Environment

Social

This and future reports include TANIOBIS GmbH, TANIOBIS Co. Ltd., TANIOBIS Smelting GmbH & Co. KG, and TANIOBIS USA LLC. However, TANIOBIS USA LLC is excluded from environmental data. The Hibi Smelter of Pan Pacific Copper Co., Ltd. was transferred to Mitsui Mining & Smelting Co., Ltd. on April 1, 2020, and is therefore not included in this report.

Mass Balance Table for the Group (Fiscal 2020)

INPUT

Raw Materials ☑

Primary raw materials

Domestic operating sites	1,634kt
Overseas operating sites	17kt
Total	1,651kt

Recycled raw materials

Domestic operating sites	170kt
Overseas operating sites	3kt
Total	174kt

Energy ☑

Fuel

Domestic operating sites	3,058TJ
Overseas operating sites	2,373TJ
Total	5,430TJ

Electricity*

Domestic operating sites	11,164TJ
Overseas operating sites	10,197TJ
Total	21,361TJ

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

Water Resources ☑

Fresh water

Domestic operating sites	17.8 million cubic meters
Overseas operating sites	8.9 million cubic meters
Total	26.7 million cubic meters

Seawater

Domestic operating sites	31.0 million cubic meters
Overseas operating sites	— million cubic meters
Total	31.0 million cubic meters

JX Nippon Mining & Metals Group

OUTPUT

Principal Products ☑

Copper concentrate	312kt
Electrolytic copper	428kt
Gold	36t
Silver	373t
Platinum	606kg
Palladium	2,716kg
Other metals (selenium, tellurium)	320t
Electro-deposited and rolled copper foil	9kt
Copper alloy, special steel strips, etc.	32kt
Titanium sponge	20kt
Sulfuric acid (by-product)	1,268kt

Emissions

CO_2 ☑

Total of domestic operating sites

Scope	416kt
Scope2	488kt

Total of overseas operating sites

Scope1	162kt
Scope2	279kt
Total	1,345kt

Chemical substances (release and transfer) ☑

Total of domestic operating sites 0.50kt

Sulphur oxides ☑

Domestic operating sites	4.1kt
Overseas operating sites	0.1kt
Total	4.2kt

Final disposal of waste materials ☑

Domestic operating sites	7.2kt
Overseas operating sites	41.9kt
Total	49.0kt

Nitrogen oxides ☑

Domestic operating sites	0.6kt
Overseas operating sites	0.1kt
Total	0.7kt

Wastewater ☑

Domestic operating sites	51.5 million cubic meters
Overseas operating sites	1.0 million cubic meters
Total	52.5 million cubic meters

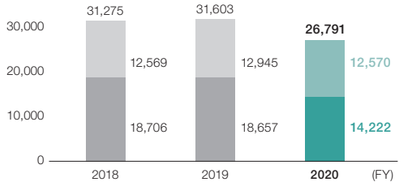
Environmental Management

Operating Sites That Have Obtained ISO 14001 Certification (as of March 31, 2021)

