



Environmental Data



Policies on biological resources

From an early stage, the Kirin Group has been pursuing initiatives concerning biological resources, which have a high possibility of being connected to environmental and human rights issues.

After making a Declaration of Support for Biodiversity Conservation in 2010, in 2013, we formulated the Kirin Group's Guidelines on Sustainable Sourcing of Biological Resources and the Action Plan on Sustainable Use of Biological Resources. Black tea leaves, paper and printed materials, and palm oil are specified in the Guidelines and Action Plan as particularly important supplies. After the formulation and announcement of the Kirin Group CSV Commitment in February 2017, we revised the Kirin Group Action Plan on Sustainable Use of Biological Resources and accelerated our initiatives.

Kirin Group's Declaration of Support for Biodiversity Conservation

Kirin Group relies on the bounty of nature to make products. We utilize the power and wisdom nature has to offer in conducting its business activities. Because of that, we recognize the importance of conserving biodiversity as business challenges. Kirin Group actively pursues a broad range of activities to protect biodiversity in order to continue offering new joys of "food and well-being" into the future.

1. Kirin Group promotes sustainable use of resources while ensuring conservation of biodiversity

The Kirin Group is committed to sustainable use of resources while taking biodiversity into consideration in all of its business activities so that all people around the world may continue to enjoy the bounty of nature.

2. Kirin Group makes effective use of its technologies

As a company that offers new joys of "food and well-being," the Kirin Group makes effective use of its technologies when conducting business activities to contribute to the sustainable use of resources and protection of biodiversity.

3. Kirin Group works in cooperation with stakeholders

Kirin Group adds a biodiversity perspective to the environmental protection activities which have continuously been engaged in and works in cooperation with customers and local partners to continue conserving biodiversity.

4. Kirin Group properly complies with treaties and laws

Kirin Group complies with treaties, laws and regulations concerning biodiversity and strives to help people enjoy the blessings of biodiversity worldwide.

Kirin Group's Guidelines on Sustainable Sourcing of Biological Resources

Purpose The purpose of the Guidelines is to present the fundamental principles of the Group so that it can continue to ensure the "sustainable sourcing of biological resources" based on the Kirin Group's Declaration of Support for Biodiversity Conservation.

Applicable scope The Guidelines apply to biological resources procured by the Kirin Group's operating companies in Japan for which the Group has specified that there is risk of illegal deforestation, environmental destruction and such like based on risk assessment performed.

Guidelines on Sustainable Sourcing of Biological Resources

Kirin Group procures applicable biological resources based on the following principles.

- 1. Resources that the Group has confirmed;**
not to derive from a plantation developed illegally, to have been produced through appropriate procedures in compliance with the laws and regulations of the areas where the raw material is produced.
- 2. Resources deriving from plantations, forests, etc. that have been certified by credible third parties.**
- 3. Resources that have not been produced by entities which are considered to be involved in environmental destructions.*1**

*1 Reference is currently made to the FSC's Policy for the Association of Organization with FSC.

Kirin Group's Guidelines on Access to Genetic Resources

In order to enjoy the blessings of biodiversity worldwide, it is important to ensure proper management of genetic resources in accordance with the relevant laws and regulations agreed upon by the international community. Given the Nagoya Protocol adopted at COP 10, the Kirin Group established its Group Guidelines on the access to genetic resources and has been operating accordingly.

Kirin Group's Principles of Managing Access to Genetic Resources

- 1. The Group shall respect international agreements concerning biodiversity.**
- 2. Access to genetic resources shall be based on prior informed consent of the country providing such resources, and no genetic resources whose backgrounds are unknown shall be carried in or used.**
- 3. Use of genetic resources, including fair and equitable sharing of the benefits arising out of their utilization, shall be properly managed in accordance with international treaties.**

Kirin Group Action Plan for the Sustainable Use of Biological Resources

1. Black Tea

Kirin Company, Limited conducts the following three-step survey and, through annual reviews, is raising the level of sustainability.

- Step.1** Specify the tea growers from which to procure black tea leaves.
- Step.2** Evaluate the sustainability*¹ of the specified growers.
- Step.3** Aim to use black tea leaves from those growers with a high level of sustainability.

2. Paper and Printed Materials

Kirin Company, Limited, Kirin Brewery Company, Limited, Kirin Beverage Company, Limited and Mercian Corporation will:

Office paper*²

aim to use only FSC®-certified paper or recycled paper by the end of 2020.

Containers and packaging*³ *⁴

- 1) 6-can packs: aim to use only FSC-certified paper by the end of 2017.
- 2) Gift boxes: aim to use only FSC-certified paper by the end of 2020.
- 3) Drink boxes: aim to use only FSC-certified paper by the end of 2020.
- 4) Cardboard cartons for products: aim to use only FSC-certified paper by the end of 2020.

Other

Priority will be given to the use of paper that is FSC-certified, paper made with wood from FSC-managed forests, paper made from recycled paper, and paper that has been confirmed through supplier surveys as not resulting in the destruction of high conservation value forests*⁵.

3. Palm Oil*⁶

Operating companies in Japan will use the Book and Claim model in their handling of palm oil used as a primary or secondary ingredient. Book and Claim is a model for the trading of certificates approved by the Roundtable on Sustainable Palm Oil (RSPO).

When the identification of palm oil producers and the direct purchase of sufficient quantities of RSPO-certified palm oil becomes possible, a new, upgraded action plan will be formulated.

Notes

- *1 Sustainability of tea in Step 2 will be evaluated according to the status of Rainforest Alliance certification.
- *2 "Office paper" refers to copy paper, envelopes (excluding non-standard sizes and some industrial-use envelopes), business cards, and printed materials such as company pamphlets.
- *3 Includes Kirin-Tropicana Inc.
- *4 Excludes limited-edition products, small-lot product varieties, special shapes, imported products, etc.
- *5 HC VF (High Conservation Value Forest), as defined by FSC®.
- *6 Palm oil refers to the oil derived from the fruit of the oil palms, and includes palm kernel oil obtained from their seeds.

Established on February 2013
Revised on February 2017

Policies on Plastic Policy

The Kirin Group Plastic Policy

1. Promoting recycling of PET bottles

The plastic containers, packaging, and other materials provided by the Kirin Group are mostly PET used for beverage bottles and the Kirin Group has used recycled resin for a part of them. The Kirin Group will promote the recycling of PET bottles by aiming to increase this recycled plastic ratio to 50% by 2027.

The recycling of PET bottles cannot be promoted without an efficient method for collecting high-quality used PET bottles. At the Kirin Group, we will proactively work with national and local governments, and industry organizations to create an efficient collection and reuse system for high-quality used PET bottles.

2. Efforts to reduce single-use plastic* and replace it with other materials

Most plastic waste is comprised of what is referred to as single-use plastic. The Kirin Group will make efforts to reduce the single-use plastic provided by its group companies and replace it with other materials.

* Disposable plastic that is used only and not intended for reuse.

3. Improving sustainability of raw materials for PET bottle

At the Kirin Group, we have made continuous efforts to reduce the weight of our PET bottles from the standpoint of reducing our environmental impact. We will keep striving toward even lighter bottles in the future.

In addition, to improve the sustainability of raw materials for PET bottle, we will study the introduction of PET bottle materials derived from inedible plants to reduce our dependence on petroleum resources.

In addition to the above measures, we will proactively participate in educational programs to promote plastic recycling, coastal cleanup activities, and other programs.

Kirin Beverage Company, Limited also supports the Soft Drink Business Plastic Resource Reclamation Declaration 2018 announced last year by the Japan Soft Drink Association, and will take proactive measures to realize the "100% Effective Utilization of PET Bottles by 2030" plan put forth by the industry.

Established on February 2019

Consideration of the Environment in Product Development

Environmentally Conscious Designs for Containers and Packaging

To further step up conservation of resources and promote activities to reduce environmental impact, the Kirin Group operates on its "Guidelines on Environmentally Conscious Design for Containers and Packaging," which has detailed provisions for what materials may be used and in what combinations. Originally established by Kirin Brewery in 1998, the Guidelines have been widely applied to its entire alcoholic and non-alcoholic beverages business since 2014. In 2019, it was expanded to all Kirin Group companies in Japan, excluding the Pharmaceutical Business.

LCA Initiatives for Containers

The Kirin Group performs LCA (Life Cycle Assessment)* on major containers for alcoholic beverages and non-alcoholic beverages whenever necessary. For example, in the case of a glass bottle, we make an assessment by performing calculations in consideration of raw materials used for all parts of the bottle, including the glass, paper for labels, and crown cap, energy used to produce raw materials, and energy associated with recycling after use. We also take into account the product characteristics, unit of purchase by customer at each purchase, major sales store format, projection on collection of empty containers and other relevant factors on a comprehensive basis to select containers.

Guidelines on Environmentally Conscious Design for Containers and Packaging

1. Purpose

The Kirin Group aims to pass down the bounty of natural environment of our Earth in sustainable form to the future generations and continue providing value to customers and society on the whole. To this end, we comply with the relevant laws and regulations and with the Guidelines on Environmentally Conscious Design for Containers and Packaging in pursuing product development in consideration of the environment and promoting reduction and recycling of wastes in its business activities. By so doing, the Kirin Group aims to realize a society that is based on 100% recycling so as to balance the environmental impact produced by the Kirin Group's value chain with the Earth's ability to supply resources.

2. Basic Concept for Development, Design and Adoption of Containers and Packaging

- (1) In development and design, maintain quality, safety and hygiene of product contents, safety of containers and packaging, and appropriate presentation of product information as prerequisites, and take into account environmental applicability, user-friendliness, transport efficiency and economic performance.
- (2) In adoption, select containers and packaging that meet customers' purchasing and drinking styles, form of selling, and characteristics of product contents.

