

# Environmental Initiatives

## Basic approach of the Kikkoman Group

The Kikkoman Group believes that its corporate slogan, “seasoning your life,” can be realized through the bounty of nature. The Kikkoman Group uses many raw materials for its products such as soybeans, wheat, vegetables, fruit and water. They all contain the condensed power of nature. Only a healthy environment can be the starting point of “seasoning your life” because they cannot carry out their role as raw materials without the assistance of the natural environment.

Therefore, the natural environment is the base that enables the Kikkoman Group to season people’s lives in food cultures all over the world, and preserving the natural environment for food is the core position of all Kikkoman Group environmental preservation activities.

\*The corporate slogan, “seasoning your life,” suggests that, as Kikkoman seasons and enriches your food, it also brings fulfillment to life as a whole.

## Kikkoman Group Environmental Principles

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### Environmental Philosophy

The Kikkoman Group will respect  
the working of nature, and contribute to  
the realization of a society comfortable to live in  
through our corporate activities  
keeping harmony with the environment.

#### [Commentary of Environmental Philosophy]

1. “Respect the working of nature” means:

Kikkoman Group looks to create an atmosphere where human life fits harmoniously within the natural world.

2. “Our Corporate activities keeping harmony with the environment” means:

We will improve and develop our means of production and distribution to minimize our impact on the environment.

3. “A society comfortable to live in” means:

A society in which individuals are respected and emotional richness is valued within a healthy natural environment.

## Action Guidelines

The Kikkoman Group acts on the following guidelines with enthusiasm and creativity to achieve the goals of our Environmental Philosophy.

1. Every one of us will aim to remain in harmony with the environment when performing our duties across all sectors (development, procurement, production, sales, and support).
2. In addition to observing standard laws, we will formulate and observe our own company rules and regulations related to environmental protection.
3. As responsible members of society, we will actively participate in efforts to preserve the environment in our local communities.
4. We will study and deepen our understanding of the environment.
5. We will think and act from a global point of view.

## Medium-term Environmental Policy

The Kikkoman Group adopted the following Medium-term Environmental Preservation Goals for FY2016-2018.

Goal	Objective
<b>Low Carbon Society</b>	To reduce CO <sub>2</sub> emissions in procurement of raw materials.
	To reduce CO <sub>2</sub> emissions in manufacturing.
	To reduce CO <sub>2</sub> emissions in distribution.
<b>Recycling Based Society</b>	To reduce waste from products and work in progress.
	To reduce waste in general.
	To reduce environmental load in containers and packaging.
<b>Symbiotic Society</b>	To enhance environmental assessment in raw material procurement.
	To preserve water environment.
	To reduce water consumption.
<b>Environmental Management Activity</b>	To cooperate with local communities.
	To respond against environmental risks.
	To keep improving the environmental management system.

### Two approaches to “preserve the natural environment for food”

The Kikkoman Group will take action with two approaches to “Preserve the natural environment for food.”

1. Conduct environmental preservation activities by setting specific targets.
2. Appeal the importance of environmental preservation activities to encourage active participation by all.

### Practical activities to “preserve the natural environment for food”

The Kikkoman Group has set three concrete goals for its practical activities as follows:

1. To realize a low-carbon society to protect the food environment against global warming.
2. To realize a recycle-based society to effectively use food resources.
3. To realize a symbiotic society to preserve the sources of the food environment.

## Environmental Management Promotion System

The Kikkoman Group established the General Environmental Preservation Committee as the supreme decision-making organ for environmental preservation activities of all Group companies. The Committee, which is chaired by the Kikkoman Corporation President and CEO, will formulate, promote and supervise all aspects of medium and long-term environmental policies.

Under the direct supervision of the General Environmental Preservation Committee, the Environmental Preservation Promotion Committee, consisting of management employees and environmental administrators of Group's companies, has been established to supervise and provide instructions on environmental preservation activities from a Group-wide perspective.

Specific activities are conducted under the leadership of the Environmental Preservation Committee, which has been established at each site, while information and technologies that need to be shared or utilized across the Group, are shared through Environmental Managers Information Exchange Meetings that are held among major Group companies.



Kikkoman Group companies have pursued effective programs of environmental preservation activities under the management and leadership of the Environmental Preservation Promotion Committee. During and after FY2018, the Group will continue to establish new objectives and conduct its business activities in an environmentally friendly manner.

### Kikkoman Group Environmental Preservation Activities Case Book

For additional information in relation to specific measures and previous initiatives of environmental preservation activities, please check the Kikkoman Group Environmental Preservation Activities Case Book at our website listed below.

<https://www.kikkoman.com/en/csr/environment/case.html>

## Low Carbon Society

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### To reduce CO<sub>2</sub> emissions

The Kikkoman Group promotes the activities for reducing the emissions of CO<sub>2</sub> that may cause global warming, in all factories, plants and offices.

### Objectives

#### **Objective (1) To reduce CO<sub>2</sub> emissions in manufacturing**

- 1) To reduce the CO<sub>2</sub> emissions per unit of production\* at the domestic manufacturing divisions by 20% or more from the FY2006 level by FY2018
- 2) To reduce the CO<sub>2</sub> emissions per unit of production\* at the major overseas manufacturing divisions by 3% or more from the FY2015 level by FY2018
- 3) To reduce the CO<sub>2</sub> emissions at the domestic sales and back-office divisions annually by 1% or more from that of the previous fiscal year (FY)

\*To calculate the CO<sub>2</sub> emissions per unit of production, the manufacturing volume (t) is used excluding packaging materials (t).

#### **Scope:**

#### **Objective (1) To reduce CO<sub>2</sub> emissions in manufacturing**

- 1) Reduction of the CO<sub>2</sub> emissions per unit of production at the domestic manufacturing divisions:

19 plants; Kikkoman Food Products Co. (Noda Factory (Chiba Prefecture), Takasago Factory (Hyogo Prefecture)), Hokkaido Kikkoman Co., Nagareyama Kikkoman Co., Ltd. (Chiba Prefecture), Kikkoman Foodtech Co. (Main Plant (Chiba Prefecture), Nakanodai Plant (Chiba Prefecture), Edogawa Plant (Chiba Prefecture), Nishinippon Plant (Hyogo Prefecture)), Saitama Kikkoman Co., Nippon Del Monte Corp. (Gunma Plant, Nagano Plant), Manns Wine Co., Ltd. (Katsunuma Winery (Yamanashi Prefecture), Komoro Winery (Nagano Prefecture)), Kikkoman Biochemifa Co. (Edogawa Plant (Chiba Prefecture), Kamogawa Plant (Chiba Prefecture)), Kikkoman Soyfoods Co. (Saitama Plant, Gifu Plant, Ibaraki Plant), Takara Shoyu Co., Ltd. (Choshi Plant (Chiba Prefecture))

\*Heisei Foods Co. absorbed Edogawa Foods Co. on April 1, 2017 and changed its name to Kikkoman Foodtech Co. on the same day.

