



# Environmental Management

## Kirin Group's Environmental Policy

### Basic policy

Kirin Group, a supplier of food and health products, will contribute to building a society where people and nature live in harmony by reducing the carbon footprint of all its business operations, implementing environmental conservation activities, and bringing environmental value to its customers.

### Activity policy

1. Implementing an environmental policy throughout the entire value chain and all aspects of business activities, and
2. Assuring the quality of environmental activities through assessments and audits.

Under the leadership of top management and through the participation of all employees, Kirin Group will incorporate environmental measures into business management and pursue challenging goals by recognizing them as one of the top management priorities.

#### ●Legal requirements

We will comply with environmental laws, regulations, and agreements as well as voluntary control standards with high moral values.

#### ●Technological development

We will develop technologies that coexist with nature and are valuable for both the global environment and our customers

#### ●Environmental management

We will develop an environmental management system and make continuous improvements in accordance with our business strategy

#### ●Human resources development

We will make continuous efforts to develop human resources who contribute to environmental conservation activities

#### ●Environmental performance

We will promote resource/energy saving, reduce greenhouse gas emissions, prevent environmental pollution, and promote the 3 R's (Reduce, Reuse, Recycle).

#### ●Communication

We will conduct community-based environmental conservation activities while providing accurate environmental information to increase transparency and gain trust

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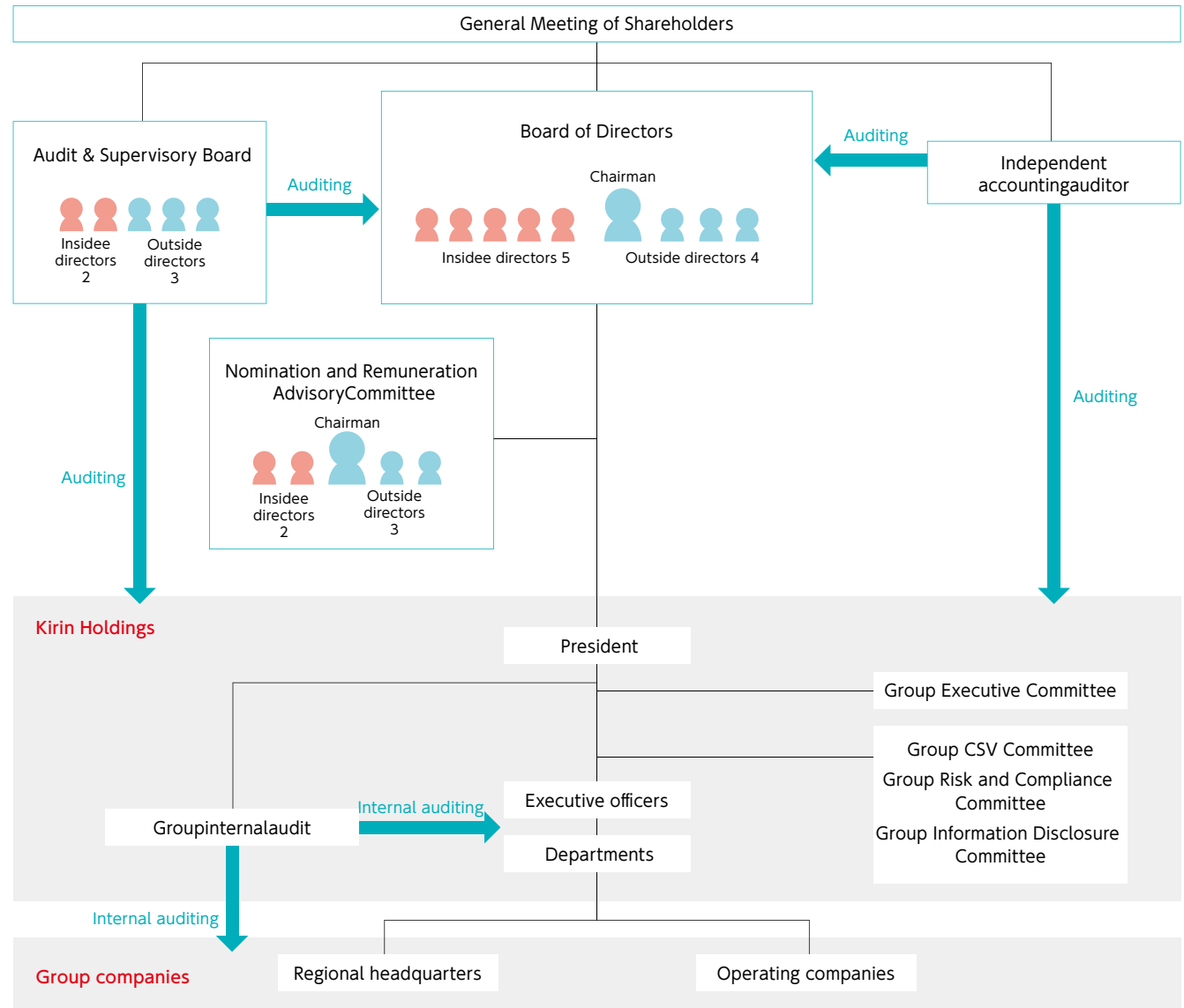
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# Corporate Governance System

## Basic view on corporate governance

In line with the Group's corporate philosophy and the "One Kirin" values that are shared across the Kirin Group, the Group believes that achieving the 2021 Vision outlined in its long-term management vision New KV2021 will lead to the Group's sustainable growth and to greater corporate value over the medium to long term. Accordingly, the Group will develop a corporate governance system that can effectively and efficiently reach that goal.

The Kirin Group believes that cooperation with its stakeholders will be indispensable to putting its corporate philosophy into practice and turn the 2021 Vision into reality, and therefore the Group respects its stakeholders' respective viewpoints. We will promptly disclose information to shareholders and investors based on transparency, fairness and continuity, actively engage in constructive dialogue, and fulfill accountability in good faith.



## Promotion and Management System

### Risk Management System

The Kirin Group defines risk as any uncertainties that would have a major impact on the achievement of management goals and the continuity of the company. A risk management system has been established to recognize risks accurately in light of new strategies and key changes in the external environment and to respond to them appropriately. The risk management process involves the extraction of highly material risks from two perspectives: the risk that business plans will not be achieved and risks that could develop into a crisis. In the process of developing the annual plans, each Group company selects its material risks according to its strategies and business environment analysis, based on the above perspectives, and prepares a risk statement and risk response plan. The management of environmental risk is also addressed within this risk management system.