3. Concept of Caring for the Environment in Development, Design and Adoption of Containers and Packaging

- (1) Strive to reduce the environmental impact associated with containers and packaging throughout the lifecycle, i.e., from procurement to recycling, and keep the impact on the natural environment to a minimum.
- (2) In order to make effective use of resources and contribute to the realization of society that is based on recycling, use materials that are easy to recycle or dispose of and that have minimal environmental impact.
- (3) In order to contribute to realizing a low-carbon society, select materials that require low energy use and that generate minimal greenhouse gas emissions during processes of manufacturing containers and packaging and of transporting products.
- (4) Select materials in consideration of preventing environmental pollution at the stage of disposal.
- (5) Promote the 3R (reduce, reuse, recycle) activities in accordance with the following.

4. Guidelines for Promoting the 3Rs (Reduce, Reuse, Recycle)

- (1) Reduce
 1. Make efforts to reduce weight of containers and packaging, sales promotion tools, etc. and to reduce the amount of materials used.
 2. Make efforts to design containers and packaging so that the volume can be reduced as much as possible by folding or crushing them when they are recycled or disposed of.
 3. Shift to simple packaging, try to eliminate individual pieces of wrapping and outer packaging, and make efforts to keep packaging reasonable.
- (2) Reuse
 1. Make efforts to design containers and packaging so that the number of reuses and refills can be repeated as much as possible.
 2. Make efforts to keep the environmental impact associated with reuse and refilling as small as possible.
- (3) Recycle
 1. Use single material as much as possible, and when using two or more types of materials, make efforts so as to enable their easy separation.
 2. Make efforts to use recycled materials and those with high recycling rates.
 3. Make efforts to adopt specifications and designs that facilitate separated discharge, sorted collection, and material sorting.

Revised on November 18, 2014

Environmental Data Calculation Methods

(1) Usage Factors

Energy Use Conversion Factors

	Japan	Overseas	
Fuel	"Act on Rationalizing Energy Use" Factors	Lion	<ul style="list-style-type: none"> •Australia - National Greenhouse Account Factors •New Zealand - Measuring Emissions:A Guide for Organisations
		Other than the above	"Act on Rationalizing Energy Use" Factors
Electricity	Used 3.6 (MJ/kWh), which is used by International Energy Agency (IEA) and other organizations		

Emission factors for GHG Emissions

	Japan	Overseas	
Fuel	Emission factors from Greenhouse Gas Emissions Calculation and Reporting Manual (Ministry of Environment/Ministry of Economy, Trade & Industry)	Lion	<ul style="list-style-type: none"> •Australia - National Greenhouse Account Factors •New Zealand - Measuring Emissions:A Guide for Organisations
		Other than the above	Emission factors from Greenhouse Gas Emissions Calculation and Reporting Manual (Ministry of Environment/Ministry of Economy, Trade & Industry)
Electricity	<ul style="list-style-type: none"> •Emission factors published by individual power companies →If none published: Emission factors by country from IEA's CO₂ Emissions from Fuel Combustion for the year in question 		

(2) Calculation boundaries

Entire Group

Business	Company
Japan Beer and Spirits Business	Kirin Brewery, Kirin Distillery, SPRING VALLEY BREWERY, Eishogen, Kirin Brewery (Zhuhai)
Japan Non-Alcoholic Beverages Business	Kirin Beverage, Shinshu Beverage, Hokkaido Kirin Beverage, Kirin Maintenance Service, each site of Kirin Beverage Service (Hokkaido, Sendai, Tokyo, Chubu, Kansai), Hakodate Daiichi Vending, KIRINVIVAX, Tokai Beverage Service
Oceania Integrated Beverages Business	Lion
Pharmaceuticals Businesses	Kyowa Kirin, KYOWA KIRIN FRONTIER Co., Ltd., Kyowa Medical Promotion Co., Ltd., Kyowa Kirin plus Co., Ltd., Kyowa Hakko Kirin China Pharmaceutical, Kyowa Kirin Pharmaceutical Research
Other Businesses (all companies included)	Mercian, NIPPON LIQUOR, Daiichi Alcohol, Wine Curation, Myanmar Brewery Interfood, Vietnam Kirin Beverage, Azuma Kirin, Four Roses Distillery, Kyowa Hakko Bio, KYOWA PHARMA CHEMICAL, KYOWA ENGINEERING CO.,LTD, BioKyowa Inc., Shanghai Kyowa Amino Acid, Thai Kyowa Biotechnologies Co., Ltd., Kirin Holdings, Kirin Business Expert, KIRIN BUSINESS SYSTEM, KOIWAI DAIRY PRODUCTS, Kirin Echo, Kirin and Communications, Kirin Engineering Kirin City, Kirin Techno-System, KIRIN GROUP LOGISTICS

Breakdown of Calculations by Business

Refer to above "entire Group" calculation boundary table.

Breakdown of Calculations by Region

Region	Company
Japan	Kirin Brewery, Kirin Distillery, SPRING VALLEY BREWERY, Eishogen, Kirin Beverage, Shinshu Beverage, Hokkaido Kirin Beverage, Kirin Maintenance Service, each site of Kirin Beverage Service (Hokkaido, Sendai, Tokyo, Chubu, Kansai), Hakodate Daiichi Vending, KIRINVIVAX, Tokai Beverage Service, Kyowa Kirin, KYOWA KIRIN FRONTIER Co., Ltd., Kyowa Medical Promotion Co., Ltd., Kyowa Kirin plus Co., Ltd., Kyowa Hakko Bio, KYOWA PHARMA CHEMICAL, KYOWA ENGINEERING CO.,LTD, KOIWAI DAIRY PRODUCTS, Kirin Echo, Kirin and Communications, Kirin Engineering, Kirin City, Kirin Techno-System, KIRIN GROUP LOGISTICS, Mercian, NIPPON LIQUOR, Daiichi Alcohol, Wine Curation, Kirin Holdings, Kirin Business Expert, KIRIN BUSINESS SYSTEM
Oceania	Lion
Southeast Asia	Myanmar Brewery, Interfood, Vietnam Kirin Beverag, Thai Kyowa Biotechnologies Co., Ltd.
Other	Kyowa Hakko Kirin China Pharmaceutical, Kyowa Kirin Pharmaceutical Research, BioKyowa Inc., Shanghai Kyowa Amino Acid, Kirin Brewery (Zhuhai), Four Roses Distillery, AZUMA KIRIN

Calculation boundary of actual emissions against mid-term and long-term GHG emission targets (Scope 1, Scope 2) (P.22, P.25, P.61, P.72, P.99)

Business	Company
Japan Beer and Spirits Business	Kirin Brewery, Kirin Distillery, SPRING VALLEY BREWERY, Eishogen
Japan Non-Alcoholic Beverages Business	Kirin Beverage, Shinshu Beverage, Hokkaido Kirin Beverage, Kirin Maintenance Service, KIRIN Tropicana, each site of Kirin Beverage Service (Hokkaido, Sendai, Tokyo, Chubu, Kansai) Hakodate Daiichi Vending, KIRINVIVAX, Tokai Beverage Service
Oceania Integrated Beverages Business	Lion
Pharmaceuticals Businesses	Kyowa Kirin, KYOWA KIRIN FRONTIER Co., Ltd., Kyowa Medical Promotion Co., Ltd., Kyowa Kirin plus Co., Ltd., Kyowa HAKKO Kirin China Pharmaceutical, Kyowa Kirin Pharmaceutical Research
Other Businesses (all companies included)	Mercian, NIPPON LIQUOR, Daiichi Alcohol, Wine Curation, Kyowa HAKKO Bio, KYOWA PHARMA CHEMICAL, KYOWA ENGINEERING CO.,LTD, BioKyowa Inc., Shanghai Kyowa Amino Acid, Thai Kyowa Biotechnologies Co., Ltd., Kirin Holdings, Kirin Business Expert, KIRIN BUSINESS SYSTEM, KOIWAI DAIRY PRODUCTS, Kirin Echo, Kirin and Communications, Kirin Engineering Kirin City, Kirin Techno-System, KIRIN GROUP LOGISTICS

Calculation boundary of actual emissions against mid-term and long-term GHG emission targets (Scope 3) (P.22, P.25, P.61, P.72, P.99)

Business	Company
Japan Beer and Spirits Business	Kirin Brewery, Kirin Distillery
Japan Non-Alcoholic Beverages Business	Kirin Beverage, Shinshu Beverage
Oceania Integrated Beverages Business	Lion
Pharmaceuticals Businesses	Kyowa Kirin, Kyowa HAKKO Kirin China Pharmaceutical, Kyowa Kirin Pharmaceutical Research
Other Businesses (all companies included)	Mercian, Daiichi Alcohol, Kyowa HAKKO Bio, KYOWA PHARMA CHEMICAL, BioKyowa Inc., Shanghai Kyowa Amino Acid, Thai Kyowa Biotechnologies Co., Ltd., Kirin Holdings, KOIWAI DAIRY PRODUCTS, KIRIN GROUP LOGISTICS

Calculation boundary of Scope 3 emissions (P.98)

Business	Company
Japan Beer and Spirits Business	Kirin Brewery, Kirin Distillery, Kirin Brewery (Zhuhai)
Japan Non-Alcoholic Beverages Business	Kirin Beverage, Shinshu Beverage
Oceania Integrated Beverages Business	Lion
Pharmaceuticals Businesses	Kyowa Kirin, Kyowa HAKKO Kirin China Pharmaceutical, Kyowa Kirin Pharmaceutical Research
Other Businesses (all companies included)	Mercian, Daiichi Alcohol, Myanmar Brewery, Interfood, Vietnam Kirin Beverage, Kyowa HAKKO Bio, KYOWA PHARMA CHEMICAL, BioKyowa Inc., Shanghai Kyowa Amino Acid, Thai Kyowa Biotechnologies Co., Ltd., Kirin Holdings, KOIWAI DAIRY PRODUCTS, KIRIN GROUP LOGISTICS



