08 Disclosure Based on the TCFD and TNFD Frameworks

Impact of climate change and natural capital on business and Kirin Group's holistic approach

Industries like that of the Kirin Group, which rely on the blessings of nature such as water and agricultural products, are particularly susceptible to the impact of environmental issues, and it is essential to take prompt action to overcome this challenge. Because such challenges arise in a complex nature, an understanding of trade-offs is crucial. The Kirin Group's basic problem-solving approach is a holistic one that addresses inter-related environmental issues (biological resources, water resources, packaging, and climate change) in an integrated manner.

The Kirin Group analyzes the risks and opportunities that various sustainability issues, including environmental challenges, pose to society and the company, and reflects the risks and opportunities in its strategies to enhance resilience. It then discloses information to various stakeholders in accordance with the frameworks recommended by the Task Force for Climate-related Financial Disclosure (TCFD) and the Task Force for Nature-related Financial Disclosure (TNFD).

Disclosure framework

The Kirin Group has disclosed climate related financial information since 2018 in conformity with the recommendations published by the TCFD in 2017. The Kirin Group was a global pioneer in disclosing information based on the LEAP approach advocated in the beta version of the TNFD framework in 2022. From 2023, we began holistic information disclosure on climate change and natural capital based on both frameworks.

This section describes how the Kirin Group is analyzing and assessing climate change and natural capital challenges, enhancing resilience, and driving a holistic transition strategy to lead a decarbonized society and address natural capital challenges in a nature positive manner, in accordance with the TCFD guidance released in October 2021 and TNFD recommendations released in September 2023.

Details are available in our Environmental Report and on the company's website.

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

Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures(October 2021) https://www.fsb-tcfd.org/publications/

*TNFD recommendations: Taskforce on Nature-related Financial Disclosures (TNFD) Recommendations (September 2023)

Taskforce on Nature-related Financial Disclosures https://tnfd.global/tnfd-publications/

Governance

Supervisory structure

At the Kirin Group, the Board of Directors discusses and decides the basic policy for CSV, including environment-related issues, medium- and long-term strategies, annual plans, and important non-financial targets and KPIs, including environmental targets. It conducts quarterly monitoring of the execution of the Group's environmental operations and material risks, including climate change, natural capital, and a circular society, by monitoring the progress of non-financial targets. When considering transactions such as corporate acquisitions, the Board of Directors takes a variety of factors into account before making its decisions, including the results of environmental due diligence (carbon footprint, exposure to climate risk, stranded assets, etc.), and risk avoidance and mitigation, opportunity maximization, and trade-off perspectives.

Excerpts of the reports of the Board of Directors for fiscal 2024 (Held 3 times)

April 24
- The Kirin Group's environmental investment policy for 2025 and beyond was shared. The discussion and dialogue process concerning environmental investment (capital investment, increased renewable energy spending, etc.) and business profit targets will be clarified. The Board will aim to build consensus on targets that combine non-financial and financial expectations.
- Opinions were exchanged about updating the GMM and CSV Purpose for 2025 and beyond.

July 4
- Information was shared about future initiatives for reducing Scope 3 emissions and the revision of the ARP policy.
- Professor Kunio Ito, Director of Hitotsubashi University CFO Education and Research Center gave a presentation to the Board on the topic of deepening sustainable human capital management.
- Opinions were exchanged on materiality for the operating companies (representatives of Kirin Brewery, Kirin Beverage, Kyowa Kirin, and Blackmores)

November 11
- The Board received an update of ESG information and a report from ESG evaluation body on evaluation results. Discussions were held about the impact of change in U.S. administration, need for medium- to long-term investment, etc.
- The Board received a report on the status of non-financial disclosure responses. The Board confirmed the need to identify risks and opportunities of each sustainability issue, incorporate them into strategy, and conduct monitoring.

