Scope: This report covers Sumitomo Heavy Industries, Ltd. as well as its consolidated subsidiaries and equity-method affiliates both in Japan and overseas. Context changes are duly noted in the report.

Timeline: January 1, 2023 to December 31, 2023

Guidelines referenced: Environmental Reporting Guidelines 2018, Ministry of the Environment
Environmental Accounting Guidelines 2005, Ministry of the Environment

Cautionary Note Concerning Forward-Looking Statements:

This report includes forward-looking statements regarding the future performance of Sumitomo Heavy Industries, Ltd.

These forward-looking statements are based on information currently available to the Company and determined subjectively. All information contained herein is subject to changes in actual business performance.

目次

Environmental Management

Basic Approach

SHI Group recognizes that conservation of the global environment and climate action are issues that are to be prioritized in our effort to realize a sustainable society, and we endeavor to reduce our environmental impact across all operations, including the entire lifecycle of our products, in accordance with our Sustainability Basic Policy.

SHI Group Environmental Policy

In December 2021, SHI Group revised the SHI Group Environmental Policy with the aim of further reducing the environmental impact of all business activities, including the entire product lifecycle, so that we may address environmental issues such as the pressing challenge of climate change.

Environmental Policy

1. SHI Group will work to conserve the global environment and endeavor to prevent environmental pollution.
2. SHI Group will strive to reduce environmental impacts through efforts such as reducing carbon dioxide emissions and waste, reusing and recycling resources, and using energy more efficiently, and work toward achieving a decarbonized and circular society.
3. SHI Group will work to address impacts of its operations on nature and ecosystems and conserve biodiversity.
4. SHI Group will strengthen its environmental management structure and continue to operate and improve its environmental management system.
5. SHI Group will not only comply with environmental laws and regulations but will also establish and apply voluntary standards to assess its environmental performance as needed.
6. SHI Group will work to raise environmental awareness of everyone involved in its operations through continuous environmental education and awareness programs.
7. SHI Group will share with and communicate and disclose to all stakeholders this Environmental Policy.

Promotion of Environmental Management

We are committed to environmental management. Every three years since FY2005, we have formulated medium-term environmental plans that set out specific activity targets.

Environmental Management Structure

Management of SHI Group-wide environmental activities is implemented by the General Manager of the General Administration Group and the Environmental Management Division under the supervision of the Officer in Charge of General Administration who is appointed by the President. As the person with ultimate responsibility, the President approves and determines SHI Group's Environmental Policy. Environmental audits are conducted in conjunction with local status checks to verify the status of environmental management at all manufacturing sites including those of affiliated companies, and the results of these activities are reported and problems shared at environmental management meetings. In addition, environmental education is provided to inform our employees of SHI Group's Environmental Policy, environmental targets, and initiatives.

Activities

Environmental audits (once/year)

We audit our manufacturing sites in Japan, China, and Southeast Asia to assess overall environmental management from the perspectives of environmental incident prevention, legal and regulatory compliance, and global warming prevention.

Audit results are evaluated on a five-point scale for each division based on our own evaluation standards, and reported to the Executive & Operating Officers Meeting for improvement..

Examinations by General Administration Group General Manager (as required)

In conjunction with environmental audits, the General Manager of the General Administration Group conducts a separate examination and provides guidance to those divisions that the General Manager deems necessary (such as divisions where environmental incidents occurred the previous year, divisions where environmental targets were significantly underachieved, etc.).

Environmental management meetings (twice/year)

Environmental Management Meetings are held for works and affiliated companies in Japan to report activity results and share problems. China Environmental Management Meetings are also held for affiliated companies in China with the aim of raising the level of environmental activity performance of these companies.

Regional activities

In each region, intraregional meetings are held on the topics of global warming prevention, energy efficiency enhancement, and other themes. Reports are provided on activity progress, case studies presented, and other information shared.

Environmental Risk Assessments

SHI Group regularly conducts environmental risk assessments at each of our sites to preempt environmental incidents.
Additionally, if an environmental incident occurs, we take appropriate action and thoroughly analyze the incident as part of our efforts to prevent any recurrence as well as similar incidents involving comparable equipment or substances at other sites.
SHI Group operates in a manner that bolsters prevention of potential environmental incidents by addressing events that may someday trigger an environmental incident even though the event itself is not classified as such.

6th Medium-Term Environmental Plan

The 6th Medium-Term Environmental Plan, which covered FY2020 to FY2023, set out four material issues and promoted activities to address these.
In FY2023 the final year of the 6th Medium-Term Environmental Plan, we achieved most all of our targets.

Material Issues

1. Strengthen environmental risk management
2. Reduce CO_2 emissions in a consciousness response to climate change
3. Reduce the environmental footprint of business activities
4. Conserve biodiversity

Targets & Results (FY2023)

Benchmark	Item		FY2023 Target	FY2023 Results
Environmental Management	Major environmental incidents		0	0
Climate change adaptation	CO_2 emissions	Total amount (Market-based)	—	18% reduction
		Reduction in CO_2 from energy-conserving activities *1	Japan: 4% reduction (compared to FY2019)	5.7% reduction
		Total (excluding renewable energy) *1	Japan: 4% reduction (compared to FY2019)	4.4% increase
Environmental footprint reduction	Volume of waste generated (basic unit) *2		Japan: Maintain (compared to FY2017~2019)	26.6% reduction
			Overseas: 3% reduction (compared to FY2019)	24.5% reduction
	VOC emissions		Japan: Maintain (compared to FY2019)	17.6% reduction
			Overseas: 1% reduction (compared to FY2019)	28.3% reduction

*1 Comparison based on FY2019 actual calculation coefficient

*2 Including hazardous waste

7th Medium-Term Environmental Plan

The 7th Medium-Term Environmental Plan establishes three material issues and promotes initiatives to address these with the aim of achieving SHI Group's target of carbon neutrality by 2050. Single-year targets are also set and progress monitored.

Material Issues

1. Reduce total CO_2 emissions
2. Reinforce environmental management
3. Alleviate environmental footprint accompanying business activities

Data

Environmental Data

The scope of non-financial data provided covers Sumitomo Heavy Industries Ltd., consolidated subsidiaries, and equity method affiliates. Context changes are duly noted in the report.

Environmental Data List

[Scope]The scope of non-financial data provided covers Sumitomo Heavy Industries Ltd., consolidated subsidiaries, and equity method affiliates. Context changes are duly noted in the report.

Item				Unit	2019	2020	2021	2022	2023	Remarks
Response to Climate Change	CO2 emissions	Scope1+ Scope2 (Market)	Japan	10,000 t-CO_2	ii	10.1	10.3	10.4	8.2	
			Overseas	10,000 t-CO_2	10.5	10.0	11.2	10.7	7.5	
			Total	10,000 t-CO_2	21.2	20.1	21.5	21.1	15.7	
		Scope1	Japan	t-CO_2	17,499	16,229	16,300	17,561	16,935	
			Overseas	t-CO_2	22,266	20,344	21,118	20,857	19,337	
			Total	t-CO_2	39,765	36,572	37,418	38,419	36,272	
		Consolidated account sales		million yen	864,490	849,065	943,979	854,093	1,081,533	
		Data coverage rate		%	85.9%	85.9%	92.6%	91.1%	92.3%	
		Scope2 (Location)	Japan	t-CO_2	84,624	73,144	72,604	75,761	77,597	
			Overseas	t-CO_2	82,315	79,550	91,312	86,699	62,915	
			Total	t-CO_2	166,939	152,694	163,917	162,460	140,512	
		Scope2 (Market)	Japan	t-CO_2	89,451	84,997	86,449	86,903	64,661	
			Overseas	t-CO_2	82,315	79,550	91,312	85,747	55,970	
			Total	t-CO_2	171,766	164,546	177,761	172,650	120,631	
		Data coverage rate		%	85.9%	85.9%	92.6%	91.1%	92.3%	
		Scope1+2	Location	t-CO_2	206,704	189,267	201,335	200,879	176,784	
			Market	t-CO_2	211,531	201,119	215,179	211,069	156,903	
		Data coverage rate		%	85.9%	85.9%	92.6%	91.1%	92.3%	
		Scope3	Total	t-CO2	226,077,535	123,561,961	137,175,145	80,561,862	76,761,104	
		Data coverage rate		%	97.9%	96.8%	96.5%	94.6%	94.9%	
		Cat-01 Raw materials		t-CO_2	313,670	356,805	351,365	406,638	1,095,515	Calculation scope expanded in FY23
		Cat-02 Capital goods		t-CO_2	165,751	128,805	154,343	147,464	140,793	
		Cat-03 Energy consumption		t-CO_2	20,162	20,280	21,349	26,955	26,712	
		Cat-04 Logistics (Upstream)		t-CO_2	11,562	11,046	11,082	11,045	10,160	Excluding overseas
		Cat-05 Waste disposal		t-CO_2	6,958	5,767	5,578	5,355	5,405	Excluding overseas
		Cat-06 Business travel		t-CO_2	2,120	2,171	3,761	3,277	3,289	
		Cat-07 Commuting		t-CO_2	6,006	6,179	11,138	11,322	12,264	
		Cat-08 Lease asset (Upstream)		t-CO_2	0	0	0	0	0	Calculated according to Scope 1 & 2
		Cat-09 Logistics (Downstream)		t-CO_2	—	—	—	—	—	Excluded
		Cat-10 Processing of products		t-CO_2	—	—	—	—	—	Exempt as processing form unable to be identified
		Cat-11 Use of products		t-CO_2	225,549,245	123,029,056	136,614,107	79,946,933	75,463,187	
		Cat-12 Disposal of products		t-CO_2	—	—	—	—	—	Calculation method currently under review
		Cat-13 Lease asset (Downstream)		t-CO_2	—	—	—	—	—	Calculation method currently under review
		Cat-14 Franchises		t-CO_2	—	—	—	—	—	Not covered
		Cat-15 Investments		t-CO_2	2,060	1,852	2,422	2,873	3,780	Not subject to third-party verification
	CO2 emissions per basic unit			t-CO_2/million yen	0.24	0.22	0.21	0.24	0.16	

Item				Unit	2019	2020	2021	2022	2023	Remarks
Response to Climate Change	Energy productivity		Japan	million yen/t-CO_2	5.8	5.8	6.0	6.3	7.0	
			Overseas	million yen/t-CO_2	3.0	2.7	3.0	3.2	3.5	
	Energy consumption	Fuel consumption	Japan	MWh	86,213	80,949	82,309	88,009	83,194	
			Overseas	MWh	116,454	106,386	110,457	108,570	91,463	
			Total	MWh	202,668	187,335	192,766	196,579	174,657	
		Electric power consumption	Japan	MWh	166,135	161,081	167,290	164,323	121,359	
			Overseas	MWh	125,516	124,602	135,088	131,868	129,304	
			Total	MWh	291,650	285,683	302,378	296,191	250,663	
		Cold/warm water	Japan	MWh	1,203	1,197	1,113	1,159	1,299	
			Overseas	MWh	5,379	8,110	9,136	8,147	9,387	
			Total	MWh	6,582	9,307	10,249	9,306	10,686	
		Total		MWh	500,900	482,325	505,393	502,076	436,006	
		Data coverage rate		%	85.9%	85.9%	92.6%	91.1%	92.3%	
	Renewable energy consumption		Japan	MWh	323	1,223	1,298	11,000	58,347	
			Overseas	MWh	0	0	0	3,203	14,270	
			Total	MWh	323	1,223	1,298	14,203	72,617	
		Energy recycling rate	Japan	%	0.19%	0.76%	0.78%	6.69%	48.08%	
			Overseas	%	0.0	0.0	0.0	2.43%	11.04%	
			Overall	%	0.11%	0.43%	0.43%	4.80%	28.97%	
		Data coverage rate		%	85.9%	85.9%	92.6%	91.1%	92.3%	
	Other major GHG	Total amount	Japan	t-CO_2	51.0	54.2	29.7	36.5	1,518.3	
			Overseas	t-CO_2	—	—	—	—	—	
		Methane (CH4)	Japan	t-CO_2	41.3	46.7	25.8	35.1	139.3	
			Overseas	t-CO_2	—	—	—	—	—	
		Dinitrogen monoxide (N2O)	Japan	t-CO_2	9.8	7.5	3.8	1.5	83.2	
			Overseas	t-CO_2	—	—	—	—	—	
		Hydrofluorocarbon compounds (HFCs)	Japan	t-CO_2	—	—	—	—	11.7	
			Overseas	t-CO_2	—	—	—	—	—	
		Sulfur hexafluoride (SF6)	Japan	t-CO_2	—	—	—	—	1,284.2	
			Overseas	t-CO2	—	—	—	—	—	

Item				Unit	2019	2020	2021	2022	2023	Remarks
Waste Management	Amount of waste generated		Japan	t	30,080	30,159	27,108	25,909	26,721	
			Overseas	t	34,085	30,707	35,483	32,494	29,895	
			Total	t	64,165	60,866	62,591	58,403	56,615	
		Data coverage rate		%	85.6%	85.5%	84.2%	84.5%	85.9%	
		Amount recycled (Total weight of recovered & recycled waste, etc.)	Japan	t	24,860	29,686	25,843	24,431	26,389	Amount recycled, valuable resources
		Amount of waste incinerated with energy recovered	Japan	t	4,048	2,497	2,702	2,506	2,335	Waste recycled & heat recovered
		Amount of waste incinerated without recovering energy	Japan	t	1,904	290	224	386	343	Waste incinerated & heat not recovered
		Amount recycled	Overseas	t	–	–	–	–	–	
		Final disposal amount	Japan	t	1	16	27	33	7	
			Overseas	t	8,233	1,219	1,268	971	1,099	
			Total	t	8,234	1,235	1,294	1,004	1,106	
	Amount of hazardous waste generated	Emissions	Japan	t	303	818	708	693	650	Specially controlled industrial waste
		Amount of waste incinerated with energy recovered	Japan	t	–	235	222	209	145	Waste recycled & heat recovered
		Amount of waste incinerated without recovering energy	Japan	t	–	168	118	46	30	Waste incinerated & heat not recovered
			Overseas	t	–	–	–	–	–	
Disclosure under new Plastic Act	Emissions	Emissions	Japan	t	1,009	1,505	1,419	1,310	1,243	(non-consolidated)
	Amount of waste incinerated with energy recovered (t)		Japan	t	427	509	435	437	422	(non-consolidated)
Water Resource Conservation	Water Consumption		Japan	thousand m^3	1,190	1,155	1,165	1,129	1,070	
			Overseas	thousand m^3	375	343	376	381	366	All tap water
			Total	thousand m^3	1,565	1,498	1,541	1,510	1,436	
		Data coverage rate		%	80.6%	77.1%	76.5%	80.2%	82.0%	
		Tap water	Japan	thousand m^3	385	382	362	355	331	
		Industrial water	Japan	thousand m^3	622	610	618	613	604	Only amount used is counted
		Surface water	Japan	thousand m^3	0	0	0	0	0	
		Underground water	Japan	thousand m^3	183	163	185	161	135	
	Effluent			thousand m^3	454	478	460	434	934	
		Data coverage rate		%	51.3%	51.6%	47.5%	43.6%	49.3%	
	Amount discharged into water systems	COD		t	1.8	1.6	1.5	1.5	1.4	
		T-N		t	6.8	6.6	6.2	5.6	4.9	
		T-P		t	0.5	0.5	0.5	0.5	0.4	
		Data coverage rate		%	51.3%	51.6%	47.5%	43.6%	49.3%	

Item				Unit	2019	2020	2021	2022	2023	Remarks
Chemical Substances	VOC	Total amount	Japan	t	577	519	507	525	443	
			Overseas	t	140	121	117	111	100	
			Total	t	717	640	623	636	544	
		Data coverage rate		%	87.8%	88.6%	86.0%	87.2%	86.6%	
		Ethylbenzene	Japan	t	155	158	149	154	163	
		Xylene	Japan	t	301	262	258	280	211	
		Toluene	Japan	t	122	99	100	91	69	
Environmental compliance	Number of major environmental incidents		Group-wide	Number of cases	0	1	0	0	0	
	Number of major environmental law/regulation violations		Group-wide	Number of cases	0	0	0	0	0	
	Number of penalties, fines, etc. paid		Japan	Number of cases	0	0	0	0	0	Cases where a ¥1 million or greater penalty or fine paid
			Overseas	Number of cases	0	1	0	0	0	Cases where US$1,000 or greater penalty charge or fine paid
Environmental investment	Environment & Energy-Saving Capital Investment	Environment-related	Group-wide	million yen	826	573	490	423	423	
		Manufacturing energy-related	Group-wide	million yen	–	–	–	–	685	Solar power generation-related expenses, etc.
		Energy-saving related	Group-wide	million yen	3,706	1,287	2,610	685	530	
		Total	Group-wide	million yen	4,532	1,860	3,100	1,108	1,638	
External assessments	External assessments	CDP	Climate change	–	B	B-	B-	B	A-	
			Water security	–	B-	C	B-	C	A-	
		Buna-no-Mori (Beech forest)		–	B	A	B	A	A	
		Assessment under Act on Rationalizing Energy		–	S	S	S	S	S	
		Energy saving assessment for specific tenants by Tokyo metropolitan government		–	AA	AA	AAA	AA	AA	
Acquisition of ISO 14001 certification	Acquisition of ISO 14001 certification		Japan	Number of cases	37	37	37	35	35	
			Overseas	Number of cases	19	21	21	22	26	
			Total	Number of cases	56	58	58	57	61	
		Acquisition rate		%	80.1%	80.6%	79.4%	75.2%	79.8%	

Site-Specific Environmental Impact Data

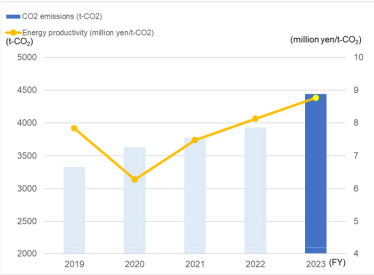
SHI Group compiles and manages data on the environmental impact of our works, group companies manufacturing in Japan (outside our works), and key group companies manufacturing overseas.

