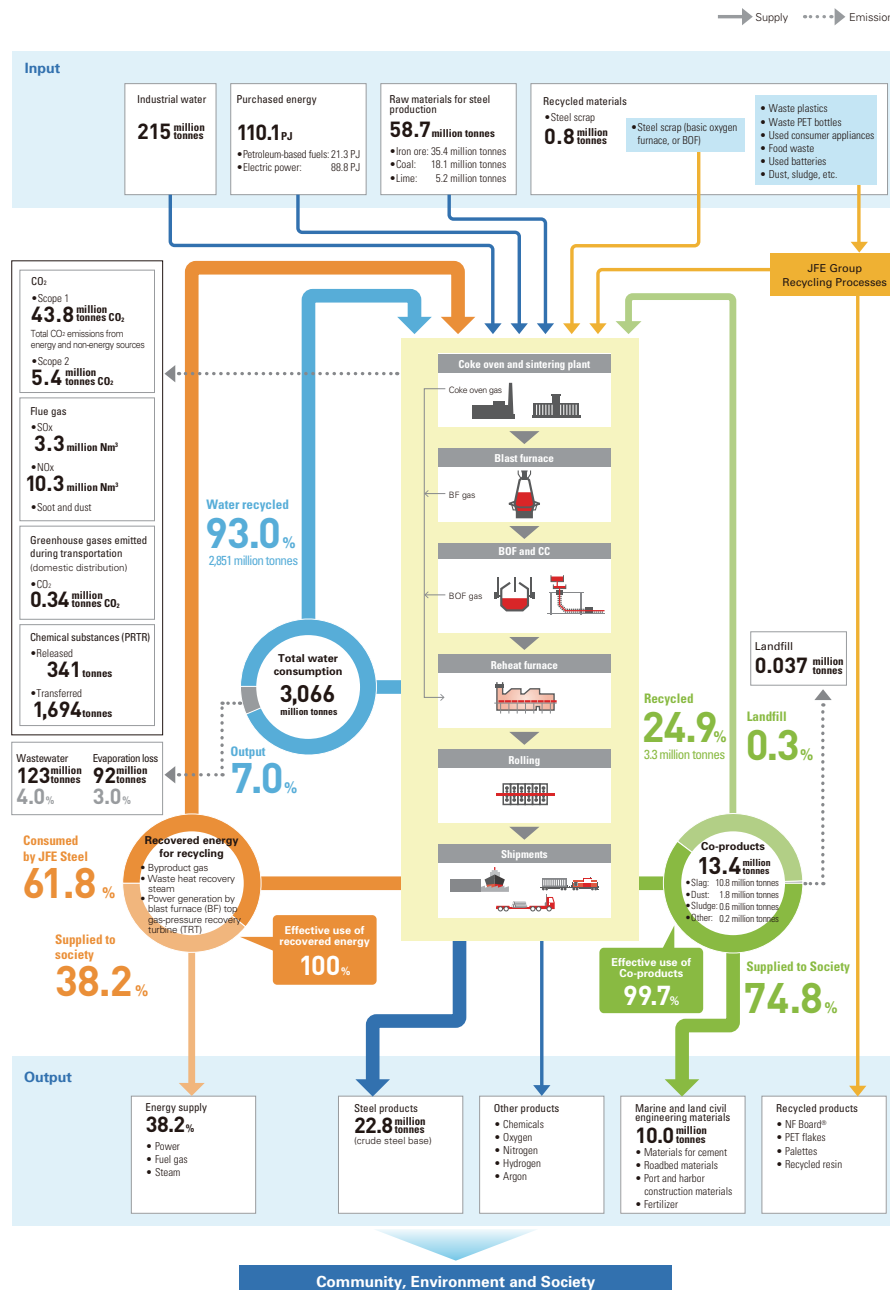


# Environmental Data

## Material Flow

JFE Steel works to reduce the environmental impact of its iron and steelmaking processes, including through the effective use of resources. The company recycles 93.0% of the water it uses for production and uses 99.7% of its co-products, such as iron and steelmaking slag. In addition, 100% of co-product gas generated during production is reused as fuel for reheating slabs, generating power for internal use and supplying power to the public.

### JFE Steel (Non-consolidated)





## JFE Engineering (Head Office and Works)

### Input

<b>Steel</b>	<b>36,900</b> tonnes
<b>Energy</b>	
• Electric power purchased	<b>26.0</b> GWh
• Class A heavy oil	<b>84.4</b> kl
• Kerosene	<b>6.6</b> kl
• Light oil	<b>214</b> kl
• Gasoline	<b>12.4</b> kl
• City gas	<b>330,000</b> tonnes
• LPG	<b>83.1</b> tonnes
<b>Water</b>	<b>72,400</b> tonnes

### JFE Engineering

- Tsurumi Works
- Tsu Works

### Output and Emissions

<b>Products</b>	<b>34,700</b> tonnes
<b>CO<sub>2</sub></b>	
• Scope 1	<b>1,800</b> tonnes CO <sub>2</sub>
• Scope 2	<b>7,200</b> tonnes CO <sub>2</sub>
<b>Waste generated</b>	
• Industrial wastes	<b>1,100</b> tonnes
• General wastes	<b>277</b> tonnes
<b>Wastewater (ocean only)</b>	<b>157,000</b> tonnes
<b>Others (PRTR)</b>	<b>147</b> tonnes

Abbreviations indicated under "scope" represent the following group or company:

JFE Group [All]; JFE Steel Group [ST Gr]; JFE Steel [ST]; JFE Engineering Group [EN Gr];

JFE Engineering [EN]; JFE Shoji Group [SH Gr]; JFE Shoji [SH]

## Environmental Management

### ■ Data Regarding Environmental Management

Items		Scope	Unit	FY2016	FY2017	FY2018	FY2019	FY2020
% covered by ISO 14001 certification	Base*1	All	%	50	54	54	58	58
		ST Gr	%	19	20	20	21	21
		EN Gr	%	5	5	5	9	9
		SH Gr	%	26	29	29	28	28
	Employee*1	All	%	76	70	72	74	70
		ST Gr	%	—	—	72	75	74
		EN Gr	%	—	—	60	60	51
		SH Gr	%	—	—	88	92	89
Environmental audit (number of sites)	ST Gr	sites	34	31	31	32	24	
	EN Gr	sites	46	48	50	48	28	
Environmental education conducted (total participants)	EN Gr	people	1,426	996	1,059	1,063	731	

\*1 Data for past fiscal years were retroactively revised for increased accuracy.