Domestic Operating Sites: 28	Overseas Operating Sites: 12
Hitachi Works (including Hitachi Seido Works of JX Metals Smelting Co., Ltd. and JX Nippon Environmental Services Co., Ltd.), Copper Foil Dept. of Hitachi Works (including Ichinoseki Foil Manufacturing Co., Ltd.)	JX Nippon Mining & Metals Philippines, Inc.
Isohara Works	JX Nippon Mining & Metals USA, Inc.
Kurami Works (including JX Nippon Coil Center Co., Ltd. and the Kurami Office of JX Metals Trading Co., Ltd.)	Materials Service Complex Malaysia Sdn. Bhd.
Saganoseki Smelter & Refinery of JX Metals Smelting Co., Ltd. (including Japan Copper Casting Co., Ltd., and Nissho Kou-un Co., Ltd.)	JX Nippon Mining & Metals Korea Co., Ltd.
JX Nippon Tomakomai Chemical Co., Ltd.	Nikko Fuji Precision (Wuxi) Co., Ltd.
JX Nippon Tsuruga Recycle Co., Ltd.	Longtan Works of Nikko Metals Taiwan Co., Ltd.
JX Nippon Mikkaichi Recycle Co., Ltd.	Nippon Mining & Metals (Suzhou) Co., Ltd.
Chigasaki Plant of Toho Titanium Co., Ltd. (including its Kurobe Plant and Wakamatsu Plant and Toho Technical Service Co., Ltd.)	JX Nippon Mining & Metals Dongguan Co., Ltd.
JX Metals Precision Technology Co., Ltd. (Esashi Works, Tatebayashi Works, Nasu Works, and Kakegawa Works)	TANIOBIS GmbH (includes TANIOBIS Smelting GmbH & Co. KG, TANIOBIS Japan Co., Ltd., and TANIOBIS Co., Ltd.)
JX Metals Trading Co., Ltd. (including its Amagasaki Office and Takatsuki Plant)	
Shirakawa Plant of JX Nippon Takasho Co., Ltd.	
Furuuchi Chemical Corporation	

Energy

Energy Consumption ☑

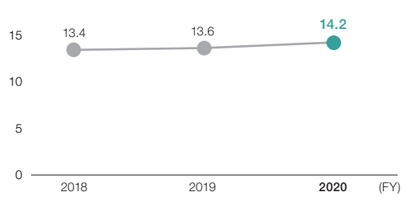


* Figures have been retroactively revised back to fiscal 2018 due to changes in aggregation scope to cover the entire JX Nippon Mining & Metals Group, in principle.

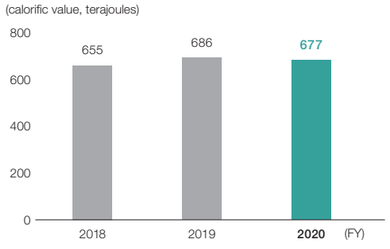
Breakdown by Fuel Type

	Domestic operating sites	Overseas operating sites
Kerosene (kL)	272	—
Light oil (kL)	2,970	51,476
Class A heavy oil (kL)	10,827	1,282
Class B and C heavy oil (kL)	22,267	5,425
Reclaimed oil (kL)	1,017	—
LPG/Butane (t)	5,292	8
LNG (t)	4,770	760
Coke (t)	2,146	—
Petroleum coke (t)	6,017	—
City gas (thousand cubic meters)	16,964	2,446

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



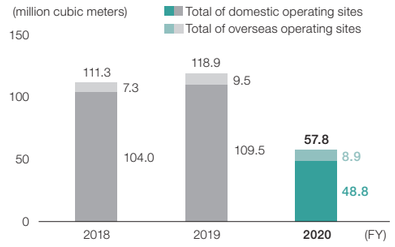
Energy Consumption in Logistics Stages (Domestic) ☑



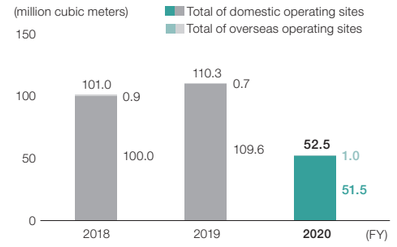
* Applicable to specified consigners as defined in the Act on the Rational Use of Energy. Four Group companies fall under this definition: JX Nippon Mining & Metals Corporation, JX Metals Smelting Co., Ltd., Kasuga Mines Co., Ltd., and Pan Pacific Copper Co., Ltd.