- 2) Reduction of the CO<sub>2</sub> emissions per unit of production at the major overseas manufacturing divisions:

4 plants; KFI (Wisconsin Plant (United States), California Plant (United States)), KSP (Singapore), KFE (The Netherlands)

- 3) Reduction of the CO<sub>2</sub> emissions at the domestic sales and back-office divisions:

The domestic sales and back-office divisions; Kikkoman Corp., Kikkoman Food Products Co., Kikkoman Beverage Co., Kikkoman Business Service Co., Nippon Del Monte Agri Co.

## Initiatives

### Objective (1) To reduce CO<sub>2</sub> emissions in manufacturing

- 1) Reduction of the CO<sub>2</sub> emissions per unit of production at the domestic manufacturing divisions
- 2) Reduction of the CO<sub>2</sub> emissions per unit of production at the major overseas manufacturing divisions

The Kikkoman Group will continue to work on optimizing and reducing energy consumption through the integration of plants and review and improve (efficiency promotion) all production processes. We will reduce CO<sub>2</sub> emissions by installing equipment and facilities with high energy saving performance and heat efficiency. In addition, we will work on reducing the environmental load by converting fuel that we use from type-A heavy oil to natural gas and also optimize our energy consumption.

- 3) Reduction of the CO<sub>2</sub> emissions at the domestic sales and back-office divisions

We aim to reduce the CO<sub>2</sub> emissions at Kikkoman Group domestic sales and back-office divisions with a reviewing business activities and promoting energy saving enlightening activities.

## FY2018 Review

### Objective (1) To reduce CO<sub>2</sub> emissions in manufacturing

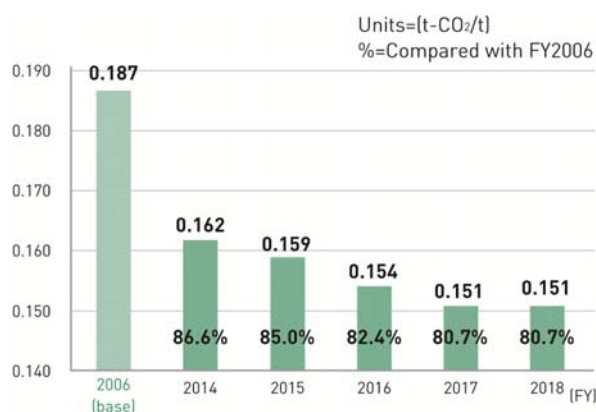
- 1) Reduction of the CO<sub>2</sub> emissions per unit of production at the domestic manufacturing divisions
- 2) Reduction of the CO<sub>2</sub> emissions per unit of production at the major overseas manufacturing divisions

The CO<sub>2</sub> emissions per unit of production at Kikkoman Group domestic manufacturing divisions in FY2018 was 0.151t-CO<sub>2</sub>/t, which was decreased by 19.3% as compared with FY2006 (0.187t-CO<sub>2</sub>/t), equal to FY2017 (0.151t-CO<sub>2</sub>/t).

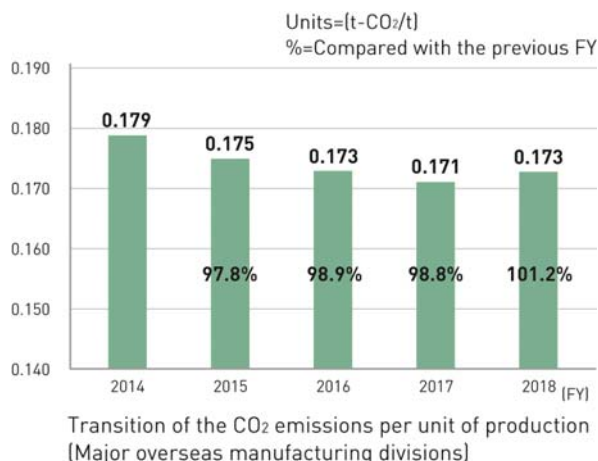
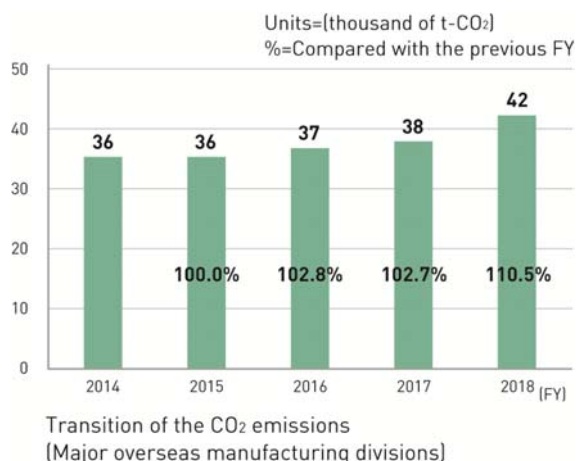
In addition, the CO<sub>2</sub> emissions per unit of production at Kikkoman Group major overseas manufacturing divisions in FY2018 was 0.173t-CO<sub>2</sub>/t, which was decreased by 1.1% as compared with FY2015 (0.175t-CO<sub>2</sub>/t), but increased by 1.2% as compared with FY2017 (0.171t-CO<sub>2</sub>/t).



Transition of the CO<sub>2</sub> emissions  
[Domestic manufacturing divisions]

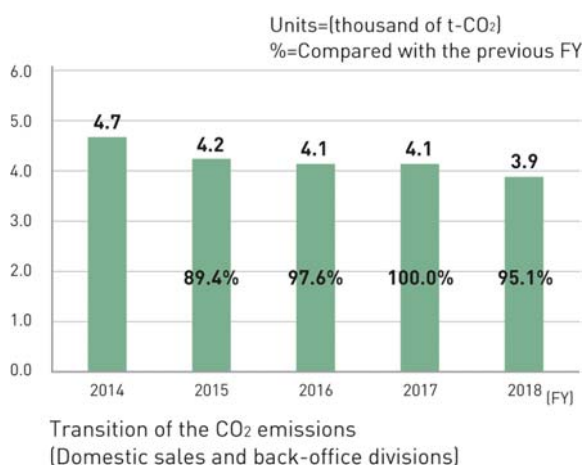


Transition of the CO<sub>2</sub> emissions per unit of production  
[Domestic manufacturing divisions]



### 3) Reduction of the CO<sub>2</sub> emissions at the domestic sales and back-office divisions

The CO<sub>2</sub> emissions at Kikkoman Group domestic sales and back-office divisions in FY2018 were 3,900t-CO<sub>2</sub>, which was decreased by 4.9% as compared with FY2017 (4,100t-CO<sub>2</sub>). The objective was achieved in these divisions. We will put further efforts into achieving CO<sub>2</sub> reductions going forward.