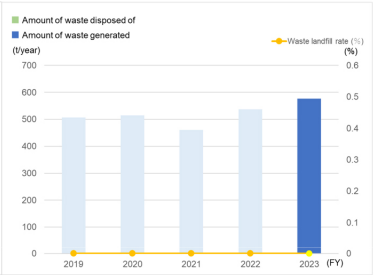
Environmental Impact Data for SHI Group Works

*CO_2 emissions and electric power consumption are given based on actual usage but excluding solar power generation and renewable energy purchases.

Tanashi Works

■ Established in 1938 ■ ISO14001 (Acquired Aug. 1998 [Unified]) ■ Site area: 40,706m^2
■ Building area: 14,368m^2 ■ Main products: Cryogenic equipment, defense equipment



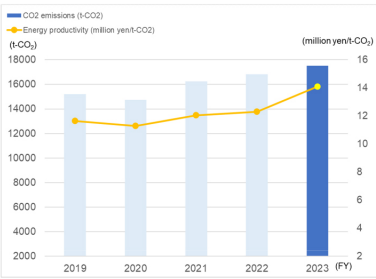


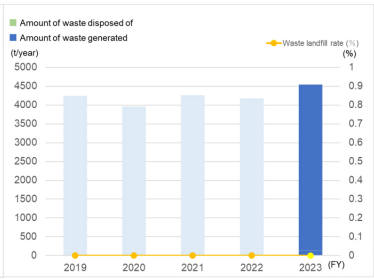
Energy consumption	
Electric power (1,000 kWh)	9,535.0
Gasoline (kL)	0.1
Kerosene (kL)	0.9
Light oil (kL)	11.2
Heavy fuel oil A (kL)	0.0
LPG (t)	0.0
LNG (t)	0.0
City gas (km^3)	2.1
Water consumption (m^3)	12,642.0

Atmospheric discharge	
SOx (kg)	–
NOx (kg)	–
Amount discharged into water systems	
COD (kg)	–
Nitrogen (kg)	–
Phosphorus (kg)	–
*Sewage discharge	

Chiba Works

■ Established in 1965 ■ ISO14001 (Acquired Aug. 1998 [Unified]) ■ Site area: 297,039m^2
■ Building area: 127,800m^2 ■ Main products: Plastic processing machines, metallic molds, hydraulic excavators



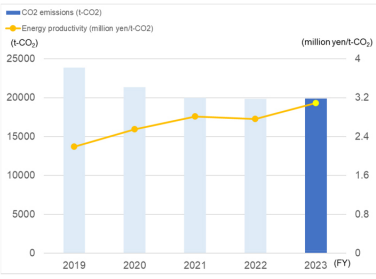


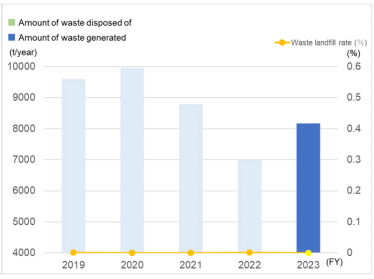
Energy consumption	
Electric power (1,000 kWh)	24,643.1
Gasoline (kL)	209.0
Kerosene (kL)	0.3
Light oil (kL)	812.1
Heavy fuel oil A (kL)	0.0
LPG (t)	36.9
LNG (t)	0.0
City gas (km^3)	1,532.9
Water consumption (m^3)	106,065.0

Atmospheric discharge	
SOx (kg)	–
NOx (kg)	1,070.0
Amount discharged into water systems	
COD (kg)	–
Nitrogen (kg)	–
Phosphorus (kg)	–
*Sewage discharge	

Yokosuka Works

■ Established in 1971 ■ ISO14001 (Acquired Aug. 1998 [Unified]) ■ Site area: 523,000m^2
■ Building area: 170,635m^2 ■ Main products: Stage systems, system controllers, laser processing systems, semiconductor manufacturing equipment (molding machines), precision forgings, ships



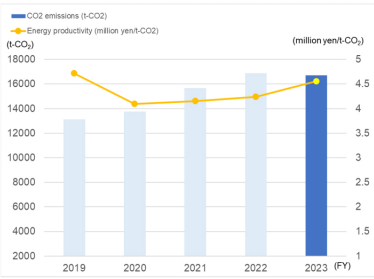


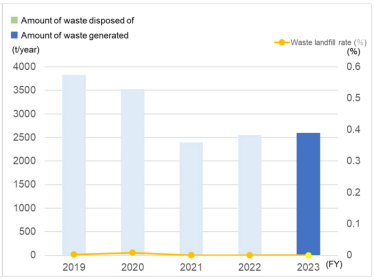
Energy consumption	
Electric power (1,000 kWh)	38,231.1
Gasoline (kL)	25.4
Kerosene (kL)	0.0
Light oil (kL)	196.2
Heavy fuel oil A (kL)	0.0
LPG (t)	10.4
LNG (t)	0.0
City gas (km^3)	723.8
Water consumption (m^3)	125,981.1

Atmospheric discharge	
SOx (kg)	–
NOx (kg)	267.6
Amount discharged into water systems	
COD (kg)	376.9
Nitrogen (kg)	245.6
Phosphorus (kg)	73.5

Nagoya Works

■ Established in 1961 ■ ISO14001 (Acquired Aug. 1998 [Unified]) ■ Site area: 293,000m^2
■ Building area: 90,000m^2 ■ Main products: Power transmission and controls, gear motors, inverters, construction cranes





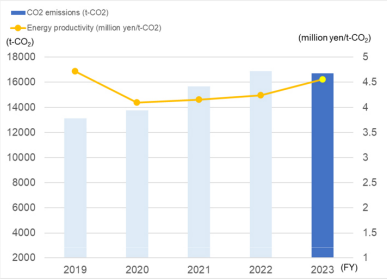
Energy consumption	
Electric power (1,000 kWh)	28,348.0
Gasoline (kL)	38.4
Kerosene (kL)	0.0
Light oil (kL)	135.5
Heavy fuel oil A (kL)	0.0
LPG (t)	8.0
LNG (t)	0.0
City gas (km^3)	1,397.9
Water consumption (m^3)	152,150.0

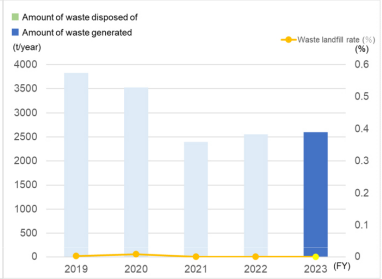
Atmospheric discharge	
SOx (kg)	–
NOx (kg)	23
Amount discharged into water systems	
COD (kg)	529.1
Nitrogen (kg)	90.4
Phosphorus (kg)	3.6

Okayama Works

■ Established in 1948 ■ ISO14001 (Acquired Aug. 1998 [Unified]) ■ Site area: 425,000m^2

■ Building area: 78,000m^2 ■ Main products: Gear boxes, machine tools, coolant systems





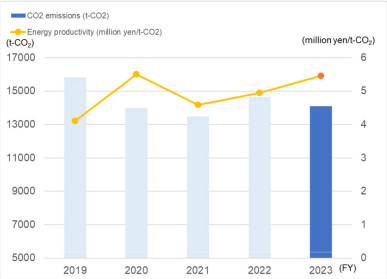
Energy consumption	
Electric power (1,000 kWh)	7,585.2
Gasoline (kL)	1.7
Kerosene (kL)	0.0
Light oil (kL)	4.5
Heavy fuel oil A (kL)	0.0
LPG (t)	102.2
LNG (t)	0.0
City gas (km^3)	0.0
Water consumption (m^3)	14,321.2

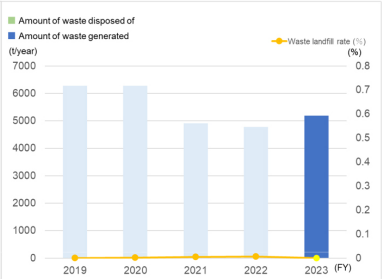
Atmospheric discharge	
SOx (kg)	–
NOx (kg)	–
Amount discharged into water systems	
COD (kg)	–
Nitrogen (kg)	–
Phosphorus (kg)	–
*Sewage discharge	

Ehime Works (Niihama plant)

■ Established in 1888 ■ ISO14001 (Acquired Aug. 1998 [Unified]) ■ Site area: 418,000m^2

■ Building area: 203,000m^2 ■ Main products: Forging machinery, medical accelerators, transport machinery, mechanical parking systems, mill rolls





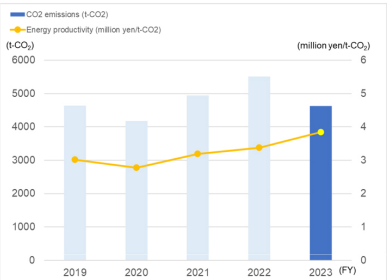
Energy consumption	
Electric power (1,000 kWh)	24,188.0
Gasoline (kL)	3.4
Kerosene (kL)	44.6
Light oil (kL)	76.0
Heavy fuel oil A (kL)	64.0
LPG (t)	445.5
LNG (t)	402.2
City gas (km^3)	0.0
Water consumption (m^3)	629,874.0

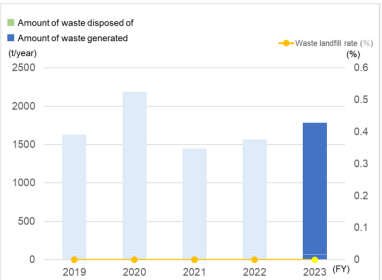
Atmospheric discharge	
SOx (kg)	75.0
NOx (kg)	388.0
Amount discharged into water systems	
COD (kg)	59.8
Nitrogen (kg)	425.7
Phosphorus (kg)	5.9

Ehime Works (Saijo plant)

■ Established in 1973 ■ ISO14001 (Acquired Aug. 1998 [Unified]) ■ Site area: 535,036m^2

■ Building area: 82,222m^2 ■ Main products: Pressure vessels, mixing and blending vessels, coke oven machines





Energy consumption	
Electric power (1,000 kWh)	9,284.3
Gasoline (kL)	9.3
Kerosene (kL)	2.3
Light oil (kL)	46.9
Heavy fuel oil A (kL)	12.0
LPG (t)	53.5
LNG (t)	0.0
City gas (km^3)	0.0
Water consumption (m^3)	64,888.1

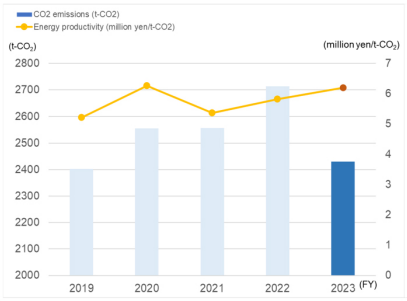
Atmospheric discharge	
SOx (kg)	17.0
NOx (kg)	72.3
Amount discharged into water systems	
COD(kg)	389.6
Nitrogen (kg)	462.0
Phosphorus (kg)	42.2

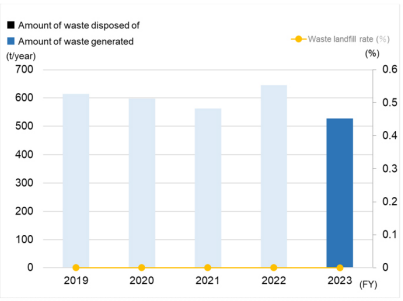
Environmental Impact Data for SHI Group Companies Manufacturing in Japan (Outside Works)

*CO_2 emissions and electric power consumption are given based on actual usage but excluding solar power generation and renewable energy purchases.

Shin Nippon Machinery Co., Ltd.

■ Main products: Turbines, pumps



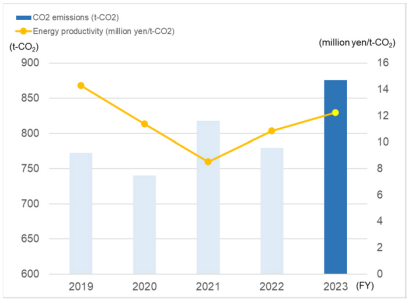


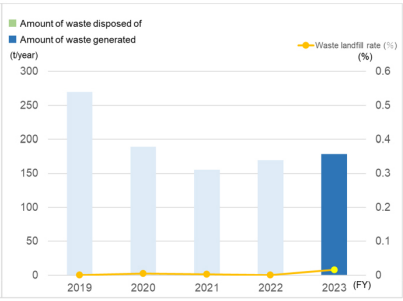
Energy consumption	
Electric power (1,000 kWh)	3,837.5
Gasoline (kL)	0.0
Kerosene (kL)	253.6
Light oil (kL)	3.8
Heavy fuel oil A (kL)	0.0
LPG (t)	5.5
LNG (t)	0.0
City gas (km^3)	0.2
Water consumption (m^3)	15,621.0

Atmospheric discharge	
SOx (kg)	55.3
NOx (kg)	432.3
Amount discharged into water systems	
COD (kg)	–
Nitrogen (kg)	–
Phosphorus (kg)	–

Nihon Spindle Mfg. Co., Ltd.

■ Main products: Industrial and environmental machinery



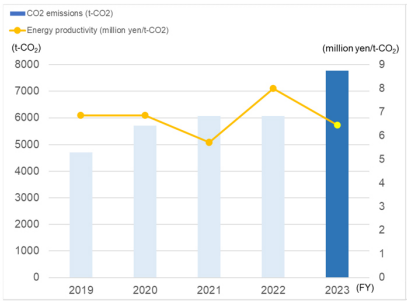


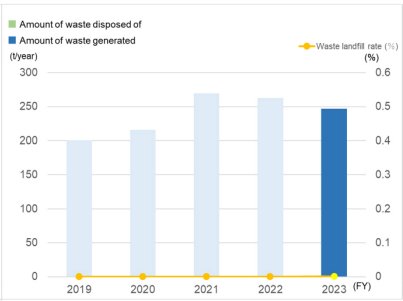
Energy consumption	
Electric power (1,000 kWh)	1,699.1
Gasoline (kL)	0.0
Kerosene (kL)	1.3
Light oil (kL)	0.2
Heavy fuel oil A (kL)	1.6
LPG (t)	0.3
LNG (t)	0.0
City gas (km^3)	36.5
Water consumption (m^3)	10,464.6

Atmospheric discharge	
SOx (kg)	–
NOx (kg)	–
Amount discharged into water systems	
COD (kg)	–
Nitrogen (kg)	–
Phosphorus (kg)	–
*Sewage discharge	

Sumitomo Heavy Industries Ion Technology Co., Ltd.

■Main products: Ion implantation devices



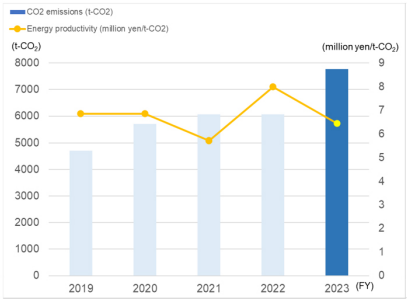


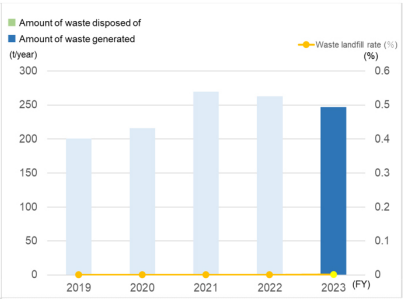
Energy consumption	
Electric power (1,000 kWh)	16,816.1
Gasoline (kL)	0.0
Kerosene (kL)	0.0
Light oil (kL)	3.3
Heavy fuel oil A (kL)	0.0
LPG (t)	0.0
LNG (t)	0.0
City gas (km^3)	0.0
Water consumption (m^3)	16,972.0

Atmospheric discharge	
SOx (kg)	–
NOx (kg)	–
Amount discharged into water systems	
COD (kg)	–
Nitrogen (kg)	–
Phosphorus (kg)	–
*Incl. with Saijo Plant	

Sumitomo NACCO Forklift Co., Ltd.

