the Company. Next, I would like you to present actual examples of the notion that “our CSR activities are nothing more or less than our business activities.”

**Kozuka:** The operation of a factory naturally generates noise and vibrations. As a matter of course, their level is controlled to comply with the applicable laws at the Kurami Works. From the standpoint of the local residents, however, the vibration of a dump truck running nearby or

the noise of a forklift provided sufficient reason to complain. Previously, we thought there was no problem as long as we followed the relevant laws. However, we have concluded that these complaints should be addressed even if we are following the laws. We believe that “it is the local people who have enabled us to continue operations” and are making various efforts to promote mutual understanding, such as a joint survey on noise.

**Oka:** When the Isohara Works was afflicted by the Great East Japan Earthquake on March 11, 2011, the shipment of products from the Works was



temporarily suspended. Although the Works was restored in a short period of time due to the efforts of the onsite staff, we strove to continue the supply of products during the suspension by obtaining the products in stock from our overseas operating sites. As a result, we survived the emergency with no effect on our customers' manufacturing lines. This is when I recognized anew the gravity of the social responsibility of the Company's business operations.

**Tsukahara:** The occurrence of the Great East Japan Earthquake caused the outflows of tailings from impoundments at the Oya and Takatama mines. In restoring the damaged facilities, the Company chose to take permanent measures that exceed the requirements stipulated by law in terms of size and quality. Naturally, this meant higher costs. Being in charge of the accounting aspect of the project, I calculated the possible effects of the cost increase on the Company's business results and provided appropriate accounting treatment. Accounting work is often conducted away from the site of business operations, but for me, promoting understanding through discussions with onsite personnel and carrying out the mission as accounting personnel is an act of fulfilling CSR.

**Sakaguchi:** Seven years ago, the monthly treatment volume of recycled materials containing copper and precious metals at JX Nippon Tsuruga Recycle was only around 300 tons. Currently, it exceeds 1,000 tons. Increasing the recycled material treatment volume will help promote the development of a recycling-oriented society. In addition, we are actively involved in efforts to ensure harmonious coexistence with the local community, such as participating in cleanups and other activities in the community. Participants from the company wear the same windbreakers as the corporate uniform.

**Otsuka:** The official business of Sanyu Electronic Industry is plating, but it also recycles 2,000 tons of wastewater a day. The plating industry experienced hard times when it was determined that the plating business automatically produced pollution. Therefore, Sanyu Electronic Industry has high environmental awareness with the knowledge that any problem with the wastewater discharged from its factory could cause not only the suspension of the factory but also significant trouble for the entire plating industry and has invested in facilities to treat its wastewater. Wastewater treatment may be regarded as an important CSR action to ensure the continuance of the plating business.

**Kimura:** I have two examples in mind. One is that our products have been audited and certified by customers, which proves that our

products satisfy customers' needs. The second example relates to the Great East Japan Earthquake, which halted the operation of lifeline utilities, including electricity and waterworks, causing significant damage to the Isohara Works. At that time, we received various forms of support from the local people, in addition to relief aid from the Company headquarters. This support empowered the factory's entire staff, uniting them to produce a considerable effort to resume operations.

**Nakamura:** On the occasion of the Great East Japan Earthquake, we received a considerable amount of monetary donations from the Taiwanese people. Taiwan has a strong affinity toward Japan and its monetary donations were the highest of any country despite its small population of 23 million. To show our gratitude for the aid, the Nippon Mining Museum held a special fellowship exhibition in November 2011 in cooperation with the Gold Ecological Park, which stands at the site where the Jinguashi (*Kinkaseki* in Japanese) mine was operated prior to World War II in Taiwan by Nippon Mining, the precursor of JX Nippon Mining & Metals. We will continue to make contributions to Taiwanese society.

**Yamaki:** The Group's workforce exceeds 5,000, and it is therefore necessary to establish Groupwide systems to ensure compliance and corporate governance. An organization's external control over its people such as through rules and regulations, based on the view of human nature as inherently bad, may succeed to a certain degree, but it doesn't generate a vibrant workplace atmosphere. Such an atmosphere can be created through an effort to raise the motivation of people to address and solve difficulties, based on the view of human nature as fundamentally good. Here, I believe, lies the importance of our promotion of CSR efforts.

**Matsui:** CSR, or corporate social responsibility, is not a responsibility we are forced to bear under external pressure. Rather, the essence of CSR efforts lies in a more proactive involvement to fulfill the expectations of and build better relations with society. I feel delighted to hear your positive views on CSR and the stories of carrying out CSR efforts in a proactive manner.

**Okada:** We need to continue to provide reserves for the cost of closing mines. The accumulated amount of reserves to close the Toyoha Mine exceeded ¥6.0 billion. At the site where the Toyoha Mine once operated, the Company built the world's first indoor effluent treatment facilities, for which the construction cost eventually exceeded ¥10.0 billion. In addition, there is an annual treatment cost of ¥0.5 billion–¥0.6 billion. The Company has 39 closed mines in Japan, and it must take care of them indefinitely.

As copper will continue to be in demand for years to come, the development of copper mines needs to be continued. Meanwhile, resource development has a certain effect on the global environment. Therefore, the development of resources must be promoted in compliance with the applicable rules, which could involve significant costs. It is easy to say that "our CSR activities are nothing more or less than our business activities," but putting that into practice involves considerable effort. You should keep that in mind.

## How We Should Enhance Corporate Value by Implementing CSR Activities?

**Moderator:** As the last subject to discuss, I would like to hear your ideas on how your business unit will implement CSR activities in ways appropriate to its business activities and ensure those activities contribute to enhancing the Group's corporate value. First, I would like Mr. Kozuka to brief us on the ongoing efforts at the Kurami Works.

**Kozuka:** The handout describes the medium-term business plan of the Kurami Works from the aspect of CSR. This handout was used when I explained the medium-term plan for the CSR activities of the Kurami Works to the people working at the Works. Specific efforts will be conducted in the form of NPM (Nippon Mining and Metals Total Productive Maintenance (TPM)) activities, but I want them to raise the

awareness of CSR and enhance the Group's corporate value by understanding that their business activities do relate to society.

**Nakamura:** I believe it is important for Nippon Mining & Metals Taiwan to ensure the unity of awareness throughout the company. For example, Taiwanese employees working in the company do not necessarily have the same sense of values as those held by Japanese employees. Based on respect for the national character of the Taiwanese people, we need to encourage them to have pride in their jobs, which is the basis for enhancing corporate value. Creating systems to enable that is what I should do.

**Kimura:** The mission of production forces is to produce high-quality products in a stable manner and at the lowest possible cost. The competitive products we produce cause the expansion of businesses, which creates more jobs. It also raises the brand strength of JX Nippon Mining & Metals, which increases the competitiveness of its products. I see our efforts as the starting point for creating such a virtuous cycle.

**Otsuka:** It's been two years since Sanyu Electronic Industry joined the JX Nippon Mining & Metals Group. In the meantime, we have focused on fostering a safety culture at our Works. In addition, based on the Group's medium-term business plan, the policy of each unit of our Works and individual targets for the employees were identified and cards showing these policies and targets were produced. I will continue to raise the awareness of CSR by providing clear explanations and encourage all staff to join in CSR activities to enhance corporate value.

**Sakaguchi:** On April 11, 2012, we held a ceremony to celebrate the completion of new facilities, a scene that was broadcast by local television stations because we invited some media. The power of media is significant in communicating the presence of the company. This event made me aware of the importance of communications to promote our relationship of trust with the local community.

**Tsukahara:** International disclosure standards are changing. To swiftly adapt to these changes, I am continually gathering related information. By developing systems to ensure the appropriate disclosure of the Group's information, I believe we can contribute to enhancing the Group's corporate value.

**Oka:** A television program I watched the other day covered the business of a semiconductor-related manufacturer. The viewers of this program must have had a good impression of the manufacturer. This program



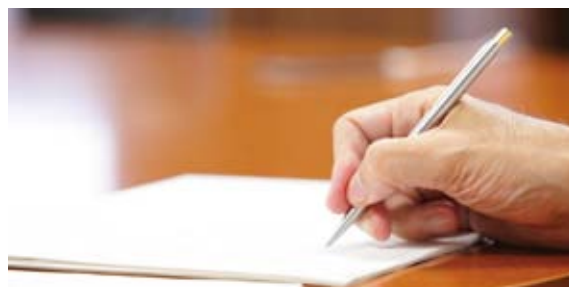
made me think that earning the respect for and recognition of the business itself was more effective in creating a good image than the company's size, share price and other financial indicators.

**Yamaki:** At headquarters, we feel that it is our responsibility to develop systems for ensuring that employees are always rewarded for their efforts and achievements. For example, the management of closed mines is a responsibility that is unspectacular and tends to be left unnoticed. However, the appropriate responses of the staff engaged in those duties since the Great East Japan Earthquake have reconfirmed the importance of that work. By encouraging the proper recognition of these duties, we would like to ensure that every employee of the Group has confidence and pride in his or her job.

**Matsui:** Because "our CSR activities are nothing more or less than our business activities," any time a medium-term business plan is created, a plan for CSR activities is automatically created. What's important is to ensure the effectiveness of this plan. I believe the new efforts at the Kurami Works, on which Mr. Kozuka briefed us earlier, serve as a useful reference for other operating sites.

**Okada:** Increasing profits, improving productivity and other efforts of this sort certainly constitute a necessary condition for enhancing corporate value. However, they must be combined with the trust of local communities and customers and employee satisfaction to constitute a necessary and sufficient condition. The idea presented by Mr. Kozuka of a practical tool to develop such trust and increase employee satisfaction may present a good example for the other parts of the Group to follow. Based on the discussions today, I hope that each of the participants here will lead their own workplace to fulfill the necessary and sufficient conditions to enhance the Group's corporate value.

**Moderator:** Thank you very much.





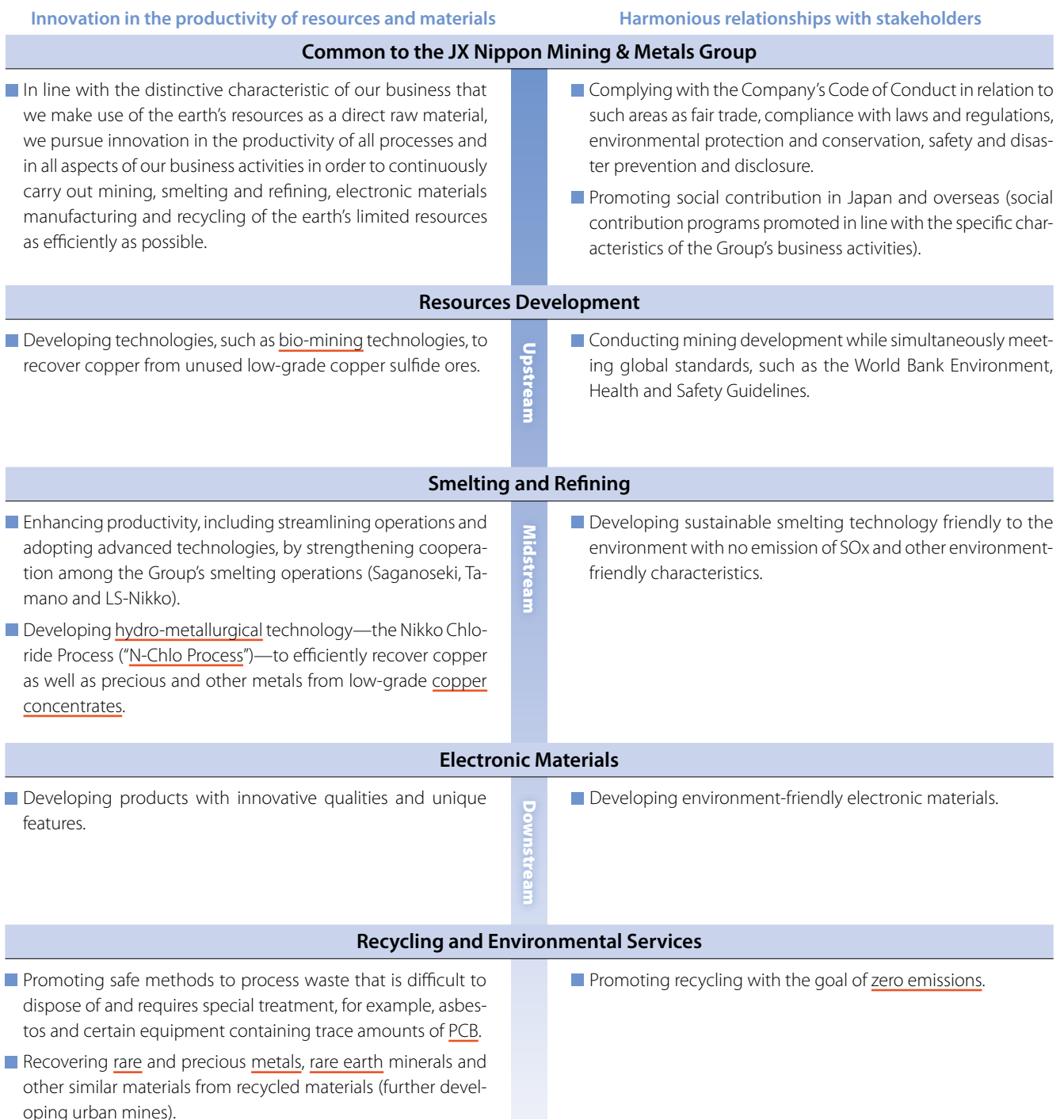
# CSR Activities of the JX Nippon Mining & Metals Group

We report on the CSR activities of the JX Nippon Mining & Metals Group.

## CSR Action Policy

The belief that “CSR activities are nothing more or less than our business activities” clarifies how we should incorporate our Code of Conduct into the day-to-day activities of the Group. In line with this CSR Action Policy, the JX Nippon Mining & Metals Group is exerting efforts to smoothly carry out CSR activities that reflect the detailed annual plans set forth each fiscal year as well as undertake the strict implementation of the PDCA (Plan, Do, Check and Act) cycle.

Our action goal for fiscal 2012 onward is to “increase corporate value through CSR activities that are a reflection of our business activities.” In accordance with this objective, and in addition to the existing CSR Action Policy of the Group, each operating site will implement the PDCA cycle in line with its own policy that reflects its business activities.



# Communication with Stakeholders

## Stakeholders of the Group

The business activities of the Group are supported by many stakeholders—individuals, organizations and communities who have a vested interest in the Group. Stakeholders that have close and regular ties with us and the major responsibilities and activities in regard to these stakeholders, as well as our major communication tools, are listed in the table below. We aim to establish and maintain strong relationships of trust with our various stakeholders through close communication.

Stakeholder		Major responsibilities and activities of the Group	Major communication tools
<b>Customers</b>	We consider it crucial to respond to the opinions and wishes of our customers, with whom we have frequent contact through our business activities.	<ul style="list-style-type: none"> <li>■ Supplying value-bearing products</li> <li>■ Providing product information from both safety and environmental perspectives</li> <li>■ Further improving the quality of our products</li> <li>■ Enhancing services</li> <li>■ Ensuring a stable supply of our products</li> </ul>	<ul style="list-style-type: none"> <li>■ Introducing and supplying products and services</li> <li>■ Consulting about newly developed products and other related matters</li> <li>■ Providing product information from safety, environmental and supply perspectives</li> <li>■ Exchanging information at exhibitions and other trade-related shows</li> </ul>
<b>Suppliers</b>	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.	<ul style="list-style-type: none"> <li>■ Carrying out open and fair trade transactions</li> <li>■ Promoting environmental protection based on the Basic Environmental Policy and the <a href="#">Green Purchase Guideline</a></li> <li>■ Collaborating to realize more-efficient logistics and recycling</li> <li>■ Providing our subcontractors with a comfortable safety and workplace environment</li> </ul>	<ul style="list-style-type: none"> <li>■ Conducting business through the daily transactions of JX Nippon Procurement Corporation</li> <li>■ Providing environment and safety-related guidelines and others with our subcontractors</li> </ul>
<b>Shareholders and investors</b>	As a core operating company of the JX Group, we remain accountable to our shareholders and investors. Accordingly, we make every effort to secure highly transparent corporate management.	<ul style="list-style-type: none"> <li>■ Undertaking proper and prompt disclosure through the activities of JX Holdings, Inc.</li> <li>■ Increasing corporate value from economic, environmental and social perspectives</li> </ul>	<ul style="list-style-type: none"> <li>■ Conducting shareholder meetings</li> <li>■ Holding investor and other meetings hosted by JX Holdings, Inc.</li> </ul>
<b>Employees</b>	While also key stakeholders in the Group's overall activities, employees play a central role in our CSR activities. We are building frameworks where each employee can reach his/her maximum capabilities.	<ul style="list-style-type: none"> <li>■ Ensuring a work environment</li> <li>■ Providing equal opportunities and securing diversity</li> <li>■ Improving the Group's education and training program</li> <li>■ Enhancing the level of employee satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>■ Implementing the Self-Statement System</li> <li>■ Holding meetings of the Labor-Management Council</li> <li>■ Holding meetings of the Health and Safety Committee</li> <li>■ Carrying out a survey regarding CSR issues</li> <li>■ Conducting roundtable discussions with CSR-related agendas</li> </ul>
<b>Industry-government-academia groups</b>	We recognize that these groups are important partners in efforts to build new technologies and nurture the next generation of human resources.	<ul style="list-style-type: none"> <li>■ Making proposals in a wide range of areas</li> <li>■ Promoting the advancement of science and technology</li> <li>■ Collaboration to enhance human resources development in the Group's business field</li> </ul>	<ul style="list-style-type: none"> <li>■ Joining various organizations and attending their regular conferences</li> <li>■ Implementing joint research and development with universities and research institutions</li> <li>■ Participating in national projects and other related events</li> </ul>
<b>Local and global communities (Global environment)</b>	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.	<ul style="list-style-type: none"> <li>■ Preserving the local environment by complying with environmental legislation and regulations</li> <li>■ Preventing accidents and disasters at our domestic and overseas operating sites</li> <li>■ Respecting cultures and customs in overseas countries</li> </ul>	<ul style="list-style-type: none"> <li>■ Contributing to local communities (participating in cleanup as well as disaster prevention activities)</li> <li>■ Regularly conducting summer festivals and opinion-exchange meetings</li> <li>■ Participating in various projects proposed by the <a href="#">ICMM</a></li> <li>■ Sharing information and opinions at international conferences and other events</li> </ul>
<b>Nonprofit organizations (NPOs) and non-governmental organizations (NGOs)</b>	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.	<ul style="list-style-type: none"> <li>■ Implementing initiatives to conserve the global environment and assisting the sustainable development of society, as a member of the ICMM</li> <li>■ Collaborating in social contribution activities across such fields as environmental protection</li> <li>■ Collaborating in business development</li> </ul>	<ul style="list-style-type: none"> <li>■ Supporting the activities of NPOs and NGOs</li> <li>■ Exchanging opinions with NPOs and NGOs</li> </ul>
<b>Future generations</b>	We continue dialogue with the next generation, who will carry inheritance forward to the future society, in an effort to clarify the Group's social role.	<ul style="list-style-type: none"> <li>■ Heightening awareness about environmental conservation</li> <li>■ Enlightening future generations about the importance of social-action programs by <i>monozukuri</i> – manufacturing products</li> </ul>	<ul style="list-style-type: none"> <li>■ Conducting plant tours and other events as necessary</li> <li>■ Established the Endowed Research Unit in collaboration with the Institute of Industrial Science at the University of Tokyo. (For details, please refer to page 23.)</li> </ul>

PLAN		
Issues and goals	Fiscal 2011 goals	Initiatives
<b>■ Innovation in the productivity of resources and materials</b>		
Innovation in the productivity of each operation and throughout every aspect of our business activities	<b>1</b> Promote innovation in productivity Awards from presidents, Works' general managers and others	
	<b>2</b> Innovation in productivity regarding environmental issues Reduce energy consumption <u>intensity</u> by 1% from the average of the period between fiscal 2008 and fiscal 2010	<ul style="list-style-type: none"> <li>■ HMC Dept., Hitachi Works: Improving the energy efficiency of the <u>oxidative refinery furnace</u></li> <li>■ Copper Foil Dept., Hitachi Works: Reducing the electricity consumption per unit of production</li> <li>■ Precision Plating Dept., Hitachi Works: Using less electricity</li> </ul>
	Reduce CO <sub>2</sub> emission intensity by 1% from the average of the period between fiscal 2008 and fiscal 2010	<ul style="list-style-type: none"> <li>■ JX Nippon Tomakomai Chemical Co., Ltd.: Reduced intensity by increasing the processed volume of solid materials</li> <li>■ Isohara Works: Improving the product <u>yield</u> ratio and changing to high-efficiency equipment</li> <li>■ Precision Plating Dept., Hitachi Works: Reducing the use of steam</li> <li>■ Kurami Works: Implementing various energy-saving measures and improving the yield ratio</li> </ul>
	Maintain the ratio of non-value-bearing waste volume at less than 1% Ratio of non-value-bearing waste volume = (Volume incinerated + Volume of final disposal / Volume of waste and sellable materials generated)	<ul style="list-style-type: none"> <li>■ HMC Dept., Hitachi Works, JX Nippon Tomakomai Chemical Co., Ltd., JX Nippon Environmental Services Co., Ltd., JX Nippon Mikkaichi Recycle Co., Ltd., JX Nippon Tsuruga Recycle Co., Ltd.: Continued initiatives toward zero final disposal volume of waste (<u>zero emissions</u>)</li> <li>■ Kurami Works: Cost improvement by reducing industrial waste emissions and landfill volumes</li> <li>■ Copper Foil Dept., Hitachi Works: Strengthening management of waste volume, etc.</li> </ul>
<b>■ Harmonious relationships with our stakeholders</b>		
Compliance with the Code of Conduct (Fair trade, compliance with laws and regulations, environmental conservation, safety and disaster prevention, disclosure of corporate information and other related issues)	Eradicate misconduct	<b>1</b> Preventing misconduct <ul style="list-style-type: none"> <li>■ Raising awareness about compliance</li> <li>■ Complying with goals related to compliance</li> </ul>
	Secure safety and prevent disasters	<b>2</b> Securing safety and preventing disasters <ul style="list-style-type: none"> <li>■ Creating an optimum working environment</li> <li>■ Eradicating occupational diseases</li> </ul>
	Organize educational programs to raise awareness about CSR	<b>3</b> Conducting employee education and training <ul style="list-style-type: none"> <li>■ Holding CSR briefing sessions and employee roundtable discussions</li> <li>■ Carrying out compliance education and training and other programs</li> </ul>
	Comply with laws and regulations	<b>4</b> Complying with laws and regulations <ul style="list-style-type: none"> <li>■ Appropriate measures such as submission of applications for permits and approvals as well as various reports</li> <li>■ Compliance with environmental and safety laws and regulations</li> </ul>
Promoting matters related to social contribution and local communities	Engage in communication with local communities	<b>5</b> Promoting communication with local communities <ul style="list-style-type: none"> <li>■ Participating in cleanup activities</li> <li>■ Engaging in communication with local communities through summer festivals and other events</li> </ul>
Acquiring the trust of stakeholders	Obtain certifications	Continue to receive regular inspections to maintain <u>OHSAS</u> and <u>ISO</u> certifications at each operating site



Evaluation: Attained goals = A Partially attained goals = B Unattained goals = C

DO		CHECK	ACT
Fiscal 2011 performance (Numerical data, variances from benchmarks, progress of development projects and others)		Evaluation	Fiscal 2012 goals (Numerical goals or degrees of progress to goals and others) and challenges
<ul style="list-style-type: none"> <li>1 Cases of commendation for innovation in productivity</li> <li>■ Saganoseki Smelter &amp; Refinery, Pan Pacific Copper Co., Ltd.: President's Award of JX Nippon Mining &amp; Metals</li> <li>■ Hibi Smelter, Pan Pacific Copper Co., Ltd.: Official commendation for outstanding invention</li> <li>■ Isohara Works: Best Inventor Award</li> </ul>		A	
Increase of 5.3% from the average of the period between fiscal 2008 and fiscal 2010	Although both energy consumption and CO <sub>2</sub> emissions declined from the average of the period from fiscal 2008 to fiscal 2010, the impact of the Great East Japan Earthquake, for which we had to reduce hours at our operating sites in the northern Kanto and Tohoku regions, and flooding in Thailand, which significantly reduced our production volume in the electronic materials business, caused increases in the energy consumption and CO <sub>2</sub> emission <u>intensities</u> .	C	Goal: Reduce by 2% from the average of the period between fiscal 2008 and fiscal 2010 We strive to achieve our goals by: <ul style="list-style-type: none"> <li>■ Discovering successful cases of energy use at each operating site and horizontally applying those to all operating sites.</li> <li>■ Extracting and collecting energy sources that are discarded wastefully and trying to effectively use them.</li> </ul>
Increase of 5.9% from the average of the period between fiscal 2008 and fiscal 2010		C	
Achievement of 0.8%		A	Maintain the ratio of non-value-bearing waste volume at less than 1%
<ul style="list-style-type: none"> <li>■ No occurrence of significant misconduct in fiscal 2011</li> </ul>		A	Continue to ensure no occurrence of significant misconduct
<ul style="list-style-type: none"> <li>■ Accidents with lost working days and fatal accidents: 34 cases</li> <li>■ Fires, explosions: 2 cases</li> <li>■ Occupational diseases: 0 cases</li> </ul>		C	Prioritize the implementation of educational training based on past cases of serious disasters to enhance an understanding of the laws / regulations and in-house rules regarding the danger of being caught in equipment and that of operations at high locations.
<ul style="list-style-type: none"> <li>■ Conducting CSR briefing sessions (51 times) and holding employee roundtable discussions (46 times), when visiting 25 domestic and 14 overseas operating sites</li> <li>■ Carrying out employee surveys</li> <li>■ Conducting specialized education by job grade, as well as education on antitrust law and security-related trade control</li> <li>■ Implement CSR training sessions for the managers responsible for CSR promotion at each department</li> </ul>		A	
<ul style="list-style-type: none"> <li>■ Implement a general inspection regarding compliance with environmental and safety laws and regulations</li> <li>■ Planned processing of <u>PCB</u></li> </ul>		A	Continue implementation
<ul style="list-style-type: none"> <li>■ Participating in the JX Group employees' volunteer activities for restoration from the Great East Japan Earthquake</li> <li>■ Conducting annual events including cleanup activities, interacting with local communities and other groups and holding summer festivals at operating sites</li> <li>■ Participating in Kurakake Mountain cleanup volunteer activities</li> </ul>		A	Continue implementation
Continue to receive regular inspections to maintain <u>OHSAS</u> and <u>ISO</u> certifications at each operating site, with overall fairly good results		A	Continue efforts to maintain OHSAS and ISO certifications

The Group addresses various economic, environmental and social challenges. From these challenges, four material issues that should be given priority in reporting to stakeholders were selected and consequently introduced in *Sustainability Report 2012*.

## Steps in Selecting Material Issues

### 1st Step Identifying important challenges

Based on the [GRI](#) guidelines, we included “Non-procurement of raw materials from conflict regions,” one of the 44 important themes addressed at the CSR promotion meeting held in May 2011, in our “[Supply Chain Management](#).” From among the items that were deliberated at the International Council on Mining and Metals ([ICMM](#)) and other meetings and those newly addressed at CSR training sessions for the managers

responsible for CSR promotion held in October 2011, we added three items—“Issues related to [copper concentrate](#) transportation,” “Promotion standards for employees at overseas local operating sites and clarification of their opinion collection and summarization methods” and “Measures to address [resource nationalism](#)”—for a total of **46 items**.

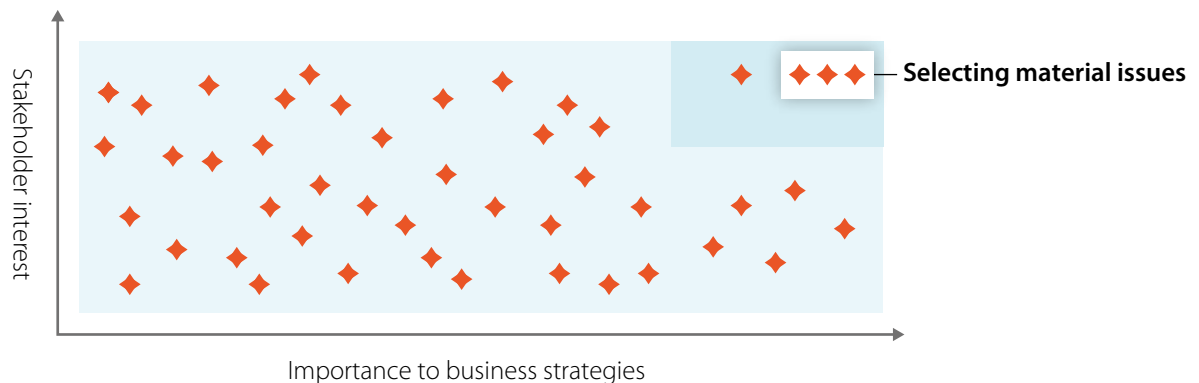
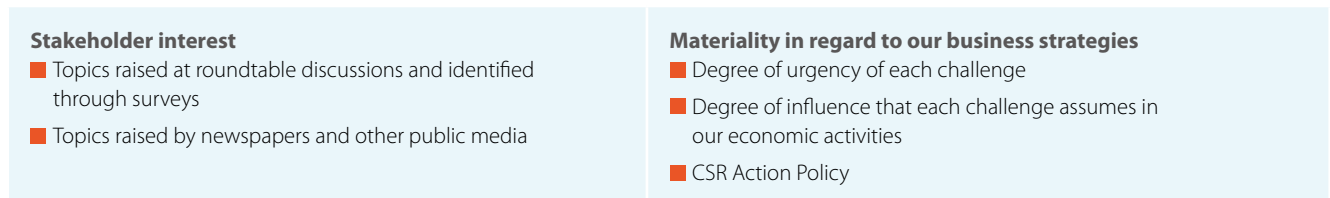
### The materiality principle defined in the GRI content index



### 2nd Step Prioritizing important challenges

The **46 challenges** identified in the 1st Step were prioritized from two perspectives: materiality in regard to our business strategies and the level of stakeholder interest.

Also, the outcome of the debate in line with the seven core subjects of [ISO 26000](#) at CSR training sessions for the managers responsible for CSR promotion was reflected in order of priority.



## Results of the Selection of Material Issues

The 46 material themes were deliberated in order of priority at the CSR promotion meeting in April 2012, resulting in the final selection of the themes outlined below, the same as in *Sustainability Report 2011*. *Sustainability Report 2012* also includes a fourth theme, "Measures to address the

Great East Japan Earthquake (such as those for BCP)," in light of the serious impact of the Great East Japan Earthquake, which occurred on March 11, 2011, on the Group's businesses and society as a whole.

## The Three Material Issues Selected as well as Their Risks and Opportunities

A brief outline of the risks and opportunities as well as the approaches adopted toward each material issue is presented as follows.

Issues	Risks and opportunities	Approaches
<b>Developing environment-friendly technologies</b>	<ul style="list-style-type: none"> <li>■ Changing needs of customers and other stakeholders</li> <li>■ Need to develop highly functional materials to realize resource conservation, high recyclability and reduction of the environmental impact</li> </ul>	Based on requests received from stakeholders, the Technology Development Center plays a primary role in pursuing the development of technologies that are capable of addressing foreseeable risks in each business field.
<b>Implementing initiatives regarding climate change issues including global warming</b>	<ul style="list-style-type: none"> <li>■ Growing concern and pressure from society to address the issue of global warming and to particularly bolster efforts to reduce CO<sub>2</sub> emissions</li> <li>■ Demands imposed to further reduce environmental impact through innovations in the productivity of resources and materials</li> </ul>	The Group will systematically reduce the amount of greenhouse gas emissions from a variety of angles in accordance with the activities of the Energy Conservation Subcommittee.
<b>Establishing a recycling-oriented society</b>	<ul style="list-style-type: none"> <li>■ Tight demand–supply conditions in the resources market and higher resource prices stemming from the global shortage of resources and their uneven geographical distribution</li> <li>■ Need to collect recycled materials and develop technologies to efficiently recover value-bearing metals from recycled materials</li> </ul>	The challenge of recovering value-bearing metals from recycled materials is imperative to the establishment of a recycling-oriented society. The Group is promoting <u>materials stewardship</u> and actively recovering metals from <u>urban mines</u> .

## Management of Material Issues

The CSR Department annually reviews the material issues selected and obtains their subsequent approval from the CSR Committee. The relevant divisions draw up action plans on an individual material issue basis with respect to specific initiatives and engage in activities in

accordance with these plans. The progress of each plan is periodically reported to the CSR Committee, which has overall responsibility to manage each issue.



## Toward the Sustainable Development of Society

### Development and Production of Environment-Friendly Materials and Products



#### Roundtable Discussion among Experts

The JX Nippon Mining & Metals Group (the “Group”) promotes effective CSR activities by receiving stakeholders’ opinions from various perspectives. This roundtable discussion was about the Group’s CSR activities and development of environment-friendly technologies. It was attended by four experts active in their respective fields.

\*This section reflects a major part of the discussion.

#### About Sustainability Report 2011

**Matsubara:** I was impressed by the statement that the recycling-oriented business operation by JX Nippon Mining & Metals Corporation (the “Company” or “JX Nippon Mining & Metals”) encompassing the resources development, metals smelting and refining, electronic materials and recycling and environmental services is, in itself, considered a CSR activity.

The development of the Caserones copper and molybdenum deposit is under way in Chile, South America. *Sustainability Report 2011* (the “Report”) states that the Company’s CSR strategy is to proactively develop its CSR activities as manifested by the Giant Stack of the Hitachi Mine and nurture the corporate spirit lying at the root of the Group’s corporate DNA, which has been nurtured through business development. I feel that this is an ideal way for Japanese corporations to operate in ongoing business globalization.

However, my honest feeling is that the Report is like a mystery novel and difficult to read. When reading through the Report, the content

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**Moderator**

**Eriko Mizumoto**  
PricewaterhouseCoopers Aarata

**The Company**

**Nobuyuki Yamaki**  
Director, Senior Executive Officer  
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**Michiharu Yamamoto**  
General Manager, CSR Department  
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\* Positions and job titles are as of the date of the discussion.

**Date of the meeting**  
May 18, 2012 (Friday)

**Place of the meeting**  
JX Building Conference Room

is interesting and informative. However, many people may stop reading halfway. With so many alphabetical words, people who are not used to such an approach may have a hard time reading it all. There may be room for improvement on this point.

**Ooi:** We at Sangyo Press often interview the executive officers and general managers of the Company. We also exchange frank opinions with officers of the Group companies twice a year. Because JX Nippon Mining & Metals was established as a core of the JX Group, we are included as a media stakeholder of the Group, which we appreciate. Reading and studying the Group's CSR Report and other CSR-related documents, we reevaluated the importance of CSR. In our business operations, we tend to come from a specific monetary perspective. However, to understand the whole picture of the Company, which has consolidated net sales of almost a trillion yen, *Sustainability Report 2011* is significant.

Although it might be an issue with the entire nonferrous metals industry, I think there should be PR relative to CSR activities as well as IR. JX Nippon Mining & Metals also should inform the external world about its CSR activities, including the talk about its corporate DNA, which would enhance corporate value.

**Takegahara:** As part of my job, I have read many CSR reports, therefore I tend to compare them. From such a viewpoint, I find this *Sustainability Report 2011* to be a high-quality report. All of the operations of your company, regardless of upstream, midstream or downstream, involve environmental issues, therefore there is much to discuss. The Company's Report covers not only domestic sites but also the overseas sites with a low compliance level. From the perspective of CSR, there are innumerable issues to address. Without being so well-organized, this Report could have been triple its current size. CSR is a concept that originated in Europe and should be realized through actual business operation. Only competitive corporations can talk about CSR. "Beyond Compliance," which refers to activities beyond the standards required by contractual and legal obligations, is required. The Company, in its actual business activities, strives to increase the productivity of natural resources and materials in innovative ways as an effective environmental measure. It is easy to comprehend that the Company's operations are based on environmental considerations. The Report also mentions the Hitachi Mine. Although the construction of the Giant Stack and the planting of cherry trees were not required by law at that time, they were regarded as necessary and therefore implemented. That's exactly what "Beyond Compliance" means.

**Yamaki:** "Beyond Compliance," as mentioned by Mr. Takegahara, is highly significant. We are seeking measures to contribute to society through business activities. Also, we have not yet established an effective method to communicate with society about "Beyond Compliance."



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**Sakita:** In *Sustainability Report 2011*, I found it intriguing that the Company engages in CSR activities through the entire life cycle of upstream, midstream and downstream. From the perspective of society, the entire life cycle of a natural resource includes what raw materials are used to make the product, what product it results in and how the product is recycled after that use. Nowadays, when consumers choose products, they consider information regarding the life cycle of the natural resources as important. I was interested in the reporting that clearly delineated the idea of a resource's life cycle. I also had the impression that the volume of information in the Report was too much.

### About the Production of Environment-Friendly Materials and Products of JX Nippon Mining & Metals

**Matsubara:** I was interested in the development of natural resources. Given the situation where a country like Japan that does not have natural resources faces the problem of how to secure natural resources overseas, I was intrigued by technologies to cope with the deteriorating grade of copper concentrate (refer to page 23). Another interesting point is the ultra-high metal purification technologies. The development of smart materials made of high-purity metals is a high-level, next-generation technology that adds new value. Through the high purification of metals, the pure characteristics of certain elements, the real functions of substances that have been regarded as impurities and the relationship between the elements and impurities have been discovered. Such discoveries led to the development of minimum-additive, high-functionality materials and a high-level recycling technology. I got the impression that such technologies are possible only at JX Nippon Mining & Metals.

In the development of geothermal heat, the geothermal heat, which was a negative element during operation, is used effectively, as a result of innovative thinking. JX Nippon Mining & Metals has human resources who think outside the box, which is a great strength.

**Ooi:** We considered environment-friendly technologies focusing on business models. The biggest strength of the Company is having smelters and refineries in Japan. The facilities and technologies at these smelters and refineries enable the development of urban mines. For instance, rare metals were collected from used lithium-ion batteries at the Tsuruga Plant. Although international resource majors have a strong competitive edge, in terms of the development of environmental technologies I believe the Japanese smelting and refining companies are among the world leaders.

**Moderator:** Professor Matsubara mentioned the importance of innovative thinking and that the Company has human resources who can





think outside the box. Chief Editor Ooi said that the Company already has a recycling-oriented business model with various measures being taken in the Group, and there may be room for further growth by combining those measures. From the Company's perspective, what specific issues do you want to address in the future?

**Yamamoto:** Waste household appliances have small amounts of many elements. We need to establish a technology to recover such valuable metals at low cost. Also, it is essential to establish a business model to collect the metals retrieved.

**Sakita:** I participated in the basic planning for recycling and making a system of various recycling methods for household appliances and other electric/electronic appliances. Although recycling is important for the conservation of resources, to this end, a proper collection structure is necessary. Especially with regard to small household appliances, it is important to collect them in bulk, but the current situation is that they are disposed of as nonflammables by municipalities. Currently under discussion is a small-scale household appliance recycling

law that would include a system to optimize technologies and a recycling structure developed by business operators. For instance, business operators certified by municipalities would collect such appliances over a wide area. JX Nippon Mining & Metals is a leading company in the nonferrous metal field. I really want the Company to become the first such certified business and to begin effectively recycling the used small household appliances collected by municipalities.

The most desired thing from household appliance manufacturers is that they design and produce easy-to-recycle and environment-friendly appliances. I believe the Company can provide technical advice to assist with that.

**Matsubara:** We, professionals of materials, tend to seek optimal results such as high strength or corrosion-resistant materials. On the other hand, our communication with actual users has been insufficient in getting feedback on product development and the materials. I think the lack of research funds and other issues have kept us from communicating with users. Communication with users and innovative thinking are both needed. It would be great if more researchers could do both.

**Takegahara:** It is easy for the downstream industry to explain environment-friendly products. Manufacturers of completed vehicles can make various statements through their products. On the other hand, it is difficult to discuss the environmental measures of nonferrous metal smelters and refiners, taking only copper as an example. However, for instance, harness manufacturers contribute to the reduction of the environmental burden, which can be seen in the automobile life cycle, by making lightweight and high-performance harnesses. Copper is used in wire harnesses as well. The Company supplies high-quality copper at a cost that allows automakers to be competitive, which eventually helps achieve the environmental measures of



completed vehicle manufacturers. In this way, materials makers can contribute to environment-friendly products.

The production of high-quality copper through an efficient system leads to the competitiveness of downstream manufacturers that use such copper. The value that is achieved by supplying high-quality copper at a low cost is significant. Although it is difficult, the visualization (“*Mieruka*”) of such value would enable the competitiveness of the Company’s environment-friendly materials to be expressed numerically.



### What Is Expected from the JX Nippon Mining & Metals Group?

**Matsubara:** It is important to reflect the Group’s capabilities and know-how in problem solving nurtured through its recycling-oriented business structure in future CSR activities.

Another important theme is human resources, an issue common to other Japanese companies. Although many founders of corporations have the philosophy that “a company’s biggest asset is its human resources,” as a strong recent trend, people tend to think that money is more important than people. We appreciate the Company’s attitude to return to the original philosophy, because we, as a university, send our students out.

**Ooi:** *Sustainability Report 2011* includes an article on impoundments crumbling and tailings flowing outward when the Great East Japan Earthquake occurred. JX Nippon Mining & Metals has 39 closed mines nationwide including the Oya Mine. Of the 39 closed mines, acid mine drainage treatment is ongoing at 12 of those mines. Among them, the Report says that the Company directed ¥10 billion to the Toyoha Mine to install the world’s first indoor mine drainage treatment facility. This type of investment incurs costs but never produces profits. I have great respect for the Company directing human resources, goods and money for such an operation.

Another issue concerns the management of closed mines overseas. Japan’s Mine Safety Act may be the most stringent in the world. Overseas mines currently under development will also be closed when the mineral lode is exhausted. I expect the Company to optimize its know-how on the management of closed mines, which has been nurtured under the world’s strictest Mine Safety Act, and enhance its global presence.

Also, as an energy source for Japan, I’m interested in and have high expectations for geothermal heat, which is the world’s third-highest potential energy source.

**Takegahara:** Because JX Nippon Mining & Metals handles so many products with the world’s leading share, the Report frequently mentions “ensure supply” or makes other indications regarding the supply chain and capability. Should the supply from the Company be disrupted, many downstream companies might not be able to continue operations.

Given the experience of the Great East Japan Earthquake, the review of BCPs is being promoted worldwide. I want the Company to post ideas about its BCP, which would address how a company’s needs will be covered if it procures materials from JX Nippon Mining & Metals.

**Sakita:** One theme of “Rio +20” to be held in June 2012 is “a green economy within the context of sustainable development and poverty eradication.” This is the concept of extending simple technical environmental measures to contribute to the development of a nation’s economy when resource development takes place in that country by focusing on the conservation of its natural environment, the lives of its people, human rights, educational improvement and the eradication of poverty. In consideration of biodiversity, not only forestation and forest conservation but also activities in consideration of other factors are necessary. For the sustainable development of society, discussion from the perspectives of “environment,” “economy” and “society” is necessary, but another essential perspective is “culture.” Respecting a country’s culture, history, human rights and lifestyles results in the biodiversity and conservation of forests.

Although I understand that JX Nippon Mining & Metals has a similar concept in the development of natural resources, I suggest that this concept be refined and further emphasized.

**Yamaki:** Today we heard many valuable opinions. Thank you very much.

To develop a business, we need human resources, goods and money. Although goods and money can be procured by various methods, acquiring high-caliber human resources is different and difficult. The acquisition of good human resources is an important management issue.

I also recognize that there are various expectations for our company. Although some may be hard for us to accomplish by ourselves, we will continue to listen to your opinions and requests from society to develop CSR activities that can be completed by JX Nippon Mining & Metals.



