

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, as well as report on the structure of its environmental management system and its development of environment-friendly technologies.

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* Some pages in this section show differences between summations of individual figures and totals. These differences are caused by calculations of figures with decimals that do not appear on the pages.

Environmental Activities Report

Basic Environmental Policy

As a global manufacturer of non-ferrous metal resources and materials, the Group will drive forward the following activities based on the basic policy that we will contribute to environmental conservation on a global scale through innovation in the productivity of resources and materials.



Established in July 2010

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. The top managers at each operating site serve as supervisory environmental managers.
- 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

In the Autonomous Action Plan for Environmental Protection, a medium-term action plan established in October 2006, we defined the prevention of global warming and

reduction of waste materials as key issues. Accordingly, we have set numerical goals related to these issues. These numerical goals have been revised as necessary.

(The rate of reduction is measured against the average value for the fiscal 2003–2005*1 period.)

Item		2006	2007	2008	2009	2010	Approach
Reduction in energy consumption intensity*2	Goal	1%	2%	3%	4%	5%	Reducing 1% per year
	Achievement	3.0%	5.0%	2.7%	3.5%	—	—
Reduction in CO ₂ emission intensity*2	Goal	1.5%	3.0%	4.5%	6.0%	7.5%	Reducing 1.5% per year
	Achievement*3	5.0%	6.8%	5.4%	6.9%	—	—
Reduction in final waste disposal intensity*2	Goal	6%	12%	18%	24%	30%	Reducing 30% over 5 years
	Revised goal	—	—	—	60%	70%	Reducing 50% in 3 years, 70% in 5 years
	Achievement*4	39%	63%	60%	73%	—	—

*Operating sites pursuing these goals

Domestic: All domestic operating sites classified as a Type 1 Designated Energy Management Factory. Operating sites covered are as follows: Shirogane Works, Isohara Works, Toda Works, Kurami Works, Saganoseki Smelter & Refinery (Pan Pacific Copper Co., Ltd.), Hitachi Works (Pan Pacific Copper Co., Ltd.), Tamano Smelter (Hibi Kyodo Smelting Co., Ltd.), Japan Copper Casting Co., Ltd., Nikko Environmental Services Co., Ltd., Tomakomai Chemical Co., Ltd., Nikko Mikkaichi Recycle Co., Ltd., and Nikko Tsuruga Recycle Co., Ltd.

Overseas: Changzhou Jinyuan Copper Co., Ltd., Nikko Metals Philippines, Inc., Gould Electronics GmbH, and Nippon Mining & Metals (Suzhou) Co., Ltd.

*1. Rates of some overseas operating sites are measured against fiscal 2006.

*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 2003 and fiscal 2005.

*3. The emission coefficients for electric power of 0.555 tons of CO₂/MWh, which was initially established and used to calculate the intensity reported in Sustainability Report 2009, is uniformly used. On the other hand, although equivalent amounts of CO₂ emissions to the volume of electricity generated by the Group's hydroelectric power plants and sold outside the Group were deducted from the total amounts of emissions that were provided in and prior to Sustainability Report 2009, this Report shows the CO₂ emission figure from which the equivalent value of the electricity is not deducted. As a result, some reduction rates differ from those in Sustainability Report 2009.

*4. Figures of final waste disposal intensity were recalculated based on revisions of final waste disposal volumes at some operating sites. As a result, some reduction rates differ from those in Sustainability Report 2009.

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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, such as CO₂, by 5% from 1990 levels in 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.

Under the current medium-term plan, which was revised in fiscal 2008, the Group's fiscal 2010 reduction goals for en-

ergy consumption intensity and CO₂ emission intensity are 5% or more and 7.5% or more, respectively, as measured against the average of the results for the period from fiscal 2003 to fiscal 2005. The Group will continue to monitor progress each year and strive to achieve these goals. (For further details, please see pages 21 and 60.)

The Saganoseki Smelter & Refinery of Pan Pacific Copper Co., Ltd. has participated in the trial implementation of CO₂ emissions trading in the Japanese market undertaken by the Japanese government.

Energy Consumption and Energy Consumption Intensity in Manufacturing Activities

In fiscal 2009, the Group's overall energy consumption in calorific value was 16,666 TJ, compared with 16,809 TJ in fiscal 1990, the base year of the Kyoto Protocol*.

Currently, energy consumed at its smelters and refineries accounts for 53% 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, streamlining smelting and sulfuric acid processes, and effectively using the waste heat generated.

Further, by introducing the permanent cathode method into the refining process, we are improving the efficiency of the electric current used and consequently reducing energy consumption. As a result, the energy consumption intensity at smelters and refineries has decreased to 65% of the intensity of fiscal 1990.

Other domestic operating sites are also striving to reduce energy consumption by introducing cogeneration units, improving product yield rates, streamlining production processes, improving facilities, and reviewing operating conditions.

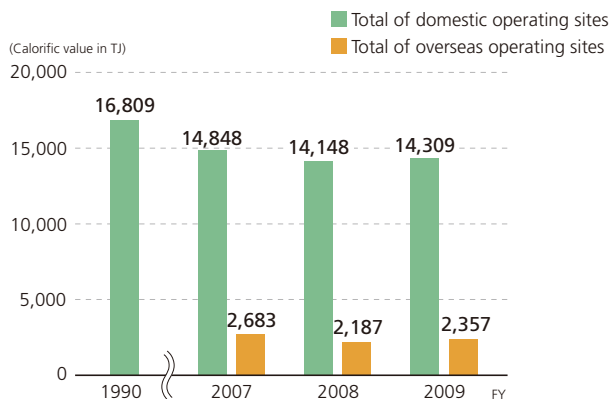
Additionally, our overseas operating sites are working to reduce energy use through such efforts as decreasing electricity intensity, as well as installing pump inverter control systems and highly functional cooling systems.

Going forward, we will further reduce energy consumption and effectively recover waste heat.