■ Main products: Forklifts



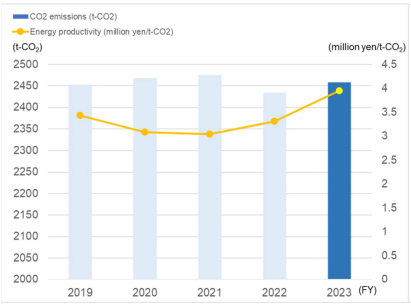


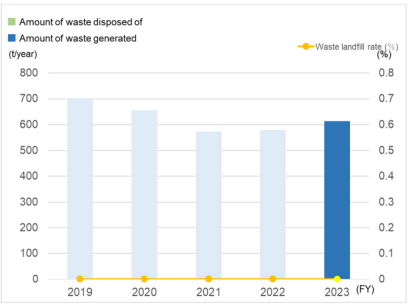
Energy consumption	
Electric power (1,000 kWh)	3,137.3
Gasoline (kL)	3.7
Kerosene (kL)	0.0
Light oil (kL)	7.9
Heavy fuel oil A (kL)	0.0
LPG (t)	7.2
LNG (t)	0.0
City gas (km^3)	256.0
Water consumption (m^3)	7,031.5

Atmospheric discharge	
SOx (kg)	–
NOx (kg)	–
Amount discharged into water systems	
COD (kg)	–
Nitrogen (kg)	–
Phosphorus (kg)	–
*Sewage discharge	

Sumitomo Heavy Industries Gearbox Co., Ltd. Kaizuka Plant

■Main products: Drive units



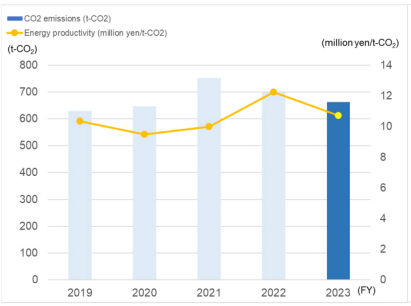


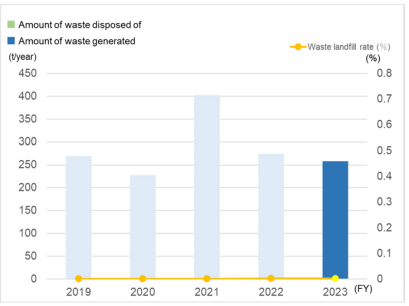
Energy consumption	
Electric power (1,000 kWh)	4,602.5
Gasoline (kL)	1.0
Kerosene (kL)	0.1
Light oil (kL)	1.7
Heavy fuel oil A (kL)	0.0
LPG (t)	8.4
LNG (t)	0.0
City gas (km^3)	133.6
Water consumption (m^3)	9,803.0

Atmospheric discharge	
SOx (kg)	–
NOx (kg)	199.4
Amount discharged into water systems	
COD (kg)	–
Nitrogen (kg)	–
Phosphorus (kg)	–
*Sewage discharge	

Sumitomo Heavy Industries Modern, Ltd.

■ Main products: : Plastic extruding and molding machines



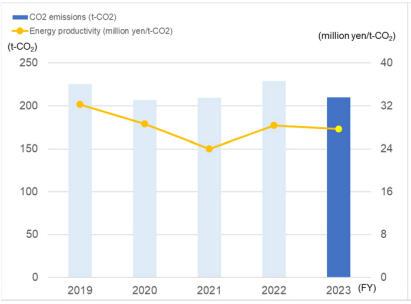


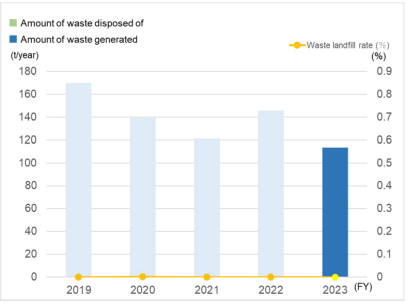
Energy consumption	
Electric power (1,000 kWh)	1,391.9
Gasoline (kL)	0.0
Kerosene (kL)	0.0
Light oil (kL)	4.7
Heavy fuel oil A (kL)	0.0
LPG (t)	2.7
LNG (t)	0.0
City gas (km^3)	0.0
Water consumption (m^3)	2,361.0

Atmospheric discharge	
SOx (kg)	–
NOx (kg)	–
Amount discharged into water systems	
COD (kg)	–
Nitrogen (kg)	–
Phosphorus (kg)	–
*Sewage discharge	

Izumi Food Machinery Co., Ltd.

■ Main products: Food processing machinery



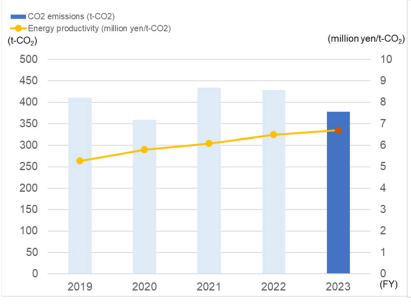


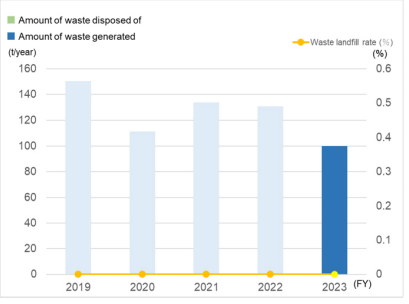
Energy consumption	
Electric power (1,000 kWh)	430.2
Gasoline (kL)	0.0
Kerosene (kL)	0.0
Light oil (kL)	0.0
Heavy fuel oil A (kL)	0.2
LPG (t)	0.0
LNG (t)	0.0
City gas (km^3)	4.8
Water consumption (m^3)	2,356.4

Atmospheric discharge	
SOx (kg)	–
NOx (kg)	–
Amount discharged into water systems	
COD (kg)	–
Nitrogen (kg)	–
Phosphorus (kg)	–
*Sewage discharge	

SFK Co., Ltd.

■ Main products: Bolts, nuts, precision screws





Energy consumption	
Electric power (1,000 kWh)	758.1
Gasoline (kL)	0.6
Kerosene (kL)	9.5
Light oil (kL)	0.0
Heavy fuel oil A (kL)	0.0
LPG (t)	0.7
LNG (t)	0.0
City gas (km^3)	0.0
Water consumption (m^3)	438.0

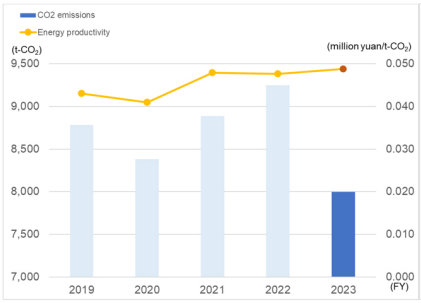
Atmospheric discharge	
SOx (kg)	–
NOx (kg)	–
Amount discharged into water systems	
COD (kg)	2.4
Nitrogen (kg)	-
Phosphorus (kg)	-

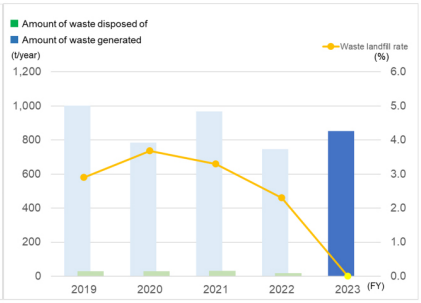
Environmental Impact Data for SHI Group Companies Manufacturing Overseas

*CO_2 emissions and electric power consumption are given based on actual usage but excluding solar power generation and renewable energy purchases.

Sumitomo Heavy Industries (Tangshan), Ltd.

■Country: China ■Main products: Power transmission and controls



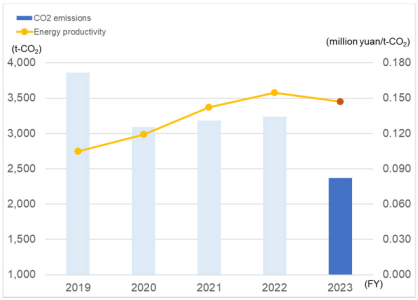


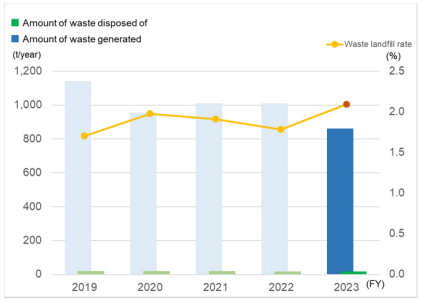
Energy consumption	
Electric power (1,000 kWh)	11,672.8
Gasoline (kL)	–
Heavy fuel oil (kL)	–
Light oil (kL)	0.9
LPG (t)	–
LNG (t)	1,244.0
Water consumption (m^3)	23,626.0

Atmospheric discharge	
VOC(t)	0.0
SOx(t)	0.1
NOx(t)	3.8

Sumitomo (SHI) Cyclo Drive China, Ltd.

■ Country: China ■Main products: Power transmission and controls



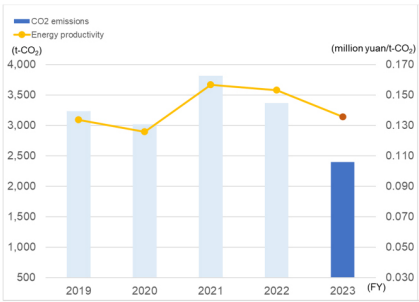


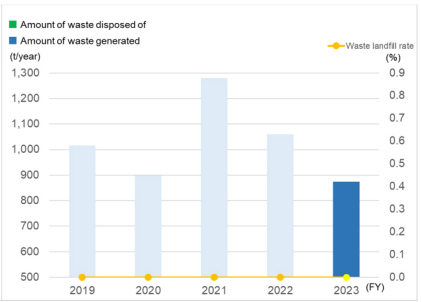
Energy consumption	
Electric power (1,000 kWh)	4,971.9
Gasoline (kL)	–
Heavy fuel oil (kL)	–
Light oil (kL)	–
LPG (t)	–
LNG (t)	–
Water consumption (m^3)	16,860.0

Atmospheric discharge	
VOC(t)	0.8
SOx(t)	–
NOx(t)	–

Ningbo Sumiju Machinery, Ltd

■ Country: China ■Main products: Plastic molding machines and power transmission/controls



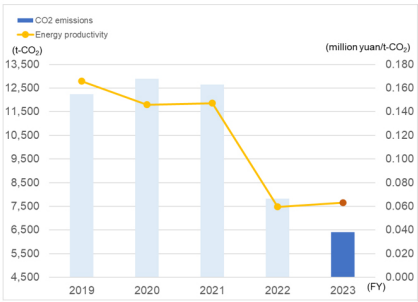


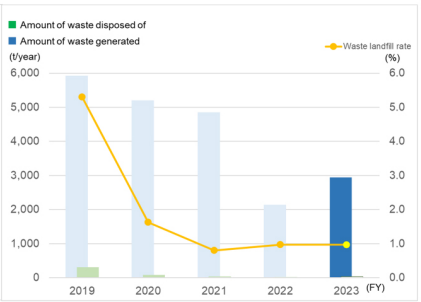
Energy consumption	
Electric power (1,000 kWh)	4,778.1
Gasoline (kL)	–
Heavy fuel oil (kL)	–
Light oil (kL)	8.2
LPG (t)	–
LNG (t)	–
Water consumption (m^3)	15,716.0

Atmospheric discharge	
VOC(t)	1.5
SOx(t)	–
NOx(t)	–

Sumitomo Construction Machinery (Tangshan) Co., Ltd.

■Country: China ■Main products: Hydraulic excavators, road machinery



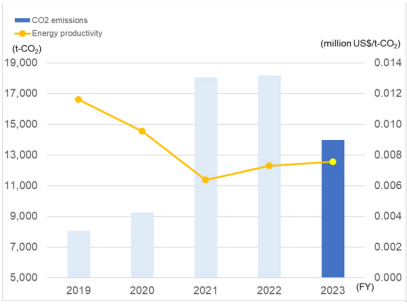


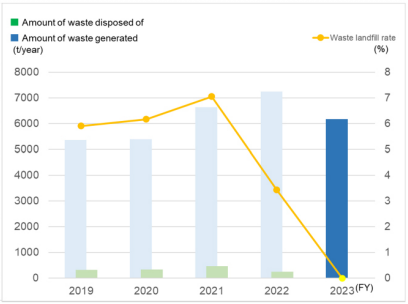
Energy consumption	
Electric power (1,000 kWh)	9,545.4
Gasoline (kL)	7.9
Heavy fuel oil (kL)	–
Light oil (kL)	36.3
LPG (t)	15.6
LNG (t)	913.4
Water consumption (m^3)	41,191.0

Atmospheric discharge	
VOC(t)	5.6
SOx(t)	0.1
NOx(t)	0.2

Sumitomo Heavy Industries (Vietnam) Co.,Ltd.

■Country: Vietnam ■Main products: Power transmission/controls, motors



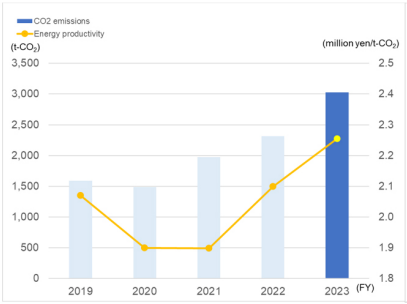


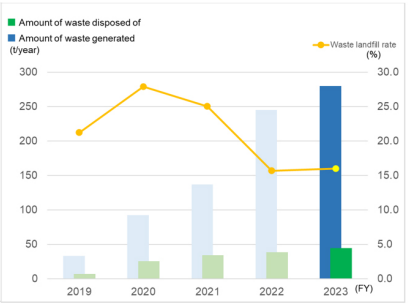
Energy consumption	
Electric power (1,000 kWh)	21,581.6
Gasoline (kL)	–
Heavy fuel oil (kL)	–
Light oil (kL)	–
LPG (t)	617.7
LNG (t)	–
Water consumption (m^3)	27,647.0

Atmospheric discharge	
VOC(t)	1.1
SOx(t)	–
NOx(t)	–

SHI Manufacturing & Service (Philippines) Inc.

■Country: Philippines ■Main products: Precision components



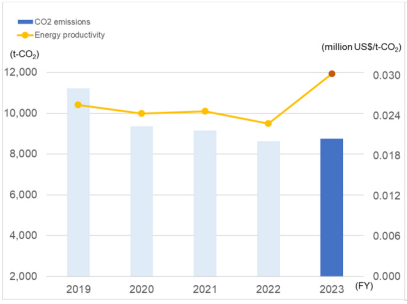


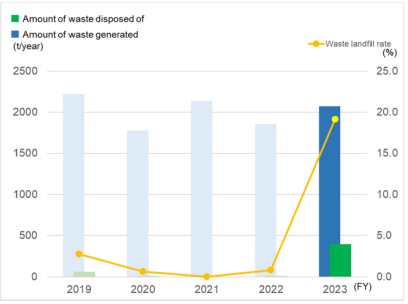
Energy consumption	
Electric power (1,000 kWh)	4,260.7
Gasoline (kL)	2.8
Heavy fuel oil (kL)	0.7
Light oil (kL)	–
LPG (t)	1.6
LNG (t)	–
Water consumption (m^3)	18,989.0

Atmospheric discharge	
VOC(t)	4.3
SOx(t)	–
NOx(t)	–

Link-Belt Cranes, L.P., LLLP

■Country: US ■Main products: Construction cranes



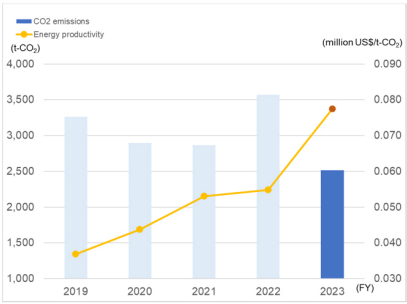


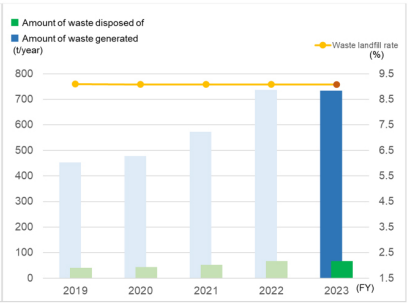
Energy consumption	
Electric power (1,000 kWh)	14,847.6
Gasoline (kL)	–
Heavy fuel oil (kL)	–
Light oil (kL)	–
LPG (t)	–
LNG (t)	1,501.5
Water consumption (m^3)	29,541.4

Atmospheric discharge	
VOC(t)	20.7
SOx(t)	0.0
NOx(t)	2.7

Sumitomo Machinery Corporation of America

■Country: US ■Main products: Power transmission and controls



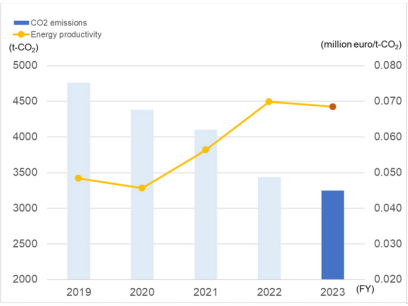


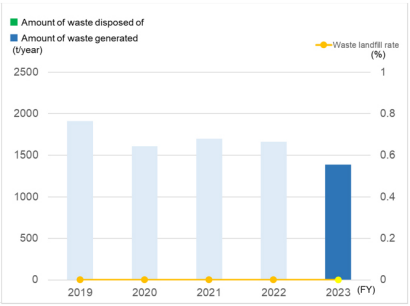
Energy consumption	
Electric power (1,000 kWh)	5,375.5
Gasoline (kL)	–
Heavy fuel oil (kL)	–
Light oil (kL)	–
LPG (t)	11.5
LNG (t)	226.6
Water consumption (m^3)	3,747.1

Atmospheric discharge	
VOC(t)	1.4
SOx(t)	–
NOx(t)	–

Sumitomo (SHI) Demag Plastics Machinery GmbH

■ Country: Germany ■Main products: Plastics molding machinery



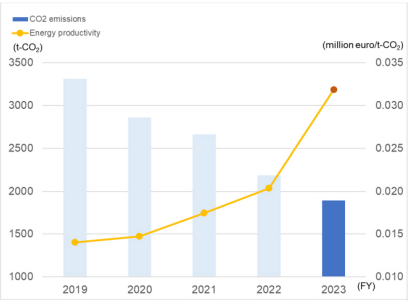


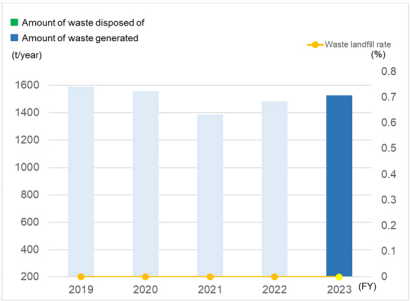
Energy consumption	
Electric power (1,000 kWh)	6,116.0
Gasoline (kL)	–
Heavy fuel oil (kL)	–
Light oil (kL)	1.9
LPG (t)	158.9
LNG (t)	296.1
Water consumption (m^3)	11,500.9

Atmospheric discharge	
VOC(t)	5.6
SOx(t)	–
NOx(t)	–

Hansen Industrial Transmissions NV

■Country: Belgium ■Main products: Power transmission and controls





Energy consumption	
Electric power (1,000 kWh)	6,164.4
Gasoline (kL)	–
Heavy fuel oil (kL)	–
Light oil (kL)	–
LPG (t)	–
LNG (t)	477.6
Water consumption (m^3)	4,139.0

Atmospheric discharge	
VOC(t)	4.1
SOx(t)	0.0
NOx(t)	0,731

Environmental Accounting

SHI Group performs environmental accounting based on the Environmental Accounting Guidelines 2005 issued by the Ministry of Environment, which serve as the benchmark for measuring investments, costs and their effects as they relate to environmental conservation.