Water Resources

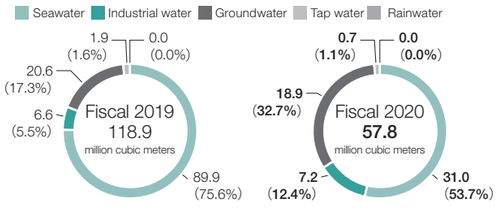
Water Usage*1 ☑



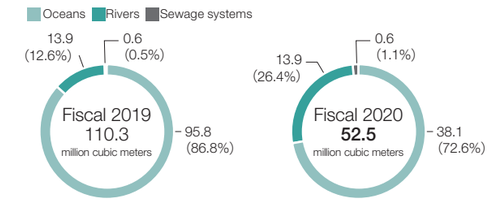
Water Discharge Volume*2 ☑



Total Water Usage*1 ☑



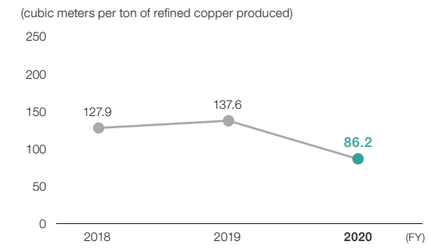
Total Water Discharge*2 ☑



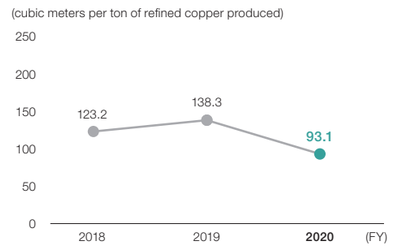
*1 Seawater usage at the Saganoseki Smelter & Refinery of JX Metals Smelting Co., Ltd. is calculated based on pumping capacity. Freshwater usage at the Saganoseki Smelter & Refinery of JX Metals Smelting Co., Ltd. and water usage at other operating sites are based on flowmeter readings or on invoices from the site's respective water utility.

*2 The volume of water discharged into public waters (oceans and rivers) at each operating site represents the following: an amount calculated based on drainage weirs (Hitachi Works, Isohara Works, JX Nippon Tomakomai Chemical Co., Ltd., and JX Nippon Mikkaichi Recycle Co., Ltd.); an amount obtained by multiplying groundwater usage by a fixed rate (Kurami Works, Toho Titanium Co., Ltd.'s Headquarters & Chigasaki Plant); an amount from invoices (Toho Titanium Co., Ltd.'s Yahata Plant and Kurobe Plant); or an amount based on flowmeter readings (other operating sites). The volume of water discharged into the sewage system at each operating site represents the following: an amount calculated based on daily water discharge (TANIOBIS Co., Ltd.); or an amount based on flowmeter readings or on invoices from the site's respective sewage utility for other operating sites. We have retroactively revised data for ocean discharge for the Saganoseki Smelter & Refinery as far back as fiscal 2018 due to changes made in the figure's calculation method.

Water Usage Intensity at Smelters and Refineries ☑



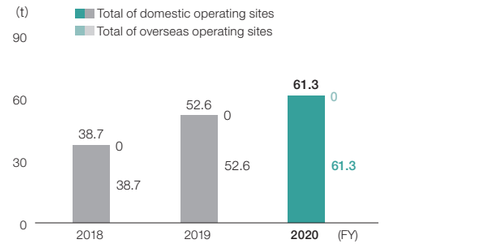
Water Discharge Intensity at Smelters and Refineries ☑



* We have retroactively revised figures for discharge for Saganoseki Smelter & Refinery as far back as fiscal 2018 due to changes made in the figure's calculation method.

Water Pollutants

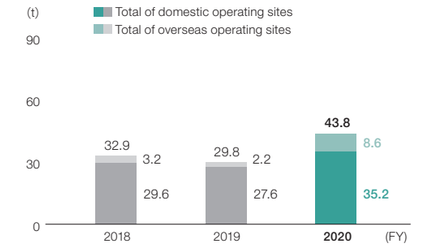
COD Load ☑



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

* We have retroactively revised data as far back as fiscal 2018 due to revised discharge data in the Water Resources section.

