2019 ESG Data

Oji Holdings Corporation

Governance

1. Structure of the Board of Directors

Breakdown	As of March 2019
Number of Directors	15
Number of Outside Directors	2
Number of Independent Directors	2
Number of Female Director	0

2. Attendance of the Board of Directors

Positions	Name	Number of attendance at meetings of the Board of Directors in FY2018	
Director, Chairman of the Board	Kiyotaka Shindo	15 / 15	100%
Director of the Board, President and CEO	Susumu Yajima	15 / 15	100%
Director of the Board, Executive Vice President	Ryoji Watari	15 / 15	100%
Director of the Board, Executive Vice President	Kazuo Fuchigami	15 / 15	100%
Director of the Board, Senior Executive Officer	Hidehiko Aoyama	15 / 15	100%
Director of the Board, Senior Executive Officer	Yoshiaki Takeda	15 / 15	100%
Director of the Board, Executive Officer	Shoji Fujiwara	15 / 15	100%
Director of the Board, Executive Officer	Yoshiki Koseki	15 / 15	100%
Director of the Board, Executive Officer	Masatoshi Kaku	15 / 15	100%
Director of the Board, Executive Officer	Ryuichi Kisaka	15 / 15	100%
Director of the Board, Executive Officer	Kazuhiko Kamada	15 / 15	100%
Director of the Board, Executive Officer	Hiroyuki Isono	15 / 15	100%
Director of the Board, Executive Officer	Koichi Ishida (Appointed June 2018)	11 / 11	100%
Independent Outside Director	Michihiro Nara	14 / 15	93%
Independent Outside Director	Nobuaki Terasaka	14 / 15	100%

3. Structure and attendance of Nomination Committee

Positions	Name	Number of attendance at meeting of Nomination committee in FY 2018	
Director, Chairman of the Board	Kiyotaka Shindo	2 / 2	100%
Director of the Board, President and CEO	Susumu Yajima	2 / 2	100%
Independent Director	Michihiro Nara	2 / 2	100%
Independent Director	Nobuaki Terasaka	2 / 2	100%

4. Structure and attendance of Compensation Committee

Positions	Name	Number of attendance at meeting of Compensation committee in FY 2018	
Director, Chairman of the Board	Kiyotaka Shindo	3 / 3	100%
Director of the Board, President and CEO	Susumu Yajima	3 / 3	100%
Independent Director	Michihiro Nara	3 / 3	100%
Independent Director	Nobuaki Terasaka	3 / 3	100%

5. Structure of Audit & Supervisory Board

Breakdown	As of March 2019
Number of Audit & Supervisory Board members	5
Number of Outside Audit & Supervisory Board members	3
Number of Independent Outside Audit & Supervisory Board members	3

6. Attendance of Supervisory Board meeting

Positions	Name	Number of attendance at Supervisory board meeting in FY 2018	
Audit & Supervisory Board member	Motokazu Ogata	16 / 16	100%
Audit & Supervisory Board member	Tomihiro Yamashita	16 / 16	100%
Independent Outside Audit & Supervisory Board member	Makoto Katsura	15 / 16	94%
Independent Outside Audit & Supervisory Board member	Mikinao Kitada	16 / 16	100%
Independent Outside Audit & Supervisory Board member	Norio Henmi (Appointed June 2018)	11 / 11	100%

7. Total amount of remuneration, etc. fro Directors and Audit & Supervisory Board Members FY2018

Position	No. of Personnel	Total remuneration (million yen)	Fixed remuneration (million yen)	Performance-linked remuneration (million yen)	
				Bonuses	Stock-based remuneration
Director	15	782	337	251	194
(Independent Outside Director)	(2)	(30)	(30)	(–)	(–)
Audit & Supervisory Board Member	5	90	90	-	-
(Outside Audit & Supervisory Board Member)	(3)	(36)	(36)	(–)	(–)
Total	20	873	427	251	194

Numbers less than one million yen are rounded down to the nearest million.

8. Total amount of consolidated compensation for officers whose total amount of compensation is ¥100 million or more

Name	Total amount of compensation (¥100 mil.)	Category of officers	Company name	Amount of compensation by type		
				Base compensation (¥ mil.)	Performance-linked compensation (¥ mil.)	
					Bonus	Stock compensation
Kiyotaka Shindo	103	Director	Oji Holdings	48	31	24
Susumu Yajima	103	Director	Oji Holdings	48	31	24

9. Remuneration of the Company's Accounting Auditors

Segment	FY 2018
Remuneration of the Company's Accounting Auditors (million yen)	247
Remuneration of the Company's Accounting Auditors (million yen)	6

10. Political contribution amount

Segment	FY 2018
Political contribution amount (thousand yen)	1,941

11. Shares of the Company

Segment	As of March 2019
Total number of shares authorized to be issued	2,400,000,000
Total number of shares issued	1,014,381,817
Treasury stock	23,369,691
Total number of shareholders	59,813
Foreign shareholding ratio (%)	23.6