Breakdown of business locations subject to water risk assessments (P.41)

Constituent/Name of Group Company	Country	Number of manufacturing plants	Remarks
Kirin Brewery	Japan	8	Sendai, Toride, Yokohama, Nagoya, Shiga, Kobe, Okayama, Fukuoka * Because Kirin Beverage Shiga Plant is attached to Kirin Brewery Shiga Plant, it is included in Kirin Brewery Shiga Plant
Kirin Distillery	Japan	1	Gotemba
Mercian	Japan	1	Yatsushiro
Kirin Beverage	Japan	1	Shonan * Because Kirin Beverage Shiga Plant is attached to Kirin Brewery Shiga Plant, it is included in Kirin Brewery Shiga Plant
Shinshu Beverage	Japan	1	
Kyowa Kirin	Japan	2	Takasaki, Fuji
	China	1	Kyowa Hakko Kirin China Pharmaceutical
Kyowa Hakko Bio	Japan	2	Yamaguchi Production Center (Hofu), Yamaguchi Production Center (Ube)
Kyowa Pharma Chemical	Japan	1	Head office
Koiwai Dairy Products	Japan	1	Koiwai
BioKyowa Inc.	America	1	
Shanghai Kyowa Amino Acid	China	1	
Thai Kyowa Biotechnologies Co., Ltd.	Thai	1	
Kirin Brewery (Zhuhai)	China	1	
Interfood	Vietnam	1	
Vietnam Kirin Beverage	Vietnam	1	
Four Roses Distillery	America	2	Lawrenceburg, Cox's Creek
Myanmar Brewery	Myanmar	1	
Lion	Australia	12	Bentley Milk, Burnie, Canberra, Castlemaine Perkins Brewery, Chelsea Heights, James Boag Brewery, Little Creatures Brewery Fremantle, Morwell, Penrith, Smithfield, Tooheys Brewery, West End Brewery
	Newzealand	3	Palmerston North, Pride Brewery, Speights Brewery

Environmental Accounting

Environment conservation costs

(Unit: million yen)

Category	Specific details	Investment amounts			Expense amounts		
		2017	2018	2019	2017	2018	2019
Environmental conservation costs to control environmental impact resulting from production and service activity within the business areas (total of ①②③ below)		1,311	763	1,243	5,971	5,499	5,854
① Pollution prevention costs	Air and water pollution prevention activities, analysis and measurement of air and water quality, etc.	1,093	533	536	3,229	2,477	2,330
② Global environmental conservation costs	Solar power generation, CO ₂ recovery, energy saving, cogeneration, etc.	147	215	655	947	828	854
③ Resource circulation costs	Reduction of sludge, waste recycling, water recycling, etc.	71	16	53	1,795	2,195	2,669
Upstream / downstream costs	Containers and Packaging Recycling Act, Recycling contracting costs	0	1	86	40	584	375
Administration costs	Operation of environmental management systems, environmental education, greenification in business sites, etc.	15	13	35	305	319	300
Research and development costs	Container lightweighting, R&D regarding mitigation of environmental load of byproducts, wastewater, etc.	24	29	63	105	100	131
Social activities costs	Environmental conservation activity costs such as activities to protect the blessings of water, donations to nature conservation groups, etc.	3	0	0	95	47	49
Environmental remediation costs		0	0	0	0	0	0
Others		0	0	131	3	1	186
Total		1,353	806	1,559	6,520	6,550	6,895

Economic effect

(Unit: million yen)

Items	Details	2017	2018	2019
Proceeds from sales of valuables, etc.	Waste recycling, etc.	851	840	949
Resources saving effects	Energy saving, waste reduction, resources saving, etc.	418	555	591

Calculation boundaries

2017: Kirin (Includes Kirin Brewery, Kirin Beverages, and certain other constituent companies), Kyowa Hakko Kirin, Kyowa Medex, Kyowa Hakko Bio, KYOWA PHARMA CHEMICAL, Koiwai Dairy Products

2018: Kirin Brewery, Kirin Distillery, Eishogen, Kirin Beverages, Shinshu Beverages, Mercian, Kyowa Kirin, Kyowa Hakko Bio, KYOWA PHARMA CHEMICAL, Koiwai Dairy Products, Kirin

2019: Kirin Brewery, Kirin Distillery, Eishogen, Kirin Beverages, Shinshu Beverages, Mercian, Kyowa Kirin, Kyowa Hakko Bio, KYOWA PHARMA CHEMICAL, Koiwai Dairy Products, Kirin Holdings

Material Balance

Material Flow (2019, entire Group)

	Unit	Japan Beer and Spirits Business	Japan Non-Alcoholic Beverages Business	Oceania Integrated Beverages Business	Pharmaceuticals Businesses	Other Businesses	Total			
							2019	2018	2017	
Substance	thousand t	584	85	376	1	385	1,431	1,484	2,452	
	%	41	6	26	0.1	27	100			
	Raw material	thousand t	406	36	127	0.2	320	889	858	1,733
	Packaging material	thousand t	178	49	249	0.6	65	542	626	719
Water (fresh water only)	thousand m ³	14,470	2,211	5,023	2,232	44,283	68,218	76,319	79,583	
	%	21	3	7	3	65	100			
Water recycling	thousand m ³	2,994	341	244	22,166	95,589	121,334	124,003	61,112	
Energy	TJ	4,029	915	2,400	642	4,645	12,630	13,081	12,972	
	%	32	7	19	5	37	100			
Production volumes	Alcoholic and non-alcoholic beverages	thousand kL	2,862	707	1,528	0	762	5,860	5,881	5,743
	Food products/Pharmaceuticals and biochemicals	thousand t	9	0	78	0.2	84	171	191	188
Wastewater	thousand m ³	11,949	1,845	3,996	2,002	47,596	67,387	71,747	73,563	
	%	18	3	6	3	71	100			
Greenhouse gas emissions (Scope1+Scope2)	thousand t-CO ₂ e	232	56	229	56	376	949	986	996	
	%	24	6	24	6	40	100			
NOx	t	138	20	213	6	48	425	436	429	
SOx	t	0.3	1	2	0	12	15	19	95	
Waste products	thousand t	198	17	148	2	106	470	421	427	
	%	42	4	31	0.4	22	100			
Volume disposed on site	thousand t	0	0	0	0	2	2	12	35	
Volume of recycled waste	thousand t	196	17	139	2	102	455	402	378	
Final disposed volume	thousand t	3	0	8	0.1	2	12	8	14	



Water Resources

Trends in water use volumes and water consumption rate (entire Group)

	Water use volume (thousand m ³)	Water consumption rate (by sales revenue) (m ³ /million yen)	
		Japan standard	IFRS
2015	80,625	39	–
2016	81,620	42	44
2017	79,583	–	43
2018	76,319	–	40
2019	68,218	–	35

Trend in water use volumes (by business)

(Unit: thousand m³)

	Japan Beer and Spirits Business	Japan Non-Alcoholic Beverages Business	Oceania Integrated Beverages Business	Pharmaceuticals Businesses	Other Businesses (all companies included)	Total
2015	13,101	2,515	5,444	4,046	55,520	80,625
2016	12,896	2,656	5,514	3,110	57,443	81,620
2017	13,190	2,341	5,469	3,047	55,534	79,583
2018	14,049	2,345	5,378	2,309	52,238	76,319
2019	14,470	2,211	5,023	2,232	44,283	68,218

Trend in water use volumes (by region)

(Unit: thousand m³)

	Japan	Oceania	Southeast Asia	Other	Total
2015	63,292	5,444	2,317	9,573	80,625
2016	62,707	5,514	2,560	10,838	81,620
2017	61,721	5,469	2,500	9,892	79,583
2018	58,120	5,378	2,811	10,011	76,319
2019	50,333	5,023	3,654	9,208	68,218

Trends in annual water use volumes by water source (entire Group)

	Unit	Fresh water					Total
		Service water	Rivers (including industrial water)	Underground water	Storm water	Gray water* (Reclaimed water)	
2015	thousand m ³	10,155	40,374	30,067	0	30	80,625
	%	13	50	37	0.0	0.0	100
2016	thousand m ³	9,946	41,375	30,289	2	8	81,620
	%	12	51	37	0.0	0.0	100
2017	thousand m ³	9,765	42,150	27,667	1	0	79,583
	%	12	53	35	0.0	0.0	100
2018	thousand m ³	10,312	40,415	25,592	0	0	76,319
	%	14	53	34	0.0	0.0	100
2019	thousand m ³	10,605	35,679	21,934	0	0	68,218
	%	16	52	32	0.0	0.0	100

* Externally supplied gray water

Trend in water use volumes of Japan Integrated Beverages Business

	Unit	Kirin Brewery	Kirin Distillery	Kirin Beverage	Shinshu Beverage	Mercian
2015	thousand m ³	11,104	1,274	1,309	1,205	5,041
	m ³ /kL	4.9	3.3	3.4	5.4	39.3
2016	thousand m ³	11,009	1,324	1,359	1,297	4,317
	m ³ /kL	5.0	3.1	2.9	5.2	32.6
2017	thousand m ³	11,199	1,383	968	1,374	3,391
	m ³ /kL	5.3	3.2	2.2	5.2	25.5
2018	thousand m ³	12,006	1,379	971	1,374	3,240
	m ³ /kL	5.3	3.1	2.1	5.3	22.5
2019	thousand m ³	12,509	1,380	968	1,243	2,825
	m ³ /kL	5.3	3.1	2.2	4.8	19.8

* Because Kirin Beverage Shiga Plant is attached to Kirin Brewery Shiga Plant, it is included in Kirin Brewery Shiga Plant

Trend in use of recycled water in entire Group manufacturing plants and business locations

