

Scenario Analysis (TCFD)

Disclosure based on TCFD recommendations

For more details, the Environmental Report 2022 will be launched this October.

The 2022 “Disclosures based on TCFD recommendations and new guidance”^{*1} and “Transition plans” are disclosed below

*1:TCFD (2021) Guidance on Metrics, Targets, and Transition Plans

Targets, and Transition Plans

TCFD (2021) Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures

<https://www.fsb-tcfid.org/publications>

Introduction

In almost all of the Kirin Group’s businesses, we process agricultural products and water, put them in containers, and offer them to consumers as products. But, as the greenhouse gases produced during these processes cause climate change to become more severe, the biggest impact will be on biological and water resources, which are our ingredients. As such, it is fair to say that our businesses are very dependent on natural capital. Based on this understanding, since around 2010, prior to the publication of the TCFD final recommendations, we have conducted various risk surveys related to natural capital. We believe that this accumulation of many years’ knowledge about risk assessment in the value chain was what enabled us to begin scenario analysis soon after the TCFD final recommendations were published in 2017, and to disclose information in line with the TCFD recommendations in the Kirin Group Environmental Report 2018 as early as the end of June 2018.

All of the Kirin Group’s businesses are directly formed from the benefits of ecosystem assets and services. Reflecting this characteristic of our businesses, in the “Kirin Group’s Environmental Vision 2050,” we set forth four key issues: “biological resources,” “water resources,” “containers and packaging,” and “climate change.”

Japan and Australia are areas that make up a large proportion of our businesses. From a global perspective, water is relatively abundant in Japan, whereas Australia is a country with significant water stress, and the country has in fact experienced continuous large-scale droughts. We have operated our businesses in these two widely differing countries, giving the Kirin Group an understanding rooted in experience of the fact that water risk and water stress differ significantly between countries and regions. We also depend on Sri Lanka for most tea leaves for our mainstay brand, Kirin Gogo-no-Kocha. Accordingly, we are aware that our reliance on natural capital for the creation of corporate value and as a source of risk, as well as its impact, differ between places.

In this way, we consider the four key issues in the “Kirin Group’s Environmental Vision 2050” to depend on location, while also being mutually related and not independent issues at the same time, and Kirin’s approach is to solve these issues in a holistic manner.

Disclosure framework

The “Disclosure based on TCFD recommendations” section of this report uses the Task Force on Climate-related Financial Disclosures (TCFD) framework to explain how the Kirin Group assesses and analyzes the impact of climate change and whether we appropriately incorporate and promote measures to mitigate and adapt to climate change in our strategy, in order for us to appropriately transition our businesses to enable us to adapt to a decarbonized society, enhance our resilience, and lead the building of a decarbonized society, against the backdrop of the characteristic of our businesses being the fact that they are highly dependent on natural capital. In the 2022 report, we have referred to the new guidance that the TCFD published in October 2021. While referring to the proposed framework of the Taskforce on Nature-related Financial Disclosures (TNFD) ^{*2}, we have disclosed information related to natural capital (biological resources and water resources) that is important for our businesses in the section of this report on “Disclosure based on TCFD recommendations,” together with climate-related information in accordance with the TCFD framework, based on the fact that the TNFD framework itself is still being developed.

*2:The TNFD framework beta v0.1

We have disclosed information concerning our “LEAP (Locate, Evaluate, Assess, and Prepare)” approach to natural capital and our organization under the “AR3T” framework is disclosed below.

<https://framework.tnfd.global/wp-content/uploads/2022/06/TNFD-Full-Report-Mar-2022-Beta-v0-1.pdf>

Transition plans related to climate change

The Kirin Group has been continuously conducting scenario analysis since 2017, and we have found that climate change will cause significant declines in agricultural products that are important raw materials for the Kirin Group, water stress and water risk, and an increase in energy costs. Wherever we emit GHGs, they account for global warming. Accordingly, this is a global environmental issue, and we must all take responsibility. In order to respond to this crisis, the Kirin Group has formulated a roadmap for mitigating climate change, which we began implementing in January 2022, following deliberations and a resolution by the Group Executive Committee. When executing this roadmap, we will aim to balance economic and environmental considerations, as we aim to achieve our target of an SBT for 1.5°C with our profit and loss neutrality principle by 2030, across the Group as a whole. We have incorporated adaptation measures such as sustainable agricultural production and measures to address water stress into our management plans as non-financial targets.