### Effects of Climate Change Issues

The continued advance of global warming has caused changes in the environment such as a rise in the sea level and abnormal weather. As a result, changes in our natural environment have had an escalating effect on both the farming and fishery industries that in turn place an increased burden on our food supply as well as significant and mounting damage to society, including health-related effects such as heat waves and infectious diseases and the impact of natural disasters on assets and life-supporting infrastructure. At the same time, climate change has the potential to substantially affect the financial performance of our business activities. The Fourth Assessment Report (AR4) released by the Intergovernmental Panel on Climate Change (IPCC) projects a surge in living costs associated with an increase of 2°C–3°C in the current global average temperature. The JX Nippon Mining & Metals Group systematically works to reduce the amount of greenhouse gas emissions from a variety of angles toward the establishment of a low-carbon society.



**Kazuhiro Sakai**  
Managing Executive Officer  
and General Manager,  
Facilities Engineering Dept.

Since its formulation of the Basic Environmental Policy in October 2006, the Group has set goals under the Medium-term Plan for Environmental Conservation for energy consumption, CO<sub>2</sub> emissions and waste generation and disclosed the results. The Energy Conservation Subcommittee, which was established in October 2008, has taken the initiative in the reduction of energy consumption and CO<sub>2</sub> emissions and achieved the initial targets in fiscal 2010, the final year of the medium-term plan.

For fiscal 2011, to achieve the newly set targets,<sup>1</sup> we shifted to high-efficiency equipment, reduced the amount of steam used and improved the yield for products to reduce overall energy consumption and CO<sub>2</sub> emissions. Nevertheless, our operating sites in Tohoku and northern Kanto were affected by the Great East Japan Earthquake, resulting in a decline in their capacity operating rate. In the electronic materials business segment, the adverse effects of the flooding in Thailand, which occurred in July 2011, and a fire that happened in January 2012 caused a decline in the capacity operating rate at the Saganoseki Smelter & Refinery. As a result, the energy consumption intensity and CO<sub>2</sub> emission intensity of the Group were higher than the reference values.<sup>2</sup>

For fiscal 2012, the Energy Conservation Subcommittee intends to promote initiatives to reduce these intensity factors and achieve the targets with measures such as i) finding energy-saving examples at respective operating sites and laterally spreading them to all the other operating sites and ii) reviewing the effective utilization of untapped energies, such as waste heat, water head<sup>3</sup> and pressure in addition to conventional activities.

\*1. The targets for fiscal 2011 were set before the occurrence of the Great East Japan Earthquake.

\*2. See the "Environmental Activities Report" on page 52 for details of the results.

\*3. Water head represents the potential energy for water, which is caused by a water head-drop.

#### Initiatives Taken by JX Nippon Mining & Metals Philippines



##### Don Emilio Abello Energy Efficiency Awards received from the Philippine government

In December 2011, JX Nippon Mining & Metals Philippines, Inc., was awarded the Don Emilio Abello Energy Efficiency Awards by the Department of Energy of the Philippines. JX Nippon Mining & Metals Philippines has taken various environmental initiatives in accordance with the Group's Medium-term Plan for Environmental Conservation and in fiscal 2010 achieved more than 2% in energy saving compared with the

previous fiscal year by implementing new control equipment.

With the receipt of the Awards, the Philippine government officially confirmed the energy efficiency and conservation activities of the company. The company previously received the Awards in 2009. President Akojima noted, "Encouraged by winning the prize, we intend to address, through the concerted efforts of all employees, further energy efficiency improvement to pursue low-cost operational patterns with less environmental load."

## Initiatives at the Kurami Works

The Kurami Works mainly produces precision rolled products. The Works develops and supplies a variety of materials for use in IT devices, such as smartphones and tablet terminals and automobiles, for which integration with electronics devices continues. In addition to such product development, the Works addresses the reduction of greenhouse gas emissions through the “promotion of energy conservation” and “yield improvement” in its NPM activities.



Phosphor bronze (at right) and a printed circuit board after the rolling and slitting processes. Phosphor bronze (a copper alloy) produced at our works has high strength and serves to miniaturize electronic devices and increase the durability of them. As it is recyclable, its collection and reuse contributes to establishing a recycling-oriented society.

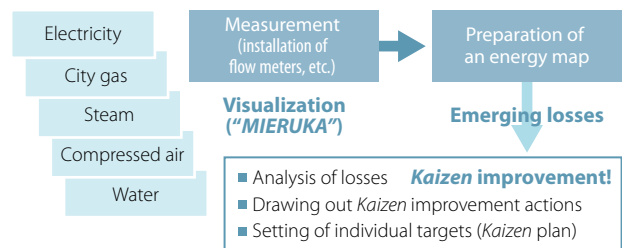
### Promoting Energy Conservation

Our energy conservation activity and the reduction of CO<sub>2</sub> emissions are promoted by drawing energy maps for visualization (“MIERUKA”) and detecting losses via day-to-day control.

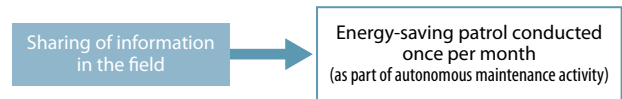
Energy maps represent the ratios of quantitative energy consumption by element through analysis. For example, an analysis of an energy map regarding the operation of a rolling mill proved that the energy used to drive auxiliaries (e.g., pumps), which have no direct relation with the rolling operation, was higher than expected apart from the use of a large amount of energy for the rolling mill unit. We therefore began to improve the relevant operations and succeeded in significant energy saving by adopting pump motors with an inverter, without affecting production activity.

The Kurami Works will laterally spread the results of these initiatives to other facilities within the Works and promote the MIERUKA campaign to determine other losses for further energy conservation and the reduction of CO<sub>2</sub> emissions.

#### 1 Detection of losses by preparing energy maps



#### 2 Detection of losses via day-to-day control



### Yield Improvement

As the integrated production system of the Kurami Works covers from the smelting/casting of raw material ingots to the slitting of precision rolled products, the Works is active in increasing yield by the reduction of losses throughout the overall process.

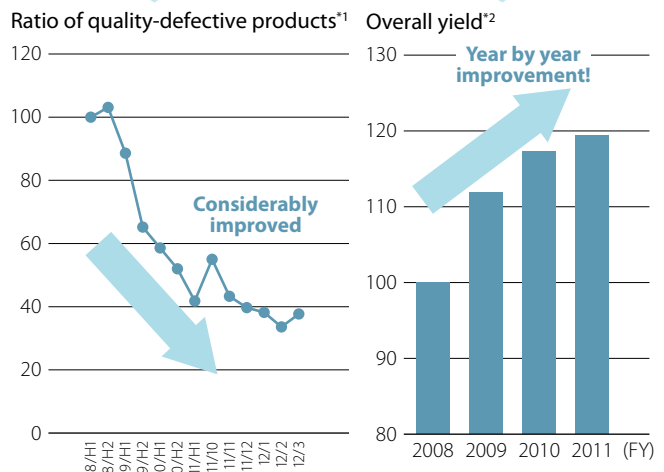
For example, phosphor bronze, which accounts for approximately half the production output, has several features that are contradictory to the realization of a higher yield, such as sophisticated quality requirements, multiproduct production, complicated manufacturing conditions and processes and a trend toward thinner products. Meanwhile, the Works has addressed the reduction of losses throughout the whole manufacturing process including the elimination of some processes and changes in processing conditions. Similar loss reduction efforts have realized the recycling of in-process scraps as raw materials and the reduction of quality loss for the higher quality and reliability of the Works’ products as well as yield improvement.

Such yield improvement has resulted in a reduction of energy input and led, by extension, to reducing CO<sub>2</sub> emissions.

The Kurami Works reduced CO<sub>2</sub> emission intensity in fiscal 2011 by approximately 20% compared with fiscal 1990. The Works intends to address the climate change issues in the future around its policy of “Promoting Energy Conservation” and “Yield Improvement.” Furthermore, the Works will contribute to the development of a sustainable economy and society by continuously providing materials that meet social needs, such as miniaturization, increasingly lightweight electronic devices and enhanced recyclability.

#### Effect of increased yield

- Process eliminated and conditions changed
- Quality loss reduction activity
- Yield improvement activity (relative to loss of terminals and loss in width of PC boards)
- Structural reforms regarding yield (increasing the size of ingots, reducing the amount of facing, etc.)



\*1. Measured against 100 for the first half of fiscal 2008 as a reference (H1=1st half, H2=2nd half)

\*2. Measured against 100 for fiscal 2008 as a reference



## Toward a Recycling-Oriented Society

### Establishing an industry-academia human resource development department



#### Roundtable Discussion Concerning the Establishment of an Endowed Research Unit Supported by the Collected Donations that Were Made to the University of Tokyo Foundation

In January 2012, JX Nippon Mining & Metals established the Endowed Research Unit for Nonferrous Metal Resource Recovery Engineering in collaboration with the Institute of Industrial Science at the University of Tokyo (Endowed Research Unit). At this roundtable discussion, the significance and future vision of the research unit was discussed among the four renowned experts in recycling engineering who contributed to the establishment of the research unit and the Company's three executives.

\* This section reflects a major part of the discussion.

**Moderator:** Please explain the background and significance of establishing an Endowed Research Unit from the stance of the Company.

**Matsui:** Given concerns about global warming and the depletion of natural resources, the transition to a sustainable world has been aggressively advocated. One specific measure toward a sustainable world is establishing a recycling-oriented society. Resource recovery is applied mainly to nonferrous metals with a short mine life,<sup>1)</sup> such as copper and precious metals.

When recycling is addressed as a business, the development of an efficient and inexpensive metal collection technology and a methodology to recover a large volume of metals are essential concerns. Moreover, the technological development and establishment of a metal collection structure requires high-caliber human resources, which currently are not sufficiently available in quality or numbers.

To address such a situation, we need help from universities, and in consultation with the professors present here we brought this Endowed Research Unit to fruition.

**Moderator:** Professor Okabe manages the Endowed Research Unit. Mr. Okabe, please outline the goals of the unit.

**Okabe:** Professor Maeda talked to me about this matter in the summer of 2011. With Mr. Maeda's support and the cooperation of JX Nippon Mining & Metals, the Endowed Research Unit was established at the University of Tokyo on January 1, 2012.

There are two purposes of the Endowed Research Unit, which is dubbed the "JX Metals Endowed Unit." One is to conduct various activities aiming to establish a recycling-oriented society through investigation and research on metal resource recovery engineering for copper, lead and rare metals, as well as metal materials indispensable for industry.

The other purpose is to contribute longer term to human resource development, not only within the scope of one university and one corporation but also in a wide range of related fields, aiming to form a base for cutting-edge research and industry-academia collaboration.

By educating and nurturing young human resources, I would like to leverage academia to boost Japan's nonferrous metals industry. I

would like to form a research and educational base that contributes to the nonferrous metals industry worldwide.

**Moderator:** Could you talk about the background of your research activities in recycling engineering and current issues?

**Maeda:** I was researching rare metal smelting and refining around 1990. At that time, Professor Masuko (currently Professor Emeritus of the University of Tokyo) said that the then Ministry of International Trade and Industry (MITI, currently the Ministry of Economy, Trade and Industry, or METI) was going to start recycling ferrous, aluminum and other metals and that he suspected there might be other nonferrous metals that could be recycled. I needed someone to help me, and the only such person who could do so in the nonferrous field was Professor Nakamura. So I pulled him into the national project.

As Kotaro Honda stated, "Industry is the dojo (trial field) of academics," and academics unrelated to an industry will not develop. For almost 20 years, I have been conducting research on recycling including the development of elemental technologies and the concept of a social system.

The industry-academia human resource development began, in fact, with Professor Nakamura. At that time, Mr. Nakamura was telling me that we needed to develop human resources and management resources nationwide. Hearing about the establishment of the Endowed Research Unit, I felt that it should be the first step of our industry-academia human resource development. I anticipate Tohoku University initiating the second step. I also expect corporations other than JX Nippon Mining & Metals to join us. The Company started this trend, and I really appreciate the Company's consistent and speedy decision making.

Human resource development in the nonferrous metals field cannot be done by a single university. Akita University, Tohoku University, Iwate University and the University of Tokyo will collaborate. Our team consists of the professors present here, who are assigned as guest or project professors of our Endowed Research Unit.

**Nakamura:** About 20 years ago, I had a keen feeling that the key to a true recycling-oriented society would be not elemental technologies but rather a social system. To seriously engage in a series of activities, we need to deeply consider the balance of several issues to promote including elemental technologies, the social system and to what extent we want to nurture human resources.

At the upcoming summertime intensive lecture for students scheduled to be held by the Mining and Materials Processing Institute of Japan this year, 40 students in the resources field will attend, surpassing the maximum capacity of 30, but only seven or eight students want to study materials processing technologies, far below the maximum capacity of 20 students. Although corporations have recently shown a cooperative attitude, overhauling the whole system is not easy. To cope with this challenge, leveraging the Endowed Research Unit, can we establish a structure to address this issue nationwide? To this end, PR and other measures should be planned thoroughly.

Although universities are important, students should be informed before reaching universities. Moreover, not only students but also family and friends should know the importance and future prospects of the recycling field. I believe that raising society's awareness of the importance of the recycling industry is a CSR-related issue.

**Moderator:** What will be the focus of the Endowed Research Unit?

**Okura:** This point is under discussion with professors Maeda, Okabe and Nakamura. We plan to hold a symposium commemorating the inception of the Endowed Research Unit in January 2013. The

## Participants



### Masafumi Maeda

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University of Tokyo  
Professor, Institute of Industrial Science,  
University of Tokyo  
Project Professor, Endowed Research  
Unit for Nonferrous Metal Resource  
Recovery Engineering



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Research Information,  
Tohoku University  
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### Hiroshi Ono

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### Michiharu Yamamoto

General Manager, CSR Department,  
JX Nippon Mining & Metals Corporation  
(Moderator)

\* This section reflects a major part of the discussion.

#### Date:

June 6, 2012 (Wednesday)

#### Place:

Daiju-so, JX Group



symposium will provide the latest topics and promote an awareness of nonferrous metals.

We are also focusing on human resource development and what we can do about that. For instance, the four universities will collaborate, which was mentioned by Professor Maeda, and supplement other projects led by Professor Nakamura.

We are contemplating holding a forum on the base data for hydro-metallurgy and a workshop related to hydro-metallurgy simulation software. We hope to be able to provide especially midcareer researchers an opportunity to learn about actual sites.

**Moderator:** Responding to what Professor Okura mentioned, please provide the Company's perspective.

**Ooi:** Although corporations are expected to resolve various issues, we need human resources who can manage elemental technologies rather than experts in a certain elemental technology. However, such human resources are hard to find. Via the Endowed Research Unit, we hope to develop human resources who are capable of managing technologies broadly and are not trapped by the narrow ideas of one corporation.

Recycling business-related issues include how to collect raw materials on a steady basis, that is, a retrieved metals collection system, which we have been talking about. The recovery of metals requires both the smelting/refining of nonferrous metals and a collection system for retrieved raw materials, for which, I think, we need to engage in PR with society via mass media.

**Ono:** The metals recovery business is called the development of "urban mines."<sup>2</sup> Compared with the regular ores from mines, the composition and grades of ores from urban mines are significantly different. Due to the significant amounts of impurities, the removal of such impurities when extracting target metals is extremely costly. Our industry faces the issue of how to address this reality.

We need basic data to solve such issues. Aided by university professors, we can address these concerns.

**Matsui:** As a premise of human resource development, we need young people to show an interest in this field. Today, the expression "recycling-oriented society," which sounds palatable to the general public, has been widely disseminated. However, few people recognize that at the core of a recycling-oriented society is nonferrous metals smelting



and refining. When it comes to the resources recycling industry, people's recognition is something like "that might exist somewhere."

Due to such weak recognition, unless we try to disseminate that the Company operates at the core of the recycling-oriented society, corporations and young people will never show an interest. When we heard Professor Nakamura, we felt strongly that we must promote that point aggressively.

**Moderator:** Would you talk about human resource development from the perspective of industry-academia and foreseeing the future development of the Endowed Research Unit?

**Nakamura:** Human resource development does not come to fruition easily. And the result is often not visible. How patient can we be? Determining when to evaluate the effect and the method for judging the effect is difficult.

One such method may be that a professor pays a stipend to graduate students who work for a lab, as is done at graduate schools in the United States. If such a system was available, the graduate students would be motivated to aggressively engage in research.

**Maeda:** Some Japanese universities recognize the value in such a system, but funding issues have prevented such a system from developing. As a human resource development method, a certain portion of a postdoctoral fellow's<sup>3</sup> work could be actual experience at a corporation.

**Okabe:** When I was doing my postdoctoral work at the Massachusetts Institute of Technology (MIT), I went to a corporation for worksite training and conducted actual process analysis at its manufacturing site. Even now, 20 years later, I am still in touch with the staff I worked with at the corporation, which shows the significance of the experience. However, Japanese universities evaluate only research results and dissertations, therefore young people are reluctant to do on-the-job training, which takes time. This point should be reviewed.

**Okura:** For instance, we could create a system in which corporate engineers who have acquired their Ph.D. teach as assistant professors at universities and then return to corporations. If the corporations





that participate in this system become successful, the system will become popular. I certainly hope such a favorable cycle will be established.

**Ooi:** Although what we really need is a ready-to-produce workforce, there may be a method for industry to strategically utilize people in the assistant professor stage or earlier.

**Nakamura:** Before the Endowed Research Unit was established, Professor Maeda and I were talking about several things that we wanted to do in human resource development. One such item is to train, at the Company's worksite for three years or so, human resources who would go back to universities for further research.

**Matsui:** If there are people who desire such training, that would benefit the Company, therefore I think it is possible.

**Maeda:** The mind-set of universities has changed significantly in recent years. Because the tenure of assistant professors is three to five years, I think it is possible to suggest they should be trained at a corporation for a three-year period.

**Nakamura:** At my lab, I sent an associate professor to a corporation to do collaborative research. The purpose was an actual worksite review. The processes that we envision could differ significantly because of a bottleneck in the actual operation, which can often happen in actual nonferrous smelting/refining and metal recovery sites.

**Moderator:** Lastly, Professor Maeda, please provide the perspective of the Endowed Research Unit.

**Maeda:** It was mentioned that something that does not have economic rationality means nothing for corporations. At the Endowed Research Unit, we will analyze the economic aspect and promote process development with an awareness of energy consumption. The energy that is used for mining ores, transporting ores and extracting metals should be compared to the energy used for recycling.

We would like to conduct such a comprehensive evaluation throughout the life cycle of a natural resource.

Also, I want the Endowed Research Unit to influence the entire non-ferrous industry of Japan from the aspect of human resource development, thereby resulting in human resources nurtured in the research unit that contribute to the development of a sustainable society. It will take a while until that effect becomes visible. Please take a long-term perspective and be patient. Your strong support will be highly appreciated.

**Moderator:** Thank you so much.

- \*1. Mine life = Amount of deposit/annual consumption  
The mine life of copper, zinc and lead is estimated to be a little more than 20 years. No significant change has been seen for the past several decades. (Takashi Nishiyama and Masafumi Maeda, "Base Metal *Kokatsu* (Depletion of Base Metals)," *Nihon Keizai Shimbun*)
- \*2. Advocated by Professor Michio Nanjo of the Research Institute of Mineral Dressing and Metallurgy, Tohoku University, in the 1980s.
- \*3. Postdoctoral fellow: Researcher continuing academic work for a certain designated period after acquiring a Ph.D.



## WEB

Visit the website on the right for details of the Institute of Industrial Science at the University of Tokyo. [http://www.iis.u-tokyo.ac.jp/index\\_e.html](http://www.iis.u-tokyo.ac.jp/index_e.html)

## Improvement Activities in Fiscal 2011

### Improvement Activities at Domestic and Overseas Operating Sites

The JX Nippon Mining & Metals Group is conducting its original NPM activities, as well as other improvement activities, to increase productivity, reduce production costs and mitigate the environmental burden at domestic and overseas operating sites. Employees engage in improvement activities on an ongoing basis throughout their daily work

based on the characteristics of their workplace. These improvement activities fulfill an important role in our CSR activities.

Examples of activities playing a part in “innovation in productivity”—a motto identified in the Group’s Code of Conduct—are outlined below.

#### The Group’s NPM Activities

The Total Productive Maintenance (TPM) method was developed by the Japan Institute of Plant Maintenance in 1971, based on “production methods that seek to maximize overall production system efficiency by improving personnel and facility quality.”

When the Group joined this movement in 1994, it decided to transform the TPM method beyond its conventional framework. The result, borrowing the name of our predecessor company, Nippon Mining & Metals, was the “Nippon Mining & Metals TPM (NPM)” method. This method takes a dynamic approach to continuous innovation that is still in effect today.

The NPM method seeks to minimize various losses through a zero-accident, zero-defect and zero-failure approach. We are now proactively applying the NPM method at all major operating sites.

### Examples of Activities at Overseas Operating Sites: JX Nippon Mining & Metals Philippines, Inc.

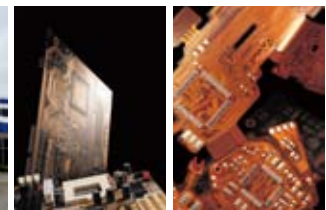
Since April 2001, JX Nippon Mining & Metals Philippines, a production base for copper foils, has been active in conducting the NPM activities.

This Group company has endeavored to reduce costs and the environmental burden with diverse energy-saving initiatives for electric power charges that are a considerable cost in producing copper foils. In fiscal 2011, this company simplified the cooling water operation system and renewed control units to reduce the fixed portion of the electric power charges. As a result, this company succeeded in reducing by about 8% the monthly average electric power charges between August 2010 and November 2011 compared with the average electric power charges between May 2009 and July 2010. In addition, the fuel consumption of JX Nippon Mining & Metals Philippines decreased due to the improvement of its privately owned electrical power facility and boiler. In conjunction with these initiatives, this Group company succeeded in reducing by about 13% the monthly average CO<sub>2</sub> emissions between August 2010 and November 2011 compared with the average emissions between July 2009 and July 2010.

Furthermore, this company is firmly committed to a strong safety culture with initiatives such as the improvement of work standards as well as education and training sessions on safety and health for employees. It has not had any accidents since July 2011.



JX Nippon Mining & Metals Philippines



Electronic materials, for which copper foil produced by JX Nippon Mining & Metals Philippines is used (from the left, a printed circuit board using electro-deposited copper foil and a flexible printed circuit board using treated rolled copper foil)

### Examples of Activities at Domestic Operating Sites: Saganoseki Smelter & Refinery, Pan Pacific Copper Co., Ltd.

Since 1995, the Saganoseki Smelter & Refinery has been active in the NPM activities. At present, our NPM activities, which are undertaken by seven special interest groups, have an ideal goal of “making us the copper smelter and refinery boasting the world’s No. 1 quality and cost competitiveness while ensuring safety and environmental friendliness” with Companywide efforts aimed at improvement via the participation of all employees.

In fiscal 2011, two in-house presentation meetings were held in May and October 2011 to introduce examples of *kaizen* (improvement) activities to other business units. In addition to various in-house action teams from the Smelter & Refinery, the Oita Refinery of JX Nippon Oil & Energy

Corporation, Toho Titanium Co., Ltd., and the Hibi Smelter of Hibi Kyodo Smelting Co., Ltd., of the JX Group participated in the meetings above to share relevant examples. Vigorous discussions occurred on their daily improvement activities and the results. In addition, we steadily promoted activating and institutionalizing improvement proposals from employees by promoting top management’s diagnosis on autonomous maintenance actions.

Meanwhile, we were active during the year under review in taking actions to raise our onsite application capability, as represented by our exhibits at the *Karakuri Kaizen Kufu* Exhibition, which again received an award.



### Details of the NPM Activities at the Saganoseki Smelter & Refinery

October 1995	Kick-Off of Part I
October 1998	Received an Award for Excellence Category I
April 1999	Kick-Off of Part II
June 2002	Kick-Off of Part III
September 2007	Received an Award for Excellence in Consistent TPM Commitment
March 2008	Kick-Off of Part IV
October 2010	Received an award for effort at the <i>Karakuri Kaizen Kufu</i> Exhibition
October 2011	Received an award for naming at the <i>Karakuri Kaizen Kufu</i> Exhibition Received the Special Award at the <i>MIERUKA KAI-ZEN (Visualization Improvement) Exhibition</i> for the apparatus industry



Saganoseki Smelter & Refinery



In-house presentation meeting

Mr. Fujii, general manager at that time, lecturing at a meeting

## VOICE



### Katsumi Iseri

TPM Consultant  
JIPM-Solutions Co., Ltd.

**We heard comments from Mr. Iseri, who has guided the NPM activities at the Saganoseki Smelter & Refinery since April 1994, on his impression of the Saganoseki Smelter & Refinery and its NPM activities.**

**Q: What is your primary impression of the Smelter & Refinery?**

I had the impression that the collective strength of the Smelter & Refinery was rather high from the beginning, as shown by winning an Award for Excellence in Consistent TPM Commitment in fiscal 2007. However, I felt that onsite operators could not fully exert their capabilities despite having excellent potential.

**Q: What measures have you taken?**

The first step was to make the operators commit to autonomous maintenance actions. This initiative was intended to make onsite operators assume the role of restoring malfunctions of facilities or equipment to normal status and, by extension, correcting such mechanical woes.

Machine operators can best sense any malfunctioning of facilities or equipment because they have direct contact on a day-to-day level. Careful checks of failures or defects in operating machines and cleaning should serve as powerful preventive measures in the zero-accident, zero-defect and zero-failure approach. Conversely, if the operators don't take care of inspection and maintenance operations by leaving all such tasks to the maintenance service engineers, onsite circumstances will not be improved easily.

**Q: What is your opinion on the current circumstances and future tasks?**

I believe that the Smelter & Refinery's onsite application capability has improved significantly due to the initiatives for autonomous maintenance. These efforts have been externally evaluated as represented by winning awards for two consecutive years (fiscal 2010 and 2011) from the Japan Institute of Plant Maintenance.

Top management, including the general manager of the Smelter & Refinery, often visit production sites and direct discussions occur between the onsite staff and top management at the presentation meetings of the NPM activities. This atmosphere represents the good communication within the organization.

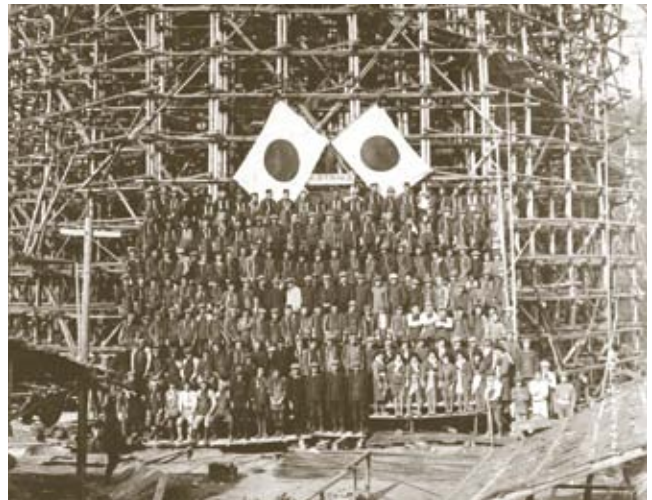
The Saganoseki Smelter & Refinery already has attained the world's top-rated cost competitiveness. I personally hope that the Smelter & Refinery will pursue becoming the world's No.1 smelter and refinery where operators, engineers and top management make efforts hand in hand for extensive improvements in addition to those for facilities and equipment.



## Roots of the Group's CSR

### Another Smoke Prevention Measure—Meteorological Observation Network and Operational Cutbacks

At large cost, and utilizing an aggregate workforce of 36,800 workers, construction of the 155.7m smokestack, the world's tallest at that time, was successfully completed in December 1914, dramatically reducing smoke damage.



Construction of the Hitachi Giant Stack

### A Meteorological Observation Network Covering a 10km Circular Zone

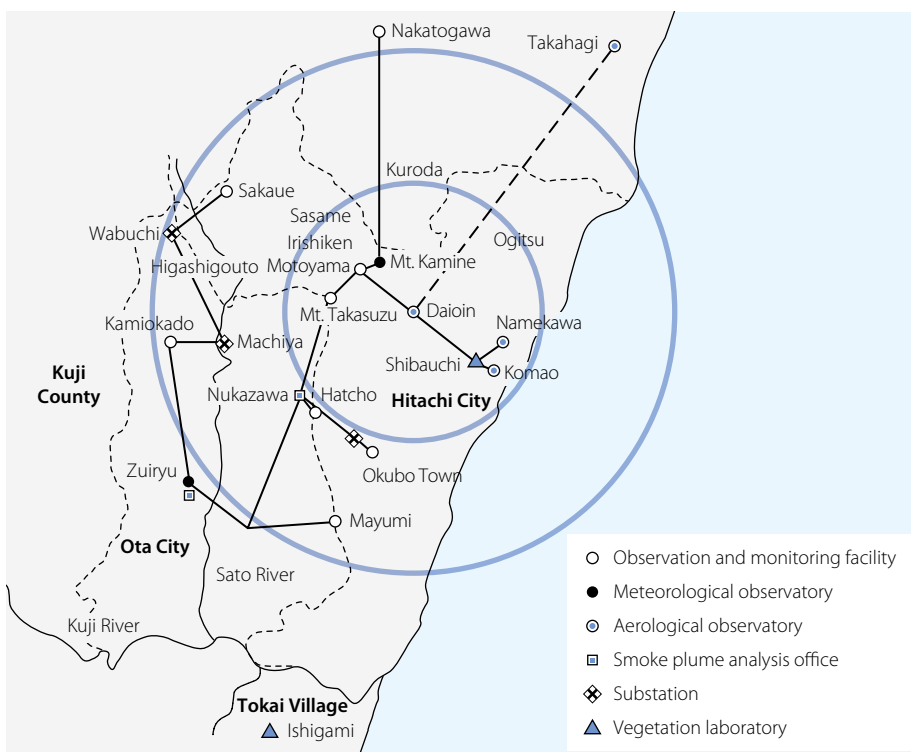
Because the generation of smoke (sulfurous acid gas) is inevitable in the smelting process of copper, the Giant Stack was constructed at the Hitachi Mine. Subsequently, smoke pollution at the mine was reduced sharply. However, unexpected damage to forests and farm products soon emerged in some seasons because of the smoke falling to the ground. The resistance of farm products differed depending on the type of product and the growing season, and the degree to which forests were affected also differed depending on the season. As a countermeasure, the Hitachi Mine established a network of several observatories in a circumference of about 10km with a focus on the Giant Stack and linked them to the Mt. Kamine Observatory as the headquarters via

telephone lines. These observatories functioned in a systematic manner to prevent smoke damage under direction from the Mt. Kamine Observatory. As smoke damage was highly dependent on meteorological conditions, meteorological observation was an important daily task.



Japan's first aerological observation using tethered balloons

### Chart of the Meteorological Observation Network

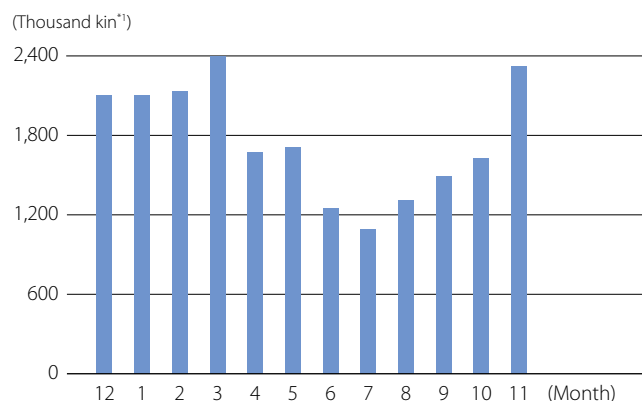


Mt. Kamine Observatory

## Production Output of Copper Reduced during the Growing Season of Tobacco

The Mt. Kamine Observatory observed the smoke plume from the smokestack 24 hours a day and contacted the downwind meteorological observatories to be increasingly attentive if meteorological conditions worsened. At those meteorological observatories, staff would immediately ride a bicycle with litmus paper and pure water in hand to find some drop points of the smoke gas. The staff would then check whether the smoke fell by careful observation in the daytime and by smell at night. The detected gas concentration and duration time were immediately reported to the headquarters. The staff responsible at the Mt. Kamine Observatory then contacted and sometimes issued warnings to the engineers in charge of the smelting furnace by phone, even in the middle of the night, to address the downwind forest and/or farm products' conditions. On the furnace, the airflow at the tuyere and the materials to be discharged were adjusted in response to the alert to restrict gas emissions. This technique was called operational cutbacks. The time involved in issuing these warnings sometimes exceeded 400 hours per month, especially during the growing season of tobacco, a local specialty of this region, thereby resulting in the restricted production output of copper.

### Monthly Production Output of Copper in 1916



\*1. kin = approx. 600 grams

## Collection of Scientific Data at the Agricultural Experimental Station and the Cultivation of Smoke-Resistant Seed Varieties

### Smoking Device and Pots

In 1909, when smoke pollution intensified conspicuously, the Company established an agricultural experimental station and assigned engineers—mainly graduates from advanced agricultural or forestry colleges—to collect scientific data regarding the effects of sulfurous acid gas on farm products and forests as well as to study improvements to agricultural affairs. Data collection was made by putting various farm products and plants, which had been grown in zinc-made, ceramic and wooden pots, collectively called "pots," into a smoking device and exposing them to sulfurous acid gas at different, predetermined periods and concentrations. The experiment was originally intended to research the degree of smoke resistance of various farm products and plants, the damage ratios and the diverse effects on crops. The research theme and scope gradually extended to the crop-weather relationship experiment, the soil improvement experiment and the cultivation of smoke-resistant seed varieties.



Smoking device at the Ishigami farm

### Discussion Forums for the Resolution of Disputes

The experimental results using the smoking device were accumulated year after year for many kinds of farm products and plants. For example, a series of comparison tests on the smoke resistance of *Oshimazakura* cherry trees and chestnuts were conducted 234 times for four years. Considerable scientific knowledge on smoke damage was obtained based on the enormous volume of accumulated data collected from these tests. The test results became valuable evidence when witness investigations and/or negotiations for compensation for damages were required to check the existence of actual damage or the degree thereof in case of smoke damage. In subsequent years, it became gradually possible for both parties to mutually confirm the damage conditions and discuss a predictable reduction in crop volumes based on these reference materials. In addition, the Company distributed easy-to-cultivate, quality seeds of smoke-resistant varieties to local farmers, gave guidance on their cultivation methods and requested that the farmers tentatively produce some promising varieties. These initiatives were soon understood and

accepted by local residents and such low-profile, but valuable, efforts contributed to establishing a solid, trustworthy relationship with local communities.



Agricultural experimental station where pots were laid out

# Management

We report on the management and CSR promotion systems used by JX Nippon Mining & Metals Corporation.

## Corporate Governance

### Corporate Governance (As of July 1, 2012)

#### Corporate Governance Systems within the JX Group

JX Nippon Mining & Metals Corporation, as a core operating company of the JX Group, is engaged in the nonferrous metals business. JX Holdings, Inc., the holding company of the JX Group, pursues its principal mission to promote Groupwide development, innovation and synergy as well as maximize corporate value by developing medium-to-long-term strategies for the JX Group and strategically allocating management resources to realize these strategies. To this end, we, along with the other core operating companies in the JX Group, have a responsibility to contribute to the improvement of the corporate value of the JX Group, through operating independently and autonomously our own business in accordance with the Group's strategy to achieve our business goals.

#### Board of Directors of JX Holdings

The Board of Directors of JX Holdings is composed of a total of 14 directors, including:

- 6 full-time directors of JX Holdings
- 4 part-time directors, including the presidents of JX Nippon Mining & Metals and the other two core JX Group operating companies
- 4 external directors

A total of six corporate auditors are employed, including two full-time corporate auditors and four outside auditors. The four external directors and four outside auditors are all independent directors/auditors.

#### Collective Conferences in the JX Group

The JX Group convenes the JX Group CSR Council for the purpose of developing and promoting basic policy related to CSR. The following three committees have been created under the JX Group CSR Council based on the three areas of the JX Group's CSR Action Policy.

- JX Group Compliance Committee: Discusses, reports and shares information related to Groupwide compliance (including information on security and human rights)
- JX Group Corporate Citizenship Committee: Discusses, reports and shares information related to Groupwide corporate citizenship
- JX Group Environmental Committee: Discusses, reports, and shares information related to Groupwide environmental issues

These committees consist of members chosen from JX Holdings and JX Group companies.

#### Overview of the JX Nippon Mining & Metals Group's Corporate Governance System

##### Board of Directors

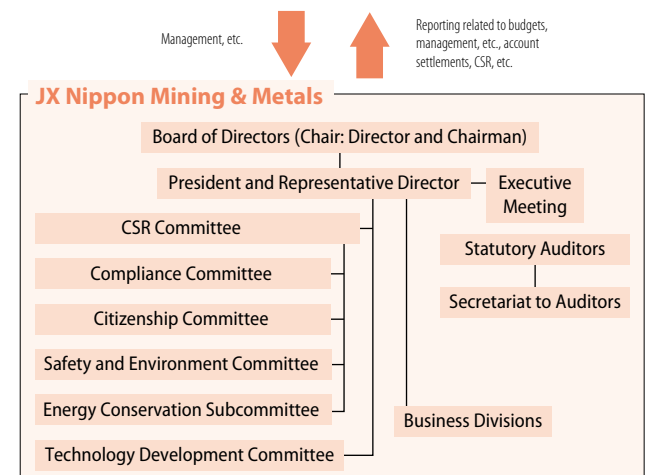
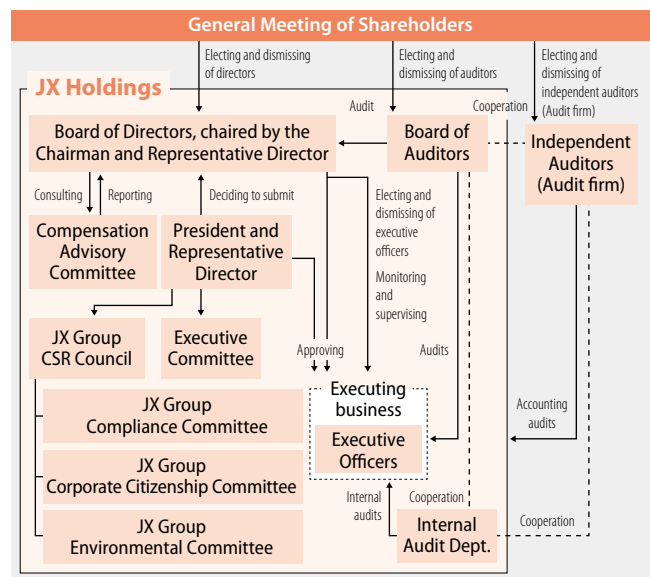
The Company has established the Board of Directors<sup>\*1</sup> to discuss issues defined by laws, regulations and the Articles of Incorporation as well as other important management issues. The Board is composed of the chairman, the president and eight other directors as well as three auditors.

<sup>\*1</sup> All ten directors are inside directors, and the nine directors other than the chairman serve concurrently as executive officers.

##### Executive Meeting

The Company has established the Executive Meeting as an advisory body to the president. The committee has consultations regarding important issues related to the management of the Company. The status of operational execution is also reported to the committee. The committee consists of the president and executive officers, who the president has designated to participate in the committee. The full-time auditors can also participate in the committee to deliver their opinions.

#### Corporate Governance Structure of the JX Group



## Internal Control System

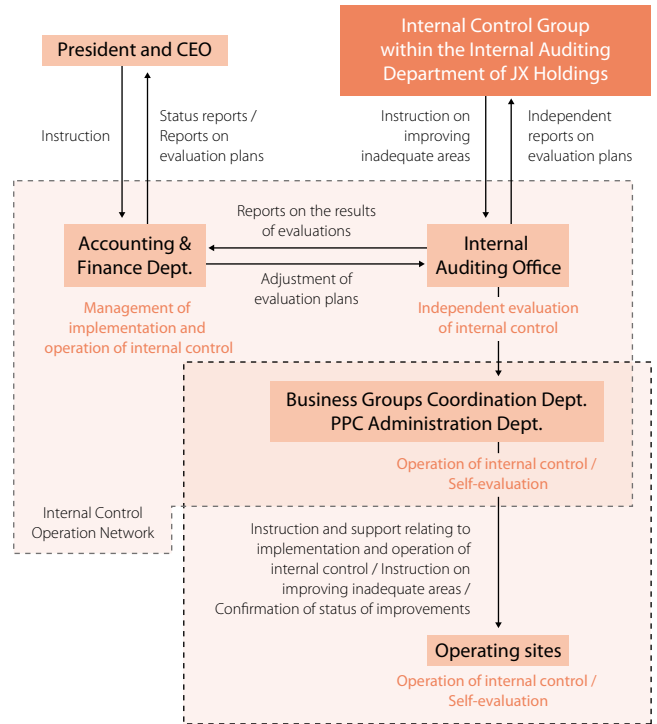
The Internal Control Group within the Internal Auditing Department of JX Holdings comprehensively manages compliance under the Financial Instruments and Exchange Act of Japan and Groupwide internal control systems.

Further, acting in accordance with the JX Group's response policies, JX Nippon Mining & Metals is constructing an internal control system to ensure appropriate financial reporting, as required by the Financial Instruments and Exchange Act.

### Compensation for Directors and Corporate Auditors

Bonuses for the directors of JX Nippon Mining & Metals are determined on the basis of consolidated business results of the Company as well as JX Holdings. Retirement benefits and stock options are not offered.

## Operation of the Internal Control System Related to Financial Reporting



## CSR Promotion System

The CSR Committee, an advisory body to the president, is responsible for determining basic policies for the Group's CSR activities, assessing progress toward CSR-related goals and evaluating CSR performance from economic, environmental and social perspectives. The JX Nippon Mining & Metals Group makes a concerted effort to promote CSR activities throughout the Group.

## Key CSR Activity Initiatives

Fiscal 2006	<p><b>Period for introducing CSR activities</b></p> <ul style="list-style-type: none"> <li>The new Nippon Mining &amp; Metals Co., Ltd., was incorporated by the management integration of three metals companies.</li> <li>The CSR Committee and two of its subcommittees (the Compliance Subcommittee and Risk Management Subcommittee) were newly established.</li> <li>The Corporate Philosophy, Code of Conduct, Basic Environmental Policy, Basic Policy on Health and Safety and <u>Green Purchase</u> Guideline were formulated.</li> </ul>
Fiscal 2007	<p><b>Period for promoting CSR activities at overseas operating sites</b></p> <ul style="list-style-type: none"> <li>The boundary of CSR activities was expanded to 24 domestic and four overseas operating sites.</li> </ul>
Fiscal 2008	<p><b>Period for expanding and spreading awareness of CSR activities</b></p> <ul style="list-style-type: none"> <li>The CSR Action Policy was formulated.</li> <li>The Group began supporting the Extractive Industries Transparency Initiative (EITI) and participating in the UN <u>Global Compact</u>.</li> <li>The Energy Conservation Subcommittee was established under the CSR Committee.</li> </ul>
Fiscal 2009	<p><b>Period for spreading and integrating awareness of CSR activities</b></p> <ul style="list-style-type: none"> <li>The CSR Office was separated from the Administration Department and became the CSR Department.</li> <li>Basic quality control policy was established.</li> </ul>
Fiscal 2010	<p><b>Period for spreading and integrating awareness of CSR activities—a continuation from fiscal 2009</b></p> <ul style="list-style-type: none"> <li>The Code of Conduct was revised and reestablished based on the JX Group Mission Statement.</li> </ul>
Fiscal 2011	<p><b>Period for spreading and integrating awareness of CSR activities—a continuation from fiscal 2009</b></p> <ul style="list-style-type: none"> <li>The Group reviewed its CSR promotion system from the standpoint of consistency with that of the overall JX Group.</li> <li>The Basic Policy on Procurement was formulated.</li> </ul>
Fiscal 2012	<p><b>Period for developing CSR activities that are a reflection of our business activities</b></p> <ul style="list-style-type: none"> <li>Our CSR activities are being conducted with the goal of "increasing corporate value through CSR activities that are a reflection of our business activities."</li> </ul>



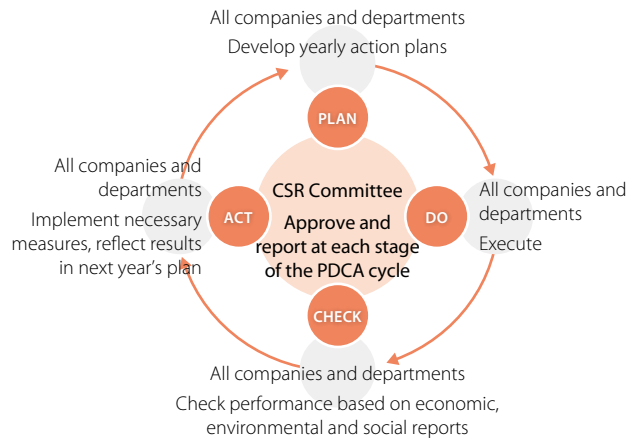
## CSR Activities Promotion

With the three committees and a subcommittee established under the control of the CSR Committee, an advisory body to the president, the Group is striving to upgrade the quality of its CSR activities. In pursuit of this goal, the Group engages in CSR activities based on the CSR Action Policy, evaluates performance against the policy and sets new annual goals. At the same time, the Group confirms whether business activities are in compliance with the Group's Code of Conduct by implementing the PDCA cycle (see the diagram at right). (For further details regarding the goals and performance in fiscal 2011, please see pages 13 and 14.)