	Unit	Cyclical use			Recycling rate (%)
		Re-used water	Recycled water	Total	
2015	thousand m ³	13,508	91,386	104,894	57
	%	12.9	87.1	100.0	
2016	thousand m ³	13,386	86,180	99,566	55
	%	13.4	86.6	100.0	
2017	thousand m ³	15,123	90,944	106,067	57
	%	14.3	85.7	100.0	
2018	thousand m ³	18,993	105,010	124,003	62
	%	15.3	84.7	100.0	
2019	thousand m ³	15,901	105,433	121,334	64
	%	13.1	86.9	100.0	

Trend in wastewater volume by destination (entire Group)

	Unit	Wastewater volume				
		Sewage water	Direct release into rivers, etc.	Indirect release into ocean	Other*	Total
2015	thousand m ³	6,247	27,890	36,768	8	70,913
	%	9	39	52	0.0	100
2016	thousand m ³	6,620	27,068	37,898	109	71,695
	%	9	38	53	0.2	100
2017	thousand m ³	7,224	27,679	38,559	102	73,563
	%	10	38	52	0.1	100
2018	thousand m ³	6,980	26,063	38,604	99	71,747
	%	10	36	54	0.1	100
2019	thousand m ³	9,551	24,603	33,135	98	67,387
	%	14	37	49	0.1	100

* Water sprayed onto forest areas

Containers and Packaging

Volume of resources used in containers and packaging

	Unit	Japan Beer and Spirits Business	Japan Non-Alcoholic Beverages Business	Oceania Integrated Beverages Business	Pharmaceuticals Businesses	Other Businesses (all companies included)	Total
2015	thousand t	204	152	281	0.4	115	752
	%	27	20	37	0.05	15	100
2016	thousand t	208	45	391	0.2	114	759
	%	27	6	51	0.03	15	100
2017	thousand t	219	51	332	0.3	117	719
	%	30	7	46	0.03	16	100
2018	thousand t	179	51	281	0.2	115	626
	%	29	8	45	0.03	18	100
2019	thousand t	178	49	249	0.6	65	542
	%	33	9	46	0.1	12	100

Volume of resources used by container(Major companies in Japan)

(Unit: t)

		Aluminum cans	PET bottles	Glass bottles	Cartons	6-can packs
2015	Volume reduction	18,908	9,517	792	5,364	3,758
	Volumes used	70,648	58,917	32,280	109,234	15,522
2016	Volume reduction	18,795	11,326	960	6,078	3,564
	Volumes used	68,850	63,000	33,531	111,631	14,803
2017	Volume reduction	30,031	7,710	1,332	8,792	3,444
	Volumes used	66,915	60,561	31,276	102,693	14,499
2018	Volume reduction	19,226	12,218	870	5,798	3,629
	Volumes used	73,724	66,894	31,183	107,771	14,821
2019	Volume reduction	22,975	11,998	340	5,910	3,646
	Volumes used	77,912	67,747	27,844	109,526	16,716

* Reduction volumes are totals for Kirin Brewery and Kirin Beverage, use volumes are totals for Kirin Brewery, Kirin Beverage, and Mercian.

(Ref.) Trends in recycling rates of other containers in Japan

The Kirin Group pursues initiatives in cooperation with Japanese industry organizations involved in container recycling.

		2014	2015	2016	2017	2018	Target*
Aluminum cans	Weight of consumed (thousand t)	313	332	341	336	331	—
	Recycled weight (thousand t)	273	299	315	310	309	—
	Recycling rate (%)	87.4	90.1	92.4	92.5	93.6	≥90
Steel cans	Weight of consumed (thousand t)	571	486	463	451	439	—
	Recycled weight (thousand t)	525	451	435	422	404	—
	Recycling rate (%)	92.0	92.9	94.0	93.4	92.0	≥85
PET bottles	Sales volume of specified PET bottles (thousand t)	569	563	596	587	626	—
	Recycling volume in Japan (thousand t)	271	262	279	298	334	—
	Recycling volume outside Japan (thousand t)	199	227	221	201	195	—
	Recycling volume of used PET bottle (thousand t)	470	489	500	498	529	—
	Recycling rate (%)	82.6	86.9	83.9	84.8	84.6	≥85
Glass bottles	Melted weight (thousand t)	1,652	1,618	1,606	1,583	1,553	—
	Cullet usage volume (thousand t)	1,230	1,228	1,211	1,189	1,160	—
	Cullet usage rate (%)	74.4	75.9	75.4	75.1	74.7	≥90
	Recycling rate (%)	69.8	68.4	71.0	69.2	68.9	—

* Recycling target of 2nd Voluntary Action Plan


State of sale and collection of returnable glass bottles (Kirin Brewery)

	Sale volumes(million bottles)	Collected volume(million bottles)	Collection rate (%)
2015	248.7	247.1	99
2016	232.0	232.7	100
2017	224.6	227.8	101
2018	205.1	203.2	99
2019	182.6	182.3	100

* Total of major returnable bottles (large, medium, small bottles)

* Kirin Brewery is engaged in the re-use of beer bottles and commercial large draft kegs. With the diversification of containers, the volume of returnable bottles used has fallen, but the collection rate is 99%.Kirin Beverage also uses returnable bottles for Kirin Lemon and other products and has a collection rate of nearly 100%.

Climate Change

Actual results for Fiscal 2019 marked with  have received independent assurance by KPMG AZSA Sustainability Co., Ltd.in accordance with International Standard on Assurance Engagements (ISAE) 3000 and ISAE3410.

Trends in greenhouse gas emissions


■ Scope 1 (direct emissions) + Scope 2 (indirect emissions from energy use)

Trends in greenhouse gas emissions and emissions intensity (entire Group)

	Greenhouse gas emissions (thousand tCO ₂ e)		Greenhouse gas emissions intensity (per unit of sales) (tCO ₂ e/million yen)	
		(of which, CO ₂)	Japan standard	IFRS
2015	1,004	(1,002)	0.49	—
2016	1,012	(1,010)	0.52	0.55
2017	996	(995)	—	0.53
2018	986	(983)	—	0.51
2019	949	(948)	—	0.49


Trends in greenhouse gas emissions (by business)

(Unit: thousand tCO₂e)

	Japan Beer and Spirits Business	Japan Non-Alcoholic Beverages Business	Oceania Integrated Beverages Business	Pharmaceuticals Businesses	Other Businesses (all companies included)	Total 
2015	239	68	258	73	365	1,004
2016	233	70	251	65	393	1,012
2017	231	61	247	62	396	996
2018	232	59	235	55	405	986
2019	232	56	229	56	376	949

Trends in greenhouse gas emissions (by region)

(Unit: thousand tCO₂e)

	Japan	Oceania	Southeast Asia	Other	Total 
2015	597	258	32	116	1,004
2016	593	251	46	122	1,012
2017	581	247	50	119	996
2018	570	235	57	124	986
2019	520	229	76	124	949

Trends in greenhouse gas emissions and emission intensities from manufacturing plants

(a) Kirin Brewery

	Greenhouse gas emissions (thousand tCO ₂ e)	Greenhouse gas emissions intensity (kgCO ₂ e/kL)
2015	197	88
2016	194	89
2017	191	90
2018	195	85
2019	196	84

*Greenhouse gas emissions include the greenhouse gas emissions from sold electricity.

(b) Kirin Beverage

	Shonan Plant	
	Greenhouse gas emissions (thousand tCO ₂ e)	Greenhouse gas emissions intensity (kgCO ₂ e/kL)
2015	28	90
2016	31	77
2017	28	64
2018	27	60
2019	26	59

(c) Mercian

	Greenhouse gas emissions (thousand tCO ₂ e)
2015	26
2016	28
2017	29
2018	30
2019	25

Trends in energy usage (entire Group)


Energy usage by type	2015	2016	2017	2018	2019
Total usage (TJ)	12,426	12,803	12,972	13,081	12,630
Coal (t)	1,403	1,758	2,294	2,339	2,079
Gasoline (kL)	4,734	3,887	3,600	3,621	4,758
Kerosene (kL)	87	166	1,466	1,399	1,342
Diesel oil (kL)	11,399	12,242	13,790	12,611	14,965
Heavy fuel oil (kL)	10,544	11,674	12,475	14,006	9,430
LPG (t)	2,711	2,623	3,334	3,356	3,331
Town gas (thousand Nm ³)	108,465	111,648	110,950	112,987	96,747
LNG (t)	0	0	0	0	0
Purchased electricity (MWh)	780,123	818,925	811,123	811,507	777,626
Renewable electricity (MWh)	815	843	23,848	31,657	31,947
Purchased steam (TJ)	1,963	1,979	1,925	1,886	1,599
Other (TJ)	1,680	1,662	1,771	1,811	2,413

Breakdown and Trends in Greenhouse Gas Emissions

■ Scope 1 (direct emissions)


Trends in greenhouse gas emissions from fuel use (by business)

(Unit: thousand tCO₂e)

	Japan Beer and Spirits Business	Japan Non-Alcoholic Beverages Business	Oceania Integrated Beverages Business	Pharmaceuticals Businesses	Other Businesses (all companies included)	Total 
2015	158	45	82	19	87	391
2016	159	45	77	18	101	401
2017	164	44	74	21	103	405
2018	168	42	74	18	110	412
2019	169	40	72	20	108	411

Trends in greenhouse gas emissions from fuel use (by region)

(Unit: thousand tCO₂e)

	Japan	Oceania	Southeast Asia	Other	Total 
2015	254	82	17	37	391
2016	259	77	18	47	401
2017	266	74	21	44	405
2018	271	74	21	46	412
2019	264	72	26	48	411


Breakdown of greenhouse gas emissions in Scope 1(2019)

(Unit: thousand tCO₂e)


CO ₂	CH ₄	N ₂ O	HFCs	PFCs	SF ₆
410	0.4	<0.1	0	0	0

■ Scope 2 (indirect emissions from energy use)