Executive structure

In the Kirin Group, the Executive Committee deliberates and makes resolutions concerning the setting and revision of important targets, as well as investment plans, related to environmental issues as a whole, such as climate-related issues, natural capital, and the circular economy. The Executive Committee receives reports from operating companies and divisions on the status of achievement of targets and risks, and supervises these operating companies and divisions.

The Group CSV Committee has been established to discuss environmental and other CSV issues across the Kirin Group. The committee is an advisory body to the President and is co-chaired by the CEO and President of Kirin Holdings, with its members being the CEOs of key Group companies and senior officers of Kirin Holdings. In 2022, Kirin Holdings increased the frequency of meetings of the Group CSV Committee and newly established the Group Environmental Meeting under the Group CSV Committee. Through this structure, Kirin Holdings is strengthening its initiatives targeting sustainability-related issues, as required by Japan's Corporate Governance Code following revisions in 2021.

Committees	Chairperson	Committee Members	Main agenda	Meeting Frequency
Group CSV Committee	KH CEO/COO	• KH internal Directors • Kirin Group CEOs of the major operating companies in Japan and overseas	• Exchange of opinions on Group CSV policies, strategies, and action plans • Monitoring the status of implementation of CSV-related initiatives at Group companies • Reporting from affiliated meetings	Three times a year; held once as the Group ESG meeting
Group Environmental Meeting	Executive officer of CSV	• Executive officer in charge of SCM strategy • General Manager of CSV Strategy Department of KH • General Manager of Corporate Strategy Department of KH • General Manager of Financial Strategy Department of KH Others	• Monitoring progress of road maps set for sustainability-related risks and opportunities and for individual environmental issues and exchanging opinions of policies, strategies, and plans	Twice a year

Performance-linked remuneration

Considering the importance of environmental issues, including climate change, we have established non-financial environmental KPIs (Group Scope 1 and Scope 2 reduction targets, water efficiency at Lion manufacturing bases experiencing high water stress, recycling of PET bottles) as management indicators in our Medium-Term Business Plan and set executive remuneration to be linked to the evaluation of their achievement.

Environmental issues, including climate change, are targeted as non-financial KPIs for Group companies, and the KPIs are reflected in each company's management plan and senior officers' performance evaluations, applying CSV commitment management process.

Risk management

For risks such as climate change, which will have an extremely large impact on our businesses if they occur, even though the probability of occurrence is uncertain, we have adopted a new approach to identify and examine important risks by setting scenarios and using them to analyze and assess risks. In scenario analysis, we utilize various research papers, science-based risk assessment tools such as Aqueduct, etc. The Group Environmental Meeting and the Group CSV Committee share and discuss risks and opportunities identified through scenario analysis, then submit and report them to the Board. The Group Risk and Compliance Committee Secretariat also receives reports on such risks, and manages them together with other risks.

Additionally, we appropriately reflect internal examples of sustainability-related risks, such as responses to climate disasters, in annual risk and compliance training for all employees, and share this information within the Group in order to strengthen resilience across the Group as a whole.

Results of impact assessment and response strategy

Since 2017, we have continuously conducted climate change scenario analysis, which has improved our level of understanding and strategies related to risks and opportunities posed by climate change. In addition to our own production sites and breweries, we analyze the financial impact of factors such as yields of agricultural products, procurement costs, and carbon pricing, etc. The financial impacts related to natural capital and containers and packaging are estimated based on the following approach, considering factors such as dependency and impact on nature.

The financial impact and strategy are as follows.