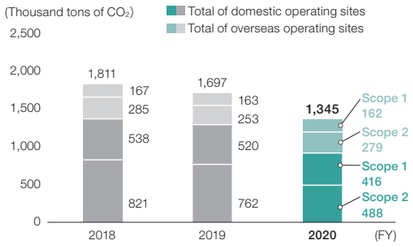
BOD Load ☑



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

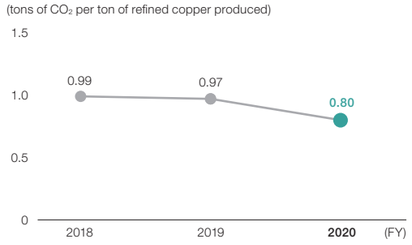
Climate Change

CO_2 Emissions From the Entire JX NMM Group (Scope 1 & 2)

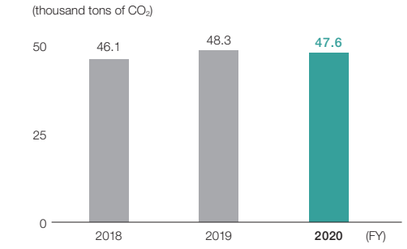


* We have made retroactive revisions as far back as fiscal 2018 due to the following factors.
  - •Expansion of aggregation scope to cover the entire JX Nippon Mining & Metals Group, in principle
  - •Review of emission factors applied to electricity consumption
  - •Expansion of the scope of activities subject to calculation of non-energy-derived CO_2 emissions
* Scope 1 emissions are those from energy consumption (fuel), emissions from incineration of waste materials (waste oil, waste plastic, sludge, waste wood), and emissions from reducing agents, neutralizing agents, graphite electrodes, and recycled materials, converted to equivalent CO_2.
* Scope 2 emissions are those from electricity consumption converted to equivalent CO_2. Emissions from electricity consumption include those from thermal energy (consuming steam, hot water, cold water) supplied by third parties. The emission factors applied for Scope 2 calculation are as follows for domestic and overseas Group operating sites, respectively.
  Domestic: Adjusted emission factors are applied
  Overseas: Emission factors published by local power companies or country-specific emission factors published by the IEA are applied

CO_2 Emission Intensity at Smelters and Refineries



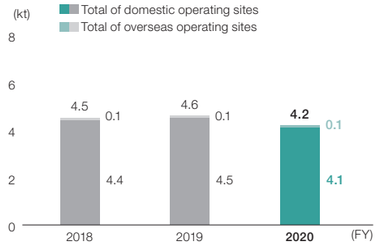
CO_2 Emissions in Logistics Stages



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

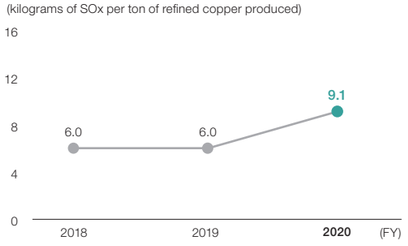
Air Pollutants

SOx Emissions

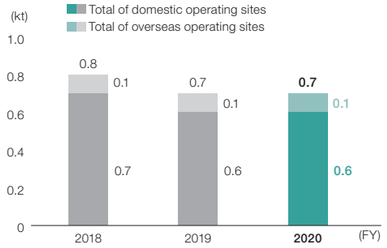


* Totals are for operating sites subject to emissions regulations.

SOx Emission Intensity at Smelters and Refineries

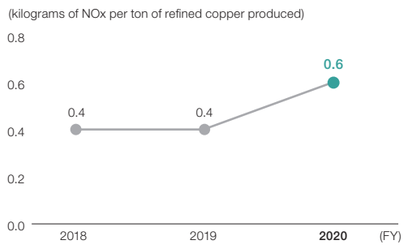


NOx Emissions



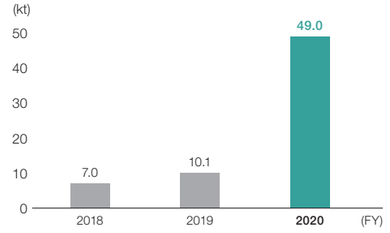
* Totals are for operating sites subject to emissions regulations.