Kirin Holdings oversees risk management for the Group as a whole. As well as checking the individual companies' material risks, it considers the impact on the Group in the event that a risk materializes and sets up the material risks for the Kirin Group.

### Major identified risks

#### ■ Risks related to business environment

- 1 Laws, regulations, and tax systems
- 2 Fluctuations in foreign currency exchange rates and interest rates
- 3 Increases in raw material/energy prices, and logistics costs
- 4 Weather, climate change, natural disasters, and infectious diseases
- 5 Financing
- 6 Changes in the value of asset holdings
- 7 Changes in the trends of economic and market environments and population movements
- 8 Overseas operations

#### ■ Risks related to business operations

- 1 Business and capital alliances
- 2 Human resources
- 3 Product safety
- 4 Information leakage and information systems
- 5 Occurrence of litigation and fines

\* Each risk item is reviewed every year.

The individual companies implement a risk management cycle, which includes quarterly monitoring of the status of risk response plans and, where necessary, a review of their selected risks. The Group Risk and Compliance Committee also receives regular reports from the individual companies on their risk status and provides directions and support as necessary to strengthen and promote the Group's risk management.

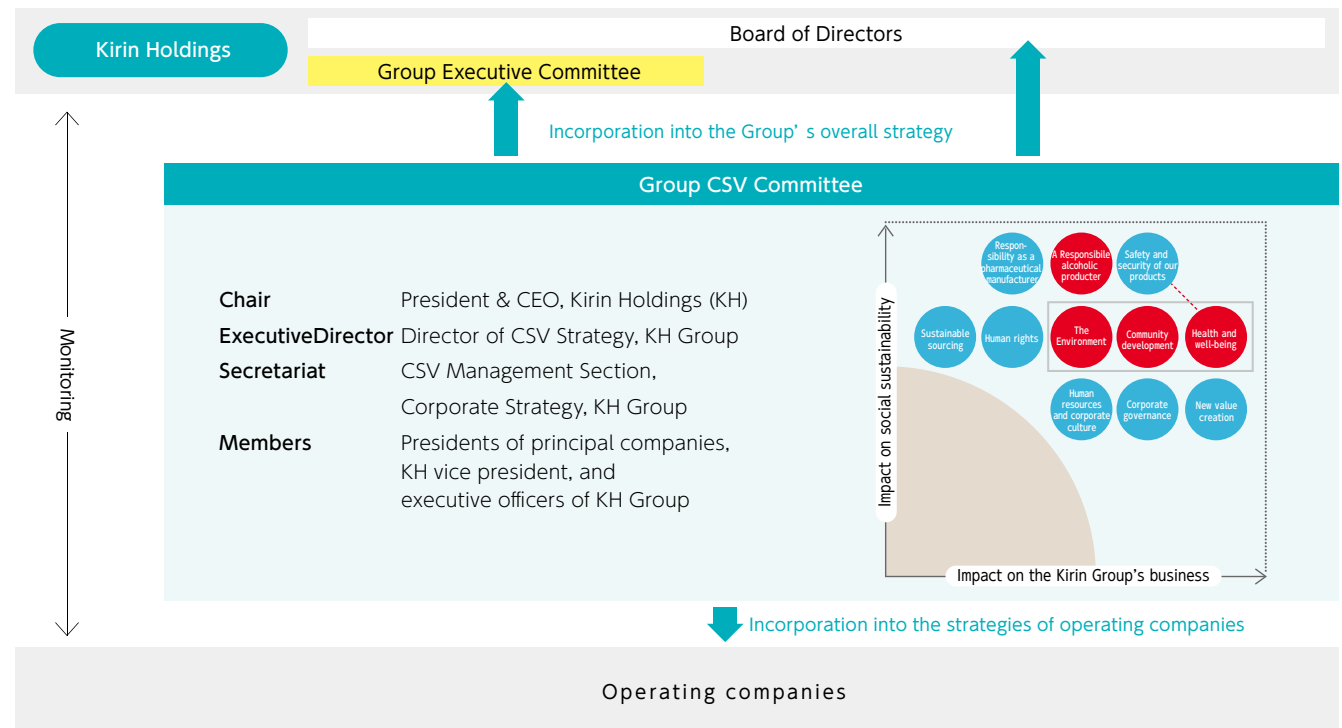
### Group CSV Committee

The Kirin Group convenes its Group CSV Committee once a year as a general rule to encourage the proactive, self-driven pursuit of CSV management by the individual Group companies. The Committee is chaired by the President of

Kirin Holdings, with the presidents of the major operating companies making up its membership. Together, they monitor the state of implementation of the CSV commitment. Where necessary, the matters decided in the Group CSV Committee are reported to and/or placed on the agenda of Kirin Holdings' Group Executive Committee and the Board of Directors and reflected in the strategies of the entire Group. The Committee Chairman also directs the various divisions of Kirin Holdings and the individual Group companies on ways to improve their pursuit of CSV as a means of raising the degree of implementation of the policies and strategies decided in the Committee.

The "environment" has been set as one of the Kirin Group's "key CSV issues" to be addressed as a priority. For details ▶ P.13

### System to promote CSV



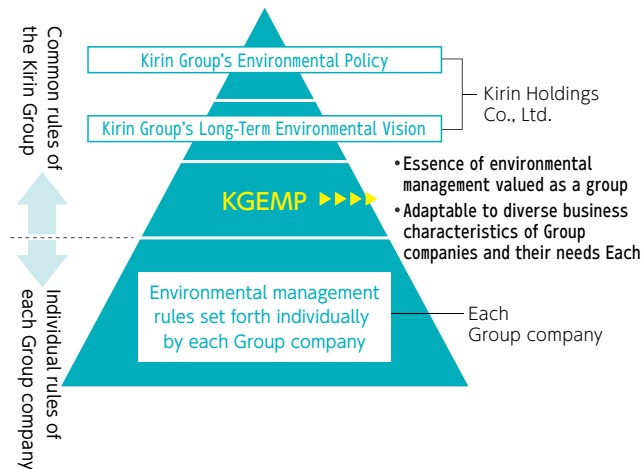
## System for the Promotion of Environmental Management

The Kirin Group's environmental management is conducted as part of the CSV management system.

The Group CSV Committee discusses CSV policies and strategies, which are based on an understanding of the risks and opportunities for the Group as a whole over the medium to long term, and manages their progress.