Financial impacts

	Business risks/Social issues	Financial impact	Response
Physical risk	Decline in yields of agricultural products	2°C scenario: Approx. 1.3 billion yen to 3.4 billion yen 4°C scenario: Approx. 3.6 billion yen to 13.7 billion yen (2050)*1	• Brewing technology that does not rely on barley • Mass plant propagation technologies • Support for farms to acquire certification for sustainable agriculture
	Disruptions of operations owing to floods	Approx. 1 billion yen (200-year disasters, total of 20 locations in Japan)	• Sharing flood knowledge • Equipment and facility measures against flooding
	Disruptions of operations owing to drought	Approx. 0.03 billion yen to 0.6 billion yen	• Sharing drought knowledge • Development and deployment of water usage reduction technology
	Negative impact of PET bottles	Approx. 1.1 billion yen	• Expansion of mechanical recycling • Establishment of chemical recycling manufacturing technology
Transitional risks	Financial impact of energy due to carbon pricing	2°C scenario: Approx. 9.4 billion yen 4°C scenario: Approx. 5.1 billion yen (2030)*2	• Achieving GHG emission reductions • Energy transition on a profit and loss neutral basis
	Financial impact of agricultural products due to carbon pricing	2°C scenario: Approx. 0.9 billion yen to 4.4 billion yen 4°C scenario: Approx. 2.4 billion yen to 8.8 billion yen (2050)*3	• Mass plant propagation technologies • Support for farms to acquire certification for sustainable agriculture
	Procurement of certified products from certified sustainable farms	Approx. 0.06 billion yen	• Support for farms to acquire certification for sustainable agriculture • Procurement of sustainable raw materials
Business opportunities	Maintenance of immune function in healthy people	Market for immunity and health supplements Approx. 28,961.4 million US dollars (2030)	• Contribution in the Health Science Domain
	Prevention of heatstroke	Market for non-alcoholic beverages that prevent heatstroke: 94.0 billion yen to 188.0 billion yen (2100, 4°C scenario)	• Contribution in heatstroke-prevention beverages
	Reduction of food waste	Approx. 0.9 billion yen	• Reduction of product disposal
	Financial impact from the reduction of chemical fertilizers and pesticides for coffee farms in Vietnam	Approx. 0.11 billion yen*4	• Enhancement of engagement

*1 Assessed using the middle 50th percentile of the distribution of forecast data for price fluctuations
*2 Cases when GHG emissions are not reduced
*3 Assessed using the middle 50th percentile of the distribution of forecast data for price fluctuations
*4 Estimated based on interviews with local coffee farms

Result of analysis of the impact on assets

From 2023 to 2024, we conducted an analysis of the impact of climate change on assets, as required by the new TCFD guidance. In terms of the impact on business acquisitions, the results of Blackmores, which joined the Group in 2023, and FANCL, which was added to the scope of calculations due to an increase in the percentage of voting rights held, will be reflected in the Group's environmental data from 2024 and their impact will be evaluated.

The financial impact of natural disasters and similar events has been assessed to be small. The company estimated exposure to general 200-year disasters (total of 20 business sites in Japan) as shown at right. The company also investigated and analyzed the possibility of being forced to discontinue the use of boilers, delivery trucks, and other equipment before the end of their service life owing to laws and regulations, etc. Kirin Holdings believes that it is unlikely that there will be a material financial impact on our assets due to tightening of the laws. For reference, the company discloses this information as "Residual value of related facilities."

In scenario analysis, the company has utilized multiple research findings and included differing views, but taken as a whole, the findings show that the impact of climate change on agricultural products and water is inevitable, which is consistent with the recognition at right.

Although the company has judged that there will be no major impact that will change the structure of its industry, the impact on the company that creates value depending on ecosystem services generated by natural capital will not be small. The company has determined that it is essential to continue its focus on reducing GHG emissions, working to make agricultural production areas sustainable, and addressing water risk and water stress.

The company understands the social issues related to heatstroke and infectious diseases caused by climate change. Also, the company expects to contribute in the Health & Well-being domain, which the Kirin Group defines as a growth area.

