Environmental Data

Environmental Policy

Kirin Group's Environmental Policy

Basic policy
The Kirin Group places sustainable business growth based on solving social issues at the core of its management, and enriches society and the Earth for future generations through positive impact on people and the environment.

Activity policy
In all aspects of our business activities, we have set ambitious targets related to solving social issues connected to the environment as one of the most material management issues, and we will focus on achieving these targets under the leadership of top management and through the participation of all employees.

- **Compliance**
  We will comply with all environmental laws, regulations, and agreements as well as voluntary control standards related to our business activities with high moral values.
- **Technological development**
  In addition to creating and adopting innovative technologies and methods, we will work with our customers and broad stakeholders to resolve issues on a sustainable basis.
- **Environmental management**
  We will develop an environmental management system and make continuous improvements in accordance with our business strategy.
- **Human resources development**
  We will continuously develop human resources who can create and implement a positive impact on the environment and society as a whole, beyond our own company and its framework.
- **Communication**
  We will disseminate highly transparent and reliable information and broadly promote communication with stakeholders.

Revised on October 2021

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

Related Information→P.46～P.47

Policies on biological resources

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.

Established and announced in October 2010

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.*

■Implementation and operation
The Kirin Group regularly revises these Guidelines based on biodiversity risk assessments for products sourced, taking into account the issues associated with biological resources and the fact that sourcing conditions differ for each region. In addition, the Kirin Group also separately formulates action plans and implements them in phases, taking into consideration the unique characteristics of each country or region. When implementing initiatives, the Kirin Group cooperates with suppliers, specialists, NGOs, and other stakeholders, and adopts a long-term perspective that considers support to enable people working in areas producing raw materials to transition to means of production that take into account the sustainability of biological resources.

■Information disclosure and external communication
The Kirin Group is committed to maintaining transparency and disclosing the progress of its initiatives through sustainability reports, online, and other methods. At the same time, the Kirin Group also utilizes appropriate external communication to promote understanding among customers, partners, and society, and thereby increase the use of sustainable biological resources.

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

Established in December 2012, announced in June 2013

Related Information→P.26～P.35

Kirin Group Action Plan for the Sustainable Use of Biological Resources

1. Black Tea

Kirin Holdings aims to enhance sustainability of tea farms in Sri Lanka, the main raw material production area from which Kirin Beverage Company, Limited sources tea leaves.

- Kirin Holdings will support for farms to get Rainforest Alliance Certification by Sri Lankan tea farms that supply tea leaves, and thus increase the number of farms with certification*1.
- Kirin Holdings will enhance awareness through year-round products featuring the Rainforest Alliance Certified label.
- Kirin Holdings will conserve water sources at Sri Lankan tea farms.

2. Paper and Printed Materials

Kirin Holdings will maintain 100% usage of FSC-certified paper or recycled paper, which it achieved at Kirin Holdings Company, Limited, Kirin Brewery Company, Limited, Kirin Beverage Company, Limited, and Mercian Corporation in 2020, and Kirin Holdings will also expand this initiative to cover all Group companies, including those outside of Japan.

- For paper containers and packaging*2, by 2030, Kirin Holdings will 100% use paper that has been confirmed to be from sustainable sources*3*4.
- For other paper, Kirin Holdings will use paper that has been confirmed to take sustainability into consideration or recycled paper*5.

3. Palm Oil

In Kirin Holdings' domestic businesses, Kirin Holdings will ensure that 100% of transactions for palm oil used as a primary or secondary raw materials have RSPO*6 certification.

- For palm oil used as a primary raw material, Kirin Holdings will use RSPO Credits*7. By 2030, Kirin Holdings will begin sourcing RSPO-certified palm oil*8, and gradually transition palm oil procurement.
- For palm oil used as a secondary raw material, Kirin Holdings will use RSPO Credits. Kirin Holdings will work together with the RSPO, suppliers, NGOs, and various stakeholders to ensure that Kirin Holdings' suppliers are able to use RSPO-certified palm oil as a raw material.

4. Coffee

Kirin Holdings aims to enhance sustainability of coffee farms in Vietnam, the main production area from which Kirin Beverage Company, Limited sources coffee beans.

- Kirin Holdings will support to get Rainforest Alliance Certification by Vietnamese coffee farms, and thus increase the number of farms with certification.
- Kirin Holdings will enhance the ability of Vietnamese coffee farms to conserve water.

5. Soybeans

Kirin Holdings will use soybeans and processed goods*9 from highly sustainable farms at Kirin Brewery Company, Limited.

- Kirin Holdings will determine farms from which it will source soybeans.
- Kirin Holdings will confirm the sustainability of the soybean farms that it has determined.

*1 Kirin Holdings will set specific targets in Kirin Holdings' CSV commitment.
*2 Excludes limited-edition products, small-lot product varieties, special shapes, imported products, products regulated by law, etc.
*3 Kirin Holdings will prioritize FSC-certified paper. When the use of FSC-certified paper is cannot be used, Kirin Holdings will use paper complying with the following standards, in order: paper made with wood from FSC-managed forests (Controlled Wood), PEFC certification (for regions where sustainability has been confirmed only), and the Kirin Group Guidelines for the Procurement of Sustainable Biological Resources. When using paper that has not been third-party certified, etc., Kirin Holdings will confirm that sustainability has been taken into consideration through supplier surveys, etc.
*4 This will apply to the following operating companies: Kirin Holdings Company, Limited, Kirin Brewery Company, Limited, Kirin Beverage Company, Limited, Mercian Corporation, Kyowa Kirin Co., Ltd., KYOWA HAKKO BIO CO., LTD., Lion Pty Limited, and Koiwai Dairy Products CO., LTD. Kirin Holdings will determine the applicable container types, target year for achievement, etc., in Kirin Holdings' CSV commitment.
*5 This will apply to the operating companies listed in *4, as well as the following operating companies: KIRIN GROUP LOGISTICS CO.,LTD. Kirin City Co., Ltd., INTERFOOD SHAREHOLDING COMPANY, Myanmar Brewery Ltd., and Four Roses Distillery, LLC. Each company will set specific targets.
*6 Roundtable on Sustainable Palm Oil.
*7 Book and Claim model
*8 Complying with one of the following: IP (Identity Preserved), SG (Segregation), or MB (Mass Balance)
*9 Soybean protein

Established on February 2013
Revised on July 2021

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.

Established and announced in October 2010

Consideration of the Environment in Product Development

Guidelines on Environmentally Conscious Design for Containers and Packaging

1. Purpose

In order to sustainably pass on the earth's bounty and environment to future generations and continue to provide value to our customers and society as a whole, we will contribute to the establishment of a resource recycling system by developing and promoting sustainable containers and packaging, reducing waste in our business activities, and promoting recycling through compliance with laws and regulations and the Environmentally Sound Design Guidelines for Containers and Packaging". and contribute to the establishment of a resource recycling system."

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 the circular economy, use materials that are easy to recycle or dispose of, that have minimal environmental impact, and materials that use recyclable resources.

(3) In order to contribute to realizing a decarbonized 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) + Renewable (sustainable resources) activities in accordance with the following.

4. Guidelines for promoting the 3R (reduce, reuse, recycle) + Renewable (sustainable resources)

(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 December 24, 2021

* The Kirin Group performs LCA (Life Cycle Assessment) on major containers for alcoholic beverages and non-alcoholic beverages whenever necessary. 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.

Environmental Data Calculation Methods

(1) Usage Factors

Energy Use Conversion Factors

	Japan	Overseas	
Fuel	"Act on the Rational Use of Energy" Factors	Lion	・Australia - National Greenhouse Account Factors ・New Zealand - Measuring Emissions：Detailed Guide ・USA - GHG Emission Factors Hub
		Other than the above	"Act on the Rational Use of Energy" Factors
Electricity	Used 3.6 (MJ/kWh), which is used by International Energy Agency (IEA) and other organizations		
Steam	Theoretical calorific value (1 MJ/MJ) on the consumption side.		