Trends in greenhouse gas emissions from electricity and steam purchases (by business) (Unit: thousand tCO₂e)

	Japan Beer and Spirits Business	Japan Non-Alcoholic Beverages Business	Oceania Integrated Beverages Business	Pharmaceuticals Businesses	Other Businesses (all companies included)	Total 
2015	81	23	176	54	279	613
2016	74	26	174	46	292	611
2017	67	17	173	41	293	591
2018	64	17	161	37	295	574
2019	62	16	157	35	268	538

Trends in greenhouse gas emissions from electricity and steam purchases (by region) (Unit: thousand tCO₂e)

	Japan	Oceania	Southeast Asia	Other	Total 
2015	342	176	15	79	613
2016	334	174	28	75	611
2017	315	173	28	75	591
2018	299	161	36	79	574
2019	256	157	50	76	538

■ Scope3 (other indirect emissions)

Trends in CO₂ emissions by other parties related to business activities (by business)

See P. 91 for calculation boundaries

(Unit: thousand tCO₂)

	Japan Beer and Spirits Business	Japan Non-Alcoholic Beverages Business	Oceania Integrated Beverages Business	Pharmaceuticals Businesses	Other Businesses (all companies included)	Total
2015	1,553	1,037	1,314	16	642	4,561
2016	1,521	1,099	800	14	767	4,200
2017	1,413	1,060	1,083	15	793	4,364
2018	1,483	1,060	761	14	845	4,163
2019	1,569	1,095	712	13	852	4,241

Trends in CO₂ emissions by other parties related to business activities (by region)

See P. 91 for calculation boundaries

(Unit: thousand tCO₂)

	Japan	Oceania	Southeast Asia	Other	Total
2015	3,209	1,314	0	39	4,561
2016	3,244	800	112	44	4,200
2017	3,081	1,083	152	47	4,364
2018	3,145	761	209	48	4,163
2019	3,201	712	284	44	4,241

Trends in CO₂ emissions* accompanying transportation volumes and distances (Japan)

		Kirin Brewery	Kirin Beverage	Mercian	Total
2014	Transport volumes (thousand ton kilometer)	589,483	706,443	99,654	1,395,580
	CO ₂ emissions (thousand tons-CO ₂)	49	60	7	116
2015	Transport volumes (thousand ton kilometer)	604,865	791,106	85,488	1,481,459
	CO ₂ emissions (thousand tons-CO ₂)	51	66	8	125
2016	Transport volumes (thousand ton kilometer)	641,171	830,808	87,036	1,559,015
	CO ₂ emissions (thousand tons-CO ₂)	52	71	8	131
2017	Transport volumes (thousand ton kilometer)	735,996	822,256	87,904	1,646,156
	CO ₂ emissions (thousand tons-CO ₂)	55	68	8	131
2018	Transport volumes (thousand ton kilometer)	823,267	906,144	94,212	1,823,623
	CO ₂ emissions (thousand tons-CO ₂)	62	84	8	155

* Tally period is April to March of following year for each year. Calculated within the reporting scope of specified consigners, in line with the calculation standards of the Act on Rationalizing Energy Use.

Independent Assurance

The Kirin Group has been receiving independent assurances to ensure the reliability and transparency of information disclosed.

The Kirin Group has engaged an independent third party to provide assurance on the 2019 CO₂ emissions in Scope 1 and 2 from the entire Kirin Group and those in Scope 3 from Kirin Brewery, Kirin Beverage, Mercian and Koiwai Dairy Products. The independent assurance report is shown on (P.111).

Calculation results of Scopes 1 and 2 for the entire Kirin Group*1 (2019) ✓ (Unit:tCO₂e/year)

Scope1	Scope2
410,875	537,858

Calculation results of Scope 3 for Kirin Brewery, Kirin Beverage, Mercian and Koiwai Dairy Products (2019) ✓ (Unit:tCO₂/year)

Upstream/ Downstream	Scope3 Categories	Calculation results	Remarks
Upstream	1 Products and services purchased	1,694,074	Calculated by multiplying the purchased volume of raw materials, etc. by the CO ₂ emission factors for producing each type of raw material, etc.
	2 Capital goods	-	Not calculated
	3 Fuel and energy-related activities not included in Scopes 1 and 2	42,485	Calculated by multiplying the purchased volume of fuel or electricity by CO ₂ emissions factors for each energy type
	4 Transportation and delivery (upstream)	325,223	Calculated by multiplying the shipping volume of products as shipper and the purchased volume of raw materials, etc. by the distance of transportation and then by the CO ₂ emission factors for each transportation method (the amount of CO ₂ emissions based on shipping volume of products as shipper is calculated using FY2018 data)
	5 Waste from operations	6,781	Calculated by multiplying the amount of waste discharged, etc. by the CO ₂ emission factors for each disposal method
	6 Business travel	1,876	Calculated by multiplying the number of employees by the annual average distance of transportation and then by the CO ₂ emission factors for each means of transportation
	7 Employee commuting	5,331	Calculated by multiplying the number of employees by the annual average distance of transportation and then by the CO ₂ emission factors for each means of transportation
	8 Leased assets (upstream)	-	Included in Scopes 1 and 2
Downstream	9 Transportation and delivery (downstream)	794,006	Customer: Calculated by multiplying the product sales volume by the CO ₂ emission factors for selling products for each sales method Vending machines: Calculated by multiplying the estimated power consumption of vending machines in operation by the CO ₂ emission factor for electricity
	10 Processing of sold products	-	Not applicable
	11 Use of sold products	34,826	Calculated by multiplying the product sales volume by the estimated power consumption per product unit amount in homes, etc. and by the CO ₂ emission factors for electricity. From 2019, the amount of CO ₂ injected into products is considered as the amount of CO ₂ released to the atmosphere. The amount is calculated based on the products specifications.
	12 Disposal of sold products	57,911	Calculated by multiplying the amount of containers and packaging disposed by the CO ₂ emission factors for each type of container and packaging
	13 Leased assets (downstream)	-	Not applicable
	14 Franchises	-	Not applicable
	15 Investments	-	Not applicable
Total		2,962,514	

Progress toward Mid-Term Greenhouse Gas Emission Reduction Targets Through SBTs*2 (2019)

See P. 91 for calculation boundaries

(Unit:tCO₂e)

■ Scope1+2

Scope1+Scope2		Total
		881,943
Scope1+Scope2	Scope1	368,169
	Scope2	513,774
Reduction rate (compared to 2015 base year)		-8.5%

■ Scope3

Scope3		Total
		3,982,794
Upstream	1 Products and services purchased	2,306,915
	2 Capital goods	-
	3 Fuel and energy-related activities not included in Scopes 1 and 2	131,069
	4 Transportation and delivery (upstream)	405,309
	5 Waste from operations	32,549
	6 Business travel	9,406
	7 Employee commuting	14,207
	8 Leased assets (upstream)	-
Downstream	9 Transportation and delivery (downstream)	929,111
	10 Processing of sold products	-
	11 Use of sold products	44,635
	12 Disposal of sold products	109,592
	13 Leased assets (downstream)	-
	14 Franchises	-
	15 Investments	-
Reduction rate (compared to 2015 base year)		-12.7%

*1 Methods of calculating Scope 1 and 2 emissions

- Fuel: Lion calculates emissions according to the calculation standards set by the Australian and New Zealand governments.
- All other manufacturing sites calculate emissions according to the calculation standards in Japan's Act on Promotion of Global Warming Countermeasures and Act on Rationalizing Energy Use.
- Electricity: Calculated by multiplying the amount of purchased electricity by the CO₂ emission factors published by the individual power companies (or, if there are no published figures, by the country-specific emission factor published by the IEA).
- Greenhouse gas emissions include the greenhouse gas emissions from sold electricity.

*2 GHG reduction targets for the total of Scope 1 and Scope 2 emissions, and Scope 3 emissions, by 30% compared with those of 2015 by the end of 2030.

Trends in biogas electricity and biogas generated at Kirin Brewery plans

	Biogas electricity generated (Unit: million kWh)	Biogas generated (Unit: thousand Nm ³)
2015	20.5	8,967
2016	21.2	8,593
2017	19.2	8,115
2018	18.6	8,689
2019	21.9	9,009

Breakdown of purchased electricity (Kirin Brewery plants)

(Unit:thousand kWh)

		2018	2019
Purchased electricity	Renewable energy(hydroelectric power)	20,627	20,269
	Non-renewable energy	112,835	117,569
	Total	133,462	137,839
Renewable energy/purchased electricity (%)		15%	15%

Breakdown of electricity usage (entire Group)

(Unit:thousand kWh)

			2018	2019
Purchased electricity	Renewable energy	Hydro-electric power	30,813	30,480
		Wind power	502	499
		Total	31,315	30,979
	Non-renewable energy		780,694	777,626
Private power generated	Biogas-generated electricity		19,099	22,291
	Solar-generated electricity		342	968
	Other than renewable energy		165,746	160,790
Electricity usage			997,197	992,654
Of which, renewable energy (excluding energy mix)			50,757	54,238

Trend in annual electricity consumption per one can and bottle vending machine shipped

	Annual electricity consumption (Unit: kWh/year)
2015	708
2016	724
2017	712
2018	702
2019	704

Source: Japan Vending Machine Manufacturers Association



Reduction of waste and prevention of pollution

Volume of waste generated (2019)

(Unit: thousand tons. Figures in brackets: %)

Japan Beer and Spirits Business	Japan Non-Alcoholic Beverages Business	Oceania Integrated Beverages Business	Pharmaceuticals Businesses	Other Businesses (all companies included)	Total
198 (42)	17 (4)	148 (31)	2 (0.4)	106 (22)	470 (100)

Trends in volume of waste generated and recycling rates (Japan)

