Environmental Report

Environmental Management Basic Policy

<SDGs related to this section>

Today we face various environmental problems. Many environmental problems, from those unique to each region to those on a global scale, exist around the world. As they are complexly intertwined and continuing to deteriorate, achieving a sustainable society is a global common challenge. Companies are expected to play an increasingly larger role in tackling this challenge.

Since the time of its foundation, the Kubota Group has pursued a mission of solving social problems in developing its businesses. Toward the realization of “For Earth, For Life,” the Kubota Group will contribute to the development of a sustainable society through its environmental management initiatives.

Environmental Charter / Action Guidelines

The Kubota Group Environmental Charter

- The Kubota Group aspires to create a society where sustainable development is possible on a global scale.
- The Kubota Group contributes to the conservation of global and local environments through its environmentally friendly operations, products, technologies, services, and corporate activities.

The Kubota Group Environmental Action Guidelines

1. Environmental Conservation Efforts in All Business Activities
   (1) We promote environmental conservation measures in all stages of our corporate activities, including product development, production, sales, physical distribution, and service.
   (2) We also request that our suppliers understand the importance of environmental conservation efforts and cooperate in this regard.
2. Global Environmental Conservation
   (1) We promote global environmental conservation measures intended for dealing with climate change, creating a recycling-based society, conserving water resources, and controlling chemical substances.
   (2) We promote global environmental conservation by providing products, technologies, and services that contribute to solving environmental problems.
   (3) We strive to ensure our corporate activities are friendly to the natural environment and biodiversity.
3. Environmental Protection to Create a Symbiotic Relationship with Local Societies
   (1) We make efforts in the reduction of environmental risks and promote our business activities with proper consideration for the protection of local environments, including pollution prevention.
   (2) We actively participate in environmental beautification/education activities in local communities.
4. Our Voluntary and Organized Efforts in Environmental Conservation
   (1) By introducing the environmental management system and establishing voluntary targets and action plans, we work on our daily business operations.
   (2) We endeavor to enhance environmental awareness through active environmental education/enlightenment activities.
   (3) We actively provide stakeholders with environment-related information.
   (4) We collect stakeholders’ opinions broadly through environmental communication, and reflect the findings in our environmental activities.

Message from the Environmental Conservation Control Officer

In response to the UN's consensus on common global goals and international frameworks, like the Sustainable Development Goals (SDGs) and the Paris Agreement, many companies have been accelerating their efforts towards realizing a sustainable society.

The Kubota Group sees its mission as solving the problems faced by society in the fields of food, water, and the environment, and contributes to achieving the SDGs through its business activities.

Toward achieving our Medium and Long-Term Environmental Conservation Targets, we will further enhance our environmental management efforts, including reducing the environmental loads of our business processes and enhancing our lineup of environment-friendly products and services.

The Kubota Group has deployed throughout the company the Kubota Production System (KPS), which is based on "JUST-IN-TIME" and "automation," and continuously pursues the thorough elimination of loss, with the aim of establishing a "Made by Kubota" production system throughout the world as part of our business process. Based on this concept of KPS, we are directing our environmental conservation activities at further reducing waste and loss in the use of energy and resources, enhancing and strengthening environmental risk management, and strengthening our manufacturing capability.

For environment-friendly products and services, while working to expand the sales ratio of Eco-Products, we will also enhance our products and services that utilize advanced technologies, such as IoT, AI and robots, thereby contributing to the conservation of the environment and the solution of customers' problems.

The Kubota Group will continue its efforts to provide environment-friendly products, technologies, services, and corporate activities as a single whole and promote environmental management appropriate to the Global Major Brand Kubota.

Koichi Yamamoto

Executive Officer
General Manager of Manufacturing Headquarters
(Environmental Conservation Control Officer)

Environmental Management Approach

Concepts of Environmental Management

Having established the "For Earth, For Life" Brand Statement as its concept for environmental management, the Kubota Group balances its business growth and contribution to environmental conservation through its environment-friendly products, technologies, services and corporate activities and aims for ongoing synergistic development with society in order to continue supporting the prosperous life of humans while protecting the environment of this beautiful earth.