Emission factors for GHG Emissions

	Japan	Overseas	
Fuel, steam	Emission factors from Greenhouse Gas Emissions Calculation and Reporting Manual (Ministry of Environment/Ministry of Economy, Trade & Industry)	Lion	・Australia - National Greenhouse Account Factors ・New Zealand - Measuring Emissions：Detailed Guide ・USA - GHG Emission Factors Hub
		Other than the above	Emission factors from Greenhouse Gas Emissions Calculation and Reporting Manual (Ministry of Environment/Ministry of Economy, Trade & Industry)
Electricity	・Emission factors published by individual power companies →If none published: Emission factors by country from IEA's Emission Factors for the year in question		
Scope3	IDEA (Inventory Database for Environmental Analysis: LCA database provided by the National Institute of Advanced Industrial Science and Technology (AIST)) is used to the extent possible in calculations after 2019 (Using IDEA versions 2.3 and 3.1). In addition, literature values such as the Ministry of the Environment's emissions intensity database and LCA reports for each industry are used.		

(2) Calculation Method

The Kirin Group's GHG emissions are calculated in accordance with the GHG Protocol.

(3) Calculation boundaries

Entire Group

Business	Company
Japan Beer and Spirits Business	Kirin Brewery, Kirin Distillery,SPRING VALLEY BREWERY, Eishogen Kirin Brewery (Zhuhai), Brooklyn Brewery
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) KIRINVIVAX, Tokai Beverage Service
Oceania Integrated Beverages Business	Lion, New Belgium Brewing
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
Other Businesses (all companies included)	Mercian, NIPPON LIQUOR, Daiichi Alcohol, Wine Curation, Myanmar Brewery Mandalay Brewery, Interfood, Vietnam Kirin Beverage, 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, Brooklyn Brewery, Japan、Eishogen, Kirin Beverage, Shinshu Beverage, Hokkaido Kirin Beverage, Kirin Maintenance Service, each site of Kirin Beverage Service (Hokkaido, Sendai, Tokyo, Chubu, Kansai) 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, Mandalay Brewery, Interfood, Vietnam Kirin Beverag, Thai Kyowa Biotechnologies Co., Ltd.
Other	Kyowa Hakko Kirin China Pharmaceutical, Kyowa Kirin、Biokyowa、Shanghai Kyowa Amino Acid、Kirin Brewery (Zhuhai), Four Roses Distillery, New Belgium Brewing

Calculation boundary of Scope 3 emissions (P.16、17、23、25、59、70、71、99、100、129、130)

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, New Belgium Brewing
Pharmaceuticals Businesses	Kyowa Kirin, Kyowa Hakko Kirin China Pharmaceutical, Kyowa Kirin
Other Businesses (all companies included)	Mercian, Daiichi Alcohol, Myanmar Brewery, Interfood, Vietnam Kirin Beverage, Kyowa Hakko Bio, KYOWA PHARMA CHEMICAL, BioKyowa, 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.81)

Constituent/Name of Group Company	Country	Number of manufacturing plants	Remarks
Kirin Brewery	Japan	9	Hokkaido Chitose, 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	3	Yatsushiro, Fujisawa, Katsunuma Winery
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	
Koiwai Dairy Products	Japan	2	Koiwai, Tokyo
Kyowa Kirin	Japan	3	Takasaki, Fuji, Ube
	China	1	Kyowa Hakko Kirin China Pharmaceutical
Kyowa Iryo Kaihatsu	Japan	1	
Kyowa Hakko Bio	Japan	2	Yamaguchi Production Center (Hofu), Yamaguchi Production Center (Ube)
Kyowa Pharma Chemical	Japan	1	Head office
Biokyowa	America	1	
Shanghai Kyowa Amino Acid	China	1	
Thai Kyowa Biotechnologies	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	Austraria	6	Castlemaine Perkins, James Boag Brewery, Little Creatures Brewery Fremantle, Tooheys Brewery, Little Creatures Brewery Geelong, Malt Shovel Brewery
	Newzealand	3	Pride Brewery, Speights Brewery, Wither Hills Winery
New Belgium Brewing	America	2	Fort Collins, Asheville

Environmental Accounting

Environment conservation costs

(Unit : million yen)

Category	Specific details	Investment amounts 2019	Investment amounts 2020	Investment amounts 2021	Expense amounts 2019	Expense amounts 2020	Expense amounts 2021
Environmental conservation costs to control environmental impact resulting from production and service activity within the business areas (total of ①②③ below)		1,243	1,406	2,671	5,854	4,856	4,750
① Pollution prevention costs	Air and water pollution prevention activities, analysis and measurement of air and water quality, etc.	536	319	1,995	2,330	2,075	2,301
② Global environmental conservation costs	Solar power generation, CO_2 recovery, energy saving, cogeneration, etc.	655	1,064	632	854	814	885
③ Resource circulation costs	Reduction of sludge, waste recycling, water recycling, etc.	53	23	45	2,669	1,968	1,565
Upstream / downstream costs	Containers and Packaging Recycling Act, Recycling contracting costs	86	54	221	375	475	464
Administration costs	Operation of environmental management systems, environmental education, greenification in business sites, etc.	35	65	13	300	301	278
Research and development costs	Container lightweighting, R&D regarding mitigation of environmental load of byproducts, wastewater, etc.	63	40	103	131	158	443
Social activities costs	Environmental conservation activity costs such as activities to protect the blessings of water, donations to nature conservation groups, etc.	0	0	0	49	38	48
Environmental remediation costs		0	0	0	0	5	0
Others		131	0	0	186	0	0
Total		1,559	1,566	3,008	6,895	5,834	5,983

Economic effect

(Unit : million yen)

Items	Details	2019	2020	2021
Proceeds from sales of valuables, etc.	Waste recycling, etc.	949	656	625
Resources saving effects	Energy saving, waste reduction, resources saving, etc.	591	548	409

Calculation boundaries : 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 (2021, entire Group)

		Unit	Japan Beer and Spirits Business	Japan Non-Alcoholic Beverages Business	Oceania Integrated Beverages Business	Pharmaceuticals Businesses	Other Businesses	Total		
								2021	2020	2019
Substance		thousand t	425	61	353	1	375	1,214	1,308	1,431
		%	35	5	29	0.05	31	100		
	Raw material	thousand t	263	25	153	0.1	294	735	784	889
	Packaging material	thousand t	162	36	200	0.5	81	480	524	542
Water (fresh water only)		thousand m³	14,132	1,916	3,001	1,673	29,556	50,278	55,702	65,823
		%	28	4	6	3	59	100		
Water recycling		thousand m³	1,000	279	236	3,717	85,552	90,784	93,651	121,334
Energy		TJ	3,885	825	1,203	613	4,396	10,922	11,182	11,421
		%	36	8	11	6	40	100		
Production volumes	Alcoholic and non-alcoholic beverages	thousand kl	2,737	611	782	0	542	4,672	4,994	5,055
	Food products/ Pharmaceuticals and biochemicals	thousand t	7	0	0	0.3	25	33	62	93
Wastewater		thousand m³	11,725	1,595	1,826	1,814	31,364	48,323	52,340	65,214
		%	24	3	4	4	65	100		
Greenhouse gas emissions (Scope1+Scope2)		thousand t-CO2e	214	49	75	41	343	722	757	834
		%	30	7	10	6	48	100		
NOx		t	131	22	161	4	37	356	403	380
SOx		t	1.3	0.1	1	0	10	12	10	13
Waste products		thousand t	135	11	80	2	85	312	272	431
		%	43	3	26	0.6	27	100		
	Volume disposed on site	thousand t	0	0	0	0.3	21	22	3	2
	Volume of recycled waste	thousand t	133	11	79	2	62	286	264	423
	Final disposed volume	thousand t	2	0	1	0.1	1	5	5	5