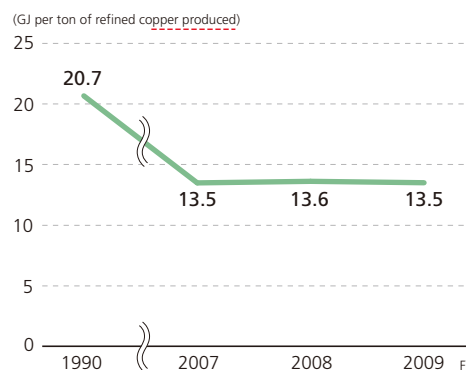


Converter at Saganoseki Smelter & Refinery

Energy Consumption (fuel + electricity)



Energy Consumption Intensity at Smelters and Refineries (fuel + electricity)



* The Group uses coefficients in correspondence with the Act on the Rational Use of Energy at both domestic and overseas operating sites. (A coefficient defined in the Voluntary Action Plan of the Federation of Economic Organizations (Keidanren) is used to calculate the data in fiscal 1990.) Breakdowns that make up energy consumption are shown below.
 Fiscal 1990 (domestic only): Fuel (direct) 6,866 TJ; Electricity (indirect) 9,943 TJ
 Fiscal 2009: Fuel (direct) domestic 3,752 TJ, overseas 945 TJ; Electricity (indirect) domestic 10,557 TJ, overseas 1,412 TJ
 TJ (tera joule): 10¹² J

CO₂ Emissions from Energy Consumption*¹

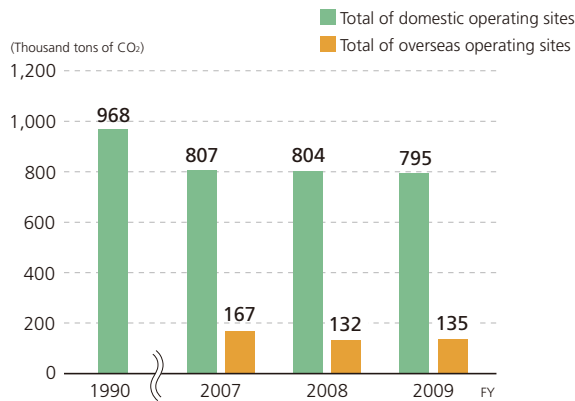
In fiscal 2009, the Group's CO₂ emissions from energy consumption were 930 thousand tons*².

Energy consumed at smelters and refineries accounts for 53% of the entire Groups. They have reduced the CO₂ emission intensity to 57% of the fiscal 1990 level by implementing energy conservation measures, such as conducting smelting operations with a single flash furnace.

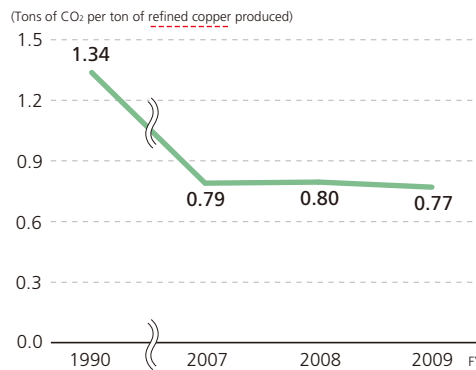
Due to unstable electric power supply conditions, some of

our overseas operating sites have had to rely on in-house power generation through the use of diesel engines. However, we have been promoting the shift from in-house power generation to purchasing electric power from electric power companies. This has resulted in a decrease of CO₂ emissions by about 23% (approximately 21 thousand tons). Also, these operating sites have shown an almost 16% improvement in CO₂ emission intensity.

CO₂ Emissions from Energy Consumption



CO₂ Emission Intensity at Smelters and Refineries



CO₂ 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 the CO₂ from sources other than energy consumption*³ as well as the emission of other greenhouse gases. In the Group's operations, nitrous oxide (N₂O)*⁴ meets the defini-

tion of other greenhouse gases.

Calculated on a CO₂ equivalent basis, emissions of these gases in fiscal 2009 were approximately 65 thousand tons, of which approximately 3 thousand tons was N₂O.

*1. Emissions are calculated using emission coefficients in correspondence with the Act on Promotion of Global Warming Countermeasures. In and prior to Sustainability Report 2009, the default value of 0.000555 tons CO₂/kWh as the emission coefficient related to electricity was uniformly used. However, in this Report, actual emission coefficients for individual electric power companies made public by the government and statistical data released by the International Energy Agency (IEA) are adopted to calculate amounts of emissions in fiscal 2009 for domestic and overseas operating sites, respectively. Those values in previous fiscal years have been revised accordingly.

*2. Though equivalent amounts of CO₂ emissions to volume of electricity generated by the Group's hydroelectric power plant and sold outside the Group were deducted from the total amounts of emissions that were provided in and prior to Sustainability Report 2009, this Report shows the CO₂ emission figure from which the equivalent value of electricity is not deducted.

*3. Emitted during the incineration of waste oil, plastic, and rubber tires.

*4. Emitted during the incineration of sludge, waste oil, plastic, and rubber tires as well as during fuel consumption.

Logistics Stage

In order to decrease the environmental impact caused by our operations during the logistics stage, we are advancing modal shifts, increasing the size of production lots, and improving loading rates.

In fiscal 2009, the Group's energy consumption was 608 TJ and CO₂ emissions were 42.9 thousand tons, compared

with 605 TJ and 42.7 thousand tons in fiscal 2008, respectively. Regardless of the 18% year-on-year increase in shipment volumes, these indexes remained at the same level as fiscal 2008. This was due to the effects of such initiatives as increasing the use of short-distance shipments and increasing shipment lots.

* Figures are the sums of energy consumption and CO₂ emissions of three logistics companies that are subject to the Act on the Rational Use of Energy.

Renewable Energy

Hydroelectric power, which is generated by using the force of water flowing downstream in a flowing river, is a form of renewable energy that does not emit CO₂. It is also a form of energy that is renewed through the water cycle. The Group has been engaging in hydroelectric power generation since 1907, the days of Kuhara Mining Co., Ltd., which was

the predecessor to JX Nippon Mining & Metals. Currently, we generate hydroelectric power in Fukushima Prefecture, and sell the energy generated to a power producers and supplier (PPS). Hydroelectric power generation totaled about 28 MWh in fiscal 2009, compared with 31 MWh in fiscal 2008.

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 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, or at the very least neutralize the environmental impact. Through these efforts, we are contributing to the creation of a resource-conservation and zero-emission society.