The Group has set five basic items for its environmental conservation, namely, "Tackling Climate Change," "Working towards a Recycling-based Society," "Conserving Water Resources," "Controlling Chemical Substances," and "Conserving Biodiversity." Based on these items, the Group is committed to the development of society and the conservation of the global environment through the delivery of products, technologies and services that help solve the social problems in the fields of food, water, and the living environment and through the reduction of the environmental loads and environmental risks of its corporate activities.

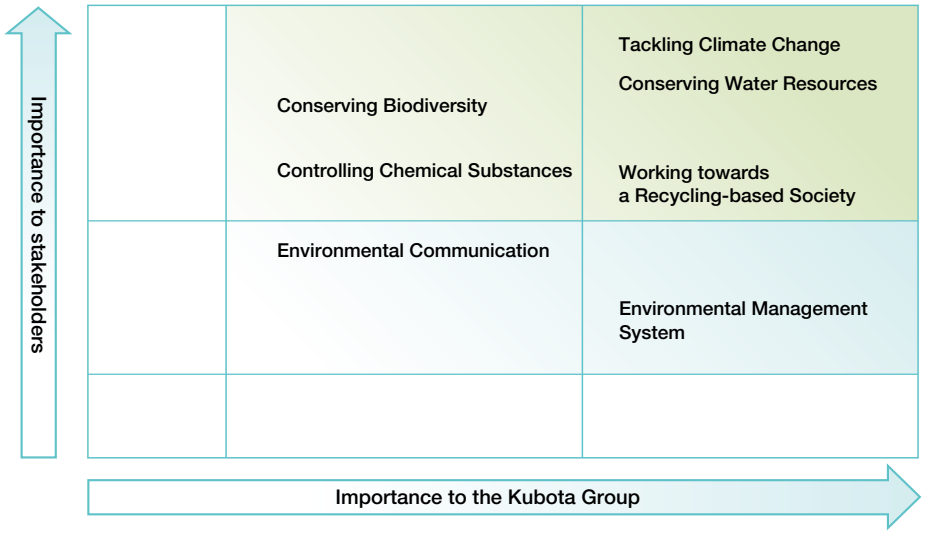
Materiality

The Kubota Group has identified material issues (priority issues) in its environmental conservation activities, taking into consideration their importance in business, requests and expectations from stakeholders, and social trends.

Process for Identifying Materiality

Step 1	**Gathering and analyzing information** We gathered and analyzed information on international frameworks and policy trends, key external evaluation indicators, global trends in the Kubota Group's business fields, etc.
Step 2	**Listing material issues** Through discussions at the Environmental Management Strategy Committee and interviews with relevant internal departments, and dialogues with ESG (environment, society, governance) investment institutions and external experts, we listed issues relating to environmental conservation.
Step 3	**Identifying materiality** We examined the identified issues from the perspectives of both the importance to stakeholders and the importance to the Kubota Group, and plotted the identified priority issues on a matrix.
Step 4	**Formulating and implementing key measures** After identifying the impacts (risks and opportunities) related to issues with a high degree of importance for both stakeholders and the Kubota Group, we formulate key measures and promote the steady implementation thereof.