	Volume of waste generated (thousand t)	Volume disposed on site (thousand t)	Volume of recycled waste (thousand t)	Final disposed volume (thousand t)	recycling rates (%)
2015	228	14	213	0.5	99.8
2016	237	17	219	0.4	99.8
2017	243	24	219	0.6	99.7
2018	346	12	333	0.7	99.8
2019	230	2	227	0.6	99.8

Wastewater quality

	COD (t)			Nitrogen (t)			Phosphorous (t)		
	Japan	Overseas	Total	Japan	Overseas	Total	Japan	Overseas	Total
2018	742	3,127	3,869	344	826	1,169	45	220	264
2019	735	3,682	4,417	315	754	1,069	47	265	312
Y/Y change	-7	555	548	-28	-72	-100	2	45	48

Trend in emissions of air pollutants

Trends in emissions of NOx and SOx (entire Group)

(Unit:t)

	NOx	SOx
2015	271	71
2016	442	64
2017	431	95
2018	436	19
2019	425	15

Trends in emissions of VOCs (Kyowa Kirin Group, Kyowa Hakko Bio Group)

(Unit:t)

	Methanol	Acetone	Substances subject to PRTR Act	Ethyl acetate, etc.	Total
2015	376	32	57	105	570
2016	324	21	55	88	488
2017	417	21	62	97	596
2018	308	13	57	103	481
2019	183	8	49	74	314

Soil Investigations Status (2019)

Number of investigations	Area of investigations (m ²)
5	116,835

Targets regarding chemical substances

Kyowa Kirin Group
50% reduction of VOC emissions in 2020 compared to FY2003 levels

Status of PCB management (2019)

High-concentration capacitors, reactors, etc.	Trace-quantity capacitor reactors, etc.	High-concentration stabilizers	Trace-quantity stabilizers
0	26	16	69

Status of asbestos management (2019)

Number of buildings	Area (m ²)
4 buildings	2,590

Status of HCFC management (2019)

Number of offices	Weight (kg)
13 locations	25,345

Status of HFC management (2019)

Number of offices	Weight (kg)
6 locations	14,921

Status of Environmental Management Certifications

Status as of July 2020

Japan

Number of independently certified business locations	7
Number of business locations making self-declaration of conformity	21
Number of uncertified business locations	2
Certification rate (%)	93

Overseas

Number of certified business locations	30
Number of uncertified business locations	7
Certification rate (%)	81

Other information disclosure

Disclosure of environmental information through products

Label name	Nature of disclosure
Eco-Rail	In 2006, Kirin Beverage, and in 2010, Kirin Brewery were selected as "Eco-Rail" mark-certified companies by the Ministry of Land, Infrastructure, Transport and Tourism for proactively tackling global environmental issues with the use of rail freight transport.
Carbon Footprint	Kirin Brewery launched Carbon Footprint initiatives together with the beer industry in 2008. The Product Category Rule (PCR), which is the rule for the calculation of beer categories, was certified in February 2011 and revised in December 2013.
Rainforest Alliance Certification Label	The gable-top paper drink box for Kirin Gogo-no-Kocha displays a Rainforest Alliance certification label since it was placed on the 500 ml paper drink box for Kirin Gogo-no-Kocha Straight Tea in March 2015.
FSC Certification Label	Kirin Brewery and Kirin Beverage (including Tropicana) display the FSC certification label on many of their paper containers to encourage understanding among consumers about the importance of protecting the forests. Mercian displays the label on some of its paper containers.
Organic Wine	Mercian sells organic wines certified by Euro Leaf, ECOCERT, BIODYVIN, bioagricert, SOHISCERT and so on.



GRI Contents Index

This report uses the following disclosure matters of the GRI Standard 2016 as reference.

GRI Contents Index Standard	Disclosure matters	Page number or URL
General Disclosures		
GRI 102: General Disclosures 2016	102-1 Name of the organization	P.5
	102-2 Activities, brands, products, and services	P.5 https://www.kirinholdings.co.jp/english/company/business/
	102-3 Location of headquarters	P.5
	102-4 Location of operations	P.5 https://www.kirinholdings.co.jp/english/company/overview/
	102-5 Ownership and legal form	P.5
	102-6 Markets served	P.5 https://www.kirinholdings.co.jp/english/ir/finance/segment.html
	102-7 Scale of the organization	P.5 ESG Data Profile(https://www.kirinholdings.co.jp/english/csv/esg_gri/) https://www.kirinholdings.co.jp/english/company/overview/
	102-8 Information on employees and other workers	P.5 ESG Data Profile, Employees(https://www.kirinholdings.co.jp/english/csv/esg_gri/)
	102-9 Supply chain	P.26, 36, 44, 60, 80 https://www.kirinholdings.co.jp/english/csv/procurement/
	102-10 Significant changes to the organization and its supply chain	KIRIN CSV REPORT 2020 p.67 ESG Data Notes (https://www.kirinholdings.co.jp/english/csv/esg_gri/)
	102-11 Precautionary Principle or approach	P.10, 87-89 Kirin Group's Environmental Policy (https://www.kirinholdings.co.jp/english/csv/env/policies/vision.html)
	102-12 External initiatives	P.84-85 https://www.kirinholdings.co.jp/english/csv/sustainability/gc.html https://www.kirinholdings.co.jp/english/csv/human_resources/promote.html

GRI Contents Index Standard	Disclosure matters	Page number or URL
GRI 102: General Disclosures 2016	102-13 Membership of associations	P.84-85
	102-14 Statement from senior decision-maker	P.4, 6 https://www.kirinholdings.co.jp/english/csv/purpose/story.html
	102-15 Key impacts, risks, and opportunities	P.9, 18, 13-17, 22, 25, 27, 37, 41, 76 https://www.kirinholdings.co.jp/english/ir/policy/risks.html https://www.kirinholdings.co.jp/english/csv/materiality/
	102-16 Values, principles, standards, and norms of behavior	P.4, 75, 78, 80 https://www.kirinholdings.co.jp/english/company/philosophy/ https://www.kirinholdings.co.jp/english/csv/procurement/ https://www.kirinholdings.co.jp/english/ir/governance/compliance.html https://www.kirinholdings.co.jp/english/csv/env/policies/vision.html
	102-18 Governance structure	P.75-78 https://www.kirinholdings.co.jp/english/ir/governance/management.html ESG Data Governance (https://www.kirinholdings.co.jp/english/csv/env/policies/vision.html)
	102-19 Delegating authority	P.75, 78
	102-20 Executive-level responsibility for economic, environmental, and social topics	P.75, 78
	102-21 Consulting stakeholders on economic, environmental, and social topics	P.83 https://www.kirinholdings.co.jp/english/ir/governance/governance.html https://www.kirinholdings.co.jp/english/csv/sustainability/stakeholder.html https://www.kirinholdings.co.jp/english/ir/library/
	102-26 Role of highest governance body in setting purpose, values, and strategy	P.75, 78 System to Promote CSV (https://www.kirinholdings.co.jp/english/csv/sustainability/promotion_csv.html) Policy and structure (environment) (https://www.kirinholdings.co.jp/english/csv/env/policies/vision.html)

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GRI Contents Index Standard	Disclosure matters	Page number or URL
GRI 102: General Disclosures 2016	102-27 Collective knowledge of highest governance body	System to Promote CSV (https://www.kirinholdings.co.jp/english/csv/sustainability/promotion_csv.html)
	102-29 Identifying and managing economic, environmental, and social impacts	P.75, 76, 77, 9 System to Promote CSV (https://www.kirinholdings.co.jp/english/csv/sustainability/promotion_csv.html) Cooperation with Stakeholders (https://www.kirinholdings.co.jp/english/csv/sustainability/stakeholder.html) Policy and structure (environment) (https://www.kirinholdings.co.jp/english/csv/env/policies/vision.html)
	102-30 Effectiveness of risk management processes	P.76, 77, 9 System to Promote CSV (https://www.kirinholdings.co.jp/english/csv/sustainability/promotion_csv.html) Policy and structure (environment) (https://www.kirinholdings.co.jp/english/csv/env/policies/vision.html)
	102-31 Review of economic, environmental, and social topics	P.75, 76, 77, 9 System to Promote CSV (https://www.kirinholdings.co.jp/english/csv/sustainability/promotion_csv.html)
	102-32 Highest governance body's role in sustainability reporting	The Kirin Group's Environmental Vision 2050 has been approved by the Board of Kirin Holdings. The overall content of the Kirin Group Environmental Report is supervised by the Senior Executive Officer (in charge of CSV strategy, Group general environmental manager) of Kirin Holdings Company, Limited. System to Promote CSV (https://www.kirinholdings.co.jp/english/csv/sustainability/promotion_csv.html) Policy and structure (environment) (https://www.kirinholdings.co.jp/english/csv/env/policies/vision.html)
	102-40 List of stakeholder groups	P.82-85 https://www.kirinholdings.co.jp/english/csv/sustainability/stakeholder.html
	102-41 Collective bargaining agreements	ESG data Employee (https://www.kirinholdings.co.jp/english/csv/esg_gri/)
	102-42 Identifying and selecting stakeholders	P.82-85 https://www.kirinholdings.co.jp/english/csv/sustainability/stakeholder.html
	102-43 Approach to stakeholder engagement	P.82-85 https://www.kirinholdings.co.jp/english/csv/sustainability/stakeholder.html https://www.kirinholdings.co.jp/english/csv/commitment/ https://www.kirinholdings.co.jp/english/csv/alcohol/policies.html https://www.kirinholdings.co.jp/english/csv/human_rights/policies.html