12. Major shareholders top10

As of March 31, 2019

Shareholder name	shares held (thousand shares)	% of total shares issued
The Master Trust Bank of Japan, Ltd. (Trust account)	81,771	8.3
Japan Trustee Services Bank, Ltd. (Trust account)	64,734	6.5
Japan Trustee Services Bank, Ltd. (Trust account 4)	35,452	3.6
Sumitomo Mitsui Banking Corporation	31,668	3.2
Nippon Life Insurance Company	25,658	2.6
Japan Trustee Services Bank, Ltd. (Trust account 9)	23,063	2.3
Mizuho Bank, Ltd.	21,636	2.2
Oji Group Employee Stock-holding Association	19,419	2.0
Japan Trustee Services Bank, Ltd. (Trust account 5)	17,303	1.7
The Norinchukin Bank	16,654	1.7

13. Anti-corruption

Segment	FY 2018
Number of staff dismissed due to non-compliance with anti-corruption policies	0
Cost of fines, penalties or settlements in relation to corruption (yen)	0
Provisions for fines and settlements in relation to corruption (yen)	0

2019 ESG Data

Oji Holdings Corporation

Social

1. Employee

Segment	Scope	As of Mar 31, 2018		As of Mar 31, 2019
Number of permanent employees	Consolidated		36,144	36,309
Number of temporary employees	Consolidated		2,781	2,705
Men and women rates (%)	Consolidated	(Male)	81.04	80.99
		(Female)	18.96	19.01
Permanent employees voluntary turnover rates	Oji HD		1.06	4.21
	Oji MO		8.85	2.20

Oji HD; Oji Holdings, Oji MO; Oji Management office

2. Female managers rates

Segment	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Female managers rates (%)	1.8	2.0	2.5	2.9	3.1

For 16 group companies

3. Female employment rates in comprehensive work

Segment	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Female employment rates in comprehensive work (%)	22.0	27.0	43.2	44.0	34.0

For 16 group companies

4. Annual total working hours (hours / year)

Segment	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Annual total working hours (hours / year)	1,985.8	1,933.0	1,861.3	1,839.2	1,825.3

Oji Group Tokyo Headquarters Area (30 companies / departments)

5. Human rights violations (cases)

Segment	Scope	FY 2017	FY 2018
Number of human rights violations (cases)	Consolidated	13	6

6. Safety

Segment	Scope	Domestic and overseas	As of October 2018	As of October 2019※
Number of sites acquired OHSAS18001 certification / Number of all worksites	Consolidated	Domestic	0 (249)	0 (248)
		Overseas	8 (73)	9 (70)

※ the OHSAS18001 certification renewal timing, it does not include 2 business establishments that have acquired ISO45001 certification

7. Lost Time Injury Frequency Rate and severity rate for safety

Segment	Scope		FY2015	FY2016	FY2017	FY2018
LTIFR 1)	Oji Group (Consolidated)		0.75	0.65	0.62	※0.55
		Domestic	0.49	0.61	0.79	0.77
		Overseas	1.06	0.70	0.44	0.33
	Manufacturing 3)		1.06	1.15	1.02	1.20
	Pulp, paper and paper product manufacturing 3)		1.79	1.31	1.46	1.88
Severity rate 2)	Oji Group (Consolidated)		0.65	0.22	0.21	0.02
		Domestic	0.40	0.22	0.22	0.03
		Overseas	0.93	0.22	0.20	0.01
	Manufacturing 3)		0.06	0.07	0.01	0.10
	Pulp, paper and paper product manufacturing 3)		0.35	0.04	0.24	0.22

Period: January 1 to December 31

1) LTIFR: Lost Time Injury Frequency Rate

LTIFR is an indicator of the frequency of occupational accidents as the number of fatalities and injuries (fatal accidents and accidents resulting in at least one day of lost work) caused by occupational accidents per one million working hours. LTIFR = (Number of fatalities and injuries due to occupational accidents ÷ Cumulative number of hours worked) × 1,000,000

Total working hours are calculated based on the number of group company employees (regular employees and temporary / non-regular employees) as of the end of September every year, assuming the annual working hours per person is 2,000 hours.

The frequency rate calculation does not include accidents at overseas group companies that are determined to be at the level of accidents accompanied by injuries without lost work days in Japan based on standards established by the Company.

※The result for fiscal 2018 has been assured by a third party on this page.

2) Severity rate: Number of workday lost / total work hours x 1,000 (Fatalities and severe incidents =7,500 days, temporary work lost = lost calendar days x 300/365＝7,500日)

3) Manufacturing: Pulp and paper product manufacturing. Data from Ministry of Health, Labor and Welfare, segment of more than 100 person / site

8. Lost time incidents and fatalities

Segment	Scope		FY2015	FY2016	FY2017	FY2018
Number of work related lost time incidents 1)	Oji Group (Consolidated)		64	57	49	47
	Domestic	(Permanent employees)	21	25	27	25
		(Non permanent employees)	5	7	6	9
	Overseas	(Permanent employees)	37	24	16	12
		(Non permanent employees)	1	1	0	1
	Contractors 2)		6	4	9	15
		Domestic	6	4	9	15
		Overseas	-	-	-	-
Number of work related fatalities	Oji Group (Consolidated)		6	2	2	0
	Domestic	(Permanent employees)	1	1	1	0
		(Non permanent employees)	1	0	0	0
	Overseas	(Permanent employees)	1	1	1	0
		(Non permanent employees)	3	0	0	0
	Contractors 2)		0	1	0	1
		Domestic	0	1	0	1
		Overseas	0	0	0	0
	Occasional entering contractors 3)		1	0	2	2
		Domestic	0	0	1	1
		Overseas	1	0	1	1

Period: January 1 to December 31

1) Work related lost time incident : count 2 if 2 persons injured at one time

2) Contractors : working in the site at all time (includes non - permanent employees)

3) Occasional entering contractors : entering the site occasionally and working temporarily (includes non - permanent employees)

None of the accidents that occurred at Group companies outside Japan are considered to be the severity of accidents or sickness at the level of accidents or sicknesses that occurred in Japan, based on our standards.