Environmental Conservation Costs and Effects (Classified According to Business Activity)

(Unit: Million yen)

Environmental conservation costs									Environmental conservation effects			
Classification		Principal initiatives	Investment			Cost			Economic effect			Key points
			FY 2021	FY 2022	FY 2023	FY 2021	FY 2022	FY 2023	FY 2021	FY 2022	FY 2023	
(1) Costs within business segment		Maintenance/depreciation of equipment reducing environmental load	808	768	**1,329**	1,010	1,209	**788**	381	501	**445**	
Itemization	(1)-1 Pollution prevention costs	Maintenance and management of equipment to prevent air and water pollution, and measurement of equipment noise and vibration	207	71	**393**	253	189	**271**	0	0	**0**	
	(1)-2 Global environmental conservation costs	Investment in energy-saving measures (power consumption monitoring, energy-saving devices, replacement of	593	682	**857**	112	110	**43**	93	170	**36**	Reduction in expenses due to energy/resource savings and 3Rs
	(1)-3 Resource recycling costs	Waste reduction, recycling investment (recycling, use of recycled resources)	8	15	**80**	645	911	**475**	287	331	**410**	Reduction in expenses due to waste reduction Sales of valuable resources
(2) Upstream/downstream costs		Product packaging material reduction, home appliance recycling, and use of both sides of paper	1	1	**1**	2	2	**2**	0	0	**0**	
(3) Management activity costs		ISO14001 standard maintenance and administration, and green space expansion	13	16	**0**	155	133	**159**	—	—	**—**	Economic effect (substantive effect) achieved with environmental conservation measures shown in an appended table.
(4) Research & development costs		R&D for reducing environmental product footprint, and environmental equipment R&D	3,306	1,442	**3,464**	222	1,303	**3,105**	—	—	**—**	
(5) Social activity costs		Regional environmental conservation and greening activities	2	1	**1**	19	2	**3**	0	0	**0**	
(6) Environmental damage compliance costs		Imposition on air pollution load, and charges for green belts and pollution compensation	—	—	**—**	1	0	**0**	0	0	**0**	
Total			4,129	2,228	**4,796**	1,408	2,648	**4,058**	381	501	**445**	

Table Showing Change in Environmental Conservation Costs During Last Three Years

(Unit: Million yen)

Description of effects	FY2021	FY2022	FY2023
Total environmental conservation costs	5,537	4,877	**9,300**
Total investment	4,129	2,228	**4,796**
Total costs	1,408	2,648	**4,058**
Total research & development costs	3,528	2,744	**445**

Economic Effects Associated with Environmental Conservation Measures (Substantial Effects)

(Unit: Million yen)

Description of effects		FY2021	FY2022	FY2023
Revenues	Business revenues obtained by recycling waste or used products	287	331	**410**
Cost savings	Reduction in energy costs (electric power and fuel costs) from energy savings	93	170	**36**
	Reduction in waste disposal costs from resource savings or recycling	0	0	**0**
	Reduction in costs (labor, materials, repairs and other maintenance and operation costs)	0	0	**0**
Total		381	501	**445**

Environment & Energy-Saving Capital Investment

SHI Group systematically and actively updates dilapidated equipment and introduces new technologies from the standpoint preventing environmental incidents as well as saving and enhancing energy efficiency. In addition, capital investment amounts are ascertained using a three-point classification comprising environmental equipment, manufacturing energy, and energy efficiency.
In FY2023, SHI Group invested ¥1.63 billion in relevant equipment.

	FY2023 Environment-related capital investment (million yen)			
	Environment-related	Manufacturing energy (Solar power equipment)	Energy-saving related	Total
Japan	423	587	473	**1,483**
Overseas	0	97.5	57	**155**
Total	**423**	**684.5**	**530**	**1,638**

ISO 14001 Certification

SHI Group has been engaged in environmental activities based on the SHI Group Environmental Policy, and working to obtain certification at each of our works in Japan since 1998.
In 2018, we acquired unified certification for the SHI Group in order to integrate environmental management operational rules and make it more efficient to maintain certification. Currently, we have 43 sites that have been certified.
In addition, all our affiliated companies in Japan and overseas that are not included in the unified certification have acquired certification individually, and we are making every effort to ensure appropriate environmental management. In 1998, we also started acquiring certification for key manufacturing plants overseas. As of 2023, 21 of our sites have acquired certification.

Percentage of SHI Group with certification (based on sales): 79.8%
As we move forward, we will also review environmental activities as a challenge to be addressed in our business and promote such activities throughout the SHI Group.

List of SHI Group's ISO 14001 Certified Sites

As of March 2023

Sites with Unified Certification

Japan	
Sumitomo Heavy Industries, Ltd.	Head Office
	Tanashi Works
	Chiba Works
	Yokosuka Works
	Nagoya Works
	Okayama Works
	Ehime Works, Niihama Plant
	Ehime Works, Saijo Plant
Sumitomo Heavy Industries Gearbox Co., Ltd.	
SHI-ATEX Co., Ltd. (Head Office, Okayama Center)	
Sumiju Tokki Service Co., Ltd.	
Sumiju Precision Forging Co., Ltd.	
Sumitomo Heavy Industries Himatex Co., Ltd.	
Sumitomo Heavy Industries Finetech, Ltd.	
Sumitomo Construction Machinery Co., Ltd.	
Sumitomo Heavy Industries Construction Cranes Co., Ltd.	
Sumitomo Heavy Industries Material Handling Systems Co., Ltd.	
Sumitomo NACCO Forklift Sales Co., Ltd.(Chiba Office)	
Kenki Engineering Chiba Co.,Ltd.	
Sumitomo Construction Machinery Sales Co., Ltd.(Chiba Branch Office)	
Sumitomo Heavy Industries Process Equipment Co., Ltd.	
Sumiju Yokosuka Kogyo Co., Ltd.	
Sumitomo Heavy Industries Marine & Engineering Co., Ltd.	

Sites with Individual Certification

Japan	Overseas
Sumitomo Nacco Forklift Co., Ltd.	Sumitomo (SHI) Demag Plasics Machinery GmbH (Wiehe Plant)
Shin Nippon Machinery Co., Ltd.	Sumitomo (SHI) Cyclo Drive Germany GmbH
Izumi Food Machinery Co., Ltd.	Sumitomo (SHI) Cryogenics of Europe,Ltd.
Sumitomo Heavy Industries Ion Technology Co., Ltd.	Ningbo Sumiju Machinery, Ltd.
Sumitomo Heavy Industries Ion Technology Co., Ltd.	Dalian Spindle Cooling Towers Co., Ltd.
Lightwell Co.,Ltd.	SHI Manufacturing & Service (Philipoines) Inc.
Nihon Spindle Mfg Co., Ltd.	Sumitomo (SHI) Cyclo Drive China Ltd.
SHI-ATEX Co., Ltd. (Tsukuba Center, Kansai Center)	Sumitomo (SHI) Demag Plasics Machinery GmbH (Schwig Plant)
Sumitomo Heavy Industries Power Transmission & Controls Sales Co., Ltd.	LINK-BELT CONSTRUCTION EQUIPMENT COMPANY,L.P.,LLLP
SFK Co., Ltd.	Suminac Philippines Inc,
Sumitomo Heavy Industries Modern, Ltd.	Sumitomo Heavy Industries (Tangshan), Ltd.
Kyokuto Seiki Co., Ltd.	Demag Plastics Machinery (Ningbo) Co.,Ltd.
	Sumitomo Heavy Industries (Vietnam) Co.,Ltd.
	Sumitomo NACCO Materials Handling (Vietnam) Co.,Ltd.
	Sumiju Magnet (Kunshan) Co., Ltd.
	Sumitomo (S.H.I.) Construction Machinery (Tangshan) Co., Ltd.
	Sumitomo (SHI) Cyclo Drive Shanghai, Ltd.
	Hansen Industrial Transmissions NV
	PT.Sumitomo S.H.I Construction Machinery Indnesia
	Power Machinery Company Limited (China)
	FAKOP Sp.zo.o

Third-Party Assured Environmental Impact Data

To provide more reliable environmental impact data, SHI Group has engaged Bureau Veritas Japan to provide third-party assurance of this data.

<Target Data>
The following environmental data for the period from January 1, 2023 to December 31, 2023
・Energy usage in business activities at 31 SHI Group sites in Japan and 41 sites overseas
・Scope 1 and 2 greenhouse gas emissions (CO_2 by energy source)
・Scope 3 greenhouse gas emissions (Categories 1, 2, 3, 4, 5, 6, 7, and 11)*
*Calculated according to SHI Group rules

- Independent Certification of Assurance (Japanese)

独立保証報告書

住友重機械工業株式会社 殿

ビューローベリタスジャパン(以下、ビューローベリタス)は、住友重機械工業株式会社(以下、住友重機械)の委嘱に基づき、住友重機械によって選定されたサステナビリティ情報に対して限定的保証業務を実施した。この保証報告書は、以下に示す業務範囲内に含まれる関連情報に適用される。

選定情報

我々の業務範囲は、統合報告書 2024(以下、レポート)及びウェブサイトの環境ページ(以下、ウェブサイト)に記載された、2023 年 1 月 1 日から 2023 年 12 月 31 日までの期間の以下の情報('選定情報')に対する保証に限定される。

・住友重機械グループ国内 31 拠点及び海外 41 拠点の事業活動に伴うエネルギー使用量、温室効果ガス排出量スコープ 1 及びスコープ 2 (エネルギー起源 CO_2)

・温室効果ガス排出量スコープ 3 (カテゴリー1, 2, 3, 4, 5, 6, 7, 11)。但し、各カテゴリーにおける算定範囲は住友重機械の決定に基づく。

報告規準

レポート内に含まれる選定情報は、レポートに記載された報告規準と共に読まれ理解される必要がある。ウェブサイト内に含まれる選定情報は、ウェブサイトに記載された報告規準と共に読まれ理解される必要がある。

限定と除外

以下に関する情報のいかなる検証も、我々の業務範囲からは除外される。

・定められた検証期間の外での活動

・'選定情報'として挙げられていない、レポート内の他の情報

・'選定情報'として挙げられていない、ウェブサイト内の他の情報

限定的保証は、リスクに基づいて選択されたサステナビリティデータのサンプルと、これに伴う限界に依拠している。この独立報告書は、存在するかもしれないすべての誤り、欠損、虚偽表示を検出するための根拠とされるべきではない。

責任

保証の対象とされた情報の作成と提示は、住友重機械単独の責任である。

ビューローベリタスは選定情報又は報告規準の作成に関与していない。我々の責任は、以下の通りである。

・保証の対象とされた情報が報告規準に準拠して作成されたかどうかについて、限定的保証を行うこと

・実施した手続きと入手した証拠に基づいて、独立した結論を形成すること

・我々の結論を住友重機械に報告すること

評価基準

我々は、International Standard on Assurance Engagements (ISAE) 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information (Effective for assurance reports dated on or after December 15, 2015) に準拠して業務を実施した。温室効果ガスについては、ISO14064-3(2019): Greenhouse gases - Part 3: Specification with guidance for the verification and validation of greenhouse gas statements の要求事項に従って検証を実施した。

Ref: BVJ_20712404

実施した業務の概要

我々の独立した検証の一環として、我々の業務には以下が含まれる。

1. 住友重機械の担当者へのインタビューの実施
2. 用いられた想定の評価を含む、選択された情報をまとめるために使用されたデータの収集及び集計プロセスと、データの対象範囲及び報告範囲の確認
3. 住友重機械によって提供された文書による証拠の確認
4. 定量的なデータの集計と分析のための住友重機械のシステムの確認
5. リスクに基づいて選定された以下の 3 箇所の現地訪問審査及び 2 箇所のリモート審査の実施による、データの源流を遡ってのサンプルの検証

   [現地訪問審査]

   ・住友重機械工業株式会社 本社

   ・住友重機械工業株式会社 田無製造所

   ・住友重機械イオンテクノロジー株式会社 愛媛事業所

   [リモート審査]

   ・Link-Belt Cranes, L.P.,LLLP

   ・住友重机械(唐山)有限公司
6. 選定情報についての集計計算の再実施
7. 業務活動の変化、買収及び譲渡を考慮した、選定情報の前年値に対する比較

限定的保証業務で実施される手続は、合理的保証業務よりもその種類と時期が多様であり、その範囲が狭い。その結果、限定的保証業務で得られる保証の水準は、合理的保証業務が実施されていたなら得られたであろう保証よりも相当に低い。

検証された温室効果ガス排出量

我々は、ISO14064-3(2019)の要求事項に従って、温室効果ガスの検証を実施した。

住友重機械によって作成された温室効果ガスに関する主張において検証されたデータは、以下の通りである。

	温室効果ガス排出量 [t-CO_2e]	算定範囲
スコープ 1	36,272	住友重機械グループの国内 31 拠点及び海外 41 拠点の事業活動に伴う、2023 年 1 月 1 日から 2023 年 12 月 31 日までの期間のエネルギー起源 CO_2 排出量
スコープ 2 (ロケーション基準)	140,512	
スコープ 2 (マーケット基準)	120,631	
スコープ 3	76,757,325	2023 年 1 月 1 日から 2023 年 12 月 31 日までの期間のスコープ 3 排出量のうち、カテゴリー1, 2, 3, 4, 5, 6, 7, 11 の排出量。但し、各カテゴリーにおける算定範囲は住友重機械の決定に基づく。

スコープ 3 排出量の内訳は以下の通り。

カテゴリー	t-CO_2e	カテゴリー	t-CO_2e	カテゴリー	t-CO_2e
1	1,095,515	4	10,160	7	12,264
2	140,793	5	5,405	11	75,463,187
3	26,712	6	3,289		

Ref: BVJ_20712404

結論

上述した我々の方法と活動に基づき、

・選定情報が、報告規準に従って適切に作成されていないことを示す事項は、すべての重要な点において認められなかった。

・住友重機械は、我々の保証業務の対象範囲における定量的なデータについて、収集・集計・分析のための適切な仕組みを構築していると考えられる。

独立性、健全性及び能力の表明

ビューローベリタスは、190 年以上の歴史を有する、品質・環境・健康・安全・社会的責任に特化した独立の専門サービス会社である。保証チームは、環境・社会・倫理・健康及び安全の情報・システム・プロセスに対する検証の実施において幅広い経験を有している。

ビューローベリタスは、世界的に認められた品質管理基準の要求事項に適合する品質管理システムを運用しており、従って我々が ISQM 1 & 2[1]と同等であると考える倫理的な要求事項、専門的な基準、品質レビュー及び適用可能な法規制上の要求事項への適合に関する文書化された方針や手順を含む、品質管理の包括的なシステムを維持している。

ビューローベリタスは、従業員が日々の業務活動において、誠実性、客観性、専門的な能力と配慮、機密保持、専門家としての態度、及び高い倫理基準を維持することを確実にするために、IFIA の要求事項[2]を満たす倫理規程を、業務全体に対して実施し適用している。我々はこれを IESBA 規定[3]の要求事項と同等であると考えている。

ビューローベリタスジャパン株式会社
横浜市中区日本大通 18 番地
2025 年 5 月 30 日

---

[1] International Standard on Quality Management (国際品質マネジメント基準) 1 & 2

[2] International Federation of Inspection Agencies (国際検査機関連盟)-Compliance Code - Third Edition

[3] International Ethics Standards Board for Accountants (国際会計士倫理基準審議会) 発行の Code of Ethics for Professional Accountans

Ref: BVJ_24746810

- Independent Certification of Assurance (English)

INDEPENDENT ASSURANCE STATEMENT

To: Sumitomo Heavy Industries, Ltd.