GRI Contents Index Standard	Disclosure matters	Page number or URL
GRI 102: General Disclosures 2016	102-44 Key topics and concerns raised	P.82-83 https://www.kirinholdings.co.jp/english/csv/sustainability/stakeholder.html https://www.kirinholdings.co.jp/english/csv/human_rights/policies.html
	102-45 Entities included in the consolidated financial statements	P.3 https://www.kirinholdings.co.jp/english/company/organization/index.html
	102-46 Defining report content and topic Boundaries	P.8-11, 18, 19, 20 Our CSV Commitment (https://www.kirinholdings.co.jp/english/csv/commitment/) Management Issues for Sustainable Growth (Group Materiality Matrix) (https://www.kirinholdings.co.jp/english/csv/materiality/)
	102-47 List of material topics	P.8-11, 18, 19, 20 Our CSV Commitment (https://www.kirinholdings.co.jp/english/csv/commitment/) Management Issues for Sustainable Growth (Group Materiality Matrix) (https://www.kirinholdings.co.jp/english/csv/materiality/)
	102-48 Restatements of information	No corrections to the previous year's report. See page 91 for changes in the calculation boundaries due to business divestitures.
	102-49 Changes in reporting	P.83 ESG Data Notes (https://www.kirinholdings.co.jp/english/csv/esg_gri/)
	102-50 Reporting period	P.3
	102-51 Date of most recent report	July 2019
	102-52 Reporting cycle	Year
	102-53 Contact point for questions regarding the report	Back cover
	102-54 Claims of reporting in accordance with the GRI Standards	P.3
	102-55 GRI content index	P.104-107 https://www.kirinholdings.co.jp/english/csv/esg_gri/

GRI Contents Index Standard	Disclosure matters	Page number or URL
GRI 102: General Disclosures 2016	102-56 External assurance	P.111
Material topics		
Biological Resources		
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	P.8-9, 12-17, 18, 19, 26
	103-2 The management approach and its components	P.10-11, 12, 18-21, 28-35
	103-3 Evaluation of the management approach	P.16, 22, 25, 27
GRI 304: Biodiversity 2016	304-2 Significant impacts of activities, products, and services on biodiversity	P.28-35, 47
	304-3 Habitats protected or restored	P.28, 30, 31, 34, 35,
	304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations	P.30, 34, 35
Water Resources		
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	P.8-9, 12-17, 18, 19, 36
	103-2 The management approach and its components	P.10-11, 12, 18-21, 38-42
	103-3 Evaluation of the management approach	P.16-17, 22, 25, 37
GRI 303: Water and Effluents 2018	303-1 Interactions with water as a shared resource	P.36, 37, 38-39, 41, 42
	303-2 Management of water discharge related impacts	P.36, 37, 39, 40

GRI Contents Index Standard	Disclosure matters	Page number or URL
GRI 303: Water and Effluents 2018	303-3 Water withdrawal	P.90, 92, 93, 94
	303-4 Water discharge	P.90, 92, 93, 95, 101
	303-5 Water consumption	P.37, 41, 43, 90, 92, 93, 94-95
Containers and Packaging		
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	P.8-9, 15, 18, 19, 44
	103-2 The management approach and its components	P.10-11, 12, 18-21, 46-57, 88, 89
	103-3 Evaluation of the management approach	P.16-17, 22, 25, 45
GRI 301: Materials 2016	301-1 Materials used by weight or volume	P.93, 95, 45
	301-2 Recycled input materials used	P.46, 52-53, 58-59, 95-96
	301-3 Reclaimed products and their packaging materials	P.54, 58-59, 96
Climate Change		
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	P.8-9, 12-17, 18, 19, 60
	103-2 The management approach and its components	P.10-11, 12, 18-21, 62-71
	103-3 Evaluation of the management approach	P.16-17, 22, 25, 61
GRI 201 : Economic Performance 2016	201-2 Financial implications and other risks and opportunities due to climate change	P.12-19

GRI Contents Index Standard	Disclosure matters	Page number or URL
GRI 302: Energy 2016	302-1 Energy consumption within the organization	P.72, 73, 90, 93, 97, 22
	302-2 Energy consumption outside of the organization	P.100
	302-4 Reduction of energy consumption	P.93, 97, 100
	302-5 Reductions in energy requirements of products and services	P.100
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	P.72, 90-91, 97, 98, 99
	305-2 Energy indirect (Scope 2) GHG emissions	P.72 , 90-91, 98, 99,
	305-3 Other indirect (Scope 3) GHG emissions	P.61, 72, 90-91, 98, 99
	305-4 GHG emissions intensity	P.73, 96, 97
	305-5 Reduction of GHG emissions	P.61, 65-66, 69, 99
	305-6 Emissions of ozone-depleting substances (ODS)	P.101
	305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	P.79, 93, 101, 102
Waste and prevention of pollution		
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	P.8-9, 10, 15, 20, 18, 19, 26, 44, 79
	103-2 The management approach and its components	P.10-11, 18-21, 30, 46-57, 79, 88, 89

GRI Contents Index Standard	Disclosure matters	Page number or URL
GRI 103: Management Approach 2016	103-3 Evaluation of the management approach	P.16, 22, 25, 27, 45, 101-102
GRI 306: Waste 2020	306-1 Waste generation and significant waste-related impacts	P.26, 30, 44, 79
	306-2 Management of significant waste-related impacts	P.30, 45, 79
	306-3 Waste generated	P.93, 101, 103
	306-4 Waste diverted from disposal	P.57, 59, 93, 96, 101-102
	306-5 Waste directed to disposal	P.93, 101-102
GRI 307: Environmental Compliance 2016	307-1 Non-compliance with environmental laws and regulations	No legal violations in the year
Supply chain		
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	P.10, 20, 26, 36, 44, 60
	103-2 The management approach and its components	P.20, 21, 80, 82
	103-3 Evaluation of the management approach	P.23
GRI 308: Supplier Environmental Assessment 2016	308-2 Negative environmental impacts in the supply chain and actions taken	P.16-18, 27, 29-35, 37, 41-42, 45, 46-51, 53, 61, 62, 65-66

TCFD Recommendations' Recommended Disclosure Index

	Recommended Disclosure	Page
Governance	a) Describe the board's oversight of climate-related risks and opportunities.	P.12, 75, 77
	b) Describe management's role in assessing and managing climate-related risks and opportunities.	P.12, 75, 77
Strategy	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	P.12-15, 18
	b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	P.12-18
	c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2° C or lower scenario.	P.10, 12-19
Risk Management	a) Describe the organization's processes for identifying and assessing climate-related risks.	P.12, 76
	b) Describe the organization's processes for managing climate-related risks.	P.12, 76-78
	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	P.12, 76-78
Metrics and Targets	a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	P.12, 20-21, 61
	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	P.61, 72-73, 96-99
	c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	P.10, 12, 20-22, 25, 61, 72-73, 99

CDSB framework

Reporting requirements		Page
REQ-01	Governance	P.4, 6, 12, 75-78
REQ-02	Management's environmental policies, strategy and targets	P.7, 9-22, 26, 36, 41, 44, 60, 82-85
REQ-03	Risks and opportunities	P.12-19
REQ-04	Sources of environmental impacts	P.26-35, 43, 58-59, 72-73, 90-102
REQ-05	Performance and comparative analysis	P.22, 25, 27, 37, 45, 61
REQ-06	Outlook	P.4, 6
REQ-07	Organisational boundary	P.3, 90-92
REQ-08	Reporting policies	P.3, 90-92, 104-110 The reporting provisions are consistent with those of the previous year.
REQ-09	Reporting period	P.3
REQ-10	Restatements	No corrections to the previous year's report. See page 91 for changes in the calculation boundaries due to business divestitures.
REQ-11	Conformance	P.3, 9, 108
REQ-12	Assurance	There is no third-party assurance concerning conformance with the CDSB framework. Third-party assurance has been obtained for some GHG emissions. (P.96-99, 111)

SASB Content Index

Food & Beverage sector/ Alcoholic beverages industry October 2018 version

Sustainability Disclosure Topics & Accounting Metrics

Topics	Accounting Metrics	Disclosure
Energy Management	(1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable* ^a	P.93, P.97
Water Management	(1) Total water withdrawn, (2) total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress* ^b	P.37, P.41, P.43, P.94-95
	Description of water management risks and discussion of strategies and practices to mitigate those risks	P.10-11, P.13-19, P.36-43
Responsible Drinking & Marketing	Percentage of total advertising impressions made on individuals at or above the legal drinking age* ^c	
	Number of incidents of non-compliance with industry or regulatory labeling and/or marketing codes* ^d	ESG Data (Social, Customer) (https://www.kirinholdings.co.jp/english/csv/esg_gri/)
	Total amount of monetary losses as a result of legal proceedings associated with marketing and/or labeling practices* ^e	ESG Data (Social, Customer) (https://www.kirinholdings.co.jp/english/csv/esg_gri/)
	Description of efforts to promote responsible consumption of alcohol	A Responsible Alcohol Producer (Our CSV Commitment) (https://www.kirinholdings.co.jp/english/csv/commitment/) A Responsible Alcohol Producer (Policy and System) (https://www.kirinholdings.co.jp/english/csv/alcohol/policies.html)
Packaging Lifecycle Management	(1) Total weight of packaging, (2) percentage made from recycled and/or renewable materials, and (3) percentage that is recyclable, reusable, and/or compostable* ^f	P.22, P.53, P.57-59, P.95-96
	Discussion of strategies to reduce the environmental impact of packaging throughout its lifecycle	P.10-11, P.14-15, P.18-19, P.44-59
Environmental & Social Impacts of Ingredient Supply Chain	Suppliers' social and environmental responsibility audit (1) non-conformance rate and (2) associated corrective action rate for (a) major and (b) minor non-conformances* ^g	Efforts to promote CSR procurement (https://www.kirinholdings.co.jp/english/csv/procurement/promotion.html) ESG Data (Social, Supplier) (https://www.kirinholdings.co.jp/english/csv/esg_gri/)
Ingredient Sourcing	Percentage of beverage ingredients sourced from regions with High or Extremely High Baseline Water Stress* ^h	P.13-14, P.41
	List of priority beverage ingredients and description of sourcing risks due to environmental and social considerations	P.13-14, P.16-19, P.26-28, P.31-35, P.38, P.41-42

Activity Metrics

Activity Metrics	Disclosure
Volume of products sold* ⁱ	P.93
Number of production facilities* ^j	Group Companies (https://www.kirinholdings.co.jp/english/company/organization/) P.41
Total fleet road miles traveled* ^k	P.98

*a Percentage of grid electricity and renewable energy can be estimated from the amount of energy consumed.