The Kirin Group Long-Term Environmental Vision was approved by the Kirin Holdings' Board of Directors in 2012 and announced publicly in 2013. Subsequently, in 2016, the "environment" was selected as one of the priority social issues for engagement in CSV as a core element of the Group's corporate management. The CSV Commitment was also established to convey what that the Group aims to achieve over the medium to long term in terms of social issues. In the establishment of the CSV Commitment, the Group CSV Committee held discussions in June 2016 to decide on the priority issues to be addressed, with reference to the SDGs. These priority issues were discussed again with the operating companies, relevant divisions, and other parties, before the Commitment was finalized.

### Principle for Kirin Group's Global Environmental Management (KGEMP)



The executive officer with responsibility for CSV strategy (as of April 2018, this was Director of the Board, Senior Executive Officer of Kirin Company Limited and Senior Executive Officer of Kirin Holdings Company, Limited) fulfills the role of Group's general environmental manager for environmental issues overall, including climate change.

## Environmental Management System

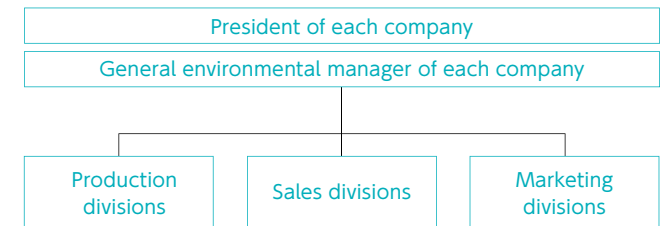
The environmental management system requirements for Kirin Group operating companies are embodied in the Principle for Kirin Group Global Environmental Management (KGEMP). The KGEMP requires the appointment of a general environmental manager, who has responsibility and authority for environmental matters in each business. In addition to monitoring to ensure that the company and its constituent companies are conducting their environmental activities appropriately, the general environmental manager conducts management reviews, identifies issues for improvement, and gives the necessary directions to the relevant departments. In the event of an environmental crisis, the general environmental manager will have full authority to resolve the crisis. The KGEMP stipulates that each company comply with laws and regulations and other rules relevant to the business's environmental activities, and strive to reduce its environmental load as well as prevent pollution under its own environmental management system. Each company will also conduct internal environmental audits to ascertain the appropriateness and legal compliance of their systems and confirm how well targets are being met. The results of these audits will then lead into management reviews.

Under the KGEMP, each operating company has developed and operates its own environmental management system that best suits the nature of its business, the region it operates in, and other characteristics, based on the international standard, ISO 14001 (see P. 102).

To realize their environmental policies, the Kirin Group Long-

Term Environmental Vision, the CSV Commitment and other goals, each company gathers the opinions of stakeholders in an appropriate manner, identifies and evaluates the risks and opportunities surrounding the business's environmental activities, and puts the required responses into place from medium and long-term perspectives.

## Environmental Management Structure



The management of environment-related processes is integrated with company management processes in a manner suited to the companies' respective regions.

In Japan, environmental performance evaluation is incorporated into the implementation of the Kirin Group's own balance score card, known as KISMAP. KISMAP goals are incorporated into the goal-setting for each organization and individual, and the degree to which those goals are reached is reflected in the evaluated performances of the organizations and individuals.

In other regions' operating companies as well, environmental performance evaluation is reflected in the performance evaluations of each organization and individual in a manner suited to their respective regions.



## Environmental audits

Each of the operating companies in the Kirin Group complies with ISO 14001 and other environmental management system standards. Internal auditing is conducted in each business location and constituent company, and the environmental management divisions in the head offices of each Group company conduct auditing of business locations and constituent companies. These audits lead to improvements in the individual companies' environmental management systems. Furthermore, on an entire Group basis, Kirin Company Ltd.'s CSV Strategy Department is contracted by Kirin Holdings to conduct environmental audits according to criteria established by the Group. These audits lead to improvements in each company's environmental management system and are fed into to management reviews.

In Japan, to guarantee further transparency and independence, an outside consultant has been contracted to perform a strict environmental legal audit, beginning in 2009. By 2014, the consultant had traveled around to all manufacturing sites in the Group companies. It has since embarked on a second round of audits, beginning in 2015, with several sites being audited each year. The issues identified in these audits to date have all been minor.

## Status of compliance with environmental laws and regulations

Each business location is thorough in its management of legal requirements through a ledger, and also works exhaustively to prevent environmental pollution by establishing voluntary management targets that are more stringent than those required by the legislation. A system for the reporting of environmental accidents has also been established within the Group, in which *hiyari-hatto* (near-miss) examples are shared within the group and counter-measures extended to other sites. Internal environmental audits are used to confirm the status of legal compliance.

In 2017, there were no major infringements of laws and regulations or accidents that had a major impact on the environment.

# Response to the New Frameworks for Disclosure of Climate Related Information

The Kirin Group conducted a trial scenario analysis between January and May, 2018, and took other measures in accordance with the final Recommendations of the Financial Stability Board's (FSB) Task Force on Climate-related Financial Disclosures (TCFD), which were released in 2017. Many of the items recommended by TCFD have been disclosed in our environmental reports, on our website, and in the responses to CDP questionnaires. See the summary table at right. However, we also recognize that certain issues still need to be addressed to fulfil the societal needs and expectations regarding our climate-related disclosures. We are still very much in the initial stages, but this will become the first step toward disclosure within the new framework.