9. Oji Group health and safety education records 2018 (in Japan)

	Safety and Health Education programs	Total
1	General Safety and Health Managers Seminar, Safety and Health Seminar for Top management	18
2	Education at the Time of appointment of a Safety Officer (including complementary education)	136
3	Safety and Health Promoter education (for worksites less than 50 workers)	10
4	RST program (Supervisory Safe and Health education)	3
5	Section Chief education (including Capacity development)	1,069
6	Education at the time of employment (for new employees)	1,165
7	Education for relocated and transferred employees	352
8	Skill training course (Operations Chief or training for restricted employment)	1,629
9	Special education (Education for safety and health to those who are currently engaged in dangerous or harmful work)	736
10	Risk assessment training	280
11	OSHMS (Occupational Safety and Health Management System) related education/training	76
12	Work-related	
	Safety and Health education for workers in charge of dangerous or harmful work	240
	Safety education on heavy machines including forklifts	3,917
	Danger and safety sensory education	2,920
	Health and safety education on dangerous chemicals/powder substances (powder dust)	1,278
	Safety education on high-pressure washing	195
	Safety education on electricity/education for workers responsible for power control	1,220
	Health and safety education on ionizing radiation	995
13	For each rank	
	Health and safety education 1, 2 , 3, and 5 years after joining the company	87
	Health and safety education for junior workers	745
	Health and safety education for middle/senior-level workers	2,018
	Health and safety education for general workers	131
	Health and safety education for managers and supervisors	494
	Education for employees in charge of safety education (including instructors)	114
	KYT training/KYT leader training (KYT: Kiken Yochi Training (Risk prediction training))	71
14	Training and lecture	
	Machine safety education	291
	Training on health and safety laws and regulations	57
	Lecture on health and safety	460
	Training/lecture on the prevention of heatstroke	2,032
	First aid training (including AED (Automated External Defibrillator))	353
	Mental health training	127
	Lecture on traffic/transportation safety	2,348
15	Other (education on a variety of qualifications and work)	1,680
	Total	27,247

Scope of aggregation: The scope of aggregation covers consolidated subsidiaries, but does not include some non-production bases (head offices, sales offices, etc., which are primarily responsible for administrative affairs).

RST: Supervisory Safe and Health education by a method of Ministry of Health, Labor and Welfare

OSHMS: Occupational Safety and Health Management System

KYT: Hazard Prediction training

AED: Automated External Defibrillator

10. Social contribution

Segment	Scope	FY2017	FY2018
Total Amount of corporate donations (Million yen)	Consolidated	412	435

2019 ESG Data

Oji Holdings Corporation

Environment

1. Data aggregation was performed in accordance with the Environment Accounting Guideline published by Japan's Ministry of the Environment

2. Companies covered: Business sites of consolidated companies are included in the total, but non-production sites (primarily the main building, sales offices, and other sites that perform managerial and administrative work and sites where GHG and environment impact are extremely low) are excluded.

3. Period : Apr 1 2018 to Mar 31 2019

1. Environment Conservation Cost

(Unit: Million yen)

Category		Main initiatives	FY2018	
			Investment	Cost
1)		Environment conservation costs for curbing environment impact generated by production and service activities within business sites	3,702	18,879
	Breakdown	i Environment conservation management costs: Measures against air pollution, water pollution, noise and vibration, etc.	1,524	11,130
	Breakdown	ii Global environment conservation costs: Cultivating company-owned forests in Japan, forest plantation operations outside Japan, energy conservation investments	995	520
	Breakdown	iii Resource circulation costs: Efficient utilization of resources, costs for waste measures	1,183	7,229
2)		Costs for curbing environment impact generated upstream or downstream by production and service activities Costs for purchasing low-sulfur fuel (balance amount)	0	270
3)		Environment conservation cost related to administrative activities Employee education, ISO 14001 costs, costs for air and water analysis, costs for operating committees and other organizations, etc.	7	873
4)		Environment conservation costs related to R&D activities Product development that contributes to environment conservation by promoting utilization of recovered paper, curbing environment impact that occurs during production, etc.	356	2,164
5)		Environment conservation costs related to social activities Philanthropic programs, support for various environment groups, environment and sustainability reporting, Eco-Products exhibit, etc.	0	53
6)		Costs related to environment damage Pollution impact levy (SO_X)	0	543
Total			4,065	22,782

2. Economic benefit associated with environment conservation activities

Effect	FY2017	FY2018
Income from company-owned forests in Japan (million yen)	303	256
Income from company-owned forests in Japan (million yen)	1,756	1,468
Income from recycling (million yen)	3,338	3,562
Total	5,397	5,286