NOx Emission Intensity at Smelters and Refineries



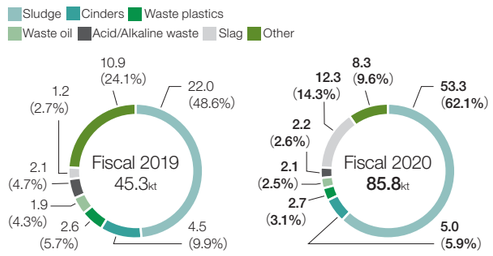
Waste Materials and By-Products

Volume of Final Disposal of Waste



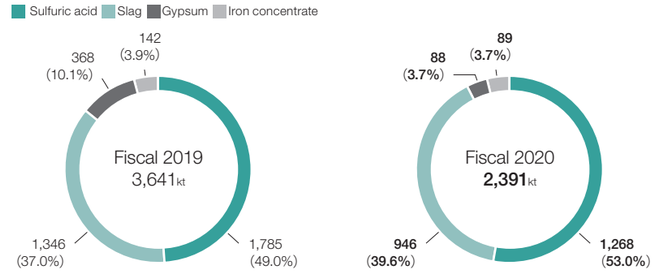
* These do not include the approximately 28.5 million tons of slag from the Casserones Copper Mine.
* The volume of final disposal of waste has increased rapidly due to the inclusion of Toho Titanium's offshore landfill volume and final disposal volume of the TANIOBIS Group in calculations, as of fiscal 2020.

Total Discharge Volume by Type of Waste Materials



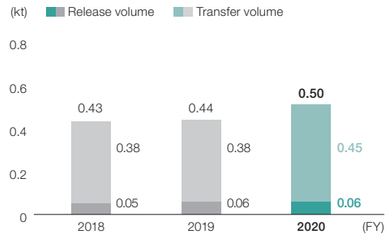
* The volume of total emissions has increased rapidly due to the inclusion of Toho Titanium's offshore landfill volume and the TANIOBIS Group's emissions volume in calculations, as of fiscal 2020.

By-Product Production

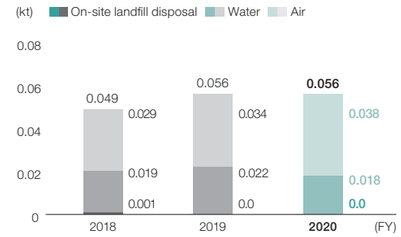


Chemical Substances

Volumes of Release and Transfer of PRTR Substances



Breakdown of Release Volumes of PRTR Substances



Volumes of Release and Transfer of Major PRTR Substances in Fiscal 2020

(t)

No.	Cabinet order no.	Chemical substance	Release volume			Transfer volume	
			Air	Water	On-site landfill disposal	Sewage systems	Waste materials
1	75	Cadmium and its compounds	0.1	0.1	0.0	0.0	20.0
2	132	Cobalt and its compounds	0.0	0.3	0.0	0.0	26.0
3	300	Toluene	33.7	0.0	0.0	1.3	352.7
4	305	Lead compounds	0.8	0.1	0.0	0.0	10.2
5	309	Nickel compounds	0.1	0.5	0.0	0.0	20.0
6	354	Dibutyl phthalate	0.0	0.0	0.0	0.0	6.5
7	405	Boron compounds	0.0	9.3	0.0	0.0	1.7
							(g-TEQ)
8	243	Dioxins	0.1	0.0	0.0	0.0	6.0

* The values given are totals for companies with operating sites subject to reporting requirements under the PRTR Act (JX Metals Trading Co., Ltd., Kasuga Mines Co., Ltd., TANIOBIS Japan Co., Ltd., and the domestic companies defined in boundary of the Report on page 4 as subject to Environment section reporting).
  Of the 50 chemical substances subject to reporting, those totaling at least 5.0 tons in any category, and dioxins, are listed here.
  There were no cases of chemical substances released into the soil.