*b Total water consumed can be estimated based on (water consumed - wastewater volume). Although data on water stress by country is disclosed, the percentage of regions with high baseline water stress to total water withdrawn and total water consumed is not disclosed.

*c Not disclosed.

*d Only the information on alcoholic beverages is disclosed.

*e Monetary losses are not disclosed. In addition, for some cases of violation of laws concerning alcoholic beverages, a reference URL is provided in the notes.

*f The content ratio of recycled materials is disclosed in some containers.

*g The self-assessment rate of suppliers is disclosed, but the rate of non-conformance is not disclosed. In the event of a non-conformance, a correction request is made.

*h Although the percentage is not disclosed, water consumption by raw material and by country is disclosed. The results of scenario analyses, including those on the water risk of agricultural products, which are important sources for beverages, are disclosed.

*i Volume of products sold is not disclosed, but volume of products manufactured is disclosed.

*j Number of major production facilities is disclosed.

*k While the total distance traveled is not disclosed, freight transport volume (= freight weight x distance of transport) within the reporting boundaries of specified consignors in the Act on Rationalizing Energy Use is disclosed only for Japan.



Sustainability Disclosure Topics & Accounting Metrics

Topics	Accounting Metrics	Code	Disclosure
Fleet Fuel Management	Fleet fuel consumed, percentage renewable*a	FB-NB-110a.1	P.97, P.98
Energy Management	(1) Operational energy consumed, (2)percentage grid electricity, (3) percentage renewable*b	FB-NB-130a.1	P.68, P.93, P.97
Water Management	(1) Total water withdrawn, (2) total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress*c	FB-NB-140a.1	P.37, P.41, P.43, P.94-95
	Description of water management risks and discussion of strategies and practices to mitigate those risks	FB-NB-140a.2	P.10-11, P.13-19, P.36-43
Health & Nutrition	Revenue from (1) zero- and low-calorie, (2) noadded- sugar, and (3) artificially sweetened beverages*d	FB-NB-260a.1	ESG Data (Social, Customer) (https://www.kirinholdings.co.jp/english/csv/esg_gri/)
	Discussion of the process to identify and manage products and ingredients related to nutritional and health concerns among consumers*e	FB-NB-260a.2	Our CSV Commitment (Supporting self-care for healthy people and people with pre-disease) (https://www.kirinholdings.co.jp/english/csv/commitment/)
Product Labeling & Marketing	Percentage of advertising impressions (1) made on children and (2) made on children promoting products that meet dietary guidelines*f	FB-NB-270a.1	
	Revenue from products labeled as (1) containing genetically modified organisms (GMOs) and (2) non-GMO*g	FB-NB-270a.2	
	Number of incidents of non-compliance with industry or regulatory labeling and/or marketing codes*h	FB-NB-270a.3	ESG Data (Social, Customer) (https://www.kirinholdings.co.jp/english/csv/esg_gri/)
	Total amount of monetary losses as a result of legal proceedings associated with marketing and/or labeling practices*i	FB-NB-270a.4	ESG Data (Social, Customer) (https://www.kirinholdings.co.jp/english/csv/esg_gri/)
Packaging Lifecycle Management	(1) Total weight of packaging, (2) percentage made from recycled and/or renewable materials, and (3) percentage that is recyclable, reusable, and/or compostable*j	FB-AB-410a.1	P.22, P.53, P.57-59, P.95-96
	Discussion of strategies to reduce the environmental impact of packaging throughout its lifecycle	FB-AB-410a.2	P.10-11, P.14-15, P.18-19, P.44-59
Environmental & Social Impacts of Ingredient Supply Chain	Suppliers' social and environmental responsibility audit (1) non-conformance rate and (2) associated corrective action rate for (a) major and (b) minor non-conformances*k	FB-NB-430a.1	Efforts to promote CSR procurement (https://www.kirinholdings.co.jp/english/csv/procurement/promotion.html) ESG Data (Social, Supplier) (https://www.kirinholdings.co.jp/english/csv/esg_gri/)
Ingredient Sourcing	Percentage of beverage ingredients sourced from regions with High or Extremely High Baseline Water Stress*l	FB-NB-440a.1	P.13-14, P.41
	List of priority beverage ingredients and description of sourcing risks due to environmental and social considerations	FB-NB-440a.2	P.13-14, P.16-19, P.26-28, P.31-35, P.38, P.41-42

Activity Metrics

Activity Metrics	Code	Disclosure
Volume of products sold*m	FB-NB-000.A	P.93
Number of production facilities*n	FB-NB-000.B	Group Companies (https://www.kirinholdings.co.jp/english/company/organization/) P.41
Total fleet road miles traveled*o	FB-NB-000.C	P.98

*a Fuel consumed by energy type and CO2 emissions from transportation as a shipper are disclosed, but fleet fuel consumed is not disclosed.
 *b Total energy consumption by energy type and GHG emissions from plants are disclosed, but operational energy consumed is not disclosed. The data of some plants, the amount of purchased electricity, and the amount of renewable electricity are disclosed.
 *c Total water consumed can be estimated based on (water consumed - wastewater volume). Although data on water stress by country is disclosed, the percentage of regions with high baseline water stress to total water withdrawn and total water consumed is not disclosed.
 *d Revenues from no-added sugar beverages are not disclosed, but revenues from low-sugar and low-fat products are disclosed. Revenue from artificially sweetened beverages is not disclosed.
 *e Commitment is disclosed, but no specific management process is disclosed.
 *f Not disclosed.
 *g Not disclosed.
 *h Only the information on alcoholic beverages is disclosed.

*i Monetary losses are not disclosed. In addition, for some cases of violation of laws concerning alcoholic beverages, a reference URL is provided in the notes.
 *j The self-assessment rate of suppliers is disclosed, but the rate of non-conformance is not disclosed. In the event of a non-conformance, a correction request is made.
 *k Although the percentage is not disclosed, water consumption by raw material and by country is disclosed. The results of scenario analyses, including those on the water risk of agricultural products, which are important sources for beverages, are disclosed.
 *l Volume of products sold is not disclosed, but volume of products manufactured is disclosed.
 *m Number of major production facilities is disclosed.
 *n While the total distance traveled is not disclosed, freight transport volume (= freight weight x distance of transport) within the reporting boundaries of specified consignors in the Act on Rationalizing Energy Use is disclosed only for Japan.

Independent Assurance Report



Independent Assurance Report

To the President and CEO of Kirin Holdings Company, Limited

We were engaged by Kirin Holdings Company, Limited (the "Company") to undertake a limited assurance engagement of the CO₂ emissions in Scopes 1 and 2 from the entire Kirin Group and those in Scope 3 from Kirin Brewery Company, Limited, Kirin Beverage Company, Limited, Mercian Corporation and Koikai Dairy Products Company, Limited with  for the period from January 1, 2019 to December 31, 2019 (the "Indicators") included in its Kirin Group Environmental Report 2020 (the "Report") for the fiscal year ended December 31, 2019.

The Company's Responsibility

The Company is responsible for the preparation of the Indicators in accordance with its own reporting criteria (the "Company's reporting criteria"), as described in the Report.

Our Responsibility

Our responsibility is to express a limited assurance conclusion on the Indicators based on the procedures we have performed. We conducted our engagement in accordance with the 'International Standard on Assurance Engagements (ISAE) 3000, Assurance Engagements other than Audits or Reviews of Historical Financial Information' and the 'ISAE 3410, Assurance Engagements on Greenhouse Gas Statements' issued by the International Auditing and Assurance Standards Board. The limited assurance engagement consisted of making inquiries, primarily of persons responsible for the preparation of information presented in the Report, and applying analytical and other procedures, and the procedures performed vary in nature from, and are less in extent than for, a reasonable assurance engagement. The level of assurance provided is thus not as high as that provided by a reasonable assurance engagement. Our assurance procedures included:

- Interviewing the Company's responsible personnel to obtain an understanding of its policy for preparing the Report and reviewing the Company's reporting criteria.
- Inquiring about the design of the systems and methods used to collect and process the Indicators.
- Performing analytical procedures on the Indicators.
- Examining, on a test basis, evidence supporting the generation, aggregation and reporting of the Indicators in conformity with the Company's reporting criteria, and recalculating the Indicators.
- Making inquiries and reviewing materials including documented evidence of the Fujisawa Plant of Mercian Corporation selected on the basis of a risk analysis, as alternative procedures to a site visit.
- Evaluating the overall presentation of the Indicators.

Conclusion

Based on the procedures performed, as described above, nothing has come to our attention that causes us to believe that the Indicators in the Report are not prepared, in all material respects, in accordance with the Company's reporting criteria as described in the Report.

Our Independence and Quality Control

We have complied with the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which includes independence and other requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior. In accordance with International Standard on Quality Control 1, we maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

KPMG AZSA Sustainability Co., Ltd.

KPMG AZSA Sustainability Co., Ltd.
Tokyo, Japan
October 9, 2020

The KIRIN, the messenger of Good Luck.



The KIRIN is a mythical creature, a messenger of good luck. Derived from various ancient legends, it is said to appear as a prelude to joyous times to come. The KIRIN, a gentle creature, flies the skies; its feet never touching the ground as not to harm any insects or plants. The KIRIN, which creates the rich natural environment for future generations, is a symbol of the Kirin Group.