3. Greenhouse Gas (GHG) [1)]

			FY2014	FY2015	FY2016	FY2017	FY2018
Greenhouse Gas Emissions related to manufacturing (kiloton-CO_2e)[2)]			7,650	7,551	7,611	7,667	7,606
GHG Production intensity (kiloton-CO_2e/production ton)			0.517	0.493	0.485	0.481	0.476
Percentage reduction from base year 2013			1.2%	5.7%	7.3%	8.0%	9.0%
Percentage reduction targeted (%)			1.7%	3.4%	5.0%	7.9%	8.7%
Scope 1 (Direct emissions)	Emission (kiloton-CO_2e)		6,191	6,364	6,587	6,595	※6,394
	Intensity (t-CO_2e/ Sales million yen)		4.595	4.439	4.575	4.439	4.123
Scope 2 (Indirect emissions)	Emission (kiloton-CO_2e)		1,722	1,453	1,305	1,349	※1,442
	Intensity (t-CO_2e/ Sales million yen)		1.278	1.013	0.906	0.899	0.930
Scope 1+2	Emission (kiloton-CO_2e)		7,912	7,817	7,892	7,944	※7,836
	Intensity (t-CO_2e/ Sales million yen)		5.873	5.453	5.481	5.347	5.052
Scope 1 breakdown by GHG type [kiloton CO_2e]		CO_2	6,989	6,809	6,850	6,932	6,832
		CH_4	134	161	157	153	148
		N_2O	790	847	885	859	856
		HCF	N.A.	N.A.	N.A.	N.A.	N.A.
		PFC	N.A.	N.A.	N.A.	N.A.	N.A.
		SF_6	N.A.	N.A.	N.A.	N.A.	N.A.
		NF_3	N.A.	N.A.	N.A.	N.A.	N.A.
		Total	7,912	7,817	7,892	7,944	7,836

1) Calculation of Greenhouse Gas (GHG) Emissions

GHG emissions in Japan are calculated based on Act on Rationalizing Energy Use (Energy Conservation Act), Act on Promotion of Global Warming Countermeasures (Global Warming Act), and base emissions factors of individual electric power companies.
GHG emissions overseas are based on IPCC 2006 Guidelines for National Greenhouse Gas Inventories and IEA CO2 emission factors by country in 2010.
Emissions of carbon dioxide (CO2) generated in conjunction with the use of fossil fuels do not include emissions relating to the supply of electric power or heat to other companies.
Emissions from fuels derived from biomass (black liquor, wood, etc.) that are subject to the Global Warming Act are calculated.
Since unit calorific values for non-fossil fuels emphasize comparability to reduction targets, the factors set in the FY2013 reporting are used.
※Part of the results for fiscal 2018 have been assured by a third party.

2) Calculation of greenhouse gas (GHG) emissions related to manufacturing
Emissions from the electric power business and transportation of products by company vehicles are not included

4. Scope 3 (FY2018)

Category and Coverage	Emission (kiloton-CO_2e)			Ratio (%)	Scope
	Domestic	Overseas	Total		
1 Purchased goods and services; - Emission from activities in producing raw materials, parts, purchased goods and sales materials	2,570	1,353	※3,923	71.8%	Consolidated
2 Capital goods; - Emission from building and producing capital goods of our companies	122	82	204	3.7%	Consolidated
3 Fuel-and-energy-related activities (not included in Scope 1 or 2; - Emission from purchasing fuel, electricity, heats and generating electricity	342	333	675	12.3%	Consolidated
4 Upstream transportation and distribution; - Emission from transportation and distribution of raw materials, parts, purchased goods and sales materials to our companies	261	147	408	7.5%	Consolidated
5 Waste generated in operations; - Emission from transportation and disposal of waste generated in our companies	19	61	80	1.5%	Consolidated
6 Business travel; - Emission from business travel of employees	2	2	5	0.1%	Consolidated
7 Employee commuting; - Emission from employees commuting	8	11	19	0.3%	Consolidated
8 Upstream leased assets[1] ; - Emission from operation of leased assets that our companies leased (not included in Scope 1 or 2)	0	0	0	0.0%	Consolidated
9 Downstream transportation and distribution[2] ; - Emission from operating leased assets that our companies leased	0	0	0	0.0%	Consolidated
10 Processing of sold products; - Emission from processing of intermediate products by business operators	153	0	153	2.8%	Consolidated
11 Use of sold products[3] ; - Emission from use of products by users (consumers, business operators).	0	0	0	0.0%	
12 End of life treatment of sold products[4] ; - Emission from transportation and disposal of products when disposing by users (consumers, business operators).	0	0	0	0.0%	
13 Downstream leased assets; - Emission from operating leased assets that our companies leased.	<0.1	0	<0.1	0.0%	
14 Franchises[5] ; - Emission by franchises.	0	0	0	0.0%	
15 Investments[6] ; - Emission related with investments management.	0	0	0	0.0%	
Total	3,477	1,989	5,466	100.0%	

※The total of purchased goods and services has been assured by a third party on this page.

1) Calculated in Scope1, 2

2) Category 4 Includes transport, delivery (upstream).

3) Since the Group's main sales products, paper products, do not use energy during use, the Group considers that GHG emissions during product use are zero.

4) The Group's main sales products are paper products, which emit CO2 when discarded. However, the Group's raw materials absorb CO2 when grown, so the Group's emissions are offset and considered to be zero.