### Kikkoman Performance Index

At the Kikkoman Group, we introduced an index called the Kikkoman Performance Index (KPI), as a means to managing corporate objectives (Refer to page 58 of this report). By adopting CO<sub>2</sub> emission reductions into KPI items, in addition to sales and asset turnover ratios, we aim to clearly show group companies that the importance of reducing CO<sub>2</sub> emissions is equivalent to that of actual financial affairs, while utilizing it in terms of progress management at each division for more efficient initiatives.

KPI is prescribed at each division in all scopes, based on the CO<sub>2</sub> reduction objective (Refer to page 14 of this report), by the Kikkoman Group General Environmental Preservation Committee. At such divisions, achievement rates based on the objective are evaluated at the end of the first half (April to September) and the second half (October to March) each fiscal year. In addition, bonuses for executive officers are directly linked to the KPI scores achieved.

### Utilization of renewable energies and sustainable resources

At the Kikkoman Group, we are working on CO<sub>2</sub> reductions through the utilization of renewable energies. We installed solar panels and wind power generators, while utilizing them as power sources for facilities at the Kikkoman Food Products Noda Factory, Nagareyama Kikkoman, Saitama Kikkoman and Kikkoman General Hospital in Japan, and also the KFI California Plant.

In addition, as part of an initiative to utilize sustainable resources, we use forest certified paper packaging in certain products.

### Participation in international initiatives

In 2009, the Kikkoman Group signed the Caring for Climate initiative, which is an initiative led by the UN Global Compact. Caring for Climate is a framework for reducing risks due to climate change and promoting initiatives towards solving various issues through cooperation between signatory companies. At the Kikkoman Group, we are working on countermeasures for climate change issues via the exchange of information with signatory companies and various organizations.

### CDP evaluation

CDP, an international nonprofit organization, selected the Kikkoman Group as one of their target corporations to which CDP sent its Climate Change Questionnaire to know and evaluate their efforts on reducing CO<sub>2</sub> emissions. CDP's evaluation based on the questionnaires are provided to institutional investors as an information disclosing the companies' actual stances toward reducing CO<sub>2</sub> emissions. The results are considered as one of the significant information from the ESG investment view point. The Kikkoman Group has replied to the questionnaire since FY2015.

In the CDP 2017 Climate Change Japan 500, which is the CDP's evaluation report based on the 2016 questionnaire, the Kikkoman Group acquired a B score.



## Recycling based Society

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### Reduction and recycling of waste and byproducts

In addition to raising the recycling rate for waste and byproducts, the Kikkoman Group is pursuing qualitative recycling improvements in keeping with the objectives of the Food Recycling Law. We strive to develop environmentally friendly packages as specified under “Kikkoman’s Guidelines for Containers and Packaging.”

### Objectives

#### **Objective (1) To reduce waste\* in general**

- 1) To keep the waste generation per unit of production\*\* at the domestic and major overseas manufacturing divisions comparing with the level of the previous fiscal year or below
- 2) To keep the waste generation at the domestic sales and back-office divisions comparing with the level of the previous fiscal year or below

\*Waste is defined as products generated as a result of business activities, excluding

- (1) Produced at the Kikkoman Group
- (2) Consumed at the Kikkoman Group, for example, the usage of soy sauce oil as fuel
- (3) Sold to companies outside the Kikkoman Group
- (4) Collected free of charge

in other words, products whose disposal was outsourced to waste collection, transport and disposal companies.

\*\*To calculate the waste generation per unit of production, the manufacturing volume (t) is used excluding packaging materials (t).

#### **Objective (2) To reduce environmental load in containers and packaging**

- 1) Reconsider materials (quality), amounts used, usage methods, collection methods, disposal methods, etc. of containers and packaging materials.

### Scope:

#### **Objective (1) To reduce waste in general**

- 1) Reduction of the waste generation per unit of production at the domestic and major overseas manufacturing divisions:

23 plants; Kikkoman Food Products Co. (Noda Factory (Chiba Prefecture), Takasago Factory (Hyogo Prefecture)), Hokkaido Kikkoman Co., Nagareyama Kikkoman Co., Ltd. (Chiba Prefecture), Kikkoman Foodtech Co. (Main Plant (Chiba Prefecture), Nakanodai Plant (Chiba Prefecture), Edogawa Plant (Chiba Prefecture), Nishinippon Plant (Hyogo Prefecture)), Saitama Kikkoman Co., Nippon Del Monte Corp. (Gunma Plant, Nagano Plant), Manns Wine Co., Ltd. (Katsunuma Winery (Yamanashi Prefecture), Komoro Winery (Nagano Prefecture)), Kikkoman Biochemifa Co. (Edogawa Plant (Chiba Prefecture), Kamogawa Plant (Chiba Prefecture)), Kikkoman Soyfoods Co. (Saitama Plant, Gifu Plant, Ibaraki Plant), Takara Shoyu Co., Ltd. (Choshi Plant (Chiba Prefecture)), KFI (Wisconsin Plant (United States), California Plant (United States)), KSP (Singapore) and KFE (The Netherlands)

\*Heisei Foods Co. absorbed Edogawa Foods Co. on April 1, 2017 and changed its name to Kikkoman Foodtech Co. on the same day.

- 2) Reduction of the waste generation at the domestic sales and back-office divisions:

The domestic sales and back-office divisions; Kikkoman Corp., Kikkoman Food Products Co., Kikkoman Beverage Co., Kikkoman Business Services Co. and Nippon Del Monte Agri Co.

## **Objective (2) To reduce environmental load in containers and packaging**

1) All Kikkoman Group companies

### **Initiatives**

#### **Objective (1) To reduce waste in general**

1) Reduction of the waste generation per unit of production at the domestic and the major overseas manufacturing divisions

We will work on optimizing production volumes, reducing various materials, and improving process yield rates in order to reduce waste that is generated as a result of production processes.