Materiality Matrix



Materiality Awareness

Tackling Climate Change	Against a backdrop of more frequently occurring natural disasters caused by abnormal weather and other factors believed to be linked to climate change, tackling this challenge has become an issue of global proportions. As a corporate group that conducts business activities throughout the globe, the Kubota Group believes in the importance of working to reduce the emissions of greenhouse gases in the corporate value chain and of undertaking adaptive measures designed to reduce the impact of climate change.
Conserving Water Resources	Access to safe drinking water is a critical part of life-supporting infrastructure. Despite this, there are many people throughout the world that cannot access safe drinking water. The Kubota Group has defined "Water" as one of its business areas, and believes in the importance of becoming more deeply committed to the supply of safe, secure water through the construction of water infrastructure. We also believe in the importance of conserving local water resources, which includes saving water, recycling wastewater, and applying water quality-related risk management at its business sites.
Working towards a Recycling-based Society	Mineral resources are used widely throughout modern society, but there is a limit to the amount existing on the planet. More recently, increasing amounts of waste and marine plastic pollution have become global issues. Likewise, the Kubota Group believes in the importance of providing waste processing services and related equipment, for example, as solutions for issues related to the garbage generated from human lifestyles and economic activities. Moreover, we also believe in the importance of effectively utilizing resources and reducing waste in the business value chain.
Conserving Biodiversity	As part of agriculture, living things are the resource that is subject to harvest, where ecosystems denote the interrelation between the environments that produce living resources and other living things. Meanwhile, biodiversity is an essential factor for abundant, stable food production. The Kubota Group defines "Food" as one of its business areas, and in addition to addressing greater efficiency in agriculture and a diverse range of needs, we believe in the importance of delivering products and services that contribute to the conservation of biodiversity. Moreover, we believe in the importance of undertaking business activities that consider biodiversity and of protecting the natural environment around its business sites.
Controlling Chemical Substances	Chemical substances have become an essential part of our lifestyles. On the other hand, chemical substances hold the potential to significantly impact humans and ecosystems, a fact that has led to stringent laws and regulations related to their appropriate use and control. The Kubota Group believes in the importance of appropriately controlling the chemical substances contained in its products and handled at its business sites in order to minimize the impact on customers, those who live and work near its business sites, employees, and ecosystems.

Risks and Opportunities

The Task Force on Climate-related Financial Disclosures (TCFD) set up by the Financial Stability Board (FSB) released its final report in June 2017 to provide companies with recommendations for assessing and disclosing the financial implications of climate change.

In light of the climate change-related risks (transitional risk, physical risk) and opportunities recommended for disclosure by the TCFD and other organizations, the Kubota Group endeavors to continuously assess the implications related to materiality considered to have a high degree of importance for stakeholders and the Kubota Group from the perspective of risks and opportunities. Moreover, we make efforts towards reducing risks and creating value from opportunities.