5) Since the Group is not the president of the franchise, the emissions sources falling under this category are considered to be zero.

6) Since the Group is not an investment or financial institution, zero emissions sources are considered to fall under this category.

5. Energy consumption[1)]

Segment	Breakdown	FY2014	FY2015	FY2016	FY2017	FY2018
Fuel type of using (Electric power equivalent GWh)	Oil	3,947	3,475	4,172	4,397	3,888
	Coal	8,032	8,536	8,456	8,388	8,164
	Gas	3,955	3,867	4,087	4,202	4,096
	Purchased energy	4,587	4,067	3,868	3,920	4,160
	Biomass	28,156	29,552	31,275	31,801	31,645
	Waste	7,916	8,165	8,445	8,564	8,626
	Hydro	346	296	326	324	397
	Solar	4	5	5	5	5
	Sub total	56,942	57,962	60,633	61,601	60,982
Total energy consumption (Crude Oil equivalent)	Consumption (Million liter)	5,655	5,637	5,789	5,874	※5,822
	Intensity (kilo-liter/production ton)	0.382	0.368	0.369	0.369	0.364
Production capacity by energy type (MW)	Thermal power[2)]				1,622	1,622
	Hydro power				72	72
	Solar power				4	4
Real power generation by energy type (GWh/yr.)[3)]	Thermal power				7,899	7,695
	Hydro power				324	397
	Solar power				5	5
Real power consumption (GWh /yr.)	Total power consumption				10,529	10,646
	Renewable energy power in total power consumption				3,926	3,936
	Purchased power from renewable energy[4)]				0	0

Biomass power generation companies

Power generation capacity by type (MW)	Biomass power generation	51	51
Energy input (electric power equivalent GWh)	Coal	10.0	1.0
	Oil	0.3	0.3
	Biomass	402.2	414.3

1) Energy conversion

・Unit calorific values are calculated by using the following laws and international standards.

[Japan]: Act on Rationalizing Energy Use (Energy Conservation Act) and Act on Promotion of Global Warming Countermeasures (Global Warming Act).
The energy conversion of electric power from in-house hydropower generation uses 3.6 GJ per 1,000 kWh.

[Overseas]: IPCC 2006 Guidelines for National Greenhouse Gas Inventories

・Consumption relating to the electric power business (supply of electricity or heat to other companies) and transport by Group-owned vehicles is excluded.

・Energy relating to the supply of electric power or heat to other companies is excluded from fossil fuel and non-fossil fuel derived energy.

・Since unit calorific values for non-fossil fuels emphasize comparability to reduction targets, the factors set in the FY2013 reporting are used.

2) Thermal Power Generation by the Group

Thermal power generation includes power generation capacity of spare facilities. Thermal power generation refers to the sum of Oil and Coal, Biomass, Wastes burning alone and mixed burning.

3) Performance of the Group's Power Generation

The total amount of electricity consumed and sold in-house is shown in the figure.

4) Enter the amount of purchased electricity that can be proved to be derived from renewable energy, such as the Green Power Certification.

※The consumption for fiscal 2018 has been assured by a third party on this page.

6. Acquisition status of environment management system (EMS)

Segment	As of March 31, 2018	As of March 31, 2019
Number of sites covered by ISO14001	128.0	136.0
Percentage of sites covered by ISO14001 (%) *	94.1	97.1

* In Oji Group, 219 worksites are promoting to obtain ISO 14001 and 181 worksites have obtained ISO 14001 certification.

7. Environmental fines and penalties

	FY2017	FY2018
Environmental fines and penalties (yen)	0 (No occurrence)	0 (No occurrence)

* Environment-related is violation of environmental laws and regulations such as water intake, drainage, air, waste, etc.

8. Environmental burden substances (BOD, COD, and SS) in wastewater and drainage amount

【Target】 Improve emission intensity of pollution materials more than 1% compared with the previous year

Segment		FY2014	FY2015	FY2016	FY2017	FY2018	FY2019
BOD emission (ton)		9,365	7,971	8,504	7,913	7,860	
Emission intensity	(ton/ production ton)	0.63	0.52	0.54	0.50	0.49	
	(kg/million yen)	6.95	5.56	5.91	5.33	5.07	
Year-on-year improvement rate evaluation (Goal)		×	○	×	○	○ -4.9%	(Reduced by 1% or more compared to the previous year)
COD emission (ton)		37,348	34,784	34,719	35,215	34,932	
Emission intensity	(ton/ production ton)	2.52	2.27	2.21	2.21	2.19	
	(kg/million yen)	27.72	24.26	24.11	23.70	22.52	
Year-on-year improvement rate evaluation (Goal)		×	○	×	○	○ -5.0%	(Reduced by 1% or more compared to the previous year)
SS emission (ton)		15,337	14,847	14,643	14,943	14,829	
Emission intensity	(ton/ production ton)	1.04	0.97	0.93	0.94	0.93	
	(kg/million yen)	11.38	10.36	10.17	10.06	9.56	
Year-on-year, improvement rate evaluation (Goal)		○	○	○	○	○ -5.0%	(Reduced by 1% or more compared to the previous year)
Wastewater amount (kilo m^3)		716,726	714,508	715,796	716,790	708,491	
Drainage destination	River and lake	288,216	284,400	285,278	285,470	280,690	
	Sea	363,355	361,834	357,688	358,113	354,651	
	Sewer	65,156	68,274	72,830	73,206	73,150	

BOD; Biochemical oxygen demand, COD; Chemical oxygen demand, SS; Suspended solids

Data of pollution material covers all consolidated companies that be regulated with wastewater.