Bureau Veritas Japan Co., Ltd. (Bureau Veritas) has been engaged by Sumitomo Heavy Industries, Ltd. (SHI) to provide limited assurance over sustainability information selected by SHI. This Assurance Statement applies to the related information included within the scope of work described below.

Selected information

The scope of our work was limited to assurance over the following information included within Integrated Report 2024 (the 'Report') and Website of Environment page (the 'Website') for the period of January 1, 2023 through December 31, 2023 (the 'Selected Information'):

- Energy usage, Greenhouse gas emissions Scope 1 and Scope 2 (CO_2 emissions from energy use) through business operations of SHI Group's 31 sites within Japan and 41 sites outside Japan
- Greenhouse gas emissions Scope 3 (Category 1, 2, 3, 4, 5, 6, 7 and 11). The reporting boundaries for each category are defined by SHI.

Reporting criteria

The Selected Information included within the Report needs to be read and understood together with the reporting criteria stated in the Report.
The Selected Information included within the Website needs to be read and understood together with the reporting criteria stated in the Website.

Limitations and Exclusions

Excluded from the scope of our work is any verification of information relating to:

- Activities outside the defined verification period;
- Any other information within the Report, which is not listed as the 'Selected Information'.
- Any other information within the Website, which is not listed as the 'Selected Information'.

This limited assurance engagement relies on a risk based selected sample of sustainability data and the associated limitations that this entails. This independent statement should not be relied upon to detect all errors, omissions or misstatements that may exist.

Responsibilities

This preparation and presentation of the Selected Information are the sole responsibility of the management of SHI.
Bureau Veritas was not involved in the drafting of the Selected Information or of the Reporting Criteria.
Our responsibilities were to:

- obtain limited assurance about whether the Selected Information has been prepared in accordance with the Reporting Criteria;
- form an independent conclusion based on the assurance procedures performed and evidence

Ref: BVJ_20712404

- obtain limited assurance about whether the Selected Information has been prepared in accordance with the Reporting Criteria;
- form an independent conclusion based on the assurance procedures performed and evidence obtained; and
- report our conclusions to the Directors of SHI.

Assessment Standard

We performed our work in accordance with International Standard on Assurance Engagements (ISAE) 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information (Effective for assurance reports dated on or after December 15, 2015) issued by the International Auditing and Assurance Standards Board.

For the greenhouse gas emissions data, we undertook verification in accordance with the requirements of ISO14064-3 (2019): Greenhouse gases - Part 3: Specification with guidance for the verification and validation of greenhouse gas statements.

Summary of work performed

As part of our independent verification, our work included:

1. Conducting interviews with relevant personnel of SHI;
2. Reviewing the data collection and consolidation processes used to compile Selected Information, including assessing assumptions made, and the data scope and reporting boundaries;
3. Reviewing documentary evidence provided by SHI;
4. Reviewing SHI systems for quantitative data aggregation and analysis;
5. Verification of sample of data back to source by carrying out four physical site visits and one remote audit, selected on a risk based bases at the following locations:
   [Physical site visits]
   - Sumitomo Heavy Industries, Ltd. Head Office
   - Sumitomo Heavy Industries, Ltd. CHIBA WORKS
   - Sumitomo Heavy Industries, Ltd. OKAYAMA WORKS
   - Sumitomo Heavy Industries Modern, Ltd. Futtsu Plant

   [Remote audit]
   - NINGBO SUMIJU MACHINERY, LTD.
6. Reperforming a selection of aggregation calculations of the Selected Information;
7. Comparing the Selected Information to the prior year amounts taking into consideration changes in business activities, acquisitions and disposals.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement.

Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

Verified greenhouse gas emissions

We performed our verification work on greenhouse gas emissions data in accordance with the requirements of ISO14064-3(2019).

Ref: BVJ_24746810

	Greenhouse gas emissions [t-CO_2e]	Boundary
Scope 1	36,272	CO_2 emissions from energy use through business operations of SHI Group's 31 sites within Japan and 41 sites outside Japan for the period of January 1, 2023 through December 31, 2023
Scope 2 (location-based)	140,512	
Scope 2 (market-based)	120,631	
Scope 3	76,757,325	Categories 1, 2, 3, 4, 5, 6, 7 and 11 of Scope 3 emissions accounted and the boundaries defined by SHI for each category for the period of January 1, 2023 through December 31, 2023

The breakdown of Scope 3 emissions verified are as follows.

Category	t-CO_2e	Category	t-CO_2e	Category	t-CO_2e
1	1,095,515	4	10,160	7	12,264
2	140,793	5	5,405	11	75,463,187
3	26,712	6	3,289		

Conclusion

On the basis of our methodology and the activities described above:

- Nothing has come to our attention to indicate that the Selected Information has not been properly prepared, in all material respects, in accordance with the Reporting Criteria;
- It is our opinion that SHI has established appropriate systems for the collection, aggregation and analysis of quantitative data within the scope of our work.

Statement of Independence, Integrity and Competence

Bureau Veritas is an independent professional services company that specialises in quality, environmental, health, safety and social accountability with over 190 years history. Its assurance team has extensive experience in conducting verification over environmental, social, ethical and health and safety information, systems and processes.

Bureau Veritas operates Quality Management System which complies with the requirements of globally recognized quality management standard, and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Bureau Veritas has implemented and applies a Code of Ethics, which meets the requirements of the International Federation of Inspections Agencies (IFIA), across the business to ensure that its employees maintain integrity, objectivity, professional competence and due care, confidentiality, professional behavior and high ethical standards in their day-to-day business activities.

Bureau Veritas Japan Co., Ltd.
Yokohama, Japan
June 7, 2024

Ref: BVJ_20712404

CDP Climate Change

CDP is a UK-based international non-governmental organization that collects and analyzes information on the environmental initiatives of companies and cities and publishes the results. It is the world's largest environmental survey, and each year it assigns an eight-level rating (A, A-, B, B-, C, C-, D, D-) based on the responses from companies.

The results of the CDP Climate Change Report are shown in the table below. We are working to improve our score by disclosing information in line with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) and by enhancing non-financial information.

CDP Climate Change	2019	2020	2021	2022	2023
	B	B-	B-	B	A-

CDP Water Security

The results of the water security report are shown in the table below. Similarly, in water security, we are working to improve our scores by enhancing non-financial information.

CDP Water Security	2019	2020	2021	2022	2023
	B-	C	B-	C	A-

Responding to Climate Change

Climate change is a very significant issue facing us today. We set "reduction of negative environmental impact" as one of the seven sustainability material issues resolved by the Board of Directors in March 2020, and also identified "climate change" as one of the social issues to be resolved in the "Midterm Corporate Management Strategy 2023", and are promoting initiatives to address these issues.

Response to Recommendations of the Task Force on Climate-related Financial Disclosures

In October 2021, we supported the recommendations of the Task Force on Climate-related Financial Disclosure (TCFD (*1)).
In May 2022, we set a goal to achieve carbon neutrality (i.e., achieve net zero CO_2 emissions) throughout the entire SHI Group by 2050 and a reduction target of CO_2 emissions by 2030 as determined by the Board of Directors, and we are promoting responses to climate change.

*1 TCFD (Task Force on Climate-related Financial Disclosures)
TCFD is a special private-sector-led organization formed at the request of the G20 and composed of members from a wide range of economic sectors and financial markets around the world, including major corporations and credit rating agencies. It recommends that companies evaluate the financial impact of climate change risks and opportunities on their operations and disclose their governance, strategy, risk management, metrics and targets.

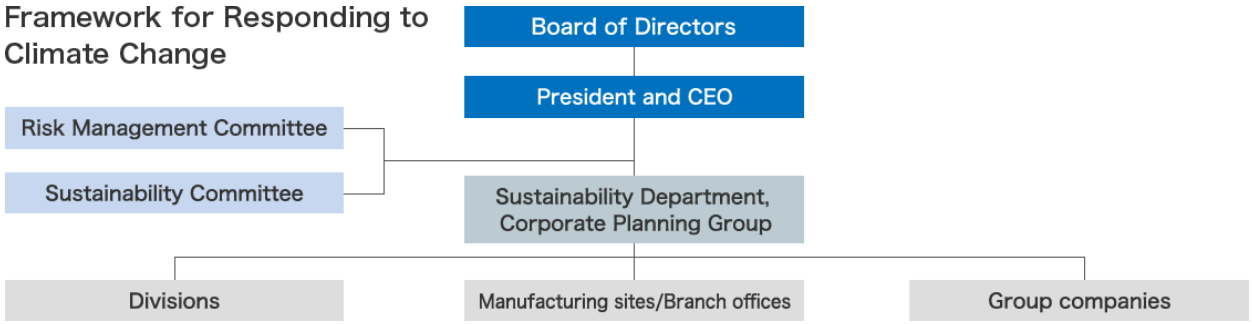
Governance

In addition to identifying the reduction of environmental impact as one of the seven sustainability material issues resolved by the Board of Directors in 2020, we have also designated climate change as one of the social issues that our Group should contribute to addressing in our Medium-Term Management Plan 2023.
The Risk Management Committee, which is responsible for our company-wide risk management, has positioned climate change risk as a material risk issue and is currently performing the appropriate risk management for this risk under the supervision of the Board of Directors.
The Sustainability Committee, which is chaired by the President & CEO, focuses its deliberations on addressing the issue of climate change by approaching it not only as a risk but also as a source of business opportunities for our Group.The Sustainability Committee reports the results of its deliberations

to the Board of Directors twice a year and promotes the relevant initiatives under the supervision and direction of the Board of Directors.

- **Risk Management Committee (twice a year)**
  The Risk Management Committee, chaired by the President & CEO, identifies high-impact risks of the SHI Group and takes actions to reduce those risks.

- **Sustainability Committee (twice a year)**
  The Sustainability Committee, which is chaired by the President & CEO, deliberates on the progress of measures implemented for the material issues and reports to the Board of Directors.



Strategy

The Paris Agreement, which came into effect in November 2016 as a response to global climate change, calls for efforts to keep the global average temperature rise to well below 2°C, and preferably within 1.5°C, as compared to pre-industrial levels. In view of this, our Group has taken action by developing a long-term plan in line with the Paris Agreement.

Risk Assessment for Each Scenario

We have assessed the impact of climate change on our Group as the first step in formulating our strategy. The target period for our risk assessment was designated as the next 10 years, given that the effects of climate change on the products of our Group have already become apparent. We then analyzed two scenarios: 1.5°C and 4°C.

1. 1.5°C scenario: A scenario in which the average temperature rise is limited to 1.5°C or less at the end of the century compared to pre-industrial levels
2. 4°C scenario: A scenario in which effective measures are not implemented and the average temperature at the end of the century rises 4°C above pre-industrial levels

Based on these scenarios, we have identified the impact of stricter regulations on our business as the greatest risk and have decided to focus on adopting measures to mitigate this risk.

1.5℃ scenario

This scenario assumes the impact of stricter regulations aimed at reducing CO_2 emissions on our business activities and transition risks such as the increased burden on our business costs as exemplified by the carbon tax. One high-level risk is the tightening of regulations on thermal power generation using fossil fuels. In addition, the higher demand for energy-saving technologies among customers in their manufacturing processes will call for the development and provision of even more energy-saving products. On the other hand, based on our analysis, the impact of stricter regulations on internal combustion engines for construction machinery and other equipment will emerge over a relatively longer time frame, as it will take time to develop alternative technologies for heavy machinery, develop the necessary infrastructure, and make the required adjustments to international standards and regulations in various countries. While this scenario assumes higher carbon tax and raw material costs, their impact is limited in our analysis as they only account for a small percentage of our overall costs.

4℃ scenario

This scenario assumes an increase in physical risks that are exemplified by increasingly severe extreme weather events. The severity of natural disasters is designated as a medium-level risk, and we anticipate the need to strengthen our business continuity plan (BCP) not only at our manufacturing sites but also across our entire supply chain. In addition, while rising sea levels could have an impact on our manufacturing sites in coastal areas in the long term, we have assessed their impact at the 10-year mark to be relatively minor.

	Priority Level	Risks	Opportunities
1.5℃ Scenario	High	Stricter regulations on power generation using fossil fuels	Stable supply of renewable energy
	High	Stronger requirements in terms of energy-saving performance	Higher demand for energy-saving products
	Medium	Stricter regulations on internal combustion engines	Higher demand for electrification and fuel conversion
	Low	Higher carbon tax and raw material costs	Higher demand for energy- and resource-saving products
4℃ Scenario	Medium	Increasingly severe natural disasters	Higher demand for disaster prevention infrastructure
	Low	Rising sea levels (long-term)	Higher demand for construction machinery for disaster recovery

Measures to Reduce CO_2 Emissions through Products

In our pursuit of the reduction of CO_2 emissions from product use, we are exploring the possibility of implementing decarbonization measures that include those in areas that cannot be counted toward a reduction of our CO_2 emissions based on the definition of Scope 3 emissions.

1. CO_2 emissions reduction in the narrow sense：Measures that can be counted toward a reduction of our CO_2 emissions based on the definition of Scope 3 emissions
2. CO_2 emissions reduction in the broad sense(our approach)：Measures that cannot be counted toward a reduction of our CO_2 emissions based on the definition of Scope 3 emissions but can indirectly contribute to the reduction of CO_2 emissions in the value chain after product delivery

Tracking CO_2 emissions reduction in the broad sense is a unique approach of the SHI Group that seeks to evaluate the contribution of our Group's products to reducing CO_2 emissions following their delivery to customers. For instance, our products support the decarbonization of production processes through electrification at our customers' production sites and resource conservation from a lower failure rate. Moreover, since our Group provides products and technologies that support the manufacturing process of power semiconductors, we are able to contribute to the impact of various energy-saving products that utilize power semiconductors.
In these various ways, we are currently implementing and considering further measures that allow us to contribute to the reduction of CO_2 emissions in society as a whole through our Group's products

Category	Specific examples	
CO_2 emissions reduction in the narrow sense	Addressing social issues through our products and services(CSV)	Strengthening R&D: Developing energy-saving and decarbonization-friendly products
		Revising our product portfolio: Shifting toward energy-saving and decarbonization-friendly products
		Business model shift: Shifting from one-time equipment (hardware) sales to a subscription-based business model, etc.
CO_2 emissions reduction in the broad sense(our approach)	Transmitting the story of creating value	Supporting energy-saving and decarbonization efforts at the production sites of our customers: Electrification, resource conservation
		Supporting energy-saving and decarbonization efforts in society as a whole through our customers: Stable supply of renewable energy through energy storage

Reference

For details on our specific initiatives, please refer to the "Initiatives for Carbon Neutrality" page on our website.

Assessment of Risks and Opportunities in Business

Among the segments, we focused on the Energy & Lifeline Segment and the Mechatronics Segment, which are expected to have a relatively large impact on our business due to the large amount of CO_2 emissions from the product use, and assessed the risks and opportunities.

Impact on our Energy & Lifeline (E&L) segment

Given that demand for coal-fired power plants is already on the decline as society moves toward decarbonization, we are shifting our focus to biomass power plants. Meanwhile, for biomass power generation, which is considered carbon neutral, we are working on the development of energy storage systems, anticipating tighter regulations from the perspective of CO_2 emissions generated during the transportation of the fuel.
Through these multifaceted efforts, we will contribute to the stable supply of renewable energy throughout society.

Impact on our Mechatronics segment

With the acceleration of the current trend toward the electrification of hydraulic-drive mechanisms at manufacturing sites, demand for inverters and motors is expected to grow. It is therefore vital for us to respond appropriately to market changes and expand our business opportunities. As we anticipate a growing customer demand for the supply of products with even better energy-saving performance, we will develop not only inverters and high-efficiency motors but also monitoring systems for motors as well as novel solutions that integrate electronic and control devices with gear reducers.