Category	Details	Relevant pages
Governance	<p>The Kirin Group is reliant on natural capital in the pursuit of its business. That natural capital is being affected greatly by climate change resulting from global warming. (Refer to the relevant pages of this report for specific impacts.)</p> <p>Perceiving such circumstances as major risks and opportunities, in 2012, the Kirin Holdings' Board of Directors approved the Kirin Group Long-Term Environmental Vision. At the same time, it declared the lofty goal of halving the CO2 emissions of its business by 2050 from a 1990 base year, across its entire value chain.</p> <p>From 2017 onward, as part of the CSV Commitment, the Group CSV Committee has set a number of targets, including CO2 emission reduction targets for 2030, and is monitoring progress and establishing new policies. The Group CSV Committee was established for the Kirin Group to actively promote CSV. It brings together the presidents of the Group's main companies and the executives responsible for finance, IR, SCM, marketing, and other divisions to formulate CSV policies and monitor the progress. Along with the CSV Commitment, the major policies decided in the Committee are discussed and approved by the Group Executive Committee or the Board of Directors.</p>	Mainly P71~P73 Other relevant topics on P10~P17
Strategy	<p>The likely risks of climate change along with global warming include disruption of operations due to water shortages, impact on crops in production regions due to rising temperatures and natural disasters, and increased investment on energy conservation. Meanwhile, initiatives to tackle climate change, such as joint delivery, are leading to collaboration in non-competitive areas in the same and other industries. Such initiatives could provide opportunities to solve other problems for the societies and companies besides climate change.</p> <p>Through the appropriate identification of and response to these kinds of risks and opportunities, the Kirin Group is pursuing initiatives that will solve issues related to climate change.</p> <p>Climate change risks and opportunities are subject to the risk management system, and the material items and corresponding policies are reported to the Group CSV Committee, which approves the policies for dealing with them. These items are integrated in the business plans of the individual operating companies and addressed accordingly.</p> <p>(Refer to the relevant pages of this report for specific impacts. See the following page for details of the scenario analysis.)</p>	Mainly P12~P17, P23, P33, P45, P59
Risk Management	<p>The effects of climate change have already manifested, and we recognize that the physical risks and transitional risks have become greater. In particular, the impact of natural disasters on agricultural production regions can no longer be ignored and water issues are also very serious.</p> <p>The Kirin Group evaluated the risks surrounding biological resources in around 2013. In 2017, we repeated a 2014 evaluation of water risks in the catchments of our business locations and upstream in the value chain. Decisions on policies and the contents of initiatives are based on the tangible outcomes of investigations. Key risks are monitored by the Group CSV Committee and policies are formulated and revised where necessary. Other risks are identified and handled within the risk management system and the environmental management systems of the individual operating companies and business locations.</p>	Mainly P14~P15, P23, P33, P40~P41, P45, P59~P60
Quantitative Targets	<p>The Kirin Group monitors Scope 1, 2, and 3 emissions across the entire Group and uses the outcome of that monitoring in the formulation of its next strategies. For details of greenhouse gas emission reduction targets and actual values of emissions, see the Global Warming section of this report. Currently, initiatives are generally progressing as planned.</p>	Mainly P16~P17, P21, P24, P34, P42, P46, P56, P59~P60, P67~P68, P89~P101

# Scenario Analysis

The Kirin Group conducted a trial scenario analysis between January and May, 2018 in accordance with the final TCFD Recommendations that were released in 2017.

For the analysis, we used the IPCC's Representation Concentration Pathways (RCP) as the base scenario for physical risks, supplementing it with the Shared Socioeconomic Pathways (SSP).

The scenario analysis resulted in a renewed understanding of the potential for global warming to have a major impact on the agricultural products that are important raw materials for the Kirin Group.

The Kirin Group is taking action to expand sustainable farm certifications and forest certifications, to raise the sustainability of key raw materials such as tea leaves and paper. We are also addressing water resources in various ways, including proactive water-saving in regions of high water risks and the preservation of water resources in agricultural production regions. These activities will contribute to the Group's resilience against the risks that accompany climate change. We are also pursuing initiatives for the low carbonization of entire society, including the expansion of renewable energies, with our mid-term greenhouse-gas reduction plans which were approved by SBT.

While it could be said that the scenario analysis has allowed us to reaffirm that the Kirin Group's approaches are on the right track, the results of the analysis have also hinted at even greater impacts. Global warming is one of the most important of all social issues, and we envisage that it will have a major impact on our business model from the perspective of CSV that will contribute to society and business.

Risks pertaining to agricultural products and water have already been listed as key long-term risks in the risk management process and are subject to reporting to management. For even more pressing risks, we will consider reflecting them in the mid-term and annual plans of the individual Group companies and divisions. We will factor the information obtained through the scenario analysis in the

pursuit of our responses.

The identification of financial impacts is still in its very initial stages and we will continue to work on it. We will also

consider transition scenarios that have not yet been given sufficient analysis, with the intention of reflecting them in our business plans.

Radiative forcing (W/m <sup>2</sup> )	Range of rise in annual average temperature	RCP scenario	Socio-economic scenario			Impact of climate change on Kirin Group's major agricultural products
			SSP1 Sustainable development	SSP2 Moderate	SSP3 Unwanted world	
8.5	4.3°C (3.2~5.4°C)	RCP8.5			<b>Group Scenario 3</b> Import costs Large Low-cost products/healthcare needs Large Agricultural impact Large Water risk Large Beverage consumption in summer Increase	<b>Barley:</b> 10% or more decline in winter barley yields and 20% or more decline in spring barley yields <b>Maize:</b> 20% or more decline in yields <b>Rice:</b> Quality deterioration throughout all of Japan <b>Tea:</b> 40% or more decline in yields <b>Hops/wine grapes:</b> Major decline in yields, movement of areas suitable for cultivation, devastating in some areas <b>Raw milk:</b> Major decline in yields and major increase in costs due to heat stress
7						
6	2.8°C (2.0~3.7°C)	RCP6.0		<b>Group Scenario 2</b> Stratified society Moderate market expansion Regional impact on agriculture by product Large Regional water risk Large Requirement cost of agricultural products grown in cool climates Increase		<b>Barley:</b> 10% decline in winter barley yields and 20% decline in spring barley yields <b>Maize:</b> 20% decline in yields <b>Rice:</b> Quality deterioration throughout all of Japan <b>Tea:</b> Decline in yields at altitudes of 600 m or lower <b>Hops/Wine grapes:</b> Decline in yields, movement of areas suitable for cultivation, devastating in some areas <b>Raw milk:</b> Decline in yields and increase in costs due to heat stress
4.5	2.4°C (1.7~3.2°C)	RCP4.5				
3.7						
2.6	1.6°C (0.9~2.3°C)	RCP2.6 = 2°C scenario	<b>Group Scenario 1</b> Mitigation/adaptation and curtailing of physical risks through international cooperation Spread of renewable energy Strengthening of greenhouse gas emission restrictions in agriculture sector Orientation toward human rights, health, and sustainability Reduction of food loss			<b>Barley:</b> Less than 5% decline in winter barley yields and 10% decline in spring barley yields <b>Maize:</b> 20% decline in yields <b>Rice:</b> Quality deterioration throughout all of Japan <b>Tea/Hops/Wine grapes:</b> Regional impact
Outline of SSP			Population: Low Income: High Energy technology: High Regulation: Strong Global economy	Population: Medium Income: Medium Energy technology: Medium Regulation: Medium Partial global economy	Population: High Income: Low Energy technology: Low Regulation: Weak Anti-globalism	

# Stakeholder

## Stakeholder Engagement

To grow sustainably together with society, the Kirin Group has positioned Creating Shared Value (CSV) as the core of its company management in its long-term business plan, New Kirin Group Vision 2021.

CSV management means achieving both solutions to social issues and the provision of value to customers. It realizes the creation of economic value and social value, with the aim of sustainable growth together with society. To achieve this, it is important that we establish and implement mechanisms for identifying and understanding the challenges, expectations, and demands of our diverse stakeholders and for two-way communication about whether or not Kirin's business characteristics and strengths can be leveraged to meet those challenges, expectations, and demands.