### ■ Environmental Accounting Data (1)

Breakdown of environmental protection cost		FY2019		FY2020	
		Investment (billion yen)	Cost (billion yen)	Investment (billion yen)	Cost (billion yen)
Management	Impact monitoring and measurement, and EMS expenses and education	0.1	2.6	1.4	2.6
Global warming countermeasures	Saving and efficiently using energy	26.7	27.6	14.4	25.2
	Recycling industrial water	3.9	18.3	2.4	16.9
Conservation of natural resources	Recycling and waste management of internally generated materials, etc.	0.06	5.1	0.6	4.8
Environmental protection	Air pollution countermeasures	11	34.1	5.3	32.9
	Water pollution countermeasures	4.1	11.3	4.7	10.6
	Prevention of soil contamination, noise, vibration, and subsidence	0.04	0.6	0	0.6

Breakdown of environmental protection cost		FY2019		FY2020	
		Investment (billion yen)	Cost (billion yen)	Investment (billion yen)	Cost (billion yen)
Other	Charges, etc.	—	1.5	—	1.6
R&D	Technologies for protecting the environment, saving energy, and preventing global warming	1	11.3	0.8	8.3
Societal activities	Support for nature preservation and forestation, information disclosure, exhibitions, and public relations	—	0.7	—	0.6
Total		46.8	113.1	29.7	104.0

Note: Data cover all investment activities of JFE Steel Corporation and R&D activities of JFE Engineering Corporation.

### ■ Environmental Accounting Data (2)

Items	Scope	Unit	FY2016	FY2017	FY2018	FY2019	FY2020
Energy-saving investment (accumulated)	All	billion yen	474.9	492.9	505.4	532.1	546.5
Environmental protection investment (accumulated)	All	billion yen	668.5	692.4	708.5	727.6	742.1

## Environmental Management (Supplementary Data)

### ■ List of ISO 14001 Certified Companies (includes certification limited to certain sites of a company)(As of July, 2021)

Operating company* <sup>1</sup>	Group company	
JFE Steel Corporation	JFE MINERAL COMPANY, LTD.	JFE Plant Engineering Co., Ltd.* <sup>2</sup>
	Mizushima Ferroalloy Co., Ltd.	JFE Techno-Research Corporation* <sup>2</sup>
	JFE Material Co., Ltd.	JFE Metal Construction Inc.* <sup>2</sup>
	JFE Plastic Resource Corporation	JFE KYOWA YOKI CO. LTD* <sup>2</sup>
	JFE Bars & Shapes Corporation	Japan Pail Corporation* <sup>2</sup>
	JFE Galvanizing & Coating Co., Ltd.	JFE SETOUCHI LOGISTICS CORPORATION* <sup>2</sup>
	JFE Container Co., Ltd.	Guangzhou JFE Steel Sheet Co., Ltd.* <sup>3</sup>
	JFE Welded Pipe Manufacturing Co., Ltd.	Thai Coated Steel Sheet Co., Ltd.
	JFE Pipe Fitting Mfg. Co., Ltd.	Philippine Sinter Corporation
	JFE LOGISTICS CORPORATION	JFE Steel Galvanizing (Thailand)
	JFE Chemical Corp.	PT. JFE Steel Galvanizing Indonesia
	DAIWA KOHTAI CO. LTD* <sup>2</sup>	

Operating company* <sup>1</sup>	Group company	
JFE Engineering Corporation	J&T Recycling Corporation	Fujikako, Inc.
	JFE Aqua Machine and Service Corporation	Asuka Soken Co., Ltd.
	JFE Environmental Service Corporation	JFE Urban Recycle Corporation
JFE Shoji Corporation	JFE Shoji Coil Center Corporation	JFE Shoji MatechInc.* <sup>2</sup>
	JFE Shoji Kohnan Steel Center Co., Ltd.	Kawasho Foods Corporation* <sup>2</sup>
	Taisei Kogyo Corporation	K&I Tabular Corporation* <sup>2</sup>
	Toyo Kinzoku Corporation	TohsenCorporation* <sup>2</sup>
	Naigai Steel Corporation	Hoshi Kinzoku Corporation* <sup>2</sup>
	NIHON JISEIZAI KOGYO CO., LTD.	Dongguan JFE Shoji Steel Products Co., Ltd.
	Hokuriku Steel Co., Ltd.	Guangzhou JFE Shoji Steel Products Co., Ltd.
	Mizushima Steel Corporation	Zhejiang JFE Shoji Steel Products Co., Ltd.
	Mizushima Metal Products Corporation	Jiangsu JFE Shoji Steel Products Co., Ltd.
	JFE Shoji Electrical Steel Co., LTD.	JFE Shoji Steel Philippines, Inc.
	JFE Shoji Usuitakenzai Corporation* <sup>2</sup>	Central Metals (Thailand) Ltd.
	JFE Shoji Electronics Corporation* <sup>2</sup>	JFE Shoji Steel Vietnam Co., Ltd.
	JFE Shoji Pipe & Fitting Corporation* <sup>2</sup>	JFE Shoji Steel Hai Phong Co., Ltd.
	JFE Shoji Service Corporation* <sup>2</sup>	JFE Shoji Steel Malaysia Sdn. Bhd.
	JFE Shoji Machinery & Materials Corporation* <sup>2</sup>	PT. JFE Shoji Steel Indonesia
	JFE Shoji Steel Construction Materials Corporation* <sup>2</sup>	JFE Shoji Steel de Mexico, S.A. de C.V.
JFE Shoji Terre One Corporation* <sup>2</sup>	JFE Shoji Steel India Private Limited	
JFE Shoji Business Support, Inc.* <sup>2</sup>	Kawarin Enterprise Pte. Ltd.* <sup>2</sup> * <sup>3</sup>	

\*1 ISO 14001 certification is acquired at all manufacturing bases of JFE Steel and JFE Engineering and at all JFE Shoji's business establishments in Japan.