Financial impacts

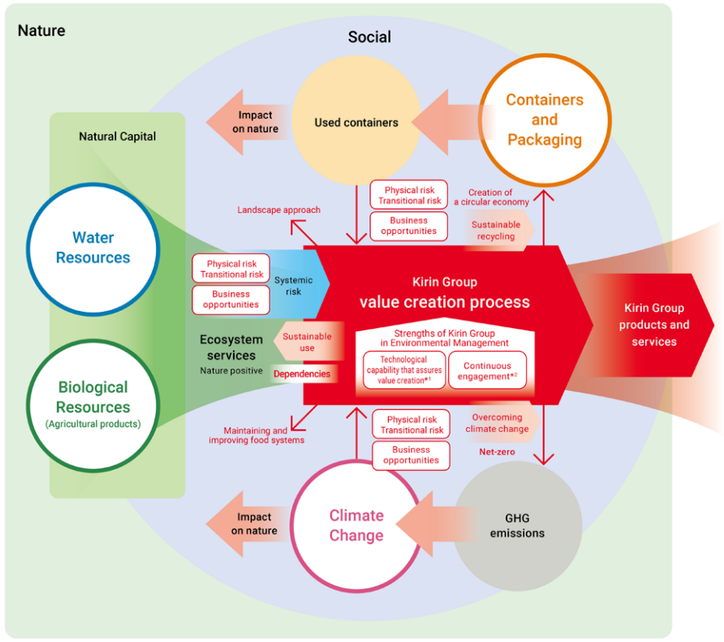
Analysis item	Impact
Exposure from a 200-year disaster at 20 business sites in Japan	Approx. 1.0 billion yen*5
Residual value of related facilities	Approx. 1.1 billion yen*6

*5 No changes since last year
*6 No changes since last year

Strategy

As shown in the Kirin Environmental Value Correlation Chart, global warming due to climate change, changes in rainfall, and natural disasters have significant impacts on agricultural products and water, which are important raw materials. On the other hand, conservation and restoration of natural capital can also be climate change mitigation and adaptation measures under the realm of Nature-based Solutions to social issues. The company understands these relationships and takes holistic approaches to solve environmental issues by leveraging our research, technology development, and engineering capabilities.

Kirin's Environmental Value Correlation



- With regard to climate change, Kirin Holdings sets net zero emissions target for 2050 in the Kirin Group's Environmental Vision 2050, which was renewed in 2020 using TCFD scenario analysis as input. The company sets intermediate targets by setting SBT 1.5°C and net-zero targets and joining RE100. The company encourages reduction of GHG by business partners in addition to the company's own emissions.
- For natural capital, the company will consider location-specific conditions and dependency under the Kirin Group Action Plan for the Sustainable Use of Biological Resources, utilizing the LEAP approach advocated by TNFD. While doing so, we will improve the resilience of our businesses by sustainable procurement of raw agricultural products and use water resources. The company promotes sustainable procurement of raw materials and sustainable use of water under the Action Plan, and the activities can also be mitigation measures against climate change. The company will improve the resilience of its businesses through the activities.
- In the area of containers and packaging, the company will contribute to building a society in which plastics are recycled by achieving the 50% target for the use of recycled plastic resin in PET bottles in Japan by 2027 and developing sustainable containers and packaging, while the company aims to reduce Scope 3 GHG emissions and the impact on the natural environment.
- The company participates in the following to promote holistic approaches to climate change, natural capital, and other environmental challenges and to contribute to global rulemaking of environmental issues.
  - Alliance to End Plastic Waste (joined in 2021)
  - SBTN Corporate Engagement Program (Joined in 2021 as the first company to do so in the Japanese pharmaceutical and food and beverage industries)
  - Participated in the TNFD Forum from 2021. Participated in pilot testing in 2022. TNFD Adopter registration in 2023.