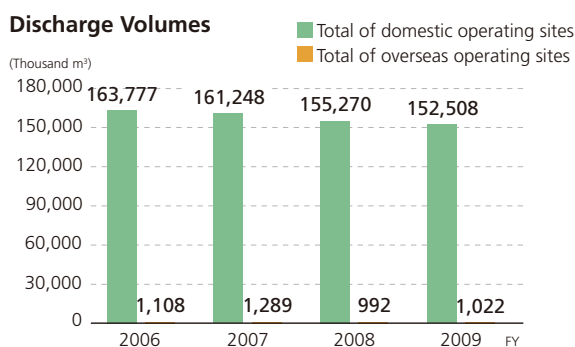
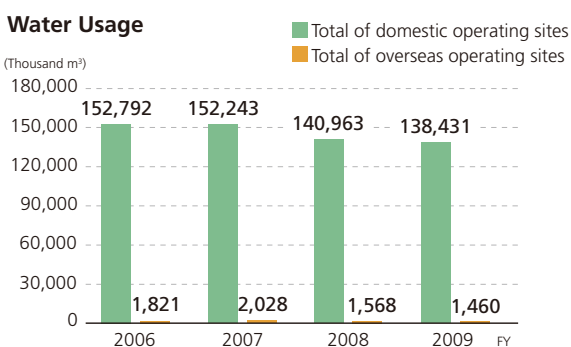
In particular, we strive to reduce the volume of waste materials for final disposal. Last year, we revised our goals for final waste disposal intensity (final disposal volume / production volume or treatment volume). We have subsequently established our new goal to reduce final waste disposal intensity by over 70% of the average value for the period from fiscal 2003 to fiscal 2005. We are actively monitoring operations and gearing up to meet this goal. (For further details, please see pages 21 and 60.)

Moving forward, we are making 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*)

The Group's water usage in fiscal 2009 amounted to 139,891 thousand m³, of which 85% was sea water. The volume of water discharge was 153,530 thousand m³, of which 90% was discharged into the sea.

The water usage intensity and water discharge intensity at smelters and refineries, which account for 89% of the Group's total water usage, remained at almost the same level as in recent years.



Water Usage (domestic and overseas)

(Thousand m³)

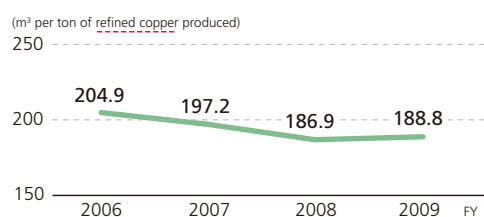
	2006	2007	2008	2009
Sea water	133,735	132,306	121,138	118,685
Ground water / Industrial water	18,903	19,830	19,373	19,263
Waterworks	1,836	2,041	1,917	1,847
Rainwater	139	95	103	96
Total	154,613	154,271	142,531	139,891

Discharge Volumes (domestic and overseas)

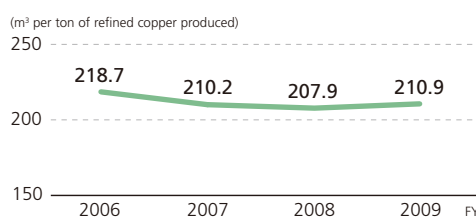
(Thousand m³)

	2006	2007	2008	2009
Ocean	147,791	146,327	140,748	138,598
River	16,763	15,871	15,184	14,617
Drainage systems	331	339	329	315
Total	164,885	162,537	156,261	153,530

Water Usage Intensity at Smelters and Refineries



Discharge Intensity at Smelters and Refineries



Resource Conservation (Recycled resource input volume and total material input)

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, shifting from resources that are extracted directly from nature to recycled resources is a pressing issue.

In fiscal 2009, the Group's total material input was 2,792 thousand tons. Of this, recycled resources accounted for 265 thousand tons, or 10% of the total material input.

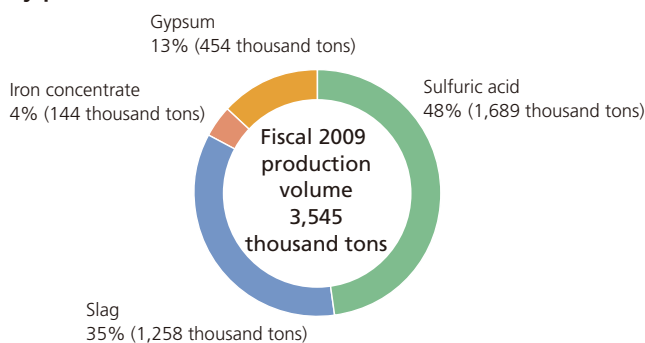
	Product	Input volume (thousand tons)
Primary resources	Copper concentrate, silicate ore, copper shot, iron and copper elements (bare strips), nickel, zinc, other metals, etc.	2,527
Recycled resources	Copper and copper alloy scraps, silver and gold residual slag, copper scraps, etc.	265
Total		2,792

By-products

In fiscal 2009, the Group produced 3,545 thousand tons of by-products, including 1,689 thousand tons of sulfuric acid, 1,258 thousand tons of slag, 144 thousand tons of iron concentrate, and 454 thousand tons of gypsum.

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-product Production Volume

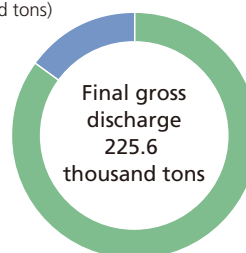


Gross Generation of Waste Materials and Final Gross Discharge

The gross generation of waste materials in fiscal 2009 was 225.6 thousand tons, of which 85%, or 192.4 thousand tons, was reused within the Group. As a result, final gross discharge, including sales of value-bearing metals, was 33.3 thousand tons. The volume of landfill disposal, excluding the volume recycled externally,* was 1.8 thousand tons in fiscal 2009, a year-on-year decrease of almost 0.3 thousand tons. 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 operating sites manufacturing electronic materials.

Gross Generation of Waste Materials and Volume Recycled Internally

Volume discharged outside the Group
15% (33.3 thousand tons)



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Discharge Outside the Group

(Thousand tons)

Purpose of discharge		2009
Recycling	Sales of value-bearing metals	19.9
	Waste	10.1
Heat recovery	Waste	0.9
Incineration	Waste	0.4
Final disposal	Waste	1.8
Total waste		33.3
Total		33.3

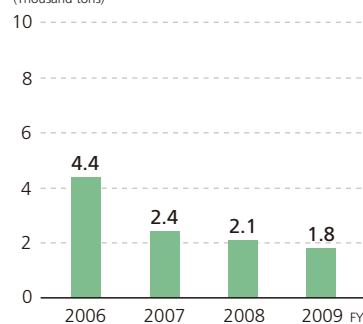
Type of Waste

(Thousand tons)

Type	2009
Sludge	5.2
Cinder	2.8
Waste acid / Waste alkaline	1.6
Glass / Concrete / Ceramics / Porcelain	0.6
Waste plastic	0.8
Other	2.2
Total	13.3

Volume of Final Landfill Disposal

(Thousand tons)



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

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

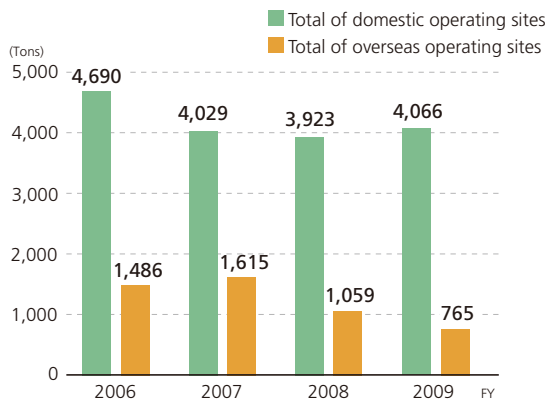
impact, we have developed our own voluntary standards to monitor air and water emissions at our operating sites. We also implement the PDCA cycle to reduce environmental risks.