\*2 Excluded from the scope of ESG data collection.

\*3 Equity-method affiliates.

## Climate Change

### ■ CO<sub>2</sub> Emissions by Scope

Items	Scope	Unit	FY2016	FY2017	FY2018	FY2019	FY2020
Scopes 1 and 2 total* <sup>1</sup>	All	million t-CO <sub>2</sub>	61.8	62.2	59.9	60.4	53.2
	ST Gr	million t-CO <sub>2</sub>	61.7	62.1	59.7	60.0	52.6
	ST* <sup>3</sup>	million t-CO <sub>2</sub>	57.5	58.5	55.4	56.0	49.1
	ST subsidiaries	million t-CO <sub>2</sub>	4.2	3.6	4.3	3.9	3.5
	EN Gr	thousand t-CO <sub>2</sub>	62.9	56.5	212	403	484
	EN	thousand t-CO <sub>2</sub>	16.6	17.3	17.5	16.8	14.1
	EN subsidiaries	thousand t-CO <sub>2</sub>	46.3	39.3	195	386	470
	SH Gr* <sup>4</sup>	thousand t-CO <sub>2</sub>	31.7	35.7	36.2	35.3	29.6
	SH	thousand t-CO <sub>2</sub>	0.5	0.5	0.5	0.5	0.4
	SH subsidiaries* <sup>4</sup>	thousand t-CO <sub>2</sub>	31.2	35.2	35.8	34.8	29.2
	Scope1* <sup>5*6</sup>	All	million t-CO <sub>2</sub>	55.0	54.9	52.3	52.9
ST Gr		million t-CO <sub>2</sub>	—	—	52.1	52.5	46.2
ST* <sup>3</sup>		million t-CO <sub>2</sub>	52.6	52.5	49.2	49.8	43.8
ST subsidiaries		million t-CO <sub>2</sub>	—	—	3.0	2.7	2.4
EN Gr		thousand t-CO <sub>2</sub>	—	—	171	361	442
EN		thousand t-CO <sub>2</sub>	—	—	7.8	3.8	2.4
EN subsidiaries		thousand t-CO <sub>2</sub>	—	—	163	357	439

Items	Scope	Unit	FY2016	FY2017	FY2018	FY2019	FY2020
Scope2**2	All	million t-CO <sub>2</sub>	6.7	7.4	7.6	7.6	6.5
	ST Gr	million t-CO <sub>2</sub>	—	—	7.5	7.5	6.4
	ST*3	million t-CO <sub>2</sub>	4.9	6.0	6.2	6.3	5.4
	ST subsidiaries	million t-CO <sub>2</sub>	—	—	1.3	1.2	1.1
	EN Gr	thousand t-CO <sub>2</sub>	—	—	41.6	42.2	42.4
	EN	thousand t-CO <sub>2</sub>	—	—	9.7	12.9	11.6
	EN subsidiaries	thousand t-CO <sub>2</sub>	—	—	31.9	29.3	30.8
	SH Gr*4	thousand t-CO <sub>2</sub>	31.7	35.7	36.2	35.3	29.6
	SH	thousand t-CO <sub>2</sub>	0.5	0.5	0.5	0.5	0.4
	SH subsidiaries*4	thousand t-CO <sub>2</sub>	31.2	35.2	35.8	34.8	29.2
Unit CO <sub>2</sub> emissions (numerator: Scopes 1 and 2 total; denominator: sales)*7	All	t-CO <sub>2</sub> /billion yen	18,684	16,898	15,463	16,193	16,470
Scope3**8**9	All	thousand t-CO <sub>2</sub> e	13,907	16,272	16,751	16,382	14,369
Category 1 Purchased goods and services	All	thousand t-CO <sub>2</sub> e	11,019	13,048	13,371	12,557	11,026
Category 2 Capital goods	All	thousand t-CO <sub>2</sub> e	840	921	1,180	1,401	1,226
Category 3 Fuel and energy related activities not included in Scopes 1 or 2	All	thousand t-CO <sub>2</sub> e	348	386	370	728	671
Category 4 Upstream transportation and delivery	All	thousand t-CO <sub>2</sub> e	647	650	491	489	419
Category 5 Waste generated in operations	All	thousand t-CO <sub>2</sub> e	155	87	100	57	45
Category 6 Business travel	All	thousand t-CO <sub>2</sub> e	4	4	4	4	4
Category 7 Employee commuting	All	thousand t-CO <sub>2</sub> e	46	54	49	49	51
Category 15 Investments	All	thousand t-CO <sub>2</sub> e	848	1,122	1,186	1,097	927

\*1 Data cover 76 companies

- JFE Steel and 30 major domestic and overseas subsidiaries
- JFE Engineering and 10 major domestic subsidiaries
- JFE Shoji and 33 major domestic and overseas subsidiaries.

\*2 CO<sub>2</sub> Emission Factor for Purchased Electricity in FY2020:

- JFE Steel uses the emission factor of the Commitment to a Low Carbon Society of the Japan Iron and Steel Federation for energy purchased in FY2019.
- JFE Steel's domestic consolidated subsidiaries, the JFE Engineering Group, and the JFE Shoji Group apply the adjusted emission factors of each electric power company for each fiscal year.
- Overseas: based on each country's GHG protocol

\*3 Data in FY2016 includes the Sendai Works of JFE Bars & Shapes Corporation.

\*4 Data for past fiscal years were retroactively revised for increased accuracy.

\*5 Data for JFE Steel include CO<sub>2</sub> emissions from non-energy sources.

\*6 Starting with FY2018, data for JFE Steel's subsidiaries and JFE Engineering's subsidiary include CO<sub>2</sub> emissions from non-energy sources.

\*7 The JFE Group changed its accounting standards from JGAAP to IFRS in FY2018.