	Risks	Opportunities
Tackling Climate Change	• Higher costs coinciding with compliance to stricter energy saving-related regulations, etc. • Higher manufacturing costs due to soaring energy prices • Negative impacts on Kubota and supplier operations due to climate change-triggered natural disasters • Changes in agricultural style due to more pests, lower crop yields, and relocation of suitable farming land, etc. • Removal of low energy-saving performing products from the market as a result of greater interest in climate change among the market and customers	• Contribution to greenhouse gas emissions control through the launch of products and services, etc., that enable energy savings and energy creation • Improve energy efficiency through energy-saving measures, such as upgrading to high-efficiency equipment at business sites • Expand climate change adaptation business based on the delivery of agricultural solutions that correspond to changes in agricultural styles
Working towards a Recycling-based Society	• Higher costs coinciding with compliance to import and export regulations on discarded plastic and stricter waste-related regulations, etc. • Higher manufacturing costs due to resource depletion and soaring resource prices • Higher costs coinciding with the development and production of resource recycling-based products made from recycled materials, etc.	• Contribution to the effective use of resources through the launch of products that consider resource recycling, including the use of recycled materials, and through the deployment of environmental and waste-disposal services • Improve resource efficiency through resource conservation measures at business sites • Improve product sustainability through easier maintenance and the promotion of used product recycling
Conserving Water Resources	• Fines and shutdowns due to non-compliance with wastewater standards, etc. and lower social credibility, higher costs coinciding with stricter water-related regulations, etc. • Negative impacts on production activities due to higher manufacturing costs resulting from soaring water prices and water-use restrictions, etc. • Negative impacts on Kubota and supplier operations due to flooding, droughts, and other disasters • Changes in agricultural styles due to lower crop yields stemming from water resource shortages and relocation of suitable farming land • Higher costs coinciding with the design and development of products and services suited to the needs of regions with high water risk	• Contribution to social infrastructure through the delivery of water environment-related products that ensure access to safe and secure water, wastewater treatment and recycling treatment facilities that comply with stricter regulations, and solutions that help solve water-environment issues, etc. • Improve water use efficiency through water conservation and wastewater reuse at business sites, etc. • Expand climate change adaptation business based on the supply of water infrastructure that is highly resistant to flooding, droughts, and other disasters
Controlling Chemical Substances	• Fines and shutdowns, etc., due to non-compliance with chemical substance-related environmental standards, etc. and lower social credibility, and higher costs coinciding with stricter chemical substance-related regulations, etc.	• Contribution to reduced environmental loads through the launch of products compliant with emissions gas regulation and toxic substance use regulation • Reduce exposure risk through the decreased use of potentially toxic substances at business sites • Improve painting efficiency through the reduced use of paints and improved yields, etc., at business sites
Conserving Biodiversity	• Fines and litigation due to violation of biodiversity-related regulations • Shortages and higher procurement costs of raw materials due to declining natural capital • Litigation raised by local communities and lower social credibility due to inappropriate land use, pollutant emissions, and excessive resource consumption, etc.	• Contribution to the conservation of biodiversity through the launch of products that assist soil and water area conservation and products that control gas emissions, noise, and vibration, etc. • Improve brand image through activities that consider biodiversity and environmental communication with local communities, etc.

Key Measures

In order to address the issues identified as materiality, the Kubota Group promotes the following key measures from the perspective of the value chain.

	Value chain of business (Expanding Environment-friendly Products and Services P56-70)		
	Design and development, procurement	Manufacturing and distribution	Use and disposal
Tackling Climate Change (P39-43)	• Conduct global procurement (Optimal regional procurement)	• Reduce waste and loss in the use of energy based on the Kubota Production System concept • Recover and reuse waste energy • Expand use of renewable energy • Improve distribution efficiency • Promote modal shift	• Lower fuel consumption • Improve efficiency and save labor for work and management • Conserve energy during construction
Working towards a Recycling-based Society (P44-48)	• Use recycled materials • Reduce the number of parts	• Conserve resources • Promote the 3Rs for waste and convert waste into functional materials • Reduce plastic • Reduce packing material • Ensure proper waste management	• Extend product life • Improve ease of maintenance • Promote product recycling • Ensure proper disposal
Conserving Water Resources (P49-51)	• Assess water risks	• Promote the 3Rs for water resources • Ensure proper wastewater management • Promote BCP measures	• Save water consumption • Promote purification or recycling of wastewater
Controlling Chemical Substances (P52-70)	• Reduce the use of substances of concern	• Reduce VOC emissions • Substitute for organic solvents • Ensure proper chemical substance management	• Make exhaust gas cleaner • Reduce environmental loads on soil and water areas
Conserving Biodiversity (P71-73)	• Assess the impact on natural capital	• Manage and reduce the environmental loads • Beautification and greening of business sites and neighborhoods	• Conserve soil and water areas • Reduce noise and vibration
Environmental Management System (P74-79)	• Promote global environmental management led by the members at the management class level • Systematically reduce environmental loads toward achieving the Medium and Long-Term Environmental Conservation Targets • Reduce environmental risks through environmental risk assessment • Ensure environment-friendly design through product environmental assessment • Promote green procurement • Develop products that contribute to the global environment protection and solving social problems • Enforce compliance in accordance with globally systemized environmental conservation rules • Promote environmental training and environmental awareness-raising activities		
Environmental Communication (P80-84)	• Strengthen information dissemination through the environmental report and website • Promote environmental communication tailored to each target • Enhance two-way communication with stakeholders • Participate in regional environmental conservation activities		