2) Reduction of the waste generation at the domestic sales and back-office divisions

We will conduct further work on converting waste into valuable resources by thoroughly sorting waste in order to reduce waste that is generated through business activities.

#### **Objective (2) To reduce environmental load in containers and packaging**

Reconsider quality, amounts used, methods of usage, collection and disposal, etc. of containers and packaging materials.

At the Kikkoman Group, we constantly reconsider all materials and quality, amounts used, usage methods, recovery methods, disposal methods, etc. of containers and packaging materials, and promote reducing weight and recycling under the “Kikkoman’s Guidelines for Containers and Packaging.”

#### **[Kikkoman’s Guidelines for Containers and Packaging]**

1. Reduce weight of containers and packaging.
2. Introduce and use returnable containers and packaging for our products.
3. Consider applying shapes, designs, and materials to containers and packaging that facilitate sorted collection and reuse.
4. Make greater use of sustainable resources.
5. Increase procurement from environmentally conscious suppliers and vendors.
6. Use materials with chemical compositions and shapes that have been verified as safe for humans.
7. Collect customer feedback and information regarding where and how they purchase and use our products and incorporate it into the development of new containers and packaging.  
Strive to develop new containers and packaging.
8. Develop containers and packaging with universal designs to make them easy to use for a diverse range of customers.

### **FY2018 Review**

#### **Objective (1) To reduce waste in general**

1) Reduction of the waste generation per unit of production at the domestic and major overseas manufacturing divisions

The waste generation per unit of production at Kikkoman Group domestic and major overseas manufacturing divisions in FY2018 was 0.0375t/t, which was increased by 2.5% as compared with FY2017 (0.0366t/t). We will put further efforts into waste reduction going forward.

2) Reduction of the waste generation at the domestic sales and back-office divisions

The waste generation at Kikkoman Group domestic sales and back-office divisions in FY2018 were 330 tons, which was decreased by 5.7% as compared with FY2017 (350 tons). The objective was achieved in these divisions. We will put further efforts into waste reduction going forward.

**Objective (2) To reduce environmental load in containers and packaging**

In FY2018, Kikkoman Food Products Co. has developed a new bottle, “*Mippu Eco Bottle*,” adopting the two changes, the main material of the bottle from PE (polyethylene) to PET (polyethylene terephthalate) and the cap and the label of the bottle to easily removed parts, and started to use the bottle as a container of a raw soy source named “*Kikkoman Itsudemo-shinsen Shiboritate Nama-shoyu Mild*” from February 2018. The bottle, which was made easily recyclable with the two changes, also reduced its weight by 10.3% compared with the bottle named “*Yawaraka Mippu Bottle*,” which had been used for the same kind of soy source before. Kikkoman Food Products Co. also succeeded in reducing the weight of the 400g PET bottle by 12.5% and started to use the bottle as a container for a sesame soup product named “*Kikkoman Kobashi-baisen Gomadare-tsuyu*.”

Nippon Del Monte Corp. reduced weight of the 800g tube by 3.5%, of the 1kg tube by 2.9% and of the hinge cap by 33.8% respectively used for “*Del Monte Tomato Ketchup*.”

### Preservation of the water environment

The business of the Kikkoman Group is supported by and depends on the water environment. Water plays a crucial role in both the manufacture of products and also the production of crops in the form of raw materials. In addition, water is a precious resource for society at large, and we are well aware of the sheer importance of water preservation.

For this reason, at the Kikkoman Group, we implement various initiatives in order to make the most efficient use of water and reduce the environmental load.

### Objectives

#### **Objective (1) To preserve water environment**

1) Reduce wastewater BOD to less than 10 mg/ℓ, or COD to less than 8 mg/ℓ at domestic river discharge areas.

#### **Objective (2) To reduce water consumption**

1) To keep the water consumption per unit of production\* at the domestic and major overseas manufacturing divisions comparing with the level of the previous fiscal year or below

2) Work on reducing water consumption at all domestic sales and back-office divisions

\*To calculate the water consumption per unit of production, the manufacturing volume (t) is used excluding packaging materials (t).

#### **Scope:**

#### **Objective (1) To preserve water environment**

1) Reduction of wastewater BOD or COD: 10 plants at domestic river discharge areas.

#### **Objective (2) To reduce water consumption**

1) Reduction of the water consumption per unit of production:

23 plants; Kikkoman Food Products Co. (Noda Factory (Chiba Prefecture), Takasago Factory (Hyogo Prefecture)), Hokkaido Kikkoman Co., Nagareyama Kikkoman Co., Ltd. (Chiba Prefecture), Kikkoman Foodtech Co. (Main Plant (Chiba Prefecture), Nakanodai Plant (Chiba Prefecture), Edogawa Plant (Chiba Prefecture), Nishinippon Plant (Hyogo Prefecture)), Saitama Kikkoman Co., Nippon Del Monte Corp. (Gunma Plant, Nagano Plant), Manns Wine Co., Ltd. (Katsunuma Winery (Yamanashi Prefecture), Komoro Winery (Nagano Prefecture)), Kikkoman Biochemifa Co. (Edogawa Plant (Chiba Prefecture), Kamogawa Plant (Chiba Prefecture)), Kikkoman Soyfoods Co. (Saitama Plant, Gifu Plant, Ibaraki Plant), Takara Shoyu Co., Ltd. (Choshi Plant (Chiba Prefecture)), KFI (Wisconsin Plant (United States), California Plant (United States)), KSP (Singapore), KFE (The Netherlands)

\*Heisei Foods Co. absorbed Edogawa Foods Co. on April 1, 2017 and changed its name to Kikkoman Foodtech Co. on the same day.

2) Work on reducing water consumption:

The domestic sales and back-office divisions; Kikkoman Corp., Kikkoman Food Products Co., Kikkoman Beverage Co., Kikkoman Business Service Co. and Nippon Del Monte Agri Co.

## Initiatives

### Objective (1) To preserve water environment

At the Kikkoman Group, we set our own standards that are stricter than the legal standards (regulations) designated by the nation, prefectures and municipalities for all wastewater BOD (Biochemical Oxygen Demand) or COD (Chemical Oxygen Demand) produced as a result of our manufacturing activities. We put great effort into the preservation of water environments surrounding our plants by reviewing manufacturing processes and equipment, introducing the latest technologies and facilities and taking the most efficient measures possible.