To this end, the Kirin Group has a range of opportunities for dialogue with the stakeholders involved in its business. In addition to dialogue, we also work together with many of our stakeholders and cooperate in voluntary activities that lead to policy recommendations.





## Dialogue with Sri Lankan tea farms

In our support for Sri Lankan tea farms to obtain Rainforest Alliance certification, which began in 2013, Kirin staff travel to Sri Lanka once a year to exchange views with the plantation managers and local residents, to identify and address local issues.

During our 2016 visit, upon learning that small farms in the area wanted to obtain certification, we considered the matter and determined that increasing the sustainability of the small farm's tea leaves, which are transported to the larger farms, would also benefit Kirin. We therefore decided to start providing assistance to small farms to obtain certification from 2018. The decision to commence activities for the protection of water sources on the farms was also made upon identifying local issues.

During our 2018 visit, we exchanged views with these small farm owners and with managers of farms where water sources are located, and we were able to confirm that they are highly appreciative of Kirin's support.

Given that, in many cases, the tea farms do not have sufficient understanding of how the tea leaves they produce are being used in products, we recognize that this kind of dialogue is a valuable opportunity to understand the company's needs and share issues.

We will use the outcomes of this dialogue as reference in our future pursuits.



Dialogue with tea farm managers



Dialogue with small farm owners

## Case Study and Workshop by Ministry of Environment

Kirin's support of Sri Lankan tea farms to obtain Rainforest Alliance certification was featured in case studies by Ministry of Environment on climate change, presented as "Sustainable Tea Production in Sri Lanka Driven by the Private Sector's Initiatives."

Based on these case studies, the Ministry of Environment held a Workshop on the Improvement of Climate Change Impact Assessment and Adaptability Planning in the Asia-Pacific Region in Manila of Philippines from January 31 to February 1, 2018. A representative of ASLM, a local non-government organization that is in charge of training for obtaining the Rainforest Alliance certification in Sri Lanka, took part in the workshop. The workshop was conducted with the aim of encouraging the implementation of NAP (National Adaptation Plans) process and adaptation behaviors in the region, on the theme of promoting collaboration among countries, regions, and sectors. It involved sharing the experiences and lessons learned from the NAP process and case studies concerning the implementation of those adaptation plans and discussing those experiences and lessons to deepen mutual understanding. ASLM provided information about the certification initiatives in Sri Lanka and about weed management programs. The vast majority of the programs presented as examples were led by national or regional governments. The case studies presented by ASLM were the only project led by the private sector. They were well received as excellent examples of how it is possible for the private sector to pursue action on climate change adaptation effectively without involvement of the country.



Scene from the Workshop on the Improvement of Climate Change Impact Assessment and Adaptability Planning in the Asia-Pacific Region  
Photograph provided by the Ministry of Environment

### NARO Activities Presentation

The National Agriculture and Food Research Organization (NARO), with which Kirin is conducting joint research in the process of converting idle and devastated farming land into vineyards, held a joint research presentation on February 15, 2018. In addition to sharing the knowledge obtained through this research, we discussed how to proceed into the future.



### Japan Environmental Youth Network High School Students SDGs Seminar

At October 2017, hosted by the Japan Environmental Youth Network Secretariat, which is supported by Kirin, a training was held on "sustainable society." It was attended by senior high school students and universities from six prefectures in the Kinki region. The seminar included a lecture on Kirin's initiatives to raise sustainability in its production regions.



### Discussions with FSC officials responsible for Asia

In 2017, we took the opportunity of a visit to Japan by FSC officials responsible for Japan and Asia to exchange opinions about raising awareness of FSC. We also hold briefings for investors on ESG themes.

## Voluntary participation leading to policy recommendations

Organization	Activities
Japan Sustainability Local Group (JSLG)	Kirin Holdings participates as a steering committee member and director of the JSLG.
WE MEAN BUSINESS	In the WE MEAN BUSINESS coalition, the Kirin Group has committed to "setting reduction targets by SBT," "report on climate change responses in mainstream reports by CDSB" and "improvement of water security."
Science Based Targets (SBT)	The Kirin Group's emission reduction targets for 2030 were the first in Japan's food and beverages industry to be approved by SBT.
Fun to Share/ COOL CHOICE	Since 2014, Kirin has endorsed the Japanese government's new climate change campaigns, Fun to Share and COOL CHOICE, and has registered with these campaigns.
United Nations Global Compact	The Kirin Group joined the United Nations Global Compact in September 2005.
Voluntary Action Plan of Japan Business Federation (Nippon Keidanren)	In consideration of the conservation of the global environment, the Brewers Association of Japan, of which Kirin Brewery is a member, and the Japan Soft Drink Association, of which Kirin Beverage is a member, participate in initiatives for the reduction of environmental load conducted by Nippon Keidanren (Japan Business Federation) and are tackling CO2 reductions and the recycling of waste.
Eco-First	Eco-First is a program in which companies make a pledge to the Minister of the Environment to conduct their own environmental conservation initiatives, such as counter-measures to global warming. Kirin became the first manufacturer to be Eco-First accredited. It also serves as the Deputy Chair of the Eco-First Promotion Council.
Japan Business and Biodiversity Project	Kirin Holdings has joined the Japan Business and Biodiversity Partnership, which was established by Nippon Keidanren (Japan Business Federation), Japan Chamber of Commerce and Industry, and Keizai Doyukai (Japan Association of Corporate Executives) in 2010.

Organization	Activities
Green Purchasing Network (GPN)	The Kirin Group is a member of the Green Purchasing Network (GPN).
Containers and Packaging Diet Declaration by nine prefectures and cities	Kirin Brewery, Kirin Beverage, and Mercian endorse the Containers and Packaging Diet Declaration being promoted by the four prefectures of Saitama, Chiba, Tokyo, and Kanagawa, and the five cities of Yokohama, Kawasaki, Chiba, Saitama, and Sagami-hara, and are striving to reduce their containers and packaging.
Forest Supporters	Forest Supporters Kirin participates in the activities of Forest Supporters, a civic movement that promotes the creation of beautiful forests. The National Land Afforestation Promotion Organization serves as secretariat for this movement.
Water Project	Kirin has been involved in the Water Project, a public-private sector collaborative awareness-raising project established to promote the maintenance and restoration of healthy water cycles, since 2014.
Rainforest Alliance Consortium	Kirin is a founding member of and active participant in the Rainforest Alliance Consortium, which was established in September 2015 by the Rainforest Alliance and companies that handle Rainforest Alliance certification products with the aim of promoting sustainable agriculture.
Consortium for Sustainable Paper Use (CSPU)	The Consortium for Sustainable Paper Use was established by five (now nine) companies engaged in leading-edge paper use initiatives and WWF Japan. As a founding member of the CSPU, the Kirin Group pursues initiatives for the pursuit of sustainable paper use.