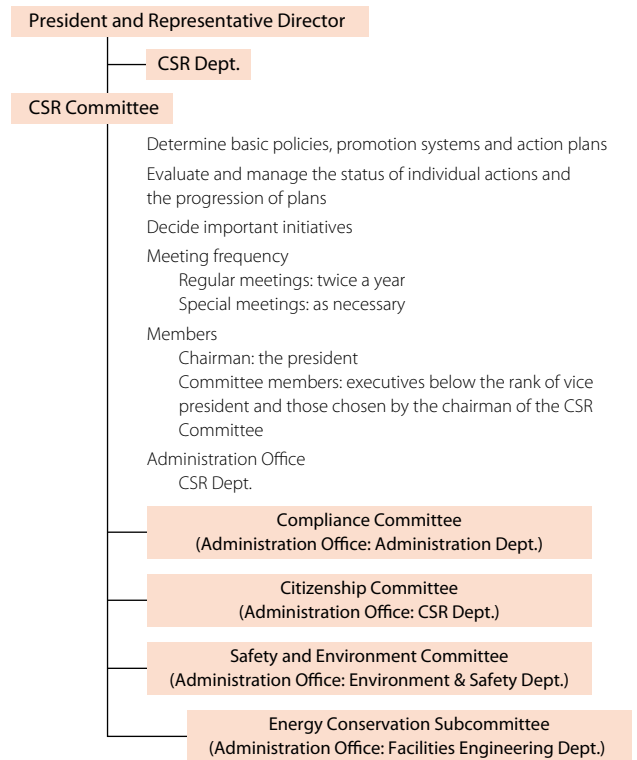
In fiscal 2011, the CSR Committee met three times (May 12, Aug. 24 and Jan. 16), the Compliance Committee met twice (May 12 and Oct. 4), the Citizenship Committee met twice (May 31 and Nov. 14) and the Safety and Environment Committee met twice (June 21 and Nov. 29).

From fiscal 2012, in addition to the cross-sectional CSR Action Policy of the Group, we are promoting the establishment of a system according to which each operating site determines a CSR Action Policy that reflects its own business activities. A further increase in corporate value will be pursued by implementing the PDCA cycle based on the CSR Action Policy at each operating site.

### PDCA Cycle



### CSR Promotion System



## Spreading Awareness of CSR Activities in Fiscal 2011



### Publishing *Sustainability Report 2011*

Both full and digest versions of *Sustainability Report 2011* were published in Japanese, whereas the full version was published in English. The Japanese and English full report attained the Application Level A+ as defined in the Sustainability Reporting Guidelines 2006 of the Global Reporting Initiative (GRI).



### Publishing *Sustainability Report (Second Chinese Version)*

*Sustainability Report 2011* was published in traditional Chinese and simplified Chinese.

### Briefing Sessions and Roundtable Discussions with CSR-related Agendas for Employees

The Company held CSR-related briefing sessions (51 times) at the respective operating sites to explain the details of the Group's actual CSR activities. The Company also conducted roundtable discussions (46 times) to exchange CSR-related views with employees at the respective operating sites.



### Carrying Out an Employee Survey on Our CSR Activities

The Group conducted an employee survey on *Sustainability Report 2011*, together with a survey on the JX Group's overall CSR activities conducted by JX Holdings, Inc.

**Survey period:** December 5 to December 22, 2011

**Parties surveyed:** All the employees to whom *Sustainability Report 2011* (Japanese version) was distributed

**Response rate:** 89.8% (responses received from 3,109 of 3,464 people surveyed)

### Survey Results (Example)

Topics of interest in *Sustainability Report 2011* were scored for 22 topics with respondents designating three interesting topics by giving 3 points for their first choice, 2 points for their second choice and 1 point for their third choice. The top 10 topics of interest were as follows:

1st	Message from the President	2,074
2nd	JX Nippon Mining & Metals' Corporate DNA and CSR	1,274
3rd	Technology Development	1,153
4th	Special Feature: Material Issues for the JX Nippon Mining & Metals Group	1,147
5th	Initiatives for Closure Mines	1,135
6th	Introducing Our Business Activities: Downstream (Electronic Materials Business)	1,092
7th	Developing Environment-Friendly Technologies	1,060
8th	Involvement with Our Employees	1,050
9th	Establishing a Recycling-Oriented Society	912
10th	Group Philosophy and Code of Conduct	903

### Conducting a Training Event for JX Group CSR Promotion Managers

On October 18, 2011, a training session was held for the CSR promotion managers of the domestic operating sites of the JX Nippon Mining & Metals Group.

In the morning, participants separated into four groups and discussed "identifying important challenges in accordance with the materiality principle in ISO 26000 and analysis on risks/opportunities." The important challenges identified at the session were also used to help select the material issues in *Sustainability Report 2012*. (See page 15.)

In the afternoon, a lecture was given by an invited lecturer, Ken-ichi Oka, Senior Director and General Manager, Technology Center, Global Environment Business Strategic Planning Department, Toray Industries, Inc., on the theme of "Toray's Initiatives for the Global Environment and LCM Environmental Management."

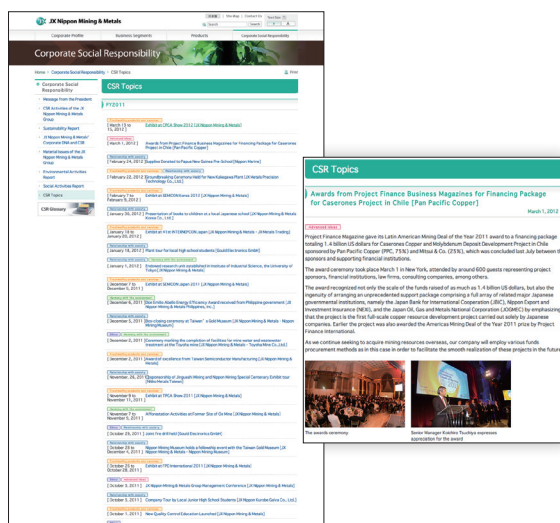


### Activities of the Energy Conservation Subcommittee

The Energy Conservation Subcommittee determines goals and action plans, summarizes and follows up on the status of relevant actions and improvements, as well as the energy consumption, and supports activities at each operating site.

### Posting of CSR Activity Topics on Our Website

The CSR activities conducted at each operating site have been posted on the Company's website effective from fiscal 2011. In fiscal 2011, 101 topics were introduced and 74 were translated into English, mainly for CSR activities conducted overseas, and posted on the English website.



## Compliance Committee

The basic policy, each year's priority issues, education and other measures related to the JX Nippon Mining & Metals Group (the "Group") are determined at the Compliance Committee (which meets twice a year in principle), consisting of the executive officer in charge of compliance at each department of the Company and major Group companies. At the Compliance Committee, we receive reports on the current compliance status from each department of the Company and each Group company.

## Compliance Education

To raise the awareness of compliance and improve knowledge of management (executive officers and general managers), we formulated a compliance education program for each tier and department.

### Compliance Training Courses and Education for Employees

Using the *Compliance Guidebook*, we implement laws and regulations related to the Group's businesses as well as the Group Hotline.

In fiscal 2011, to disseminate the awareness of compliance and a better understanding of compliance-related basic matters, we provided compliance education at training sessions for each tier (training sessions for

Based on these reports, we evaluate business management-related risks of fraudulent acts and legal violations and reflect them in setting priority issues and formulating educational plans.


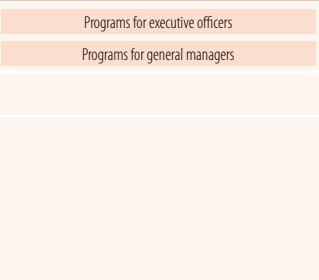


In compliance inspection, we combine diverse methods, such as action result evaluation interviews, self-declaration on human resources, a CSR questionnaire and an employee roundtable discussion.

new employees, third-year employees, newly promoted supervisory staff members and newly promoted managers), which were attended by 90 people. We also provided training sessions with regard to the Anti-Trust Law and export management, which were attended by 74 and 32 employees, respectively.

### Compliance Training for Management

With lawyers and other professionals as lecturers, we conduct compliance training that becomes a premise of managerial judgment according to managers' respective duties.

## Compliance Training System of the JX Nippon Mining & Metals Group

Education for each tier	Compliance training for management	Training courses for compliance	Educational programs about laws and regulations
Educate on the concept of compliance, the need for compliance, related laws / regulations and internal rules according to the trainee's experience and duties.	With a lawyer as a lecturer, we provide necessary training from the perspective of managerial judgment.	Explanation of the <i>Compliance Guidebook</i> <sup>1</sup>	Educational programs about laws and regulations that require caution in the execution of business duties <sup>1</sup>
			

\* Other than the above compliance education, we intend to provide legal education that addresses the needs of each department regarding contract and business-related laws and regulations.

<sup>1</sup> Including Group companies

## General Inspection on Environment and Safety-related Compliance

To understand environment and safety-related legal compliance status and the corporate culture of each worksite, we implemented a General Inspection on Environment and Safety-Related Compliance (the "General Inspection") in the following way with the input of lawyers and consultants. (Inspection period: from October 2011 to December 2011)

### Monitoring Legal Compliance Status

Verification by document

- Inspection sites: At 20 manufacturing sites of the Company and Group companies
- Content: Verification using checklists that summarize applicable laws and regulations for each manufacturing site

Visiting audit

- Audit: For 10 manufacturing sites of the Company and Group companies
- Content: Onsite verification of instruments, gauges and monitoring records, etc., in addition to verification using checklists



Scene of the General Inspection

### Understanding of Corporate Culture

Questionnaire

- People who took the questionnaire: 5,300 persons, including the Group's executive officers and employees
- Content: Questionnaire about the awareness of compliance (Answers were collected from more than 95% of those who took the questionnaire.)

Survey by interviewing

- Interview locations: The Company and the Group companies' seven manufacturing sites
- Content: Interviewing management staff and each tier under them based on the results of the questionnaire to obtain more detailed information

Based on the results of the General Inspection, we will further improve environment and safety management and the Group Hotline and reinforce compliance training, thereby improving the awareness of employees' compliance.

## Risk Management in Environmental and Worksite Safety and Sanitation Fields

In the environment-related field, each operating site of the Group continues to manage environmental management systems under the ISO 14001 certification. (For the status of the acquisition of ISO 14001 certification, please see page 61.) In the workplace safety and health field, we optimize OHSAS and strive to thoroughly conform to laws and regulations and improve risk management. (For details, please refer to page 73.)

### Compliance Guidebook

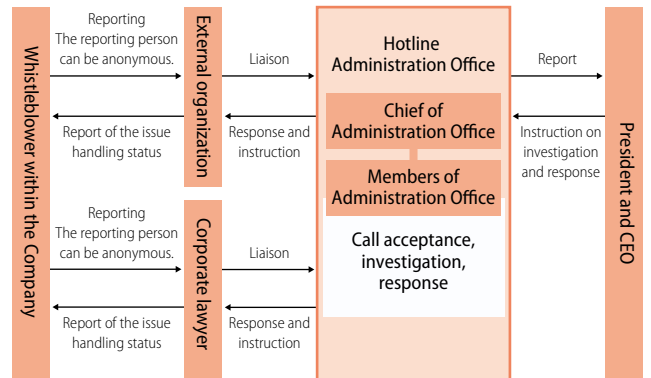
We compile a *Compliance Guidebook* that explains laws and regulations that require caution in the business execution of the Group companies and distribute it to executive officers and employees of the Company and Group companies.

## Group Hotline

For preventing legal violations within the Group and discovering problems early to solve them quickly, the Group Hotline is in place.

In fiscal 2011, we further improved the Group Hotline based on the opinions collected via the questionnaire of the General Inspection, such as opinions about the Group Hotline. Such improvements include the use of an external organization for a reporting office and allowing anonymous reporting.

In fiscal 2011, there were no compliance-related legal violation cases such as fraudulent or discriminatory actions.



## Special Report: Our Responses to the Great East Japan Earthquake

After the occurrence of the Great East Japan Earthquake offshore the Pacific Ocean on March 11, 2011, the Disaster Prevention Headquarters was established at the head office of the Company with the president as the Chief of the Headquarters. Within the Group, the Disaster Prevention Headquarters immediately started initiatives to confirm the disaster-affected circumstances of major operating sites, the safety of employees

and their families and the extent of the devastation and restorative needs of the peripheral infrastructure.

Here, we report on the business continuity plan (BCP) in the electronic materials business and the status of recovery of the two closed mines that were damaged by the earthquake as well as permanent countermeasures to be taken after the recovery at these closed mines.

### BCP in the Electronic Materials Business

#### Direct and Indirect Effects of the Earthquake Disaster

Of the operating sites for the electronic materials business, the Hitachi Works and the Isohara Works were damaged by the earthquake. Early restoration was achieved for major products through concerted efforts of the parties concerned as shown below.

Damaged operating sites	Products	Status of restoration
Hitachi Works	Treated rolled copper foil	Operations resumed in late March 2011
	Electro-deposited copper foil	Operations resumed in early April 2011
Isohara Works	Sputtering targets for semiconductors	Operations resumed sequentially after early April 2011
	Sputtering targets for recording film	Operations resumed sequentially after early April 2011
	Sputtering targets for liquid crystal displays	Full-fledged operations started after early July 2011
Sanyu Electronic Industry Co., Ltd. (Esashi Works)	Precision processed products (plated)	Operations resumed sequentially after late March 2011
Ichinoseki Foil Manufacturing Co., Ltd.	Electro-deposited copper foil (post-processed)	Operations resumed sequentially after late March 2011

Although the Kurami Works (Samukawa Town, Kanagawa Prefecture), which mainly engages in manufacturing precision rolled products, was

not damaged by the earthquake, it was adversely affected by the subsequent rolling blackouts that were carried out under the jurisdiction of Tokyo Electric Power Co., Ltd. If a running melting furnace shuts down, metals inside the furnace solidify. Accordingly, the fall in the capacity usage ratio to approximately the 70% level occurred because of the planned shutdown during the period of the rolling blackouts. The Kurami Works took advance measures, such as stockpiling inventory, and endeavored to promote close collaboration with Nippon Mining & Metals (Suzhou) Co., Ltd., in preparation for possibly protracted rolling blackouts. In addition, onsite operators used their ingenuity in operating the furnaces to ensure immediate restoration of the melting process after the rolling blackouts ended. Thus, the impact of the reduced operations was minimized without causing a delay in deliveries.

#### For Business Continuity

As the Group has high market shares for many products in the electronic materials business, we are responsible for stably supplying such products. Taking into account the experience gained from the Great East Japan Earthquake, we reviewed the BCP and reaffirmed our responses in case of emergency including the following points.

- Ensuring communications, traffic and transportation means;
- Ensuring energy sources, such as electric power and industrial water;
- Ensuring raw materials, equipment and materials; and
- Method of confirming the safety of the parties concerned as well as the collection, issuance and management of information.



### Ensuring stable electricity

Ensuring the stable supply of electric power is a priority issue to be addressed for continuous plant operations. The Group implemented private power generators of 5,750kW each in generating power to the Isohara Works and Kurami Works as a measure to save electricity mainly in summer and as a power supply to prepare for an emergency.

### Toward reducing the risk of operation

Sputtering targets for semiconductors are mainly manufactured at the Isohara Works. Following the Great East Japan Earthquake, enhanced BCP measures, including dispersing manufacturing bases, were requested particularly by overseas customers in view of such high market shares of sputtering targets.

In response to these moves, the Isohara Works is reviewing appropriate inventory levels for semi-manufactured products and shared operation in case of emergency, together with JX Nippon Mining & Metals USA, Inc., which has already implemented processing equipment for sputtering targets.

Nikko Metals Taiwan Co., Ltd., a Group company, has started constructing a new plant on a 20,000m<sup>2</sup> site in Lungtan Industrial Park, in north-west Taiwan. This new plant will process not only sputtering targets for LCDs but also those for semiconductors. JX Nippon Mining & Metals Korea Co., Ltd., is also studying the possible implementation of processing equipment for sputtering targets for semiconductors.



Private power generator (Kurami)



Private power generator (Isohara)



New plant in Taiwan (rendering)

## Permanent Countermeasures at the Devastated Closed Mines

### Oya Mine

At the Oya Mine of the Group, part of the tailings placed inside the Kayakari Impoundment flew out of the compound due to the liquefaction phenomenon when the Great East Japan Earthquake occurred. Although the impoundment satisfied the design standards in accordance with the Mine Safety Act, the outflow of tailings washed away a private residence, as well as agricultural fields such as paddies, and reached a point within 800m of the seashore. The outflow spread further downstream from the force of an ebb tide caused by the tsunami.

Compensation for damages to local residents from the outflow was completed by November 2011, and the original state was almost restored for all damaged areas by May 2012.



Scene of the outflow of tailings just after the earthquake (April 2011)



Scene of the restored paddy fields (May 2012)

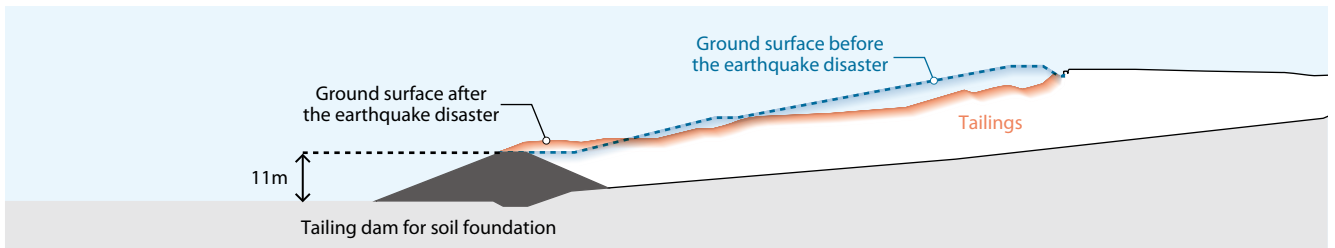
### About permanent countermeasures

The structure of the Kayakari Impoundment was a low-enclosing-bund type with a higher summit of piled tailings than the surrounding bank. To prevent a possible outflow of tailings, we intend to modify the impoundment structure to a high-enclosing-bund type so tailings do not flow out even in case of strong earthquakes of a similar scale. In addition, we will raise the height of the bank from 11m to 39m. The bank-raising work is scheduled to be completed by January 2014.

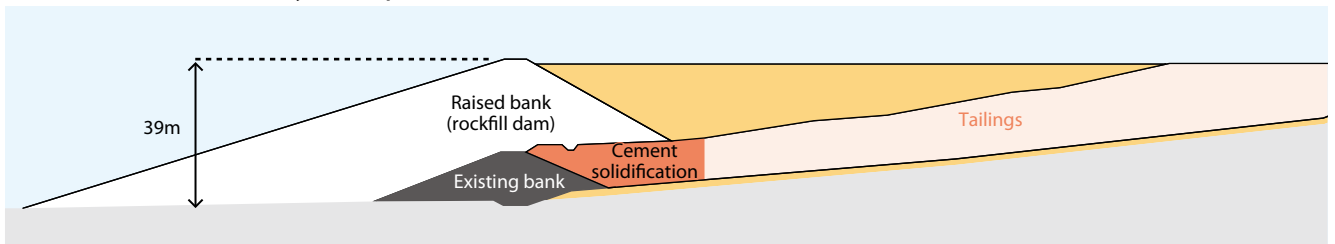


Kayakari Impoundment (rendering)

### Cross-sectional View of the Kayakari Impoundment Before the Earthquake Disaster



### Cross-sectional View of the Kayakari Impoundment After the Permanent Countermeasures Have Been Taken (Planned)



### Takatama Mine

Koriyama City, in Fukushima Prefecture, in which the Takatama Mine Zenigami Impoundment is located, was shaken by a heavy earthquake of 6-lower on the Japanese earthquake intensity scale when the Great East Japan Earthquake occurred last year. As a result, the upper slope of the impoundment collapsed, and about 44,000m<sup>3</sup> of tailings flew out onto Nanase Forest Road and into the Nanase River. Although the impoundment satisfied the design standards required by the Mine Safety Act, the bank slope collapsed at once due to a heavy shaking force because the slope at the impoundment was considerably steep and the impoundment structure was a low-enclosing-bund type.

Starting the removal of tailings on the forest roads the following day (March 12), the forest roads were opened by March 14. Following the removal operation of tailings that flew into the river, the subsequent removal was completed during April in parallel with procedural confirmation with the relevant governmental agencies and briefing meetings for local residents.

### About permanent countermeasures

To have a solid structure that will not collapse even if a strong earthquake similar to or stronger than the Great East Japan Earthquake occurs, we intend to remove the tailings placed at sharp declines on the upper impoundment to lower areas to mitigate the slope angle of the whole impoundment. In addition, we will improve the surrounding waterways on hillsides and internal ditches, cover soil thereon and plant trees by spraying seeds. These permanent countermeasures at the Takatama Mine are scheduled to be completed in October 2012.



Outflow of tailings (March 2011)



Green planting at the impoundment (June 2012)



# Economic Activities Report

The economic activities of the JX Nippon Mining & Metals Group, including its business performance and the description of its businesses, are reported.

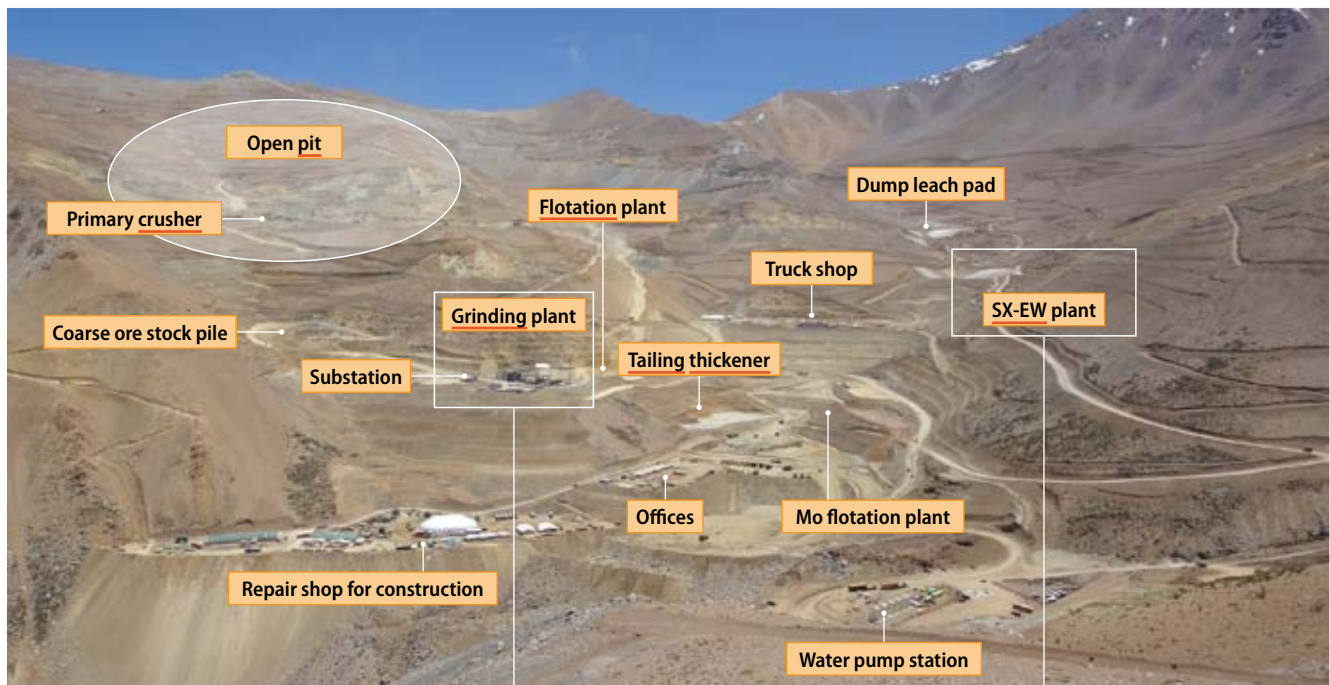
## Introducing Our Business Activities: Upstream (Resources Development Business)

The JX Nippon Mining & Metals Group proactively participates in promising mine development projects from the planning stage and is active in promoting its autonomous mine development. With regard to the Caserones Copper and Molybdenum Deposit Development Project (the "Caserones Project") in Chile, the construction of the necessary facilities started in April 2010 toward the intended start of operation during 2013. In this report, we outline the progress of this project, as well as our initiatives in response to environmental issues and toward the local community, which are being managed by SCM Minera Lumina Copper Chile ("MLCC"), an affiliated company in Chile.

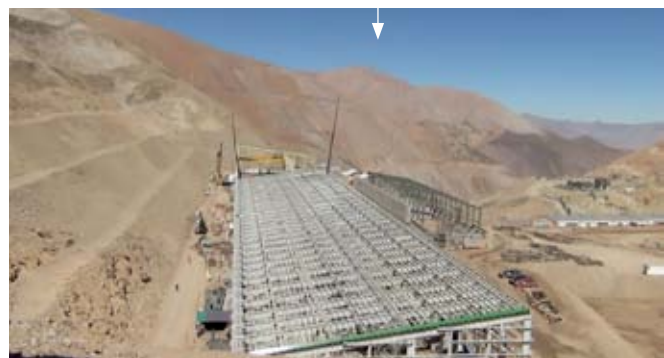
### Progress of the Caserones Project

As of March 2012, the project was about 60% complete. The mine development is on pace for an operational start in 2013.

#### Panoramic View of the Caserones Deposit (As of March 2012)



Grinding plant



SX-EW plant



Pre-stripping blasting



View of operation in winter



View of operation for the construction of dump leach pad facilities

## Preparation of the Environmental Social Management Plan

MLCC prepared the Environmental Social Management Plan, in which items for evaluation and management are summarized into Safety, Environmental Preservation, Emergency Response, Biodiversity, Human Resources Management, Protection of Cultural Assets and Mine Closure Plan. The plan was issued as the Environmental Social Management Report in July 2011. The project will be executed according to the details of the report in the future.



Workers for development in a recreational activity



Anti-drug and anti-drinking seminar held at a junior high school

## Initiatives Regarding Biodiversity

MLCC has set aside 0.87km<sup>2</sup> of the overall owned area of 385km<sup>2</sup> as a protection area for animals and plants inhabiting the area.

We are in compliance with the following local regulations: 1) "In case trees are cut in a certain area, trees must be planted 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 kind of plant must be planted." In November 2010, under experts' guidance, plants in a wetland plant zone (9,400m<sup>2</sup>) of the Caserones Valley, in which valuable wetland plants are distributed and which is the planned construction site of our production facilities, were wholly transplanted to La Ollita Valley,

the nearest place with an appropriate habitat. The vega plant, a rare plant that thrives in wetlands under arid climates and is subject to legal protection, has been confirmed to have rooted at the transplanted site.



Vega plant rooted after transplantation and a small river nearby

## VOICE CSR Activities at MLCC



### Jaime Andrade G.

External Affairs and Communications Officer  
SCM Minera Lumina  
Copper Chile

I am in charge of negotiations with local communities. Good relationships with different stakeholders can be established by becoming a local "responsible inhabitant." MLCC has therefore evaluated the effects of the Caserones Project on neighboring communities and the environment, identified areas where MLCC can share common interests with local communities and solidified perpetual networks with local communities before executing the project. These initiatives were taken around the four core tasks of "water resource management," "contribution to local communities," "transportation safety measures" and "maintenance and expansion of vocational training and employment."

Since April 2010, when the project shifted from the economic efficiency assessment stage to the development stage and the construction of the necessary facilities started, CSR activities have been a focus in the following five main areas.

- Execute matters stated in the environmental evaluation decision statement, which approved the shift to the development stage in January 2010.
- Carry out the provisions in the voluntary cooperation agreement entered into with municipalities, particularly Tiera Amarilla, Vallenar, Caldera and Freirina, for the improvement of residents' lives.
- Execute education-related agreements and vocational training to raise the employability of local residents. (At present, many young people of Región de Atacama participate in the Caserones Comprehensive Operators Training Program. They are expected to work as regular employees at the Caserones plants and mine.)
- Conduct perpetual dialogue with the Colla indigenous community whose members live along the Jorquera River and its tributaries in accordance with the ILO Convention No. 169 concerning Indigenous and Tribal People in Independent Countries and the standards of International Finance Corporation.
- Execution of the Copiapó River Water Resources Management and Improvement Program

As the operational start in 2013 approaches, the pertinent areas on which the project will have influence are being expanded, including those in the areas along the planned transportation route for mineral products and the embarkation port. MLCC will make every effort to deepen the understanding of the Caserones Project by local residents with extended dialogue opportunities to be reinforced by strengthening external operations and PR management.



# Introducing Our Business Activities: Midstream (Smelting and Refining Business)

The midstream business activities (Smelting and Refining Business) of the JX Nippon Mining & Metals Group stably supply high-quality refined copper from smelters and refineries that boast superior technologies and world-class production capacity. The production capacity of refined copper totals 1.17 million tons annually from the domestic smelters and refineries of Pan Pacific Copper Co., Ltd. (PPC), and LS-Nikko Copper Co., Ltd., a joint venture in South Korea.



Saganoseki Smelter & Refinery



Tamano Smelter



Hitachi Refinery



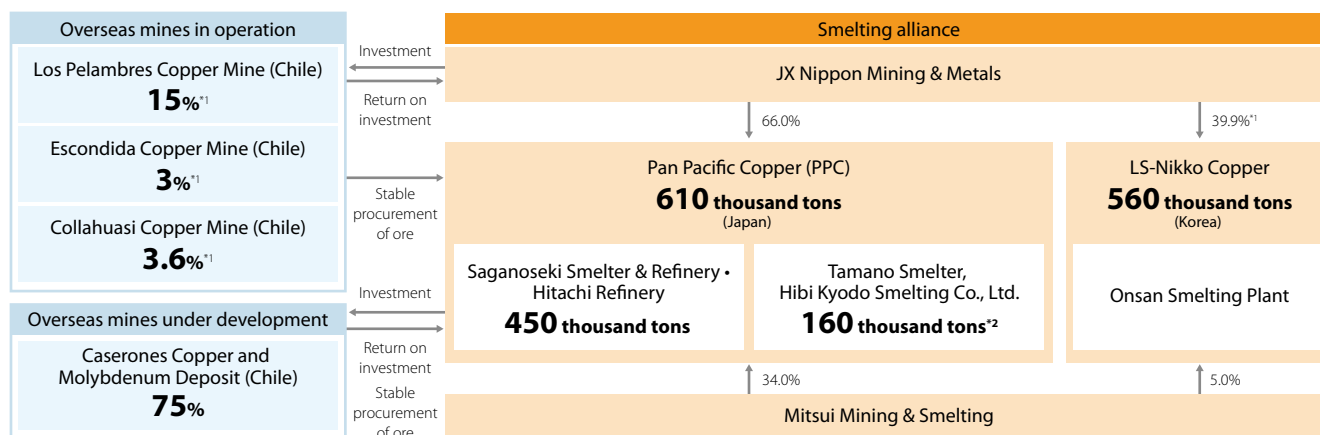
Onsan Smelting Plant (LS-Nikko Copper)

## As a Leading Copper Producer in Asia

PPC, which was jointly established by JX Nippon Mining & Metals Corporation and Mitsui Mining & Smelting Co., Ltd., vertically integrates resource development, including the development of the Caserones deposit, raw material procurement, production and sales. Also, in collaboration with LS-Nikko Copper Co., Ltd., which is a joint venture smelting company between the two parent companies of PPC and the

LS Group, of South Korea, PPC has developed an internationally competitive smelting alliance. PPC's Saganoseki Smelter & Refinery and the Tamano Smelter of Hibi Kyodo Smelting Co., Ltd., as well as the Onsan Smelting Plant, are proud of their world-class cost competitiveness. PPC has established a solid position as a leading copper producer in Asia in terms of both quality and quantity.

## Smelting Alliance and Resource Development of the JX Nippon Mining & Metals Group



\*1. Equity interest ratio held indirectly by JX Nippon Mining & Metals

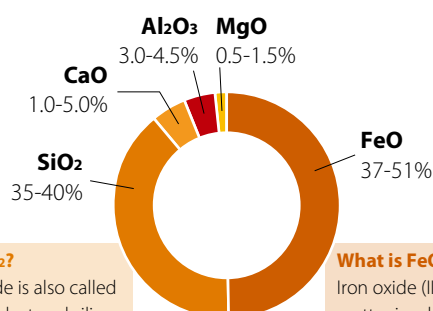
\*2. PPC's equity interest accounts for 63.51% of the production capacity of 260 thousand tons.

## Iron Silicate (Slag): By-product of Copper Smelting

Various valuable materials other than copper are produced from copper concentrates. The Group thoroughly collects not only precious and rare metals but also all the remaining valuable materials in copper concentrates with its advanced technology at the world's highest level in pursuit of zero emissions in copper smelting.

Iron silicate slag is one such valuable material produced from the copper smelting process. Its mineral components are iron oxide and silicic acid, and it is extremely stable physically and chemically.

### Components of Iron Silicate Slag



#### What is SiO<sub>2</sub>?

Silicon dioxide is also called quartz, silica dust and silica. When high heat is applied, silicon dioxide vitrifies.

#### What is FeO?

Iron oxide (II) is solid matter in a black powder form with a high specific gravity.

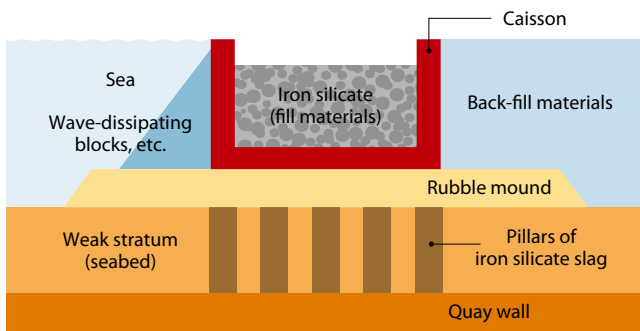
## For the Effective Utilization of Resources

Iron silicate slag features high stability, high density and high permeability. Accordingly, as a substitute material for sand or gravel as a natural resource, its use has increased in various infrastructure applications, such as construction and port improvement. In the application of fill materials for caissons, the use of iron silicate slag contributes favorably from an economic perspective because the caissons become more compact than when using natural sand.

The Company intends to actively utilize iron silicate slag from the viewpoint of the effective utilization of mineral resources and protecting a natural resource (gravel).

### Processes for Bank Protection Work of Reclaimed Land

- 1 Improve the target seabed ground on which caissons will be installed with a sand compaction pile method;
- 2 Lay rubble mounds;
- 3 Install caissons on seabed ground that has been improved;
- 4 Drop iron silicate slag in the caissons; and
- 5 Drop in back-fill materials on the reclaimed land.



Drop-in operation of iron silicate slag in caissons



Caisson after iron silicate slag is dropped in

## Fire at Saganoseki Smelter & Refinery

The Saganoseki Smelter & Refinery shut down its operation due to a fire that occurred on January 7, 2012, at a nearby converter control office. As a result of subsequent Groupwide efforts to restore the damaged facilities, we resumed operation on February 13, 2012, ahead of the initial recovery schedule.

Although there were no casualties or outflows of any substance that might have caused an environmental impact due to the fire, there was an approximately 29,000 ton decrease in the production of refined copper. We have endeavored to minimize the negative impact thereof so that the stable supply of products will not be disturbed by utilizing other smelters and refineries in the Group; as a result, the regular large-scale repair of the Tamano Smelter, which was scheduled for March and April, was postponed to the autumn of 2012. We aim to prevent any recurrence by taking such measures as preventing the cables from catching on fire and the steps to minimize the spread of fire.



Transformation equipment delivered from the Negishi Refinery, JX Nippon Oil & Energy (feeder board)



Secondary substation tentatively recovered by accommodating a feeder panel

# Introducing Our Business Activities: Downstream (Electronic Materials Business)

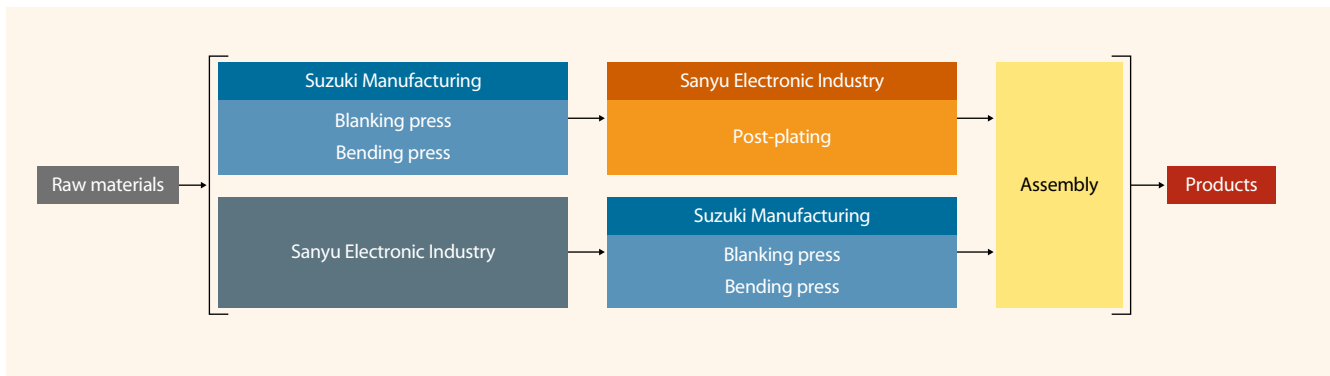
The Group's electronic materials business consists of the functional materials business and the thin film materials business. IT-related devices and automotive applications are mainly developed, manufactured and marketed in the electronic materials business. The precision processing business, which handles precision stamping and plating under the functional materials business, has been expanded and reinforced in recent years. In this report, we introduce Sanyu Electronic Industry Co., Ltd., and Suzuki Manufacturing Co., Ltd., which were affiliated with the Group in April 2010 and February 2011, respectively, and engage in the precision processing business.

## Responding to Diversifying Needs by Extending the Integrated Production System

The JX Nippon Mining & Metals Group smelts copper concentrates produced in the resources development business into refined copper at its smelters and refineries. At the Kurami Works, the refined copper is converted into copper alloys that have various characteristics by adding a variety of metals and then precision rolled. Precision stamping and plating of the resulting precision rolled products are performed within the Group according to requests from customers. In particular, for high-speed, precision stamping at Suzuki Manufacturing and for "post-plating" (precision

plating on stamped components after stamping operations) at Sanyu Electronic Industry, the excellent product quality realized by their superior engineering capabilities is highly acclaimed by customers.

The Group will further extend its integrated production system ranging from resources and raw materials to precision rolling, stamping and plating to meet diversifying customer needs in every aspect of development, quality, delivery time and cost, including in-vehicle application for which rapid computerization is in progress and IT application.

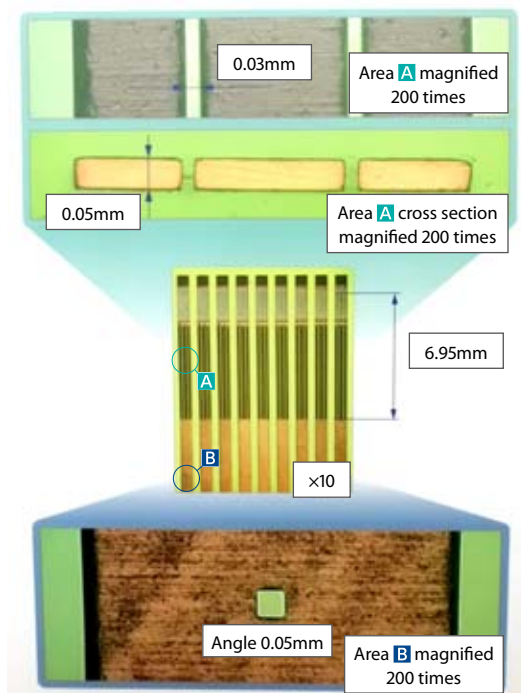


## Precision Stamping Technology of Suzuki Manufacturing

Suzuki Manufacturing's technology features a stamping operation to enable punching that controls within an error range of 2 micrometers and complicated bending that controls within an error range of 10 micrometers. Machine tools called dies or molds are used to stamp metal materials. Suzuki Manufacturing has realized one of the best bending technologies in Japan by designing, manufacturing and maintaining its own dies and molds. Its precision technology has less environmental impact because it does not apply etching that uses chemical agents.



Assembled dies / molds



Sample after precision punching press stage (photomicrograph)

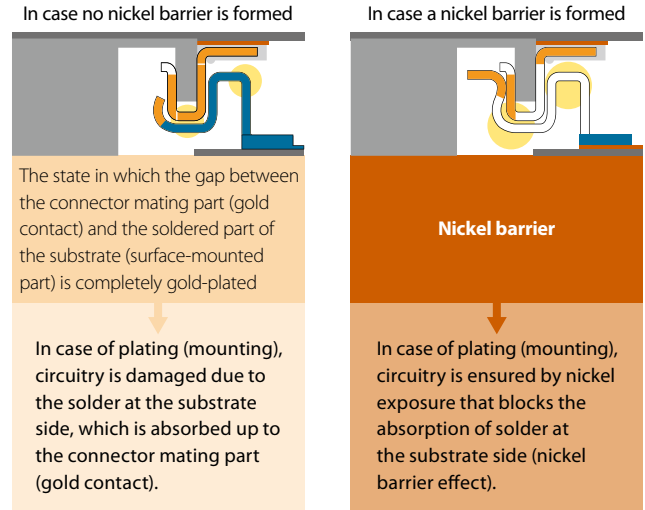
## Precision Plating Technology of Sanyu Electronic Industry

Sanyu Electronic Industry performs precision plating on stamped materials that have been stamped at Suzuki Manufacturing and other companies. The technology in which Sanyu Electronic Industry specializes is the “nickel barrier” processing technique. When a section to which gold plating is applied comes in contact with solder, a problem occurs in which solder is absorbed at the substrate side. To prevent this phenomenon, a nickel plating exposure is formed between the gold-plated part and the soldered part to prevent (barrier) the absorption of the solder.

Sanyu Electronic Industry boasts sophisticated plating and is capable of plating different types of metals in units of 0.1mm on a product of about 1mm in length and with thickness control in units of 0.1 micrometer. In addition, Sanyu Electronic Industry has succeeded in plating with an ultra-thin film of 0.01 micrometer in thickness.

In-house fabrication of plating jigs is also Sanyu Electronic Industry’s strength. The original fabrication of jigs allows for the design and formation of original plating lines. This allows us to flexibly and swiftly respond to customers’ requests for precision plating.