Water Resources

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

	Water use volume (thousand m³)	Water consumption rate(by sales revenue) (m³/million yen)
2017	76,968	41
2018	73,675	38
2019	65,823	34
2020	55,702	30
2021	50,278	28

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
2017	13,190	2,341	2,854	3,047	55,534	76,968
2018	14,049	2,345	2,733	2,309	52,238	73,675
2019	14,470	2,211	2,658	2,232	44,252	65,823
2020	14,295	1,815	3,145	1,747	34,700	55,702
2021	14,132	1,916	3,001	1,673	29,556	50,278

Trend in water use volumes (by region)

(Unit : thousand m³)

	Japan	Oceania	Southeast Asia	Other	Total
2017	61,721	2,854	2,500	9,892	76,968
2018	58,120	2,733	2,811	10,011	73,675
2019	50,333	2,658	3,654	9,178	65,823
2020	40,187	2,689	3,449	9,377	55,702
2021	35,485	2,483	2,945	9,365	50,278

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

		Fresh water*1					Total
	Unit	Service water	Rivers (including industrial water)	Underground water	Storm water	Gray water*2 (Reclaimed water)	
2017	thousand m³	7,200	42,150	27,616	1	0	76,968
	%	9	55	36	0.0	0.0	100
2018	thousand m³	7,717	40,415	25,543	0	0	73,675
	%	10	55	35	0.0	0.0	100
2019	thousand m³	8,283	35,679	21,861	0	0	65,823
	%	13	54	33	0.0	0.0	100
2020	thousand m³	8,657	24,936	22,109	0	0	55,702
	%	16	45	40	0.0	0.0	100
2021	thousand m³	8,253	21,035	20,989	1	0	50,278
	%	16	42	42	0.0	0.0	100

*1 No use of sea water or external wastewater or quarry water collected in the quarry.
*2 Externally supplied gray water

Trend in water use volumes of Japan Integrated Beverages Business

	Unit	Kirin Brewery	Kirin Distillery	Kirin Beverage	Shinshu Beverage	Mercian
2017	thousand m³	11,199	1,383	968	1,374	3,391
	m³/kl	5.3	3.2	2.2	5.2	25.5
2018	thousand m³	12,006	1,379	971	1,374	3,240
	m³/kl	5.3	3.1	2.1	5.3	22.5
2019	thousand m³	12,509	1,380	968	1,243	2,825
	m³/kl	5.3	3.1	2.2	4.8	19.8
2020	thousand m³	12,280	1,386	925	890	3,669
	m³/kl	5.3	3.3	2.3	4.2	19.6
2021	thousand m³	12,252	1,358	884	1,032	3,840
	m³/kl	5.4	3.6	2.5	4.0	18.8

* 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	
2017	thousand m³	15,123	90,944	106,067	44
	%	14.3	85.7	100.0	
2018	thousand m³	18,993	105,010	124,003	63
	%	15.3	84.7	100.0	
2019	thousand m³	15,901	105,433	121,334	65
	%	13.1	86.9	100.0	
2020	thousand m³	3,864	89,788	93,651	63
	%	4.1	95.9	100.0	
2021	thousand m³	1,978	88,805	90,784	64
	%	2.2	97.8	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
2017	thousand m³	5,252	27,679	38,518	16	71,466
	%	7	39	54	0.0	100
2018	thousand m³	4,850	26,063	38,560	17	69,491
	%	7	38	55	0.0	100
2019	thousand m³	7,512	24,593	33,091	18	65,214
	%	12	38	51	0.0	100
2020	thousand m³	7,396	23,587	21,342	15	52,340
	%	14	45	41	0.0	100
2021	thousand m³	7,273	23,835	17,194	21	48,323
	%	15	49	36	0.0	100

* No drainage to basement or wells.

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
2017	thousand t	219	51	296	0.3	117	683
	%	32	7	43	0.04	17	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
2020	thousand t	181	37	239	0.5	66	524
	%	35	7	46	0.1	13	100
2021	thousand t	162	36	200	0.5	81	480
	%	34	7	42	0.1	17	100

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

		Aluminum cans	Steel cans	PET bottles	Glass bottles	Drink boxes	Cartons	6-can packs
2017	Volume reduction	30,031	—	7,710	1,332	—	8,792	3,444
	Volumes used	66,915	11,295	60,561	31,276	6,311	102,693	13,974
2018	Volume reduction	19,226	—	12,218	870	—	5,798	3,629
	Volumes used	73,724	9,424	68,677	31,183	6,515	107,771	13,969
2019	Volume reduction	22,975	—	11,998	340	—	5,910	3,646
	Volumes used	77,912	8,542	74,894	27,844	7,825	109,526	14,611
2020	Volume reduction	24,177	—	12,244	248	—	6,237	4,008
	Volumes used	81,137	6,876	67,061	23,853	6,995	103,738	15,601
2021	Volume reduction	24,130	—	11,346	333	—	6,242	4,083
	Volumes used	81,200	6,495	67,089	20,719	7,623	103,682	15,852

* 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.

		2016	2017	2018	2019	2020	Target*
Aluminum cans	Weight of consumed (thousand t)	341	336	331	330	331	—
	Recycled weight (thousand t)	315	310	309	324	311	—
	Recycling rate (%)	92.4	92.5	93.6	97.9	94.0	≥92
Steel cans	Weight of consumed (thousand t)	463	451	439	427	393	—
	Recycled weight (thousand t)	435	422	404	398	369	—
	Recycling rate (%)	94.0	93.4	92.0	93.3	94.0	≥90
PET bottles	Sales volume of specified PET bottles (thousand t)	596	587	626	593	551	—
	Recycling volume in Japan (thousand t)	279	298	334	327	344	—
	Recycling volume outside Japan (thousand t)	221	201	195	182	144	—
	Recycling volume of used PET bottle (thousand t)	500	498	529	509	488	—
	Recycling rate (%)	83.9	84.8	84.6	85.8	88.5	≥85
Glass bottles	Melted weight (thousand t)	1,606	1,583	1,553	1,465	1,352	—
	Cullet usage volume (thousand t)	1,211	1,189	1,160	1,103	1,053	—
	Cullet usage rate (%)	75.4	75.1	74.7	75.3	77.9	—
	Recycling rate (%)	71.0	69.2	68.9	67.6	69.0	≥70

* Recycling target of 4th Voluntary Action Plan

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

	Sale volumes(million bottles)	Collected volume(million bottles)	Collection rate (%)
2017	224.6	227.8	101
2018	205.1	203.2	99
2019	182.6	182.3	100
2020	107.3	114.6	107
2021	89.5	88.1	98

* 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 95%.