In addition, we improve the knowledge and skills pertaining to wastewater treatment by periodically conducting training course for managers and employees at wastewater treatment facilities such as “Training for wastewater treatment facility managers,” while also optimizing facility management and improving on capabilities to deal with unexpected situations.

### Objective (2) To reduce water consumption

At the Kikkoman Group domestic and major overseas manufacturing divisions (23 plants), we are aiming to efficiently reduce water consumption by measuring water consumption of our manufacturing activities and controlling water consumption per unit of production, while also reviewing existing processes and undertaking effective initiatives. In addition, we aim to reduce water consumption at the domestic sales and back-office divisions by reviewing business activities and conducting awareness-raising activities for water conservation.

## FY2018 Review

### Objective (1) To preserve water environment

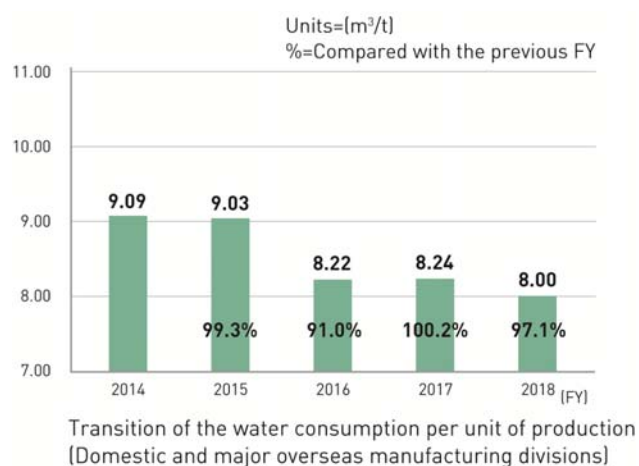
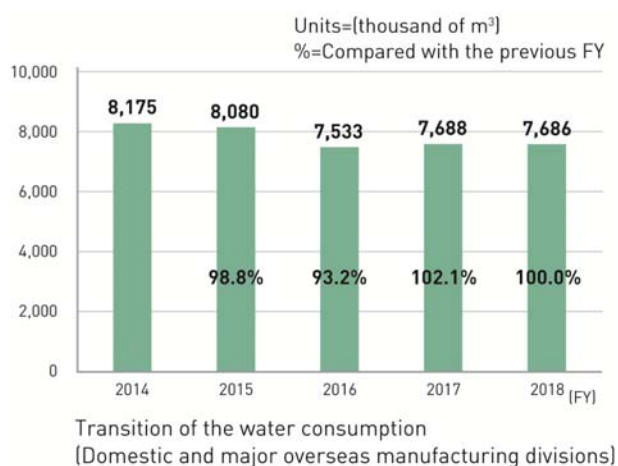
#### 1) Reduction of wastewater BOD or COD

Among the domestic manufacturing divisions of the Kikkoman Group, 10 plants are located in river discharge areas, where wastewater is discharged into rivers after being treated at wastewater treatment facilities, the objective was achieved in 9 plants.

### Objective (2) To reduce water consumption

#### 1) Reduction of the water consumption per unit of production at the domestic and major overseas manufacturing divisions

The water consumption per unit of production at Kikkoman Group domestic and major overseas manufacturing divisions in FY2018 was 8.00 m<sup>3</sup>/t, which was decreased by 2.9% as compared with FY2017 (8.24 m<sup>3</sup>/t). The objective was achieved in these divisions. We will continue to make efforts for a further reduction by tackling the efficient use of water.



### Support of water stress\* reduction activities

The Kikkoman Group has manufacturing bases in regions where water stress has become a significant social issue, such as the US, the Netherlands and Singapore. At these manufacturing bases, we support water environment preservation activities that are conducted by local governments or NGOs in order to contribute to solving such issues. Please refer to page 50, “Social Activities in the World” for further detailed information in relation to this.

\*Water stress: Situation when water demand exceeds the amount of water available at certain periods of time or when use of water is limited as a result of water quality.

### Participation in initiatives in Japan and overseas

In FY2016, the Kikkoman Group participated in “Water Project,” which is hosted by the Japanese Ministry of the Environment. We also signed the “CEO Water Mandate,” an initiative that is led by UN Global Compact. We will continue to put our environmental policy into practice by participating in initiatives that protect precious water resources towards the future and integrate them into our activities.

### Initiatives with supply chains

At the Kikkoman Group, we explain our basic ideas, philosophies and policies in relation to transactions through the “Kikkoman Group Transaction Policies” to business partners. Furthermore, we added an item on environmental preservation in “Priority Items,” in which we require business partners to follow, aiming to conduct environmental preservation activities through supply chains. We also confirmed initiatives that pertain to CO<sub>2</sub> reductions and forest protection from a perspective of global warming prevention, when holding discussions with business partners. Please refer to page 46 of this report for further details.

### CDP evaluation

From FY2018, the Kikkoman Group began to reply to the CDP Water questionnaire sent by CDP, an international nonprofit organization. The evaluation based on the questionnaire are provided to institutional investors as an information disclosing the companies' actual stances toward reduction of water consumption and preservation activities of water quality and environment. The evaluation is considered as one of the significant information from the ESG investment view point.

In the CDP 2017 Water Report, the Kikkoman Group acquired a C score.

## Energy, Resource, and Discharge Flows

The Kikkoman Group manufactures and sells an assortment of products, including soy sauce, soy sauce derivative products, beverages, ketchup, wine, soymilk, etc., to customers both within and outside of Japan. In the process of manufacturing these products, we consume not only raw materials but also energy, water, and packaging materials; moreover, we discharge solid, liquid, and gas waste.