9. Amount of environment burden substances in emitted gas

Segment		FY2014	FY2015	FY2016	FY2017	FY2018	FY2018
[Goal] Improve intensity of SOX emission more than 1% compared with the previous year							
SOx emission (ton)		6,639	6,729	7,107	6,435	6,394	
Emission intensity	(kg/production ton)	0.45	0.44	0.45	0.40	0.40	
	(kg/million yen)	4.93	4.69	4.94	4.33	4.12	
Year on year improvement rate achievement (Goal)		○	○	×	○	○ -4.8%	(Reduced by 1% or more compared to the previous year)
NOx emission (ton)		9,888	10,617	11,093	11,206	10,834	
Emission intensity	(kg/production ton)	0.67	0.69	0.71	0.70	0.68	
	(kg/million yen)	7.34	7.41	7.70	7.54	6.99	
Dust emission (ton)		3,504	2,940	2,893	3,135	2,944	
Emission intensity	(kg/production ton)	0.24	0.19	0.18	0.20	0.18	
	(kg/million yen)	2.60	2.05	2.01	2.11	1.90	
[Goal] Reduce VOC emissions per unit of production to less than the 2010 unit (0.56).							
VOC emission (ton)		558	499	566	524	476	
Emission intensity	(kg/production ton)	0.06	0.05	0.06	0.05	0.05	
	(kg/million yen)	0.41	0.35	0.39	0.35	0.31	
Year on year improvement rate achievement (Goal)		○	○	○	○	○	(Reduced by less than 0.56 to FY2010)

Environmentally hazardous substance content in the emitted gas

- Data of SOx, NOx and Dust cover all consolidated companies that be regulated.
- VOC Emission data cover all consolidated companies that submit PRTR

10. Waste and PRTR Chemical Substances

Segment		FY2014	FY2015	FY2016	FY2017	FY2018
Industrial waste generation[1)]	Domestic (kiloton)	1,544	1,517	1,484	1,494	1,517
	Overseas (kiloton)	1,177	1,202	1,279	1,288	1,358
	Total (kiloton)	2,721	2,719	2,762	2,782	※2,875
Generation intensity	(kg/production ton)	183.9	177.7	176.0	174.7	180.0
	(kg/million yen)	2,020	1,896	1,919	1,872	1,854
Efficient use amount	(kiloton)	2,552	2,563	2,618	2,617	2,708
Landfill amount (Final disposal amount)	Domestic (kiloton)	46	45	32	25	25
	Overseas (kiloton)	124	110	112	140	141
	Total (kiloton)	170	155	144	165	166
Landfill intensity	(kg/production ton)	11.5	10.1	9.2	10.4	10.4
	(kg/million yen)	126	108	100	111	107
[Goal] Domestic 99% or more, Overseas 95% or more by FY2020						
Efficient use ratio	Domestic (%)	97.0	97.0	97.9	98.3	98.3
	Overseas (%)	89.5	90.8	91.2	89.1	89.6
Hazardous waste generation amount (ton)			28,623	25,115	23,252	14,059
Generation intensity	(kg/production ton)		1.87	1.60	1.46	0.88
	(kg/million yen)		20	17	16	9
PRTR Chemical substance released amount and transferred amount [2)]		876	815	842	826	787
Released and transferred intensity	(kg/production ton)	89.0	82.6	85.2	82.2	77.7
	(kg/million yen)	0.65	0.57	0.59	0.56	0.51

1) The amount of industrial waste generated includes the amount of valuable resources.

※The total of industrial waste generated in 2018 has been assured by a third party on this page.

2) PRTR Data covers Oji Group facilities (Consolidated) that submit PRTR

11 . Release and Transfer of PRTR Chemical Substances in domestic FY 2018

Scope of data calculation below are consolidated basis. If different, we added notices.