Climate Change

Actual results for Fiscal 2021 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_2e)		Greenhouse gas emissions intensity (per unit of sales) (tCO_2e/million yen)
		(of which, CO_2)	IFRS
2017	860	(858)	0.46
2018	849	(847)	0.44
2019	834	(833)	0.43
2020	757	(756)	0.41
2021	722	(721)	0.40

Trends in greenhouse gas emissions (by business)

(Unit:thousand tCO_2e)

	Japan Beer and Spirits Business	Japan Non-Alcoholic Beverages Business	Oceania Integrated Beverages Business	Pharmaceuticals Businesses	Other Businesses (all companies included)	Total ☑
2017	231	61	110	62	396	860
2018	232	59	98	55	405	849
2019	232	56	104	56	386	834
2020	224	52	81	44	356	757
2021	214	49	75	41	343	722

Trends in greenhouse gas emissions (by region)

(Unit:thousand tCO_2e)

	Japan	Oceania	Southeast Asia	Other	Total ☑
2017	581	110	50	119	860
2018	570	98	57	124	849
2019	520	84	78	152	834
2020	463	62	73	159	757
2021	446	57	63	155	722

Trends in greenhouse gas emissions and emission intensities from manufacturing plants

(a) Kirin Brewery

	Greenhouse gas emissions (thousand tCO2e)	Greenhouse gas emissions intensity (kgCO2e/kl)
2017	191	90
2018	195	85
2019	196	84
2020	189	82
2021	182	80

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

(b) Kirin Beverage

	Shonan Plant	
	Greenhouse gas emissions (thousand tCO_2e)	Greenhouse gas emissions intensity ($kgCO_2e$/kl)
2017	28	64
2018	27	60
2019	26	59
2020	25	62
2021	23	66

(c) Mercian*

	Greenhouse gas emissions (thousand tCO_2e)
2017	29
2018	30
2019	25
2020	44
2021	59

*Alcohol business was transferred from Kyowa Hakko Bio to Mercian in July 2020.

(d) Kyowa Kirin (global)

	Greenhouse gas emissions intensity (thousand tCO_2e/t)
2018	253
2019	124
2020	106
2021	113

Trends in energy usage (entire Group)

Energy usage by type	2017	2018	2019	2020	2021
Total usage (TJ)	11,750	11,843	11,421	11,182	10,922
Coal (t)	2,294	2,339	2,079	1,613	1,678
Gasoline (kl)	3,599	3,619	4,751	3,706	3,518
Kerosene (kl)	1,466	1,399	1,342	1,379	1,398
Diesel oil (kl)	13,762	12,548	14,836	14,572	13,028
Heavy fuel oil (kl)	12,475	14,006	9,430	7,429	7,313
LPG (t)	2,673	2,737	2,832	2,672	2,652
Town gas (thousand Nm^3)	110,950	112,987	96,747	95,972	96,751
LNG (t)	0	0	0	0	0
Purchased electricity (MWh)	674,012	676,770	648,373	610,613	525,146
Renewable electricity (MWh)	23,848	31,657	31,943	74,439	114,912
Purchased steam (TJ)	1,925	1,886	1,654	1,461	1,496
Other (TJ)	1,078	1,092	1,721	1,760	1,659

Breakdown and Trends in Greenhouse Gas Emissions

Scope 1 (direct emissions)

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

(Unit : thousand tCO_2e)

	Japan Beer and Spirits Business	Japan Non-Alcoholic Beverages Business	Oceania Integrated Beverages Business	Pharmaceuticals Businesses	Other Businesses (all companies included)	Total ☑
2017	164	44	41	21	103	372
2018	168	42	40	18	110	377
2019	169	40	53	20	110	393
2020	162	38	46	19	106	372
2021	164	36	44	19	104	368

Trends in greenhouse gas emissions from fuel use (by region) (Unit: thousand tCO_2e)

	Japan	Oceania	Southeast Asia	Other	Total ☑
2017	266	41	21	44	372
2018	271	40	21	46	377
2019	264	41	27	60	393
2020	253	36	24	60	372
2021	251	33	24	60	368

Breakdown of greenhouse gas emissions in Scope 1(2020) (Unit: thousand tCO_2e)

CO_2	CH_4	N_2O	HFCs	PFCs	SF_6
368	0.1	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 tCO_2e)

	Japan Beer and Spirits Business	Japan Non-Alcoholic Beverages Business	Oceania Integrated Beverages Business	Pharmaceuticals Businesses	Other Businesses (all companies included)	Total ☑
2017	67	17	69	41	293	488
2018	64	17	59	37	295	472
2019	62	16	51	35	277	441
2020	61	14	34	24	250	384
2021	50	13	31	22	238	354

Trends in greenhouse gas emissions from electricity and steam purchases (by region) (Unit: thousand tCO_2e)

	Japan	Oceania	Southeast Asia	Other	Total ☑
2017	315	69	28	75	488
2018	299	59	36	79	472
2019	256	43	50	92	441
2020	209	26	50	99	384
2021	195	24	40	95	354

Scope3 (other indirect emissions)

* For Scope 3 emissions, Lion's beverage business is excluded after 2019 and emission intensity is changed to the LCA database (IDEA) provided by AIST.

Trends in CO_2 emissions by other parties related to business activities (by business)

See P. 122 for calculation boundaries

(Unit: thousand tCO_2)

	Japan Beer and Spirits Business	Japan Non-Alcoholic Beverages Business	Oceania Integrated Beverages Business	Pharmaceuticals Businesses	Other Businesses (all companies included)	Total
2017	1,413	1,060	1,083	15	793	4,364
2018	1,483	1,060	761	14	845	4,163
2019	1,653	1,128	487	18	926	4,211
2020	1,587	989	486	12	908	3,983
2021	1,519	911	465	13	781	3,689

Trends in CO_2 emissions by other parties related to business activities (by region)

See P. 93 for calculation boundaries

(Unit: thousand tCO_2)

	Japan	Oceania	Southeast Asia	Other	Total
2017	3,081	1,083	152	47	4,364
2018	3,145	761	209	48	4,163
2019	3,340	369	314	188	4,211
2020	3,103	354	319	206	3,983
2021	2,919	338	235	197	3,689

Trends in CO_2 emissions* accompanying transportation volumes and distances (Japan)

		Kirin Brewery	Kirin Beverage	Mercian	Total
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
2019	Transport volumes (thousand ton kilometer)	755,308	963,748	90,991	1,810,047
	CO_2 emissions (thousand tons-CO_2)	55	76	8	139
2020	Transport volumes (thousand ton kilometer)	798,798	800,682	114,687	1,714,167
	CO_2 emissions (thousand tons-CO_2)	56	64	9	129

* 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 the Rational Use of Energy.

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 2021 GHG emissions in Scope 1 and 2 from the entire Kirin Group and those in Scope 3 from Kirin Brewery, Kirin Beverage and Mercian. The independent assurance report is shown on P.143.

Calculation results of Scopes 1 and 2 for the entire Kirin Group*1 (2021)

(Unit:tCO2e/year)

Scope1	Scope2
367,742	353,811

Calculation results of Scope 3 for Kirin Brewery, Kirin Beverage and Mercian*2 (2021)

(Unit:tCO2/year)