Segment	Main products	Risks	Opportunities/Solutions
Energy & Lifeline	Power plants	• Government restrictions on coal-fired power generation • Stricter regulations on biomass power generation using uncertified fuels	• Growing demand for a transition to energy supply systems with a smaller environmental impact (biomass and energy storage businesses, etc.) • Growing demand for the remodeling of existing coal-fired power plants into biomass co-firing power plants
Mechatronics	Power transmission & control equipment	• Growing customer demand for reduced CO_2 emissions during manufacturing and use of products and solutions that meet their requirements • Stricter government regulations on the power efficiency of motors	• Acceleration of the electrification of production facilities • Improvement in the value of high-efficiency products • Growing demand for systems that integrate electronic and control devices with gear reducers

Reference >Management Plan

Risk Management

Our business operations are monitored by the Budget Council, which meets twice a year and comprises the President & CEO as well as other members of senior management. In formulating our Medium-Term Management Plans, backcasting is performed with the aim of addressing social issues that would become relevant in the next 10 years before business plans are formulated by evaluating the risks and opportunities for each business division. Segments whose management is expected to be significantly impacted by issues such as CO_2 emissions during the use of products by customers and business scale are flagged for more focused deliberations by the Board of Directors so that improvement measures can be implemented.
The Risk Management Committee, which meets twice a year, identifies risks that have a significant impact on our Group and assesses the priority level of each identified risk for the Company by evaluating its frequency of occurrence and the magnitude of the resulting impact when it occurs. The Risk Management Committee assigns each identified risk to a division to ensure that the risk is managed appropriately while supervising the progress made in this regard. Climate change has been positioned as a material risk issue by the Risk Management Committee.
In response to the increasingly severe extreme weather events in recent years, we will strengthen our business continuity plan (BCP) at our manufacturing sites and across our entire supply chain. In April 2022, we established a dedicated BCP department within the General Administration Group whose role is to formulate and implement an effective BCP for the SHI Group.

Reference > Internal Control System

Metrics and Targets

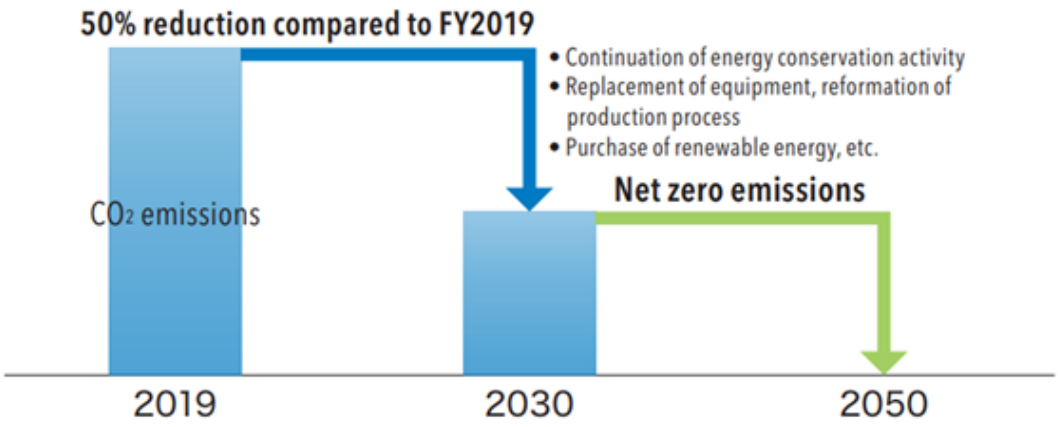
In May 2022, we resolved at a Board of Directors meeting to achieve carbon neutrality for the entire SHI Group by 2050. To achieve this goal, we identified the reduction of CO_2 emissions, which is one of the most abundant greenhouse gases, as a material issue, and set two CO_2 reduction targets to be achieved by 2030.
One is "the emission reduction target at manufacturing sites" for Scopes 1 and 2*1, aimed at addressing possible future increases in carbon tax rates as a transition risk, and the other is "the CO_2 emission reduction target during product use" for Scope 3 (Category 11)*2, aimed at contributing to the realization of a decarbonized society through the provision of products and services that are the foundation of the SHI Group' s business.

*1：Greenhouse gas emissions coming directly and indirectly from our own business domains
*2：Scope 3 is greenhouse gas emissions from our own value chain. Within Scope 3, Category 11 is emissions from the use of products, services, etc., manufactured and sold.

Greenhouse Gas Emissions Targets (Scopes 1, 2, and 3)

Scopes 1 and 2 - Reduction of CO_2 emissions during product manufacturing: 50% reduction by 2030 (compared to FY2019)

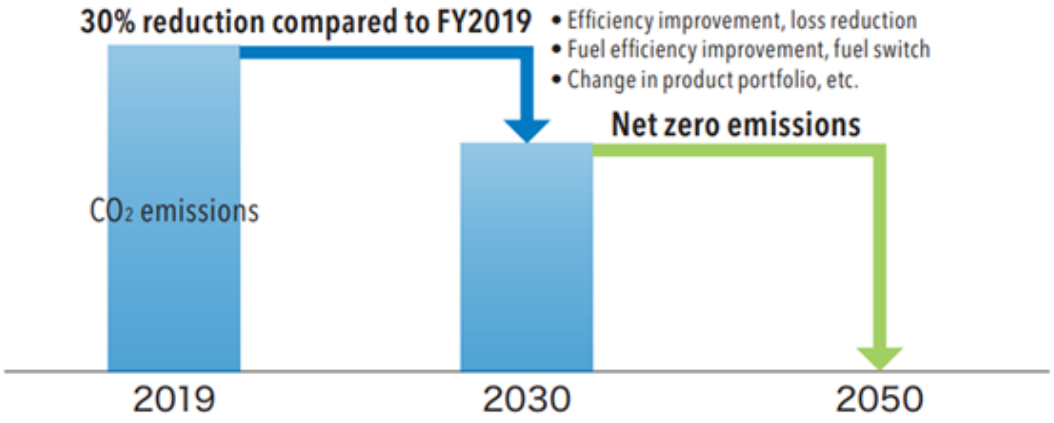
Besides implementing various measures aimed at reducing CO2 emissions during manufacturing, we have also started to procure renewable energy in fiscal 2022. We have introduced a policy of reflecting CO2 emissions for each division within the SHI Group in our business evaluation through the implementation of an Internal Carbon Price.



Reduction of CO_2 emissions during product manufacturing

Scope 3 (Category 11) - Reduction of CO2 emissions during product use: 30% reduction by 2030 (compared to FY2019)

In addition to developing new products and technologies that contribute to energy saving and decarbonization, we will review our product portfolio to reduce CO_2 emissions during product use by narrowing down existing products with a particularly high negative environmental impact to energy-saving and decarbonizing products and models.
Furthermore, we will shift from one-time equipment (hardware) sales to a subscription-based business model to provide customers with products that have a lower negative environmental impact and work to reduce negative environmental impact across the entire product lifecycle.



Reduction of CO_2 emissions during product use

Climate Change Reduction Targets in the 6th Medium-Term Environmental Plan

Recognizing that protecting the global environment and engaging in recycling-oriented economic activities are part of our corporate social responsibility, we set targets for the next three years in our medium-term environmental plan, which is formulated every three years, and carry out activities to reduce negative environmental impacts. Under the 6th Medium-Term Environmental Plan launched in 2020, we are currently working to achieve our targets for FY2022.

Item		Target		Base year	Achievement year
Scope1,2	Reduction of CO_2 emissions during product manufacturing	Japan	CO_2 emissions(Total amount)：Reduction of 3%	2019	2022
		Group as a whole			
		Japan	Energy productivity：Increase of 2%		
		Overseas			
		Japan	Green logistics (during transportation)：Same level		
		Expand investment in energy conservation			
		Abolish the use of heavy oil (fuel conversion)		-	
		Consider installation of renewable energy equipment (new buildings)			
Scope3 (Category 11)	Reduction of CO_2 emissions during product use	Establish emission targets for product usage		2008	
		Sustainability Plus Products	Number of products：more than 23 models	-	
			Percentage of sales(candidate products)：more than 45%		
			Percentage of sales：more than 35%		

CO_2 Reduction Measures

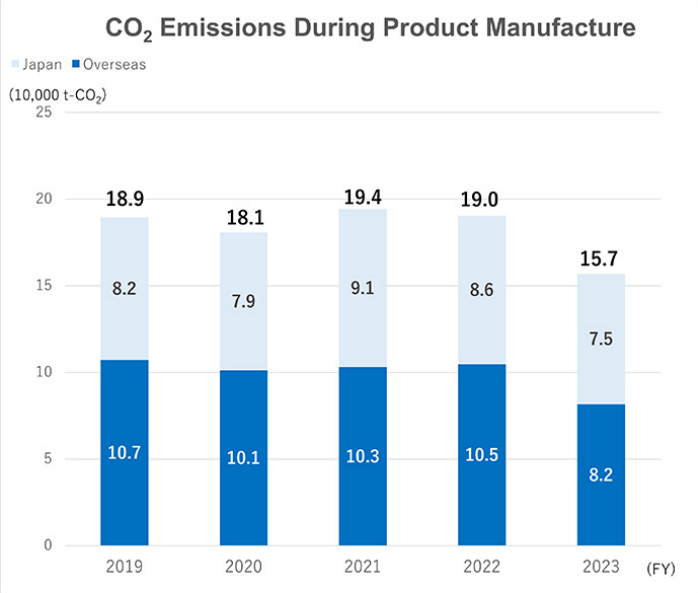
Basic Approach

SHI Group recognizes that responding to climate change is a key challenge in managing our environment. Of the strategies we are implementing to reduce our environmental footprint across all business activities including product lifecycle, our top priority has been to reduce CO_2 emissions. Each month, the Environmental Management Division supervises results achieved by each business division and provides feedback to those in charge. In addition, these results are reported to management three times a year at meetings of the Executive & Operating Officers Committee. SHI Group divisions promote climate change adaptation by mobilizing all personnel in these efforts, making sure their activities are visible, and implementing them to improve various processes so that the outcome is more efficient utilization of energy.

Scope 1 , 2

Reduction of CO_2 Emissions During Product Manufacture

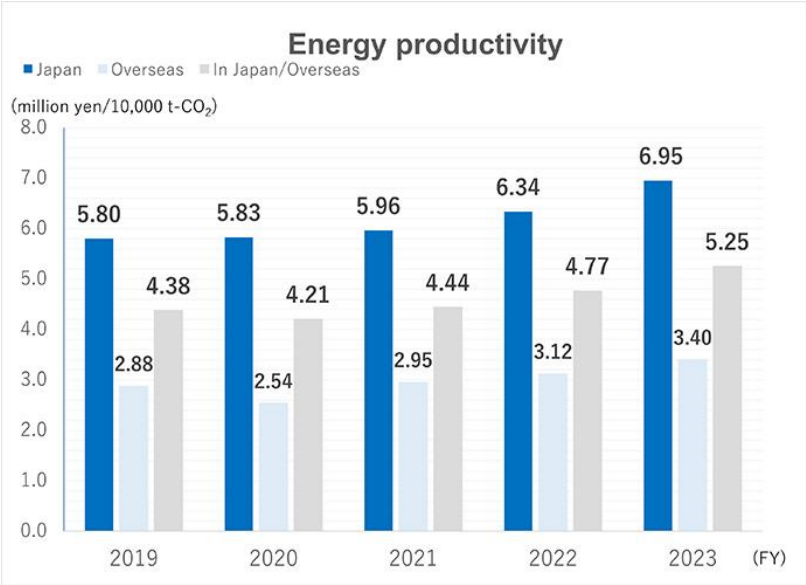
Although SHI Group's CO_2 emissions during product manufacture in Japan increased 4.4% compared to FY2019 levels in FY2023 due to the increase in operations and utilization of new plant building capacity, our business divisions and affiliates have implemented a range of reduction measures. During the four-year period from 2020 to 2023 (term of the 6th Medium-Term Environmental Plan), we achieved a reduction of approximately 5.7% compared to FY2019 levels.
Under the 7th Medium-Term Environmental Plan, we will continue to take a proactive approach that includes updating to more energy efficient equipment, optimizing facilities, and cooperating with engineering division to re-examine reduction measures. We will also be promoting the same level of activities on a global scale.



Improvements in Energy Productivity

SHI Group has set and managed metrics for emissions as well as energy productivity (sales/CO_2 emissions) as part of our efforts to enhance production efficiency and carry out activities aimed at reducing CO_2 emissions. For FY2023, we raised our target to a 4% improvement over the FY2019 level for our activities, which we achieved with a 19.8% improvement in Japan and a 18.2% improvement overseas.

Under the 7th Medium-Term Environmental Plan as well, we will continue to set management metrics in our aim to further improve production efficiency. We will proactively invest in energy efficient equipment in addition to implementing activities to conserve energy in terms of management and operations that will include setting and practicing non-operating days, updating to high-efficiency equipment, and reducing equipment and facility standby power usage.



Adoption of Renewable Energy

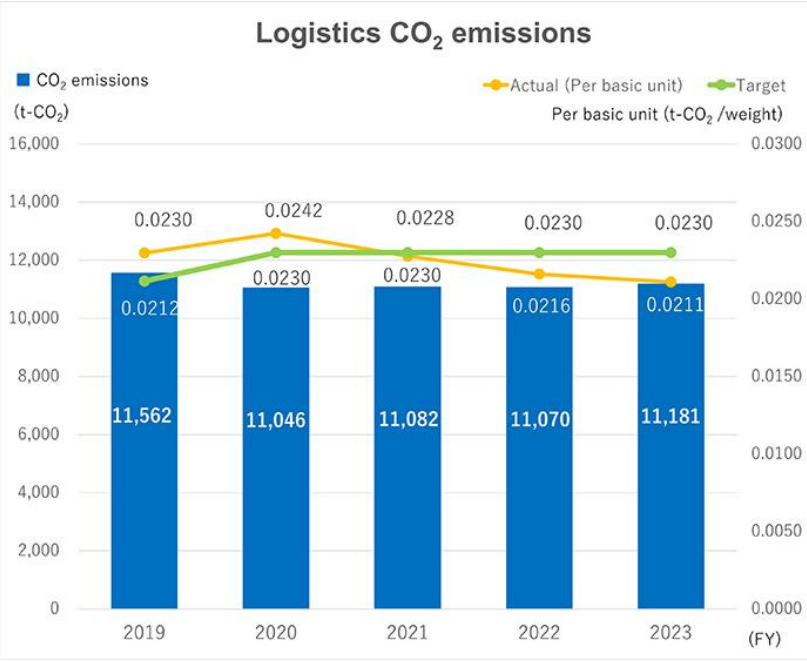
SHI Group has promoted adoption of renewable energies. Since 2020, we have proceeded to install solar power generation systems at new buildings of our SHI Group plants. In FY2023, an additional 1,203 MWh became available for a cumulative global capacity equivalent to 4,415 MWh.

We are continuing to actively set up systems both in Japan and around the world to achieve our intermediate benchmark of a 50% reduction by 2030 in comparison to FY2019 of CO_2 emissions during product manufacture. In addition, we have also planned purchases of renewable energies. In FY2023, these purchases amounted to 68,202 MWh globally. The scale of these purchases is determined by taking into consideration the installation of solar power generation systems chiefly for new buildings and the reduction in CO_2 emissions of 1% annually through a variety of energy-saving measures. We are promoting CO_2 emission reductions with the aim of being carbon neutral by 2050.

Scope **3**

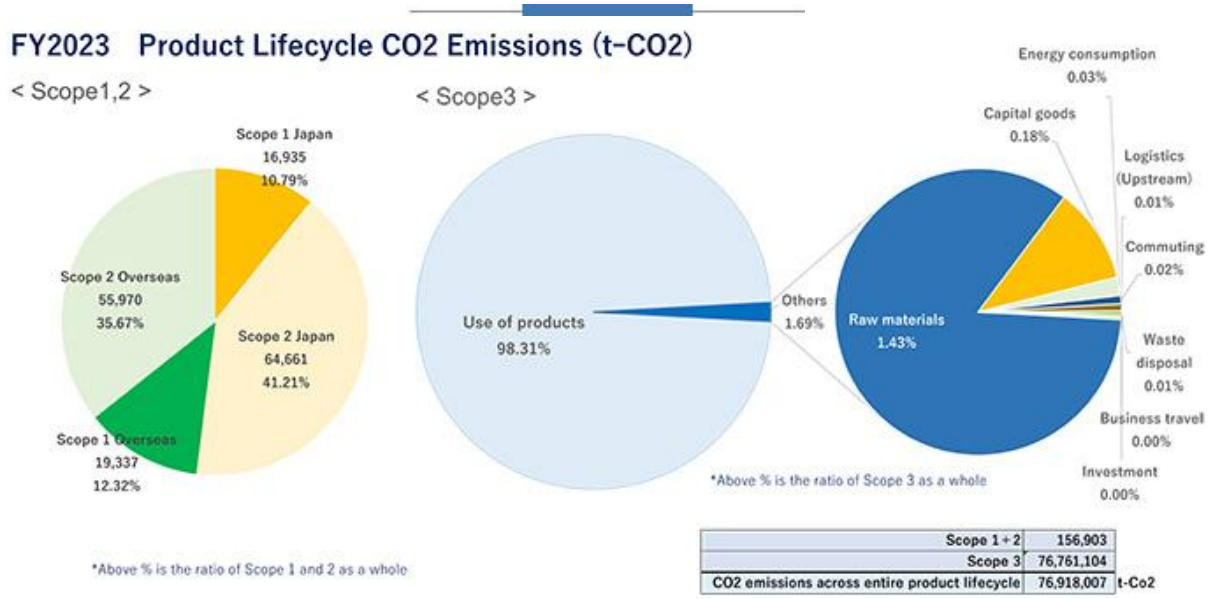
Promotion of Green Logistics

SHI Group is endeavoring to eliminate waste and enhance efficiency in product transport in order to reduce CO_2 emissions. In FY2023, we achieved our domestic target, achieving a 8.1% reduction vis-à-vis our target of maintaining a level no greater than that in FY2019 per basic unit of shipping (t-CO_2/weight).
Under the 7th Medium-Term Environmental Plan also, we will continue to improve and optimize load factors, effectively utilize modal mixes, and engage in other efforts to reach our target.