Preventing Air Pollution

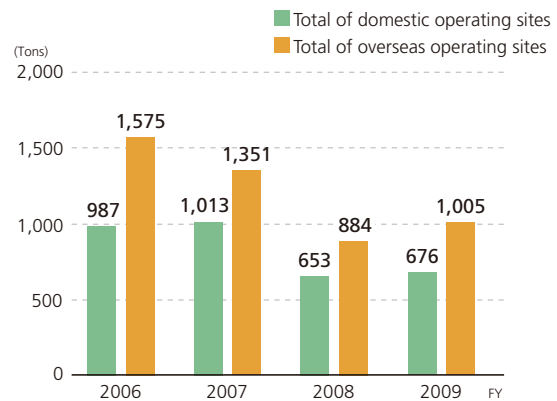
The Group monitors waste gas emissions at all operating sites in compliance with laws, regulations, and other ordinances, as well as its own voluntary standards. Emission volumes of sulfur oxides (SOx) and nitrogen oxides (NOx) in fiscal 2009 are described in the graphs below. Smelters and refineries have improved sulfuric acid inversion rates and effectively used recovered waste heat to generate power by the use of turbines. These efforts have allowed us to cease operation of diesel power generators, which run on heavy oil. These operating sites have also replaced the bricks used in flash furnaces with those that have better heat resistance. However, the total of SOx and NOx emission volumes at domestic operating sites increased by 143 tons and 23 tons, respectively, against those in the previous fiscal year. On the other hand, the SOx emission intensity remained nearly the same, while NOx emission intensity showed an improvement trend.

One overseas operating site previously depended on in-house power generation by diesel generators, due to the unstable supply of electricity. However, this operating site has been recently promoting a shift from in-house power generation to purchased power. It has also converted heavy oil to low-sulfur heavy oil (1%) to run the diesel generators. These efforts have resulted in a substantial decrease in SOx emission volumes. Due to the change of definition of the accounting year, only nine months of NOx emissions volumes were totaled to identify the total volume in fiscal 2008. Although that may provide the misunderstanding that the NOx emission volume in fiscal 2009 is larger than in fiscal 2008, the emission volume actually decreased between fiscal 2008 and fiscal 2009.

SOx Emission Volume*

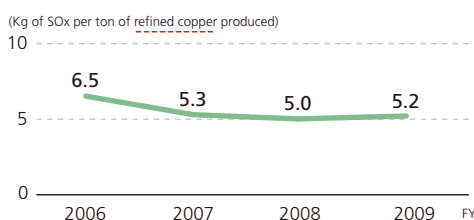


NOx Emission Volume*

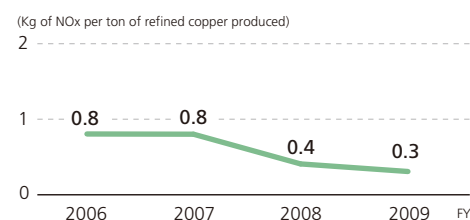


* Totals of volumes of operating sites subject to legal requirements

SOx Emission Intensity of Smelters and Refineries



NOx Emission Intensity of Smelters and Refineries

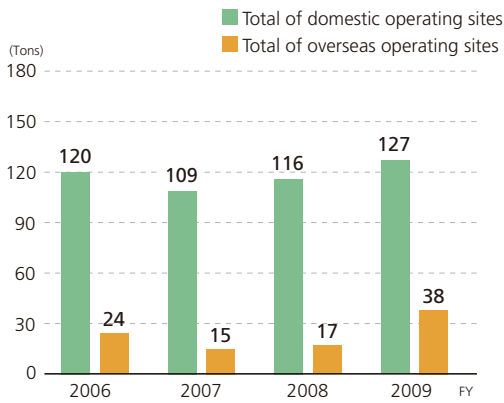


Preventing Water Pollution

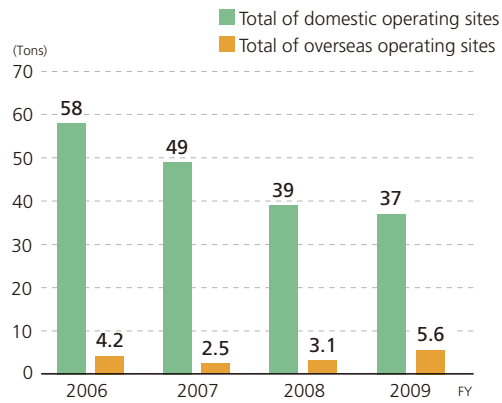
The Group monitors water discharge at all operating sites in compliance with relevant laws, regulations, and other ordinances, as well as our own voluntary standards. The amounts

of chemical oxygen demand (COD) and biochemical oxygen demand (BOD) are outlined below.

COD*



BOD*



* Totals of volumes of operating sites subject to legal requirements

Chemical Management

Identifying quantities of specific chemical substances released into the environment and improving controls

The Group strictly adheres to the laws and regulations pertaining to the Pollutant Release and Transfer Register (PRTR). Also, the Group is working hard to reduce its environmental impact by decreasing the release of specific chemical substances into the environment, as part of its environmental management activities.

Further, we apply the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) in the compilation of Material Safety Data Sheets (MSDS). We strive to provide easy-to-understand information regarding the characteristics and handling of chemical substances.