Upstream／Downstream		Scope3 Categories	Calculation results	Remarks
Upstream	1	Products and services purchased	1,591,062	Calculated by multiplying the purchased volume of raw materials, etc. by the CO2 emission factor for producing each type of raw material, etc. CO2 emission factors are based on IDEA v3.1, etc.
	2	Capital goods	—	Not calculated
	3	Fuel and energy-related activities not included in Scopes 1 and 2	72,986	Calculated by multiplying the purchased volume of fuel or electricity by CO2 emission factor for each energy type. CO2 emission factors are based on the emission factors database (Ver. 3.1) published by Ministry of the Environment for electricity and steam, and on IDEA v3.1 for fuels.
	4	Transportation and delivery (upstream)	332,903	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 CO2 emission factor for each transportation method (the amount of CO2 emissions based on shipping volume of products as shipper is calculated using FY2020 data). CO2 emission factors are based on IDEA v3.1.
	5	Waste from operations	6,546	Calculated by multiplying the amount of waste discharged, etc. by the CO2 emission factor for each disposal method. CO2 emission factors are based on IDEA v3.1 and the emission factors database (Ver. 3.1) published by Ministry of the Environment.
	6	Business travel	763	Calculated by multiplying the number of employees by the annual average distance of transportation and then by the CO2 emission factor for each means of transportation, considering the percentage of travel restrictions to prevent the spread of COVID-19. CO2 emission factors are based on IDEA v3.1.
	7	Employee commuting	4,769	Calculated by multiplying the number of employees by the annual average distance of transportation and then by the CO2 emission factor for each means of transportation, considering the percentage of employees who are restricted from coming to work to prevent the spread of COVID-19. CO2 emission factors are based on IDEA v3.1.
	8	Leased assets (upstream)	—	Included in Scopes 1 and 2
Downstream	9	Transportation and delivery (downstream)	617,740	Calculated as emissions during storage and sales at the distribution stage to consumers. Retail : Calculated by multiplying the product sales volume by the CO2 emission factor for selling products for each sales method. Vending machines: Calculated by multiplying the estimated power consumption of vending machines in operation by the CO2 emission factor for electricity. (Transportation from wholesalers to sales outlets is not included in the calculation.) CO2 emission factor is taken from carbon footprint data for the distribution industry.
	10	Processing of sold products	—	Not applicable
	11	Use of sold products	2,498	CO2 contained in carbonated drinks were calculated from product specifications and included as emissions to the atmosphere (emissions from the refrigeration stage of products after purchase by end consumers were excluded from the calculation from this time onward, as it is an optional calculation item in the GHG Protocol).
	12	Disposal of sold products	27,380	Calculated by multiplying the amount of containers and packaging disposed by the CO2 emission factor for each type of container and packaging. CO2 emission factors are based on IDEA v3.1 and the emission factors database (Ver. 3.1) published by Ministry of the Environment.
Downstream	13	Leased assets (downstream)	—	Not applicable
	14	Franchises	—	Not applicable
	15	Investments	—	Not applicable
Total			2,656,645	

Progress toward Mid-Term Greenhouse Gas Emission Reduction Targets Through SBTs*3 (2021)

(Unit:tCO2e)

■Scope1+2		Total
Scope1+Scope2		721,553
	Scope1	367,742
	Scope2	353,811
Reduction rate (compared to 2019 base year)		-13%

■Scope3 See P. 122 for calculation boundaries			Total
Scope3			3,688,961
Upstream	1	Products and services purchased	2,230,657
	2	Capital goods	—
	3	Fuel and energy-related activities not included in Scopes 1 and 2	173,449
	4	Transportation and delivery (upstream)	433,015
	5	Waste from operations	25,750
	6	Business travel	4,690
	7	Employee commuting	13,280
	8	Leased assets (upstream)	—
Downstream	9	Transportation and delivery (downstream)	765,018
	10	Processing of sold products	—
	11	Use of sold products	8,719
	12	Disposal of sold products	34,383
	13	Leased assets (downstream)	—
	14	Franchises	—
	15	Investments	—
Reduction rate (compared to 2019 base year)			-12%

*1 Methods of calculating Scope 1 and 2 emissions
- Fuel and steam : Lion calculates emissions using heating values and emission factors set by the Australian, New Zealand and U.S. governments.
  All other manufacturing sites calculate emissions using heating values and emission factors 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 adjusted emission factors of 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 The source of emission factors used in Scope 3 calculations has been changed to IDEA (Inventory Database for Environmental Analysis: LCA database provided by the National Institute of Advanced Industrial Science and Technology) to the extent possible starting with the calculation of 2021 results.

*3 By 2030, reduce GHG emissions of Scope 1+2 by 50% and Scope 3 by 30% compared to 2019.

Trends in biogas electricity and biogas generated at Kirin Brewery plans

	Biogas electricity generated (Unit: million kWh)	Biogas generated (Unit: thousand Nm³)
2017	19.2	8,115
2018	18.6	8,689
2019	21.9	9,009
2020	22.5	8,526
2021	18.6	7,547

Breakdown of electricity usage (entire Group)

(Unit:thousand kWh)

			2019	2020	2021
Purchased electricity	Renewable energy	Solar power	—	18,546	36,380
		Hydro-electric power	30,476	53,753	65,335
		Wind power	499	403	283
		Biomass	—	—	10,563
		Total	30,974	72,703	112,561
	Non-renewable energy		648,373	610,613	525,146
Private power generated	Biogas-generated electricity		22,291	25,313	22,474
	Solar-generated electricity		968	1,736	2,351
	Other than renewable energy		162,120	135,476	146,142
Electricity usage			864,727	845,842	808,674
	Of which, renewable energy (excluding energy mix)		54,233	99,752	137,386

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

	Annual electricity consumption (Unit: kWh/year)
2016	724
2017	712
2018	702
2019	704
2021	715

Source: Japan Vending Machine Manufacturers Association

Green bonds

18th Series of Unsecured Corporate Bonds (Green Bonds) funding allocation and impact reporting (as of December 2021)

Amount raised	Unallocated amount
10.0 billion yen	6.6 billion yen

Project name	Summary		Impact reporting
Procurement of recycled PET resin	Recycled PET resin is produced by mechanical recycling of used PET bottles. By using recycled PET resin as the raw material for PET bottles, it is possible to recycle PET bottles into PET bottles, which contributes to reducing the use of fossil resources.It has been shown that this process reduces CO_2 emissions at the manufacturing stage by approximately 50-60% compared with the production of petroleum-derived PET bottles. While 613,000 tons of PET bottles are manufactured annually in Japan, the total amount of recycled PET resin used as a raw material for PET bottles is only 72,700 tons. As such, there is a need to expand the use of recycled PET resin in PET bottle manufacturing. Amount allocated (cumulative): 3.2 billion yen (65.8% refinanced)		The percentage of recycled PET resin in the entire Group in 2021 is 4.9%.
Introduction of heat pump systems at plants	A heat pump system is a technology that recovers low-temperature heat sources from air and water and converts them into high-temperature energy by adding energy. In industrial applications, unutilized heat sources such as waste air and waste heat are used to generate high-temperature energy, which is then applied to production processes such as heating, insulation, sterilization, drying, cleaning, and distillation. The Kirin Group plans to replace the burning of fossil fuels in the heating process, which accounts for the majority of GHG emissions from manufacturing processes, with heat pump systems. We are working to develop a manufacturing system that emits less GHGs by sourcing the electric power we use as a source of energy from renewable energy. We have completed the introduction of heat pump systems at five plants in Japan. Amount allocated (cumulative): 0.2 billion yen (89.2% refinanced)		The Kirin Group reduced GHG emissions by 2,500 tons in FY2021 through the introduction of heat pump systems.

Reduction of waste and prevention of pollution

Volume of waste generated (2021)

(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
135 (43)	11 (3)	80 (26)	2 (0.6)	85 (27)	312 (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 (%)
2017	243	24	219	0.6	99.7
2018	245	12	233	0.7	99.7
2019	230	2	227	0.6	99.8
2020	151	3	148	0.3	99.8
2021	155	3	151	0.4	99.7

Wastewater quality

	COD (t)				Nitrogen (t)			Phosphorous (t)		
	Japan	Overseas	Total	load / tonne product*	Japan	Overseas	Total	Japan	Overseas	Total
2019	735	3,682	4,417	5.6	315	754	1,069	47	265	312
2020	620	5,010	5,630	6.8	205	766	971	48	265	313
2021	546	1,792	2,338	8.3	209	529	739	34	66	101

* Kyowa Kirin (global) (Unit:kg/ t)

Trend in emissions of air pollutants

Trends in emissions of NOx and SOx (entire Group)

(Unit:t)

	NOx	SOx
2017	400	94
2018	397	19
2019	380	13
2020	403	10
2021	356	12

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
2017	417	21	62	97	596
2018	308	13	57	103	481
2019	183	8	49	74	314
2020	144	6	35	57	242
2021	232	4	47	110	393