Relationships Between Environmental Conservation Activities and the SDGs

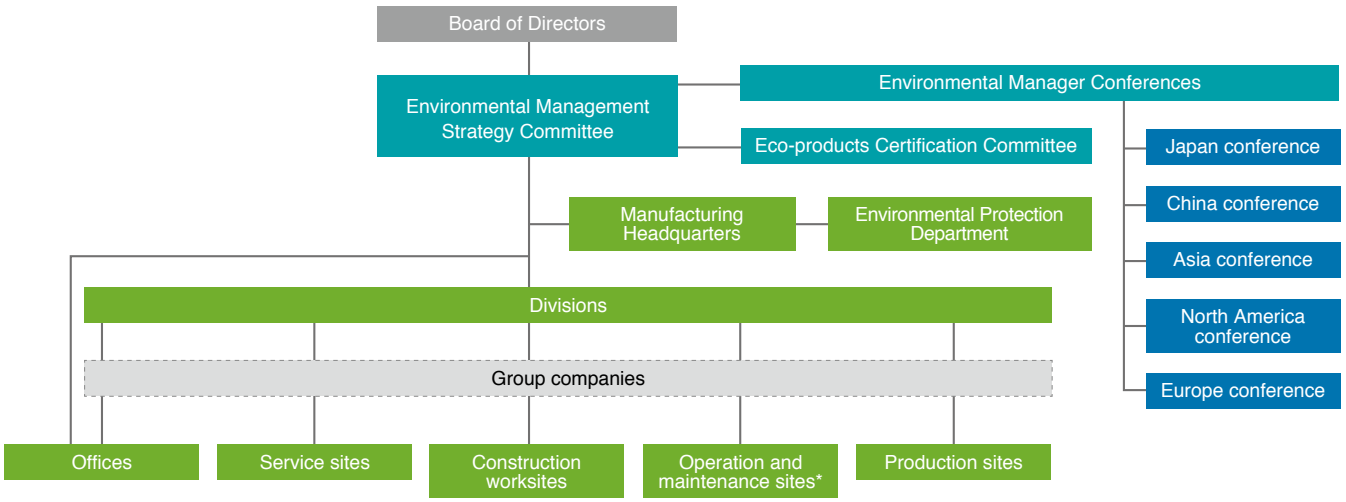
The Kubota Group environmental conservation activities are deeply related to the SDGs. In order to illustrate the relationship between our environmental conservation activities and the SDGs, we have organized their connections with the SDG targets.

View the list of related SDGs and targets
www.kubota.com/company/environment/sdgs/img/SDGs_target_list.pdf

Environmental Management Promotion System

Organization Structure

In 2014, the Environmental Management Strategy Committee was newly established to take a more strategic and innovative approach to environmental management by management-led promotion. In addition, Environmental Manager Conferences are held for each region—Japan, China, Asia, North America and Europe—to globally advance environmental management across the Kubota Group.



* Sites engaged in the business of operation or maintenance of environmental plants

Environmental Management Strategy Committee

The Environmental Management Strategy Committee is comprised of the executive vice president and is comprised of all inside Directors, the General Manager of Planning and Control Headquarters, the General Manager of Manufacturing Headquarters, the General Manager of Research and Development Headquarters, the General Manager of Procurement Headquarters, and the General Manager of CSR Planning and Coordination Headquarters. The Committee discusses the medium- and long-term direction of the Kubota Group's environmental management, such as medium- and long-term targets and key measures in light of global environmental issues such as climate change and the business environment. It determines priority items and plans that should be carried out in order to reduce environmental impacts and risks, and to enhance the lineup of environment-friendly products. In 2018, the Environmental Management Strategy Committee was held in May and November.