### Nickel barrier plating technology

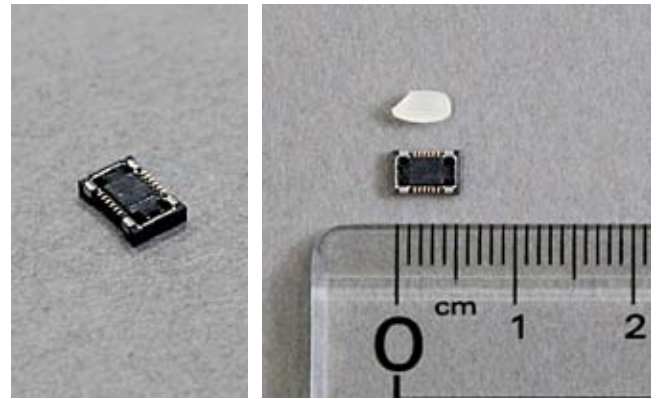


## Precision Processing Technology Contributes to Customers’ Development and the Manufacturing of Micro Connectors

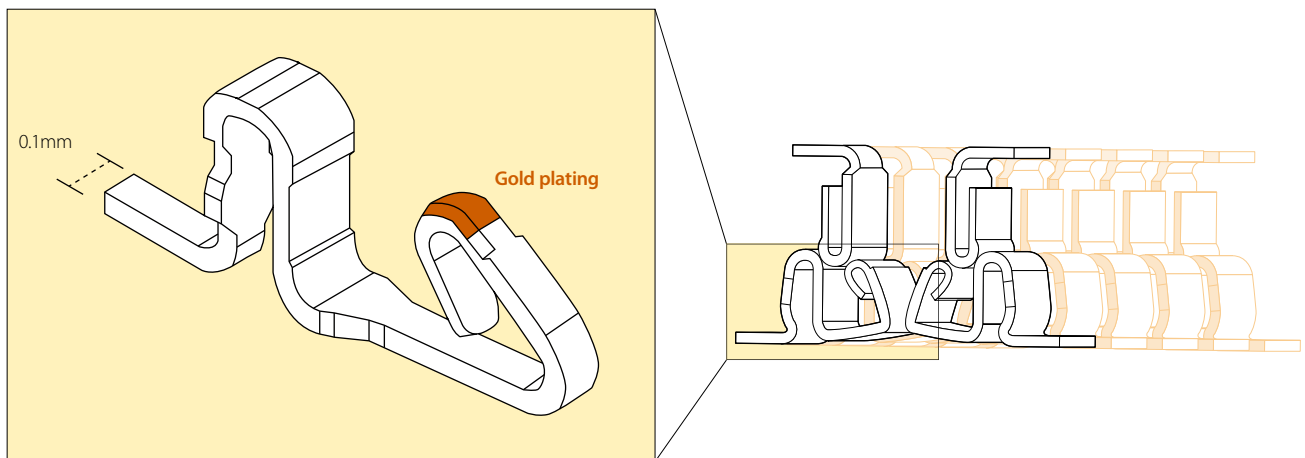
The Group contributes to the development and manufacturing of micro connectors by supplying customers with the aforementioned precision stamping and plating on precision rolled products that have high strength and high conductivity.

Micro connectors are defined as connectors that require micron unit processing. The figure on the right shows a micro connector. A connector of approximately 5mm in length houses several dozens of precision stamped/plated pins.

Micro connectors are essential for further miniaturization and weight saving of electronic equipment and devices. The Group therefore contributes to realizing the higher performance of electronic equipment and further resource saving by providing technologies that are indispensable for the development and manufacturing of micro connectors.



Micro connectors



Three-dimensional micro connectors



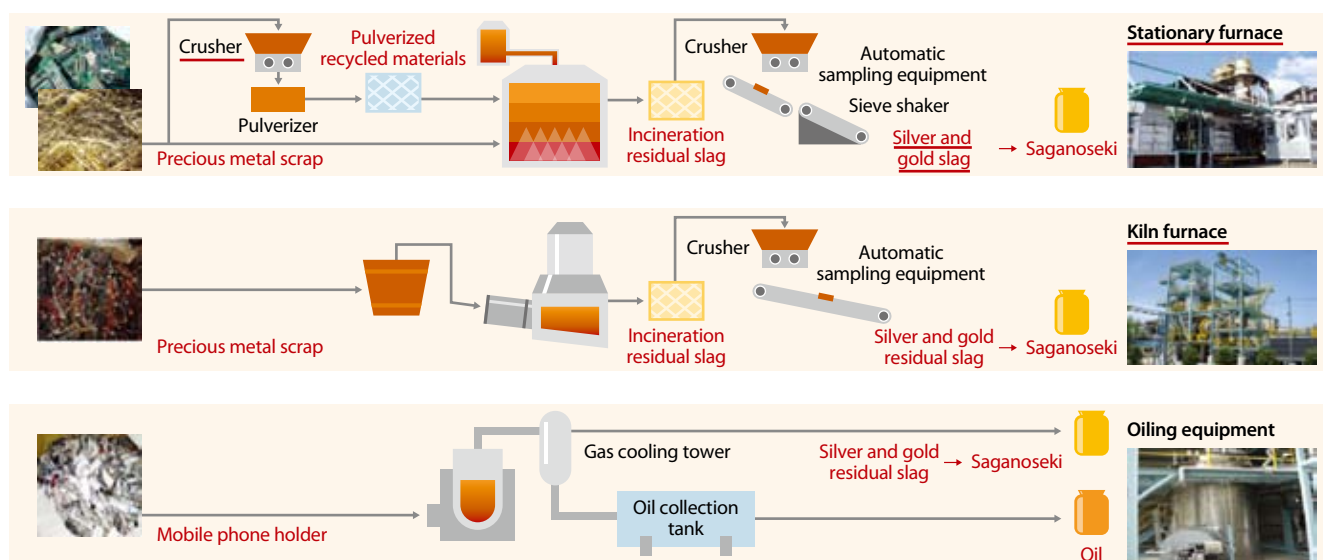
With a nationwide Recycling and Environmental Services network, the JX Nippon Mining & Metals Group has been developing comprehensive recycling and environmental services. At JX Nippon Tsuruga Recycle Co., Ltd., in Tsuruga, Fukui Prefecture, the capacity of industrial waste processing and nonferrous metal recycling plants was enhanced, and facilities were newly established to recover rare metals such as lithium from used lithium-ion batteries. In this report, we would like to introduce a strategy to establish materials stewardship through capital investment by JX Nippon Tsuruga Recycle Co., Ltd., toward the optimal use of the metal resources of the JX Nippon Mining & Metals Group.

## Recycling Business at JX Nippon Tsuruga Recycle

At JX Nippon Tsuruga Recycle Co., Ltd., used electronic equipment is broken down and crushed, which is classified as scrap materials that contain value-bearing metals. Furthermore, such recycled materials are

oiled or burned. Such prepared scrap materials are sent to the Saganoseki Smelter & Refinery of Pan Pacific Copper Co., Ltd., where valuable metals, such as copper, gold and silver, are recovered.

### Preparation at JX Nippon Tsuruga Recycle Co., Ltd.



### Recovery of Value-Bearing Metals through a New Facility

Under current capital investment, to increase rare metal recovery volume the number of stationary furnaces for preparation was expanded. By adding two stationary furnaces for a current total of six furnaces, the recycled raw materials processing capability was expanded to increase the amount of throughput from 400 t/month to 650 t/month. The new furnaces do not pose an ambient environmental burden as thorough measures have been taken including the trapping of waste gas odor.

At JX Nippon Tsuruga Recycle Co., Ltd., value-bearing metals are recovered from waste liquid that contains copper, nickel, tin, cobalt and precious metals using methods such as neutralization, reduction, cohesion or solvent extraction. In early 2012, a new indium and cobalt recovery facility was completed and its operation started.

Rare metals are contained in the sludge that is generated from the manufacturing process of electronic materials. This is a facility to recover indium and cobalt from sludge that is treated as industrial waste. The recovered intermediary indium material is sent to the Hitachi Metal Recycling Complex (HMC) Department of the Hitachi Works and made into metal indium. Intermediary cobalt material is processed at the LiB recycling facility. (Refer to page 46.)



New stationary furnace



Indium and cobalt recovery plant

### Facility to Recover Rare Metal from Used Lithium-ion Batteries and Other Products (LiB Recycling Facility)

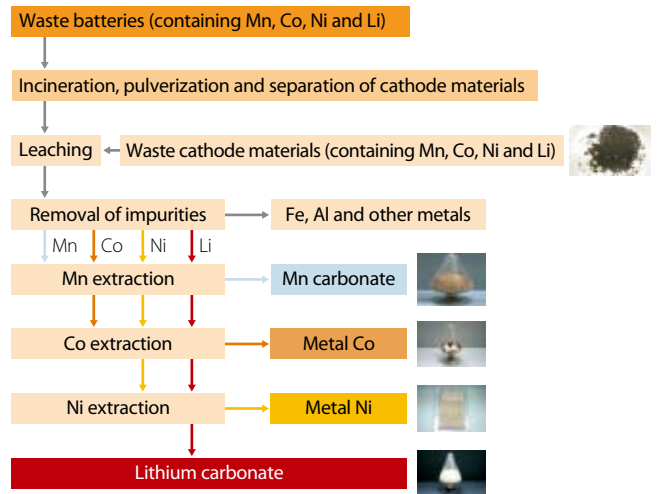
We have finished demonstration testing to recover cobalt, nickel, manganese and lithium (hereinafter “rare metals”), which had been conducted since April 2010, commissioned by the Ministry of Economy, Trade and Industry. To early commercialize the process to recover rare metals based on the results, we need to formulate a final business plan concerning process improvement, cost reduction and the manufacturing structure for optimal economic scale. For these purposes, we constructed a new building (Building B), which has new facilities for a reinforced impurities removal function and dry packaging.

At the LiB recycling facility, lithium, manganese, cobalt, nickel and other value-bearing metals are recovered from used batteries and cathode materials with the aim of contributing to the establishment of a resource recycling-oriented society to address environment-friendly vehicles such as electric cars.



New building (Bldg. B) (Front)

### Lithium-ion Batteries (LiB) Recycling Flow



### Inauguration of New Facilities

On April 11, 2012, an inauguration ceremony for these new facilities was held. On the premises of JX Nippon Tsuruga Recycle Co., Ltd., the new facilities were toured and the Shinto ritual of a prayer for the safety of the operation of the new facilities was conducted, followed by a party commemorating the inauguration of the new facilities at a hotel in Tsuruga City.

The ceremony went on grandly and prosperously, attended by approximately 100 people, including Issei Nishikawa, governor of Fukui Prefecture; Kazuharu Kawase, mayor of Tsuruga City; other administrative associates; and persons from cooperating companies and suppliers. New facilities are subsidized by the rare metal use industry advancement promotion subsidy under a program of the Ministry of Economy, Trade and Industry to support businesses that introduce industrial facilities using rare earth metals, therefore staff of the Nonferrous Metals Division of the Ministry attended as well.



Shinto ritual of a prayer for the safety of the operation



New facility tour

## Intellectual Property Strategy of the JX Nippon Mining & Metals Group

Given the progress of globalization in economic activities, the integrated management of intellectual properties has come to be an important element that could have a decisive impact on international competitiveness and corporate value. The Group is active in integrally promoting measures for technology development and the protection and reinforcement of intellectual properties in a unified manner. At the same time, the Group is promoting an intellectual property strategy that respects intellectual properties owned by customers and third parties so that users can depend on our high-quality products without anxiety.

### VOICE



**Masataka Yahagi**

General Manager, Intellectual Property Dept.

Technology Development Group

#### Relationship between Intellectual Properties and Technology Development

The management of intellectual properties improves the efficiency of and revitalizes our activities for further technology development. For example, the strengths and weaknesses of the Group's technologies and the direction of technical evolution in target markets will emerge clearly by charting the various patents that have been granted in the industry on a map. Accordingly, this approach to intellectual properties will show us the direction of the Group's technical development to be pursued.

#### Global Tide of the Pro-Patent Policy

"Pro-Patent" refers to the strategy deployed by the U.S. government since the 1980s as a national policy to focus on protecting intellectual properties, and it has become an underlying tide worldwide. Japan is also aiming to "build Japan as an intellectual property power" via a government-led initiative in the 2000s. In view of this global trend, the management of intellectual properties is indispensable for the Group in determining the direction of its technology development.

#### Intellectual Property Strategy of the Group

Intellectual properties such as patents firmly secure the value of newly developed technologies by preventing materials produced by the Group from losing their market share due to the introduction of similar or counterfeit goods and ensure their use with security to its customers. To this end, the Group strives to establish a leakless "powerful" patent network by setting the coverage of the target right widely without narrowly limiting the applicable scope of the intended patent.

In addition, it has become important to examine the patent application strategy in advance depending on the relevant business strategy. In case of commercializing a specific technology, in particular, we keep our eyes open to taking the necessary steps to realize early application and early examination by the Japan Patent Office through close collaboration with the relevant operating divisions.

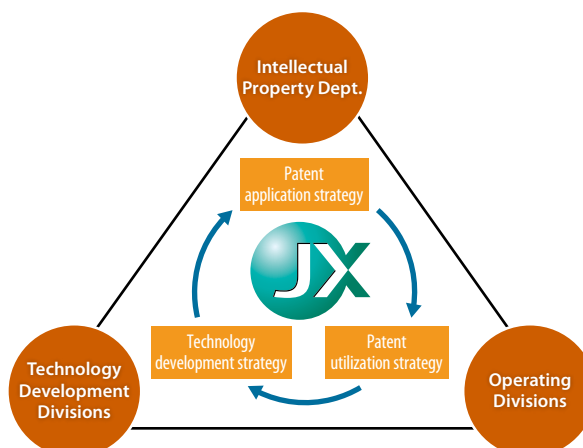
### Promoting the Intellectual Property Strategy via Unified Collaboration with the Technology Development Divisions and the Operating Divisions

The operating divisions, the technology development divisions and the Intellectual Property Dept. are promoting the "Offensive patent networking" approach through unified efforts based on the assumed practical exercise of rights on intellectual properties.

Major initiatives in fiscal 2011 were as follows:

- Held the Product Development Conference (intellectual property design review) on the main theme of intellectual properties with regard to core products and highly expected, newly developed products.
- Shared information among concerned parties by analytically clarifying the relationships among market needs, technical knowhow and business risks.
- Enhanced engineers' awareness of intellectual properties and promoted the detection of subjects to be applied for patents by periodically holding intellectual property debriefing sessions and other similar meetings.

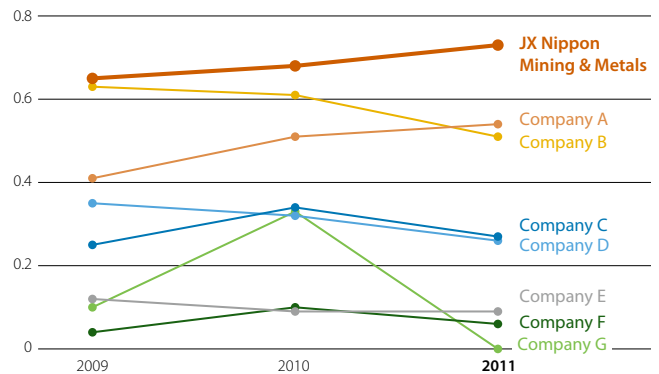
#### Schematic Drawing of Our Intellectual Property Strategy Promoting Structure



## Ranked First in the Number of Applications within the Nonferrous Metal Industry

Amid the globally intensifying patent competition in the materials field, especially in the electronic materials field, the Company's patent application rate (or the number of patent applications per eligible engineer) was ranked first in Japan's nonferrous metal industry for fiscal years 2009–2011. Moreover, the patent grant rate (or the ratio of application-granted patents registered to applied patents) and the international patent application rate were ranked at the top in the industry. Accordingly, the Company is proactively promoting the establishment of a global intellectual property strategy structure.

**Comparison of the Patent Application Rate in the Nonferrous Metal Industry**



## Toward Further Respect and Protection of Intellectual Properties

In addition to these initiatives, the Group intends to reinforce its systems for the enhanced respect and protection of intellectual properties and ensure the provision of materials for users without anxiety by promoting the following priority measures around the Intellectual Property Dept. as a central internal organization.

### JX Nippon Mining & Metals Group's Policy of Focusing on Intellectual Properties

**1 Establish a "powerful" patent network**

Further schematize key elements, such as needs, know-how and risks, to improve the completeness in patents granted

**2 Shift focus from information collection to information analysis**

Bolster the conflict-detecting function regarding the patents of the Company and other companies by reinforcing the information analysis function

**3 Strengthen the overseas strategy and prevent the outflow of technologies**

Establish an appropriate and efficient global intellectual property structure by increasing collaboration with overseas entities and improving related manuals

### Technology Development for Effluent Treatment at Closed Mines

JX Nippon Mining Ecomanagement, Inc., a Group company in charge of managing closed mines, recently developed a new technology regarding the treatment of acid mine drainage, which is one of its main services, and was granted a patent for said technology. (Disclosed in February 2012)

Heavy metals contained in acidic mine drainage are usually neutralized with alkali. This drainage treatment technique features the following processes: first, slime generated from the neutralization is formed as a slime layer inside a reservoir tank; then the concentration of heavy metals being dissolved in the drainage can be reduced by passing the drainage through the slime layer, which functions as a filter. The development of this "slime-filtering" technology enables water discharge of a quality equivalent to that treated by an expensive sand-filtering machine at a considerably low cost.

The Group will continuously strive to maintain and improve natural environments surrounding the closed mines by effectively utilizing such advanced technologies as described above for the safety and security of nearby local communities.



Drainage treatment facility to which the slime-filtering method is applied (reservoir tank at the Oya Mine)



## Business Results in Fiscal 2011 (from April 1, 2011, to March 31, 2012)

### Economic Activities of the JX Nippon Mining & Metals Group (the "Group") Including its Business Performance and the Content of Each Business.

The world economy for fiscal 2011 (from April 1, 2011, to March 31, 2012) generally remained sluggish due to a slow recovery of the U.S. economy and the aggravated European debt crisis issues, which slowed the growth of emerging markets. The Japanese economy temporarily slowed with the impact of the Great East Japan Earthquake, which occurred on March 11, 2011. Although signs of recovery were seen afterward, the flooding in Thailand, foreign exchange rates with historic high yen appreciation and other issues led to a plunge in manufacturing and exports. For these reasons, the Japanese economy remained in severe circumstances.

Global copper demand increased mainly in China. Although copper prices plunged against the backdrop of the uncertainty of the world economy, prices recovered after January 2012 and the average price during the fiscal year remained high at around \$8,500 per ton, almost the same as in the previous term.

Under such circumstances, we not only directed our maximum efforts to restoration and revitalization from the Great East Japan Earthquake but also developed the following measures based on the basic strategies of the Medium-term Management Plan.

#### Restoration and Revitalization from the Great East Japan Earthquake

Affected by the Great East Japan Earthquake, the Group had no choice but to suspend its operations due to damage at its operational sites and factories in the Tohoku and northern Kanto areas such as the Hitachi and Isohara Works. However, by the beginning of May 2011, major manufacturing facilities were completely restored except for part of the Isohara Works. The restoration of the Isohara Works was completed in July 2011. To prepare for a large-scale earthquake that can be anticipated in the future, we took proactive measures such as reinforcing alternative transportation methods in case lifelines were shuttered, reviewing the inventory of emergency supplies and installing in-house power generators.

#### Each Measure under the Medium-term Management Plan

##### Resource Development Businesses and Metals Smelting and Refining

In the resource development business, to establish a balanced high revenue business structure by improving the ratio of equity entitlement copper mine production, we progressed steadily with construction work for our manufacturing infrastructure, aiming to start manufacturing in fiscal 2013 at the Caserones Copper and Molybdenum Deposit

Development Project (Chile). In metals smelting and refining, given the suppression of margins due to severe mine purchasing conditions and high yen appreciation, we took measures to improve revenue such as reducing costs and improving the extraction percentage at the Sagano-seki Smelter & Refinery, the Tamano Smelter and the Onsan Smelter of LS-Nikko Copper Inc. in South Korea; raising the sales prices of by-products; and increasing the production of rare metal products.

##### Recycling and Environmental Services

In the fiscal year under review, we improved operational efficiency and raised the metal recovery ratio at the HMC (Hitachi Metal Recycling Complex) Dept. of the Hitachi Works, which collects a wide range of nonferrous metals from various recycled materials, and at each subsidiary involved in the industrial waste treatment and recycling businesses. To improve our ability to collect recycled materials, we reinforced our overseas metal recovery network and the system to evaluate and process recycled materials. Furthermore, at the Tsuruga Plant we are promoting measures to make our technology to recycle rare metals contained in used lithium-ion batteries into a business.

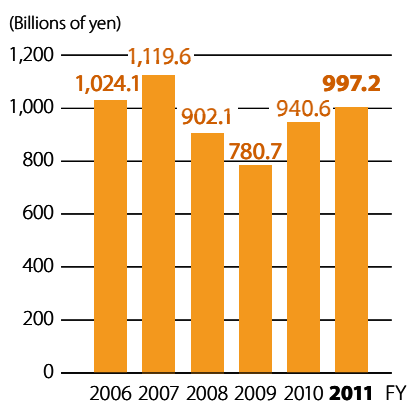
##### Electronic Materials Business

In the severe environment marked by inventory adjustment for PCs and LC TVs, high yen appreciation and the shift of users to outside of Japan, we boosted overseas business development and reinforced a consistent manufacturing structure, from precision metal rolling to press and stamping. Also, to reinforce not only our electronic materials business for IT products with a large fluctuation in demand but also the automobile electronic materials business with relatively stable demand, we are constructing a new plant in Kakegawa-shi, Shizuoka Prefecture, to manufacture precision components for automobile electronic gadgets (stamped and plated precision rolled metals). At the Isohara Works, we are reinforcing production facilities for the cathode materials for lithium-ion batteries used in next-generation vehicles such as electric cars.

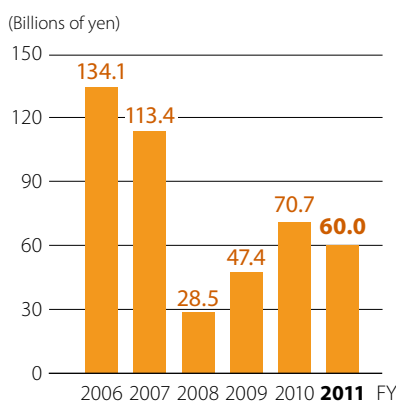
##### Business Performance of Metals Business

In these circumstances, net sales in the metals business increased 6.0% year on year, to ¥997.2 billion, and ordinary income declined 15.1%, to ¥60.0 billion, due to such reasons as high yen appreciation.

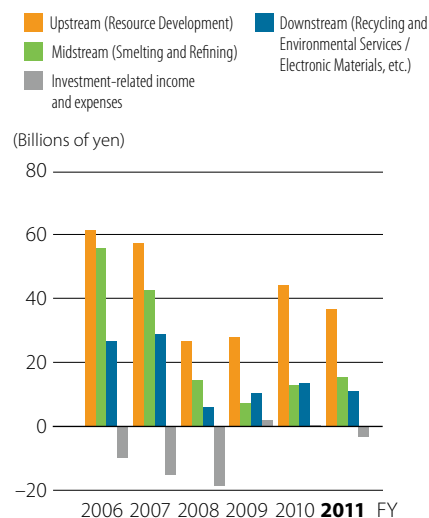
#### Consolidated Net Sales



#### Consolidated Ordinary Income



#### Consolidated Ordinary Income by Business Segment



## Economic Effects on Stakeholders

The JX Nippon Mining & Metals Group develops its business activities by getting 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.

### Economic Effects

The economic effects of specific items pertinent to stakeholders are shown in the table below. The economic effects are identified by stakeholders and by the geographical areas in which companies of the Group operate.

Sales revenue from customers was ¥997.2 billion, over 74% of which was recognized as from sales in Japan, while over 98% was the sum of sales in Japan and other Asian countries.

Other revenue totaled ¥50.1 billion. The breakdown of this included dividends received from investments, grants from public institutions and interest received from financial institutions.

We paid ¥939.6 billion for the materials procured and services rendered by suppliers and contractors.

Personnel expenses, including legal welfare expenses, totaled ¥39.9 billion.

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

Additionally, some overseas subsidiaries have defined benefit plans and defined contribution plans.

The projected benefit obligation was ¥17.5 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 ¥19.9 billion, ¥2.9 billion was contributed to funds outside the Group as pension assets. As a result of deducting ¥0.1 billion in an unrecognized actuarial gain or loss, the remaining ¥17.0 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 ¥15.3 billion. In addition, ¥4.3 billion was interest on loans paid to creditors.

The Group recorded income taxes of ¥2.9 billion in fiscal 2011 on the financial statements. Additionally, we posted ¥3.1 billion as other taxes and public charges, which we included as an expense. In total, we recognized ¥6.0 billion as distributions to government administrations.

An amount totaling ¥0.26 billion was donated to society as a part of our social contribution program.

Revenues from the Japanese government and municipalities (such as subsidies and tax deductions) were ¥1.6 billion, including the consignment revenue from our technology development operations for rare metal recycling from lithium-ion batteries commissioned by the Ministry of Economy, Trade and Industry and subsidies to promote the introduction of in-house power generation equipment and the gas cogeneration promotion business (to introduce in-house power generation and cogeneration-related equipment to the Kurami and Isohara works) from the Agency for Natural Resources and Energy, in the Ministry of Economy, Trade and Industry.

### Financial Flows by Geographical Areas and Stakeholders (Value Added through Operations)

(Billions of yen)

Item	IN		OUT						Value Retained (IN-OUT)
	Sales revenue	Other revenue	Operating costs and expenses	Personnel expenses	Dividends	Interest paid	Taxes	Donations	
Stakeholders	Customers	Investments / Borrowers / Public institutions	Suppliers	Employees	Shareholders	Creditors	National and regional governments	Society	
Items used to calculate the amounts	Net sales*1	Dividends received, interest received, gain on sales of fixed assets and marketable securities, grants, 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	745.8	50.0	696.0	34.8	15.2	2.3	5.1	0.06	42.3
Asia (excl. Japan)	235.1	0.1	229.8	2.1	0.1	1.9	0.6	—	0.7
North America	9.0	0	8.1	0.4	—	—	0.3	—	0.2
Europe	7.3	0	6.7	1.0	—	0.1	0	—	(0.5)
South and Central Americas	—	0	(1.0)	1.6	—	—	0	0.20	(0.8)
Total	997.2	50.1	939.6	39.9	15.3	4.3	6.0	0.26	41.9

\*1. Figures in the table above are calculated by the geographical areas in which companies of the Group operate.

# Environmental Activities Report

In the following section, we report on the Group's efforts to create a clean and comfortable planet and a recycling-oriented society, in light of the structure of its environmental management system and its development of environment-friendly technologies.

## Basic Environmental Policy

As a global manufacturer of nonferrous metal resources and materials, the 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.



# Medium-term Plan for Environmental Conservation

## Major Issues and Measures

### 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 and affiliated company 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.

## Numerical Goals

We define the prevention of global warming and the reduction of waste materials as key issues to be tackled under our Basic Environmental Policy and have set numerical goals related to these issues.

As the goals for preventing global warming and reducing waste to be achieved by fiscal 2010 have been attained, new goals for reducing energy consumption intensity and CO<sub>2</sub> emission intensity by 1% each year have been set for fiscal 2011 and beyond.<sup>1</sup> A new goal for the reduction

of waste has also been set to maintain the newly defined ratio of non-value-bearing waste volume at less than 1%.

During fiscal 2011, we achieved our goals related to waste reduction, whereas those concerning the prevention of global warming have not been fulfilled partly due to external factors, such as the Great East Japan Earthquake and sluggish markets.

		Medium-term action plan for fiscal 2006–2010 (The ratio of reduction is measured against the average value for the fiscal 2003–2005 period.)			Medium-term action plan for fiscal 2011–2012 <sup>4</sup> (The ratio of reduction is measured against the average value for the fiscal 2008–2010 period.)	
		2008	2009	2010	2011	2012
Reduction in energy consumption intensity <sup>2</sup>	Goal	3.0%	4.0%	5.0%	1.0%	2.0%
	Achievement	2.7%	3.0%	5.4%	-5.3%	-
Reduction in CO <sub>2</sub> emission intensity <sup>2</sup>	Goal	4.5%	6.0%	7.5%	1.0%	2.0%
	Achievement	5.4%	6.1%	8.1%	-5.9%	-
The ratio of non-value-bearing waste volume <sup>3</sup>	Goal	-	-	-	Less than 1%	Less than 1%
	Achievement	1.0%	0.8%	0.8%	0.8%	-

#### Boundary

Domestic: All domestic operating sites under the Company's direct control and domestic affiliated companies that are classified as a Type 2 Designated Energy Management Factory or a higher level under the Energy Saving Act, as listed below, are covered under the medium-term action plan for the fiscal 2011–2012 period.

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.; Sanyu Electronic Industry Co., Ltd. (Esashi Works, Tatebayashi Works)

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

\*1. The most recent numerical goals assume that fiscal 2012 is the final target year because the governmental policy for prevention of global warming was not yet clear when the goals were set at the beginning of fiscal 2011. The final year of the Kyoto Protocol's first commitment period is 2012 and it was required to set appropriate goals that build on the current goals.

\*2. Due to differences in operations between operating sites, performance is evaluated by comparing intensities of the entire Group with the respective goals. The intensities of the entire Group are calculated as weighted averages of an indexed intensity for each operating site in a particular year on the basis of the average values for the period between fiscal 2008 and fiscal 2010.

\*3. Ratio of non-value-bearing waste volume: (Volume incinerated + Volume of final disposal) / Volume of waste and sellable materials generated.

\*4. For calculation of the CO<sub>2</sub> emission intensity for the fiscal 2011–2012 medium-term action plan, the emission coefficient for electric power of 0.436 tons of CO<sub>2</sub>/MWh—the average value of the Federation of Electric Power Companies of Japan for the three years from fiscal 2007 to fiscal 2009—is applied.

# Energy Conservation, Energy Consumption and Related Issues

## Fundamental Policy

Since the Kyoto Protocol took effect, industrialized countries overall are responsible for reducing greenhouse gas emissions, including CO<sub>2</sub>, by 5% on average from 1990 levels for the five year period from 2008 to 2012, with Japan being committed to reducing emissions to 6% below 1990 levels. From the point of view of preventing global warming, the promotion of energy conservation measures has become an imperative issue.

The Group has already made more efficient use of energy in its manufacturing processes by rationalizing smelting methods and making effective use of hydroelectric power and photovoltaic power generation.

The Group set goals of reducing energy consumption intensity and CO<sub>2</sub> emission intensity each by 1% in fiscal 2011 compared with the average results for the period from fiscal 2008 to fiscal 2010. However, these goals have not been attained due to the impact of the Great East Japan Earthquake and subsequent economic sluggishness.

The Saganoseki Smelter & Refinery of Pan Pacific Copper Co., Ltd., one of the Group's member companies, had participated in the trial CO<sub>2</sub> emissions trading scheme undertaken by the Japanese government until fiscal 2011.

## Energy Consumption and Energy Consumption Intensity in Manufacturing Activities

In fiscal 2011, the Group's overall energy consumption in terms of its calorific value was 16,628TJ, compared with 16,782TJ in fiscal 1990, the base year of the Kyoto Protocol.\*1

Currently, energy consumed at its smelters and refineries accounts for approximately 50% of the Group's total energy consumption in Japan. These smelters and refineries are making various efforts to reduce energy consumption. These efforts include conducting smelting operations with a single flash furnace at the Saganoseki Smelter & Refinery, streamlining smelting and sulfuric acid processes and effectively using waste heat. In addition, we introduced the permanent cathode method into the refining process to improve current efficiency, resulting in more efficient use of energy.

The Group's energy consumption intensity at smelters and refineries for fiscal 2011 deteriorated in comparison with that of fiscal 2010 partly due to output reduction in the wake of a fire at the Saganoseki Smelter & Refinery but has since declined to 70% of the fiscal 1990 level.

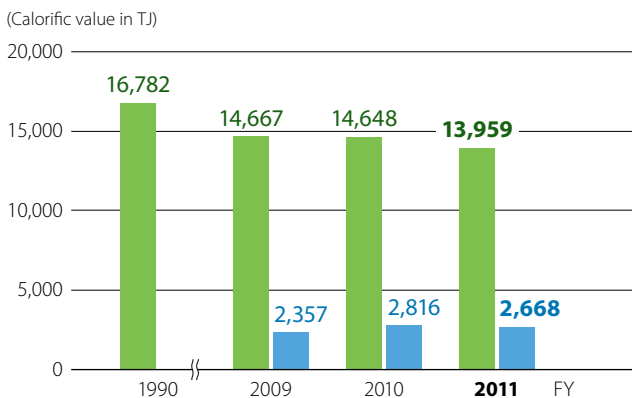
Although its overall energy consumption intensity has risen, the Group's energy consumption has decreased in comparison with the average value of 17,046TJ in the period from fiscal 2008 to fiscal 2010. This is primarily due to lower capacity utilization, and we will continue efforts to reduce energy consumption, such as streamlining production processes, improving product yield rates and promoting greater use of waste heat.



Anode furnace at Saganoseki Smelter & Refinery

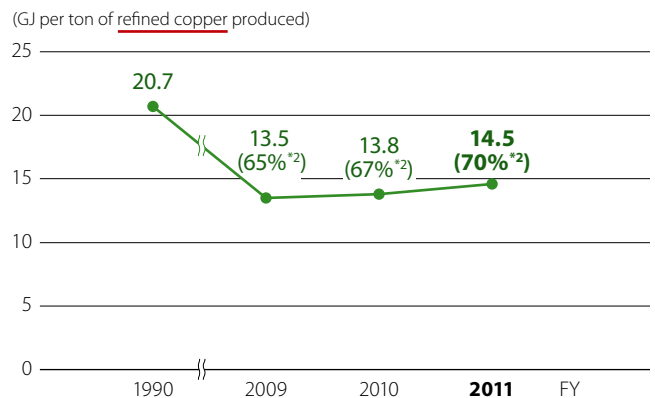
### Energy Consumption (Fuel + Electricity)

- Total of domestic operating sites
- Total of overseas operating sites



\*1. The Group uses coefficients in correspondence with the Act on the Rational Use of Energy at both domestic and overseas operating sites. (A coefficient in the Voluntary Action Plan of the Federation of Economic Organization (*Keidanren*) is used to calculate the data in fiscal 1990.) A breakdown of energy consumption is shown below.  
 Fiscal 1990 Fuel (direct): 6,862TJ  
 Electricity (indirect): 9,919TJ (domestic only)  
 Fiscal 2011 Fuel (direct): Domestic 4,046TJ Overseas: 1,013TJ  
 Electricity (indirect): Domestic 9,913TJ Overseas: 1,656TJ  
 TJ (tera joule): 10<sup>12</sup> J

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



\*2. These percentage figures are calculated in comparison with the intensity of fiscal 1990.

## CO<sub>2</sub> Emissions from Energy Consumption\*1

In fiscal 2011, the Group's total CO<sub>2</sub> emissions from energy consumption in Japan and overseas was 940 thousand tons.

Energy consumed at smelters and refineries accounts for approximately 50% of the energy the entire Group consumes. The Group has reduced the CO<sub>2</sub> emission intensity to 66% of the fiscal 1990 level as a result of energy conservation measures, such as conducting smelting operations with a single flash furnace, and reductions in the emission coefficients of respective electric power companies.

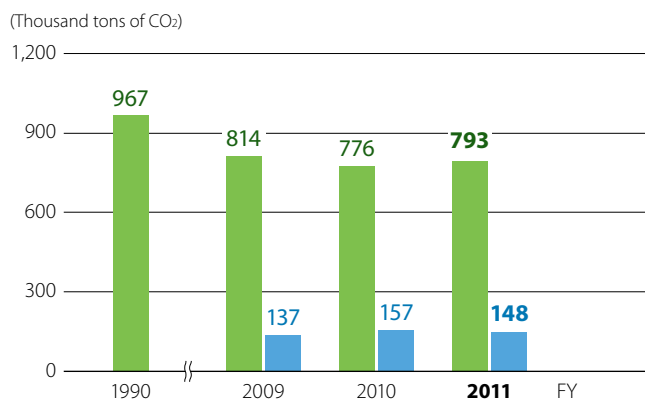
Due to unstable electric power supply conditions, some of our overseas operating sites have had to rely on in-house power generation

through the use of diesel engines. However, we have been further promoting the shift from in-house power generation to purchasing electric power from electric power companies at these sites. This has resulted in an improvement of 20% or more in CO<sub>2</sub> emissions and CO<sub>2</sub> emission intensity compared with the respective fiscal 2007 levels before such a shift was initiated.

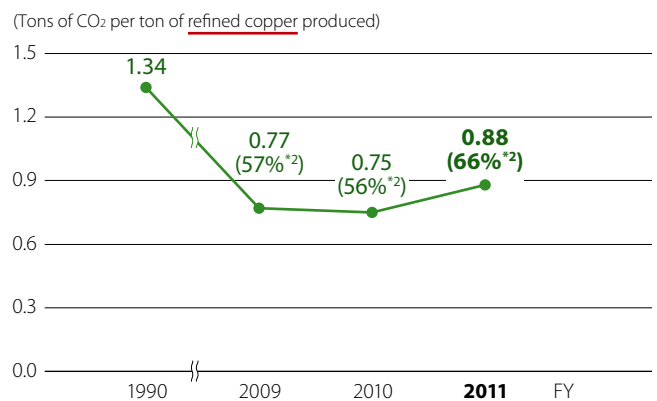
\*1. The emissions are calculated using emission coefficients in correspondence with the Act on Promotion of Global Warming Countermeasures. Coefficients that individual electric power companies made public and statistical data released by the International Energy Agency (IEA) are used to calculate amounts of emissions from electric power consumption of domestic and overseas operating sites, respectively.

### CO<sub>2</sub> Emissions from Energy Consumption

■ Total of domestic operating sites  
■ Total of overseas operating sites



### CO<sub>2</sub> Emission Intensity at Smelters and Refineries



\*2. These percentage figures are calculated in comparison with the intensity of fiscal 1990.

## CO<sub>2</sub> Emissions from Sources Other than Energy Consumption and Other Greenhouse Gases\*1

Operating sites in the recycling and environmental services business are required to submit reports on the emission of CO<sub>2</sub> from sources other than energy consumption<sup>2</sup> as well as the emission of other greenhouse gases. In the Group's operations, nitrous oxide (N<sub>2</sub>O)<sup>3</sup> meets the definition of other greenhouse gases.

Calculated on a CO<sub>2</sub> equivalent basis, emissions of these gases in fiscal

2011 were approximately 85 thousand tons.<sup>4</sup>

- \*1. Emissions are calculated using emission coefficients in correspondence with the Act on Promotion of Global Warming Countermeasures.
- \*2. Emitted during the incineration of waste oil, plastic and rubber tires.
- \*3. Emitted during the incineration of sludge, waste oil, plastic and rubber tires as well as during fuel consumption.
- \*4. In fiscal 2011, the value of our N<sub>2</sub>O emissions was less than the threshold level and therefore not accounted for.

## Logistics Stage

In fiscal 2011, the Group's<sup>1</sup> energy consumption in Japan was 536TJ and CO<sub>2</sub> emissions were 37.9 thousand tons, compared with 542TJ and 38.3 thousand tons, respectively, in fiscal 2010. Both energy consumption and CO<sub>2</sub> emissions decreased by about 1% year on year. This was chiefly due to a decrease in transport volume caused by the occurrence of the earthquake disaster and the fire at the Saganoseki Smelter & Refinery in January 2012.

We will continue to reduce logistics-related energy consumption and CO<sub>2</sub> emissions by directing our efforts not only toward improving the loading ratio and enlarging the lot size but also toward optimizing transport methods based on unconventional ideas.

\*1. These figures are the sums of energy consumption and CO<sub>2</sub> emissions of two Group companies—Kasuga Mines Co., Ltd., and Pan Pacific Copper Co., Ltd.—that are subject to the Act on the Rational Use of Energy.

## Renewable Energy

The Group has engaged in hydroelectric power generation since 1907, the days of Kuhara Mining Co., Ltd., which was the predecessor of JX Nippon Mining & Metals. Hydroelectric power, which is generated by using the force of water flowing downstream in a river, is a form of clean, renewable energy that does not emit CO<sub>2</sub> and is renewed through the water cycle. Currently, we generate hydroelectric power in Fukushima Prefecture and sell the energy generated to a power producer and supplier (PPS). As an aftershock of the Great East Japan Earthquake

suspended the operation of the hydroelectric power plant, our hydroelectric power generation in fiscal 2011 was minimal, at around 1GWh compared with 27GWh in fiscal 2010. The plant resumed power generation in April 2012.

In fiscal 2011, we added photovoltaic generation equipment at the Hibi Smelter of Pan Pacific Copper Co., Ltd.



Panels for photovoltaic power generation at the Hibi Kyodo Smelter

# Conserving Resources, Utilizing By-products and Recycling and Reducing Waste Materials

## Fundamental Policy

In Japan, it is becoming increasingly difficult to secure sites for final waste disposal. Therefore, reducing waste is becoming ever more important.

The Group aims to prevent the depletion of natural resources by using recycled resources as raw materials, more effectively utilizing by-products and recycling waste materials. Needless to say, we are also working hard to reduce waste output. At the same time, we are leveraging the sophisticated technologies we have accumulated through our mining and our smelting and refining operations to recover value-bearing metals from waste materials.

Furthermore, by properly disposing of waste oils, liquids and other such substances, we are working to detoxify and reuse waste materials. Through these efforts, we are contributing to the creation of a resource-conservation and zero emission society.

In fiscal 2011, we introduced the concept of non-value-bearing waste volume, which refers to the combined volume of waste for final disposal and incinerated waste, and set a new goal of maintaining the ratio of non-value-bearing waste volume at less than 1%. This fiscal 2011 goal has been fulfilled as a result of follow-up efforts Groupwide. (For further details, please see pages 13, 14 and 52.)

We will continue to make every effort to use recycled resources and reduce the volume of final landfill disposal, improve the yield ratio and extraction percentage, streamline production processes and promote recycling. Through these efforts, we will contribute to creating a resource-conservation and zero emission society.

## Conserving Resources (Water Usage and Water Discharge Volumes)\*1

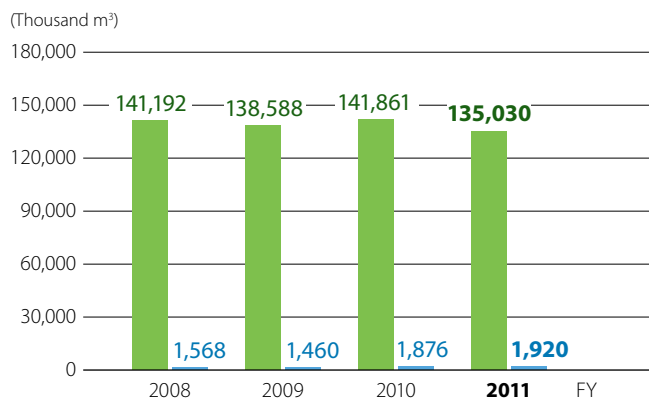
The Group's water usage in fiscal 2011 amounted to 136,950 thousand m<sup>3</sup>, of which 84% was sea water. The volume of water discharge was 164,735 thousand m<sup>3</sup>, of which 91% was discharged into the sea.

The Group's smelters and refineries, which are responsible for 88% of the Group's total water usage, curtailed the excessive usage of sea water

by optimizing the combined operation of large and small sea water pumps. As a result, the water usage intensity at smelters and refineries has remained at almost the same level, cancelling the increase attributable to reduced production. The water discharge intensity has risen presumably due to increased rainfall and reduced production.