## Disclosure of environmental information through products (environmental labeling)

Label Name	Nature of Disclosure
Eco-Rail	In 2006, Kirin Beverage, and in 2010, Kirin Brewery were certified to display the "Eco-Rail" mark on their products by the Ministry of Land, Infrastructure, and Transport for proactively tackling global environmental issues with the use of rail freight transport.
Carbon Footprint	Kirin Brewery launched Carbon Footprint initiatives together with the beer industry in 2008. The Product Category Rule (PCR), which is the rule for the calculation of beer categories, was approved in February 2011 and revised in December 2013.
Rainforest Alliance Certification Label	The paper drink boxes used for Kirin Gogo-no-Kocha Straight Tea (500 ml) (from the renewed product launched in March 2015) display a Rainforest Alliance certification label.
FSC Certification Label	Kirin aims to switch to FSC-certified paper for all of its paper packaging and containers by 2020. To encourage understanding among consumers about the importance of protecting the forests, we place FSC-certified labels on all containers and packaging where it is possible.
ECOCERT	Mercian has been selling Bon Rouge Organic Wine Pet Bottle Red, a wine made with 100% organic fruits, since 2009. This wine is certified by ECOCERT JAPAN, the Japanese subsidiary of the global organic certification body, ECOCERT.

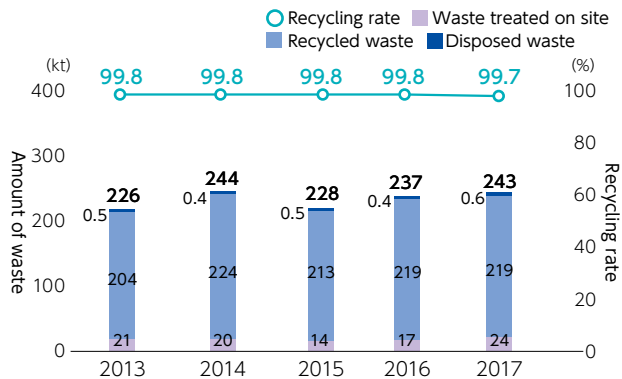
## Education Programs

Name of program	Nature of Activity
Plant Environmental Tours	A total of 647 people participated in 39 guided environmental tours of our manufacturing facilities in 2017. These included the Yokohama Plant's "Feel the Blessings of Nature Tour" and the Kobe Plant's "Environmental Tour."  Related Information <a href="#">▶ P.30</a>
Kirin School Challenge	Since December 2014, Kirin has been holding Kirin School Challenge workshops with the aims of exchanging opinions with young people, discussing and coming up with ideas about what we should do to "lead the rich blessings of globe to the future." Another aim of the workshops is for junior and senior high school students to convey those ideas to their own generation. These workshops are held eight to ten times a year. URL : <a href="http://www.kirin.co.jp/csv/eco/schoolchallenge/">http://www.kirin.co.jp/csv/eco/schoolchallenge/</a>

# Resource Circulation

## Recycling

### Trends in recycling rates of byproducts and waste from Japan business



### Recycling rate of waste at the plants of Kirin Brewery and Kirin beverage

100%

Related Information ▶ P.99

### Recycling rate 100% (Kirin Brewery, Kirin Beverage, Kirin Distillery)

The Japanese alcoholic and non-alcoholic beverages businesses have set a recycling rate target of 100% for their plants and have continued to achieve that target. Four plants, including the Kirin Brewery Yokohama Plant, first achieved a recycling rate of 100% in 1994, and in 1998, all plants achieved 100%, the first time in the beer industry.

### Recycling spent grains from Beer Mashing as Livestock Feed (Kirin Brewery, Lion, Myanmar Brewery)

Production processes for beer and happo-shu (low-malt beer) generate spent grains after extracting flavor during the mashing process. Because such spent grains contain residues of nutritious substances, they are efficiently used as livestock feed for cattle or for growing mushrooms. When used as feed

for cattle, these spent grains help improve the quality of beef. The spent grain from brewing processes goes to farmers as animal feed.

### Research into use of BSG (Kirin)

Prevention of disease in dairy cattle and other livestock and reducing the use of antibiotics are major challenges for the dairy industry. The Central Laboratories for Key Technologies have discovered that lignin glycoside, which is contained in brewer's spent grain (BSG), that is the barley husks that remain after the barley milling process, and BSG itself, which is used to feed livestock, are effective in increasing immunoreactivity in cattle. The Laboratories are pursuing further research into these findings.

### Re-use of wine grape lees (Mercian)

The grape lees from wine-making are turned over in a compost heap on the company vineyard for a year to make compost, which is used as organic fertilizer.

### Recovery of phosphoric acid (Kyowa Hakko Bio)

Kyowa Hakko Bio Yamaguchi Production Center (Hofu) has installed a facility to recover phosphoric acid from fermentation wastewater. Previously, the recovered cake, which consists largely of calcium phosphate had been disposed as industrial waste, but in 2008, the Production Center started drying some of the cake and selling it as fertilizer material.



Effective use of spent grains to livestock feed

Re-use of wine grape lees

## Appropriate management of waste

The Kirin Group is working toward its declared goal of the implementation and firm establishment of thorough appropriate management of waste. To this end, it has developed the Kirin

Group Waste Management Guidelines and is pursuing the appropriate treatment of waste within common Group systems. Specific measures include the standardization of contract templates and contractor audit programs which define its frequency and contents, and the preparation of a list of staff in charge of waste management so that all the staff involved in such work can be educated using standardized textbooks. Further, the information on all waste disposal contractors for the Group is managed collectively, so if in the unlikely event that a problem arises, the details about the contractor, its permits, the waste it is being contracted to handle, and other details can be searched and confirmed immediately. The operations are being standardized in this way so that anyone who is newly assigned to waste-related work will be able to perform it with certainty.