Adaptation/ Mitigation	Important issue	Strategy	Progress
Adaptation (Sustainable use of natural capital)	Biological resources	• Brewing technology that does not rely on barley • Mass plant propagation technologies • Support for farms to acquire certification for sustainable agriculture	• Establishment of mass plant propagation technology for hop seedlings • Participated in SBTN Corporate Engagement Program (2021) and TNFD pilot test (2022)
	Water resources	• Sharing flood knowledge • Equipment and facility measures against flooding • Sharing drought knowledge • Development and deployment of water usage reduction technology	• Started surveys of high-risk business sites for insurance coverage, utilizing the results of simulations of natural disasters and floods (2015) • Implemented flood prevention measures and equipment measures at pharmaceutical plants that must ensure a stable supply of products (2022) • Support for tea farms to acquire certification for sustainable agriculture in Sri Lanka and continuing appropriate water conservation considering water stress (since 2013)
Mitigation (Minimize impact on natural capital)	Containers and packaging	• Promotion of PET-to-PET recycling • Creation of more lightweight containers	• Joined Alliance to End Plastic Waste (2021) • Increased use of R100 PET bottles made with 100% recycled resin • Commercialization of chemical recycling
	Climate change	• Achieving GHG emission reduction targets based on scientific evidence • Energy transition on a profit and loss neutral basis (from 2030)	• Fine-tuned understanding the financial impact of climate change (from 2022), including analysis and evaluation of asset risks and opportunities in scenario analysis in full conformity with new TCFD guidance. Holistic disclosure of financial impact of climate change and natural capital by conducting assessments to understand natural capital dependencies, impacts, risks, and opportunities (2023) • Developed a roadmap to reduce GHG emissions by 2030 (2022), updated every year. Set and implemented reduction targets and processes for Group companies • Installed large-scale solar power generation facilities in all Kirin Brewery plants (2021), Kyowa Kirin Ube Plant, and Mercian Fujisawa Plant (2023), and Kyowa Hakko Bio Hofu Plant (2024), based on the PPA model (except for the Yokohama Brewery). Achieved 100% of procured electricity from renewable energy sources at Kyowa Kirin's Takasaki Plant, all Lion Australia and New Zealand locations (2023), all Château Mercian wineries (2022), and all Kirin Brewery plants and sales bases (2024) • Became the first food and beverage company in the world to obtain approval for an SBT Net-Zero (2022) • In addition, we are working to reduce GHG emissions throughout the value chain by considering the procurement of low-GHG-emitting raw agricultural products and materials, and raising the ratio of recycled resins used in PET bottles. Made reductions with an emphasis on engagement, including collaborative consideration of reduction measures based on each company's reduction plan and reduction progress identified through surveys of major suppliers and the Kirin Supply Chin Environmental Program (2023)

Adaptation/ Mitigation	Important issue	Strategy	Progress
Business opportuni-ties	Infectious diseases	• Provision of products to address this issue	• Expansion of product lineup • Supply of materials to partner companies
	Heatstroke	• Provision of non-alcoholic beverages that prevent heatstroke	• Raising awareness of heatstroke
	Sustainable procurement	• Accumulating knowledge and promoting environmentally regen-erative agriculture that contributes to climate change mitigation and adaptation	• Started development of “The Regenerative Tea Scorecard” in partnership with the Rainforest Alliance in Sri Lanka
	Develop-ment of value-added products	• Climate change	• Launched Australia’s first carbon-neutral alcohol-free beer, *XXXX Zero* (2022) Also rolled out multiple carbon neutral products, such as a carbon neutral beer in the United States