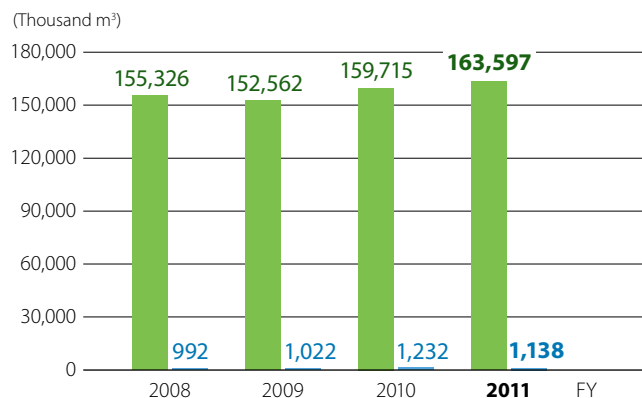
### Water Usage

- Total of domestic operating sites
- Total of overseas operating sites



### Discharge Volumes

- Total of domestic operating sites
- Total of overseas operating sites



### Water Usage (Domestic and Overseas)

(Thousand m<sup>3</sup>)

	2008	2009	2010	2011
Sea water	121,138	118,685	123,128	115,452
Ground water / Industrial water	19,583	19,408	18,477	19,146
Municipal water	1,937	1,858	2,051	2,259
Rainwater	103	96	81	93
Total	142,760	140,047	143,737	136,950

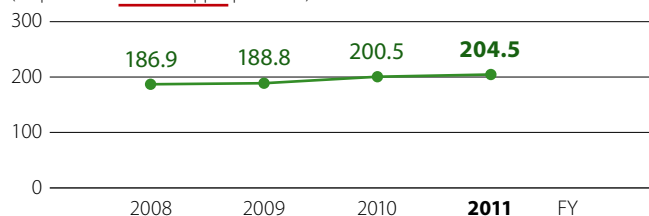
### Discharge Volumes (Domestic and Overseas)

(Thousand m<sup>3</sup>)

	2008	2009	2010	2011
Ocean	140,748	138,598	145,975	149,693
River	15,217	14,648	14,569	14,699
Drainage systems	353	339	404	343
Total	156,318	153,585	160,947	164,735

### Water Usage Intensity at Smelters and Refineries

(m<sup>3</sup> per ton of refined copper produced)



### Discharge Intensity at Smelters and Refineries

(m<sup>3</sup> per ton of refined copper produced)



\*1. Water usage and discharge at domestic operating sites were retroactively reviewed and revised.



## Resource Conservation (Recycled Resource Input Volume and Total Material Input) <sup>☑</sup>

Unfortunately, the ores and other resources extracted from the natural environment are limited, and as a result these resources must be preserved for the next generation. Therefore, minimizing resources that are extracted directly from nature by effectively utilizing recycled resources has become a pressing issue.

In fiscal 2011, the Group's total material input was 2,656 thousand tons. Of this, recycled resources accounted for 219 thousand tons, or 8% of the total material input.

(Thousand tons)

	Product	Input volume
Primary resources	Copper concentrate, silicate ore, copper shot, silver and gold slag (bare strips), nickel, zinc, other metals, etc.	2,438
Recycled resources	Copper and copper alloy scraps, silver and gold residual slag, copper scraps, etc.	219
Total		2,656

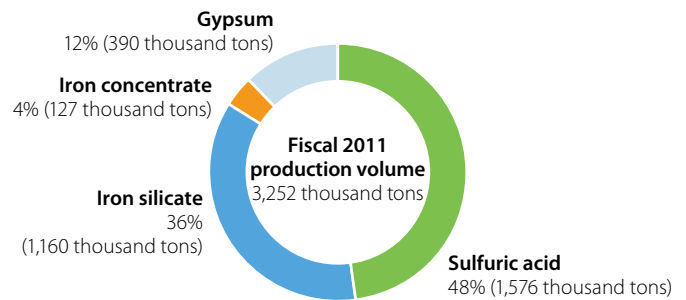
## By-products <sup>☑</sup>

In fiscal 2011, the Group produced 3,252 thousand tons of by-products, including 1,576 thousand tons of sulfuric acid, 1,160 thousand tons of iron silicate (slag), 127 thousand tons of iron concentrate and 390 thousand tons of gypsum.

Iron silicate (slag) is utilized as a sandblasting material, a cement material, a caisson filler and aggregate for wave-dissipating blocks. Iron concentrate and gypsum are used in cement.



### By-products Production Volume



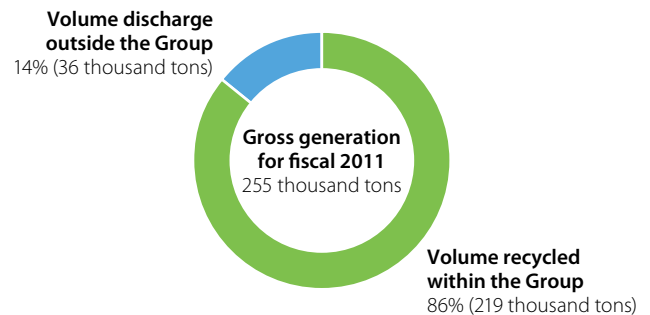
## Gross Generation of Waste Materials and Final Gross Discharge <sup>☑</sup>

The gross generation of waste materials in fiscal 2011 was 255 thousand tons, of which 86%, or 219 thousand tons, was reused within the Group. As a result, final gross discharge, including sales of non-value-bearing waste, was 36 thousand tons. The volume of landfill disposal,<sup>\*1</sup> excluding the volume recycled externally and others, was approximately 1.7 thousand tons in fiscal 2011, down significantly compared to that of fiscal 2005. This result is attributable to our efforts to continuously and repeatedly reuse all neutralized slag generated at smelters and refineries as well as expand applications of waste materials at smelters and operating sites manufacturing electronic materials.

\*1. Defined as the volume of materials disposed of in landfills by the Group, as well as those materials for which the purpose of use could not be clearly identified as either recycling, heat recovery or incineration before being discharged outside of the Group.

\*2. Figures of domestic operating sites from the prior fiscal year were retrospectively revised.

### Gross Discharge of Waste and Sellable Materials and Volume Recycled Internally



### Discharge Outside the Group

(Thousand tons)

Purpose	2011
Recycling	
Sellable materials	26.0
Waste	7.4
Heat recovery	
Waste	0.8
Incineration	
Waste	0.5
Final disposal	
Waste	1.7
Total waste	10.3
Total	36.3

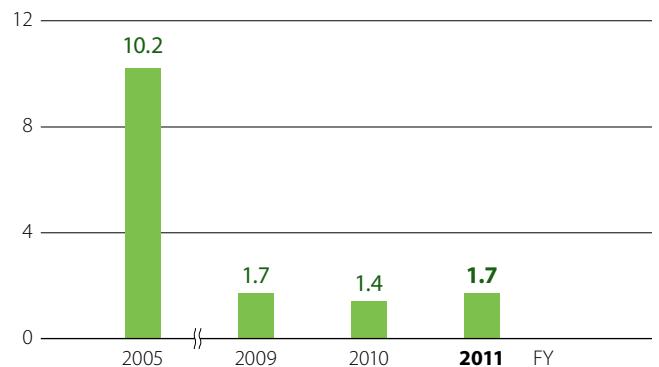
### Type of Waste

(Thousand tons)

Type	2011
Sludge	3.0
Cinder	2.8
Waste acid / Waste alkaline	1.2
Glass / Concrete / Ceramics / Porcelain	0.4
Waste plastic	0.7
Others	2.2
Total	10.3

### Volume of Final Landfill Disposal

(Thousand tons)



# Environmental Risk Management

## Fundamental Policy

Air and water systems have a great influence on people's health and daily life. The Group places the 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.

## Preventing Air Pollution\*1

The Group monitors waste gas emissions at all operating sites in compliance with laws, regulations and other ordinances as well as its own voluntary standards. The emissions of sulfur oxides (SOx) and nitrogen oxide (NOx) for fiscal 2011 are shown in the graphs below. Smelters and refineries have engaged in various efforts to reduce these emissions, such as improving sulfur inversion rates, effectively using recovered waste heat and replacing furnace bricks with those that have better heat resistance. In fiscal 2011, NOx emissions decreased 54 tons from a year earlier, whereas SOx emissions increased significantly by 486 tons, due to the reduced efficiency of desulfurization mainly caused by the earthquake disaster and the deterioration of some facilities. As refurbishment of these

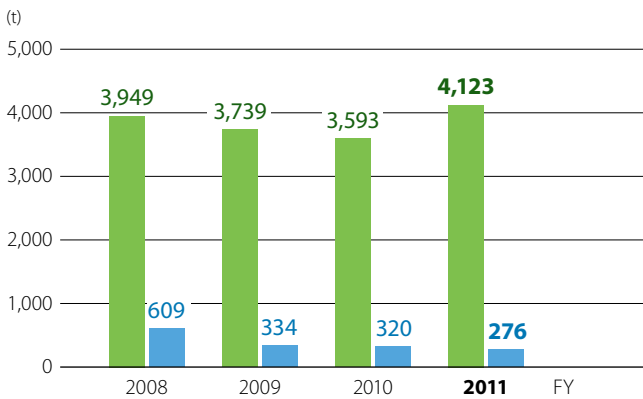
facilities has been in progress, SOx emissions is expected to decrease to the level preceding the significant increase in fiscal 2011. Meanwhile, the SOx and NOx emission intensities of smelters and refineries have been trending slightly upward, partly due to reduced production.

At overseas operating sites, unstable power supply necessitated dependence on in-house power generation using diesel generators. However, a steady shift from in-house power generation to purchased power has been promoted since fiscal 2008. In fiscal 2011, both SOx and NOx emissions were less than half the fiscal 2008 levels.

\*1. SOx and NOx emissions were retroactively revised to correct an error in the calculation method.

### SOx Emissions\*2

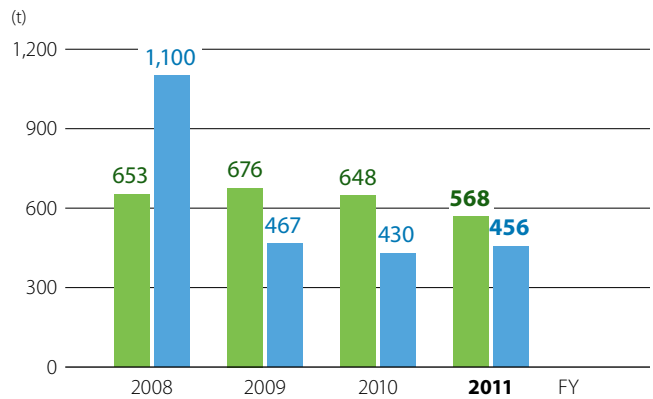
■ Total of domestic operating sites  
■ Total of overseas operating sites



\*2. Total emissions from operating sites subject to legal requirements

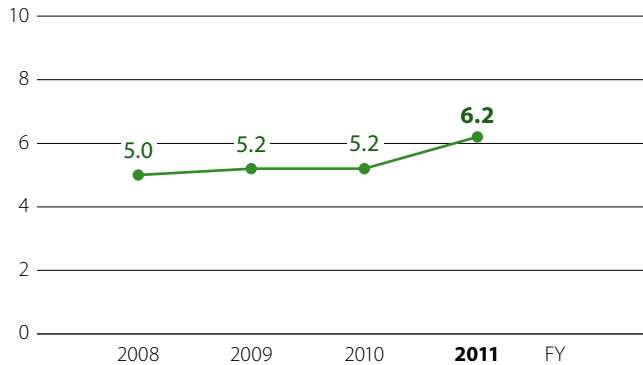
### NOx Emissions\*2

■ Total of domestic operating sites  
■ Total of overseas operating sites



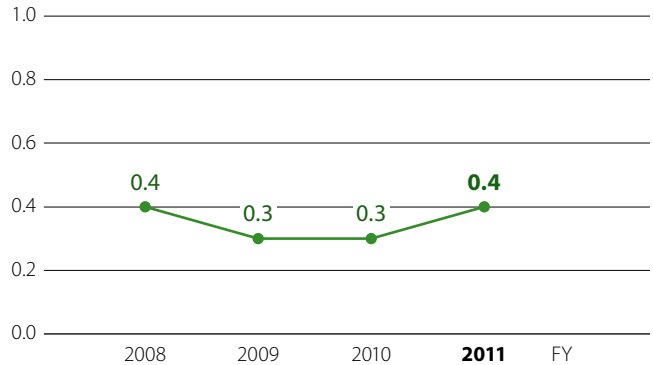
### SOx Emission Intensity of Smelters and Refineries

(Kg of SOx per ton of refined copper produced)



### NOx Emission Intensity of Smelters and Refineries

(Kg of NOx per ton of refined copper produced)

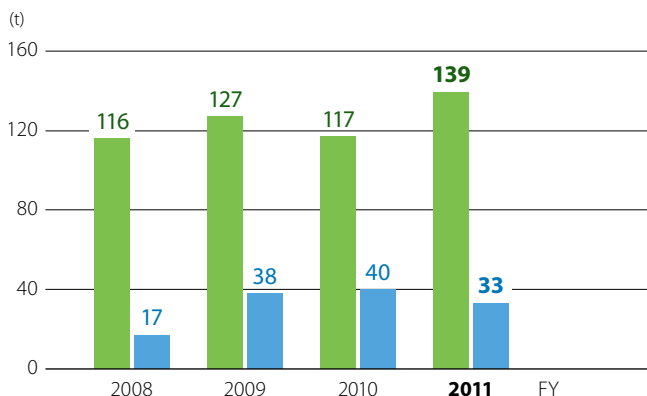


## Preventing Water Pollution

The Group monitors water discharge at all operating sites in compliance with laws, regulations and other ordinances 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

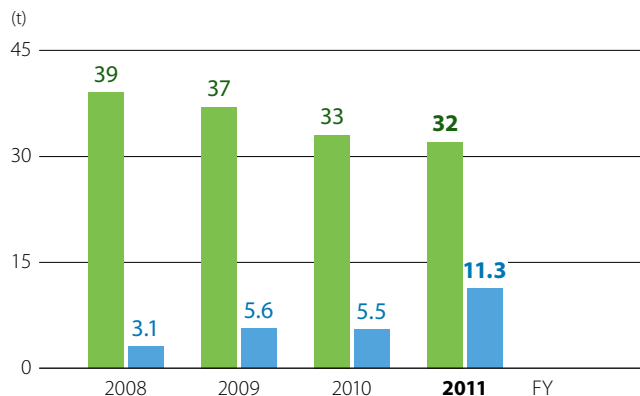
■ Total of domestic operating sites  
■ Total of overseas operating sites



\*1. Total of volumes from operating sites subject to legal requirements

### BOD\*1

■ Total of domestic operating sites  
■ Total of overseas operating sites



## Chemical Management

### Identifying Quantities of Specific Chemical Substances Released into the Environment and Improving Controls

The Group strictly adheres to the Act Prescribing the Pollutant Release and Transfer Register (PRTR) System. Also, as part of its environmental management activities, the Group is working hard to reduce its environmental impact by setting each operational site and affiliated company targets for decreasing the use and release of specific chemical substances into the environment.

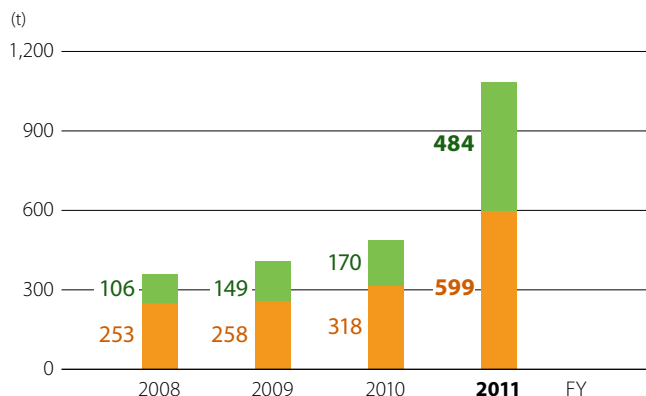
Furthermore, the Group applies the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) in the compilation of

Safety Data Sheets (SDS). We strive to provide easy-to-understand information regarding the characteristics and handling of chemical substances.

Looking at the Group's release and transfer of chemical substances to be reported in compliance with the PRTR Act, the release in fiscal 2011 increased 314 tons from fiscal 2010, mainly due to an increase in Group landfills.<sup>2</sup> The transfer also increased 281 tons as a result of increases in the chemicals handled at some operating sites.

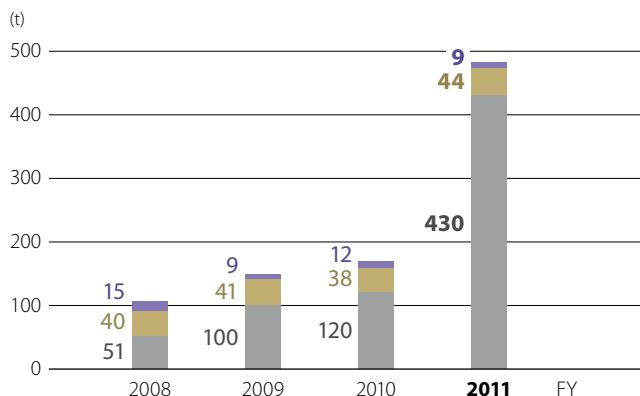
### Release / Transfer\*2

■ Total of release  
■ Total of transfer



### Breakdown of Release\*2

■ Air  
■ Water  
■ Group landfills



\*2. Because the Toyoha Mine, one of the closed mines (see page 87), came under the control of the Group in April 2010, we have reviewed and revised the data retrospectively back to that of fiscal 2008. At the Toyoha Mine, the Oshidori wastewater treatment plant began operations in October 2008 and the Motoyama mine water treatment plant started operations in November 2011. As a result, the volume of Group landfills of neutralized sludge has increased in recent years.

## Release and Transfer of Chemicals

(Tons)

No.	Material number	Chemical	Release			Transfer	
			Air	Water	Group landfills	Waste	Drainage systems
1	1	Zinc compounds (water soluble)	0.2	3.8	0.0	32	0.0
2	31	Antimony and its compounds	0.1	0.8	0.0	26	0.0
3	44	Indium and its compounds	0.0	0.0	0.0	1.7	0.0
4	71	Ferric chloride	0.0	0.0	0.0	38	0.0
5	75	Cadmium and its compounds	0.4	0.1	0.0	0.0	0.0
6	80	Xylene	0.1	0.0	0.0	0.0	0.0
7	82	Silver and its water-soluble compounds	0.1	0.8	0.0	0.0	0.0
8	87	Chromium and trivalent chromium compounds	0.0	0.1	0.0	0.3	0.0
9	132	Cobalt and its compounds	0.0	0.0	0.0	7.3	0.0
10	144	Inorganic cyanide compounds (except complex salts and cyanates)	0.0	0.3	0.0	0.1	0.0
11	242	Selenium and its compounds	0.1	1.5	0.0	0.0	0.0
12	272	Copper salts (water soluble, except complex salts)	1.6	5.4	0.0	40	0.0
13	279	1,1,1-trichloroethane	0.0	0.5	0.0	0.0	0.0
14	281	Trichloroethylene	3.5	0.1	0.0	4.6	0.0
15	296	1,2,4-trimethylbenzene (pseudocumene)	0.1	0.0	0.0	0.0	0.0
16	305	Lead compounds	0.9	0.8	0.0	320	0.0
17	309	Nickel compounds	0.3	1.2	0.0	49	0.0
18	332	Arsenic and its inorganic compounds	0.9	2.3	0.0	74	0.0
19	374	Hydrogen fluoride and its water-soluble salts	0.0	15	0.0	3.6	0.3
20	405	Boron compounds	0.0	9.5	0.0	0.1	0.0
21	412	Manganese and its compounds	0.0	1.8	430	2.6	0.0
22	438	Methylnaphthalene	1.0	0.0	0.0	0.0	0.0
23	453	Molybdenum and its compounds	0.0	0.1	0.0	0.0	0.0
							(g-TEQ)
24	243	Dioxins	0.32	0.014	0.0	1.3	0.0

\* There are 45 chemicals that are required to be reported. Except dioxins, all chemicals reported have a total release and transfer volume of over 0.1 ton. There is no discharge into the soil.

## Detoxification of Wastes Containing PCBs

Utilizing the early registration system of the Japan Environmental Safety Corporation (JESCO),<sup>\*1</sup> the Group completed registration of wastes containing PCBs, including condensers and transformers both in storage and in use, in fiscal 2005 and has been promoting the detoxification of these products according to plan.

\*1. Japan Environmental Safety Corporation (JESCO): A special company wholly owned by the Japanese government that successively handles the PCB waste disposal program formally conducted by the Japan Environment Corporation.

## Compliance with the REACH Regulation

The European Union (EU)'s REACH Regulation, which applies precautionary principle, came into effect in June 2007. The purpose of this regulation is to harmonize the management of chemicals that are released and transported within the region and to clarify risks that the chemicals bear and their impacts on the environment.

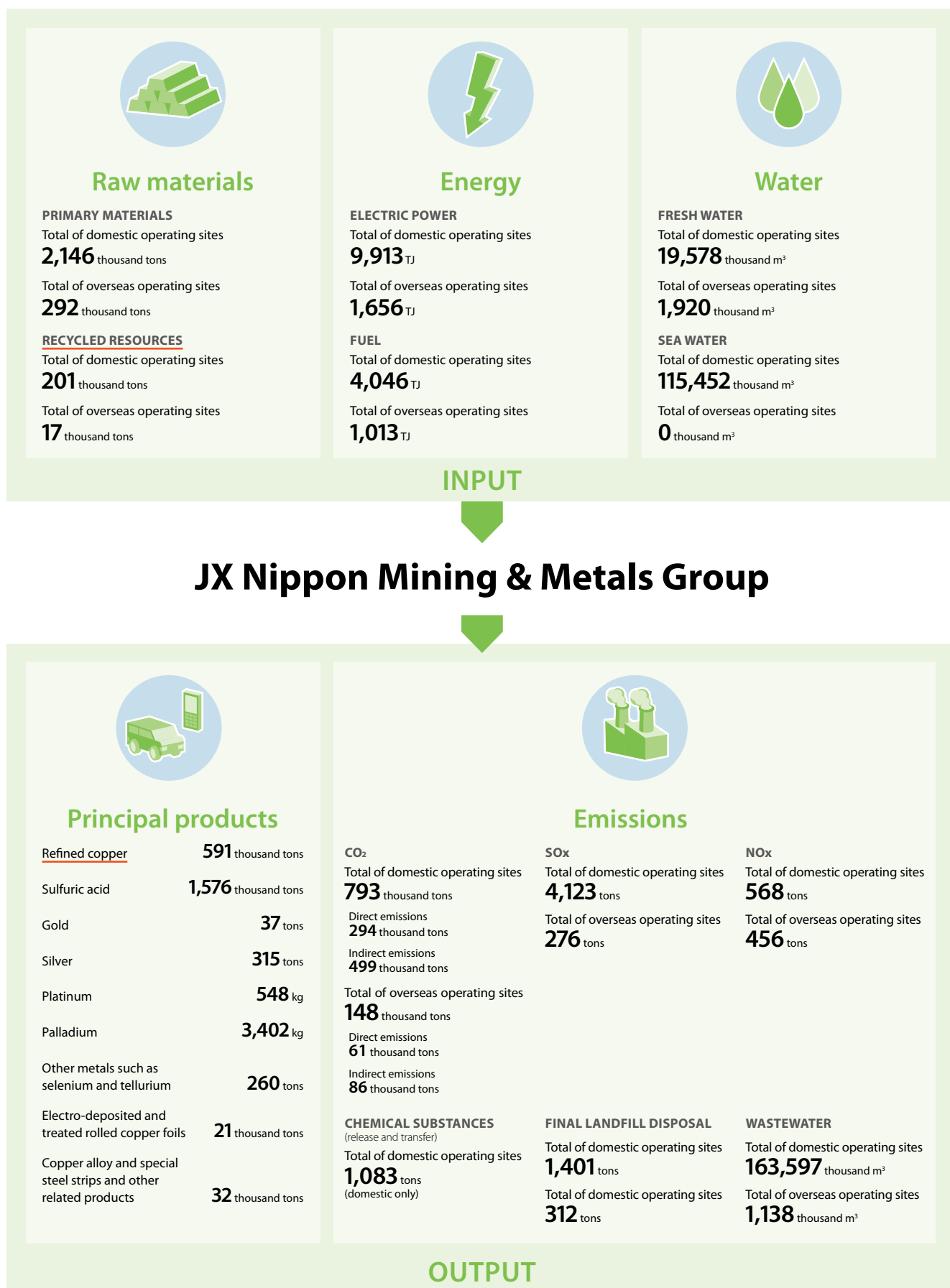
The Group assents to the intent of the regulation defined in REACH, and it has completed preliminary registration of products that are subject to the regulation and is currently preparing for official registration.



# Our Business Activities and the Environment

The 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



## Environmental Management System

The Group has established a Groupwide environmental management system in line with the Basic Environmental Policy of contributing to global environmental conservation and its Autonomous Action Plan for Environmental Protection, which takes future environmental risks into account.

By developing an environmental management system based on the ISO 14001 standard, everyone within the Group is working together to continually improve environmental conservation activities and reduce environmental risks.

### 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. Furthermore, several employees have acquired qualifications regarding the environment.

The number of employees holding such qualifications is outlined below.

#### Holders of Qualifications Regarding the Environment

(People)

EMS (Environmental Management System) Provisional Auditor	2	First Grade Mining Pollution Control Manager	75
EMS Internal Auditor (Outside training completed)	306	Certified Environmental Measurer	22
EMS Internal Auditor (In-house training completed)	231	Waste Disposal Facilities Engineering Manager (Others, including waste crushing and treatment facilities)	5
First Grade Air Pollution Control Manager	97	Waste Disposal Facilities Engineering Manager (Intermediate treatment facilities)	20
First Grade Water Pollution Control Manager	148	Waste Disposal Facilities Engineering Manager (Incineration facilities)	25
Noise Abatement Manager	26	Waste Disposal Facilities Engineering Manager (Final landfill sites)	7
Vibration Abatement Manager	16	Qualified Manager of Specially Controlled Industrial Waste	64
Chief Manager of Pollution Control	1	Registered Energy Manager	102
Dioxins Pollution Control Manager	8	Operation Chief Handling Specified Chemical Substances, etc.	1,384
Senior Safety Engineer	10		

\* Includes affiliated companies under the control of the Technology Development Group and the Corporate divisions (as of April 1, 2012)

### Obtaining ISO 14001 Certification

#### Operating Sites that Have Obtained ISO 14001 Certification

Domestic	Hitachi Works (Copper Foil Dept., including Ichinoseki Foil Manufacturing Co., Ltd.; Hitachi Refinery of Pan Pacific Copper Co., Ltd.; JX Nippon Environmental Services Co., Ltd.); Isohara Works; Isohara Fabricating 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., Sankin Hibi Harbor Transportation Co., Ltd.); JX Nippon Tomakomai Chemical Co., Ltd.; JX Nippon Tsuruga Recycle Co., Ltd.; JX Nippon Mikkaichi Recycle Co., Ltd.; JX Nippon Kurobe Galva Co., Ltd.; Esashi Works and Tatebayashi Works, Sanyu Electronic Industry Co., Ltd.; Suzuki Manufacturing Co., Ltd.; JX Metals Trading Co., Ltd.
Overseas	JX Nippon Mining & Metals Philippines, Inc.; Gould Electronics GmbH; JX Nippon Mining & Metals Korea Co., Ltd.; Nikko Fuji Precision (Wuxi) Co., Ltd.; Nikko Metals Hong Kong Ltd.; Bade Works, Nikko Metals Taiwan Co., Ltd.; Materials Service Complex Malaysia Sdn. Bhd.

## Emergency Response Measures

When an accident or disaster occurs, there is the potential for related environmental accidents such as fires, spills of hazardous materials or chemical substances or the anomalous occurrence of smoke or wastewater.

The Group therefore strives to prevent accidents and disasters and to detect abnormality at an early stage through periodic inspections of equipment including meticulous preventive maintenance and regular patrols.

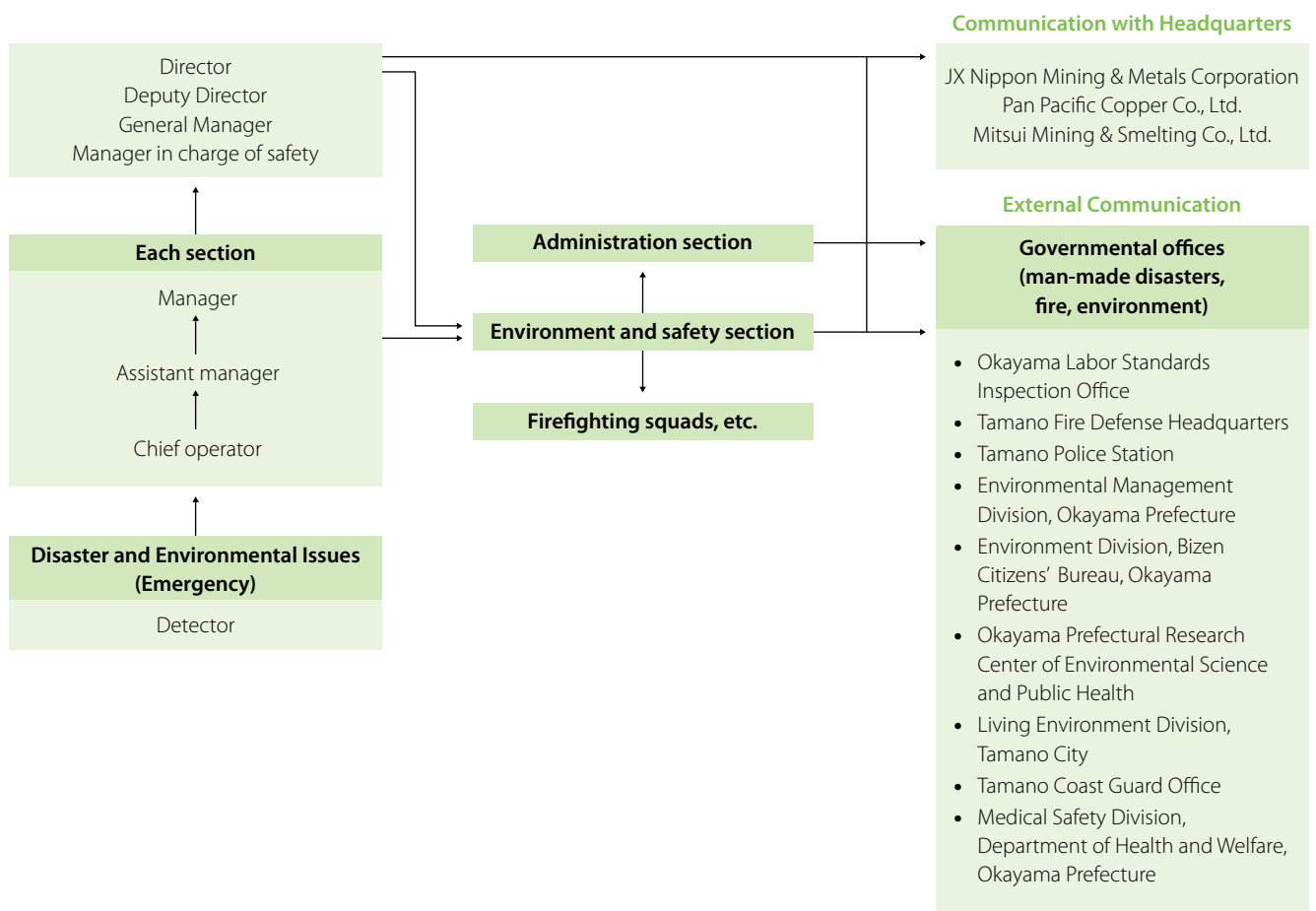
Moreover, we conduct comprehensive disaster prevention drills and training with our own firefighting squads in order to prevent accidents and disasters from exacerbating.



Firefighting squad training at the Hibi Smelter

## Emergency Procedures

An example of Hibi Smelter, Pan Pacific Copper Co., Ltd.



## 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 head office is the umbrella administration for compliance, working with supervisory departments at each operating site.

In fiscal 2011, 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 Accidents

In fiscal 2011, there were no environmental accidents including spill incidents.

# Social Activities Report

In the following section, we report on the JX Nippon Mining & Metals Group's relationship with society and its social activities with respect to each of its stakeholders.

## Earning the Trust of Our Customers and Suppliers

The JX Nippon Mining & Metals Group is dedicated to being the "best partner" to its customers and suppliers. Accordingly, it works to supply high-quality, safe products that are worthy of the trust of its customers. At the same time, we are striving to develop "win-win" relationships with our suppliers. We place the greatest importance on building trusting relationships with our customers and suppliers by reflecting their opinions on improving the quality of our products and services.

### Promoting Companywide 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 staff meetings to share and effectively use quality-related knowledge and experience in the Group.

#### Establishment of a Companywide Quality Management System

- 1 Established the Basic Quality Policy on October 1, 2009
- 2 Established the Quality Management Rule on October 1, 2009

##### JX Nippon Mining & Metals Corporation Basic Quality Policy

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

1. Correctly grasp the requirements of the customers and of the society in order to offer products and services that the 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, production to delivery.
3. Establish quality management system, and carry out continual improvements and raise human resources.
4. Comply with all pertinent laws of both Japan and overseas countries, and offer to our customers and the society transparency with regard to the quality.

\* The Nippon Mining & Metals Co., Ltd. Basic Quality Policy, which was established in October 2009, was reestablished as the JX Nippon Mining & Metals Corporation Basic Quality Policy, in line with the change of the Company's name to JX Nippon Mining & Metals Corporation in July 2010.

#### Sharing of Quality-related Information throughout Operating Sites

In December 2011, we held a fifth quality assurance staff meeting, headed by the general manager of the Technology Development Group, for operating sites directly controlled by the Company and the Group companies. The meeting's 21 participants introduced events holding in Quality Management Month and reported on quality-related complaints and quality-loss cases. For fiscal 2012, the sixth meeting occurred on May 18, 2012, and the seventh meeting is scheduled for November or December 2012.



Participants at the fifth quality assurance staff meeting

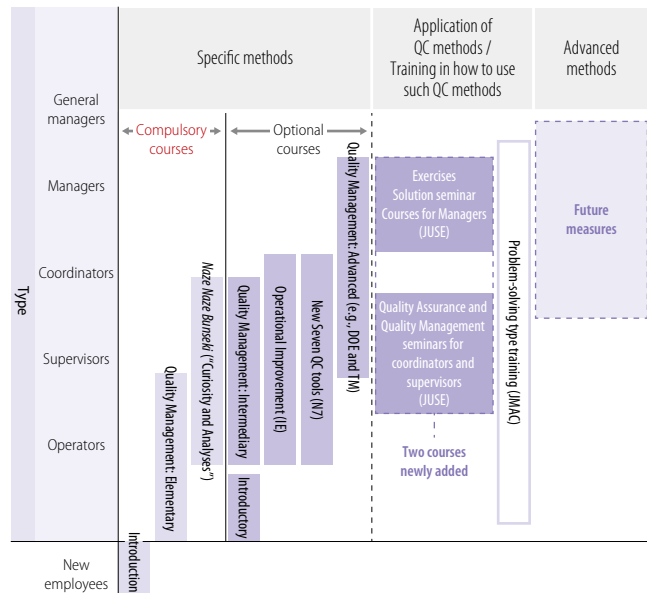
#### Reconstruction of Quality-related Education Programs

In fiscal 2011, we reviewed our quality management education primarily to standardize and raise the companywide quality management levels.

Specifically, in our conventional elementary, intermediate and operational improvement courses, we added an analysis course called *Naze Naze Bunseki* ("Curiosity and Analyses"). We also made an elementary quality management course and *Naze Naze Bunseki* compulsory courses for all departments, so that the Company can establish a shared awareness of quality management.

From fiscal 2012, we will add two courses from the Union of Japanese Scientists and Engineers (JUSE), which will improve problem-solving capabilities and nurture quality-oriented leadership and management capabilities for managers, coordinators and supervisors, to our quality management education system.

#### Quality Management Education System



Elementary education course held at the head office on October 28, 2011



## Quality Control and Assurance Systems at Operating Sites

The Group's quality control initiatives are not simply limited to the quality of products and services. The Group views quality management with a broader perspective that includes improving the quality of both its administration and management. In view of this concept of quality control, each operating site is operating its own quality management system, principally based on the [ISO 9001](#) standard, and conducting NPM and other improvement activities. (Refer to page 27 for details regarding NPM.)

Taking into consideration the specific characteristics of the businesses that each operating site engages in, we have set concrete goals for

reducing the percentage of defective products and the number of quality-related complaints and others. To accomplish these goals, we have established a quality control structure that involves representatives responsible for sales, manufacturing, production management, technology and product development. Implementing the [PDCA cycle](#) based on this quality control structure, the Group is coming together to promote quality improvements throughout the Group.

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, Isohara Fabricating Works, JX Nippon Exploration and Development Co., Ltd., Pan Pacific Copper Co., Ltd. (Hibi Smelter, Saganoseki Smelter & Refinery, Hitachi Works), 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., Sanyu Electronic Industry Co., Ltd. (Tatebayashi Works, Esashi Works), Suzuki Manufacturing Co., Ltd.
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

## Quality Control Initiatives during the Stages of Development and Manufacturing

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

### Quality Control Flow



## Product Safety Initiatives

To provide safe products, the Group thoroughly complies with applicable laws and regulations. For the purpose of developing a preventive approach toward product safety, and by taking into consideration the characteristics of each product, we are always aware of "product safety," from product development to the manufacturing and sales stages. In fiscal 2011, there were no violations of any laws or regulations with regard to product safety or the provision of products and services reported.

### Examples of specific initiatives

- Developing safety measures for the shipping of copper ingots and other heavy materials, as well as substances such as sulfuric acid that require special care (establishing and implementing Logistic Safety Action Plans and sharing information regarding safety measures between Group companies, etc.)
- Providing customers with environmental and safety related information on all products through [SDS](#)
- Implementing education and training programs regarding product safety activities
- Necessary quality control to ensure safety
- Developing environmentally friendly products to reduce the environmental impact



## Awards Received from Customers

In fiscal 2011, thanks to our highly acclaimed technological capabilities and product qualities, the Group received awards from customers. Going forward, we will continue to work tirelessly to respond accurately to the demands of our customers.

### Received the Best Supplier 2010 award from Western Digital Corporation in April 2011

We received the Best Supplier 2010 award from Western Digital Corporation, the world's largest HDD (hard disc drive) manufacturer. Western Digital Corporation has operating bases in the United States, Malaysia and Singapore and is the largest customer of the Group in the field of sputtering targets for magnetic recording. The Best Supplier 2010 was awarded as a result of our Groupwide support for product development, information sharing, secure supply and consistent quality assurance, etc., with the head office, the Isohara Works, JX Nippon Mining & Metals USA and JX Nippon Mining & Metals Singapore being highly evaluated.



### Received the Supplier Excellence Award from X-FAB Semiconductor Foundries AG in May 2011

We received the Supplier Excellence Award from X-FAB Semiconductor Foundries AG, our customer in sputtering targets for semiconductors. One reason for this award was a rapid rise of the Group's presence at X-FAB Semiconductor Foundries AG due to a strong alliance among our head office, JX Nippon Mining & Metals USA, JX Nippon Mining & Metals Europe and JX Nippon Mining & Metals Singapore.



### Received the outstanding performance award from Taiwan Semiconductor Manufacturing Co., Ltd., in December 2011

At the Supply Chain Management Forum held by Taiwan Semiconductor Manufacturing Co., Ltd., in Hsinchu, Taiwan, we received the outstanding performance award. We received this award because our development capability, quality and consistent supply were highly evaluated for our contribution to the advanced semiconductors manufacturing process of Taiwan Semiconductor Manufacturing Co., Ltd.; the quick restoration of the Isohara Works following damage from the Great East Japan Earthquake, which occurred on March 11, 2011; and the Isohara Works' subsequent swift recovery in manufacturing volume, resulting in trouble-free supply.



### Received the Supplier Continuous Quality Improvement (SCQI) award from Intel Corporation in April 2012

The SCQI award was established to encourage major suppliers to continue vigorous improvements as part of the Supplier Continuous Quality Improvement (SCQI) program of Intel Corporation. This award was for the long-term good performance of the Company's semiconductor sputtering targets in industry-leading technologies, joint development and our continuous efforts to help Intel Corporation while involved in restoration efforts from the earthquake disaster.



## VOICE JX Nippon Mining & Metals Philippines



**Noriko Tsuchiya**  
Quality Assurance Officer  
JX Nippon Mining & Metals  
Philippines, Inc.

I am in charge of quality assurance of electro-deposited copper foil, rolled copper foils and UPINORG, all of which are manufactured by JX Nippon Mining & Metals Philippines. Specifically, I translate quality-related complaints from customers into English, communicate with related departments inside our works about such complaints, translate reports written in English on reasons for the occurrence of such complaints and measures to address them into Japanese and send them to the sales staff. When I translate these reports into Japanese, I also discuss the sufficiency of measures to address the complaints with staff in the related departments as necessary. To solve quality issues, information from related sales staff is necessary and such solutions involve coordination with business strategies. I also share information with Hitachi Works' quality assurance staff and sales staff in Tokyo to address daily operation.

From the customers' side, our efforts to address quality issues are what we are supposed to be doing. To enhance our prerequisite ability to address these quality issues, I want to improve my English skills and deepen my understanding of the Company's technology.

As our customers' important partner, I intend to continue efforts to contribute to our customers in the aspect of quality assurance.

## Partnerships with Suppliers

The Group aims to develop “win-win” relationships with its suppliers based on mutual trust. With the purpose of developing a procurement system across the Group, we have entrusted our procurement function to JX Nippon Procurement Corporation.

### JX Nippon Procurement 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.

### Formulation of a Basic Procurement Policy and Measures for Conflict Minerals

In August 2011, we formulated the Group’s basic procurement policy, based on which we conduct procurement activities as part of our CSR activities. Also, to address the issue of so-called “conflict minerals” which are mined from conflict regions such as Africa, we promote our measures in line with the policies indicated below.

#### JX Nippon Mining & Metals Group’s Basic 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 Other

- Endeavor to avoid involvement in illegal activities taking place in conflict-torn regions and strive to avoid engaging in resource procurement activities that aid human rights infringements through such illegal activities

### Revision to the Green Purchasing Guideline

The most recent revision to the Green Purchasing Guideline of the JX Nippon Mining & Metals Group was made in October 2007, more than three years ago. Responding to requests from our customers in the electronic materials processing business, we have made a revision to our Green Purchasing Guideline in line with our basic procurement policy. To address recent environmental changes, necessary content for the Company has been included regarding the following laws and regulations and other recent trends.

#### Major revisions

- Addressed the change in heavy metal threshold values under the RoHS directive and other standards.
- Added legally designated substances related to the Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
- Added substances designated by EU directives such as SVHC46 substances under REACH
- JOINT INDUSTRY GUIDE: Material Composition Declaration for Electrotechnical Products

## Involvement with Our Employees

### "People"—Our Greatest Asset

The Group's philosophy toward employees dates back to 1905, when the Hitachi Mine was founded. Like many other mines, the Hitachi Mine was located deep in the mountains. The founder, Fusanosuke Kuhara, realized that it would be imperative to provide employees with an environment in which they would work with peace of mind in order to build business success at the Hitachi Mine, which was also located at 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, as well as 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.

Today, we aim to develop a working environment in which employees feel free to exchange opinions regardless of position, age, or gender.

### Breakdown of Employees (As of March 31, 2012) <sup>☑</sup>

(People)

	Full-time			Others			Total	Temporary Employees	Total workforce
	A	B	Total	A	B	Total			
Domestic companies (38)	4,211	572	4,783	17	98	115	4,898	116	5,014
Overseas companies (15)	1,085	407	1,492	4	1	5	1,497	48	1,545
<b>Total</b>	<b>5,296</b>	<b>979</b>	<b>6,275</b>	<b>21</b>	<b>99</b>	<b>120</b>	<b>6,395</b>	<b>164</b>	<b>6,559</b>

\* The "full-time" category encompasses regular employees and employees working equivalent hours to regular employees.  
A: Employees not on fixed-term contract.  
B: Employees on fixed-term contract.  
The number of companies is as of April 1, 2012.  
The "domestic companies" category includes the Company.