Occupational Health and Safety

Occupational and Other Accidents*1, *2

Category				2018	2019	2020
Safety performance at domestic operating sites*3	Employees (including Group companies)	Casualties of occupational accidents ☑	Fatalities (persons) *4	0	0	0
			Occupational accidents with severe consequences (persons) *4	0	0	0
			Accidents with lost work days (persons) *4	13	3	7
			Accidents without lost work days (persons) *4	9	10	13
			Total (persons)	22	13	20
		Major types of occupational accidents *5 ☑	Strain or overexertion	4	1	5
			Fall on same level	7	1	1
			Caught in, on or between	4	1	3
		Frequency rate of industrial accidents *6 ☑	Fatalities *4	—	—	0.00
			Occupational accidents with severe consequences *4	—	—	0.00
			Accidents with lost work days *4	—	—	0.53
		Severity rate of industrial accidents *6 ☑		—	—	0.03
		Cumulative work hours *6		—	—	13,290,060
	Employees of subcontractors *7	Casualties of occupational accidents *5 ☑	Fatalities (persons)	0	0	2
			Occupational accidents with severe consequences (persons)	0	2	0
			Accidents with lost work days (persons)	6	2	2
			Accidents without lost work days (persons)	3	5	6
			Total (persons)	9	9	10
		Major types of occupational accidents *5 ☑	Cut or rubbed	2	1	4
			Crashes or falls to lower level	0	0	2
			Struck by object	0	2	0
		Frequency rate of industrial accidents *6,7	Fatalities *4	—	—	0.64
			Occupational accidents with severe consequences *4	—	—	0.00
			Accidents with lost work days *4	—	—	0.64
		Severity rate of industrial accidents *6,7		—	—	4.82
		Cumulative work hours *7		—	—	3,117,548
		Total casualties (persons) ☑		31	22	30
		Occupational injury rate per 1,000 employees (four or more lost workdays) *8		1.6	0.7	1.1
		Explosions and fires (incidences) *9 ☑		3	3	1
(Reference) Safety performance at overseas operating sites *10 ☑		Fatalities (persons)		0	1	0
		Accidents with lost work days (persons)		16	18	13
		Accidents without lost work days (persons)		2	3	5
		Total (persons)		18	22	18
		Major types of occupational accidents	Caught in, on or between	4	8	3
			Fall on same level	1	1	5
			Strain or overexertion	4	0	3

*1 Safety performance data is compiled on a calendar year basis (January to December).
*2 The number of casualties presented in this table includes work-related illnesses such as back pain and heat stroke.
*3 Until 2020, data included the Company and other Group companies (excluding Toho Titanium); however, from 2020, Toho Titanium and subcontractors have also been included in the scope of aggregation, and data has been retroactively revised as far back as 2018. Note that frequency and severity rates are excluded.
*4 Each accident category is defined as follows.
- •Fatalities: Worker deaths resulting from work-related causes.
- •Occupational accidents with severe consequences: Accidents resulting in more than six months of lost work days or a disability grade.
- •Accidents with lost work days: Accidents requiring one or more days of absence from work for the purpose of examination, treatment or recuperation. These shall in principle be at a physician's discretion. Note that this excludes "Occupational accidents with severe consequences."
- •Accidents without lost work days: An accident that does not require one full day or more of absence from work as diagnosed by a physician, and in which the affected worker is able to go to work after the accident.