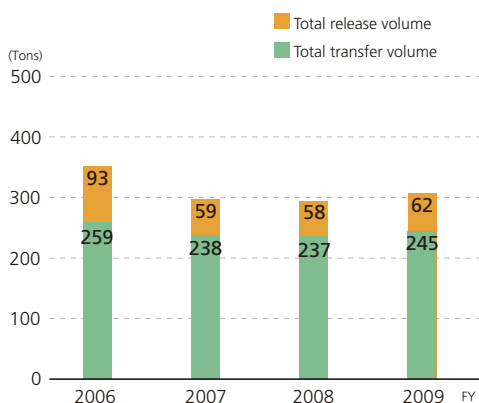
In fiscal 2009, the Group released and transferred approximately 307 tons of chemicals that are required to be report-

ed by PRTR. This represented a 12 ton increase from the previous fiscal year.

The volume of chemicals released into the atmosphere decreased due to our efforts to install dust collectors and curb the dispersion of dust in order to prevent heavy metals from being released into the atmosphere from smelting processes. However, the volume of chemicals released into the water environment rose as production volumes increased and additional substances were required to be reported at some operating sites. Consequently, a 4 ton increase of substances released into the water environment was realized relative to fiscal 2008.

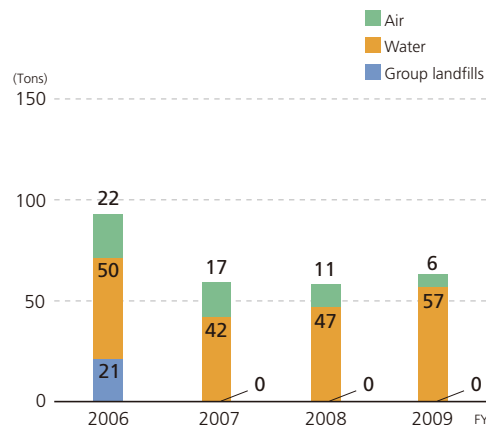
Meanwhile, increased production volumes and the expansion of new businesses resulted in an 8 ton increased in the transfer of chemicals.

Volume of Release / Transfer



*While total transfer volume for fiscal 2008 was listed as 236 tons in the previous year's report, it was changed to 237 tons in this year's report.

Breakdown of Release Volumes



Release and Transfer Volumes of Chemicals

(Tons)

No.	Material number	Chemical	Release volume			Transfer volume	
			Air	Water	Group landfills	Waste materials	Drainage systems
1	1	Zinc compounds (water soluble)	0.7	3.7	0	33	0
2	25	Antimony and its compounds	0.08	0.8	0	3.1	0
3	60	Cadmium and its compounds	0.7	0.2	0	0	0
4	63	Xylene	0.1	0	0	0	0
5	64	Silver and its water-soluble compounds	0	0.7	0	0.6	0
6	68	Chromium and trivalent chromium compounds	0	0.1	0	0.8	0
7	100	Cobalt and its compounds	0	0	0	4.7	0
8	108	Inorganic cyanide compounds (except complex salts and cyanates)	0	0.1	0	0	0
9	178	Selenium and its compounds	0.1	1.1	0	0.5	0
10	207	Copper salts (water soluble, except complex salts)	1.6	3.6	0	140	0
11	209	1,1,1-trichloroethane	0	0.5	0	0	0
12	230	Lead and its compounds	1	1	0	7.8	0
13	232	Nickel compounds	0.06	1.5	0	49.6	0
14	252	Arsenic and its inorganic compounds	1.2	2.5	0	4.3	0
15	283	Hydrogen fluoride and its water-soluble salts	0	30.3	0	0	0
16	304	Boron and its compounds	0	8.9	0	0.1	0
17	311	Manganese and its compounds	0	1.3	0	0.2	0

(g-TEQ)

18	179	Dioxins	0.45	0.02	0	9.7	0
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*1. There are 40 chemicals that are required to be reported.

*2. Except dioxins, all chemicals reported have a total release and transfer volume of over 0.1 tons.

*3. There is no discharge into Group landfills, the soil, or the drainage system.

Detoxification of products containing PCBs

Utilizing the early registration system of the Japan Environmental Safety Corporation (JESCO)*, the Group completed registration of products containing PCBs in fiscal 2005. This includes condensers and transformers both in storage and in use.

JESCO's plans call for the disposal of these products to be completed by March 2015.

* 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

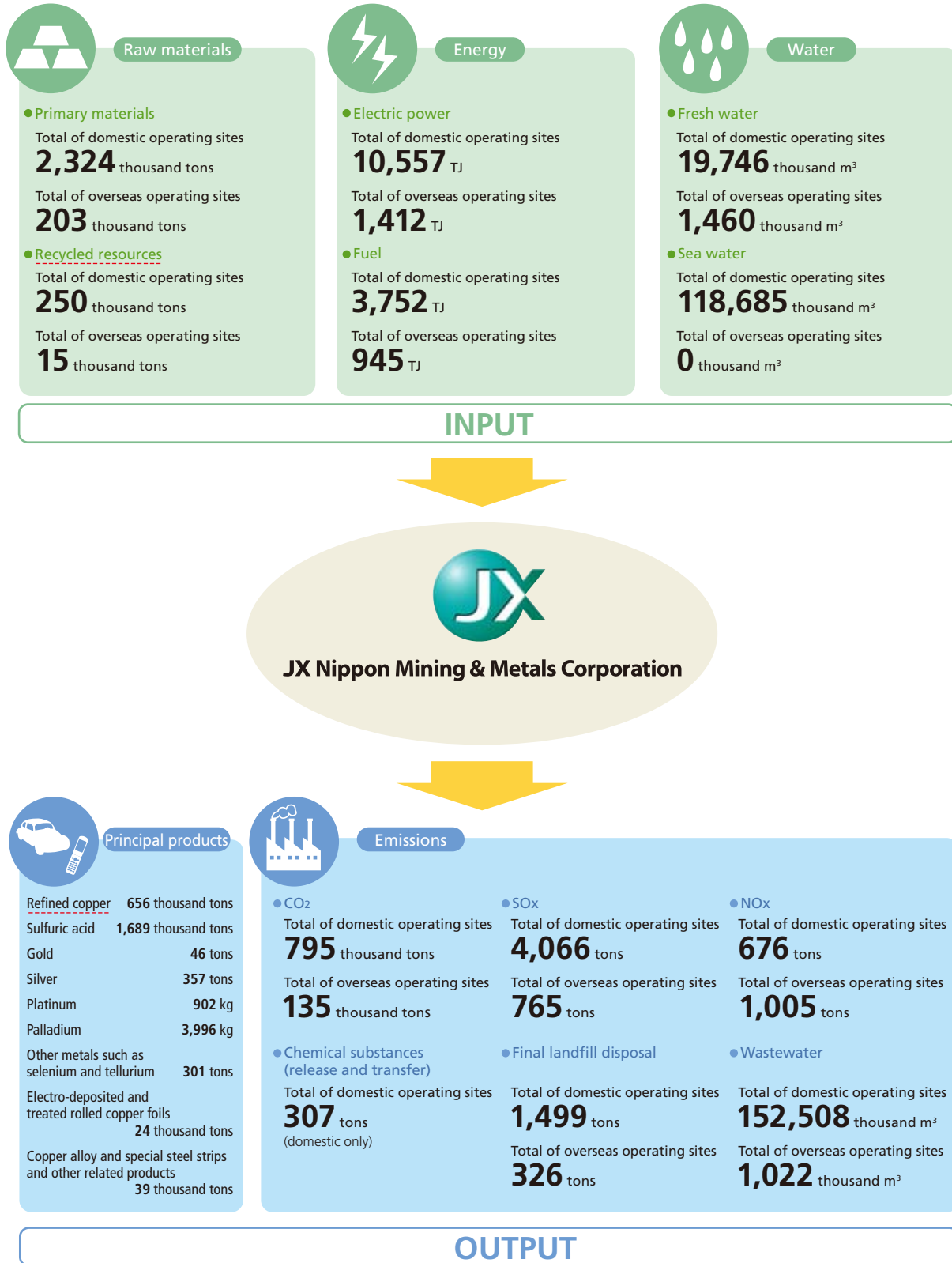
The European Union (EU)'s REACH Regulation, which applies precautionary principle, came into effect in June 2007. The purpose of this regulation is to harmonize the management of chemicals that are released and transported within the region, and to clarify risks that the chemicals bear and their impacts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