### Respect of 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. Also, the Group's Code of Conduct states "respect for employees' personality, human rights and individuality" in Article 4 in order to increase awareness about the Group's attitude of respecting human rights in both domestic and overseas affiliated companies. Furthermore, the Group's *Compliance Guidebook*, which is distributed to each employee, specifies to strictly inhibit unjust discrimination and sexual harassment.

The Group, developing its business in this region where approximately 1,500 employees work, 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 a workplace 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 the local communities.

### Number of Managers Employed at Overseas Operating Sites (As of March 31, 2012) <sup>☑</sup>

(People)

Local employees	Number of which are managers
1,492	107

\* Local employees are those employees who work full-time at our operating sites.  
Approximately 95% of local employees possess citizenship of the countries in which they are employed.  
Managers are those employees positioned as manager or higher.

### Description of the Group's Workforce <sup>☑</sup>

The tables below describe the workforce of JX Nippon Mining & Metals and its 53 affiliated companies (38 domestic, 15 overseas) encompassed in the boundary of this Report. The average age of employees is 39 years old and the average number of years of service is 11 years.

### Composition of Managerial-level Employees by Region (As of March 31, 2012)

(People)

		Managerial-level employees			Others			Total		
		Men	Women	Total	Men	Women	Total	Men	Women	Total
Domestic companies (38)	Japan	1,337	45	1,382	2,903	413	3,316	4,240	458	4,698
	North America	5	0	5	0	0	0	5	0	5
	South America	26	0	26	0	0	0	26	0	26
	Asia	41	0	41	3	1	4	44	1	45
	Europe	1	0	1	0	0	0	1	0	1
	Oceania	7	1	8	0	0	0	7	1	8
Subtotal		1,417	46	1,463	2,906	414	3,320	4,323	460	4,783
Overseas companies (15)	North America	14	1	15	42	13	55	56	14	70
	Asia	206	91	297	714	264	978	920	355	1,275
	Europe	16	1	17	123	7	130	139	8	147
Subtotal		236	93	329	879	284	1,163	1,115	377	1,492
<b>Total</b>		<b>1,653</b>	<b>139</b>	<b>1,792</b>	<b>3,785</b>	<b>698</b>	<b>4,483</b>	<b>5,438</b>	<b>837</b>	<b>6,275</b>

\* The figures stipulated in the table on the left represent the number of full-time employees. The managerial-level employees encompass general managers, managers, assistant managers and supervisors.  
The number of companies is as of April 1, 2012.  
The "domestic companies" category includes the Company.



### Composition of Managerial-level Employees by Age (As of March 31, 2012)

(People)

		Managerial-level employees			Others			Total		
		Men	Women	Total	Men	Women	Total	Men	Women	Total
Domestic companies (38)	Below 29 years of age	140	8	148	781	100	881	921	108	1,029
	30-49 years of age	742	31	773	1,531	238	1,769	2,273	269	2,542
	Above 50 years of age	535	7	542	594	76	670	1,129	83	1,212
Subtotal		1,417	46	1,463	2,906	414	3,320	4,323	460	4,783
Overseas companies (15)	Below 29 years of age	71	41	112	291	132	423	362	173	535
	30-49 years of age	130	49	179	482	132	614	612	181	793
	Above 50 years of age	35	3	38	106	20	126	141	23	164
Subtotal		236	93	329	879	284	1,163	1,115	377	1,492
Total		1,653	139	1,792	3,785	698	4,483	5,438	837	6,275

\* The figures stipulated in the table on the left represent the number of full-time employees. The managerial-level employees encompass general managers, managers, assistant managers and supervisors.  
The number of companies is as of April 1, 2012. The "domestic companies" category includes the Company.

### Average Age and Average Number of Years of Service (As of March 31, 2012)

	Age (years)			Years of service (years)		
	Men	Women	Total	Men	Women	Total
Domestic companies (38)	41.2	39.6	41.0	11.8	9.0	11.5
Overseas companies (15)	35.9	32.8	35.1	6.9	5.5	6.5
Average	40.1	36.7	39.7	10.8	7.5	10.4

\* The number of companies is as of April 1, 2012. The "domestic companies" category includes the Company.

### Number of Employees Recruited (April 1, 2011, to March 31, 2012)

(People)

	Men	Women	Total
Domestic companies (38)	297	31	328
Overseas companies (15)	105	64	169
Total	402	95	497

\* The number of companies is as of April 1, 2012. The "domestic companies" category includes the Company.

### Number of Employees that Left the Companies (April 1, 2011, to March 31, 2012)

		Number of employees that left the companies (people)			Rate of employees leaving the companies (%)		
		Men	Women	Total	Men	Women	Total
Domestic companies (38)	Below 29 years of age	83	10	93	8	8	8
	30-49 years of age	117	28	145	5	9	5
	Above 50 years of age	209	14	223	16	14	16
Subtotal		409	52	461	9	10	9
Overseas companies (15)	Below 29 years of age	166	60	226	31	26	30
	30-49 years of age	50	7	57	8	4	7
	Above 50 years of age	13	2	15	8	8	8
Subtotal		229	69	298	17	15	17
Total		638	121	759	11	13	11

\* The number of employees that left the companies includes the number of those who left the companies due to age-limit retirement, personal circumstances, death and involuntary retirement. 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.  
The number of companies is as of April 1, 2012. The "domestic companies" category includes the Company.

## Initiatives toward Diversity

The Nippon Mining & Metals Group values diversity in both human resources and working ways. 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 which includes systems for child rearing, elderly care and international volunteering.

### Creating Workplaces Where Women Can Play Significant Roles

The Company aims to create workplaces that empower female employees to play active and significant roles.

As of March 31, 2012, a total of 837 female employees were working at domestic and overseas operating sites in the Group. Of this, approximately 17% occupy managerial positions. JX Nippon Mining & Metals employed 178 female employees, of whom approximately 15% 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 their family lives are essential.

In fiscal 2011, seven employees used maternity leave and child rearing systems.

## Maintaining a Good Relationship between Labor and Management

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

Based on mutual trust between management and employees, a sound relationship is maintained. At all regular meetings between representatives of management and a labor union of each company, management discloses details of the business condition of the companies to the union. Also, joint committees on health and safety issues at each company thoroughly discuss causes and other factors involved in any

## 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 will 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, 2011 to March 31, 2012)

Number of age-limit retirees (people)	Number of those reemployed (people)	Reemployment ratio (%)
42	34	81

### Initiatives to Employ the Physically Challenged

The Company is actively increasing the percentage of the physically challenged in its workforce.

Consequently, as of March 31, 2012, the physically challenged accounted for 1.9% of the Company's employees, satisfying the 1.8% legal requirement.

### Labor Union Members (As of March 31, 2012)

		Number of union members (people)			Percentage of labor union members (%)		
		Men	Women	Total	Men	Women	Total
Domestic companies (38)	Below 29 years of age	646	61	707	70	56	69
	30-49 years of age	1,581	195	1,776	70	72	70
	Above 50 years of age	399	36	435	35	43	36
Total		2,626	292	2,918	61	63	61

\* The percentage of labor union members is the ratio of union members to the number of full-time employees. The number of companies is as of April 1, 2012. The "domestic companies" category includes the Company.

accidents and any necessary remedial measures. The union thus plays an important role as a partner with management.

For the smooth change of the companies' business lines or organizational structure, after adequate explanation and discussion preliminarily made with sufficient duration, the provisional Labor-Management Council is held to obtain deeper understanding of the labor union, in line with labor agreement.

In fiscal 2011, 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 strategic thinking among employees. Additionally, we encourage employees to participate in a wide range of educational programs, including studying at overseas graduate schools or at institutes for foreign language education in Japan as well as self-enlightenment seminars on financial analysis or presentation skills.

Further, we have introduced the Competency Evaluation System, Performance Evaluation System and Self-Statement System into our personnel systems. We strive to foster a better working environment

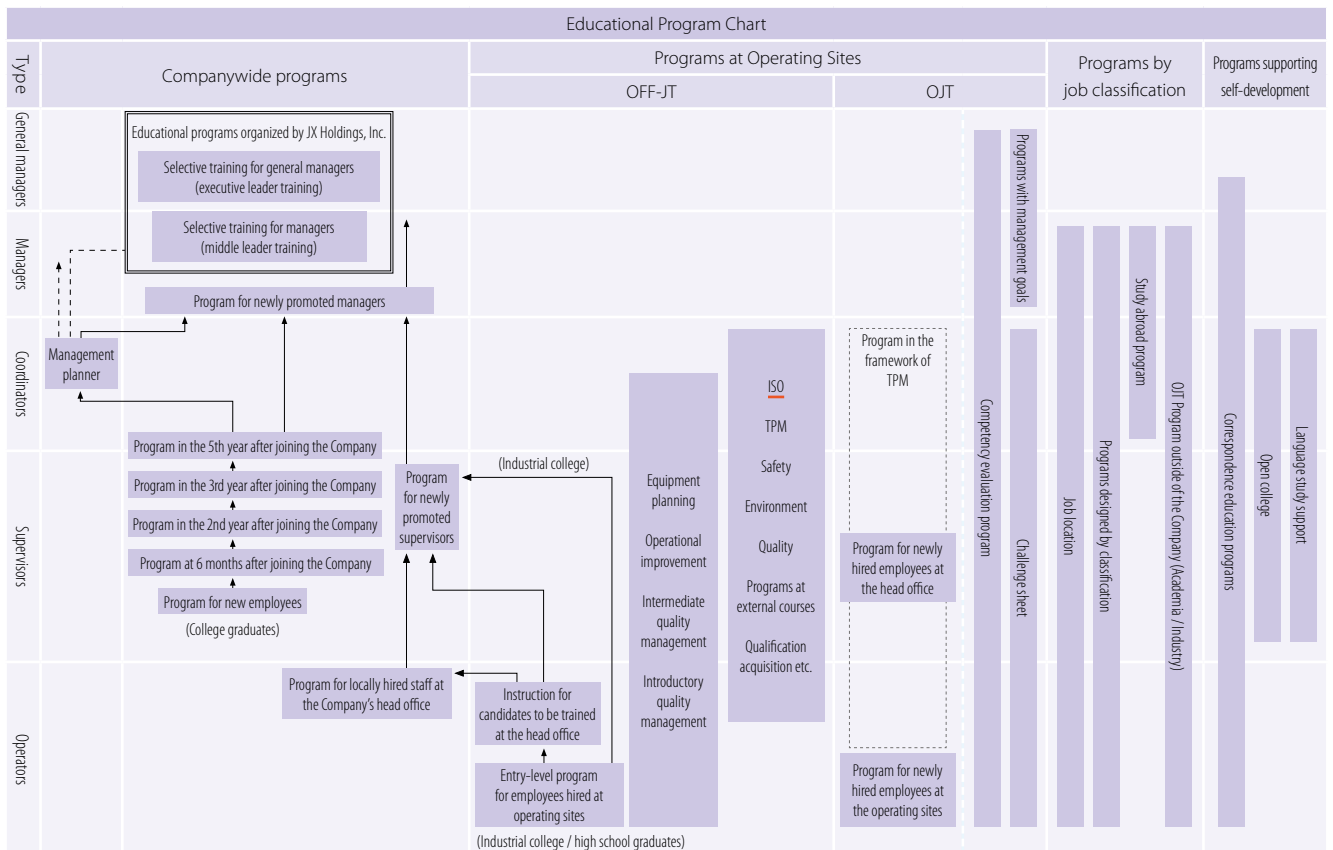
by integrating functions to improve communication between the Company and its employees into the personnel systems.

### Education and Training Programs Undertaken in Fiscal 2011 (Hours)

	Managerial staff	General employees	Total
Total hours of programs	6,133	48,009	54,142
Average hours per employee	19.23	22.80	22.33

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

## Our Educational Programs in Fiscal 2011



### Systematic Education Programs for College Graduates

For employees who are college graduates, we positioned the first five years after joining the Company as a period for systematic human resources development. During this period, they participate in various educational programs that help develop specific business skills.



### Educational Programs Implemented in Fiscal 2011

Program for new employees	<ol style="list-style-type: none"> <li>1 Understanding the current business conditions and management issues of the Company and its corporate social responsibility.</li> <li>2 Acquiring basic skills requisite to a business person, including business manners, English conversation, financial accounting, etc.</li> <li>3 Developing a sense of cooperation and community among employees entering the Company at the same time.</li> </ol>
Program at 6 months after joining the Company	<ol style="list-style-type: none"> <li>1 Looking back on their lives as members of society after entering the Company and examining the current issues.</li> <li>2 Strengthening basic skills requisite to a business person such as communication and presentation.</li> </ol>
Program in the 2nd year after joining the Company	<ol style="list-style-type: none"> <li>1 Deepening understanding of the Company's social responsibility in relation to operational management and its initiatives through the study tour of the Toyoha Mine and other activities.</li> <li>2 Deepening understanding of the Company's corporate philosophy and its corporate DNA and at the same time encouraging to be pride of the Company's employees.</li> </ol>
Program in the 3rd year after joining the Company	<ol style="list-style-type: none"> <li>1 Deepening understanding of the current business conditions and management issues of the Company.</li> <li>2 Acquiring additional business skills such as logical thinking.</li> <li>3 Understanding role expectations and enhancing motivation.</li> </ol>
Program in the 5th year after joining the Company	<ol style="list-style-type: none"> <li>1 Enhancing self-advancement problem-solving ability.</li> <li>2 Acquiring business skills necessary for problem solving such as logical thinking, problem identification, problem resolution, project management, etc., as the final step in the educational programs for college graduate employees.</li> <li>3 Logically and systematically implementing issues found in actual operations and practicing business skills acquired in the programs in actual operations.</li> </ol>



## Enhancing Educational Programs by Job Classification

We have developed a system to promote education and training programs that are headed by executive employees. These programs are designed for the enhancement of specialized skills requisite to professionals in order to carry out their duties. The content of the programs are considered, and education and training are implemented in line with

the programs by job classification. In these programs, individual job rotations are also planned. Periodically revising the content of the program, we are providing employees with opportunities to work in various job fields and at the same time enhance the education and training programs for human resources development.

## Ensuring Appropriate Personnel Evaluation

The Company has introduced the Competency Evaluation Program based on competency models and a performance appraisal system with management goals. The evaluation of the Competency Evaluation Program 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 their job position. This program 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 Program, 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 trying to build a sense of fairness and understanding through a long-term view of 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.

## Promoting Physical and Mental Health Maintenance

We believe that enhancing and maintaining the physical and mental well-being of employees is important.

### Mental Health Care

We recognize good mental health as 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, a wide range of initiatives, including facilitating communication at workplaces, has been taken.

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

#### Principal Measures

- 1 Face-to-face counseling
- 2 Counseling by means of telephone
- 3 Online counseling
- 4 Mental health training
- 5 Workplace stress checks



### Stress Checks Surveyed at Workplaces of the Company

- Number of participants: approx. 3,300
- Parties surveyed: employees of the Company, contract employees, commission-based employees, short-term employees, temporary employees, employees seconded from other companies, employees from affiliated companies, etc.
- Results of the survey: reporting feedback to individuals, advising individuals to have a mental checkup as necessary, conducting workshops to improve the various working environments, etc.





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

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

1. We will continuously improve health and safety management levels through the establishment and efficient operation of 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 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 will also establish and observe necessary voluntary standards.

### Management Policy on Health and Safety

The 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 2011

##### Goals

- 1 Serious accidents: zero
- 2 Occurrences of accidents: reduction of 10% or more relative to the least number of accidents in the past
- 3 Explosions, fires: zero
- 4 Occupational diseases: zero

##### Examples of focal measures

- 1 Promoting elimination of serious accidents
- 2 Promotion of health and safety management activities in response to the actual situation at each operating site
- 3 Reinforcing specialized education by job grade
- 4 Promotion of activities to create and disseminate a Safety Culture throughout the Group

### Health- and Safety-related Performance in 2011<sup>\*1</sup>

Health- and safety-related performance in 2011 is shown in the following table. The number of domestic accidents is increasing. Three serious cases occurred recently.

Category		2009	2010	2011
Safety performance at domestic operating sites <sup>*2</sup>	Instances of accidents with lost work days and fatal accidents (people)	15 <sup>*4</sup>	13 <sup>*5</sup>	10 <sup>*6</sup>
	Instances of accidents without lost work days (people)	22	16	24
	Total (people)	37	29	34
	Frequency rate of industrial accidents <sup>*3</sup>	0.61	1.36	0.27
	Accident severity rate <sup>*3</sup>	0.01	0.02	0.00
Explosions and fires (occurrences)		0	1 <sup>*7</sup>	2 <sup>*7</sup>
Health performance at domestic operating sites	Occupational diseases (people)	0	0	0
(Reference) Safety performance at overseas operating sites	Instances of accidents with lost work days (people)	9	8	9
	Instances of accidents without lost work days (people)	10	6	5
	Total (people)	19	14	14

\*1. Data on health and safety performance is counted on a calendar year basis.

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

\*3. 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 2011, the frequency rate of industrial accidents and the accident severity rate of all businesses in Japan were 1.62 and 0.11, respectively. (Industrial Accident Trend Survey by the Ministry of Health, Labour and Welfare)

\*4. The three fatalities related to the accident that occurred on June 13, 2009, are included.

\*5. The fatality related to the accident that occurred on September 19, 2010, is included.

\*6. The three fatalities related to the accidents that occurred on February 7, 2011, October 3, 2011, and October 5, 2011, are included.

\*7. There was no physical injury due to fire.

## Occurrence of Serious Accidents and Review of Safety Activities

Reflecting on the serious accidents that occurred in June 2009 and September 2010, the Group determined never to allow such accidents to happen again. To that end, we made Groupwide efforts to “promote the eradication of serious accidents,” “promote the creation and dissemination of a Safety Culture” and “reinforce safety training for each tier.”

Unfortunately, three serious accidents happened in 2011, which, we think, shows that the Group’s awareness of safety is still insufficient. We must review and overhaul our safety initiatives, thereby promoting the activities described on the next page.

### Outline of the Serious Accidents that Occurred in 2011

Accident	Operational site where the accident occurred	Outline	Measures to prevent similar accidents (applied throughout the Company)
February	Kurami Works	An employee of our subcontractor was hit by a forklift that was improperly operated during its backward movement.	<ul style="list-style-type: none"> <li>■ Compiled and issued forklift training documents for management.</li> <li>■ More stringent reviews of forklift operation skills.</li> </ul>
October	Sankin Hibi Harbor Transportation Co., Ltd.	Employees of an affiliated company got caught in a conveyor belt that had restarted following repairs.	<ul style="list-style-type: none"> <li>■ Formulated management criteria to prevent anyone from being caught in a conveyor belt.</li> </ul>
October	Pan Pacific Copper Co., Ltd., Hibi Smelter	An employee of our subcontractor took off his safety belt to retrieve materials falling from a roof but fell to the road below.	<ul style="list-style-type: none"> <li>■ Added “Measures to prevent objects from falling during high-location operations” and “Measures to prevent falling during construction work on a roof (installation of safety nets and handrails)” to our accident prevention criteria for high-location operations and disseminated them.</li> </ul>

### Measures Being Taken 1: Establishment of a Safety Culture

We reflected on our past activities to promote the creation and dissemination of a Safety Culture and determined that each worker did not have sufficient recognition of those activities “to nurture a firm awareness in each organization and individual of the concept and activities that prioritize safety.”

We then redefined<sup>\*1</sup> our Safety Culture, clarifying what is missing at each operating site and striving to fill the shortage.

We are also continuing to “reinforce education for each tier (including managers and supervisors)” and establish an operational structure that is improved by learning from past failures (prevent fading the memory of the past fatal accident and any recurrence).

<sup>\*1</sup> 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))

### Measures Being Taken 2: Thorough Accident Prevention Activities for Each Issue

Until 2010, we engaged in accident prevention activities based on our review of past serious accidents as an initiative to promote activities to eliminate serious accidents. Specifically, limiting our focus to such accidents as being caught in automatically operated facilities, falls and contact with hazardous substances, we formulated common criteria for

each issue to prevent such accidents and implemented Groupwide general inspections based on the criteria. However, in a workplace, for every serious accident, there are many more minor accidents that occur. Unless we implement thorough measures to prevent even minor incidents, we cannot decrease the occurrence of accidents. If we cannot prevent minor accidents, we cannot eradicate fatal accidents either. Therefore, we reanalyzed all the accidents that occurred in the past three years to determine the occurrence tendency and extracted the following issues to eradicate accidents throughout the Group. With the priority set according to the actual situation at each operating site, we began activities to address these issues under a three-year plan.

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

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

## Other Health and Safety Activities

### 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 recurrence of accidents. 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.

### Establishment and Management of the Occupational Health and Safety Management System

Our Basic Policy on Health and Safety includes the “Establishment and Efficient Management of the Health and Safety Management System,” under which we obtained and manage the OHSAS 18001 certification at the operating sites directly run by the Company and major domestic affiliated companies.

In fiscal 2011, we obtained the certification at Esashi Works of Sanyu Electronic Industry Co., Ltd.

## Operating Sites that Have Obtained OHSAS 18001

Fiscal year certification 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., Nikko Environmental Services Co., Ltd., Hitachi Office of Nikko Foundry Co., Ltd.), Kurami Works (including Nikko Coil Center Co., Ltd., Kurami Office of Nikko Shoji Co., Ltd.), Saganoseki Smelter & Refinery of Pan Pacific Copper Co., Ltd. (including Japan Copper Casting Co., Ltd., Nissho Ko-un Co., Ltd., Nikko Plant Saganoseki Co., Ltd.), Nikko Metals Taiwan Co., Ltd. (Bade Works)
Fiscal 2009	Isohara Works (including Isohara Administration Office of Nikko 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 Sanyu Electronic Industry Co., Ltd.
Fiscal 2011	Esashi Works of Sanyu Electronic Industry Co., Ltd.

### Introducing a Safety-related Official Commendation System

At the operating sites and domestic affiliated companies of the Group, we introduced a safety-related official commendation system through which the president officially commends operating sites that have continuous operations without an accident for a designated period, which is determined according to the number of personnel. Since the commendation system started in September 2011, 16 operating sites had been officially commended as of the end of fiscal 2011.



### Names of the Operating Sites Officially Commended for Safe Operations (Since September 2011)

	Operating sites
Commended for complete eradication of accidents	Kasuga Mine Co., Ltd., JX Nippon Kurobe Galva Co., Ltd., Kamine Clean Service Co., Ltd., Amagasaki Office and Tokyo Recycling & Technical Services Center of JX Metal Trading Co., Ltd., Hokushin Mining Co., Ltd., Kamikita Mines Co., Ltd., Hanawa Mines Co., Ltd., Namariyama Mines Co., Ltd., Oya Mines Co., Ltd., Yoshino Mines Co., Ltd., Hitachi Mines Co., Ltd., Hokuriku Mines Co., Ltd.
Commended for zero serious accidents	Ichinoseki Foil Manufacturing Co., Ltd., Kyushu Office of JX Metals Trading Co., Ltd.

### Environmental Safety Audit

The environmental safety audit has been conducted at operating sites directly run by the Company and domestic affiliated companies of the Group by the environmental 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.

### Measures for Legal Compliance

We introduced a legal compliance monitoring system to keep up with the revisions to laws and regulations related to safety, health and environment and to take appropriate measures. We 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.

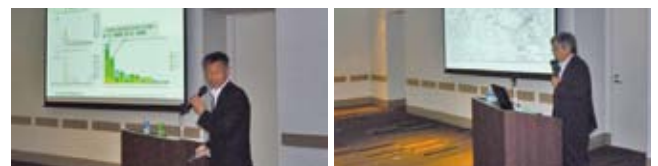
We also issue instructional handbooks that outline laws, regulations, directions and notices related to particular items to enhance the related personnel's understanding of laws and regulations.

### Earthquake and Disaster Response (Holding a Special Lecture Meeting and Compiling Documents for Disaster Training)

The Great East Japan Earthquake caused serious damage to operating sites of the Group in the Tohoku and Kanto areas. However, as a result of employees working together and staying calm in the way we practiced in our training, there was no injury or loss of employees. With our commitment to "Using this earthquake and disaster experience for our future disaster prevention activities!" the Group held a disaster prevention lecture meeting (special safety lecture meeting) on June 17, 2011. The lecture, titled "Learning from the Great East Japan Earthquake: Preparation for an Anticipated Large-Scale Earthquake," was given by experts we invited from outside the Group.

Personnel from the Isohara and Hitachi Works, which were seriously affected by the Great East Japan Earthquake, reported the damages they experienced and their restoration status under the title of "Actual Situation Caused by the Great East Japan Earthquake" and gave lectures about "What part of our standard training was useful in a real situation" and "Issues to address in our future disaster prevention activities," etc.

We also compiled disaster response training materials based on the documents used for the lectures given by the personnel of the Isohara and Hitachi Works and distributed them at each operating site.



Mr. Kozuka, then deputy general manager of the Isohara Works (left), and Mr. Yamada, then general manager of facilities Engineering Dept. of the Hitachi Works (right), spoke at the disaster prevention lecture meeting.



Disaster response training materials (Materials for disaster prevention lectures provided by personnel from the Isohara and Hitachi Works)

## Involvement with Local Communities

### Regional

The Group's domestic and overseas operating sites are regularly communicating with local and regional authorities, local chambers of commerce and other organizations to build relationships of trust with them. Also, we actively promote exchanges with local communities by conducting summer festivals and other events.

### Communication with Local Communities

In this section, we introduce examples of communication with local communities in fiscal 2011.

#### Participation in Regional Organizations (Fiscal 2011)

The Company and its Group companies participate in chambers of commerce and other such organizations in all regions in which it has operating sites (Tomakomai, Kitaibaraki, Hitachi, Kurobe, Tsuruga, Tokyo, Samukawa, Tamano, Oita, Makurazaki, Tatebayashi, Oshu, the Philippines,

Freiburg, in Germany, etc.). Further, the Company is a member of the organizations listed below, and participates in regular meetings (Executive Committee) and various other committees. Through these and other initiatives, we are actively participating in regional organizations.

Organization (Other)	Participating operating site / Group company (Position with 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 Dohoh Area	JX Nippon Tomakomai Chemical Co., Ltd. (Councilor)
Kitaibaraki-shi Association for Safety of Hazardous Materials	Isohara Works (Director), Isohara Fabricating Works (Director)
Kitaibaraki-shi Boka-Kanri-Kyogikai (Fire Protection and Control Council of Kitaibaraki)	Isohara Works (Director), Isohara Fabricating Works (Director)
Takahagi-chiku Koyo Taisaku Kyogikai (an association for employment measures in Takahagi District)	Isohara Works (Director)
Hitachi-roudoukijunkyoikai (an organization to provide information about labor regulations, industrial accidents and others)	Hitachi Works, Isohara Works (Director)
Hitachi Traffic Safety Association	Hitachi Works
Kurobe Water Resource Management Committee	JX Nippon Mikkaichi Recycle Co., Ltd. (Director)
Kurobe Industrial District Support Organization	JX Nippon Kurobe Galva Co., Ltd.
Reinan Environmental Conservation Organization	JX Nippon Tsuruga Recycle Co., Ltd.

Organization (Other)	Participating operating site / Group company (Position with the organization)
Tsuruga Mikata Association for Safety of Hazardous Materials	JX Nippon Tsuruga Recycle Co., Ltd. (Vice Chairman)
Samukawa Hazardous Substance Safety Association	Kurami Works (Vice Chairman)
Tamono-shibu (Tamano branch division), Japan Coast Guard Association	Hibi Kyodo Smelting Co., Ltd. (Assistant Branch Manager)
Tamano Traffic Safety Association	Hibi Kyodo Smelting Co., Ltd. (Director)
Saganoseki Machidukuri Kyogikai (NPO Council for Revitalization of Saganoseki)	Saganoseki Smelter & Refinery, Pan Pacific Copper Co., Ltd. (Vice Director)
Saganoseki Donation Allocation Intermediately 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 for Safety of Hazardous Materials	Sanyu Electronic Industry Co., Ltd. (Meguro, Tatebayashi, Esashi)
Suzhou Foreign Business Association	Nippon Mining & Metals (Suzhou) Co., Ltd.
Association of Enterprises with Foreign Investment, Changzhou City	Changzhou Jinyuan Copper Co., Ltd.
Taoyuan Waste Committee	Nikko Metals Taiwan Co., Ltd. (Director)
The Japanese Association, Manila, Inc.	JX Nippon Mining & Metals Philippines, Inc.
Laguna Industrial District Organization	JX Nippon Mining & Metals Philippines, Inc.
Japan Business Association of Arizona	JX Nippon Mining & Metals USA, Inc. (Director)
Atacama Region Mining Association	SCM Minera Lumina Copper Chile (Chairman)

\* The above is an abbreviated list of organization membership.

#### Responding to Complaints

The Group responds earnestly to any complaints it receives from local communities. It makes sincere efforts to rectify the situation by working to quickly assess the situation and develop necessary improvement measures. The complaints received in fiscal 2011 are recorded in the table

below. In all cases, the Company responded quickly and took appropriate corrective measures. Going forward, we will redouble our efforts to prevent such complaints from arising in the future.

Operating site	Complaint	Response measure	Future improvements, etc.
Hitachi Works	Noise generation	Inspecting processes within the plant revealed the noise was from the vacuum conveyor. After lowering the motor output, elimination of the noise was confirmed.	Plan to construct soundproofing
Kurami Works	Vibration generation	Assuming that large vehicles passing in front of the Works at excessive speeds were the cause, we raised the awareness of all drivers regarding safe and environment-friendly driving and urged drivers to comply with the rules.	Continuously raise awareness regarding safe and environment-friendly driving and monitor driving practices to ascertain the efficacy of our initiatives.
Pan Pacific Copper Co., Ltd., Saganoseki Smelter & Refinery	Noise generation	Assuming the main cause was metal noise during transshipment, we changed the location of this work and prohibited it from 17:00 onward.	Plan to construct soundproof wall between worksite and residential area
SCM Minera Lumina Copper Chile	Cutting off electric cables when transporting heavy equipment	Investigated damage situations and assessed compensation	Agreed to raise average height of electric cables to 7 meters.
	Complaints about the speed of vehicles passing through from the site of the Caserones Project	Made a rule for road safety	Rigorously instruct drivers engaged in the Caserones Project to comply with the rule.



### Examples of Communication with Local Communities Implementation of Plant Tours, Etc. (Fiscal 2011)

Operating site	Initiative	Participants (Organization)	Period of implementation (Fiscal 2011)	Number of participants
Hitachi Works	Interns	Hitachi Technical High School	October 2011	4
	Plant tour	Trainees of the International Institute for Mining Technology	November 2011	27
Kurami Works	Plant tour	Kadosawabashi Municipal Council	June 2011	10
Kasuga Mines Co., Ltd.	Plant tour	NPO Bounotsu Yamabikokai	March 2012	30
		Beppu Elementary School	October 2011	15
JX Nippon Tomakomai Chemical Co., Ltd.	Plant tour	Faculty of Science and Engineering, Waseda University	July 2011	12
JX Nippon Kurobe Galva Co., Ltd.	Company study tour	Kurobe residents	August 2011	18
JX Nippon Tsuruga Recycle Co., Ltd.	Plant tour	Mirai-tsunagu Children's Expedition	August 2011	37
		Global Environment Forum Kansai	October 2011	33
Hibi Kyodo Smelter, Pan Pacific Copper Co., Ltd., Hibi Kyodo Smelting Co., Ltd.	Plant tour	Tamano City Tourist Association	February 2012	43
Saganoseki Smelter & Refinery, Pan Pacific Copper Co., Ltd.	Plant tour	Sakanoichi Municipal Council	November 2011	38
		Sulfuric Acid Association of Japan	November 2011	42
Suzuki Manufacturing Co., Ltd.	Plant tour	Ohtawara Press Disaster Prevention Council	August 2011	10
Ichinoseki Foil Manufacturing Co., Ltd.	Plant tour	Ichinoseki Tech High School	October 2011	2
Gould Electronics GmbH	Plant tour	Families of personnel, representatives of region	May 2011	300
SCM Minera Lumina Copper Chile	Plant tour	Inspections by directors of various regional bureaus	April 2011	8
		River Water Management Association and Basin Agricultural Produce Export Association	October 2011	25



Kadosawabashi Municipal Council  
Plant tour  
Kurami Works



Kurobe residents  
Company study tour  
JX Nippon Kurobe Galva Co., Ltd.



Mirai-tsunagu Children's Expedition  
Plant tour  
JX Nippon Tsuruga Recycle Co., Ltd.



Global Environment Forum Kansai  
Plant tour  
JX Nippon Tsuruga Recycle Co., Ltd.



Families of personnel, representatives of region  
Plant tour  
Gould Electronics GmbH

## Convivial Events (Summer festivals and other events to which members of the community were invited, fiscal 2011)

Operating site	Event details, number of participants, etc.
Hitachi Works	Conducted an outdoor event held as a part of the "Sanjin-sai" summer festival held on the company grounds and a martial arts tournament held in the Nikko Shido Kan (Held annually in July, approx. 2,000 participants).
Kurami Works	Participated in the "Shinko-sai" festival (Held annually in September, approx. 200 participants): The company participated in a festival held at the local Kurami Shrine. Part of the plant is opened to visitors and employees participated in carrying a <i>mikoshi</i> , a traditional Japanese festival event.
JX Nippon Tsuruga Recycle Co., Ltd.	Held firefly viewing event in cooperation with the local NPO Aqua Sangha (June, approx. 20 participants). Participated in Tsuruga Hydrangea Road Project (November, 9 participants).
Hibi Kyodo Smelter, Pan Pacific Copper Co., Ltd., Hibi Kyodo Smelting Co., Ltd.	Participated in Shibukawa Fire Department's Dezome-Shiki New Year's Parade (January, approx. 20 participants).
Saganoseki Smelter & Refinery, Pan Pacific Copper Co., Ltd.	Participated in the "Sekino Tai-tsuru Odori Taikai" festival (Held annually in September, approx. 30 participants).
JX Nippon Arts & Crafts Co., Ltd.	Displayed jewelry, precious metals and arts and crafts at the Saganoseki Hometown Festival (November).
Kasuga Mines Co., Ltd.	Held the "Sanjin-sai" festival (Held annually in October, approx. 30 participants).
JX Nippon Kurobe Galva Co., Ltd.	Participated in the Kurobe New Year's Party in January 2012, in Kurobe, 200 participants. Participated in sand borer fishing contest, July 2011, in Kurobe, 20 participants.
Sanyu Electronic Industry Co., Ltd. (Tatebayashi)	Participated in Tatebayashi Marathon Relay Race, held annually in December (at Tatebayashi Jonuma sports ground, 80 participants).
JX Nippon Mining & Metals Philippines, Inc.	Visited Buntog Elementary School, Home of Joy Orphanage, and home for the aged (May, June, September, total of 60 participants).
JX Nippon Mining & Metals USA, Inc.	Participated in the Japan Business Association of Arizona's New Year's Party (January 2012, approx. 100 participants).
SCM Minera Lumina Copper Chile	Participated in ceremony for donation of warehouse to Tierra Amarilla Fire Department (September 2011, at University of Atacama, 100 participants). Supported kindergartens and Christmas initiatives for lower grades of nearby elementary schools (both in December, total of 460 participants).



Sanjin-sai  
Hitachi Works



Martial arts tournament  
Hitachi Works



Shinko-sai  
Kurami Works



Shinko-sai  
Kurami Works



Firefly viewing event  
JX Nippon Tsuruga Recycle Co., Ltd.



Tsuruga Hydrangea Road Project  
JX Nippon Tsuruga Recycle Co., Ltd.



Sekino Tai-tsuru Odori Taikai  
Saganoseki Smelter & Refinery,  
Pan Pacific Copper Co., Ltd.



Saganoseki Hometown Festival  
JX Nippon Arts & Crafts Co., Ltd.



Tatebayashi Marathon Relay Race  
Sanyu Electronic Industry Co., Ltd. (Tatebayashi)



## Contributions to Local Communities

In addition to contributing to society through its business activities, the Group acts in accordance with its Code of Conduct and engages in social contribution activities geared toward helping develop and enrich local communities while also building harmony with these communities. The Group engages in a variety of activities including cleanup activities as well as crime prevention activities and disaster preparedness drills.

Through these activities, we are promoting continuous communication and interaction with members of the local community, as well as developing mutual understanding and friendship.

Major contribution activities in fiscal 2011 toward local communities in areas where Group operations are located are listed in the table below.

### Local Cleanup Activities (Fiscal 2011)

Operating site	Activity details
Isohara Works, Isohara Fabricating Works	Conducted beautification activities of roads surrounding the Works and cleaned up area near the Works (June and September, total of 280 participants).
Hitachi Works	All employees cleaned up the grounds of the Works and surrounding areas in the first week of every month.
Kurami Works	Participated in the Sagami River Clean Campaign to clean the riverbed of the Sagami River, which flows through the area (May, approx. 60 participants). Participated in a beautification campaign organized by Samukawa Town (Kanagawa Prefecture) (June and November, total of 100 participants).
JX Nippon Tomakomai Chemical Co., Ltd.	Participated in a cleanup campaign of the Association of Coastal Companies (April, October, a total of 18 participants). Conducted autonomous cleanup activities around the plant (from April to October, a total of 33 participants).
JX Nippon Tsuruga Recycle Co., Ltd.	Participated in "Operation Cleanup Fukui" sponsored by Tsuruga City in Fukui Prefecture (September 2011 and March 2012, 37 participants). Cleaned up the Kehi-no-Matsubara Beach as a part of the local community's en masse beautification campaign (June, 33 participants). Removed garbage unlawfully dumped in the Motohida area (May, 25 participants). Cleaned up the Mikatago Lake (March, 12 participants).
Hibi Kyodo Smelter, Pan Pacific Copper Co., Ltd., Hibi Kyodo Smelting Co., Ltd.	Conducted bi-monthly cleanup activities on the roads and sidewalks around the plant (approx. 20 participants each time). Participated in cleanup activities of the coast of Shibukawa (June, approx. 20 participants). <small>* The coast of Shibukawa is a specially designated area of the Setonaikai National Park. The Pan Pacific Copper Hibi Kyodo Smelter and Hibi Kyodo Smelting Co., Ltd. are located on an area of land bordering the coast that is approximately 789,517m<sup>2</sup>.</small>
Saganoseki Smelter & Refinery, Pan Pacific Copper Co., Ltd.	Conduct cleanups and beautification activities once a month (approx. 80 participants each time).
Kasuga Mines Co., Ltd.	Participated in volunteer activities in the local community (cleanup of the port, mowing grass along public roads and cleanup of the coast on Marine Day).
Esashi Works, Sanyu Electronic Industry Co., Ltd.	Participated in the industrial estate clean campaign (June, October, total of 4 participants).
Suzuki Manufacturing Co., Ltd.	Pick up garbage around the Works (monthly, approx. 30 participants).
JX Nippon Mining & Metals Korea Co., Ltd.	Conducted cleanups in the industrial park (April, 45 participants).
JX Nippon Mining & Metals Philippines, Inc.	Participated in the Lakeshore Clean-up in Laguna (April). Planted mangrove trees (July, Guisguis, Sariaya, Quezon).



Beautification activities of roads surrounding the Isohara Works



Sagami River Clean Campaign Kurami Works



Cleanup of the Fukugawa River JX Nippon Tsuruga Recycle Co., Ltd.



Cleanup of the Kehi-no-Matsubara Beach JX Nippon Tsuruga Recycle Co., Ltd.



Removal of garbage unlawfully dumped JX Nippon Tsuruga Recycle Co., Ltd.



Cleanup of Mikatago Lake JX Nippon Tsuruga Recycle Co., Ltd.



Cleanup of the industrial park JX Nippon Mining & Metals Korea Co., Ltd.



Planting of mangrove trees JX Nippon Mining & Metals Philippines, Inc.

## Crime Prevention and Disaster Preparedness Drills (Fiscal 2011)

Operating site	Activity details
Kurami Works	Conducted disaster preparedness drills (October, approx. 200 participants).
JX Nippon Tomakomai Chemical Co., Ltd.	Conducted disaster preparedness drills (June).
JX Nippon Tsuruga Recycle Co., Ltd.	Held emergency training (July), disaster prevention evacuation training (September), night emergency training (March). All personnel participated. Held a self-defense firefighting squad contest (August, 7 participants). Attended a meeting of the Tsuruga business council for advancing the creation of a safe, reliable city (July).
Saganoseki Smelter & Refinery, Pan Pacific Copper Co., Ltd.	Conducted crime prevention patrols as part of the Saganoseki Donation Allocation Committee's Umineko-Tai, a local patrol team (Once a month, 8 participants each time). Conducted disaster preparedness drills (June, approx. 150 participants).
Ichinoseki Foil Manufacturing Co., Ltd.	Participated in disaster prevention training organized by fire department (October).
Nikko Fuji Precision (Wuxi) Co., Ltd.	Held fire and disaster prevention drills (November, 34 participants).
Gould Electronics GmbH	Held fire drills (October, 43 participants).
SCM Minera Lumina Copper Chile	Held educational seminars for the prevention of alcohol and drug use (September, 30 participants).
Nikko Metals Taiwan Co., Ltd.	Conducted disaster preparedness drills (May).



Disaster preparedness drills  
Kurami Works



Emergency training  
JX Nippon Tsuruga Recycle Co., Ltd.



Night emergency training  
JX Nippon Tsuruga Recycle Co., Ltd.



Self-defense firefighting squad contest  
JX Nippon Tsuruga Recycle Co., Ltd.



Fire drills  
Gould Electronics GmbH



Disaster preparedness drills  
Nikko Metals Taiwan Co., Ltd.



## Traffic Safety and Blood Drive Activities (Fiscal 2011)

Operating site	Activity details
Isohara Works	Conducted monthly traffic safety activities (Approx. 450 participants). Conducted blood drives (November, March, 111 participants).
Hitachi Works	Participated in events sponsored by the Hitachi Traffic Safety Association (5 times a year, approx. 50 participants each time). Conducted blood drives (March, September, 100 participants).
Kurami Works	Conducted road traffic safety lectures (June, December, approx. 80 participants, respectively). Conducted blood drives.
JX Nippon Tomakomai Chemical Co., Ltd.	Participated in road traffic safety lectures conducted by local municipal bodies responsible for traffic safety and the police (May).
JX Nippon Mikkaichi Recycle Co., Ltd.	Held first-aid training session (July).
JX Nippon Tsuruga Recycle Co., Ltd.	Participated in traffic safety activities organized by residents of the prefecture (4 times in the year, 2 participants each time).
Hibi Kyodo Smelter, Pan Pacific Copper Co., Ltd., Hibi Kyodo Smelting Co., Ltd.	Participated in events of the Tamano area safe driving control council as a member (Several times each year, 1 participant).
Saganoseki Smelter & Refinery, Pan Pacific Copper Co., Ltd.	Conducted monthly JX Nippon Mining & Metals Group "Yamabiko Undo" traffic safety awareness activities (Approx. 15 participants each time). Participate in safe driving training of driving school (quarterly, 145 participants). Conducted blood drives (April, October, 50 participants, respectively).
Esashi Works, Sanyu Electronic Industry Co., Ltd.	Conducted blood drives (February, 20 participants).
Suzuki Manufacturing Co., Ltd.	Conducted blood drives (June, approx. 15 participants).
JX Nippon Mining & Metals Philippines, Inc.	Conducted blood drives (3 times a year).
SCM Minera Lumina Copper Chile	Cooperated with pilgrimage to Potro village (May). Sponsored the Festival of the Virgin of Carmen (July).



Road traffic safety lecture  
Hitachi Works



Held first-aid training session  
JX Nippon Mikkaichi Recycle Co., Ltd.



Conducted blood drives  
JX Nippon Mining & Metals Philippines, Inc.

## Opening of Company Facilities

The Group opens a number of its facilities to the public, such as the grounds, at principal operating sites and affiliated companies. These facilities are used throughout the year to hold a wide variety of events.

Examples of opening facilities to the public in fiscal 2011 are listed in the table below.