Transition plans

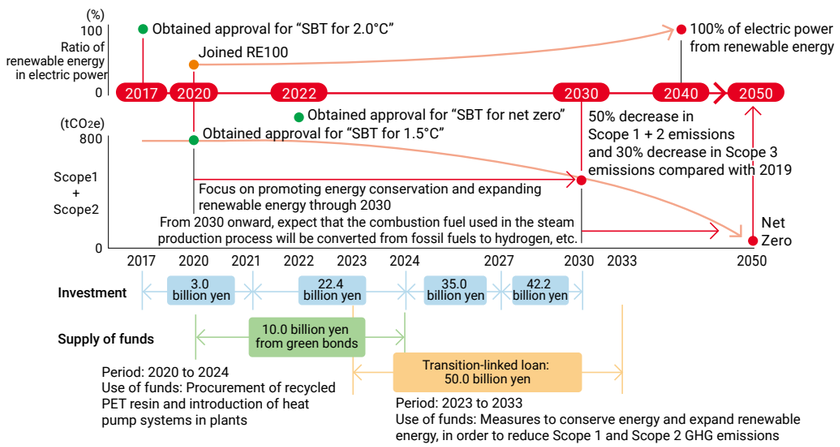
The Kirin Group has formulated a roadmap, together with investment and financing plans, for achieving science-based GHG emissions reduction targets and net zero targets, with the aim of keeping the global average temperature increase at 1.5°C or lower compared with pre-industrial levels. The group began operating these plans in January 2022, after they were deliberated and resolved by the Executive Committee. Regarding natural capital, in addition to ecosystem conservation, the group is considering developing a roadmap that includes climate change mitigation and adaptation measures as Nature-based Solutions to social issues. As for PET bottles, the group has formulated a roadmap for a 50% ratio of recycled resin use in Japan 2027 and is now working to achieve this target. Going forward, the group will continue to clarify holistic investment plans and funding measures for natural capital and climate change.

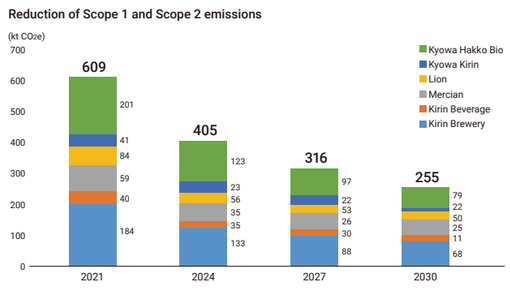
For Scope 3, the group will continue to explore and experiment with reduction measures, starting with containers and packaging and agriculture, in collaboration with suppliers through the Kirin Supply Chain Environmental Program. Regarding climate change adaptation measures, the group will expand the promotion of sustainable agriculture and forestry. The group will also participate in a pilot program and lead rulemaking for an international initiative to develop a natural capital target-setting methodology and disclosure framework. The roadmap will be reviewed periodically and updated appropriately, considering scientific advances, regulations, and other factors.

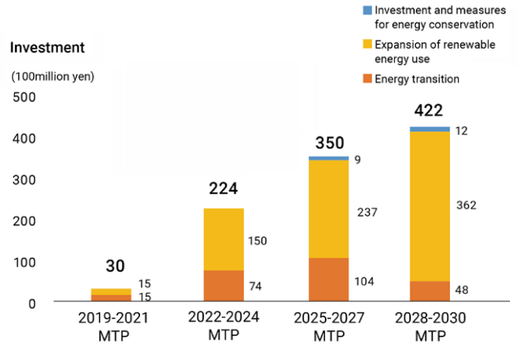
Investment

Through 2030, the Kirin Group will maintain profit and loss neutrality in principle, and the merit from saving energy will offset depreciation and amortization from the investment and the increased costs of renewable energy introduction. We use NPV (Net Present Value) as an indicator for environmental investments aimed mainly at reducing GHG emissions, and the group introduced Internal Carbon Pricing (ICP; $63/t CO_2e) into its framework for making investment decisions. Following green bonds (period: 2020-2024, 10.0 billion yen) issued to finance the procurement of recycled PET resin and the introduction of heat pump systems at plants, in January 2023 the Kirin Group became the first food and beverage company in Japan to raise funds through a transition-linked loan (period: 2023-2033, 50.0 billion yen), which is aimed at financing energy conservation and renewable energy-related projects that will contribute to reducing Scope 1 and 2 greenhouse gas (GHG) emissions. This loan is eligible for the Ministry of Economy, Trade and Industry (METI)’s FY2022 subsidy for global warming countermeasures promotion project, as well as performance- linked interest subsidies (financial support for promoting the transition towards achieving a carbon-neutral economy) under the Industrial Competitiveness Enhancement Act.