CO_2 Emissions (t-CO_2) Across Entire Product Lifecycle

In FY2023, product lifecycle CO_2 emissions amounted to 76,918,000 tons, of which CO_2 emissions during product use accounted for 98.1% or 75,463,000 tons. To reduce CO_2 emissions across the product lifecycle, we recognize that increasing the number of and providing products that deliver outstanding resource and energy savings (Sustainability Plus Products) is an important business challenge for us in addressing climate change. We are actively improving our products, developing applicable technologies, and making other efforts so that we may offer even more of these superior products.
In addition, we are also focusing on building a cooperative framework with our suppliers to extend coverage of CO_2 emissions associated with raw material procurement, which is categorized as Scope 3 and has the second-highest ratio of emissions after CO_2 emitted during product use.



Endorsement of Japan Climate Initiative

SHI Group has endorsed the message of the Japan Climate Initiative (JCI): “Now is the time to accelerate renewable energy deployment: Calling for stronger climate change action in the midst of the fossil energy crisis.” So that we may be a world leader in striving to achieve the 1.5° C target, we will accelerate our own activities to increase energy efficiency and renewable energy use as well as strengthen collaboration with non-state actors domestically and internationally as part of our efforts to bolster initiatives that contribute to achieving net zero CO_2 emissions by 2050.

Conservation of Water Resources

Basic Approach

The Sumitomo Heavy Industries Group recognizes the importance of ensuring that everyone has access to safe and sanitary water, and of protecting and restoring water-related ecosystems. Although we do not require large volumes or high levels of water in our current business activities, we fully understand that we are dependent on water, and are affected by or have an impact on the quantity and quality of water we consume, as we use and discharge municipal water, industrial water, and groundwater.

At our manufacturing sites both in Japan and overseas, we measure the amount of water we take in and discharge, and compile the data for the entire Group. For business locations where there are large fluctuations, we investigate the causes and take measures as necessary. In addition, for water quality management, we have set voluntary management standards that are stricter than the standards set by laws and ordinances, and we continuously monitor the quality of our water by conducting our own measurements and regular inspections by external water quality testing agencies.

We will continue to implement ongoing management and promote activities to reduce the environmental impact, such as reducing the amount of water we withdraw and the use of hazardous substances that may be contained in wastewater.

Additionally, as part of our collaboration with external initiatives to reduce water usage, we have been responding to CDP Water since fiscal 2018.

Governance

Please refer to pages 4–5 for details on "Environmental Management Structure."

Strategy

Water risk assessment

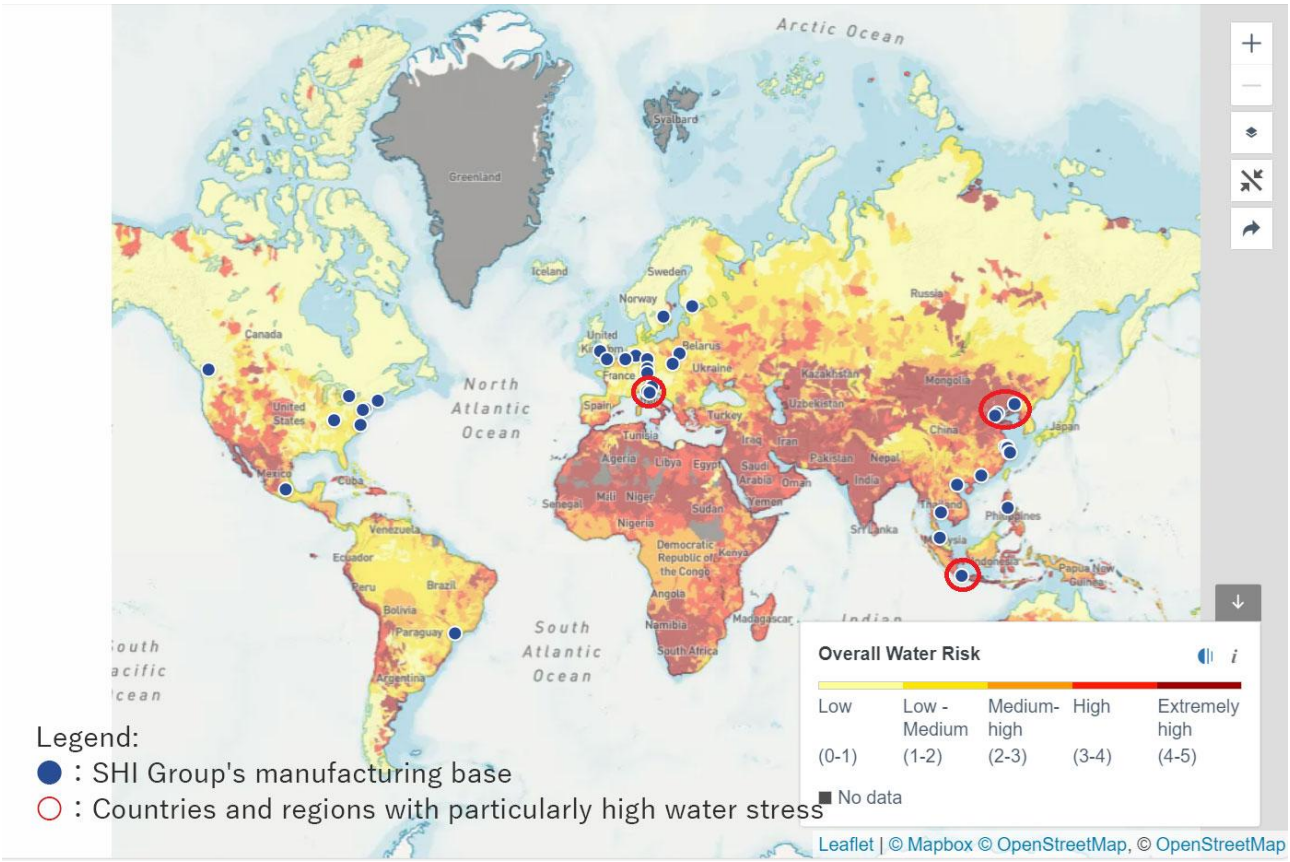
The Group is conducting water risk assessments at 57 manufacturing sites in Japan and overseas using AQUEDUCT, provided by the WORLD RESOURCES INSTITUTE.

As of fiscal 2024, there are six manufacturing sites rated as "High" or higher for "Overall risk," accounting for approximately 6% of the Group's total water withdrawals.

Taking the survey results into consideration, we will work to reduce water risks by reducing water withdrawals across the Group, promoting water recycling, and adapting to physical risks such as heavy rain and flooding.

In addition, we conducted a survey on water resource management among companies that account for 80% of the procurement value of raw materials in our supply chain. We received responses from approximately 80% of all suppliers, and of these, approximately 40% had already set targets and

implemented management. Going forward, we will deepen communication through visits to suppliers and web conferences, and strive to share environmental issues and improve environmental stewardship.



SHI Group's manufacturing sites and water stress（Aqueduct Water Risk Atlas）

Measures

Water quality management

We set voluntary management standards that are lower than the discharge standards for sewers, rivers, oceans, etc., and manage the quality of discharged water by continuously conducting voluntary measurements and regular third-party analysis.

Reducing water intake

We are working to reduce water intake (reducing water usage) or use water efficiently by checking for and improving leaks, reusing cooling water, and promoting the use of rainwater.

Case studies

Our group formulates a medium-term environmental plan every three years and promotes activities accordingly. In the 7th medium-term environmental plan that began in fiscal 2024, we are working to reduce water usage, use it efficiently, and prevent pollution, while also considering biodiversity in addition to reducing the environmental impact.

- Checking and repairing buried water pipe leaks
- Storage of rainwater for irrigation of green spaces
- Recycling in cooling towers (chemical injection)
- Reuse of test water (storage)
- Oil cleaning in factories (to prevent water pollution)

Nihon Spindle Co., Ltd.
Rainwater storage tank (buried)

Shin Nippon Machinery Co., Ltd. Kure Works
Reuse of test water (storage tank)

Risk management

To prevent environmental accidents from occurring, we conduct regular environmental risk assessments at each of our locations.
In the unlikely event that an environmental accident does occur, we take appropriate measures, analyze the details of the accident, and share the information with all relevant departments in order to prevent the occurrence or recurrence of similar incidents.
For events that have not yet resulted in an environmental accident but have the potential to lead to an environmental accident in the future, we treat them as "environmental near misses" and work to strengthen our efforts to prevent environmental accidents from occurring.
The Risk Management Committee (held twice a year) identifies risks that could have a major impact on the Group, and evaluates the importance of each identified risk to the Group by assessing the frequency of occurrence and the magnitude of the impact when it occurs. The Risk Management Committee selects countermeasure departments for the identified risks, manages them appropriately, and oversees their progress.
Additionally, we have formulated a basic group BCP policy to strengthen our response to all types of disasters.

Metrics and Targets

The goals (Form 2024)

Environmental Management

(Global) Zero Major environmental incidents*1

Reducing water withdrawal (reducing water consumption)

(Japan) Below average value from 2020 to 2023

(Overseas) Below average value from 2020 to 2023 [per unit of sales]

Results

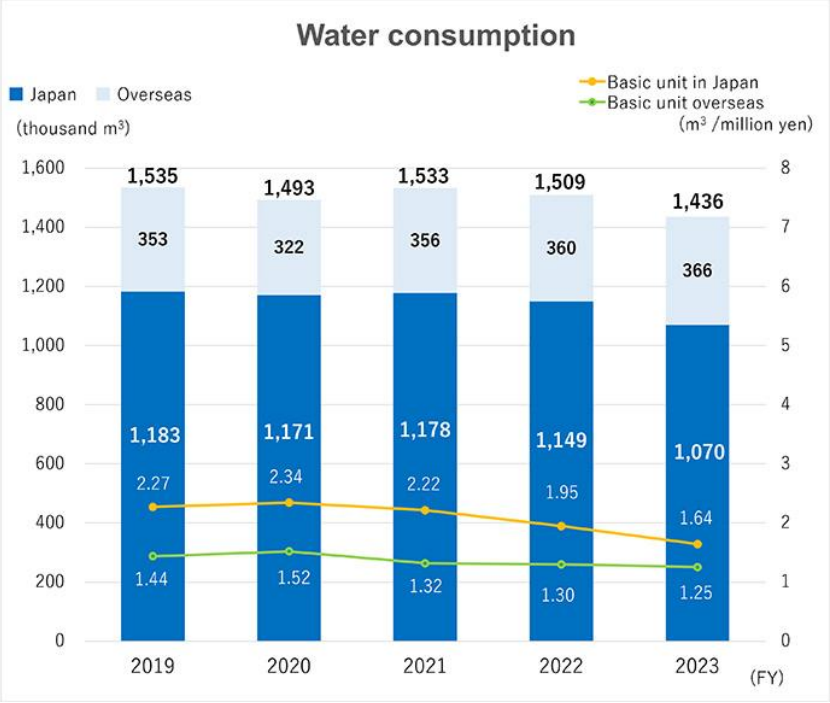
Water Quality Management

There were zero Major environmental incidents*1 at domestic and overseas bases in fiscal 2023.
We will continue to thoroughly manage water quality.

Reducing water withdrawal

The results for fiscal 2023 are a 10.5% reduction in Japan and a 12.6% reduction overseas, achieving the target.
We aim to reach our goal by continuing to work towards efficient water use.

*1: A Major environmental incidents is defined as an incident that is subject to fines (over $10,000), administrative guidance, or other penalties due to violation of laws, regulations, or other regulations.



Waste & Environmental Pollution Prevention

Basic Approach

SHI Group strives to curb waste and other emissions discharged during our business operations as well as to recycle and effectively utilize resources in an effort to reduce our environmental footprint. We have also imposed controls on VOCs as well as PRTR and other chemical substances.

Waste

Curbing Waste Emissions

The target which we have set for waste emissions (including hazardous waste) is to maintain the basic sales unit at a level equal to or below the Japan average for the period from 2017 to 2019.
In FY2023, we achieved our target with a 29.0% reduction in waste emissions. Converting shot blast chip refuse, which used to be disposed of as industrial waste, into a marketable provision, reusing filtered test-run oil, and implementing other innovations has led to a reduction in emissions. In the future as well, we will promote waste reduction with a particular awareness of the 3R principle, including carefully separating waste and recyclable items.
Overseas, we have advanced our activities to meet the basic target unit of a 4% reduction below the FY2019 level, and we achieved a 21.6% reduction in FY2023.

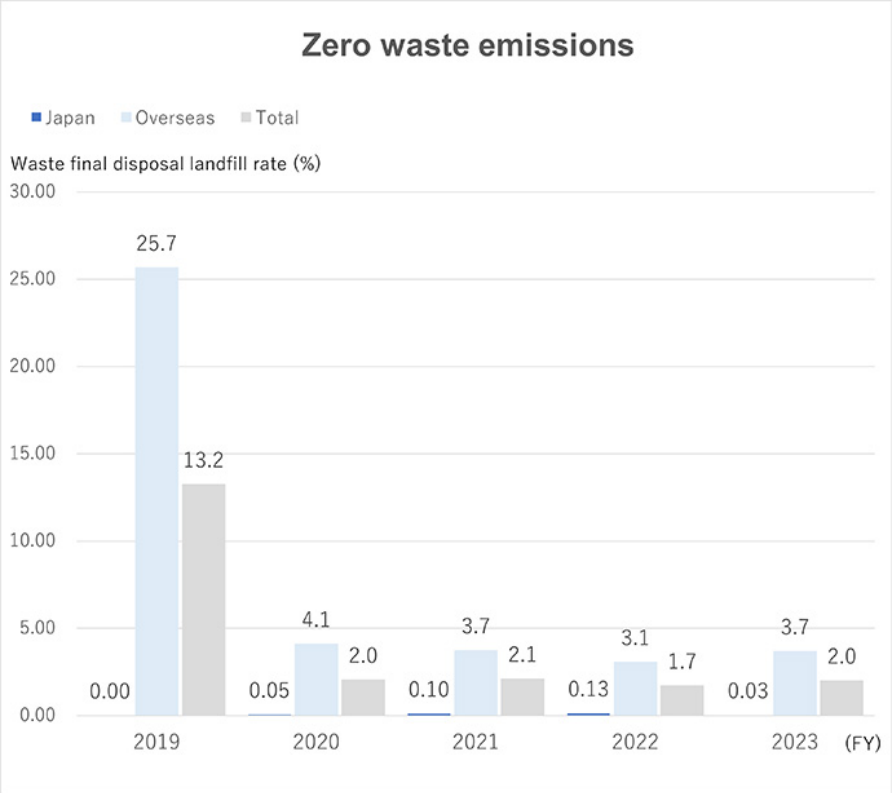

Amount of waste generated
Emissions in Japan(t)
Emissions in overseas
Target in Japan
(t)
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
62,157
59,455
60,409
56,165
56,615
32,077
29,296
33,301
30,255
29,895
30,317
30,317
30,317
30,317
24,426
30,080
30,159
27,108
25,909
26,721
2019
2020
2021
2022
2023
(FY)


Amount of waste generated (per basic unit of sales)
Basic unit in Japan
Basic unit overseas
Total basic unit
(t/million yen)
0.180
0.140
0.100
0.060
0.020
0.131
0.138
0.124
0.109
0.102
0.081
0.084
0.075
0.065
0.060
0.059
0.062
0.052
0.045
0.042
2019
2020
2021
2022
2023
(FY)

Zero-Emissions (Landfill Rate Reduction)

SHI Group defines a zero-emission plant in Japan as one for which the ratio of landfill disposal volume (landfill rate) to waste discharge volume is less than 0.5%. Since FY2005, we have been promoting efforts to reduce the landfill rate. In FY2023, the landfill rate for all domestic works (6 works and 7 plants) and group businesses other than works (9 companies) was 0.03%. We have consistently achieved zero emissions since FY2011.

Overseas where business activities are carried out with a non-landfill target rate of at least 95%, we achieved the target of 3.7% in FY2023. Our combined domestic and overseas waste landfill rate was 2.0% in FY2023. Recycling by separating waste is key to achieving zero emissions. In the future as well so that we are sure to maintain zero emissions, we will meticulously separate waste as part of our aim to have our plants contribute to a sound circular society.



Compliance with Act on Promotion of Resource Recycling Related to Plastics

SHI Group manages waste plastic using metrics measuring group-wide emissions and the amount of waste generated per basic unit of sales.
Plastic waste emissions for SHI were 1,243t in FY2023 on a non-consolidated basis.
SHI Group will continue our activities to manage and reduce waste plastic across the entire group. We will promote the 3Rs (Reduce, Reuse, Recycle) plus renewable for plastic packaging materials and consider more comprehensive actions that even look at product components in our aim to engage in operations with a full awareness of the supply chain.