Operating site	Facility	Activity details
Isohara Works	Employee club	Provided an area for children's events to be held.
Hitachi Works	Nikko Shido Kan	Provided a place for children as well as junior high school and high school <i>kyudo</i> (Japanese archery) and <i>kendo</i> (Japanese fencing) teams for practice and games.
Kurami Works	Company grounds	Provided an area for baseball tournaments to be held.
Hibi Kyodo Smelter, Pan Pacific Copper Co., Ltd., Hibi Kyodo Smelting Co., Ltd.	E-No-Hara Grounds	Provided an area for baseball practice and games (used by 1,920 people per year, including local youth baseball groups and police station personnel).
	Kyohi Gymnasium	Provided an area for volleyball, badminton, <i>kendo</i> and other sports tournaments to be held (used by 15,120 local residents per year).
	Idle land on grounds of company dormitory	Provided an area for elementary school events and as an evacuation area during disasters (used by 960 people annually).
Saganoseki Smelter & Refinery, Pan Pacific Copper Co., Ltd.	Osuiki Baseball Field	Provided an area for baseball tournaments and practice to be held (60 times per year).
	Fujiu Grounds	Provided an area for Ground Golf tournaments to be held.
Kasuga Mines Co., Ltd.	Grounds of company dormitory	Provided an area to practice golf.
	Makurazaki (Ore) Port berth	Provided an area as viewing place and parking lot for summer fireworks displays.
SCM Minera Lumina Copper Chile	MLCC Los Loros office	Opened the office and held exchange events between MLCC personnel and local residents (used by 200 people every month).
	Copiapo branch	Opened the branch to provide venue for employment briefings and education for MLCC personnel and local residents (used by 2,200 participants every month).

### Participation in Forest Improvement Activities at Kurakake Mountain

Approximately 500 trees of different varieties, including *Oshimazakura* cherry and Japanese mountain cherry, were planted on Kurakake Mountain, adjacent to the Hitachi Works, during the Meiji and Taisho periods. Since fiscal 2008, reforestation activities on this mountain have been carried out under the supervision of the Kurakake Mountain Cherry Tree 100-Year Committee, an organization formed by the city of Hitachi. Employees of the Hitachi Works have been regularly volunteering for these activities.

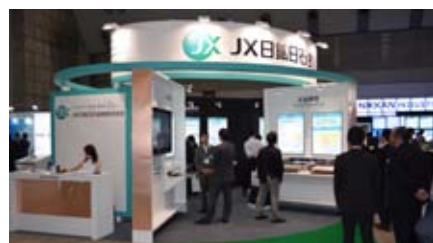
In fiscal 2011, the activity was suspended about two hours after its start due to an earthquake that measured a lower five on the Japanese scale as well as rain. However, plans call for continuing reforestation through collaboration among government agencies, local residents and companies to make Kurakake Mountain a place where local residents can relax and children can observe nature and learn about the environment by experiencing forests.



Forest improvement activities at the Kurakake Mountain

### Principal Displays in Exhibitions (Fiscal 2011) \* Company names are those used during fiscal 2011.

Exhibitor	Activity details
Head Office, JX Nippon Mining & Metals Corporation	Displayed various manufactured products such as treated rolled copper foil, electro-deposited copper foil and copper foil for lithium-ion batteries at JPCA Show 2011 (June).
	Displayed <u>sputtering targets</u> for LCDs (ITO and IGZO) at FPD International 2011 (October).
	Displayed treated rolled copper foil, electro-deposited copper foil, surface treatment agents, etc., at TPCA Show 2011 (November).
	For the first time, displayed next-generation sputtering targets for memory use at SEMICON JAPAN 2011 (December).
	Exhibited at NEPCON WORLD JAPAN 2012 (January 2012).
	<ol style="list-style-type: none"> <li>1 IC Packaging Technology Expo: With JX Metals Trading Co., Ltd., jointly displayed various types of surface treatment agents, etc.</li> <li>2 Advanced Electronic Materials Expo: Displayed world's thinnest rolled copper foil (6µm) and copper foil for lithium-ion batteries.</li> </ol>
JX Nippon Mikkaichi Recycle Co., Ltd. JX Nippon Kurobe Galva Co., Ltd.	Participated in "Kurobe Fair 2011," hosted by Kurobe City and the Kurobe City Chamber of Commerce and Industry (September).
	Displayed at the "Tsuruga City Environmental Fair" (February 2012).
Nikko Metals Taiwan Co., Ltd.	Displayed sputtering targets for LCDs (ITO and IGZO) at DISPLAY TAIWAN 2011 (June).
	Displayed various sputtering targets, 450mm-diameter polycrystalline silicon <u>wafers</u> and wafers for handling tests, etc., at SEMICON TAIWAN 2011 (September).



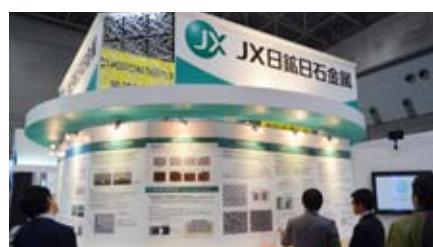
JPCA Show 2011



FPD International 2011



SEMICON JAPAN 2011



NEPCON WORLD JAPAN 2012



DISPLAY TAIWAN 2011



SEMICON TAIWAN 2011

### Awards Received from External Organizations

In fiscal 2011, the Group received a wide variety of awards from public and industry organizations in the various regions in which it operates. Details about these awards are outlined in the table below. The fact that various day-to-day activities have been highly evaluated will serve as a driving force behind future efforts to develop our operations. Going forward, we will work to ensure the continuation of these activities.

## Public and Industrial Organizations, Etc.

Operating site	Organization	Award details	Reason
Isohara Fabricating Works	Kitaibaraki-shi Boka-Kanri-Kyogikai (Fire Protection and Control Council of Kitaibaraki)	Fire Protection and Control Award	Strengthening and expanding fire protection and control (serving as model for others)
Isohara Works	Takahagi-chiku Koyo Taisaku Kyogikai (an association for employment measures in Takahagi District), Hitachi-roudoukijunokyokai (an organization to provide information about labor regulations, industrial accidents and others)	Superior Employee Award	Received for contributing to the development of the plant (target group for award: managers)
Hitachi Works	Hitachi-roudoukijunokyokai (an organization to provide information about labor regulations, industrial accidents and others)	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 (an association of disaster prevention in Hitachi City)	Superior Employee Award	Received by employees who set a good example for other employees and have three or more years experience handling hazardous substances and managing fire prevention initiatives
	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.
Kurami Works	Japan Copper and Brass Association	Superior Employee Award	Received by employees who possess a rich wealth of knowledge and technical skills (those that set a good example for other employees)
JX Nippon Tsuruga Recycle Co., Ltd.	Fukui Prefecture Labor Standards Association, Reinan Branch	Employee Award for Superior Health and Safety	Have engaged in operations for many years without accidents or disasters
	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
	Tsuruga Chamber of Commerce and Industry	Superior Employee Award	For making utmost effort to develop region over many years
Saganoseki Smelter & Refinery, Pan Pacific Copper Co., Ltd.	Japan Boiler Association	Japan Boiler Association Branch Head's Award	Received for the stable and safe operation of boilers
	Oita Traffic Safety Promotion Committee	Operating Site Award for Distinguished Traffic Safety Management	Ensuring traffic safety and spreading awareness of traffic safety
	The High Pressure Gas Safety Institute of Japan, Oita	Superior Employee Award (individual)	Received for initiatives for the safety of high-pressure gas facilities and safety instruction
Suzuki Manufacturing Co., Ltd.	Tochigi Prefecture	Fiscal 2011 Frontier Company Attestation	Having superior technology and implementing activities that serve as model for others
Changzhou Jinyuan Copper Co., Ltd.	Changzhou Municipal People's Government	Excellent Company Award (Star-Ranking Company Award and Sales Size Award) Excellent Entrepreneur Award	Received for the company's superior performance (sales and income)
	Tian Ning Qu Municipal People's Government	Award for Contribution to Tax Revenue	Received for contributing to the local community through the payment of taxes
JX Nippon Mining & Metals Philippines, Inc.	Department of Energy, Republic of the Philippines	Don Emilio Abello Energy Efficiency Award	Outstanding achievements in efficient use of energy

## Awards from Customers

Operating site	Organization	Award details	Reason
JX Nippon Mining & Metals Corporation	Intel Corporation	Intel SCQI Award	Quality reliability, technological improvements and stable delivery through supply of <u>sputtering targets</u> in leading-edge areas received acclaim. Also, the quick restoration of the Isohara Works following damage from the Great East Japan Earthquake, and the Isohara Works' subsequent swift recovery in manufacturing volume, resulting in trouble-free supply was highly evaluated.
	Taiwan Semiconductor Manufacturing Co., Ltd.	Supplier Excellence Award, <u>Supply Chain Management Forum</u>	Same as above
	ON Semiconductor Corporation	2011 Annual Perfect Quality Award	Same as above
	Raytheon Company	2011 Supplier Excellence Award	Delivery, quality and sales activities of our <u>compound semiconductor materials</u> , as well as quick recovery of the production operation of the materials from the earthquake disaster, received high evaluation.
Materials Service Complex Malaysia Sdn. Bhd.	MOLEX (M) Sdn. Bhd.	Supplier Excellence Award	Acquiring a highest level score in overall points including delivery and quality compatibility, our precision rolled products received the award.
JX Nippon Mining & Metals Singapore Pte. Ltd.	X-FAB Sarawak Sdn. Bhd.	Supplier Excellence Award 2010	Our delivery and other services regarding the supply of sputtering targets garnered high marks among the customer's suppliers.
	Western Digital Corporation	Best Supplier 2010	This was awarded as a result of our Groupwide support for product development, information sharing, secure supply and consistent quality assurance, etc., at the head office, the Isohara Works and other operating sites being highly evaluated.

## Donations to Local Communities, Etc. (Fiscal 2011)

Receiving organization	Amount (billion yen)	Number of donations
1. Local public organizations (including colleges and hospitals)	0.10	38
2. Other regional organizations (festivals, events, municipal councils, etc.)	0.15	117
3. Nonprofit foundations, corporations, charities, etc.	0.01	39
Total	0.26	194

\* Donations from overseas affiliated companies have been denominated in yen using the average exchange rate for fiscal 2011.

## Industry Organizations Participated in by Group Companies (Abbreviated List for Fiscal 2011)

Organization	Participating Group company (Position with 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), Nikko Logistics Partners Co., Ltd.
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	Kasuga Mines Co., Ltd.
<u>The Mining and Materials Processing Institute of Japan</u>	JX Nippon Mining & Metals Corporation, Hibi Kyodo Smelting Co., Ltd. (Regular Member)
Japan Society of Newer Metals	JX Nippon Mining & Metals Corporation
The Japan Institute of Metals	JX Nippon Mining & Metals Corporation
The Japan Society of Applied Physics	JX Nippon Mining & Metals Corporation
Japan Institute of Electronics Packaging	JX Nippon Mining & Metals Corporation
Copper Foil Industries Associations	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
Japan Catalyst Recovering Association	JX Nippon Mining & Metals Corporation
The Society of Resource Geology	JX Nippon Mining & Metals Corporation, JX Nippon Exploration and Development Co., Ltd.
Sulfuric Acid Association of Japan	Pan Pacific Copper Co., Ltd. (Vice Chairman), JX Nippon Tomakomai Chemical Co., Ltd. (Director), Hibi Kyodo Smelting Co., Ltd. (Director)
Hokuriku Electric Association	JX Nippon Mikkaichi Recycle Co., Ltd.
Japan Galvanizers Association	JX Nippon Kurobe Galva Co., Ltd.
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.)
Japan-Peru Business Committee	Pan Pacific Copper Co., Ltd.
Korea Display Industry Association	JX Nippon Mining & Metals Korea Co., Ltd.
Association of Enterprises with Foreign Investment, Changzhou City	Changzhou Jinyuan Copper Co., Ltd.
ZVEI (German electrical and electronic manufacturers' association)	Gould Electronics GmbH
WVIB (Association of Industrial Companies Baden eV)	Gould Electronics GmbH

## VOICE



**Akira Yoshinari**  
Mayor of Hitachi

Since its establishment more than a century ago, the JX Nippon Mining & Metals Group has conducted business activities rooted in the Hitachi area. Recognized by the Ministry of Economy, Trade and Industry as a modern industrial heritage site, the Nippon Mining Museum exhibits an extensive range of historic materials and tells visitors the story of how Hitachi developed into an industrial center. The Group made significant contributions to the construction of the Hitachi Cleaning Center, the redevelopment of the area in front of Hitachi Station and others. I believe these initiatives strongly reflect the spirit of mutually beneficial ties between the Company and the local community that the Group's founder nurtured. Jiro Nitta's novel *Aru Machi no Takai Entotsu* (A Tall Stack in a Town) describes the spirit.

Recently, to honor the efforts of predecessors who restored greenery to a mountain that smoke pollution had damaged and pass this spirit for the next 100 years, I, along with JX Nippon Mining & Metals Corporation and local residents, planted *Oshimazakura* cherry trees at Kurakake Mountain as a symbol of regeneration and built a commemorative stone monument at the entrance to Kurakake Mountain.

Going forward, I would like to continuously improve the forest at Kurakake Mountain with local residents, while at the same time tell the next generation about the importance of preserving the environment.

Thanks to our predecessors' efforts, Hitachi has become famous nationwide for its cherry trees. In the future, I hope that the Daioin District, including Kurakake Mountain, becomes even more renowned for *Oshimazakura* cherry trees and Japanese mountain cherry trees.

I thank the Group for its continuous cooperation with the city to work with local communities and the local government on environmental and other issues.

In conclusion, our wish is for the Group to develop and prosper even further.





## The Nippon Mining Museum Special Centenary Exhibit (Jinguashi Mine and Nippon Mining Co., Ltd.) is co-sponsored by the Nippon Mining Museum and the Museum of Gold in the Gold Ecological Park in Taiwan.

Nippon Mining Co., Ltd., a predecessor of JX Nippon Mining & Metals Corporation (“JX Nippon Mining & Metals” or the “Company”), operated the Jinguashi Mine in Taiwan before World War II. The Jinguashi Mine is currently closed, but in the area where the mine used to be New Taipei City (Xīnběi Shì) operates the Gold Ecological Park, which has become a notable landmark showcasing the history and mine culture of the closed Jinguashi Mine. The centennial of the Republic of China was

commemorated in 2011. At the Museum of Gold in the Gold Ecological Park, for 38 days—from October 28 to December 4, 2011—the Nippon Mining Museum Special Centenary Exhibit (Jinguashi Mine and Nippon Mining Co., Ltd.) was featured. JX Nippon Mining & Metals exhibited items that tell the history of the Jinguashi Mine and items related to mine culture possessed by the Nippon Mining Museum as part of its cultural interaction with the Museum of Gold.

### Jinguashi Mine and Nippon Mining Co., Ltd.

After 1894, when a vein of gold ore was discovered in Jinguashi, the mine grew to become one of the best mines in Asia, producing approximately seven tons of gold and approximately 7,000 tons of copper a year during its peak period.

In 1933, Nippon Mining Co., Ltd., bought the Jinguashi Mine and managed it for 12 years until 1945, the end of World War II, when the mine was taken over by the Republic of China. The mine’s production volume during the 12 years of operation by Nippon Mining Co., Ltd., was approximately 23.8 tons.

The management of the Jinguashi Mine was later assumed by Taiwan Metals Mining Corp., and the mine was closed in 1987.



A panoramic view of the Jinguashi Mine at the time of its operation by Nippon Mining Co., Ltd.



Smelter and refinery under construction

### Gold Ecological Park and Museum of Gold

The area where the Jinguashi Mine existed is currently the Gold Ecological Park, where visitors can enjoy history, cultural heritage and precious nature. The park includes the well-maintained company-provided residences for then executives of Nippon Mining Co., Ltd., which are open to the public for viewing.

The Museum of Gold, a core attraction in the Gold Ecological Park, is the renovated former office building of Taiwan Metals Mining Corp. The first floor exhibits the history, culture and nature of the Jinguashi Mine, and the second floor exhibits feature “gold.”



Company-provided residences for then executives of Nippon Mining Co., Ltd., during the time of its operation

## Nippon Mining Museum Special Centenary Exhibit (Jinguashi Mine and Nippon Mining Co., Ltd.)

Here is the background for holding the Nippon Mining Museum Special Centenary Exhibit. The Museum of Gold contacted us and expressed its desire to hold a joint event with JX Nippon Mining & Metals commemorating the centennial of the Republic of China because Nippon Mining Co., Ltd., the predecessor of JX Nippon Mining & Metals, managed and operated the Jinguashi Mine, Asia's best mine, and contributed to the prosperity of the mine. The museum officials said they wanted to take advantage of this event to enhance the recognition of the Jinguashi Mine as a potential world heritage site. Recognizing that the Company may have a predestined tie with the location where Nippon Mining Co., Ltd., used to operate, the Company also wanted to show its appreciation for the legacy of Nippon Mining Co., Ltd., being retained. Furthermore, we thought that this exhibition would be conducive to friendship between Japan and Taiwan and initiate new cultural interaction with the Gold Ecological Park. For these reasons, we agreed to total cooperation.

The major themes of the Nippon Mining Museum Special Centenary Exhibit:

- 1 History and people of Nippon Mining Co., Ltd., and the Jinguashi Mine
- 2 Interaction of Fusanosuke Kuhara, founder of Nippon Mining Co., Ltd., with Sun Wen, Father of the Republic of China
- 3 Operation of the Jinguashi Mine during its management by Nippon Mining Co., Ltd.
- 4 Introduction of mine culture such as Hitachi Mine's "*Ichizanikka* (workers who work in the mine are all one family)"
- 5 Hitachi Mine's Giant Stack and other measures to address smoke damage

For these themes, we provided display items such as a letter from Sun Wen to Fusanosuke Kuhara, rock drills used at the Hitachi Mine and ores produced at the Jinguashi Mine, which were stored in the Nippon Mining Museum. We also provided still images of the Jinguashi Mine and the Hitachi Mine and videos that show the Jinguashi Mine in operation.

At the opening ceremony held on November 4, 2011, then President Okada said, "I was extremely impressed by the fact that the site of the Jinguashi Mine has been renovated into a renowned scenic and historical spot. This place is in perfect harmony with the natural environment, and the community can enjoy nature. In addition, this cultural heritage helps nurture metal material-based industries and craftwork. Especially impressive was the fact that the residences for then Japanese executives of Nippon Mining Co., Ltd., have been maintained almost exactly as they were at that time, for which we express deep gratitude.

The opening ceremony was attended by Hiroshi Kuhara, grandson of founder Fusanosuke Kuhara; the family of Kikujuro Mike, who was a former president of Nippon Mining Co., Ltd., and served as chief of the Jinguashi Mine; and the families of those who worked at the mine when it was in operation.



Rock drill



Ore from the Jinguashi Mine



Venue of the Nippon Mining Museum Special Centenary Exhibit



Then President Okada greeting at the opening ceremony



Poster of the Nippon Mining Museum Special Centenary Exhibit

## Continuation of Cultural Interaction Activities with the Gold Ecological Park

On February 13, 2012, we held a cherry tree planting festival at the former site of the Jinguashi Mine in Taiwan.

Inside the premise is Ōgon Shrine (Gold Shrine), which used to be the shrine of the guardian god of the Jinguashi mine. On the approach to Ōgon Shrine were cherry trees. To restore the tree-lined approach, the Company donated 40 nursery cherry trees and nursed 56 existing cherry trees.

The festival, which was held in collaboration with the Museum of Gold commemorating the planting of cherry trees, was attended by Hiroshi Matsui, Deputy Chief Executive Officer of the Company and several other members from the Company. We intend to deepen cultural interaction with the Museum of Gold.



Hiroshi Matsui, Deputy Chief Executive Officer, at the tree planting ceremony (second from right)

## Nippon Mining Museum

The Nippon Mining Museum was established at the site of the former Hitachi Mine in 1986.

The Nippon Mining Museum exhibits documents that show the history of JX Nippon Mining & Metals Corporation from its inception to date and is responsible for passing on the Group's history and tradition to future generations. Since the opening, many have visited for the purposes of research and social study tours by schools and educational organizations. The Nippon Mining Museum has been certified as a Heritage of Industrial Modernization site of the Ministry of Economy, Trade and Industry.



Nippon Mining Museum

## VOICE



### Tsai, Tsung Hsiung

President of the Museum of Gold

#### Nippon Mining Museum Special Centenary Exhibit (Jinguashi Mine and Nippon Mining Co., Ltd.) held under co-sponsorship in 2011

I became President of the Museum of Gold in February 2012. I participated in this event representing the Cultural Affairs Department of the New Taipei City Government, which I served previously. I recognized some kind of pre-destined tie between the Jinguashi Mine and Japanese history and/or JX Nippon Mining & Metals. When I was appointed to this position, I felt it must also have been a special tie.

I remember that then President Okada reiterated "gratitude" and "returning a favor" in his greeting at the opening ceremony of the Nippon Mining Museum Special Centenary Exhibit (Jinguashi Mine and Nippon Mining Co., Ltd.). The Museum of Gold opened at the end of 2004. One purpose of the Museum of Gold was to record the brilliant history of the Jinguashi Mine as a gold ore mine and pass on its legacy to future generations. I would like every visitor to the Museum of Gold to understand mine culture and how valuable nature is by viewing the re-created residences and town that show how they were at the time of the mine's operation and the carefully crafted display items. And I hope this cultural and industrial heritage—from the Jinguashi Mine to Shuindong—will be protected by our collective efforts. I appreciate the tremendous cooperation provided this year by JX Nippon Mining & Metals for this exhibition and tree planting to "return the favor" as they put it.

#### Things that we, the Museum of Gold, expect from JX Nippon Mining & Metals Corporation

The Museum of Gold's theme this year is to "Enjoy Mine Culture and Life." Under this theme, the museum not only continues to preserve and maintain the mine's legacy but also holds various events such as the Jinguashi Mine exploration hiking event and effective uses of the renovated Japanese-style duplex residences. Visitors can enjoy the actual experience of mine life at a demonstration corner we will set up. I personally want to plan an event to re-create the past mine culture and another event to promote cultural interaction and friendship between Taiwan and Japan. I would appreciate if JX Nippon Mining & Metals cooperated in holding such events.

I am also interested in the resource recycling-oriented businesses that JX Nippon Mining & Metals has been developing. The afforestation activities for closed mines and the development of so-called "urban mines" are especially impressive. At the Museum of Gold, we are considering special exhibitions on these fields in the future. We hope to be able to show the general public in a clear and easy-to-understand manner how carefully today's corporations are preserving the natural environment and how effectively they are using valuable natural resources throughout their business activities. In planning these events, I will ask JX Nippon Mining & Metals to provide display items and information.

I consider the Museum of Gold as proof of the friendship between JX Nippon Mining & Metals Corporation and the Jinguashi Mine. I hope many people including the former executives and workers of Nippon Mining Co., Ltd., will visit this museum to see the shift from a gold mine to a mine legacy display site still in operation.



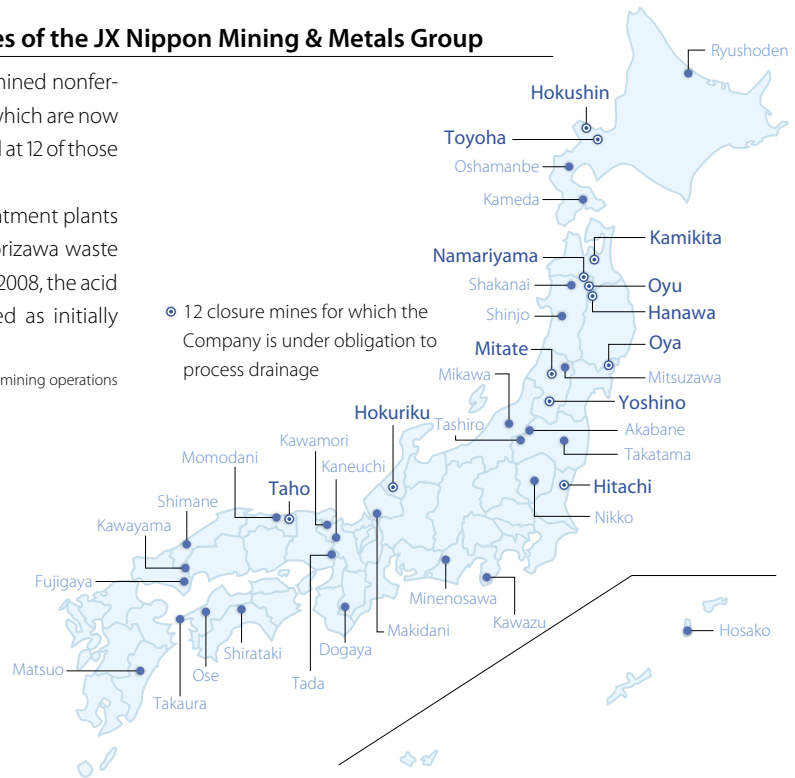
## Environmental Conservation Measures for Closed Mines— Inauguration of the Acid Mine Drainage Treatment Plants at the Toyoha Mine

### Acid Mine Drainage Treatment at Closed Mines of the JX Nippon Mining & Metals Group

The JX Nippon Mining & Metals Group (the “Group”) has mined nonferrous metal resources at mines throughout Japan, most of which are now closed.<sup>1</sup> The Group currently manages 39 closed mines, and at 12 of those we are processing acid mine drainage.

At the Toyoha Mine, the operation of its mine water treatment plants commenced in November 2011. In addition to the Oshidorizawa waste water treatment plant, which started operation in October 2008, the acid mine drainage treatment structure has been completed as initially planned.

\*1. In the JX Group, only Kasuga Mines Co., Ltd. (Kagoshima Prefecture), conducts mining operations (in Japan).



### Held Acid Mine Drainage Treatment Plants Inauguration Ceremony

Commemorating the inauguration of the acid mine drainage treatment plants at the Toyoha Mine, we carried out an inauguration ceremony at the actual site on December 2, 2011.

The ceremony was attended by approximately 100 people including then President Okada and staff of the Ministry of Economy, Trade and Industry, local administrators and associates—all celebrating the inauguration.

At the ceremony, then President Okada stated, “Mine operators must be responsible for the treatment of acid mine drainage at the closed mines. We injected approximately ¥10 billion for the acid mine drainage treatment plants at the Toyoha Mine. This investment was imperative and indispensable to avoid harming the 1.9 million Sapporo citizens who use the Toyohira River system and the surrounding environment. It is the responsibility of those who do something involving the source of the water supply of Sapporo’s citizens.”

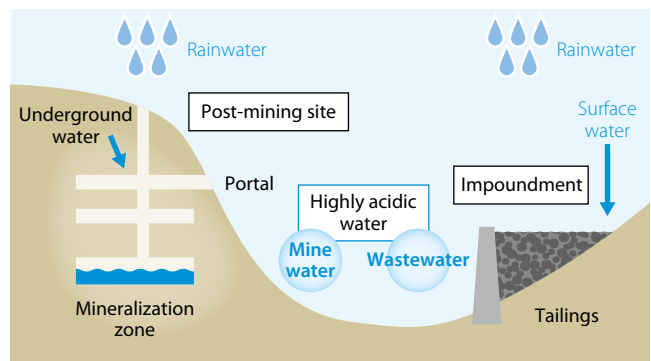


Inauguration ceremony

### How Acid Mine Drainage Is Generated

Acid mine drainage consists of mine water upwelling from inside a mine and wastewater discharged from mine facilities such as impoundments. There are remaining ores in closed mines and the surrounding altered rocks, and at impoundments are tailings. These touching rainwater generate acid mine drainage.

Metals such as ferrous, zinc and manganese are contained in ores and altered rocks in the state of a sulfide mineral. A sulfide mineral, when oxidized, turns into mineral ions, hydrogen and sulfate ions in water, resulting in highly acidic drainage.





## Acid Mine Drainage Treatment Process

The treatment process for highly acidic mine drainage containing metals consists of three processes:

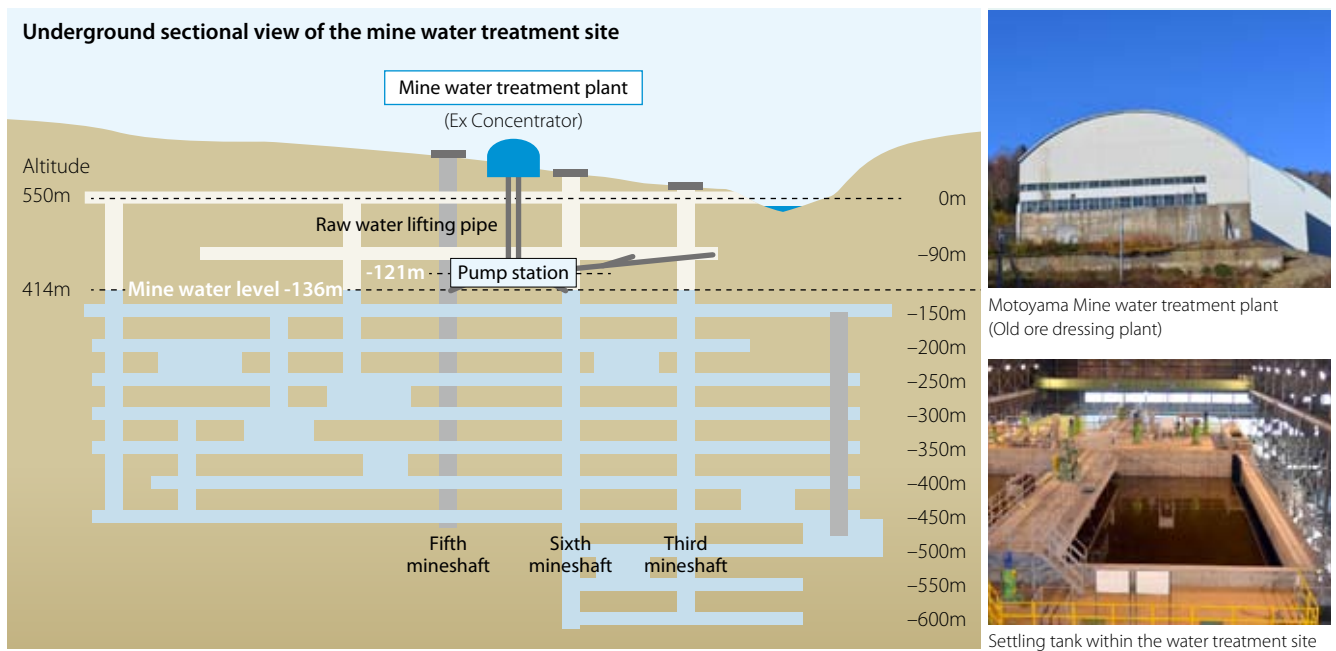
- 1 Neutralization (neutralize mine wastewater using alkali calcium hydroxide)
- 2 Separation of solid matter from liquid (metal deposits in the hydroxide state are separated and removed)
- 3 pH adjustment (adjust treated water to be neutral)

## Motoyama Mine Water Treatment Plant (Ex Concentrator)

Mine water sprung from an old pit road is transferred to the site to treat mine water using the water intake pump installed 136 meters underground.

This all-weather-type indoor mine water treatment plant has the most advanced facilities installed within the entire ore dressing plant for

long-term stable and efficient treatment of mine water in the severe natural environment around the mine, which is located in a heavy snow-fall zone.



## Oshidorizawa Wastewater Treatment Plant

In this facility, wastewater discharged from more than 7.8 million m<sup>3</sup> of tailings deposited in Oshidorizawa is treated. Just like the Motoyama Mine water treatment plant, the facilities are all contained in a building for stable operation under severe climate conditions, such as severe cold and heavy snow.



Oshidorizawa impoundment and wastewater treatment plant



Bridge for water pipe and wastewater treatment plant



Inside a bridge for water pipe

## Toyoha Mine at the Time of Its Operation

As Japan's representative mine, the Toyoha Mine has contributed to industrial development for many years by supplying mineral resources such as zinc, lead, silver and indium. In 2006, the mine stopped operation due to the depletion of ore volume. Since 1914, when the Company's predecessor Kuhara Mining Co., Ltd., launched the mine development, the volume of ores (crude ore) produced in this mine amounted to 21.19 million tons—3,700 tons of silver, 2 million tons of zinc and 0.53 million tons of lead. The production volume of indium, which is a rare metal used for LC TVs and solar panels, was the highest in the world.



Rock drilling

Work using the Schaeff loader

## History of the Toyoha Mine

Late 1800s	Mine opening (date is unknown)
1914	Purchased by Kuhara Mining Co., Ltd. (a predecessor of the Company)
1945	Mine closure due to the government order to stop operation
1950	Revival as Toyoha Mine Co., Ltd.
1962	Merged with Nippon Mining Co., Ltd., a predecessor of the Company
1973	Became independent from Nippon Mining Co., Ltd., as Toyoha Mines Co., Ltd.
2006	Operation stopped due to the depletion of ores

## Training for Second-year Employees at the Toyoha Mine

Since fiscal 2010, the Company has been providing training at the Toyoha Mine for employees who are in their second year of employment. The training in fiscal 2011 started with the president lecturing about "JX Nippon Mining & Metals' Corporate DNA and CSR." Taught in the training was the outline of environmental management at the Group's closed mines. Afterward, trainees toured the acid mine drainage treatment plants of the Toyoha Mine. After the tour, trainees were divided into groups and discussed the content of the Company's DNA and how to make the best of the Company's DNA in the future.



Lecture given by then President Okada

## VOICE After receiving training at the Toyoha Mine



**Toru Nakano**

Facilities Engineering Dept.,  
Isohara Works

Water treatment at the Toyoha Mine is an ongoing environmental operation of the Company. During this training, given the large-scale and advanced environmental operations of the Company, I could directly feel the significance of the Company's strenuous efforts to address environmental issues throughout its history. The cathode materials project in which we are currently engaged is conducive to improving the efficiency of energy use and the effective uses of resources, which we can call a proactive environmental measure. In line with the history of the Company, which has operated businesses while constantly tackling environmental issues, I would like to continue to seriously resolve environmental problems.



**Nao Kaneda**

Administration Dept., Hitachi  
Works

I learned that because resource development is directly linked to environmental issues, we need to do certain things to fulfill our environmental social responsibility even though they do not generate an economic profit. Through the tour of the acid mine drainage treatment plants at the Toyoha Mine, I had a renewed recognition that our youth are in charge of a mission to explore and develop profitable businesses while fulfilling the corporate social responsibility of the Company.

## Afforestation and Reforestation Activities

JX Nippon Mining & Metals Group has been promoting afforestation and reforestation activities mainly at the sites of closed mines. This section provides information on our reforestation activities in fiscal 2011 at the closed Kameda, Oe, Ryushoden, and Takatama mine sites.

### Closed Kameda Mine Site

At the closed Kameda Mine site (Hakodate-shi, Hokkaido), we planted approximately 5,000 broadleaf trees such as Buna (*Fagus crenata*) and Mizunara (*Quercus crispula*) in an area of approximately 3 ha over 18 days starting May 13, 2011.

JX Nippon Mining & Metals succeeded the reforestation activities at this site in fiscal 2010 from Japan Energy (currently JX Nippon Oil & Energy Corporation), which started from fiscal 2007 under its five-year plan with fiscal 2011 as its final year. Including the trees planted this year, approximately 31,300 trees have been planted over the past five years in an area of 14.52 ha.



Distant view of the reforestation site

#### About the Kameda Mine

The Kameda Mine was bought by former Kuhara Mining Co., Ltd., in 1915, and its operation was stopped in 1919. During the period of operation, the mine produced gold (16,106 g), silver (1,868 kg) and copper (926 t).

### Closed Oe Mine Site

During nine days starting November 7, 2011, we planted approximately 7,300 Akaezo (*Picea glehnii*) nursery stock at the closed Oe Mine site (Niki-cho, Yoichi County, Hokkaido) in an area of approximately 3.47 ha. The



Reforestation site

reforestation activities at this site started in fiscal 2008 under the five-year plan with fiscal 2011 as its fourth year. Including the trees planted this fiscal year, approximately 22,500 trees have been planted in an area of 10.70 ha during the four years.

#### About the Oe Mine

The Oe Mine was bought by the former Kuhara Mining Co., Ltd., in 1915, and its operation was stopped in 1984. During the period of operation, the mine produced manganese, gold, silver, copper, lead and zinc. At present, JX Nippon Mining & Metals Corporation's affiliate Hokushin Mining Co., Ltd., is conducting the treatment of acid mine drainage.

The Group is considering forest maintenance activities for the closed Kawayama Mine site (Iwakuni-shi, Yamaguchi Prefecture) and the closed Dogatani Mine site (Totsugawa village, Nara Prefecture).

### Closed Ryushoden Mine Site

At the closed Ryushoden Mine site (Monbetsu-shi, Hokkaido), in late November 2011 we planted approximately 1,600 Karamatsu (*Larix kaempferi*) nursery stock at the closed mine site of approximately 8,000 m<sup>2</sup>. The reforestation activities at this site started in fiscal 2011 under a five-year plan beginning in fiscal 2011.



Planted Karamatsu nursery stock

#### About the Ryushoden Mine

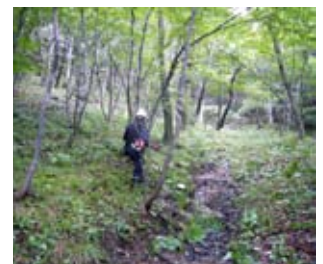
The Ryushoden Mine was bought by Hokushin Mining Co., Ltd., an affiliate of Nippon Mining Co., Ltd., which was a predecessor of JX Nippon Mining & Metals Corporation, and closed in 1974. During its operation, the mine produced mercury. Currently, Hokushin Mining Co., Ltd., is conducting the treatment of wastewater.

### Closed Takatama Mine Site

At the closed Takatama Mine site (Koriyama-shi, Fukushima Prefecture), we did tree thinning and removed vines and obstacle trees in woods of approximately 6.38 ha. The forest maintenance work at this site was started by Japan Energy (currently JX Nippon Oil & Energy Corporation) in fiscal 2005 and was succeeded by JX Nippon Mining & Metals Corporation two years ago. An area of approximately 80 ha has been refurbished to date.

#### About the Takatama Mine

The Takatama Mine was bought by the former Kuhara Mining Co., Ltd., in 1918 and was closed in 1976. During its operation, the mine produced plenty of gold. The closed mine has been managed by Shin-Takatama Mining Co., Ltd., an affiliate of the Company.



Forest maintenance operation



## ICMM Activities in Fiscal 2011

JX Nippon Mining & Metals Corporation formulated its Code of Conduct based on the 10 International Council on Mining and Metals (ICMM) principles. We also adhere to the ICMM Position Statement.

The ICMM conducts continuing activities that focus on how the metals and mining industry can contribute to the sustainable development of society. In 2011, the 10th anniversary of the ICMM, three companies newly joined and a program to address the global issue of climate change was launched.

As a member company of the ICMM, the Company introduced a case study on water treatment at the Toyoha Mine in the report, "Water management in mining: a selection of case studies." We also attended the 4th Materials Stewardship Round Table meeting held by the ICMM and exchanged information on some of the "conflict minerals" with stakeholders, aggressively addressing issues related to the environment, safety and sanitation, the management of chemical substances and relations with communities.

Seventeen ICMM members compiled a sustainability report in accordance with the Sustainability Reporting Guidelines 2006 of the GRI and the GRI Mining and Metals Sector Supplement, as required by the 10 sustainable development principles of the ICMM and the ICMM's Assurance Procedures from the aspect of the transparency of business activities, thereby achieving an application level of A+.

### ICMM Position Statement

- Mining and Protected Area
- Mining and Indigenous Peoples
- Implementing a Global Solution to Managing a Low Emissions Economy: Policy on Climate Change
- 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.



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. At the same time, the initiative encourages these companies to contribute to the development of sustainable society. Furthermore, it is expected to effectively tackle so-called “resource curse,”

which refers to a tendency that the national poverty levels of a resource-rich country actually rises because of their own natural resources. The number of candidate countries under the EITI in June 2012 was 21 and 14 countries were EITI compliant countries, meeting all the EITI standards.

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 recognize that the benefits of resource extraction occur as revenue streams over many years and can be highly price dependent.
4. We recognize that a public understanding of government revenues and expenditure over time could help public debate and inform choice of appropriate and realistic options for sustainable development.
5. We underline the importance of transparency by governments and companies in the extractive industries and the need to enhance public financial management and accountability.
6. We recognize that achievement of greater transparency must be set in the context of respect for contracts and laws.
7. We recognize the enhanced environment for domestic and foreign direct investment that financial transparency may bring.
8. We believe in the principle and practice of accountability by government to all citizens for the stewardship of revenue streams and public expenditure.
9. We are committed to encouraging high standards of transparency and accountability in public life, government operations, and 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

<b>Human Rights</b>	
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.
<b>Labour</b>	
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.
<b>Environment</b>	
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.
<b>Anti-Corruption</b>	
Principle 10:	Businesses should work against corruption in all its forms, including extortion and bribery.



**Corporate Data**

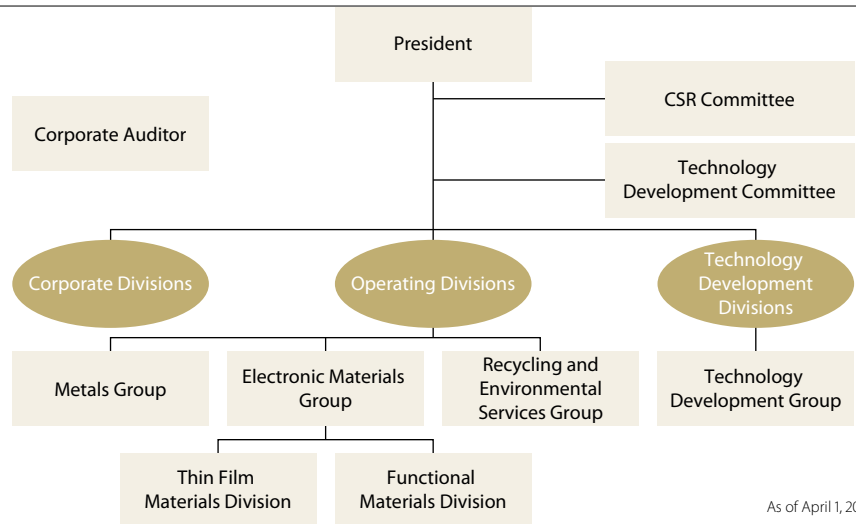
Company Name: JX Nippon Mining & Metals Corporation  
 Paid-in Capital: ¥40 billion (as of April 1, 2012)  
 Representative: Yoshimasa Adachi  
 President and Chief Executive Officer  
 Net Sales: ¥997.2 billion (consolidated result for fiscal 2011)  
 Ordinary Income: ¥60.0 billion (consolidated result for fiscal 2011)  
 Head Office: 6-3, Otemachi 2-chome, Chiyoda-ku,  
 Tokyo 100-8164, Japan  
 Business Lines: Resources Development  
 Smelting and Refining  
 Manufacturing and Marketing of Electronic Materials  
 Recycling and Environmental Services

Domestic  
 Operating Sites: Hitachi Works (Ibaraki Prefecture)  
 Isohara Works (Ibaraki Prefecture)  
 Isohara Fabricating Works (Ibaraki Prefecture)  
 Technology Development Center (Ibaraki Prefecture)  
 Kurami Works (Kanagawa Prefecture)  
 Kawasaki Plant, Kurami Works (Kanagawa Prefecture)  
 Tsuruga Plant (Fukui Prefecture)  
 Overseas  
 Operating Sites<sup>1)</sup>: Chile Office  
 Australia Office

\*1. The JX Nippon Mining & Metals Group conducts business in 10 countries worldwide.