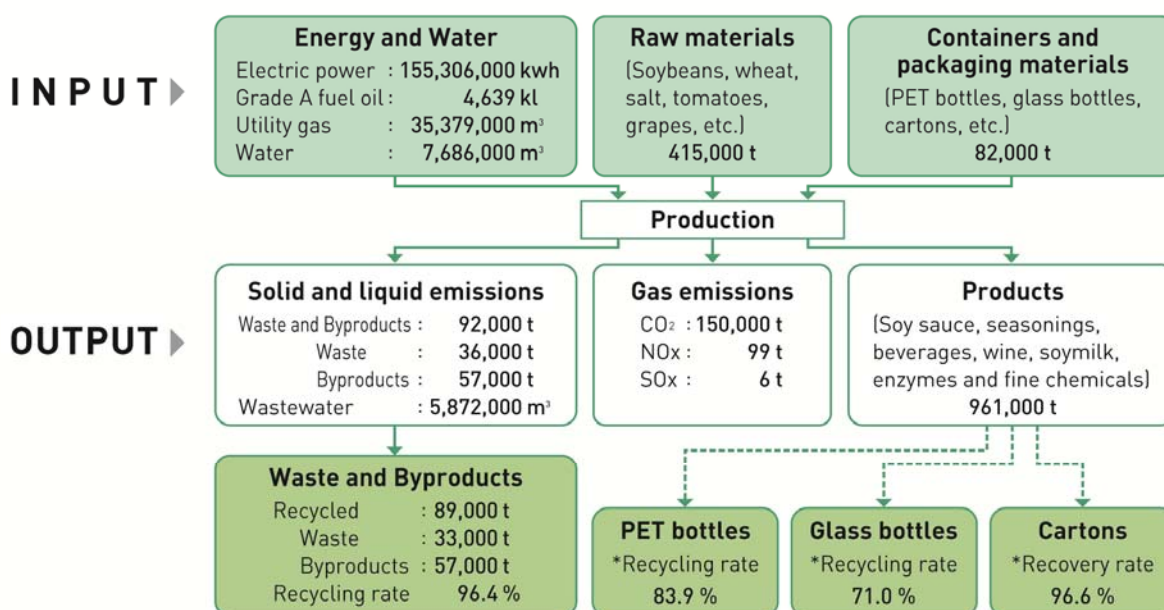
The Kikkoman Group strives to minimize its environmental load by seeking to consume less energy, water, and materials; improve efficiency in manufacturing and energy use; and reduce waste. We also attempt to reduce the environmental load of products after consumption by developing and using more readily recyclable containers and packaging materials, such as glass and plastic bottles and cartons.

### Scope:

23 plants (the domestic and the major overseas manufacturing divisions); Kikkoman Food Products Co. (Noda Factory, Takasago Factory), Hokkaido Kikkoman Co., Nagareyama Kikkoman Co., Ltd., Kikkoman Foodtech Co. (Main Plant, Nakanodai Plant, Edogawa Plant, Nishinippon Plant), Saitama Kikkoman Co., Nippon Del Monte Corp. (Gunma Plant, Nagano Plant), Manns Wine Co., Ltd. (Katsunuma Winery, Komoro Winery), Kikkoman Biochemifa Co. (Edogawa Plant, Kamogawa Plant), Kikkoman Soyfoods Co. (Saitama Plant, Gifu Plant, Ibaraki Plant), Takara Shoyu Co., Ltd. (Choshi Plant), KFI (Wisconsin Plant, California Plant), KSP and KFE

\*Heisei Foods Co. absorbed Edogawa Foods Co. on April 1, 2017 and changed its name to Kikkoman Foodtech Co. on the same day.

### ● Energy, resource and discharge flows for FY2018 (based on FY2018 Environmental accounting)



\* The recycling rates for plastic bottles and glass bottles and the recovery rate for cartons reflect action by customers. These figures have been calculated based on the latest information published by respective trade organizations.

\*\* Due to rounding, some totals may not correspond with the sum of the separate figures.

## Environmental Management Activity

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At the Kikkoman Group, we obtained ISO14001 batch certification for all major Group facilities in Japan, in order to construct an efficient environmental management system, while promoting a higher level of environment management. As part of this initiative, we follow not only environment-related laws and regulations, but also a management standard that we independently established, and integrate environmental risk reductions into our everyday work. In addition, we actively share information with stakeholders and use all information, technologies and experiences that we acquire inside and outside of the Kikkoman Group in our environmental preservation activities.

### Objectives

#### **Objective (1) To cooperate with local communities**

1) We will further promote regional contribution activities and continue working on creating intimate communities.

#### **Objective (2) To response against environmental risks**

1) We will put further effort into strengthening compliance rules.

#### **Objective (3) To keep improving the environmental management system**

1) We will conduct environmental educations, promote environmental communications and adopt revisions of ISO14001 standard.

#### **Scope:**

Objective (1) All Kikkoman Group companies

Objective (2) All Kikkoman Group companies

Objective (3) All Kikkoman Group companies

### FY2018 Review

#### **Objective (1) To cooperate with local communities**

At the Kikkoman Group, we share information in relation to environmental preservation activities through seminars and exhibitions, while also cooperating and conducting activities with industries, governments, academia and nonprofit organizations. In addition, we use all information, technologies and experiences that we acquire inside and outside of the Kikkoman Group in our environmental preservation activities.



## ● Major environmental communication programs during FY2018

Programs	Date, or times	Target audience	No. of participants
Publication of Data Book (Japanese version)	Oct.-17	General public	-
(English version)	Jan.-18	General public	-
Revision of the Environmental Preservation Activities Case Book	Dec.-17	General public	-
Disclosing information on the website (Japanese version)	Feb.-18	General public	-
(English version)	Feb.-18	General public	-
Summer Vacation Class "Production and Ecology"	Aug.-17 (3 times)	Elementary school students	58
University Internship	Aug., Sep.-17	Students at national, public, private universities and national colleges	5
Environmental Lecture at Kanagawa Institute of Technology	Oct.-17	Students of Kanagawa Institute of Technology	56
Training Program for school teachers	Aug.-17	Teachers from Nerima and Edogawa Wards	20
Activities with outside environmental groups	15 times	National, Prefecture and City governments and private companies	-

### Objective (2) To response against environmental risks

#### 1) Water pollution prevention

As we use and discharge large volumes of water in the manufacturing and washing process of our products, we pay full attention to improve water qualities and prevent river pollution through setting our own standards. For wastewater, we introduced management objectives using BOD or COD as indicators and systems to evaluate the achievement levels of these objectives in Medium-term Environmental Goals for FY2016-2018.

#### 2) Manual for the proper disposal of industrial waste

We sort industrial waste before disposal, reduce industrial waste as much as possible, and pursue recycling. In Japan, we consign the collection, transfer, processing, and disposal of industrial waste to licensed service providers. We comply the Kikkoman Manual for the Proper Disposal of Industrial Waste and strive to ensure that waste is disposed of properly.

#### 3) Noise, vibration, and odor prevention

To prevent noise, vibration, and odors, we have been installing quieter machines and soundproof/sound-absorbing walls around our plants. Noise and vibration levels are monitored regularly along the boundaries of our plants to ensure they do not exceed the levels prescribed by local community regulations.

#### 4) Air pollution prevention

In addition to observing regional regulations on the concentration and total amount of sulfur oxides (SO<sub>x</sub>), nitrogen oxides (NO<sub>x</sub>), and soot and particulate emissions, we seek to control these emissions by establishing voluntary standards at each of our plants.