Soil Investigations Status (2021)

Number of investigations	Area of investigations (m²)
2	7,469

Status of PCB management (2021)

High-concentration capacitors, reactors, etc.	Trace-quantity capacitor reactors, etc.	High-concentration stabilizers	Trace-quantity stabilizers
1	31	5	0

Status of asbestos management (2021)

Number of buildings	Area (m^2)
4	2,440

Status of HCFC management (2021)

Number of offices	Weight (kg)
14	23,094

Status of HFC management (2021)

Number of offices	Weight (kg)
9	15,246

Site Data

Kirin Brewery (2021) *1

Brewery	Energy intensity (GJ/kl)	Water use per unit of production (m^3/kl)	GHG emissions per unit of production ($kgCO_2e$/kl)	Wastewater intensity (m^3/kl)
Hokkaido Chitose	1.53	4.6	138	3.4
Sendai	1.57	11.9	82	11.9
Toride	1.06	4.8	46	4.1
Yokohama	3.67	6.6	181	4.6
Nagoya	1.11	4.6	54	4.0
Shiga*2	1.27	4.1	77	3.4
Kobe	1.20	3.9	68	3.7
Okayama	1.05	5.3	68	4.2
Fukuoka	1.42	5.5	81	5.3

*1 Energy intensity and unit GHG emissions include electricity sold.

Kirin Beverage*2 (2021)

Plant	Water use (thousand m^3)	GHG emissions (thousand tCO_2e)	Waste emissions (t)	Recycling rate (%)
Shonan	884	23	6,770	100

*2 The Shiga Plant of Kirin Beverage is included in Kirin Brewery because it is co-located with the Shiga Plant of Kirin Brewery.

Mercian (2021)

Plant	Water use (thousand m^3)	GHG emissions (thousand tCO_2e)	Waste emissions (t)	Recycling rate (%)
Fujisawa	284	6	132	100
Yatsushiro	2,035	20	1,034	100
Hofu	1,482	32	1	100
Château Mercian	39	0.4	27	100

Kyowa Kirin Group (Japan, 2021)

Plant	Water use (thousand m^3)	GHG emissions (tCO_2e)	Waste emissions (t)
Kyowa Kirin Tokyo Research Park	15	2,536	59
Kyowa Kirin Fuji Research Park / CMC Research Center	1,284	13,635	198
Kyowa Kirin Bio Production Technology Laboratories / Takasaki Plant	276	10,100	659
Kyowa Kirin Ube Plant	77	7,927	414

KOIWAI DAIRY PRODUCTS

Plant	Water use per unit of production(m^3/t)*3		
	2019	2020	2021
Koiwai Plant	59	58	53

*3 Unit water consumption for dairy products

Status of Environmental Management Certifications

Status as of June 2022

Japan

Number of independently certified business locations	4
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	14
Number of uncertified business locations	8
Certification rate (%)	64

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.(Only Kirin Brewery continues to do so as of 2022)
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 seal	In August 2021, we began year-round sales of 500ml paper packs of Kirin Afternoon Tea Straight Tea, which displays the Rainforest Alliance certification mark given to farms recognized for their commitment to more sustainable farming methods while protecting nature and its creators.
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 2021 as reference.

GRI Contents Index Standard	Disclosure matters	Page number or URL
General Disclosures		
GRI 2: General Disclosures 2021	2-1 Organizational details	P.3, 5, 38 Corporate Overview (https://www.kirinholdings.com/en/profile/overview/) Group Companies (https://www.kirinholdings.com/en/profile/organization/)
	2-2 Entities included in the organization's sustainability reporting	P.3, 121-122 Group Companies (https://www.kirinholdings.com/en/profile/organization/)
	2-3 Reporting period, frequency, and contact point	P.3, Back cover. Reporting frequency is annual.
	2-4 Redescription of information	P.3, 15, 59, 70-71, 130
	2-5 External assurance	P.153
	2-6 Activities, value chains, and other business relationships	P.5, 12, 26, 36, 38, 44, 58 Business domains (https://www.kirinholdings.com/en/domains/)
	2-7 Employees	P.5 ESG data(Kirin Group profile, Employee) (https://www.kirinholdings.com/en/investors/esg/esg/)
	2-8 Workers who are not employees	Annual Securities Report (https://pdf.irpocket.com/C2503/DZdo/ZsII/cQYx.pdf#page=14)
	2-9 Governance structure and composition	P.77, 105-106 Management Structure (https://www.kirinholdings.com/en/purpose/governance/management/) Management (https://www.kirinholdings.com/en/purpose/governance/provisions/) ESG data (Governance) (https://www.kirinholdings.com/en/investors/esg/esg/)
	2-10 Nomination and selection of the highest governance body	Management Structure (https://www.kirinholdings.com/en/purpose/governance/management/)
	2-11 Chair of the highest governance body	Management (https://www.kirinholdings.com/en/purpose/governance/provisions/) ESG Data Collection Governance (https://www.kirinholdings.com/en/investors/esg/esg/)
	2-12 Role of the highest governance body in overseeing the management of impacts	P.77, 98, 105-106 CSV Management (https://www.kirinholdings.com/en/impact/csv_management/) Environmental Management Structure (https://www.kirinholdings.com/en/impact/env/e_management/)
	2-13 Devolving Responsibility for Management of Impact	P.77, 98, 105-106 Group CSV Committee (https://www.kirinholdings.com/en/impact/csv_management/promotion_impact/)
	2-14 Delegation of responsibility for managing impacts	The Kirin Group Environmental Vision 2050 is approved by the Kirin Holdings Board of Directors. The overall Kirin Group Environmental Report is overseen by the Kirin Holdings Company Managing Executive Officer (in charge of CSV strategy and responsible for overall Group environmental management). Group CSV Committee (https://www.kirinholdings.com/en/impact/csv_management/promotion_impact/)
	2-15 Conflicts of interest	Corporate Governance Policy (https://www.kirinholdings.com/en/purpose/files/pdf/governance_policy.pdf)
	2-16 Communication of critical concerns	P.77, 98, 105-106 Group CSV Committee (https://www.kirinholdings.com/en/impact/csv_management/promotion_impact/)
	2-17 Collective knowledge of the highest governance body	P.77 Group CSV Committee (https://www.kirinholdings.com/en/impact/csv_management/promotion_impact/)
	2-18 Evaluation of the performance of the highest governance body	Management Structure (https://www.kirinholdings.com/en/purpose/governance/management/)
	2-19 Remuneration policies	P.77, 100 Remuneration of Officers (https://www.kirinholdings.com/en/purpose/governance/conpensation/)
	2-20 Process to determine remuneration	Remuneration of Officers (https://www.kirinholdings.com/en/purpose/governance/conpensation/)
	2-22 Statement on sustainable development strategy	P.4, 6 Top Message (https://www.kirinholdings.com/en/impact/env/message/)