\*8 Coverage:

- (Categories 1, 2, 3, 4, 5)JFE Steel, 25 JFE Steel domestic subsidiaries, JFE Engineering, and JFE Shoji
- (Category 6, 7)JFE Steel, 25 JFE Steel domestic subsidiaries, JFE Engineering, 10 JFE Engineering domestic subsidiaries, and JFE Shoji
- (Category 15)Japan Marine United, and 9 JFE Steel equity-method affiliates (7 domestic and 2 overseas)

\*9 Sources: Green Value Chain Platform (Ministry of the Environment) and others

## Other Greenhouse Gas

Items		Scope	Unit	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
CO <sub>2</sub> emissions from energy sources	CO <sub>2</sub> emissions (Scopes 1 and 2 total)	ST* <sup>1</sup>	million t-CO <sub>2</sub>	55.7	56.6	53.5	54.2	47.3
		EN Gr* <sup>2</sup>	thousand t-CO <sub>2</sub>	62.9	56.5	66.7	67.5	62.5
	Scope1	ST* <sup>1</sup>	million t-CO <sub>2</sub>	50.8	50.5	47.3	47.9	41.9
	Unit: CO <sub>2</sub> emissions (denominator: crude steel production)	ST* <sup>1</sup>	t-CO <sub>2</sub> /t-steel	1.94	1.99	2.03	2.03	2.08
CO <sub>2</sub> emissions from non-energy sources		ST Gr* <sup>3</sup>	million t-CO <sub>2</sub>	—	—	2.61	2.65	2.40
		ST	million t-CO <sub>2</sub>	1.85	1.91	1.87	1.89	1.82
		ST subsidiaries	million t-CO <sub>2</sub>	—	—	0.74	0.76	0.58
		J&T Recycling Co.* <sup>4</sup>	million t-CO <sub>2</sub>	—	—	0.15	0.34	0.42



Items	Scope	Unit	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	
GHG emissions other than CO <sub>2</sub>	All	thousand t-CO <sub>2</sub> e	93.7	94.8	88.7	103.3	96.1	
	Methane (CH <sub>4</sub> )	All (ST only)	thousand t-CO <sub>2</sub> e	73.4	76.2	72.2	72.9	68.3
	N <sub>2</sub> O	All	thousand t-CO <sub>2</sub> e	20.3	18.6	16.5	30.4	27.9
		ST	thousand t-CO <sub>2</sub> e	20.3	18.6	16.5	20.0	15.5
		J&T Recycling Co.* <sup>4</sup>	thousand t-CO <sub>2</sub> e	—	—	—	10.4	12.4
GHG emitted during transportation* <sup>5</sup>	ST Gr	million t-CO <sub>2</sub>	0.65	0.65	0.66	0.65	0.57	
	ST	million t-CO <sub>2</sub>	0.33	0.37	0.40	0.40	0.34	
	ST subsidiaries	million t-CO <sub>2</sub>	0.32	0.28	0.26	0.25	0.23	
Contribution to CO <sub>2</sub> emission reductions* <sup>6</sup>	EN Gr	million t-CO <sub>2</sub> /year	3.17	4.06	4.12	4.13	9.65	
	Biomass power generation	EN Gr	million t-CO <sub>2</sub> /year	1.30	1.97	2.12	2.12	2.74
	Waste power generation	EN Gr	million t-CO <sub>2</sub> /year	1.61	1.64	1.53	1.53	3.37
	Others (digestion gas, geothermal, solar power, wind, waste heat recovery, fuel conversion, etc.)	EN Gr	million t-CO <sub>2</sub> /year	0.26	0.46	0.47	0.48	3.54

\*1 Data in FY2016 includes the Sendai Works of JFE Bars & Shapes Corporation.

\*2 Data cover JFE Engineering and 10 consolidated subsidiaries in Japan.

\*3 Data cover JFE Steel and 2 consolidated subsidiaries in Japan.

\*4 J&T Recycling Co. is a domestic subsidiary of JFE Engineering.

\*5 Data cover JFE Steel and 11 domestic and overseas subsidiaries, which are specified consigners designated under the Japanese Energy Saving Act.

\*6 Data cover only JFE Engineering's domestic businesses up to FY2019, and from FY2020 the data cover JFE Engineering's domestic and overseas businesses and its German subsidiary Standardkessel Baumgarte GmbH (SBG).

## ■ Energy

Items		Scope	Unit	FY2016	FY2017	FY2018	FY2019	FY2020
Energy consumption and unit energy consumption	Energy consumption	All	PJ	—	—	—	670	592
		ST Gr	PJ	—	—	—	668.6	590.6
		ST* <sup>1</sup>	PJ	640.9	644.0	613.3	619.8	545.3
		ST subsidiaries	PJ	—	—	—	48.8	45.2
		EN Gr	PJ	—	—	—	1.3	1.2
		SH Gr	PJ	—	—	—	0.6	0.6
	Unit energy consumption (crude steel production)	ST* <sup>1</sup>	GJ/t-steel	22.3	22.6	23.3	23.2	24.0
Energy consumption (Crude petroleum equivalent)	EN	kl	10,665	10,960	10,886	8,788	8,000	
YOY ratio of unit energy consumption	EN	%	92.9	97.4	95.4	80.7	91.0	
Recovered energy for recycling	Supplied to society	ST	%	35	37	39	39	38
	Consumed internally	ST	%	65	63	61	61	62

\*1 Data from in FY2016 includes Sendai Works of JFE Bars & Shapes Corporation.

## ■ Modal Shift Rate

Items		Scope	Unit	FY2016	FY2017	FY2018	FY2019	FY2020
All transportation	Ship and rail	ST	%	66.1	66.1	60.2	59.6	58.4
	Truck	ST	%	33.9	33.9	39.8	40.4	41.6
Transportation of a distance of 500 km or more	Ship and rail	ST	%	94.7	92.7	91.6	90.9	91.6
	Truck	ST	%	5.3	7.3	8.4	9.1	8.4

Scope of calculation: All products and half-finished products transported in Japan