*5 Incidences related to the cause of the injury or illness, based on "Types of Accidents," published by the Ministry of Health, Labour and Welfare.
*6 Both the frequency rate (the number of persons harmed or killed due to occupational accidents per million cumulative actual work hours) and the severity rate (number of work days lost per thousand cumulative actual work hours) had only covered Company employees until 2020; however, as of 2020, these figures cover Company employees and employees at other Group companies (including Toho Titanium). Note that cumulative working hours include some estimated figures.
*7 Safety statistics for subcontractor employees include not only those stationed permanently but also spot vendors. Note that these are subject to statistics for frequency rate and severity rate as of 2020. Here, cumulative work hours are calculated as follows: Number of permanently stationed subcontractor employees at the end of each month x number of operating days x 8 hours/day. (Reference) In 2020, the frequency and severity rate of occupational accidents for all businesses in Japan were 1.95 and 0.09, respectively. (Source: Ministry of Health, Labour and Welfare, "Survey on Industrial Accidents")
*8 The Group defines a serious accident as one that results in four or more days of lost work, and considers the occupational injury rate per 1,000 employees to be one of its key indicators. (Occupational injury rate per 1,000 employees (four or more lost workdays) = number of casualties with four or more days of lost work ÷ total number of employees (including employees of regular partner companies) x 1,000)
*9 No physical injuries were caused as a result of explosions/fires.
*10 While this includes Group companies and subcontractors, this data should be used only for reference as it is difficult to conduct follow-up surveys and aggregate working hours for subcontractors at overseas operating sites, and detailed data such as frequency rates are not disclosed.

Human Resource Development

Training Programs Implemented in Fiscal 2020 ☑

(hours)

	Managerial staff			Non-management employees			Total		
	Men	Women	Overall	Men	Women	Overall	Men	Women	Overall
Total program hours (annual)	8,497	334	8,831	58,364	8,562	66,926	66,861	8,896	75,757
Per employee	14	22	14	26	27	26	23	27	24

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

Employment and Work Styles

Survey scope: Companies in which JX Nippon Mining & Metals has 50% or more of their voting rights, directly or indirectly
Counting of seconded employees: Includes all employees being seconded to or from the companies subject to this survey

No. of Employees (by Employment Status and Employment Contract Type; as of March 31, 2021) ☑

(persons)

Employment status	Contract type	Male	Female	Total
Full-time	Contracts without fixed terms	7,955	1,217	9,172
	Contracts with fixed terms	469	100	569
Full-time subtotal		8,424	1,317	9,741
Part-time	Contracts without fixed terms	21	36	57
	Contracts with fixed terms	57	32	89
Part-time subtotal		78	68	146
Total		8,502	1,385	9,887

(persons)

Employment status	Contract type	Japan	North America	South America	Asia	Europe	Middle East	Total
Full-time	Contracts without fixed terms	6,313	125	955	1,396	368	15	9,172
	Contracts with fixed terms	472	2	12	65	18	0	569
Full-time subtotal		6,785	127	967	1,461	386	15	9,741
Part-time	Contracts without fixed terms	39	0	0	1	17	0	57
	Contracts with fixed terms	86	0	2	0	1	0	89
Part-time subtotal		125	0	2	1	18	0	146
Total		6,910	127	969	1,462	404	15	9,887

No. of Employees (by Region; as of March 31, 2021) ☑

(persons)

	Japan	North America	South America	Asia	Europe	Middle East	Total
Male	6,136	100	887	1,025	339	15	8,502
Female	774	27	82	437	65	0	1,385
Total	6,910	127	969	1,462	404	15	9,887

No. of Newly Hired Employees (April 1, 2020 to March 31, 2021) ☑

(persons)

	Male	Female	Total
New hires	509	115	624
Percent of total employee count as of March 31, 2021	6%	8%	6%

(persons)

Age 29 or younger	Age 30 to 49	Age 50 or older	Total
290	235	99	624
20%	4%	4%	6%

(persons)

	Japan	North America	South America	Asia	Europe	Middle East	Total
New hires	422	18	71	105	8	0	624
Percent of total employee count as of March 31, 2021	6%	14%	7%	7%	2%	0%	6%

No. of Employees Ending Employment (April 1, 2020 to March 31, 2021) ☑

(persons)