Segment	Handled amount including generated amount	Released amount	Transferred amount	Total release and transfer
Zinc compounds (water-soluble) (ton)	11.5	2.2	0.9	3.1
Acrylic acid and its water-soluble salts (ton)	1.3	-	0.02	0.02
2-Hydroxyethyl Acrylate (ton)	2.9	-	-	-
n-Butyl Acrylate (ton)	10.5	0.6	0.1	0.7
Methyl acrylate (ton)	8.6	0.5	0.04	0.5
2-Aminoethanol (ton)	16.1	0.002	0.2	0.2
Asbestos (ton)	1.4	-	1.4	1.4
Isoprene (ton)	10.3	0.1	-	0.1
Ethylbenzene (ton)	6.5	0.1	0.2	0.3
Ethylene oxide (ton)	1.4	0.01	-	0.01
Ferric chloride (ton)	111.7	-	-	-
Xylene (ton)	38.1	0.4	0.6	1.0
Chromium and trivalent chromium compounds (ton)	17.5	0.007	0.003	0.01
Chloroform (ton)	14.4	14.3	-	14.3
Vinyl acetate (ton)	475.6	2.1	0.7	2.8
Cyclohexylamine (ton)	1.1	1.1	-	1.1
2,2-Dibromo-2-cyanoacetamide (ton)	60.6	27.9	0.2	28.1
Styrene 8ton)	107.7	0.01	0.1	0.1
Dioxins （m g -TEQ)	777.9	302.4	475.5	777.9
Decanoic acid 8ton)	7.9	0.06	-	0.06
Sodium dodecyl sulfate 8ton)	3.7	2.2	-	2.2
1,2,4-Trimethylbenzene (ton)	27.1	0.1	0.02	0.1
Toluene (ton)	2,732.9	474.0	192.0	666.0
Hexamethylene diacrylate (ton)	2.7	-	-	-
Nickel (ton)	16.8	0.01	0.01	0.02
Methyl 4-hydroxybenzoate (ton)	1.0	0.2	0.06	0.3
N-Vinylpyrrolidone (ton)	2.5	-	-	-
Phenol (ton)	5.3	0.01	0.2	0.2
Hydrogen fluoride and its water-soluble salts (ton)	1.6	1.6	-	1.6
1-bromopropane (ton)	3.2	3.0	0.2	3.2
n-Hexane 8ton)	15.7	0.5	0.2	0.7
Benzene (ton)	31.9	29.8	-	29.8
Boron compounds (ton)	228.9	11.2	1.3	12.5
Poly(oxyethylene) alkyl ether(alkyl C=12-15) (ton)	7.0	1.7	0.2	1.8
Sodium poly(oxyethylene) dodecyl ether sulfate (ton)	6.2	4.2	-	4.2
Formaldehyde 8ton)	1.6	0.8	0.03	0.9
Manganese and its compounds (tn)	9.3	8.1	-	8.1
Methylnaphthalene (ton)	292.0	1.4	-	1.4
Methylenebis(4.1-phenylene) = diisocyanate (ton)	1.8	-	-	-
Total	4,296	588	199	787

- Data covers Oji Group facilities (Consolidated) that submit PRTR
- Excluding dioxins, numbers prepared for substances of which one ton or more (0.5 tons or more Specified Class 1 Designated Chemical Substances) is handled (including amount produced).

12. Usage of main raw materials※

Main raw materials	FY2014	FY2015	FY2016	FY2017	FY2018
Woodchip and lumber (kilo ton)	10,613	12,545	13,089	13,337	13,432
Recovered paper (kilo ton)	4,666	4,300	4,329	4,367	4,343
Pulp (kilo ton)	406	288	325	358	341
Purchased containerboard and corrugated sheet (kilo ton)	3,027	2,941	2,994	3,069	3,309
Total (kilo ton)	18,712	20,073	20,738	21,130	21,425

Amount includes intra-group transaction

13. Water Resource

Segment		FY2014	FY2015	FY2016	FY2016	FY2018	FY2019
[Goal] Improve intensity of water used 1% or more compared with the previous year							
Water intake (kilo m^3)		742,705	750,447	743,683	744,606	740,889	
Water intensity	(kilo m^3/ production ton)	50.2	49.0	47.4	46.8	46.4	
	(m^3/ million yen)	551.3	523.5	516.5	501.1	477.7	
Year on year improvement rate achievement (Goal)		×	○	○	○	○ -4.7%	(Reduced by 1% or more compared to the previous year)
Breakdown of water intake (kilo m3)	Surface water(river, lake, sea, brackish water)	436,638	440,475	436,914	436,108	439,262	
	Groundwater(well water, subsoil water)	156,658	148,509	150,227	150,091	151,295	
	Third party organization (water supply, city water)	149,408	161,463	156,542	158,408	150,332	
	Total	742,705	750,447	743,683	744,606	740,889	
Recycled water amount (kilo m^3)		668,215	677,417	701,967	690,839	685,727	
Recycled ratio (%)		90%	90%	94%	93%	93%	

14. Water intensity in Electric Power Business 1)

		FY2014	FY2015	FY2016	FY2017	FY2018
Gross generation	(千kWh)	6,685	238,880	410,896	412,587	415,631
Water intake	(m^3)	79,762	991,274	1,516,012	1,560,392	1,537,505
Water intensity	(m^3/千kWh)	11.93	4.15	3.69	3.78	3.70

1) Electric power companies (Oji Green Energy Nichinan Co. Ltd, Oji Green Energy Ebetsu Co., Ltd.)

15. Paper recycle※

Segment			FY2014	FY2015	FY2016	FY2017	FY2018
	Recycled amount	(kilo ton)	4,073	4,029	4,066	4,093	4,081
	Recycled rate	(%)	64.3%	64.3%	63.5%	64.0%	64.0%

※ Scope of Paper recycle : Oji Paper, Oji Materia, Oji F-Tex, Oji Nepia

16. Environment-related data by segment

Domestic and overseas environmental burden data (FY 2018)