Summary

	Initiatives	Progress in 2021 and 2022
Governance	<ul style="list-style-type: none"> • Significant matters such as basic policies related to the environment as a whole, including climate change issues: the Board conducts deliberations and makes resolutions • Setting of targets, such as upgrading to an “SBT for 1.5°C” target and joining RE100 initiative: the Group Executive Committee conducts deliberations and makes resolutions • Incorporation of group companies into management plans: establishment in CSV Commitments as a non-financial KPI • Responses to environmental issues across the Kirin Group: the “Group CSV Committee,” which is chaired by the CEO of Kirin Holdings and whose members are the CEOs of key Group companies and the senior executive officers of Kirin Holdings, conducts deliberations (meets three times a year) and reports its decisions to the Board • Reports and reviews at meetings of the Board: progress in environmental management and business risks and growth opportunities related to environmental issues (every year) 	<ul style="list-style-type: none"> • Increased the number of meetings of the Group CSV Committee (from once a year to three times a year) • Established the Group Environmental Meeting (meet twice a year) • Disclosure based on TCFD recommendations • The reduction of GHG emissions set as a non-financial KPI linked to executive compensation
Strategy	<ul style="list-style-type: none"> • Inputs for revisions to the long-term strategy, “Kirin Group’s Environmental Vision”: adoption of the Paris Agreement in 2015, the 2018 IPCC “Special Report on Global Warming of 1.5°C,” and the results of scenario analysis • Mitigation measures: upgrading to an “SBT for 1.5°C” target. Join RE100 initiative and expand our use of renewable energy • Adaptation measures: technologies for utilizing alternative sugars that do not depend on barley, mass plant propagation technologies, technologies that reduce water usage, and support for the acquisition of sustainable farming certification • Business opportunities: providing products that act as solutions for social issues caused by climate change, such as the spread of heatstroke and infectious diseases 	<ul style="list-style-type: none"> • Set targets for the reduction of GHG emissions for all operating companies in CSV Commitments, which are linked to the assessment of operating companies • Established large-scale solar power generation facilities at all Kirin Brewery plants using the PPA method (excluding the Yokohama Brewery) • Achieved a 100% rate of renewable energy for procured power at the Kirin Brewery Sendai Plant, after doing the same at the Nagoya Brewery • Achieved a 100% rate of renewable energy for procured power at three Château Mercian wineries

Governance and Strategy to Support Value Creation

	Initiatives	Progress in 2021 and 2022
Risk management	<ul style="list-style-type: none"> ● Risk management, including risks related to climate change: the Group Risk and Compliance Committee manages risk (meets each quarter) ● Response to risks that would significantly impact our businesses if they occurred, even if we do not know the probability that they will occur: introduction and operation of a new approach to identify and consider important risks by setting, analyzing, and assessing scenarios 	<ul style="list-style-type: none"> ● Started BCPs for all types of hazards
Indicators and goals	<ul style="list-style-type: none"> ● Long-term target: net zero GHG emissions across the value chain as a whole by 2050 (already received approval as "SBT for net zero") ● Medium-term target: reduce Scope 1+2 emissions by 50% and Scope 3 emissions by 30% by 2030, compared with 2019 ● Renewable energy: use renewable energy for 100% of electric power used by 2040 (join RE100 initiative) ● Other: establish CSV Commitments for each operating company 	<ul style="list-style-type: none"> ● Scope 1 + 2: reduced 13% (compared with 2019, result as of end-2021) ● Scope 3: reduced 12% (compared with 2019, result as of end-2021) ● Disclosure based on TCFD recommendations ● Set the reduction of GHG emissions as a non-financial target indicator linked to officer remuneration

Scenario analysis and incorporating in the strategy

Risk	Business impact	Financial impact	Strategy
Physical risk	Decline in yields of agricultural products	Approximately 2.5 billion yen to 9.7 billion yen (4°C scenario, 2050)	Brewing technology that does not rely on barley Mass plant propagation technologies Support for farms to acquire certification for sustainable agriculture
	Disruption of operations owing to floods	1.0 billion yen (200-year disasters, total of 20 locations in Japan)	Knowledge sharing Response at facilities
	Disruption of operations owing to droughts	0.03 to 0.6 billion yen	Knowledge sharing Water usage reduction technologies
Transitional risk	Carbon pricing	Approximately 1.0 billion yen (4°C scenario, 2030)	Achievement of "SBT for 1.5°C" target Mass plant propagation technologies Support for farms to acquire certification for sustainable agriculture
	Financial impact of energy	Approximately 9.5 billion yen to 427.0 billion yen (1.5°C scenario, 2030)	
Business opportunity	Financial impact of agricultural products	1.6 billion yen to 5.7 billion yen (RCP8.5 scenario, 2050)	Contribution to Health Science domain Products to address heatstroke
	Spread of infectious diseases	28,961.4 million US dollars (global sales of immunity and health supplements in 2030)	
	Carbon pricing	94.0 billion yen to 188.0 billion yen (4°C scenario)(size of Japanese market for non-alcoholic beverages that prevent heatstroke in 2100)	
	Increase in the number of persons requiring emergency services as a result of heatstroke		