## Climate Change (Supplementary Data)

### ■ CO<sub>2</sub> Emissions and Energy Consumption of JFE Steel Group Subsidiaries (FY2020)

Company name	CO <sub>2</sub> emissions (unit: t-CO <sub>2</sub> )	Energy consumption (unit: GJ)
JFE MINERAL COMPANY, LTD.	284,369	5,102,698
JFE Bars & Shapes Corporation	463,613	8,855,335
Mizushima Ferroalloy Co., Ltd.	296,644	3,012,398
JFE Chemical Corp.	231,782	4,706,668
JFE LOGISTICS CORPORATION	156,613	2,249,469
JFE Material Co., Ltd.	60,496	1,107,822
JFE Galvanizing & Coating Co., Ltd.	59,593	1,252,613
JFE ROCKFIBER CORPORATION	34,483	557,574
JFE Pipe Fitting Mfg. Co., Ltd.	15,246	356,383
JFE Plastic Resource Corporation	20,853	377,933
MIZUSHIMA RIVERMENT CORP.	11,464	161,650
JFE Container Co., Ltd.	10,206	208,281
J-Logitec Co., Ltd.	8,240	120,150
Galvatex Corporation	4,504	88,212
JFE Metal Products & Engineering Inc.	8,161	198,578
JFE Welded Pipe Manufacturing Co., Ltd.	7,870	156,619
JFE Techno-wire Corporation	4,992	110,067
JFE PRECISION CORPORATION	4,783	88,015
K-PLASHEET CORPORATION	4,847	83,826
JFE LIFE CORPORATION	6,750	125,560
CHIBA RIVERMENT AND CEMENT CORP.	6,779	132,610
JFE KENZAI FENCE CO., LTD.	3,484	63,264
JFE Steel Pipe Co., Ltd.	3,043	64,927
GECOSS CORPORATION	2,985	61,455
JFE Kozai Corporation	2,855	62,550
5 overseas companies	1,207,692	15,925,097
Total	2,918,390	45,229,754

## ■ CO<sub>2</sub> Emissions from Energy Sources and Energy Consumption of JFE Engineering Group Subsidiaries (FY2020)

Company name	CO <sub>2</sub> emissions (unit: t-CO <sub>2</sub> )	Energy consumption (unit: GJ)
J&T Recycling Corporation	39,686	770,206
J Farm Corporation	3,023	56,707
Fujikako, Inc.	1,606	36,102
NORTHERN JAPAN MACHINERY Corporation	1,012	16,860
Tohoku Dock Ironworks Corporation	940	17,246
JFE Environmental Service Corporation	730	12,197
Asuka Soken Co., Ltd.	891	15,362
JFE Pipeline Engineering Corporation	362	5,939
JFE Technos Corporation	183	3,075
JFE Aqua Machine and Service Corporation	21	656
Total	48,454	934,349

## Prevention of Pollution

### ■ Air Emissions

Items	Scope	Unit	FY2016	FY2017	FY2018	FY2019	FY2020
SOx emissions* <sup>1</sup>	ST Gr	million Nm <sup>3</sup>	4.5	4.7	4.1	4.3	3.3
	ST	million Nm <sup>3</sup>	4.5	4.6	4.1	4.3	3.3
	ST subsidiaries	million Nm <sup>3</sup>	0.03	0.05	0.04	0.04	0.03
NOx emissions* <sup>1</sup>	ST Gr	million Nm <sup>3</sup>	11.1	11.7	10.7	11.3	10.4
	ST	million Nm <sup>3</sup>	10.9	11.5	10.5	11.1	10.3
	ST subsidiaries	million Nm <sup>3</sup>	0.22	0.20	0.19	0.17	0.14

\*1 13 JFE Steel consolidated subsidiaries in Japan.

## ■ Release to Waterways

Items	Scope	Unit	FY2016	FY2017	FY2018	FY2019	FY2020
COD (chemical oxygen demand)	ST	t/day	3.1	3.0	3.3	3.2	2.9
	ST subsidiaries* <sup>1</sup>	t/day	0.13	0.14	0.17	0.15	0.17
	EN* <sup>2</sup>	kg/day	6.1	5.6	6.8	8.4	8.7

\*1 15 JFE Steel consolidated subsidiaries in Japan.

\*2 This report uses the maximum value of each year.

## ■ Chemical Substances Management

Items	Scope	Unit	FY2016	FY2017	FY2018	FY2019	FY2020
PRTR-registered substances* <sup>1*2</sup>	Amount released	All* <sup>3</sup>	—	—	1,019	918	754
		ST Gr	842	897	814	766	596
		ST	429	516	545	481	341
		ST subsidiaries	413	381	269	285	255
		EN Gr	—	—	205	152	158
		EN	87	85	147	107	121
		EN subsidiaries	—	—	58.4	45.4	36.7
	Amount transferred	All* <sup>3</sup>	—	—	9,210	7,866	5,949
		ST Gr	7,047	8,934	9,176	7,832	5,910
		ST	2,212	2,726	2,533	1,865	1,694
		ST subsidiaries	4,835	6,208	6,643	5,967	4,216
		EN Gr	—	—	34	34	39
		EN	28	28	28	29	26
		EN subsidiaries	—	—	5.7	5.4	12.5

\*1 Coverage:

- JFE Steel and 18 consolidated subsidiaries in Japan.
- JFE Engineering and 4 consolidated subsidiaries in Japan.

\*2 Excluding dioxins

\*3 JFE Shoji is not included in the scope of the report as the company is not subject to PRTR registration.

## Prevention of Pollution (Supplementary Data)

### ■ SOx and NOx Emissions of JFE Steel Group Subsidiaries (FY2020)

Company name	SOx emissions(unit: Nm <sup>3</sup> )	NOx emissions(unit: Nm <sup>3</sup> )
JFE MINERAL COMPANY, LTD.	4,258	35,642
JFE ROCKFIBER CORPORATION	0	0
Mizushima Ferroalloy Co., Ltd.	221	21,523
JFE Material Co., Ltd.	4,964	24,242
CHIBA RIVERMENT AND CEMENT CORP.	113	953
MIZUSHIMA RIVERMENT CORP.	0	625
JFE PRECISION CORPORATION	2,197	126
JFE Plastic Resource Corporation	144	284
JFE Bars & Shapes Corporation	3,397	8,985
JFE Metal Products & Engineering Inc.	53	1,364
JFE KENZAI FENCE CO., LTD.	0	0
JFE Galvanizing & Coating Co., Ltd.	1,756	11,186
JFE Container Co., Ltd.	108	0
JFE Welded Pipe Manufacturing Co., Ltd.	0	0
JFE Steel Pipe Co., Ltd.	0	0
Galvatex Corporation	0	449
JFE Pipe Fitting Mfg. Co., Ltd.	22	759
JFE Techno-wire Corporation	0	0
JFE Kozai Corporation	0	0
GECOSS CORPORATION	0	0
JFE LOGISTICS CORPORATION	0	0
J-Logitec Co., Ltd.	0	0
JFE Chemical Corp.	8,811	35,949
K-PLASHEET CORPORATION	163	0
JFE LIFE CORPORATION	0	0
Total	26,207	142,087