	Operating sites	Production	GHG		Water resource		Industrial waste		Domestic chemical substances		Environmental burden in wastewater			Environmental burden in emission gas		
			Emission (kilo-CO_2)	Intensity	Water withdrawl	Intensity	Final disposal amount	Intensity	PRTR chemical substances	Intensity	BOD	COD	SS	SOx (SO_2 conversion)	NOx (NO_2 conversion	Dust
		kilo ton	Kilo ton	t CO_2e/ production ton	kilo m^3	kilo m^3/ production ton	Appearance ton	kg/ production ton	Released and transferred amount ton	g/ production ton	ton	ton	ton	ton	ton	ton
Industrial Material Business	161	6,595	3,126	0.474	191,294	29.0	16,896	2.6	134	24	3,286	3,947	2,622	2,440	3,261	153
Household and Consumer Product Business	7	217	35	0.161	4,062	18.7	52	0.2	(*1)	(*1)	(*1)	<1	46	<1	4	294
Functional Materials Business	27	799	685	0.857	59,979	75.1	4,897	6.1	588	1,237	1,243	177	1,004	1,081	495	57
Forest Resources and Environment Marketing Business	37	3,563	455	0.128	63,191	17.7	36,250	10.2	<1	<1	1,485	11,026	575	297	259	1,387
Printing and Communications Media Business	7	3,626	2,961	0.817	366,604	101.1	19,536	5.4	52	18	902	19,599	8,921	2,576	6,178	303
Other business	46	1,172	489	0.417	55,759	47.6	88,609	75.6	14	702	944	<1	1,661	<1	639	750
Total (consolidated subsidiary)	285	15,972	7,751	0.485	740,889	46.4	166,240	10.4	788	78	7,860	34,749	14,829	6,394	10,834	2,944

・Production volume includes the volume of transactions within the group.

・Greenhouse gas emissions are calculated under the following conditions.

①Emission factors in the following laws and international standards are used.

[Japan]: Act on Rationalizing Energy Use (Energy Conservation Act), Act on Promotion of Global Warming Countermeasures (Global Warming Act), and base emissions factors of individual electric power companies.

[Overseas]: IPCC 2006 Guidelines for National Greenhouse Gas Inventories and IEA CO2 emission factors by country in 2010.

②Emissions relating to transport of products, etc. by Group-owned vehicles are not included.

③Emissions of carbon dioxide (CO2) generated in conjunction with the use of fossil fuels do not include emissions relating to the supply of electric power or heat to other companies.

④Emissions from fuels derived from biomass (black liquor, wood, etc.) that are subject to the Global Warming Act are calculated.

⑤Since unit calorific values for non-fossil fuels emphasize comparability to reduction targets, the factors set in the FY2013 reporting are used.

・The environmental impact (BOD, COD, SS) of water emissions and the environmental impact (SOx, NOx, soot and dust) of air emissions are the amounts of emissions from business sites to which regulations are applied.

NOTE: (*1) Emissions not listed because there are no sites where regulations are applied.

17 . The Oji Group's forest area, forest certification acquisition rate, and CO_2 absorption and fixation through sustainable forest management.

As of March 2019

	Area (kilo ha)	Forest certification acquisition	CO_2 fixed amount ** (kilo CO2 ton)
Overseas Forest Plantations	255	85%	82,126
Company-owned Forests in Japan	188	100%*	38,690
Total	443		120,816

* : Excluding profit-sharing forests, 173 kilo hectares of our forests in Japan, have acquired SGEC forest certification.

** : CO_2 fixed amount (CO_2 ton) = Merchantable volume with bark (m^3) x Biomass expansion factor (1.7) x Bulk density (BDT/ m^3)x Carbon fraction of dray mater (0.5) x CO_2 conversion factor (44/12). BDT: Bone Dry Ton

18. Forest plantation business

As of March 2019

Plantation company (Area and country)	Year established	Planted area (ha)	Remarks Forest certification code
Southland Plantation Forest Co. of New Zealand Ltd. (SPFL) (South Island, New Zealand)	1992	8,630	https://www.spfl.co.nz/ FSC®C008418
Albany Planation Forest Co. of Australia Pty Ltd. (APFL) (Western Australia, Australia)	1993	9,139	http://www.albanyplantations.com.au/#
Quy Nhon Plantation Forest Co. of Vietnam Ltd. (QPFL) (Bin Dinh pro, Vietnam)	1995	9,416	FSC®C016623
Green Triangle Plantation Forest Co. of Australia Pty. Ltd. (GPFL) (Victoria, Australia)	1997	3,426	
Huizhou Nanyou Forest Development Co., Ltd. (KPFL) (Huizhou, China)	2002	4,234	
PT Korintiga Hutani (KTH) (Kalimantan, Indonesia)	1998	36,459	AJA/IFCC-PEFC/FMC-HT/00038/I/2018
Truong Thanh Oji Plantation Forest Company Limited (TTO) (Phu Yen, Vietnam)	2011	2,290	
Celulose Nipo-Brasileira S.A (CENIBRA) (Minas Gerais, Brazil)	1973	146,533	http://www.cenibra.com.br/ FSC®C008495
Pan Pac Forest Products Ltd (PAN PAC) (North island, New Zealand)	1971	34,749	https://www.panpac.co.nz/ FSC®C017103
Total (ha)		254,876	

19 . The procurement composition of wood chips

As of March 2019

	Procurement volume		Hardwood	Softwood	
	(kilo BDT*)	(%)	(%)	(%)	
Imported wood chips	4,095	80%	70%	10%	
Domestic wood chips	1,015	20%	4%	16%	
Total	5,110	100%	74%	26%	

*BDT: Bone Dry Ton