Environmental Accounting

Purpose

Of the Group's businesses, the environmental impact of the smelting and refining operations is particularly high. Meanwhile, the recycling and environmental services operations recycle value-bearing resources reduce the volume of waste materials and render them harmless, thus contributing to conservation of the global environment. Further, the electronic materials operations proactively utilize metal scraps and other recycled materials.

Quantitative understanding of the costs and benefits of environmental conservation activities helps us to make rational decisions.

The Group has adopted environmental accounting since fiscal 2002 in order to gain a better understanding of our operations among both domestic and overseas stakeholders.

Investment and Expenses

Boundary of Accounting

Metals Business: Pan Pacific Copper Co., Ltd., Hibi Kyodo Smelting Co., Ltd., and Japan Copper Casting Co., Ltd.

Recycling and Environmental Services Business: HMC Works (including Hitachi Area Coordination Center), Nikko Environmental Services Co., Ltd., Tomakomai Chemical Co., Ltd., Nikko Mikkaichi Recycle Co., Ltd., and Nikko Tsuruga Recycle Co., Ltd.

Electronic Materials Business: Isohara Works, Shirogane Works, Toda Works, and Kurami Works

Technology Development: Technology Development Center and other related operating sites (The amount of investment and expenses associated with Technology Development are allocated among the three businesses above in consideration of the themes undertaken.)

(Billions of yen)

Category		Activities	Environmental conservation benefits and economic benefits	Environmental conservation costs in fiscal 2009							
				Investment				Expenses			
				Metals business	Recycling and environmental services business	Electronic materials business	Total	Metals business	Recycling and environmental services business	Electronic materials business	Total
Pollution prevention expenses	Air pollution prevention	Recovery of sulfur and other materials, and maintenance of facilities	Preventing air pollution and dispersion of metallic dusts, reducing load levy caused by SO _x , and selling sulfuric acid and gypsum	1.81	0.34	0.03	2.18	4.27	1.12	0.02	5.41
	Water pollution prevention and soil contamination prevention	Effluent treatment at operating sites, particularly production lines, maintenance of facilities	Preventing water pollution and soil contamination	0.93	0.10	0.06	1.09	0.74	0.50	0.39	1.63
	Noise abatement, odor control, and land subsidence prevention, etc.	Noise abatement, odor control, and land subsidence prevention, etc.	Reducing noise, etc.	0.04	0.01	0.01	0.06	0.00	0.02	0.00	0.02
	Total			2.78	0.44	0.10	3.32	5.01	1.64	0.41	7.06
Global environmental conservation expenses	Global warming prevention and energy conservation	In-house power generation by recovery of waste heat and generation of hydroelectric power, improvement of energy efficiency, and maintenance of facilities	Generating steam and electricity, and reducing CO ₂ emissions	0.41	0.08	0.03	0.52	0.43	0.20	0.04	0.68
Resource circulation expenses	Circulation of industrial waste and other recycled resources	Recovery of value-bearing metals from waste anode, intermediate products circulating in smelting and refining processes, copper and copper alloy scraps, silver and gold residual slag; recycle scraps of rolled copper and copper alloy products; manufacture by-products such as copper slag and iron concentrate; and maintenance of facilities	Improving product yield rates, recovering value-bearing metals, conserving resources by recycling, and selling copper slag and iron concentrate	0.28	3.97	0.01	4.25	3.96	9.04	0.23	13.23
	Treatment and disposal of industrial and municipal waste	Treatment and disposal of bricks and garbage on commission		—	—	—	0.00	0.02	0.00	0.18	0.21
	Total			0.28	3.97	0.01	4.25	3.98	9.05	0.41	13.44
Upstream / downstream expenses	Reduction of environmental impact of packing materials	Recovery of packaging materials	Conserving resources by recycling	—	—	—	—	—	0.00	0.04	0.04
Administration expenses	Improvement and maintenance of environmental system, monitoring and analyzing of environmental data, nature conservation, and cleanup activities	Operation of ISO system, monitoring and analyzing environmental data, cleaning, maintenance of facilities, etc.	Improving the environment, developing social trust, and enhancing the work environment	0.02	0.01	0.02	0.05	0.29	0.15	0.07	0.51
Research and development expenses	Research and development of products that safeguard the environment	Development of technologies to recover value-bearing metals and reprocess precipitate	Using resources effectively and recovering value-bearing metals	—	0.42	—	0.42	—	0.27	0.19	0.46
	Control environmental impact of production processes	Development of hydro-metallurgical and bio-mining technologies	Reducing environmental impact by improving production processes, enhancing performance of products, and conserving resources	1.73	—	—	1.73	0.44	0.00	0.35	0.79
	Total			1.73	0.42	—	2.15	0.44	0.27	0.54	1.25
Social contribution activities expenses	Assistance for local communities	Contribution to relevant organizations, and cleaning up of public areas and facilities	Maintaining and improving the local environment, and supporting environmental conservation activities of external organizations and local communities	—	—	—	—	0.00	0.01	0.00	0.01
Environmental remediation expenses	Environmental restoration	Payment of load levy caused by SO _x emissions, and maintenance of effluent treatment facilities at operating sites	Restoring the environment	—	—	—	—	0.34	0.03	0.12	0.49
Total				5.22	4.91	0.15	10.29	10.50	11.33	1.63	23.47

*1. Figures for investment and expenses are calculated and disclosed based on the Ministry of the Environment's Environmental Accounting Guidelines 2005.