	Male	Female	Total
Retiring employees	465	64	529
Percent of total employee count as of March 31, 2021	5%	5%	5%

(persons)

Age 29 or younger	Age 30 to 49	Age 50 or older	Total
109	248	172	529
7%	4%	7%	5%

(persons)

	Japan	North America	South America	Asia	Europe	Middle East	Total
Retiring employees	286	8	105	109	21	0	529
Percent of total employee count as of March 31, 2021	4%	6%	11%	7%	5%	0%	5%

* Figures include employees transferred to companies outside of survey scope and those returning due to termination of secondment.
* Figures do not include employees who were transferred within a company inside the survey scope, or those returning due to termination of secondment.
* Employees retiring at the mandatory retirement age are not in scope.

Membership in Labor Unions (as of March 31, 2021) ☑

(persons)

	Male	Female	Total
No. of union members	5,373	758	6,131
Percent of total employee count as of March 31, 2021	63%	55%	62%

(persons)

Age 29 or younger	Age 30 to 49	Age 50 or older	Total
1,095	3,901	1,135	6,131
75%	66%	45%	62%

Strikes or lockouts lasting more than one week: None

Diversity

Use of Childcare Leave in Fiscal 2020 (JX Nippon Mining & Metals) ☑

(persons)

	Male	Female	Total
No. of employees using leave	19	12	31
No. of employees eligible to use leave*	117	12	129
Usage rate (rounded to nearest percent)	16%	100%	24%

* Male: Employees with a child born within the fiscal year
Female: Employees whose post-childbirth leave ended during the fiscal year and who can take childcare leave

Retention Rate After Return From Childcare Leave (Percentage of Those Still Employed 12 Months After Returning From Leave) (JX Nippon Mining & Metals) ☑

(persons)

	Male	Female	Total
No. of employees who returned to work from childcare leave during fiscal 2019	8	10	18
No. of employees still employed 12 months after returning to work	8	10	18
Percentage	100%	100%	100%

Rate of Return to Work After Childcare Leave (JX Nippon Mining & Metals) ☑

(persons)

	Male	Female	Total
No. of employees who returned to work from childcare leave during fiscal 2020	19	3	22
No. of employees scheduled to return to work	19	4	23
Percentage	100%	75%	96%

Status of Rehiring Efforts in Fiscal 2020 (JX Nippon Mining & Metals) ☑

(persons)

No. of age-limited retirees	47
No. of these rehired	44
Rehiring rate (%)	94%

Persons with Disabilities as a Percentage of the Workforce in Fiscal 2020 (JX Nippon Mining & Metals) ☑

Percentage of employees with disabilities (statutory minimum: 2.3%)	2.19%

No. of Locally Hired Senior Managers Overseas (Section Manager or Above) and Locally Hired Employees (as of March 31, 2021)

(persons)

		Number of senior managers	Senior managers as a share of locally hired employees *1	Number of locally hired employees *2
North America	Male	14	16%	87
	Female	4	15%	27
North America subtotal		18	16%	114
South America	Male	38	4%	847
	Female	5	6%	82
South America subtotal		43	5%	929
Europe	Male	36	11%	321
	Female	7	11%	63
Europe subtotal		43	11%	384
Asia	Male	93	10%	960
	Female	54	12%	433
Asia subtotal		147	11%	1,393
Male		181	8%	2,215
Female		70	12%	605
Total		251	9%	2,820

Scope of aggregation: Overseas Group companies in which JX Nippon Mining & Metals has 50% or more of their voting rights, directly or indirectly
Treatment of seconded employees: Employees seconded from companies outside of survey scope to companies inside of survey scope are counted.
Employees seconded from companies inside of survey scope to companies outside of survey scope are also counted.
*1 Percentage calculated as (Number of senior managers ÷ Number of locally hired employees) x 100
*2 The number of employees directly employed by overseas subsidiaries, excluding employees on secondment and employees transferred to overseas subsidiaries