## Efficient Use of Natural Resources

### ■ Natural Resources

Items		Scope	Unit	FY2016	FY2017	FY2018	FY2019	FY2020
Input	Raw materials for steel production	ST	million tonnes	70.1	71.3	66.0	67.0	58.7
	Iron ore	ST	million tonnes	43.5	43.5	40.1	41.4	35.4
	Coal	ST	million tonnes	21.0	22.0	20.6	20.3	18.1
	Lime	ST	million tonnes	5.6	5.8	5.3	5.3	5.2
	Recycled materials (steel scrap)	ST	million tonnes	0.7	1.2	1.3	1.1	0.8
	Raw materials	EN	thousand tonnes	39.1	41.8	47.3	39.4	36.9
Products supplied	Steel products	ST* <sup>1</sup>	million tonnes	28.8	28.5	26.3	26.7	22.8
	Engineering products	EN	thousand tonnes	36.1	39.7	44.5	36.6	34.7

\*1 Data in FY2016 includes the Sendai Works of JFE Bars & Shapes Corporation.

### ■ Co-products and Wastes

Items		Scope	Unit	FY2016	FY2017	FY2018	FY2019	FY2020
Co-products	Amount generated* <sup>1</sup>	ST Gr	million tonnes	15.3	16.2	16.1	15.6	13.9
		ST	million tonnes	14.5	15.7	15.3	15.1	13.4
		ST subsidiaries	million tonnes	0.8	0.5	0.8	0.5	0.5
	Amount recycled internally	ST	million tonnes	3.7	4.2	6.0	5.0	3.3
	Internal recycle rate	ST	%	25.4	27.5	39.3	32.9	24.9
	Landfill amount* <sup>1</sup>	ST Gr	million tonnes	0.087	0.081	0.081	0.074	0.060
		ST	million tonnes	0.045	0.047	0.052	0.043	0.037
		ST subsidiaries	million tonnes	0.042	0.034	0.029	0.031	0.023
	Recycling rate	ST	%	99.7	99.7	99.7	99.7	99.7

Items		Scope	Unit	FY2016	FY2017	FY2018	FY2019	FY2020
Marine, land, and civil engineering material (using co-products)	Co-products generated	ST	million tonnes	14.5	15.4	15.3	15.1	13.4
	Used by local communities	ST	million tonnes	10.8	11.2	9.2	10.1	10.0
	Rate of local communities use	ST	%	74.3	72.2	60.4	66.8	74.8
Wastes	Amount generated*2*3	EN Gr	thousand tonnes	—	158.0	131.7	211.0	159.1
	Offices	EN	t	320.8	429.8	386.4	367.1	329.2
		Yokohama HO	t	241.7	357.1	299.9	299.0	256.9
		Tsu works	t	79.1	72.7	86.5	68.2	72.3
	Productions	EN	t	973.2	773.0	1,039.3	1,340.5	1,072.3
		Tsurumi works	t	443.4	302.3	506.6	653.8	519.8
		Tsu works	t	529.8	470.7	532.7	686.7	552.5
	Constructions	EN	t	101,812.2	88,140.4	109,045.2	145,397.7	97,387.9
	Subsidiaries	EN subsidiaries	t	—	69,835.7	22,634.4	63,876.7	60,296.7
	Landfill	EN	t	1,954.4	1,666.5	2,125.1	4,489.3	2,011.6
	Offices	EN	t	8.4	9.0	10.7	8.5	9.1
		Yokohama HO	t	3.3	4.3	4.1	3.3	2.1
		Tsuworks	t	5.1	4.7	6.6	5.2	7.0
	Productions	EN	t	329.8	289.0	353.3	312.6	351.2
		Tsurumi works	t	67.0	70.6	83.2	77.3	75.2
		Tsuworks	t	262.8	218.4	270.1	235.3	276.0
	Constructions	EN	t	1,616.2	1,368.5	1,761.1	4,168.2	1,651.3
	Recycling rate	EN	%	96.3	96.7	97.0	95.8	95.9
	Recycling rate (offices)	EN	%	96.9	97.6	96.7	97.3	96.8
		Yokohama HO	%	98.5	98.7	98.5	98.8	99.1
		Tsuworks	%	88.9	89.0	85.2	85.2	87.2
	Recycling rate (production)	EN	%	53.4	45.3	46.8	68.0	48.8
		Tsurumi works	%	78.9	61.0	68.7	79.4	72.0
		Tsuworks	%	32.5	37.0	32.1	60.9	33.8
	Recycling rate (construction)	EN	%	98.4	98.4	98.4	97.1	98.3

\*1 Data cover JFE Steel and 25 consolidated subsidiaries in Japan.

\*2 Data cover JFE Engineering and 10 consolidated subsidiaries in Japan.

\*3 Data from FY2019 includes wastes generated at offices and productions of JFE Engineering.