*2. All expenses paid for recycling and environmental services are recorded as resources circulation expenses, since we consider that these expenses were paid for resource circulation, except expenses placed into each category such as the expense for effluent processing.

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 our Autonomous Action Plan for Environmental Protection, which takes future environmental risks into account.

By developing an environmental management system based on the ISO 14001 standards, 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 autonomous action plan for the environment. Further, several employees have acquired qualifications regarding the environment. The numbers 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	76
EMS Internal Auditor (Outside training completed)	248	Certified Environmental Measurer	16
EMS Internal Auditor (In-house training completed)	157	Waste Disposal Facilities Engineering Manager	39
First Grade Air Pollution Control Manager	77	Qualified Managers of Specially Controlled Industrial Wastes	46
First Grade Water Pollution Control Manager	110	Registered Energy Manager (Heat)	18
Noise Abatement Manager	14	Registered Energy Manager (Electricity)	4
Vibration Abatement Manager	6	Registered Energy Manager (New system)	62
Chief Manager of Pollution Control	2	Operation Chief Handling Specified Chemical Substances, etc.	997
Dioxins Pollution Control Manager	6		

* Includes the Technology Development Group and affiliated companies under the jurisdiction of the Group (as of March 31, 2010)

Obtaining ISO 14001 Certification

Operating Sites that have Obtained ISO 14001 Certification

Domestic	Hitachi Area Coordination Center, Shirogane Works, Isohara Works, Toda Works, Kurami Works, Hitachi Fabricating Works, Isohara Fabricating Works, Pan Pacific Copper Co., Ltd., Hibi Kyodo Smelting Co., Ltd., Nissho Ko-un Co., Ltd., Japan Copper Casting Co., Ltd., Kurobe Nikko Galva Co., Ltd., Nikko Environmental Services Co., Ltd., Tomakomai Chemical Co., Ltd., Nikko Tsuruga Recycle Co., Ltd., Nikko Mikkaichi Co., Ltd., Nikko Coil Center Co., Ltd., Nikko Shoji Co., Ltd., and Nikko Logistics Partner Co., Ltd.
Overseas	Nikko Metals Korea Co., Ltd., Nikko Fuji Electronics Dongguan Co., Ltd., Nikko Fuji Precision (Wuxi) Co., Ltd., Nikko Metals Shanghai Co., Ltd., Nikko Metals Taiwan Co., Ltd. (Bade Works), Nikko Metals Philippines, Inc., Nippon Precision Technology (Malaysia) Sdn. Bhd., and Gould Electronics GmbH

Emergency Response Measures

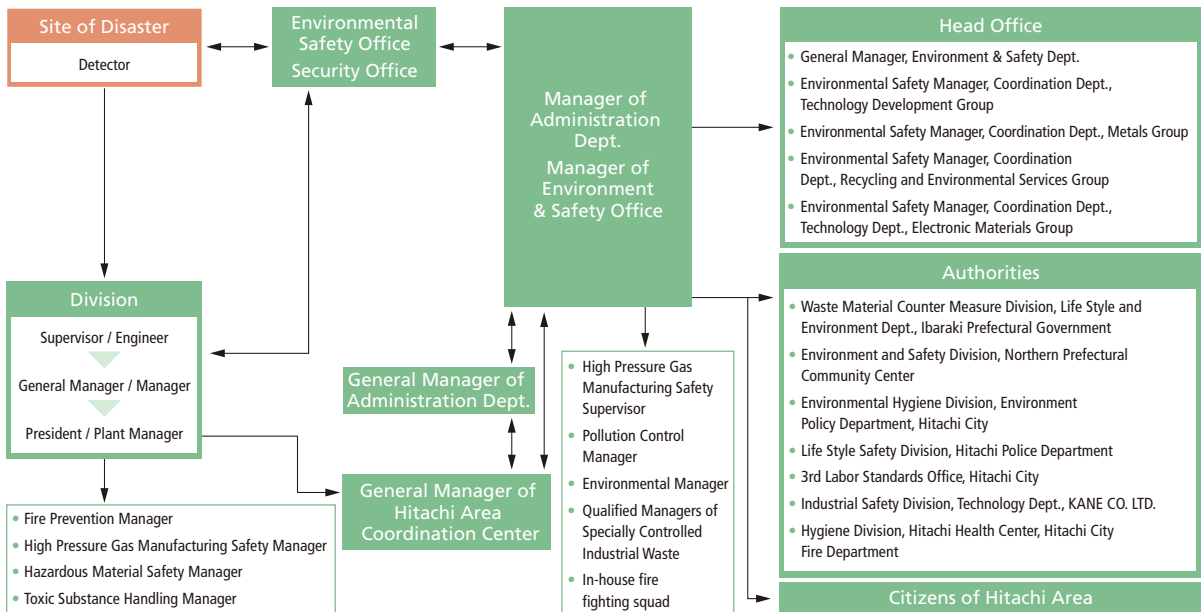
When an accident or disaster occurs, there is the potential for related environmental accidents such as fires, spills of hazardous materials or chemical substances, or the anomalous occurrence of smoke or wastewater.

The Group therefore strives to prevent accidents and disasters and to detect abnormality at an early stage through

periodical inspections of equipment including meticulous preventive maintenance and regular patrols.

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

Emergency Procedures at the Hitachi Area Coordination Center



Fire fighting squad training



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

In fiscal 2009, 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 2009, there were no accidents, including spill incidents.

Initiatives Regarding Biodiversity

In October 2010, the 10th Conference Parties (COP10) to discuss biodiversity will be held in Nagoya City, Aichi Prefecture. In recent years, biodiversity has been increasingly gaining attention in line with corporate activities. In this report, we introduce initiatives regarding biodiversity implemented by Group companies Toyoha Mine Co., Ltd. and Nikko Exploration and Development Co., Ltd

Initiatives Implemented at the Toyoha Mine

The Toyoha Mine produced zinc, lead, silver, and indium since it had been acquired by Kuhara Mining Co., Ltd. (the name at that time) in 1914. However, in March 2006, it ceased operation as its ore reserves had been depleted.