Indicators and goals

Financial impact

Financial impact from climate change	
Procurement costs from lower agricultural yields	2°C scenario: Approximately 0.9 billion yen to 2.5 billion yen 4°C scenario: Approximately 2.5 billion yen to 9.7 billion yen (Both by 2050. Assessed using the middle 50th percentile of the distribution of forecast data for price fluctuations)
Damage to business sites from water risk	Approximately 1.0 billion yen to 5.0 billion yen
Damage to business sites from water stress	Approximately 30 million yen to 0.6 billion yen
Energy costs from carbon pricing	2°C scenario: 1.0 billion yen 4°C scenario: 6.9 billion yen (Both by 2030. If we do not take measures to reduce GHG emissions)
Agricultural product procurement costs from carbon pricing	2°C scenario: Approximately 0.7 billion yen to 3.0 billion yen 4°C scenario: Approximately 1.6 billion yen to 5.7 billion yen (Both by 2050. Assessed using the middle 50th percentile of the distribution of forecast data for price fluctuations)

Adaptation measures

Related indicator	Target	Actual results
Number of small farms in Sri Lanka that received training for the acquisition of certification in Sri Lanka	10,000 farms (2025)	2,120 farms
Ratio of certified palm oil used in Japan	Maintain 100%	100%
Lion water efficiency	2.4kL/kL (2025)	3.8kL/kL
Kyowa Hakko Bio water usage	32% reduction compared with 2015 (2030)	52% reduction compared with 2015
Ratio of FSC-certified paper used for paper consumers in the Japan Non-alcoholic Beverages Businesses	Maintain 100%	100%
Ratio of recycled materials used in PET bottles	50% (2027)	4.9%

Investment plans and fundraising

Climate-related capital investment in the 2019 medium-term plan (2019 to 2021)	6.2 billion yen
Total amount allocated from green bonds in 2020 (cumulative)	3.4 billion yen
Climate-related capital investment in the 2022 medium-term plan (2022 to 2024)	Approximately 10.0 billion yen
Main environmental investment policies	
Introduction of heat pump systems (2019 to 2028)	2.0 to 3.0 billion yen
Introduction of solar power generation (2021 to 2029)	2.0 to 3.0 billion yen
ICP (Internal Carbon Pricing)	7,000 yen/tCO ₂ e

Mitigation measures

GHG emissions reduction target (relative value)	Time when we set targets: February 3, 2020	
	Target	Actual results
GHG emissions across the entire value chain	Net zero (2050)	4,411 thousand tCO ₂ e
Scope1+2	50% reduction (2030 / vs. 2019)	13% reduction
Scope3	30% reduction (2030 / vs. 2019)	12% reduction
Proportion of renewable energy in electric power used	100% (2040)	17%

* We have received approval from SBTi for our "GHG emissions across the entire value chain," "Scope 1 + 2" and "Scope 3" targets as an "SBT for net zero" and "SBT for 1.5°C" target. We have also received approval for our renewable energy target under RE100.

Progress on medium-term GHG emissions reduction target from SBT (2021)

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

■ Scope3

Scope3		Total
Scope3		3,688,961
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
Upstream	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)	—
9	Transportation and delivery (downstream)	765,018
10	Processing of sold products	—
11	Use of sold products	8,719
Downstream	12 Disposal of sold products	34,383
13	Leased assets (downstream)	—
14	Franchises	—
15	Investments	—
Reduction rate (compared to 2019 base year)		-12%

* For water resources, we have set indicators and goals for countries and regions where there is major water stress, as non-financial targets for the Group. For other group companies, we have also set targets in CSV Commitments or EMS for each company, depending on the level of water stress.

Governance and Strategy to Support Value Creation

GHG emissions reduction track record

Our reduction of GHG emissions for Scope 1, Scope 2, and Scope 3, as well as across the value chain as a whole, were as follows.