GRI Contents Index Standard	Disclosure matters	Page number or URL
GRI 2：General Disclosures 2021	2-23 Policy commitments	P.5, 7, 21, 108, 116-120 Corporate Policies (https://www.kirinholdings.com/en/profile/philosophy/) Policies (https://www.kirinholdings.com/en/impact/csv_management/various_policies/) List of CSV Commitments for 2022-2024 (https://www.kirinholdings.com/en/impact/csv_management/commitment/) UNGC and Kirin Group (https://www.kirinholdings.com/en/impact/csv_management/gc/)
	2-24 Embedding policy commitments	P.12-13, 73, 98, 105-106, 109 CSV Management (https://www.kirinholdings.com/en/impact/csv_management/) Environmental Management System (https://www.kirinholdings.com/en/impact/env/e_management/)
	2-25 Processes to remediate negative impacts	P.9, 97-98, 106, 109 Kirin Group Environmental Vision 2050 (https://www.kirinholdings.com/jp/impact/env/mission/) Environmental Management Structure (https://www.kirinholdings.com/en/impact/env/mission/) Sustainable Supply Chain (https://www.kirinholdings.com/en/impact/procurement/) Compliance (https://www.kirinholdings.com/en/purpose/governance/compliance/)
	2-26 Mechanisms for seeking advice and raising concerns	P.109 Compliance (https://www.kirinholdings.com/en/purpose/governance/compliance/)
	2-27 Compliance with laws and regulations	P.107 ESG Data Collection Environmental, Social (https://www.kirinholdings.com/en/investors/esg/esg/)
	2-28 Membership associations	P.113-114
	2-29 Approach to stakeholder engagement	P.110-114 Stakeholder Engagement (https://www.kirinholdings.com/en/impact/csv_management/stakeholders/) List of CSV Commitments for 2022-2024 (https://www.kirinholdings.com/en/impact/csv_management/commitment/) Policies and Systems to Fulfill Our Responsibilities as an Alcoholic Beverage Manufacturer (https://www.kirinholdings.com/en/impact/alcohol/policies/) Kirin Group Human Rights Policy (https://www.kirinholdings.com/en/impact/community/2_1/policies/)
	2-30 Collective bargaining agreements	ESG Data Collection Society (Employees) (https://www.kirinholdings.com/en/investors/esg/esg/)

GRI Contents Index Standard	Disclosure matters	Page number or URL
Material topics		
GRI 3：Material Topics 2021	3-1 Process to determine material topics	P.105 Management Issues for Sustainable Growth (Group Materiality Matrix) (https://www.kirinholdings.com/en/impact/materiality/)
	3-2 List of material topics	P.9-10, 20-22, 105 Our CSV Commitment (https://www.kirinholdings.com/en/impact/csv_management/commitment/#sect03) Management Issues for Sustainable Growth (Group Materiality Matrix) (https://www.kirinholdings.com/en/impact/materiality/)
Biological Resources		
GRI 3：Material Topics 2021	3-3 Management of material topics	P.9-13, 17-18, 20-22, 25, 26-35, 80, 89-90, 97, 116, 118-120
GRI 304：Biodiversity 2016	304-2 Significant impacts of activities, products, and services on biodiversity	P.17-18, 28-35, 89, 97, 103
	304-3 Habitats protected or restored	P.28-32, 35
	304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations	P.30-32, 35
Water Resources		
GRI 3：Material Topics 2021	3-3 Management of material topics	P.9-13, 17-18, 20-22, 25, 36-43, 84-85, 116, 120

GRI Contents Index Standard	Disclosure matters	Page number or URL
GRI 303: Water and Effluents 2018	303-1 Interactions with water as a shared resource	P.17-18, 36-43, 81 Water Resources (https://www.kirinholdings.com/en/impact/env/3_2/)
	303-2 Management of water discharge related impacts	P.42
	303-3 Water withdrawal	P.37-38, 43, 101, 123-125, 135 ESG data (Water resources) (https://www.kirinholdings.com/en/investors/esg/esg/)
	303-4 Water discharge	P.37-38, 43, 123-124, 126, 133, 135 ESG data (Water resources) (https://www.kirinholdings.com/en/investors/esg/esg/)
	303-5 Water consumption	P.123-125, 135
Containers and Packaging		
GRI 3: Material Topics 2021	3-3 Management of material topics	P.9-12, 19-22, 25, 44-57, 90, 95, 117, 120
GRI 301 : Materials 2016	301-1 Materials used by weight or volume	P.45, 56, 124, 126-127 ESG data (Containers and packaging) (https://www.kirinholdings.com/en/impact/env/3_4/)
	301-2 Recycled input materials used	P.22, 25, 45-46, 53-54, 127, 135 Sustainable recycling of containers and packaging (https://www.kirinholdings.com/en/impact/env/3_3a/)
	301-3 Reclaimed products and their packaging materials	P.56-57, 127 Sustainable recycling of containers and packaging (https://www.kirinholdings.com/en/impact/env/3_3a/)
Climate Change		
GRI 3: Material Topics 2021	3-3 Management of material topics	P.9-16, 20-22, 25, 58-71, 73-103
GRI 201 : Economic Performance 2016	201-2 Financial implications and other risks and opportunities due to climate change	P.14-15, 20, 73-103 Scenario Analysis(TCFD) (https://www.kirinholdings.com/en/impact/env/tcfd/)
GRI 302 : Energy 2016	302-1 Energy consumption within the organization	P.59, 71, 121, 124, 128, 131 ESG data (Climate change) (https://www.kirinholdings.com/en/investors/esg/esg/)
	302-2 Energy consumption outside of the organization	P.68, 131

GRI Contents Index Standard	Disclosure matters	Page number or URL
GRI 302 : Energy 2016	302-3 Energy intensity	P.135
	302-4 Reduction of energy consumption	P.121, 124, 128
	302-5 Reductions in energy requirements of products and services	P.68, 131
GRI 305 : Emissions 2016	305-1 Direct (Scope 1) GHG emissions	P.70, 99, 121-122, 128-130 ESG data (Climate change) (https://www.kirinholdings.com/en/investors/esg/esg/)
	305-2 Energy indirect (Scope 2) GHG emissions)	P.70, 99, 121-122, 129-130 ESG data (Climate change) (https://www.kirinholdings.com/en/investors/esg/esg/)
GRI 305 : Emissions 2016	305-3 Other indirect (Scope 3) GHG emissions	P.15, 59, 70, 99-100, 121-122, 129-130 ESG data (Climate change) (https://www.kirinholdings.com/en/investors/esg/esg/)
	305-4 GHG emissions intensity	P.71, 121-122, 127-128, 135 ESG data (Climate change) (https://www.kirinholdings.com/en/investors/esg/esg/)
	305-5 Reduction of GHG emissions	P.21, 59, 63-64, 66-67, 70-71, 99, 121-122, 130 Overcoming climate change (https://www.kirinholdings.com/en/impact/env/3_4a/)
	305-6 Emissions of ozone-depleting substances (ODS)	P.133
	305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	P.124, 133-134 ESG data (Reducing industrial wastes and preventing pollution) (https://www.kirinholdings.com/en/investors/esg/esg/)
Waste and prevention of pollution		
GRI 3: Material Topics 2021	3-3 Management of material topics	P.9-12, 19-22, 25, 34, 44-57, 107, 117, 120
GRI 306 : Waste 2020	306-1 Waste generation and significant waste-related impacts	P.34, 46, 89, 103, 107
	306-2 Management of significant waste-related impacts	P.11, 18-22, 34, 44-55, 89, 107
	306-3 Waste generated	P.121, 124, 133, 135 ESG data (Reducing industrial wastes and preventing pollution) (https://www.kirinholdings.com/en/investors/esg/esg/)

GRI Contents Index Standard	Disclosure matters	Page number or URL
GRI 306 : Waste 2020	306-4 Waste diverted from disposal	P.57, 121, 124, 127, 133, 135 ESG data (Reducing industrial wastes and preventing pollution) (https://www.kirinholdings.com/en/investors/esg/esg/)
	306-5 Waste directed to disposal	P.121, 124, 133
GRI 307 : Environmental Compliance 2016	307-1 Non-compliance with environmental laws and regulations	ESG data (Environmental management) (https://www.kirinholdings.com/en/investors/esg/esg/)
Supply chain		
GRI 3 : Material Topics 2021	3-3 Management of material topics	P.9-22, 25, 108-109 List of CSV Commitments for 2022-2024 (https://www.kirinholdings.com/en/impact/csv_management/commitment/) Sustainable Supply Chain (https://www.kirinholdings.com/en/impact/procurement/)
GRI 308 : Supplier Environmental Assessment 2016	308-2 Negative environmental impacts in the supply chain and actions taken	P.15, 17-18, 28, 32, 34, 37-38, 46, 89-90, 103 ESG data (Supplier) (https://www.kirinholdings.com/en/investors/esg/esg/)