## Reducing losses from disposing of food products

Kirin Holdings participates in Japan TCGF, which was launched by companies in the consumer goods industry in August 2011, and pursues activities to resolve common issues in areas where they do not compete. For example, the Sustainability Project Committee identifies and aims to resolve environmental issues in the value chain of manufacturing, distribution, and sales processes (e.g., stop global warming, reduce wastes, etc.) Specifically, the Committee is working to change to labeling the year and month as the best before date for soft drinks. By so doing, we expect to see significant effects on cutting losses from disposing of products. Also, we can cut environmental loads on the supply chain (CO2 emissions from transporting between distribution centers and transport-related activities, etc.) and reduce inefficiencies (e.g., storage space in distribution warehouses and loading and unloading tasks at stores) as well, by changing how to manage product delivery, storage, and display in stores based on the new best-before labelling.

We also continue to exchange information on retail sales and demand fluctuation factors with plants and distribution centers to improve demand projections and reduce disposal losses. In addition, we will move forward with efforts to reduce disposal losses by strictly managing sales volume targets. Implementing these steps, we will prevent valuable biological resources and containers and packaging from going to waste.

# Preventing Pollution

## Preventing Air, Water, and Soil Contamination

### Preventing Air Pollution

The Kirin Group complies with all relevant laws and regulations relating to exhaust gases of automobiles, such as the Act on Special Measures to Total Emission Reduction of Nitrogen Oxides and Particulate.

We also use large trucks to increase load capacity per vehicle and reduce the total number of trucks.

Related Information ▶ P.99

### Preventing Water Pollution

The Kirin Group thoroughly complies with laws and regulations for preventing water pollution in each of the countries where we operate and minimizes wastewater loads by setting our own strict control values, which go beyond those required by law.

Related Information ▶ P.39

### Preventing Soil Contamination

When selling assets, the Kirin Group conducts thorough investigations of soil contamination, addressing them where necessary.

#### Soil Investigations Status(2017)

Number of investigations	Area of investigations
12	139,938m <sup>2</sup>

### Chemical substances

The Kirin Group manages its chemical substances appropriately based on the Act on Confirmation, etc. of Amounts of Release of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (PRTR Act) and other relevant legislation. The Kyowa Hakko Kirin Group has set targets for volatile organic compounds (VOC), which, due to the nature of its business, make up the majority of the chemical substances it releases, and is taking action to reduce them. Kyowa Hakko Kirin promotes Responsible Care activities, conducts stringent assessments at all stages from the product research to use and disposal, based on the Basic Policy Concerning the Environment, Safety and Product Safety.

#### Targets regarding chemical substances

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

Related Information ▶ P.99

### Polychlorinated biphenyl (PCB)

Managing appropriately and disposing progressively according to the law.

#### Status of PCB management (2017)

High-concentration capacitors, reactors, etc.	Trace-quantity capacitor reactors, etc.	High-concentration stabilizers	Trace-quantity stabilizers
311	30	3,573	0

### Asbestos

Managing and isolating appropriately and treating progressively according to the law.

#### Status of asbestos management (2017)

Number of buildings	Area
4	2,913m <sup>2</sup>

### HCFC/HFC

The following shows the overall management of HCFCs and HFCs.

#### Status of HCFC management (2017)

Number of offices	Weight
14	29,573kg

#### Status of HFC management (2017)

Number of offices	Weight
6	15,471kg



# Sustainable Procurement

To fulfill its social responsibility, the Kirin Group established the Kirin Group Sustainable Procurement Policy in September 2017. Listening to the opinions of our suppliers and other stakeholders, we will strive to facilitate their understanding of this policy and work with them to realize it.

## Two-way communication with suppliers

The Kirin Group promotes sustainable procurement and, to fulfill its social responsibility in all processes in the value chain, it places importance on two-way communication with its suppliers.

The Japan Integrated Beverages Business asks new suppliers to submit a "Supplier CSR Confirmation" based on the six categories of the code of conduct stipulated in the Kirin Group Supplier CSR Guidelines, and requires them to comply with the Code of Conduct. Once a year, the status of existing suppliers' approaches to our sustainable procurement is checked and assessed by Kirin procurement staff. The outcomes of those assessments are fed back to the supplier, along with the outcomes of evaluations of other categories such as

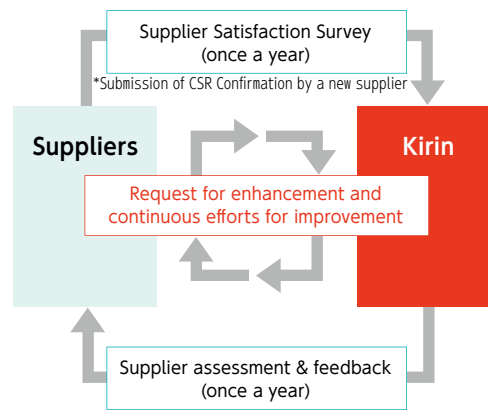
quality standards, price superiority, and delivery response. If necessary, further investigations will be conducted and requests for corrections will be made. Meanwhile, to ensure fair business practices, we periodically conduct a supplier satisfaction survey to seek feedback from suppliers to the Kirin Group and obtain their opinions about the Kirin Group's procurement activities. We reflect the comments received in

our procurement activities in our efforts to execute open and fair business transactions and ensure compliance. As well as encouraging our suppliers to actively make suggestions, where necessary, we cooperate with them in energy saving activities at their manufacturing plants.

Kyowa Hakko Kirin has established the Kyowa Hakko Kirin Group Procurement Basic Policy and has prepared the Kyowa Hakko Kirin CSR Purchasing Guide Book. It has also established a CSR Code of Conduct with which it asks suppliers to cooperate. It has also been conducting questionnaire surveys on the state of CSR initiatives since 2012, to ascertain the current situation at its suppliers.

Lion has similar systems in place, requiring its suppliers to sign the Lion Suppliers Responsible Sourcing Code. This ensures that suppliers will fulfill Lion's procurement standards, which are based on the ethical standards of the Ethical Trading Initiative (ETI). Confirmation is carried out through Sedex. This series of activities constitutes a PDCA cycle through which we work continuously with suppliers in promoting sustainable procurement.

The outcomes of the questionnaire survey are as follows.



### Kirin Group Supplier CSR Guidelines Matters for compliance

- 1 System/Compliance/Risk Management
- 2 Consideration of human rights
- 3 Consideration of the environment
  - Approaches to environmental management
  - Sustainable use of biological resources
  - Sustainable use of water resources
  - Sustainable use of resources
  - Responses to global warming
  - Prevention of pollution and management of restricted substances
- 4 Safety and security
- 5 Approaches to alcohol-related problems
- 6 Social contribution

	2015	2016	2017
Percentage of suppliers to which risk assessment has been applied (%) <sup>*1</sup>	47	39.6	47.8
Percentage of Procurement Department staff trained in supply chain policy (%)	100	83.8	96.1
Percentage of self-assessed suppliers (%) <sup>*2</sup>	25.4	23.3	28.2
Reported number of incidents of child labor on supply chain	0	0	0
Reported number of incidents of forced labor on supply chain	0	0	0

<sup>\*1</sup> Integrated Beverage Group, Lion, and the Kyowa Hakko Kirin Group assess their suppliers through a questionnaire, while Myanmar Brewery does the same of its major suppliers through occasional surveys and guidance.