Plastic Product Reuse Initiatives

When considering how to dispose of the polycarbonate partitions used during the pandemic, the Osaki Head Office made the decision to recycle these rather than scrapping them. Approximately 161 kg was recycled, resulting in a significant contribution to the office's efforts to recycle reusable plastic.

Prevention of Environmental Pollution

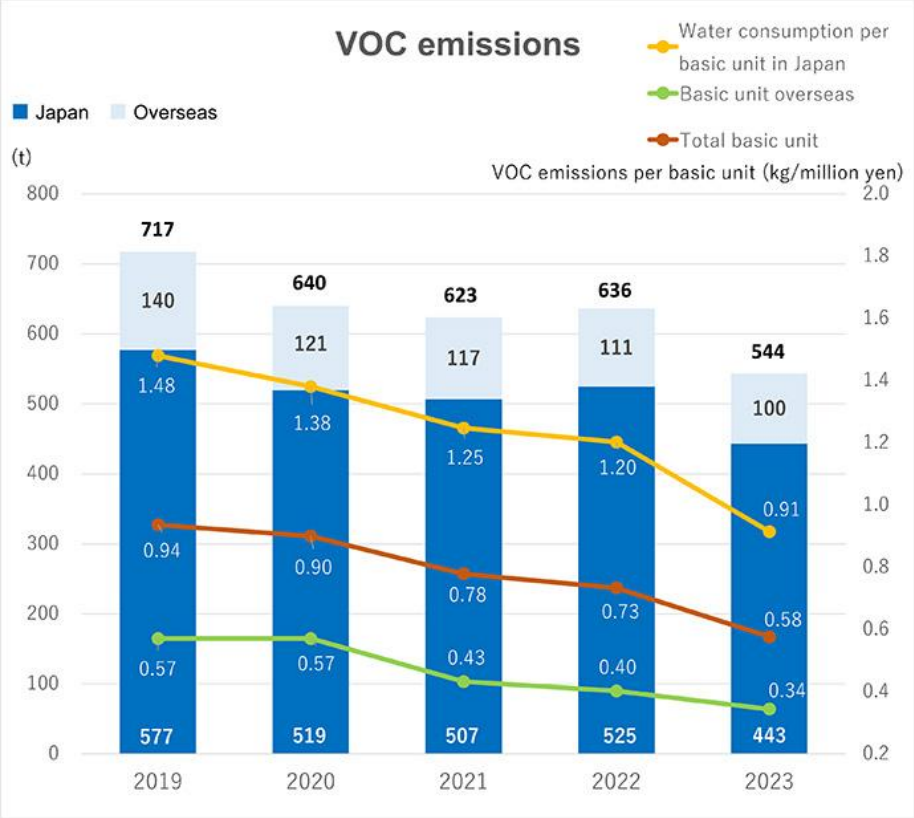
Complete Elimination of Organochlorine Chemical Use

We have continued to strive to completely phase out the use of dichloromethane, tetrachloroethylene, and trichloroethylene, organic chemicals subject to the Soil Contamination Countermeasures Act.
We have completely eliminated and banned the use of ozone-depleting substances HCFC-225 and HCFC-141b since FY2008 and FY2010, respectively. We have been promoting the scheduled replacement of R-22, production of which was discontinued in FY2020.

Control of VOC Substance Emissions

Toluene, xylene, and ethyl benzene contained in paint solvents account for at least 90% of VOC substances used by the SHI Group in Japan. For FY2023, we set a target of keeping these emissions at or below the actual level in FY2019. We achieved a 17.6% reduction in these admissions as well as a reduction of 33.7%% per basic unit of sales.
Beginning with the 7th Medium-Term Environmental Plan, we will set a target of keeping these admissions at or below the basic unit average for the period from 2020 to 2023 on a global consolidated

basis. We will continue to expand the scope for employing low-solvent coatings and cleaning agents that do not contain VOCs, as well as expansion of powder coating, in addition to further enhancing painting efficiency so that we may reduce the amount of paint and other substances used and thereby contribute to our endeavors to reduce emissions of the substances.



PRTR Substance Emissions and Transfer Volume

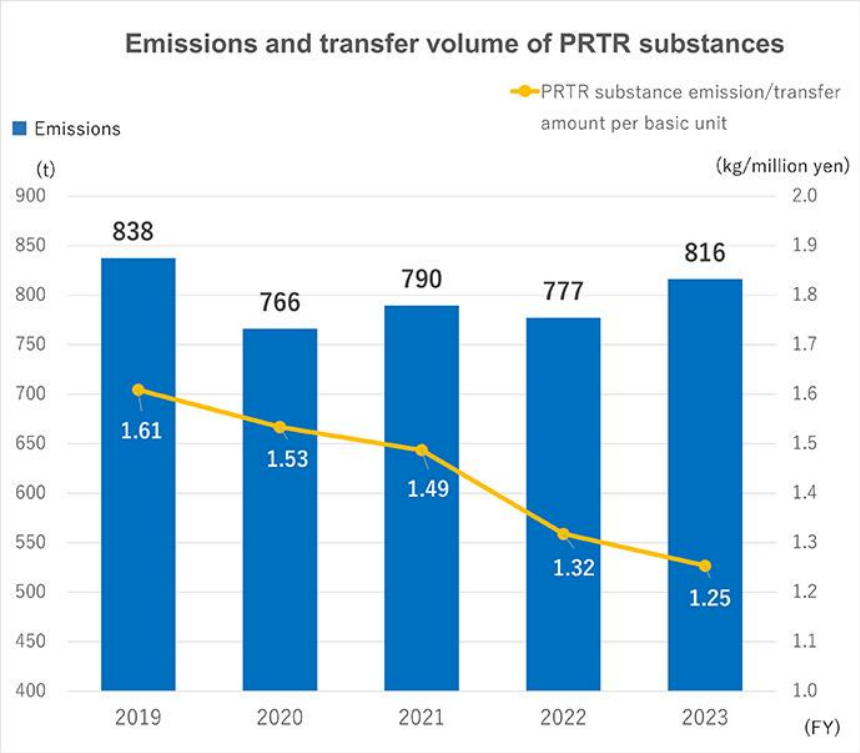
Paint solvents toluene, xylene, and ethyl benzene comprise 90% or more of all PRTR substances. In FY2023, we achieved a 3% reduction compared to the FY2019 level.
While maintaining quality, we will expand the application of low-solvent paints and establish and expand solvent recovery and removal equipment so that we may reduce emissions and transfer volume.

Emissions and Transfer Volume of Class I Designated Chemical Substances under PRTR Law in FY2023 (Substances to be reported)

(Unit: kg)

Substance No.	Substance designation	Emissions + transfer volume				
		FY2019	FY2020	FY2021	FY2022	FY2023
53	Ethylbenzene	221,964	233,310	230,021	235,686	284,249
80	Xylene	392,357	342,269	361,802	365,152	331,883
240	Styrene	1,561	975	1,647	2,008	1,284
296	1,2,4-Trimethylbenzene	18,843	17,915	21,058	22,023	5,619
297	1,3,5-Trimethylbenzene	5,389	4,594	6,072	6,127	1,601
300	Toluene	141,755	122,357	122,457	103,517	82,830
374	Hydrogen fluoride and water-soluble salts	22,381	12,017	11,683	12,552	8,180
384	1-Bromopropane	11,474	7,934	13,714	10,701	8,734
392	n-Hexane	321	105	158	110	90
405	Boron and its compounds	1,155	1,778	1,439	1,586	2,246
412	Manganese and its compounds	12,011	10,743	12,020	10,493	9,709
420	Methyl methacrylate	564	232	256	250	1,770
691	Trimethylbenzene	—	—	—	—	35,201

* Volume of emissions + transfers is the total amount for SHI and all Group companies combined.



PCB Management and Complete Elimination of Equipment Using PCBs

All devices containing high concentrations of PCBs were registered early on with the waste-disposal company Japan Environmental Storage & Safety Corporation. These devices have been systematically detoxified pursuant to the Act on Special Measures Concerning Promotion of Proper Treatment of PCB Wastes. Transformers containing PCBs and stabilizers for lighting equipment containing PCBs have been replaced or updated gradually. Some Works and affiliated companies have completely disposed of all PCBs. Additionally, we have completed our survey to identify equipment containing low concentrations of PCBs, and have been working to detoxify such equipment step-by-step before the deadline.

Environmentally Conscious Products

Sustainability Plus Products

SHI Group has been applying our proprietary assessment method for certifying environmentally conscious products. In FY2021, we changed the name from Environmentally Conscious Products to Sustainability Plus Products to enhance product competitiveness, better promote the SHI Group CSV* initiative, as well as market our sustainable products, including their social nature, along with achieving greater environmental performance (recycling resources, addressing global warming, and tackling environmental risks).

* CSV: Creating Shared Value

Assessment Criteria and Processes

Products are assessed using 11 criteria to determine environmental and social performance with additional points given for outside awards. Products scoring 80 or higher points are certified as Sustainability Plus Products and those scoring 90 points or higher as Super Sustainability Plus Products.

Currently, we are considering adding an additional item: social value (reduction of rare elements, rare metals, and conflict minerals). It is our intention to provide sustainable products that will contribute to further resolving social issues.

Assessment Items

Environment	Resource recycling	1. Resource conservation
		2. Improved recyclability at disposal (easier sorting and disposal)
		3. Extension of service life
		4. Packaging & wrapping
		5. Information provision
		6. Resource-saving measures during product use
	Global Warming Countermeasures	7. Energy-saving measures during use
	Environmental risk	8. Environmental conservation
	Other	9. Life cycle assessment (LCA)
Society	-	10. Safety
		11. Labor savings

Product List

In FY2023, we surpassed our target of 25 certifications with the certification of 27 products as Sustainability Plus Products, of which four of these were awarded 90 or more points, earning the Super Sustainability Plus Product certification. The ratio of sales of Sustainability Plus Products to all products across the entire SHI Group is 31%.
With our Sustainability Plus Products, we have been working to enhance the safety of those performing work by equipping shovels, cranes and other construction equipment with field view monitors as well as preparing and providing customers with manuals on device disposal, which also helps reduce the environmental impact across the entire product lifecycle. In addition, we have also been providing systems and making other intangible efforts that contribute to enhancing the efficiency of our customers operations and reducing labor inputs.

CFB Biomass Boiler (Circulating Fluidized Bed Boiler)

Our circulating fluidized bed (CFB) boilers have the capability to stably burn all kinds of solid fuels, ranging from biomass to refuse derived fuel (RDF), in order to reliably produce highly-efficient and clean energy. These boilers make use of regional biomass and waste, thereby contributing to a reduction in CO_2 emissions and advancing the post fossil-fuel era. This is a power generation system able to fulfill its role as a clean balancing power source for stabilizing electric grids even in the coming society when our main power supplies will be renewable energies.
The CFB Biomass Boiler captures sulfur oxides (SOx) inside the furnace using limestone as the sorbent. The CFB design eliminates the need for traditional flue gas desulphurization (FGD) systems, emitting no more than 50 ppm SOx (6% O_2 equivalent). Nitrogen oxides (NOx) are avoided by employing low-temperature and staged combustion, which decreases production to less than 50 ppm (6% O_2 equivalent). Particulate matter is kept below 20 mg/m^3 (6% O_2 equivalent) with an electrostatic precipitator or bag filter, achieving a low environmental footprint.

Hydraulic Excavators

Our hydraulic excavators are equipped with a fuel-efficient clean engine and proprietary hydraulic system offering both low fuel consumption that is unsurpassed and more efficient operability, resulting in highly-efficient fuel performance.

This superior fuel performance that these excavators deliver surpasses the 2020 JCMAS fuel standard to acquire the highest rank ☆☆☆ certification, which is awarded to those products that meet the fuel performance standards at 100% or higher.

The clean engine, SPACE5 α , which significantly reduces exhaust, surpasses world-class level exhaust gas standards and the Off-Road Act's 2014 standard. When compared to similar conventional models, our hydraulic excavators emit 80% less NOx, which places them in an even higher eco-friendly class of construction equipment.

Sloped-Ejection Jet Pump-Type Sand Lifter System (SUMIJETTER II)

Grit jet pumps are used at pump stations and wastewater treatment plants where they separate and remove debris and sand in the water to protect other treatment equipment downline and streamline processing. The jet pump system requires a significant amount of power to operate the pressure pump, so one challenge has been to reduce the amount of power needed.
For the sloped-ejection jet pump-type sand lifter system " SUMIJETTER II," a concerted effort was made to reduce pressure loss, thereby reducing power required by more than 40% compared to conventional products. This has contributed significantly to its decreased power consumption. In addition, the decreased power consumption makes it also possible to lower the capacity of the pressure pump. This also reduces costs, including those for electrical equipment.

List of Registered Sustainability Plus Products

Score: 80 or higher for Sustainability Plus Products, and 90 or higher for Super Sustainability Plus Products

Segment	Division	Product
Super Sustainability Plus Product		
L&C	Sumitomo Construction Machinery Co., Ltd.	LEGEST hydraulic excavators Type 7
L&C	Sumitomo Construction Machinery Co., Ltd.	Asphalt paver Type 10
E&L	Sumitomo Heavy Industries Himatex Co., Ltd.	Rolls for Metal Rolling (SIP Ductile)
E&L	Sumitomo Heavy Industries Environment Co., Ltd.	Sand lifter system SUMIJETTER II
Sustainability Plus Products		
Mechatronics	Power Transmission & Controls Group	High-efficiency motor: IE3 motor (new model)
Mechatronics	Sumitomo Heavy Industries Gearbox Co., Ltd.	PARAMAX reducer: PX9000 series
IM	Plastics Machinery Division	Full-electric injection molding machine: SEEV-A-HD (220-500t)
IM	Industrial Equipment Division	Forging servo press: FPS
IM	Sumitomo Heavy Industries Ion Technology Co., Ltd.	SS-UHE II ion implantation devices
IM	Sumitomo Heavy Industries Ion Technology Co., Ltd.	Saion-300 ion implantation devices
IM	Sumitomo Heavy Industries Ion Technology Co., Ltd.	S-UHE14 ion implantation devices
IM	Sumitomo Heavy Industries Ion Technology Co., Ltd.	MC3-II/GP ion implantation devices
IM	Sumitomo Heavy Industries Modern, Ltd.	Smart flipper: Automated pneumatic thickness profile control
IM	Nihon Spindle Mfg. Co., Ltd.	New Pulse-type Bag Filter Dust Collector: Eco Pulser
IM	Sumitomo Heavy Industries Material Handling Systems Co., Ltd.	Magic Rack
L&C	Sumitomo NACCO Forklift Co., Ltd.	Electric forklift: Reach-type electric vehicle
L&C	Energy & Environment Group	CFB: Biomass CFB
E&L	Energy & Environment Group	Compact CFB boiler (25t)
E&L	Energy & Environment Group	Sumitomo Evaporator U
E&L	Energy & Environment Group	Electrostatic precipitator: EP
E&L	Sumitomo Heavy Industries Environment Co., Ltd.	Vertical screw-type dust collector: Spiral Cutter
E&L	Izumi Food Machinery Co., Ltd.	Multipurpose extractor
E&L	Izumi Food Machinery Co., Ltd.	Functional tanks
E&L	Shin Nippon Machinery Co., Ltd.	Steam Turbine: Long-blade high-efficiency steam turbine
E&L	Shin Nippon Machinery Co., Ltd.	Steam Turbine: Optimized reaction blade row steam turbine
Other	Lightwell Co., Ltd.	Personal credit data inquiry system: SKY-CI-Net
Other	Lightwell Co., Ltd.	Automatic screening system: CDEX

* Mechatronics: Mechatronics Segment; IM: Industrial Machinery Segment; L&C: Logistics & Construction Segment; E&L: Energy & Lifeline Segment

Biodiversity

Initiatives for Biodiversity Conservation

SHI Group believes that neither are economy nor society is able to flourish without our natural resources. As we address climate change and economic management including environmental pollution prevention, we have promoted initiatives aimed at conserving biodiversity. In our preparations for TNFD approval, we have initiated efforts to fully comprehend the relation between our business activities and biodiversity, and compiled examples of initiatives at all levels of SHI Group's business processes.

"Forest of Inspiration" in Tanashi Works

About 30% of the site area of the Tanashi Works is composed of forests, and there are about 4,500 trees of 40 kinds. We preserve this forest from the viewpoint of environmental conservation and biodiversity conservation, and also open it to the public by designating it as an "Forest for Ideas." In addition to being a place for citizens to relax, it serves as a local disaster evacuation site and a space for academic research on biodiversity.

Endorsement of Keidanren Initiative for Biodiversity Conservation

Toward the aim of realizing a sustainable society, SHI Group has endorsed the Keidanren Initiative for Biodiversity Conservation, which indicates the intent and action guidelines from the standpoint of companies to address the issue of biodiversity conservation.
Our main activities in this effort have been to reduce wood in packaging, address the problem of marine plastics, and promote green spaces and tree planting around our production plants.