**Management Structure and Organization**

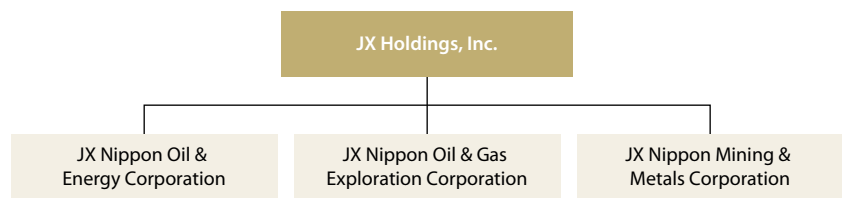
JX Nippon Mining & Metals Corporation employs an organizational structure that is comprised of operating divisions, which engage in the Company's operating activities; corporate divisions, which are responsible for the planning, accounting, administrative, environmental safety and related support functions; and technology development divisions, which are active in research and development pursuits. The operating divisions are conducted through the Metals Group, the Recycling and Environmental Services Group, and the Electronic Materials Group.



As of April 1, 2012

**About the JX Group**

Through the joint transfer of shares, Nippon Mining Holdings, Inc., and Nippon Oil Corporation established the holding company, JX Holdings, Inc., in April 2010. The newly integrated JX Group will provide a stable and efficient supply of energy, resources and materials both in Japan and overseas. The JX Nippon Mining & Metals Group is the metal business group company that plays a central role in the JX Group.



**About the logo for the JX Group**

Based on the JX Group's basic philosophy, the JX Group logo represents the perpetuity of the global environment and the JX Group. This design, which shows the word "JX" crossing a sphere, expresses the contribution to a green earth, or a sustainable economy and society, through creation and innovation in energy, resources and materials.

## Business Overview

The JX Nippon Mining & Metals Group is engaged in integrated nonferrous metals operations extending from resources development, smelting and refining and electronic materials manufacturing to sales and marketing and recycling and environmental services. By pursuing technological rationality and efficiency as well as promoting materials stewardship, the Group strives to ensure the more effective use of value-bearing metal resources that will support the future.

### Upstream

#### Resources Development

We are moving ahead with construction at the Caserones Copper and Molybdenum Deposit to start operation in 2013.

The ratio of equity entitlement copper mine production after the start of operation at the Caserones Copper and Molybdenum Deposit

Will increase approx.

**50%**

from the current level of approx. 20%



Caserones Copper and Molybdenum Deposit

### Midstream

#### Smelting and Refining

Through a collaborative relationship with global copper producers—in terms of both quality and quantity—including domestic and overseas companies, we have established a world-class copper producer alliance for the production and marketing of nonferrous metals such as copper, gold and silver.

Group refining capacity

**1,170** thousand tons per year

Pan Pacific Copper: 610 thousand tons;  
LS-Nikko Copper: 560 thousand tons



Convertor,  
Saganoseki Smelter & Refinery



Anode furnace,  
Tamano Smelter

## The Overall Flow of Our Business Activities

### Downstream

#### Recycling and Environmental Services

Activities include recycling, where precious and other value-bearing metals such as copper are recovered from recycled raw materials, and environmental services, where industrial waste materials are detoxified without generating any secondary waste.

Volume of gold production through recycling

**7.0** tons per year  
Fiscal 2011



Building B for LiB Recycling  
at the Tsuruga Plant



NMC Dept.  
Hitachi Works

### Downstream

#### Electronic Materials Business

We boast a top global market share for a large number of products including treated rolled copper foil, sputtering targets for semiconductors and titanium copper. Also, we are engaged in the development and production of materials for next-generation products, including cathode materials for automotive lithium-ion batteries.

Production capacity for cathode materials

**5,000** tons per year  
After increasing production capacity



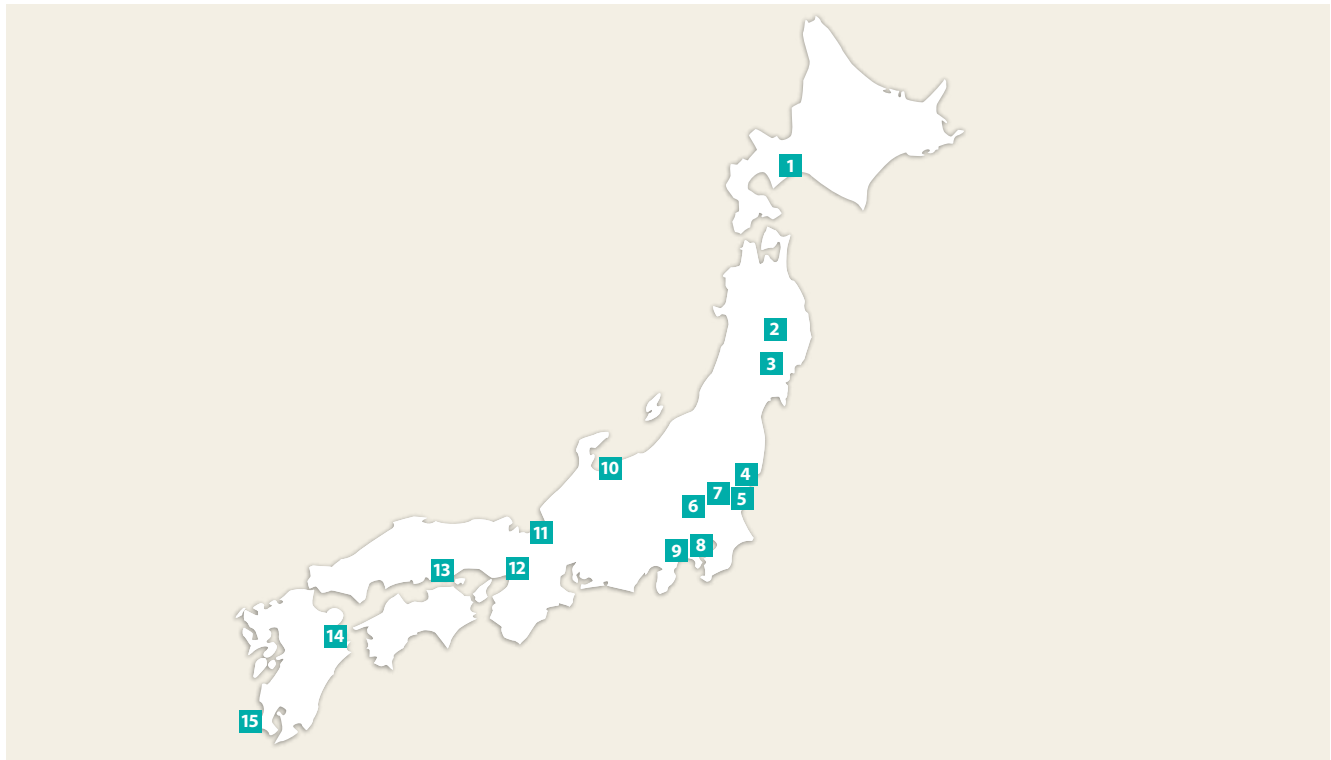
Cathode materials



Sputtering target  
for semiconductor

# Overview of the Main Group Companies

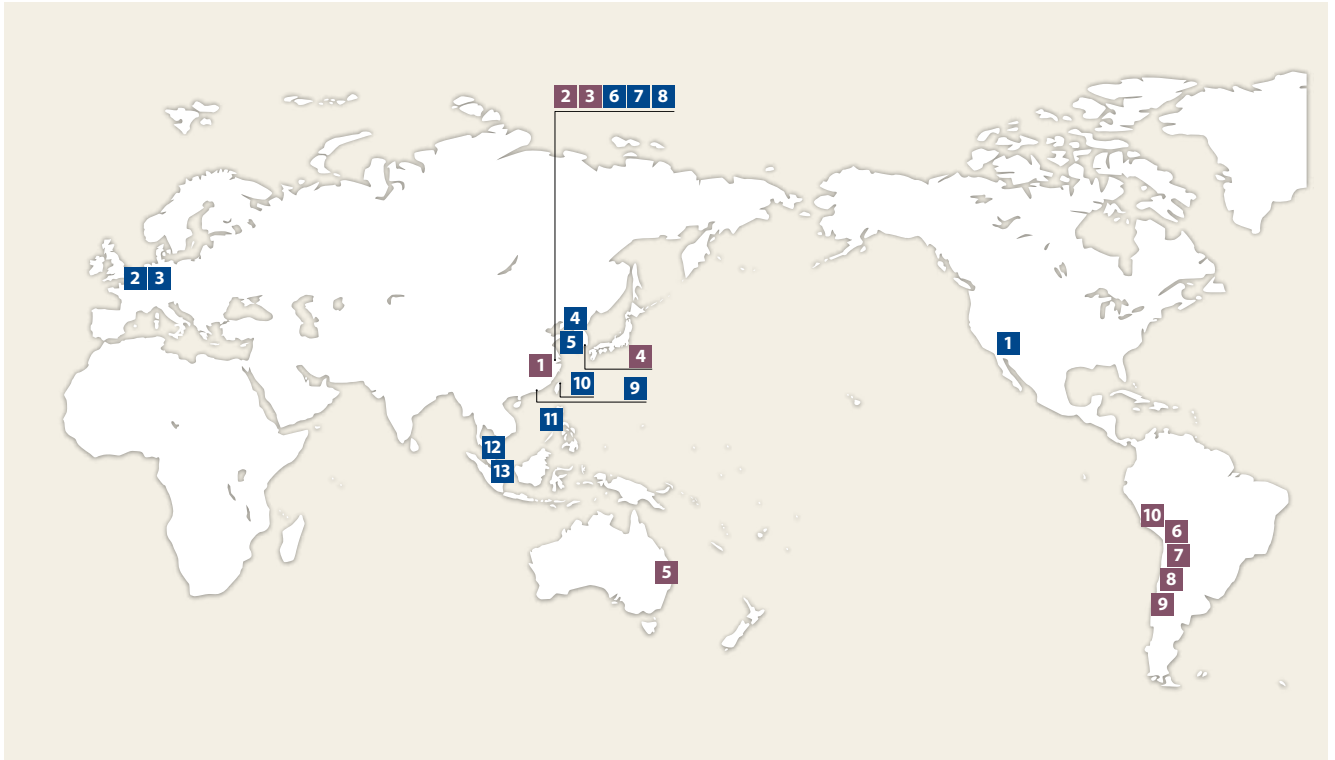
\* As of July 1, 2012



## Domestic

- |   |   |   |
|---|---|---|
| <b>1</b> JX Nippon Tomakomai Chemical   | <b>7</b> Sakitama Works,<br>Suzuki Manufacturing                                | <b>12</b> Takatsuki Plant, JX Metals Trading  |
| <b>2</b> Esashi Works, Sanyu Electronic Industry  | <b>8</b> Kurami Works, Kawasaki Plant<br>Kawasaki Office, JX Nippon Coil Center | <b>13</b> Tamano Smelter, Hibi Kyodo Smelting   |
| <b>3</b> Ichinoseki Foil Manufacturing  | <b>9</b> Kurami Works<br>Kurami Office, JX Nippon Coil Center                   | <b>14</b> Saganoseki Smelter & Refinery,<br>Pan Pacific Copper<br>Saganoseki Works,<br>Japan Copper Casting |
| <b>4</b> Isohara Works<br>Isohara Fabricating Works   | <b>10</b> JX Nippon Kurobe Galva<br>JX Nippon Mikkaichi Recycle                 | <b>15</b> Kasuga Mines  |
| <b>5</b> Hitachi Works<br>Hitachi Works, Pan Pacific Copper<br>JX Nippon Environmental Services | <b>11</b> Tsuruga Plant<br>JX Nippon Tsuruga Recycle                            |   |
| <b>6</b> Tatebayashi Works,<br>Sanyu Electronic Industry  |   |   |





## Overseas

### Metals Group

- |  |  |   |
|--|--|---|
| <b>1</b> Changzhou Jinyuan Copper                      | <b>5</b> Australia Office<br>PPC Exploration (Australia) | <b>9</b> Chile Office<br>Pan Pacific Copper Chile Office<br>PPC Exploration (Chile)<br>Minera Lumina Copper Chile |
| <b>2</b> Nikko Metals Trading & Services<br>(Shanghai) | <b>6</b> Collahuasi Mine                                 |   |
| <b>3</b> Pan Pacific Copper (Shanghai)                 | <b>7</b> Escondida Mine                                  | <b>10</b> PPC Exploration (Peru)  |
| <b>4</b> LS-Nikko Copper                               | <b>8</b> Los Pelambres Mine                              |   |

### Electronic Materials Group

- |   |  |  |
|---|--|--|
| <b>1</b> JX Nippon Mining & Metals USA    | <b>6</b> Nikko Metals Shanghai           | <b>11</b> JX Nippon Mining & Metals<br>Philippines |
| <b>2</b> Gould Electronics                | <b>7</b> Nippon Mining & Metals (Suzhou) | <b>12</b> Materials Service Complex Malaysia       |
| <b>3</b> JX Nippon Mining & Metals Europe | <b>8</b> Nikko Fuji Precision (Wuxi)     | <b>13</b> JX Nippon Mining & Metals Singapore      |
| <b>4</b> JX Nippon Mining & Metals Korea  | <b>9</b> Nikko Metals Hong Kong          |  |
| <b>5</b> Poongsan-Nikko Tin Plating       | <b>10</b> Nikko Metals Taiwan            |  |

## Glossary

Term	Explanation	Page(s)
Anode furnace	Equipment to raise the copper quality grade to 99.3% by infusing butane as a reducing agent to crude copper that was manufactured in a <u>converter</u> furnace and removing the oxygen therein.	53, 94
Approved retirement annuity	A system for a corporation to commission the handling of employees' retirement money via outside financial institutions to raise the amount of the retirement fund.	50
Basel Convention	The official name is the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal. The Basel Convention sets forth an international framework and procedures regarding the regulation of certain wastes that are transported beyond national borders.	52
BCP	A Business Continuity Plan (BCP) is an action plan for a corporation to continue its business operation. The plan states measures to continue minimum operation with limited management resources or resume operation within the <u>target</u> restoration hours in case of the occurrence of a disaster or other such unexpected incident.	16, 20, 36, 37
Beyond Compliance	A corporation's voluntary efforts to exceed compliance with laws and regulations.	18
Biodiversity / biological diversity	The variation of life forms within a given ecosystem, biome or on the earth. Covering biodiversities of genes, species and ecosystems of a region.	6, 20, 40, 52, 91, 103, 104
Bio-mining	Mining that takes advantage of a bioengineering technique; the same as "bio-leaching."	11
BOD	Biochemical Oxygen Demand: An index of water quality indicating the amount of oxygen needed to decompose organic substances in the water by the activities of microorganisms; it is a typical index used for measuring organic river pollution.	58
Caisson	A hollow concrete box used to make an underwater structure such as a breakwater.	42, 97
Caisson filler	A filler to be poured into <u>caissons</u> , the hollow concrete boxes used for building breakwaters and other underwater structures, to prevent them from floating up due to buoyancy.	56
COD	Chemical Oxygen Demand: An index of water quality indicating the amount of oxygen needed to decompose organic substances that are susceptible to oxidization; it is a typical index used for measuring ocean and lake pollution by organic substances.	58
Cogene (cogeneration)	Efficient utilization of energy becomes available by feeding not only electric power but also heat through the active use of waste heat when electric power is generated. "Cogene" is an abbreviation.	50
Cohesion	A phenomenon through which small particles scattered in the air or liquid gather and form larger particles.	45
Compound semiconductor	A semiconductor that consists of two or more elements.	82
Conflict minerals	Resources mined in regions where conflicts are occurring such as Africa. Tantalum, gold, tin and tungsten mined in the Democratic Republic of the Congo and surrounding countries and their derivatives are considered a source of funds for conflicts.	66, 91
Contract-type corporate pension	A kind of defined benefit corporate pension plan. Based on a pension contract agreed upon between the employer and the employee, the corporation commissions external financial institutions to administer and manage the pension fund.	50
Converter	An inclined-rotation furnace for converting sulfides, chiefly containing copper, which are a semi-manufactured product in the copper smelting process that is called copper matte, into blister copper.	42, 97, 98
Copper and copper alloy scraps	A collective term for high-quality copper and copper alloy scraps.	56
Copper concentrate	20–40% purity raw copper after concentration and separation of copper through breaking, crushing and flotation processing of copper ore.	11, 15, 18, 41, 43, 56, 97, 98, 99, 100, 103
Crusher	Equipment to crush ores by adding pressure.	39, 45
Defined benefit plan (pension)	Pension that defines benefit amounts beforehand. In case the corporation cannot secure defined benefit amounts or if the person lives a long life and more funds than expected are needed, the corporation might need to contribute additional funding.	50, 103
Defined contribution corporate pension plan	A pension plan in which the amount an employee pays into the plan while he or she is working is fixed; although, after retirement the amount the employee receives as a pension benefit is not fixed as it reflects any losses or gains recognized as a result of fund management.	50
Defined contribution plan (pension)	The employee contributes a certain set amount during service years, with the contributed amounts managed and the resulting amounts paid at the time of retirement. The employee's contribution amount is defined, but the amount to be paid at retirement is not defined.	50
EITI	The Extractive Industries Transparency Initiative (EITI) is an initiative to increase the transparency of capital flows in the extractive industries that engage in the development of mining, oil, coal and other natural resources. Former Prime Minister of the United Kingdom Tony Blair advocated this initiative at the Johannesburg Summit 2002.	4, 32, 92
EU directives	The EU directives require the EU member countries to achieve certain goals but do not stipulate the methods to achieve such goals. The EU directives are different from the regulations that have execution power and become immediately enforceable as law in all member countries.	66
Extraction percentage	The ratio of intended products to the content, or more specifically the ratio of the production volume in the smelting process to the metal content in the <u>copper concentrate</u> or in recycled materials.	49, 51, 55
Feeder board	Excessive electric current that flows when grounding and short-circuit accidents occur to electric circuits are hazardous to equipment and surrounding objects. Crossing gates are protective equipment used to keep such hazards to a minimum by separating the positions of disorder safely and quickly if such accidents happen.	42

Term	Explanation	Page(s)
Flash furnace	A furnace that uses oxidation and the exothermic reaction of ores themselves to melt and separate copper and iron in the form of matte and slag while recovering sulfur in the form of sulfur oxide gas.	53, 54
Flotation	Process of (equipment for) manufacturing <u>copper concentrate</u> by making the ore crushed during the <u>grinding process</u> into slime, then adding a foaming agent for ores containing the metals gathering on the surface to collect the foam.	39
FPD	Flat Panel Display: Liquid crystal (LC), plasma and other types of planar displays.	81, 98, 100
GHS	Globally Harmonized System of Classification and Labeling of Chemicals: A system that classifies chemicals by the type of hazard and proposes harmonized hazard communication elements.	58
Global Compact	A program regarding autonomous codes of conduct of companies, which was officially launched at the United Nations Headquarters in New York in 2000. Participating companies in the world adhere to the 10 principles of the Global Compact with respect to human rights, labor, the environment and anti-corruption.	4, 32, 67, 92
Green Economy	Measures that aim to connect environmental measures to an increase in employment. These were a major issue of discussion at <u>Rio +20</u> .	20
Green purchasing / purchase	Purchase of products and services with the smallest possible environmental impact, with reference to suppliers dedicated to reducing the environmental impact.	12, 32, 52, 66
GRI	Global Reporting Initiative: An institution established in 1997 by the United Nations Environment Program (UNEP), Coalition for Environment Responsible Economies (CERES) and other entities for the purpose of developing and disseminating globally applicable sustainability reporting guidelines. Its secretariat is located in Amsterdam, the Netherlands.	1, 2, 4, 15, 33, 91, 100, 101, 102
GRI Mining and Metals Sector Supplement	A guideline supplementing <u>Sustainability Reporting Guidelines 2006</u> with issues that it does not cover.	1, 4, 91
Grinding	Process (equipment) to crush shredded ores to a target size by rotating them with steel balls and sticks at a high speed.	39, 98
Hydro-metallurgy	A smelting process to produce objective metals by dissolving and refining ore with the use of chemicals, such as sulfuric acid, at ordinary temperatures.	11, 25, 99
ICA	International Copper Association	83
ICMM	International Council on Mining and Metals	1, 4, 12, 15, 83, 91, 92, 99
IGZO	Indium Gallium Zinc Oxide: A kind of transparent, conductive material used in <u>FPDs</u> .	81
Intensity	The quantity of materials, labor, power and other elements required for a fixed volume of industrial product. For example, the intensity of energy refers to the energy consumption necessary to produce or treat one metric ton.	13, 14, 21, 22, 52, 53, 54, 55, 57
International Finance Corporation (IFC)	The International Finance Corporation (IFC), an international organization that was established in July 1956, supports the private sector in developing countries to promote the economic development of those countries. IFC invests in and loans to projects and provides technical support for local communities, thereby contributing to reducing poverty and improving living standards in developing countries.	40
International Labour Organization (ILO) Convention	The International Labour Organization Convention was adopted by the International Labour Organization (ILO), a specialty organization of the United Nations, with the purpose of improving labor conditions.	40
International resource majors	International giants that conduct the mining of metals and other resources	18
Inverter	Equipment to convert direct current to alternate current.	22
Iron concentrate	Powdered materials with high-ferrous content, obtained from the treatment of <u>converter slag</u> .	56
Iron silicate (Slag)	Slag is iron silicate sand, a compound oxide of iron and hydrated silicate that is produced in each process of refining and smelting.	41, 42, 56, 99
ISO	International Organization for Standardization: A nonprofit organization in the civic sector established to draft international standards that apply to industrial fields, except for the field of electrical equipment. Its headquarters is located in Geneva, Switzerland.	13, 14, 98
ISO 14001	Stipulates the requirements for environmental management systems with the aim of attenuating the environmental impact and risks caused by the activities, products and services of an organization and preventing their occurrence.	36, 52, 61
ISO 26000	An international standard to guide social responsibility. The standard established by the <u>ISO</u> (see above) is stipulated with a view to social responsibility of a wide variety of organizations and entities other than corporations; it only provides guidelines and does not aim to certify.	15, 34
ISO 9001	An international standard, which provides quality control guidelines implemented by the International Organization for Standardization, with the aim of improving customer satisfaction.	64
ITO	Indium Tin Oxide: A kind of transparent, conductive material used in <u>FPDs</u> .	81
JOINT INDUSTRY GUIDE: Material Composition Declaration for Electrotechnical Products	This guide establishes the framework that the industry may use to report a substance content declaration. The guide also establishes the substances to be reported as well as their reporting thresholds, agreed by the industry to govern substance content disclosures for electrotechnical products due to regulatory or market requirements.	66
Kiln furnace	A furnace in which thermal decomposition progresses while slowly rotating the object for incineration.	45

Term	Explanation	Page(s)
Lockout	A countermeasure taken by management in response to a labor dispute, including a strike that a labor union calls. Management temporarily shuts down offices and plants to lock out workers participating in the labor dispute to reject wage payment.	69, 104
Materials stewardship	The range of activities required to ensure the optimal and appropriate use of minerals and metals in society promoted by the <u>ICMM</u> .	16, 45, 91, 94, 105
Mine Safety Act	The Mine Safety Act is a law enacted in 1949 to prevent hazards to mine workers and mine pollution and to allow the reasonable development of mine resources.	20, 37, 38
N-Chlo Process	Nikko Chloride Process: A <u>hydro-metallurgical</u> technology that efficiently extracts copper and gold, silver and other precious metals from <u>low-grade copper concentrates</u> .	11
Neutralized slag	Waste produced by a neutralization reaction in the smelting process.	56
OHSAS	Occupational Health and Safety Assessment Series: An international standard that stipulates requirements for health and safety management systems, with the aim to improve risk management systems and the performance of the systems.	13, 14, 36
OHSAS 18001	OHSAS 18001 is a standard for occupational health and safety management systems and is the most widely accepted standard in the world.	73, 74
Oxidative refinery furnace	Equipment to oxidize and remove impurities such as the iron contained in crude copper, which is reduced and cast to produce anodes.	13
PCB	Polychlorinated Biphenyl: A collective term that denotes biphenyl compounds having two connected phenyl groups, to which numerous chlorines are added. This chemical compound is chemically stable and has been widely used as insulating oil, a heating medium, a plasticizer and lubricating oil, but is currently forbidden to be used because its accumulation inside the body is harmful to living organisms.	11, 14, 59
PDCA cycle	The "Plan," "Do," "Check" and "Act" cycle: A management method to continuously improve quality and business through repetition of this process.	11, 33, 57, 64
Permanent cathode method	A method for producing <u>refined copper</u> in which stainless steel plates are used as the cathodes in the refining process, to improve current efficiency in comparison to conventional processes and produce higher-quality refined copper.	53
Phosphor bronze	A copper alloy added with tin and a minute amount of phosphorus.	22
Pit	Mortar-shaped hole (pit) that is made by open-pit mining.	39, 88
Powder metallurgy	A method to produce metal products by pressurizing, casting and sintering metal powder.	83
PRTR	Pollutant Release and Transfer Register: A system under which information on the release of pollutants into the air, water and soil, as well as transfers of waste and pollutants, is reported to a nation, which compiles the information and publishes the results.	1, 58
Rare earth	A collective term for 17 elements including scandium and yttrium, both of which belong to the third family on the periodic table, and 15 lanthanide series elements (atomic numbers 57 through 71).	11, 46
Rare metal	This term denotes metals of which the volume that exists in nature is considered rare, but there is no absolute definition of rare. Generally speaking, it denotes nickel, cobalt, chrome, manganese, titanium, etc.	11, 18, 23, 24, 41, 45, 46, 49, 50, 89
Ratio of equity entitlement copper mine production	The ratio of copper concentrate obtained from sources where the Group owns mining rights to its total copper concentrate requirements for its smelting and refining business.	49, 94
REACH	Registration, Evaluation, Authorization and Restriction of Chemicals: A system of registration requiring all manufacturers and importers of chemicals in quantities of 1 ton or more per year to identify and manage the risks related to the substances they manufacture and market.	59, 66, 100
Recycled (raw) resources	Waste, etc., containing copper-recycling materials, gold, silver and other value-bearing metals.	55, 56, 60, 100
Recycling engineering	Refers to R&D to establish a recycling-oriented society that aims not only for the technological development to recycle objects but also harmony with the environment.	23, 24
Refined copper	Copper of over 99.99% purity after electrolyzing it with an anode as a positive plate.	41, 42, 43, 53, 54, 55, 57, 60, 99
Resource nationalism	The tendency of a government to assert control and recover authority over natural resources located in its territory, taking various measures to prioritize the supply of resources to corporations and people inside its own country.	15
Rio +20	Abbreviated expression of the UN Conference on Sustainable Development, which was held in Rio de Janeiro, Brazil, in June 2012, 20 years after the 1992 Earth Summit in Rio.	20, 98
RoHS	Restriction of Hazardous Substances directive: A directive of the EU regarding restrictions on the use of certain hazardous substances in electrical and electronic equipment.	66
Sand Compaction Pile method	A kind of sea bottom ground improvement construction method to strike an <u>iron silicate</u> (slag) picket onto weak ground to form compound ground, thereby increasing the resistance to shearing. This method improves the ground by leaching water from the ground.	42
Sandblasting material	An abrasive used to repair or remove rust from vessels in the shipping industry. With the use of compressed air, centrifugal force or other such force, it is sprayed for abrasion.	56
SDS	Safety Data Sheet: A data sheet supplied by the chemical substance supplier to provide information on the chemical substances used with the materials to ensure the health and safety of the users who handle these chemical substances.	58, 64
Shot	A granulated metal product.	56



Term	Explanation	Page(s)
Silicate ore	Ore that consists of quartz and other silicates, containing a minute amount of gold.	56
Silver and gold slag	Industrial waste that contains gold and silver.	45, 56
Slit	A kind of processing method to divide a row of copper alloys and specialty steel products or electro-deposited copper foil vertically in line with the width of the product.	22
Sludge	Sediment containing putrescible organic matter, which is produced in sewage or industrial effluent treatment processes.	45, 54, 56, 58, 100, 104
Small-scale household appliance recycling law	The purpose of the small-scale household appliance recycling Law is to promote recycling through the flexible collaboration of local governments and recycling business operators.	19
Smart materials	Materials with one or more remarkable characteristics resulting from certain stimuli such as pressure, temperature, humidity, pH, electricity or magnetism.	18
Solvent extraction	Method to separate mixtures and extract certain substances by adding such solvents as non-water soluble benzene and chloroform to a water solution containing various chemical substances and dissolving designated ingredients in such solvents.	45, 100
SPC	Statistical Process Control: A statistical method to evaluate performance of production lines and project a significant deviation on occurrences of rejected products.	64
Sputtering	A method in which inert gas ions collide with metal and other <u>targets</u> to form an even, high-quality thin film consisting of ejected metal and other substances on the surface of the object.	36, 37, 65, 81, 82, 94, 100
SQC	Statistical Quality Control: A statistical method to control product quality with variability of qualities of entire manufacturing lines, including raw materials, equipment and facilities, operations and finished products, rather than with qualities of individual products.	64
Stationary furnace	A small fixed box-type furnace through which to place an object for incineration on a fixed floor, heat it up with a burner and forward wind to reduce the volume and incinerate it.	45
Supply chain	The process from the production of raw materials through to delivery to consumers. In recent years, as a facet of CSR, companies hold an increasing responsibility for the entire supply chain of each of their products.	15, 20, 65, 82
Sustainability Reporting Guidelines 2006	Version 3 of the <u>GRI</u> (G3) published in October 2006: G3 particularly encourages a company to determine what information to disclose by taking into account the materiality of each piece of information, as well as a boundary to be reported by considering control and significant influence to entities that could be involved in the boundary.	1, 4, 33, 91, 98, 101
SVHC46 substances	The European Chemicals Agency identifies chemical substances that may have serious and often irreversible effects on human health as Substances of Very High Concern (SVHCs) under the <u>REACH</u> regulation.	66
SX-EW	The SX-EW is the <u>Solvent Extraction</u> -Electrowinning method to selectively collect copper ions from copper leach solution (solvent extraction) and produce electrolytic copper by electrowinning copper sulfate solution.	39
Tablet terminals	A kind of mobile informational terminal of a flat board (tablet) shape, which is operated by a touch panel (LCD screen).	22
Tailing	Residual dross that remains after the recovery of value-bearing metals out of ore.	4, 9, 20, 37, 38, 39, 87, 88, 104
Target	A material put in a <u>sputtering</u> machine to form a thin film; used in semiconductors, <u>FPDs</u> and other applications.	36, 37, 65, 81, 82, 94, 97, 100
The Mining and Materials Processing Institute of Japan	Aims to advance and improve science and technologies related to natural resources and materials by conducting related surveys and research, collecting and providing information, providing education and nurturing human resources to contribute to the development of industry and academic culture.	24, 83
Thickener	Equipment to separate and collect the solid particles contained in liquid as <u>sludge</u> .	39
Titanium copper	A copper alloy with titanium added, which is often used for springs due to its comparable mechanical strength with that of beryllium copper.	94
Total material input	Total amount of <u>recycled resources</u> and primary raw materials, such as <u>copper concentrate</u> , input into the smelting process.	56
Type 2 Designated Energy Management Factory	A production plant consuming more than 1,500kl of crude oil equivalent per annum as stipulated by the Act on the Rational Use of Energy (energy-saving law).	1, 52
UPINORG	Ultra Pure INORGanic Chemical (UPINORG) is the brand name of high-purity copper sulfate manufactured by the Group.	65
Urban mine	A collective term that denotes all the metals able to be recycled and classified from among the nonferrous metals that were originally extracted from natural ores and made into various forms after going through smelting and refining processes and that were once used in human economic activities.	11, 16, 18, 25, 86
Visualization ("MIERUKA")	An initiative to clarify problems in a company's operations by examining them based on numerical results for objective assessments.	20, 22, 28
Wafer	A thin plate cut from a single semiconductor crystal, used as a substrate of integral circuits.	81
Wire harness	A bundle of electric lines used for power supply and signal transmission, which is used as wiring inside a vehicle.	19
Yield	The ratio of non-defective products to all products that have been manufactured; the fewer the defective products, the higher the yield rate.	13, 21, 22, 51, 53, 55
Zero emission	A structure where no waste subject to landfill disposal is discharged.	6, 11, 13, 41, 55

# GRI Content Index

This report has an A+ application level as defined by the Sustainability Reporting Guidelines 2006.

		C	C+	B	B+	A	A+
Standard Disclosures	<b>G3 Profile Disclosures</b> OUTPUT	Report on: 1.1 2.1–2.10 3.1–3.8, 3.10–3.12 4.1–4.4, 4.14–4.15	Report Externally Assured	Report on all criteria listed for Level C plus: 1.2 3.9, 3.13 4.5–4.13, 4.16–4.17	Report Externally Assured	Same as requirement for Level B	Report Externally Assured
	<b>G3 Management Approach Disclosures</b> OUTPUT	Not required		Management Approach Disclosures for each Indicator Category		Management Approach Disclosures for each Indicator Category	
	<b>G3 Performance Indicators &amp; Sector Supplement Performance Indicators</b> OUTPUT	Report on a minimum of 10 Performance Indicators, including at least one from each of social, economic, and environment		Report on a minimum of 20 Performance Indicators, at least one from each of economic, environment, human rights, labor, society, and product responsibility		Respond on each core G3 and Sector Supplement* indicator with due regard to the materiality principle by either (a) reporting on the indicator or (b) explaining the reason for its omission	

\* Sector supplement in final version

Number	Item	Content to be included	Page(s)
Strategy and Analysis			
1.1		Statement from the most senior decision-maker of the organization (e.g., CEO, chair, or equivalent senior position) about the relevance of sustainability to the organization and its strategy	4
1.2		Description of key impacts, risks, and opportunities	16, 21-22
Organizational Profile			
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2.2		Primary brands, products, and/or services	94
2.3		Operational structure of the organization, including main divisions, operating companies, subsidiaries, and joint ventures	2, 93
2.4		Location of organization's headquarters	93
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	93, 95-96
2.6		Nature of ownership and legal form	93
2.7		Markets served (including geographic breakdown, sectors served, and types of customers/beneficiaries)	50, 93-94
2.8		Scale of the reporting organization	49, 93-94
2.9		Significant changes during the reporting period regarding size, structure, or ownership including: <ul style="list-style-type: none"> <li>■ The location of, or changes in operations, including facility openings, closings, and expansions; and</li> <li>■ Changes in the share capital structure and other capital formation, maintenance, and alteration operations (for private sector organizations)</li> </ul>	Not applicable
2.10		Awards received in the reporting period	65, 82

Number	Item	Content to be included	Page(s)
<b>Report Parameters</b>			
3.1	Report Profile	Reporting period (e.g., fiscal/calendar year) for information provided	1
3.2		Date of most recent previous report (if any)	1
3.3		Reporting cycle (annual, biennial, etc.)	1
3.4		Contact point for questions regarding the report or its contents	Back cover
3.5	Report Scope and Boundary	Process for defining report content	1, 15-16
3.6		Boundary of the report (e.g., countries, divisions, subsidiaries, leased facilities, joint ventures, suppliers)	1-2
3.7		State any specific limitations on the scope or boundary of the report	1, 52, 58
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
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	50, 52-54, 56-59, 67-69, 72, 82
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)	55-58
3.11		Significant changes from previous reporting periods in the scope, boundary, or measurement methods applied in the report	1
3.12	<u>GRI</u> 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	106
<b>Governance, Commitments, and Engagement</b>			
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	31
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)	31
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	31
4.4		Mechanisms for shareholders and employees to provide recommendations or direction to the highest governance body	31, 36
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)	32
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	5-6
4.9		Procedures of the highest governance body for overseeing the organization's identification and management of economic, environmental, and social performance	16, 32-33
4.10		Processes for evaluating the highest governance body's own performance, particularly with respect to economic, environmental, and social performance	32-33

Number	Item	Content to be included	Page(s)
4.11	Commitments to External Initiatives	Explanation of whether and how the precautionary approach or principle is addressed by the organization	59
4.12		Externally developed economic, environmental, and social charters, principles, or other initiatives to which the organization subscribes or endorses	4, 91-92
4.13		Memberships in associations (such as industry associations) and/or national/international advocacy organizations	75, 83
4.14	Stakeholder Engagement	List of stakeholder groups engaged by the organization	12
4.15		Basis for identification and selection of stakeholders with whom to engage	12
4.16		Approaches to stakeholder engagement, including frequency of engagement by type and by stakeholder group	12, 17, 23, 24
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	17-20, 23-26, 34
Economic			
Disclosure on Management Approach			5-6, 11, 39, 41, 43, 45, 49-50
EC1	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	50
EC2		Financial implications and other risks and opportunities for the organization's activities due to climate change	16, 21
EC3		Coverage of the organization's <u>defined benefit plan</u> obligations	50
EC4		Significant financial assistance received from government	50
EC6	Market Presence	Policy, practices, and proportion of spending on locally-based suppliers at significant locations of operation	The Group purchases <u>copper concentrates</u> from overseas mines. Except for copper concentrates, the Group consigns purchasing to JX Nippon Procurement Corporation. Therefore, the purchasing policy of JX Nippon Procurement Corporation is used.
EC7		Procedures for local hiring and proportion of senior management hired from the local community at significant locations of operation	67
EC8	Indirect Economic Impacts	Development and impact of infrastructure investments and services provided primarily for public benefit through commercial, in-kind, or pro bono engagement	80
Environment			
Disclosure on Management Approach			5-6, 11, 51-53, 55, 57, 61-62
EN1	Materials	Materials used by weight or volume	56
EN2		Percentage of materials used that are recycled input materials	56
EN3	Energy	Direct energy consumption by primary energy source	53
EN4		Indirect energy consumption by primary energy source	53
EN8	Water	Total water withdrawal by source	55
EN11	<u>Biodiversity</u>	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	40, 78
EN12		Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas	40
EN14		Strategies, current actions, and future plans for managing impacts on biodiversity	40
EN16	Emissions, Effluents, and Waste	Total direct and indirect greenhouse gas emissions by weight	54
EN17		Other relevant indirect greenhouse gas emissions by weight	54
EN19		Emissions of ozone-depleting substances by weight	Not applicable
EN20		NOx, SOx, and other significant air emissions by type and weight	57
EN21		Total water discharge by quality and destination	55
EN22		Total weight of waste by type and disposal method	56
EN23		Total number and volume of significant spills	62



Number	Item	Content to be included	Page(s)
EN26	Products and Services	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation	43-44
EN27		Percentage of products sold and their packaging materials that are reclaimed by category	Not applicable
EN28	Compliance	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations	62
MM1	<u>Biodiversity</u>	Amount of land (owned or leased, and managed for production activities or extractive use) disturbed or rehabilitated (Land owned: Land owned or leased by the Company) (Land use: Production activities or the extraction of specific materials)	Not applicable. (The operation at the Caserones copper and molybdenum deposit is scheduled to begin in 2013.)
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	40
MM3	Emissions, Effluents, and Waste	Total amounts of overburden, rock, <u>tailings</u> , and <u>sludges</u> and their associated risks	37-38, 87-88
<b>Labor Practices &amp; Decent Work</b>			
Disclosure on Management Approach			5-6, 11, 67, 69, 72-74
LA1	Employment	Total workforce by employment type, employment contract, and region	67
LA2		Total number and rate of employee turnover by age group, gender, and region	68
LA4	Labor/Management Relations	Percentage of employees covered by collective bargaining agreements	69
LA5		Minimum notice period(s) regarding significant operational changes, including whether it is specified in collective agreements	69
LA7	Occupational Health and Safety	Rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities by region	72
LA8		Education, training, counseling, prevention, and risk-control programs in place to assist workforce members and their families or community members regarding serious diseases	71
LA10	Training and Education	Average hours of training per year per employee by employee category	69
LA11		Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	69-71
LA13	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	67-69
LA14		Ratio of basic salary of men to women by employee category	69
MM4	Labor/Management Relations	Number of strikes and <u>lockouts</u> exceeding one week's duration, by country	69
<b>Human Rights</b>			
Disclosure on Management Approach			5-6, 67
HR1	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		Percentage of significant suppliers and contractors that have undergone screening on human rights and actions taken	66
HR4	Non-discrimination	Total number of incidents of discrimination and actions taken	36
HR5	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	For overseas subsidiaries, the Company conducts operations in accordance with the labor laws and statutory regulations of the respective countries and does not restrict collective bargaining. For Japan, please see page 69.
HR6	Child Labor	Operations identified as having significant risk for incidents of child labor, and measures taken to contribute to the elimination of child labor	67
HR7	Forced and Compulsory Labor	Operations identified as having significant risk for incidents of forced or compulsory labor, and measures taken to contribute to the elimination of forced or compulsory labor	67
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.

Number	Item	Content to be included	Page(s)
Society			
Disclosure on Management Approach			5-6, 11, 35-36, 75, 78
SO1	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	40, 75-82
SO2	Corruption	Percentage and total number of business units analyzed for risks related to corruption	35
SO3		Percentage of employees trained in organization's anti-corruption policies and procedures	35
SO4		Actions taken in response to incidents of corruption	Not applicable
SO5	Public Policy	Public policy positions and participation in public policy development and lobbying	91-92
SO8	Compliance	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations	There were no fines or non-monetary sanctions for non-compliance with laws and regulations.
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	Community	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	40
Product Responsibility			
Disclosure on Management Approach			5-6, 11, 63-64
PR1	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	64
PR3	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	64
PR6	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 <i>Compliance Guidebook</i> .
PR9	Compliance	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	64
MM11	<u>Materials Stewardship</u>	Programs and progress relating to materials stewardship	23-26, 45-46

# Independent Assurance Report



## Independent Assurance Report

### To the President and Chief Executive Officer of JX Nippon Mining & Metals Corporation

#### Purpose and Scope

We were engaged by JX Nippon Mining & Metals Corporation (the "Company") to provide limited assurance on its Sustainability Report 2012 (the "Report") for the fiscal year ended March 31, 2012. The purpose of our assurance engagement was to express our conclusion, based on our assurance procedures, on whether:

- the environmental, social and economic performance indicators marked with  (the "Indicators") for the period from April 1, 2011 to March 31, 2012 included in the Report are prepared, in all material respects, in accordance with the Company's reporting criteria;
- the Company's self-declaration on the Global Reporting Initiative (the "GRI") application level (A+) conforms to the application level criteria stipulated by the GRI;
- the Company's policies are aligned to the International Council on Mining and Metals (the "ICMM")'s 10 Sustainable Development ("SD") Principles and the applicable mandatory requirements set out in ICMM position statements as described on page 91;
- the Company has identified and prioritized its material issues as described on page 15; and
- the Company has approached and managed its material issues as described on page 16.

The content of the Report is the responsibility of the Company's management. Our responsibility is to carry out a limited assurance engagement and to express our conclusion based on the work performed.

#### Criteria

The Company applies its own reporting criteria as described in the Report. These are derived, among others, from the Sustainability Reporting Guidelines version 3.0 of the GRI. We used these criteria to evaluate the Indicators. For the GRI application level, we used the criteria stipulated by the GRI.

#### Procedures 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' issued by the International Auditing and Assurance Standards Board, and the 'Practical Guidelines of Sustainability Information Assurance' of the Japanese Association of Assurance Organizations for Sustainability Information (the "J-SUS").

The limited assurance engagement on the Report consisted of making inquiries, primarily of persons responsible for the preparation of information presented in the Report, and applying analytical and other procedures. The level of assurance provided is thus not as high as that provided by a reasonable assurance engagement. Our assurance procedures included:

- Interviews with the Company's responsible personnel to obtain an understanding of its policy for the preparation of the Report.
- With respect to the Indicators,
  - Reviews of the Company's reporting criteria.
  - Inquiries about the design of the systems and methods used to collect and process the Indicators.
  - 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 a recalculation of the Indicators.
  - Visit to a domestic site 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.
- An assessment of 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.
- Interviews and documentation reviews of the Company's process of identifying and prioritizing its material issues.
- Interviews and documentation reviews of 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 91;
- the Company has not identified and prioritized its material issues as described on page 15; and
- the Company has not approached and managed its material issues as described on page 16.

We have no conflict of interest relationships with the Company that are specified in the Code of Ethics of J-SUS. We conducted our engagement with a team with expertise in environmental and social aspects as well as assurance engagements.

*KPMG AZSA Sustainability Co., Ltd.*

KPMG AZSA Sustainability Co., Ltd.  
Tokyo, Japan  
November 7, 2012

Please feel free to give us your frank opinions about *Sustainability Report 2012* 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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