## ■ Wastes at JFE Engineering Construction Sites

Items		Scope	Unit	FY2016	FY2017	FY2018	FY2019	FY2020
Rubble	Amount generated	EN	t	56,767	58,824	78,410	113,637	78,100
	Landfill amount	EN	t	414	94	297	1,533	484
	Recycle rate	EN	%	99.3	99.8	99.6	98.6	99.4
Sludge	Amount generated	EN	t	21,814	23,463	16,142	17,225	12,399
	Landfill amount	EN	t	98	849	199	205	135
	Recycle rate	EN	%	99.5	96.3	98.8	98.8	98.9
Industrial waste excluding rubble and sludge	Amount generated	EN	t	23,231	5,853	14,494	14,535	6,888
	Landfill amount	EN	t	1,103	425	1,265	2,430	1,032
	Recycle rate	EN	%	95.0	92.2	91.0	82.1	83.4

## ■ Paper Consumption at JFE Shoji

Items	Scope	Unit	FY2016	FY2017	FY2018	FY2019	FY2020
Consumption of copier papers	SH	boxes	4,904	5,100	4,832	4,675	3,116
	Tokyo	boxes	2,614	2,674	2,661	2,516	1,333
	Osaka	boxes	545	527	372	399	405
	Nagoya	boxes	305	308	217	293	157
	Branch	boxes	1,440	1,591	1,582	1,467	1,221

## Efficient Use of Natural Resources (Supplementary Data)

### ■ Examples of Recycling and Processing at JFE Group (FY2020)

Content		Unit	Volume
Plastic containers and packaging bidding		million tonnes	0.09
Using waste plastics in the iron and steelmaking process	Used directly in the iron and steelmaking process	million tonnes	0.05
	Collected as gas and used as fuel	million tonnes	0.05
Treating fluorescent tubes		million tubes	20
Waste home appliances		million units	0.50

■ List of JFE Group's Recycling Businesses

Area	Name of company, plant, business establishment, etc.	Plant	Addresses
Sapporo	Sapporo Bio Food Recycle Corporation	Food waste recycling plant	45-53 Nakanuma-cho, Higashi-ku Sapporo-shi, Hokkaido
Sendai	J&T Recycling Corporation Sendai Plant	Sendai plastic packaging-waste sorting and baling plant Plastic material recycling plant Fluorescent tube recycling plant Recycled pallet manufacturing plant Confidential documents disposal plant	1-6-1 Minato, Miyagino-ku Sendaishi, Miyagi same as above same as above same as above same as above
	Rifu Plant	Refuse paper and plastic (RPF) manufacturing plant	6-5-14 Shirakashidai, Rifu-cho Miyagi-gun, Miyagi
Kashima	JFE Bars & Shapes Corporation	Electric furnace recycle plant Direct current arc furnace	7 Minamihama, Kamisu-shi, Ibaraki
Chiba	J&T Recycling Corporation Chiba Recycle Center	Waste gasifying and melting furnace	1 Kawasaki-cho, Chuo-ku Chibashi, Chiba
	Chiba Biogas Center	Food waste recycling plant	same as above
Tokyo	J&T Recycling Corporation Tokyo Waterfront Eco Clean	Fluidized bed gasification and melting furnace (industrial) Vertical furnace (medical)	Oumi 3-chome chisaki, Koto-ku, Tokyo same as above
Kawasaki	J&T Recycling Corporation Ohgishima Plant	Waste plastic recycling plant	10 Ohgishima, Kawasaki-ku Kawasaki-shi, Kanagawa
	Kawasaki PET Bottle Recycling Plant	Waste PET bottle recycling plant	5-1 Mizue-cho, Kawasaki-shi Kawasaki-ku, Kanagawa
	Kawasaki Eco Clean	Kiln-stoker incinerator	5-73 Ohgimachi, Kawasaki-ku Kawasaki-shi, Kanagawa (and other locations)
		Solid waste recycling plant	same as above
	JFE Plastic Resource Corporation Mizue Recycling Plant	Waste plastic recycling plant	699-23 Mizue-cho, Kawasaki-ku Kawasaki-shi, Kanagawa (and other locations)
	NF Board® manufacturing plant	NF Board® manufacturing plant	5-1 Mizue-cho, Kawasaki-ku Kawasaki-shi, Kanagawa
	JFE Urban Recycle Corporation Home Appliance Recycling plant	Consumer/office appliance recycling plant	6-1 Mizue-cho, Kawasaki-ku Kawasaki-shi, Kanagawa
Yokohama	J&T Recycling Corporation Yokohama Eco Clean	Kiln-stoker incinerator	2-1-5 Suehiro-cho, Tsurumi-ku Yokohama-shi, Kanagawa (and other locations)
	Chemical Works	Kiln-ash melting furnace Liquid/sludge waste intermediate-treatment plant	same as above 3-1 Benten-cho, Tsurumi-ku Yokohama-shi, Kanagawa
	Tsurumi Fluorescent Tube Recycling Plant	Dry cell battery and battery recycling plant Fluorescent tube recycling plant	2-1-8 Suehiro-cho, Tsurumi-ku Yokohama-shi, Kanagawa same as above
	Yokohama Plastics Recycling Plant	Yokohama City plastic packaging-waste sorting and baling plant	same as above
	Kanazawa Recycling Plant	Solid waste recycling plant	1-14-5 Fukuura, Kanazawa-ku Yokohama-shi, Kanagawa

Area	Name of company, plant, business establishment, etc.	Plant	Addresses
Yokohama	J Bio Food Recycle Co., Ltd. Yokohama Plant	Food waste recycling plant	2-1-5 Suehiro-cho, Tsurumi-ku Yokohama-shi, Kanagawa
Kurashiki (Mizushima)	Mizushima Eco-works Co., Ltd.	Waste gasifying and melting furnace	1-14-5 Kawasaki-dori, Mizushima, Kurashiki-shi, Okayama
	JFE Environmental Service Corporation Kurashiki Works	Waste wood carbonizing facility	1-14-1 Kawasaki-dori, Mizushima, Kurashiki-shi, Okayama
	JFE Bars & Shapes Corporation	Electric furnace recycling plant Direct current arc furnace	1-5-2 Kawasaki-dori, Mizushima, Kurashiki-shi, Okayama (and other locations)
Fukuyama	JFE Plastic Resource Corporation Fukuyama Recycling Plant	Waste plastic recycling plant	113 Minoki-cho, Fukuyamashi, Hiroshima
	J&T Recycling Corporation Fukuyama RPF Plant	RPF manufacturing plant	115-1 Minoki-cho, Fukuyamashi, Hiroshima
	Fukuyama PM Recycling Plant Fukuyama Palette Plant Steel Works	Plastic material recycling plant Recycled pallet manufacturing plant Kiln incinerator  Controlled landfill Liquid waste neutralization plant	same as above same as above 1 Kokan-cho, Fukuyama-shi, Hiroshima same as above same as above
	Fukuyama Recycle Electric Generation Co., Ltd.	Refuse-derived fuel (RDF) gasifying power generation plant (commissioned operation)	107-8 Minoki-cho, Fukuyamashi, Hiroshima
Toyama	JFE Material Co., Ltd.	Rare metal recovery plant for spent catalysts	2-9-38 Shosei-machi, Imizushi, Toyama