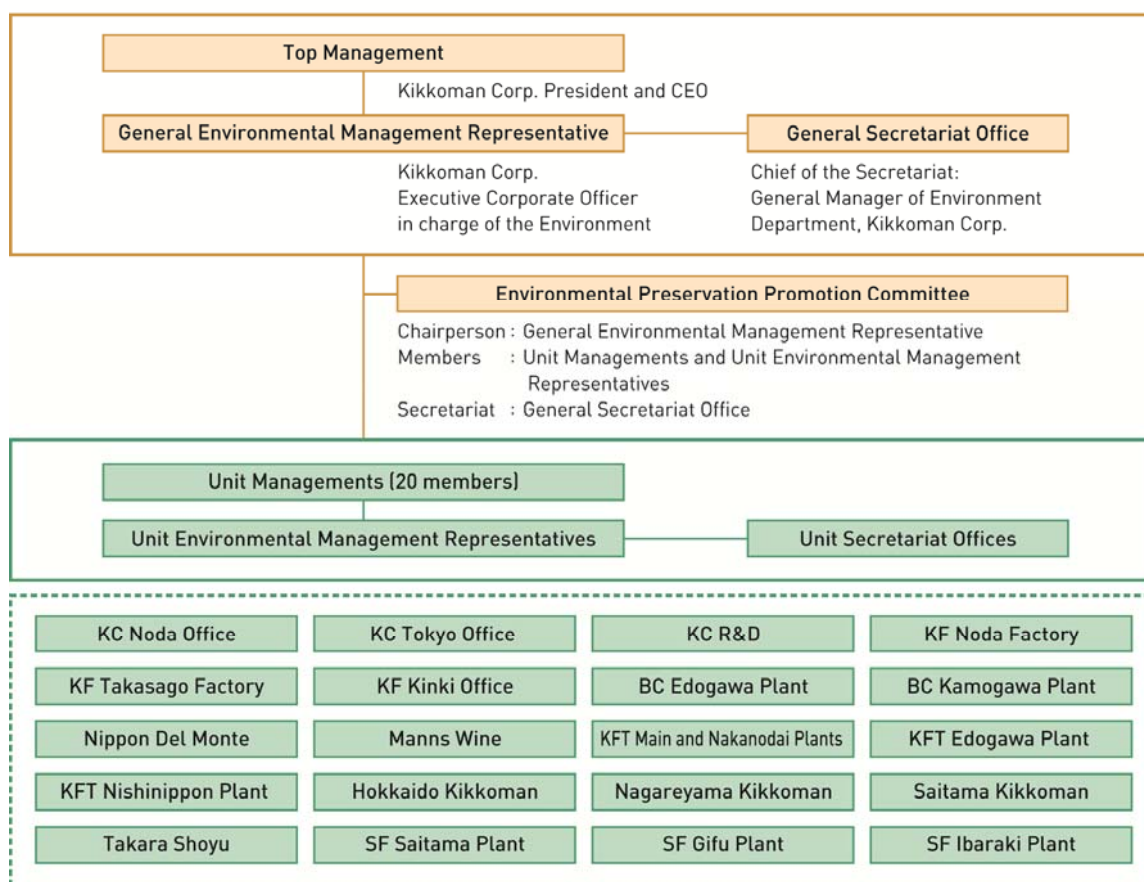
#### 5) Black mold pollution prevention

Trees, roofs, and walls in the vicinity of soy sauce and *mirin* plants can be darkened by mold classified in the genus *Aureobasidium*. It propagates through the intake of alcohol, and its presence can generate a black pigment on material surfaces. In consideration of local residents, the Kikkoman Group hermetically seals the source of emissions, installs cleaning devices on air ducts, and recovers alcohol content from the exhausted gases to prevent the microbe from spreading to residential areas.

### Objective (3) To keep improving the environmental management system

Since obtaining ISO14001 batch certification for all major Group facilities in Japan in June 2011, the Kikkoman Group aims to achieve higher levels of environmental management by further enhancing group-wide communication, while also continually improving environmental management systems. We use the PDCA cycle in order to steadily implement the management system throughout the group and promote continuous improvements through specific activities at each division. We improve our environmental management systems by establishing objectives and policies for environmental conservation activities from a perspective of the entire group, and prepare structures to exchange information, while reviewing results at all sites. In addition, we conduct internal audits at group companies inside and outside Japan. We conduct training for new and mid-level employees in order to recognize global and ecological perspectives and the importance of environmental conservation, while also conducting more specialized training for environmental conservation representatives.

### ● Framework to Promote ISO14001 (FY2018)



KC=Kikkoman Corp. KF=Kikkoman Food Products BC=Kikkoman Biochemifa KFT=Kikkoman Foodtech  
SF=Kikkoman Soyfoods

\*Heisei Foods Co. absorbed Edogawa Foods Co. on April 1, 2017 and changed its name to Kikkoman Foodtech Co. on the same day.

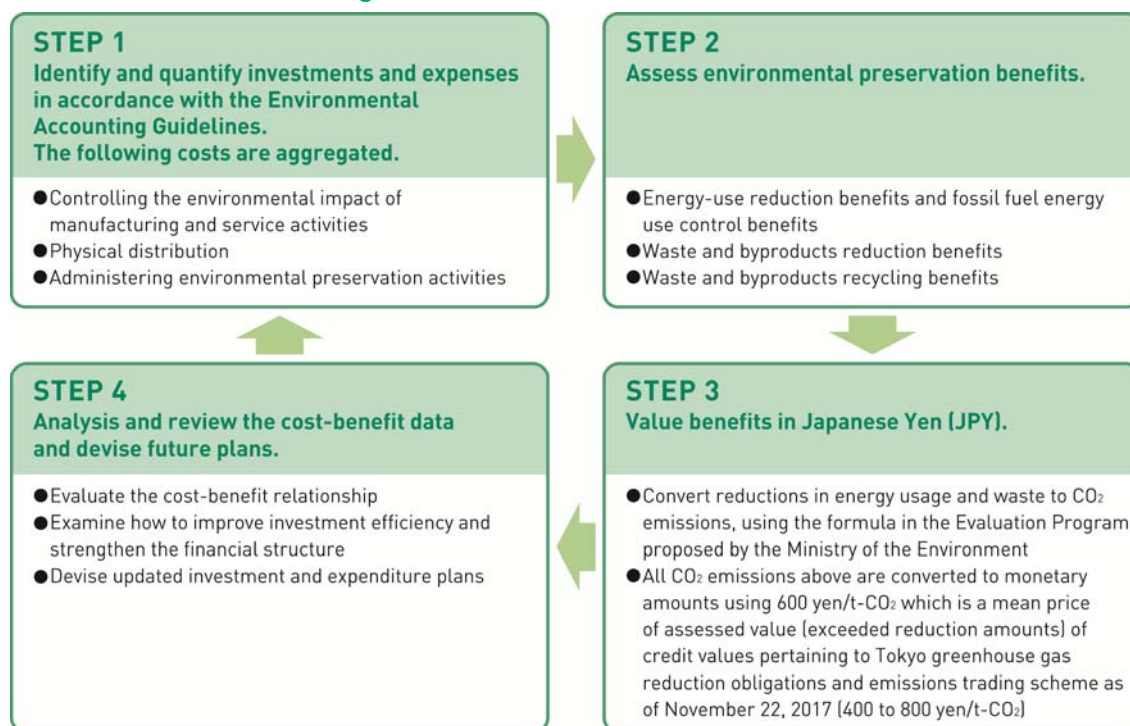
## ● Major environmental education programs during FY2018