Roadmap to net zero







Reduction of Scope 1 and Scope 2 emissions

The Kirin Group will take a three-pronged approach to reducing Scope 1 and Scope 2 emissions, namely: “promotion of energy conservation,” “expansion of renewable energy,” and “energy transition.” By 2030, we will raise our energy efficiency and reduce energy consumption, and shift our energy mix from fossil fuels to electric power, taking advantage of electricity generated from renewable energy.

From 2030 onward, combustion fuel in the steam production process will need to be converted from fossil fuels to hydrogen, etc. that do not emit GHGs in order to achieve net zero emissions by 2050. A demonstration project for energy conversion from fossil fuels to green hydrogen energy is scheduled to start at the Kirin Brewery Hokkaido Chitose Plant. The group will be involved in policy advocacy and rulemaking, emphasizing the “additionality” of creating and increasing new renewable energy sources in the world, and the “ethics” of energy use from the perspective of environmental impact and human rights.

Reduction of Scope 3 emissions

Of the categories in the GHG Protocol, the group will focus our efforts on Category 1 (purchased goods and services), which accounts for about 67% of the Kirin Group’s Scope 3 emissions, followed by Category 4 (upstream transportation and distribution) and Category 9 (downstream transportation and distribution) and work toward “encouragement of reduction at business partners,” as well as the “reduction of its own independent emissions.” In the area of “encouragement of reduction at business partners,” we have established the Kirin Supply Chain Environmental Program and have strengthened collaboration with 19 suppliers. With this initiative, we will proceed with the switch to raw materials with low GHG emissions, including the introduction of recycled can lids that use less primary aluminum, enabling a 40% reduction of GHG emissions compared with conventional products. As an approach to agricultural products, together with our suppliers, we have started deliberating the carbon sequestration effects of environmentally regenerative agriculture of barley. In the area of “reduction of the company’s own independent emissions,” we are working to reduce the weight of containers and packaging and to improve the rate of plastic bottle recycled resin used, leveraging the strength of our in-house research institute to develop our own containers and packaging.

In a pilot test, Lion worked with suppliers and customers to pool actual GHG emission figures to a third party without mutual disclosure, and demonstrated that the company could raise its Scope 3 reduction targets. This approach was published by the Australian “Climate Leaders Coalition” as the “Scope 3 Roadmap” and presented by the CEO of Lion at COP27 held in 2022.

Encourage-ment of reduction at business partners	Plan to prioritize engagement as we re-duce emissions, based on each company’s reduction plans and quantitative and quali-tative progress identi-fied through surveys of major suppliers
Reduction of our own inde-pendent emissions	Reduce the weight of containers and pack-aging and increase the use of recycled PET resin, leveraging the strength of our in-house research institute to develop our own containers and packaging

Metrics and targets*7

Response	Item	Target	Achievements (End of 2023)
Targets related to climate change	GHG emissions from the entire value chain (relative value)	Net-zero (2050)	3,942 kt CO_2e
	Scope1 + 2	-50% (2030 compared to 2019)	-31%
	Scope 3*8	-30% (2030 compared to 2019)	-10%
	Ratio of renewable energy purchased electric power	100% (2040)	42%
Targets related to natural capital	Number of large tea farms in Sri Lanka that received training for the acquisition of certification	Cumulative total of 15 large farms (2022 to 2023)	4 large farms
	Number of small tea farms in Sri Lanka that received training for the acquisition of certification	Cumulative total of 5,350 small farms (2022 to 2023)	629 small farms
	Ratio of certified palm oil in Japan	Maintain 100%	100%
	Water efficiency in Lion	2.4 kl/kl (2025)	3.3kl/kl
Targets related to containers and packaging	Percentage of recycled materials used in PET bottles	50% (2027)	28%
	Percentage of FSC-certified paper used for paper containers in the domestic beverage business	Maintain 100%	100%

*7 As of the end of 2023
*8 Used IDEA (Inventory Database for Environment Analysis) version 2.3 and version 3.1-3.3 developed by The Research Institute of Science for Safety and Sustainability to calculate Scope 3 emissions for each fiscal year