## Water Security

### Water

Items	Scope	Unit	FY2016	FY2017	FY2018	FY2019	FY2020
Amount of water accepted*1	All	million tonnes	—	241	240	242	237
	ST Gr	million tonnes	238	241	238	241	236
	ST	million tonnes	213	220	218	221	215
	ST subsidiaries	million tonnes	24.9	20.6	20.5	19.8	20.9
	EN Gr	thousand tonnes	—	832	918	1,410	1,300
	EN	thousand tonnes	94	97	102	106	72
	EN subsidiaries	thousand tonnes	—	735	816	1,304	1,228
	SH Gr	thousand tonnes	140	166	165	149	160
	SH	thousand tonnes	—	—	—	—	—
	SH subsidiaries	thousand tonnes	140	166	165	149	160
Amount of water released*2	ST Gr	million tonnes	—	146	144	143	141
	ST	million tonnes	127	128	126	126	123
	ST subsidiaries	million tonnes	—	17.8	18.0	17.0	18.3
	EN	thousand tonnes	148	140	146	126	157
Amount of water consumption*2	ST Gr	million tonnes	3,753	3,690	3,665	3,616	3,331
	ST	million tonnes	3,414	3,410	3,376	3,323	3,066
	ST subsidiaries	million tonnes	339	280	289	293	265
Amount evaporated	ST	million tonnes	86	92	92	95	92
Ratio of amount released and evaporated	ST	%	6.3	6.5	6.5	6.6	7.0
Amount recycled*2	ST Gr	million tonnes	3,515	3,449	3,427	3,375	3,096
	ST	million tonnes	3,201	3,190	3,158	3,102	2,851
	ST subsidiaries	million tonnes	314	259	269	273	245
Recycling rate*2*3	ST	%	93.8	93.5	93.5	93.4	93.0
	ST subsidiaries	%	91	93	93	93	92

\*1 Coverage:

- JFE Steel and 25 consolidated subsidiaries in Japan.
- JFE Engineering and 7 consolidated subsidiaries in Japan.
- 31 JFE Shoji domestic and overseas consolidated subsidiaries.

\*2 25 JFE Steel consolidated subsidiaries in Japan.

\*3 Industrial water circulated (%) = (Total amount – industrial water accepted)/total amount used × 100

## Water Related Data by Water Intake Source and Discharge Source

Items	Scope	Unit	FY2017*1	FY2018*1	FY2019*1	FY2020
Total amount accepted	All*2	million tonnes	220.6	219.3	222.0	215.5
River/lake		million tonnes	0	0	0	0
Groundwater		million tonnes	0	0	0	0
Industrial water/waterworks		million tonnes	220.6	219.3	222.0	215.5
Ocean		million tonnes	0	0	0	0
Rainwater		million tonnes	0	0	0	0
Other intake source		million tonnes	0	0	0	0
Total amount released	All*2	million tonnes	130.2	127.5	127.9	125.0
Ocean		million tonnes	129.7	127.0	127.5	124.5
Surface water		million tonnes	0	0	0	0
Underground/well		million tonnes	0	0	0	0
Off-site water processing		million tonnes	0.4355	0.4431	0.4502	0.4796
Beneficial use/other use		million tonnes	0	0	0	0
Other discharge source		million tonnes	0	0	0	0

\*1 Data for past fiscal years were retroactively revised for increased accuracy.

\*2 Data cover JFE Steel and JFE Engineering.

## Water Security (Supplementary Data)

### Amount of Water Accepted and Released at JFE Steel Group Subsidiaries (FY2020)

Company name	Amount accepted (unit:tonnes)	Amount released (unit:tonnes)
JFE MINERAL COMPANY, LTD.	2,439,154	2,440,952
JFE ROCKFIBER CORPORATION	62,010	62,010
Mizushima Ferroalloy Co., Ltd.	419,063	24,709
JFE Material Co., Ltd.	4,049,364	4,049,364
CHIBA RIVERMENT AND CEMENT CORP.	17,435	17,435
MIZUSHIMA RIVERMENT CORP.	16,594	16,594
JFE PRECISION CORPORATION	437,485	437,485
JFE Plastic Resource Corporation	15,871	12,817
JFE Bars & Shapes Corporation	4,767,501	3,046,728

Company name	Amount accepted (unit:tonnes)	Amount released (unit:tonnes)
JFE Metal Products & Engineering Inc.	94,652	124,699
JFE KENZAI FENCE CO., LTD.	68,390	68,390
JFE Galvanizing & Coating Co., Ltd.	822,695	637,519
JFE Container Co., Ltd.	250,560	250,560
JFE Welded Pipe Manufacturing Co., Ltd.	43,853	43,853
JFE Steel Pipe Co., Ltd.	1,554	1,554
Galvatex Corporation	700,980	700,980
JFE Pipe Fitting Mfg. Co., Ltd.	3,742	33,672
JFE Techno-wire Corporation	80,763	80,763
JFE Kozai Corporation	13,673	13,673
GECOSS CORPORATION	68,004	62,350
JFE LOGISTICS CORPORATION	103,048	103,048
J-Logitec Co., Ltd.	3,233	3,233
JFE Chemical Corp.	5,936,163	5,616,840
K-PLASHEET CORPORATION	31,123	17,307
JFE LIFE CORPORATION	494,266	481,084
Total	20,941,176	18,347,619

#### ■ Amount of Water Accepted at JFE Engineering Group Subsidiaries (FY2020)

Company name	Amount accepted (unit: thousand tonnes)
J&T Recycling Corporation	1,164
JFE Environmental Service Corporation	0.03
NORTHERN JAPAN MACHINERY Corporation	0.003
Tohoku Dock Ironworks Corporation	33.2
JFE Aqua Machine and Service Corporation	0.002
Fujikako, Inc.	0.02
J Farm Corporation	31.0
Total	1,228