TCFD Recommendations' Recommended Disclosure Index(2017 Edition)

Recommended Disclosure		Page
Governance	a) Describe the board's oversight of climate-related risks and opportunities.	P.75, 77, 105-106
	b) Describe management's role in assessing and managing climate-related risks and opportunities.	P.75, 77, 105-106
Strategy	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	P.14, 20, 75, 78-97
	b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	P.14, 60, 75-76, 78-97, 99
	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, 14-16, 59-61, 73-76, 78-97
Risk Management	a) Describe the organization's processes for identifying and assessing climate-related risks.	P.75, 98
	b) Describe the organization's processes for managing climate-related risks.	P.75, 98
	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	P.75, 98
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.14-16, 21-22, 25, 59-61, 70-71, 75, 99-101, 127-130
	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	P.15-16, 22, 25, 59, 70-71, 75, 99-101, 127-130
	c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	P.14-16, 21-22, 25, 59-61, 70-71, 75, 99-101, 127-130

SASB Content Index(October 2018 Edition)

Food & Beverage sector/ Alcoholic beverages industry　October 2018 version

Sustainability Disclosure Topics & Accounting Metrics

Topics	Accounting Metrics	Code	Disclosure
Energy Management	(1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable*a	FB-AB-130a.1	P.71, P.124, P.128
Water Management	(1) Total water withdrawn, (2) total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress*b	FB-AB-140a.1	P.101, P124
	Description of water management risks and discussion of strategies and practices to mitigate those risks	FB-AB-140a.2	P.10, P.18-19, P.21-23, P.36-43, P.73-85, P.101,P.106
Responsible Drinking & Marketing	Percentage of total advertising impressions made on individuals at or above the legal drinking age*c	FB-AB-270a.1	n/a
	Number of incidents of non-compliance with industry or regulatory labeling and/or marketing codes*d	FB-AB-270a.2	ESG Data (Social, Customer) (https://www.kirinholdings.com/en/investors/esg/esg/)
	Total amount of monetary losses as a result of legal proceedings associated with marketing and/or labeling practices*e	FB-AB-270a.3	ESG Data (Social, Customer) (https://www.kirinholdings.com/en/investors/esg/esg/)
	Description of efforts to promote responsible consumption of alcohol	FB-AB-270a.4	A Responsible Alcohol Producer (Our CSV Commitment) (https://www.kirinholdings.com/en/impact/csv_management/commitment/#sect01) A Responsible Alcohol Producer (Policy and System) (https://www.kirinholdings.com/en/impact/alcohol/policies/) Dealing with alcohol-related problems (https://www.kirinholdings.com/en/impact/alcohol/0_1/)
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	FB-AB-410a.1	P.23, P.45, P.56-57, P.124, P.126-127
	Discussion of strategies to reduce the environmental impact of packaging throughout its lifecycle	FB-AB-410a.2	P.10, P.20-23, P.44-57
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	FB-AB-430a.1	Initiative for sustainable procurement (https://www.kirinholdings.com/en/impact/procurement/promotion/) ESG Data (Social, Supplier) (https://www.kirinholdings.com/en/investors/esg/esg/)
Ingredient Sourcing	Percentage of beverage ingredients sourced from regions with High or Extremely High Baseline Water Stress*h	FB-AB-440a.1	P.38
	List of priority beverage ingredients and description of sourcing risks due to environmental and social considerations	FB-AB-440a.2	P.18-19, P.21, P.26-35, P.36-40

Activity Metrics

Activity Metrics	Code	Disclosure
Volume of products sold*i	FB-AB-000.A	P.124
Number of production facilities*j	FB-AB-000.B	P.123 Group Companies (https://www.kirinholdings.com/en/profile/organization/)
Total fleet road miles traveled*k	FB-AB-000.C	P.129

*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).
*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 Kirin Holdings discloses the self-assessment rate of suppliers, but not the rate of non-conformance. In the event of non-conformance, Kirin makes requests for correction.
*h The percentage of procurement from regions with high water stress is not disclosed, but water stress by country and the amount of water used in the raw agricultural commodity production area by country and its percentage by raw agricultural commodity 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 the Rational Use of Energy 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.128-129
Energy Management	(1) Operational energy consumed, (2)percentage grid electricity, (3) percentage renewable*b	FB-NB-130a.1	P.71, P.124, P.128
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.101, P.124
	Description of water management risks and discussion of strategies and practices to mitigate those risks	FB-NB-140a.2	P.10, P.18-19, P.21-23, P.36-43, P.73-85,P.101,P.106
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.com/en/investors/esg/esg/)
	Discussion of the process to identify and manage products and ingredients related to nutritional and health concerns among consumers*e	FB-NB-260a.2	List of Commitments and Outcome Indicators (1.1 Self-care support in the area of health and unwellness) (https://www.kirinholdings.com/en/impact/csv_management/commitment/#headline-1617243715)
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	n/a
	Revenue from products labeled as (1) containing genetically modified organisms (GMOs) and (2) non-GMO*g	FB-NB-270a.2	n/a
	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.com/en/investors/esg/esg/)
	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.com/en/investors/esg/esg/)
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-NB-410a.1	P.23, P.45, P.56-57, P.124, P.126-127
	Discussion of strategies to reduce the environmental impact of packaging throughout its lifecycle	FB-NB-410a.2	P.10, P.20-23, P.44-57
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	Initiative for sustainable procurement (https://www.kirinholdings.com/en/impact/procurement/promotion/) ESG Data (Social, Supplier) (https://www.kirinholdings.com/en/investors/esg/esg/)
Ingredient Sourcing	Percentage of beverage ingredients sourced from regions with High or Extremely High Baseline Water Stress*l	FB-NB-440a.1	P.38
	List of priority beverage ingredients and description of sourcing risks due to environmental and social considerations	FB-NB-440a.2	P.18-19, P.21, P.26-35, P.36-40

Activity Metrics

Activity Metrics	Code	Disclosure
Volume of products sold*m	FB-NB-000.A	P.124
Number of production facilities*n	FB-NB-000.B	P.123 Group Companies (https://www.kirinholdings.com/en/profile/organization/)
Total fleet road miles traveled*o	FB-NB-000.C	P.129

*a Fuel consumed by energy type and CO_2 emissions from transportation as a shipper are disclosed, but fleet fuel consumed is not disclosed."The percentage of recyclable vehicle fuel is not disclosed (not used).

*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 percentage of recycled material content in some containers is disclosed.

*k Kirin Holdings discloses the self-assessment rate of suppliers, but not the rate of non-conformance. In the event of non-conformance, Kirin makes requests for correction.

※l The percentage of procurement from regions with high water stress is not disclosed, but water stress by country and the amount of water used in the raw agricultural commodity production area by country and its percentage by raw agricultural commodity are disclosed.

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

*n Number of major production facilities is disclosed.

*o 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 the Rational Use of Energy is disclosed only for Japan.

Independent Assurance Report

KPMG

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 GHG 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 and Mercian Corporation marked with ☑ (the "Indicators") for the period from January 1, 2021 to December 31, 2021 included in its Kirin Group "Environmental Report 2022" (the "Report") for the fiscal year ended December 31, 2021.

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 Kyowa Pharma Chemical Co., Ltd. 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.

Kazuhiko Saito

Kazuhiko Saito, Partner, Representative Director
KPMG AZSA Sustainability Co., Ltd.
Tokyo, Japan
October 21, 2022

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.