Programs	Date, or times	Target audience	No. of participants
Training of ISO14001 internal environmental auditors	Jul.-17	Employees	24
	Oct.-17 (2 times)	(Qualified auditor candidates)	48
Skill up training of ISO14001 internal environmental auditors	May-17 (2 times)	Employees (Licensees of internal environmental audit, etc.)	57
	Jun.-17		15
	Sep.-17 (2times)		32
	Oct.-17		10
	Nov.-17		4
	Jan.-18 Mar.-18		5 5
Training for wastewater treatment facility managers	Jul.-17	Wastewater treatment facility managers	20
Training for industrial waste managers	Dec.-17	Industrial waste managers	23
	Mar.-18		24
Environmental lecture at domestic group companies	23 times	Domestic group companies	—
Employees training program at overseas group companies	Feb.-18	PKI employees, etc.	—
New employee training program	Apr.-17	New employees in FY2018	21
Environmental lecture by Dr.Yuji Kishi	Sep.-17 (2 times)	Domestic group companies	184
Transmission of environmental information	17 times	Domestic group companies	—
Transmission of legal and ordinance information	4 times	Domestic group companies	—

## Environmental Accounting

The Kikkoman Group quantifies and assesses from multiple perspectives the costs and benefits of its operations in relation to environmental preservation. This helps us pursue efficient environmental preservation practices.

### Environmental Accounting Scheme



### Environmental Accounting for FY2018

#### Scope:

Kikkoman Food Products Co. (Noda Factory, Takasago Factory), Hokkaido Kikkoman Co.\*, Nagareyama Kikkoman Co., Ltd.\*, Kikkoman Foodtech Co. (Main Plant, Nakanodai Plant, Edogawa Plant, Nishinippon Plant)\*, Saitama Kikkoman Co.\*, Nippon Del Monte Corp. (Gunma Plant, Nagano Plant), Manns Wine Co., Ltd. (Katsunuma Winery, Komoro Winery), Kikkoman Biochemifa Co. (Edogawa Plant, Kamogawa Plant), Kikkoman Soyfoods Co. (Saitama Plant, Gifu Plant, Ibaraki Plant), Takara Shoyu Co., Ltd. (Choshi Plant), KFI (Wisconsin Plant, California Plant), KSP, KFE (domestic manufacturing divisions (19 plants) and major overseas manufacturing divisions (4 plants))

Companies with \* are included in the environmental accounting records of Kikkoman Food Products Co..

\*\*Heisei Foods Co. absorbed Edogawa Foods Co. on April 1, 2017 and changed its name to Kikkoman Foodtech Co. on the same day.

**Reporting Period:** April 1, 2017 – March 31, 2018

## Environmental preservation investments and expenses

(Rounded to the nearest million yen)

Category	Kikkoman Food Products	Nippon Del Monte	Manns Wine	Kikkoman Biochemifa	Kikkoman Soyfoods	Takara Shoyu	KFI	KSP	KFE	Total
Environmental preservation investments	115	9	153	86	80	19	80	13	0	555
Environmental preservation expenses	1,568	116	38	52	568	78	233	30	56	2,739

## Environmental preservation benefits

Energy use reduction	0	0	0	0	-2	0	-2	0	0	-4
Energy (fossil fuel) control	2	0	0	0	0	0	0	0	0	2
Waste and byproducts reduction	1	0	0	0	0	0	-3	0	-1	-3
Waste and byproducts control (recycling)	29	2	1	1	17	1	23	2	3	79
<b>Total</b>	<b>32</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>15</b>	<b>1</b>	<b>18</b>	<b>2</b>	<b>2</b>	<b>74</b>

\* Due to rounding, some totals may not correspond with the sum of separate figures.

## FY2018 Review

### Environmental preservation investments

Environmental preservation investments in FY2018 totaled 555 million JPY (Japanese Yen), an increase of 115 million JPY from FY2017 (440 million JPY). The main reasons for this increase in investments were associated with the fact that investments in wastewater treatment facilities in Manns Wine Co., Ltd. and air-conditioning equipment in Takara Shoyu Co., Ltd. were done.

### Environmental preservation expenses

Environmental preservation expenses in FY2018 totaled 2,739 million JPY, an increase of 9 million JPY from FY2017 (2,730 million JPY). The main reason for this increase in expenses was associated with the increase in administrative expenses due to increase in production volume compared to the previous fiscal year (FY). In FY2018, overseas companies (KFI, KSP, KFE) 's environmental preservation expenses in JPY increased compared to the previous fiscal year (FY2017), as the exchange rates of USD/JPY and SGD/JPY, EUR/JPY in FY2018 tended to be higher than previous fiscal year (FY2017).

### Environmental preservation benefits

The CO<sub>2</sub> emission in FY2018 (123 thousand t-CO<sub>2</sub>) was converted to monetary amount by Tokyo greenhouse gas reduction obligations and emissions trading schemes (Tokyo Cap-and-Trading Program) using the mean price as November 22, 2017 (600 JPY/t-CO<sub>2</sub>). The environmental preservation benefit was calculated at 74 million JPY. It was decreased by 117 million JPY from FY2017 (191 million JPY converted using the same method from 127 thousand t-CO<sub>2</sub>). The main reason for this decrease in benefit was associated with fact that the mean price used in conversion of FY2018 was lower than that of FY2017.