Maintaining and enhancing the surrounding environment through new effluent treatment facilities

Tailing dumping sites and used pits in closed mines possibly possess a risk of producing acidic wastewater that contains metals. Therefore, it is necessary to permanently process this wastewater and prevent water contamination of the surrounding rivers.

In order to purify wastewater more efficiently to safeguard the quality of water for future years, new effluent treatment facilities were constructed at the Toyoha Mine in October 2008. These facilities were designed and constructed in close cooperation with the Hokkaido government's Industrial Safety and Inspection Department and Sapporo City. The main features of these facilities are listed below.

1. All facilities are set indoors so that they can operate stably even in the depths of winter and under heavy snow.
2. The facilities are aligned with a dual line structure. While one line operates under ordinary conditions, the other line begins effluent treatment when it finds the volume of wastewater exceeds a specific level.
3. A pipeline set between the tailing dumping site and the facilities with dual structure of pipes placed into a concrete culvert strictly prevents leakage of wastewater.
4. Equipped with a power generator and large emergency water tanks, these facilities do not leak untreated waste water even when the electric power goes down or a malfunction occurs.

The facilities experienced no serious trouble and have routinely produced high-quality processed water during their one year test run. At the same time, these facilities meet the criterion relating to water quality stipulated in the agreement on environmental pollution control made with Sapporo City. Furthermore, we have covered the tailing dumping site with soil to create an environment in which we can help grow healthy plants. With these efforts, we strive to maintain and further improve biodiversity in and around the mine site.

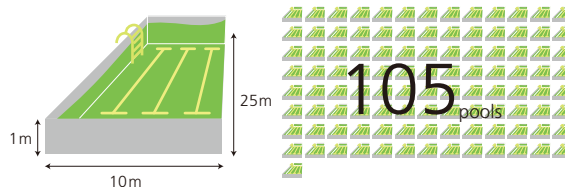
Contributing to the environment through forest improvement activities

In fiscal 1993, Toyoha Mine Co., Ltd. signed a forestry contract with the Hokkaido Regional Forest Office. In this contract, the company is working to improve approximately 6.8 hectares of a national forestland located in the Minami Ward of Sapporo City in Hokkaido Prefecture. With 10 years having passed since the contract was concluded, the Hokkaido Regional Forest Office recognized the following benefits on our activities.

1. Contribution to grow watershed protection forests

Forests play a major role in stabilizing the flow volume of water in rivers by temporarily storing water and slowly draining it into the river system. As a result, forests help prevent floods and droughts as well as purify water.

Volume of water stored	26,364 m ³ (equivalent to 105 pools with dimensions 25 m length x 10 m width x 1 m depth)
Volume of water purified	26,364 m ³ (equivalent to 14,446 household filtration cartridges with a useful life of six months)

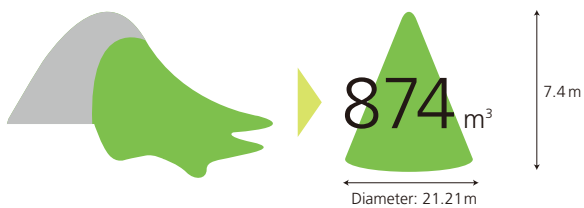


* The figures are calculated from the difference between water volumes absorbed by soil with and without forests.

2. Contribution to the prevention of soil erosion

Fallen leaves and plants protect soil in a forest from being eroded by rain water.

Volume of soil erosion prevented	874 m ³ (equivalent to volume of cone-shaped soil 7.4 m high and 21.21 m diameter)
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* The figure is calculated from the difference between soil volume eroded from lands with and without forests.

3. Contribution to absorption of CO₂ and carbon fixation

When the trees in a forest perform photosynthesis, they absorb CO₂ from the atmosphere, thus helping to prevent global warming.

Volume of CO ₂ absorption and carbon fixation	100 tons (CO ₂ emitted by a car driving 430 thousand km, or driving around the circumference of the earth 10.8 times, with a fuel consumption rate of 10 km/l)
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Driving around the circumference of the earth

10.8 times

* The figure is estimated from the volume growth of tree shafts.

Initiatives Implemented by Nikko Exploration and Development

Nikko Exploration and Development Co., Ltd. has been developing remote sensing technology, including aerial photography and analysis as well as the interpretation of satellite images since satellite remote sensing technology first made its appearance. Currently, Nikko Exploration and Development is applying this technology in a wide range of areas such as in the exploration of natural resources and the analysis of the global environment.

Resource exploration by remote sensing

Satellite images taken with light of a certain wavelength, which human eyes cannot see, show differences that reflect the type of minerals present.

The image on the far right is a mineral distribution map created from a picture taken by a satellite. The colors represent the following:

Red: areas where alunite and kaolin are distributed.

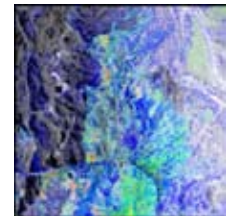
Green: areas where sericite is distributed.

Blue: areas where chlorite is distributed.

In addition to this example, applying various reflection signatures identifies a wide variety of minerals and estimates their volumes.



Satellite image taken by research satellite Terra (EOS AM-1)



Mineral distribution map created from the satellite image

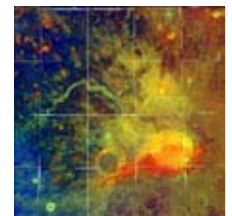
Probe of the surface of the moon by remote sensing

The image on the far right is created by sharpening a photo of the moon's surface taken by the lunar probe Clementine to analyze the surface of the moon.

The yellow areas represent anorthosite, while the blue areas represent basalt in a mare of the moon. Analysis of the volume of titanium contained in the mare is also being tested as another approach.



Image of the moon surface near the Aristarchus crater taken by the lunar probe Clementine



Monitoring of the environment through remote sensing

Nikko Exploration and Development has applied remote sensing technology cultivated in resource exploration to monitor the natural environment in order to maintain and improve biodiversity.

Monitoring and protecting mangrove forests

Mangrove forests form rich biodiverse habitats in coastal areas of tropical and sub-tropical zones as well as being closely related to human life. However, as these forests are located in areas where access is difficult, it is hard to identify those areas where mangrove forests are found. Also, making periodic surveys to properly identify distribution conditions of each species of mangrove remain challenges to be solved. Nikko Exploration and Development is striving to protect mangrove forests in coastal areas by using satellite images and developing its mapping expertise.



Change in growth of mangrove forests decimated by defoliants
(Left: March 1989; Right: February 2003)