<sup>\*2</sup> Because the Kyowa Hakko Kirin Group has been conducting its questionnaire every second year since 2015, in non-survey years, it tallies the suppliers' self-assessment numbers from the previous year. The Japan Integrated Beverage Business's survey rate for direct raw material suppliers is 100%.

## Biological resources

### Policies on biological resources:

From an early stage, the Kirin Group has been pursuing initiatives concerning biological resources, which have a high possibility of being connected to environmental and human rights issues. After making a Declaration of Support for Biodiversity Conservation in 2010, in 2013, we formulated the Kirin Group's Guidelines on Sustainable Sourcing of Biological Resources and the Action Plan on Sustainable Use of Biological Resources. Black tea leaves, paper and printed materials, and palm oil are specified in the Guidelines and Action Plan as particularly important supplies. After the formulation and announcement of the Kirin Group CSV Commitment in February 2017, we revised the Kirin Group Action Plan on Sustainable Use of Biological Resources and accelerated our initiatives.

### Kirin Group's Declaration of Support for Biodiversity Conservation

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

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

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

#### 2. Kirin Group makes effective use of its technologies

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

#### 3. Kirin Group works in cooperation with stakeholders

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

#### 4. Kirin Group properly complies with treaties and laws

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

### Kirin Group's Guidelines on Sustainable Sourcing of Biological Resources

#### Purpose

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

#### Applicable scope

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

#### Guidelines on Sustainable Sourcing of Biological Resources

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

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

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

### Kirin Group's Guidelines on Access to Genetic Resources

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

Kirin Group's Principles of Managing Access to Genetic Resources

- The Group shall respect international agreements concerning biodiversity.
- 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.
- Use of genetic resources, including fair and equitable sharing of the benefits arising out of their utilization, shall be properly managed in accordance with international treaties.

## Kirin Group Action Plan for the Sustainable Use of Biological Resources

### 1. Black Tea

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

**Step.1** Specify the tea growers from which to procure black tea leaves.

**Step.2** Evaluate the sustainability\*1 of the specified growers.

**Step.3** Aim to use black tea leaves from those growers with a high level of sustainability.

### 2. Paper and Printed Materials

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

#### Office paper\*2

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

#### Containers and packaging\*3 \*4

1) 6-can packs: aim to use only FSC-certified paper by the end of 2017.

2) Gift boxes: aim to use only FSC-certified paper by the end of 2020.

3) Drink boxes: aim to use only FSC-certified paper by the end of 2020.

4) Cardboard cartons for products: aim to use only FSC-certified paper by the end of 2020.

#### Other

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

### 3. Palm Oil\*6

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

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

#### Notes

\*1 Sustainability of tea in Step 2 will be evaluated according to the status of Rainforest Alliance certification.

\*2 "Office paper" refers to copy paper, envelopes (excluding non-standard sizes and some industrial-use envelopes), business cards, and printed materials such as company pamphlets.

\*3 Includes Kirin-Tropicana Inc.

\*4 Excludes limited-edition products, small-lot product varieties, special shapes, imported products, etc.

\*5 HCVF (High Conservation Value Forest), as defined by FSC®.

\*6 Palm oil refers to the oil derived from the fruit of the oil palms, and includes palm kernel oil obtained from their seeds.

Established on February 2013  
Revised on February 2017

# Consideration of the Environment in Product Development

## Environmentally Conscious Designs for Containers and Packaging

In order to further step up conservation of resources and promote activities toward reducing environmental impact, the Kirin Group operates on its "Guidelines on Environmentally Conscious Design for Containers and Packaging." Established originally by Kirin Brewery in 1998, the Guidelines have been widely applied to the entire Japan Integrated Beverages Business since 2014. With the cooperation of our business partners, we continue to make efforts in developing containers and packaging that have minimal impact on the natural environment.

## LCA Initiatives for Containers

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

## Responsible Care

Kyowa Hakko Kirin has participated in Responsible Care. In all process with each company handling chemicals, throughout development, manufacture, distribution, use, and final consumption, global chemical industry work together to improve "environment, safety and health" voluntarily, and is carrying out activity which releases results of activities and performs dialog and communication with society. This activity is called the Responsible Care.

## Guidelines on Environmentally Conscious Design for Containers and Packaging

### 1. Purpose

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

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

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

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

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

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

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

Revised on November 18, 2014

# Environmental Education

## Environmental Training

To mitigate environmental risk, the Kirin Group conducts an ongoing program for environmental training for its employees. This systematized training consists of training for environmental staff and training by job grade, including new employees. The training conducted at the Technical Talent Development Center has also been opened to Kirin Group companies in Japan.

In 2017, nine people underwent the wastewater treatment course, and basic classes on topics such as wastewater treatment and waste management were delivered as part of new employee training. Further, the CSV Strategy Department conducts systematized industrial waste training, which 329 people underwent in 2017.



Scenery of environmental training

## Raising Environmental Awareness within the Company

In-house communications, specifically employee newsletters and the intranet, are used to expand the depth and breadth of interest in and understanding of the environment among Kirin Group employees. At Group headquarters, videos presenting Kirin's environmental initiatives are screened on digital signage to deepen understanding among employees.



Employee newsletters  
KIRIN CSV TIMES

## Experiential Program

The Kirin Group conducts a CSV Experiential Program for Confronting Social Issues, a CSV training program that gives employees the opportunity to focus on social issues. In 2017, programs were held to promote understanding of examples of the Creating Shared Value that Kirin engages in with society. These programs gave participants the change to experience first-hand actual operations and interactions with the local community in Tono in Iwate Prefecture, with which Kirin has had a connection in hops cultivation for more than fifty years, and in Ueda in Nagano Prefecture, where Mercian operates its own vineyard, Mariko Vineyard.

Fiscal Year	Program	Date	Number of participants
2016	At Tono hops farm	6/10 Fri~ 11 Sat	24
	At Ueda vineyard	7/8 Fri 10/14 Fri	27 35
2017	At Tono hops farm	5/26 Fri~ 27 Sat	36
	At Ueda vineyard	9/22 Fri~ 23 Sat	31