The results of the committee meetings are reported to the Board of Directors and the Executive Officers' Meeting, and are distributed throughout the Group. It also promotes management based on the plan-do-check-action (PDCA) cycle by assessing and analyzing the progress of the entire Group's environmental conservation activities and reflecting the results when formulating new plans and policies. We will continue to promote swift environmental management led by members at the management level.


Environmental Management Strategy Comittee

Environmental Manager Conferences

The Kubota Group holds Environmental Manager Conferences for each region aimed at strengthening the environment management system and reducing environmental loads and environmental risks on a global basis.

In 2018, the conferences for North America, China and Japan were held. Environmental managers and staff members of six companies that have business sites in the U.S. gathered for the North America Conference, and those of seven companies with business sites in China gathered for the China Conference. Environmental managers from relevant mother plants in Japan also participated in the respective conferences. For the Japan Conference, environmental managers and staff members of 24 sites in Japan, including Group companies, gathered.

At these conferences, the Kubota Group's policies and matters to be promoted were communicated, and the progress toward achieving the Medium-Term Environmental Conservation Targets was shared. Participants presented case studies on energy-saving measures and observed the improvement initiatives at plants. Focusing on the issues confronted by each region while identifying problems together with their causes, steps were taken to put forward countermeasures.

Operated under the initiative of local sites, the Kubota Group has launched a series of conferences in order to efficiently promote governance, strengthen collaboration, and raise the level of activities in those overseas regions in which the Group operates. A new conference of six companies in Thailand was launched from December 2017, and another by three companies in Jiangsu Province in China from December 2018. Under the direction of local sites, these conferences are helping the Group uncover areas for improvement through mutual inspections and visits, strengthen measures aimed at addressing statutory and regulatory requirements in each region, and sharing good practices with respect to the reduction of environmental loads and environmental risk management.

In Japan, two subcommittees have been established under the Environmental Manager Conference. During 2018, the Antipollution Subcommittee undertook discussions with the aim of further increasing the effectiveness of Kubota's unique environmental risk assessment. In addition, the Waste Subcommittee deliberated on a variety of issues including the reduction of waste discharge, further efforts to convert waste into valuable resources, and steps to codify regulations for field surveys of purchasers of valuable resources and processing contractors. Each subcommittee put forward a range of measures.

Working through the Environmental Manager Conference, we will work diligently to further raise the level of environmental conservation activities across the Group as a whole.

* Overseas, the conference is held as the Safety and Health / Environmental Manager Conference, and is also aimed at strengthening the safety and health aspects.

North America Conference　Kubota Industrial Equipment (United States)

China Conference　Kubota Engine (Wuxi) Co., Ltd. (China)

Japan Conference　Kubota Head Office

Waste Subcommittee　Kubota Utsunomiya Plant

Medium- and Long-Term Environmental Conservation Targets and Results

<SDGs related to this section>

The influence of climate change, such as extreme weather events, has been gradually worsening, and the global movement toward the reduction of greenhouse gas has become increasingly active. Global environmental issues pose a significant threat to "ensuring food security," as well as "ensuring a safe and secure water supply."

In order to promote environmental management in light of various recent social developments, such as SDGs and the Paris Agreement, as a sustainable company, the Kubota Group has been promoting environmental activities by formulating its medium- and long-term targets for environmental conservation. In 2016, the Kubota Group formulated its Long-Term Environmental Conservation Targets 2030 and Medium-Term Environmental Conservation Targets 2020. Toward achieving these targets, the Kubota Group is advancing systematic initiatives in both the production and product development stages. Moreover, the Kubota Group checks its target items against the SDG goals and targets, thereby identifying the areas in which the Group can contribute to solving issues.

Long-Term Environmental Conservation Targets 2030

In order to achieve its Long-Term Environmental Conservation Targets 2030, the Kubota Group formulates its Medium-Term Environmental Conservation Targets every five years as an approach for deploying highly effective activities. The next medium-term targets are scheduled to be formulated for the activity period from 2021 to 2025.

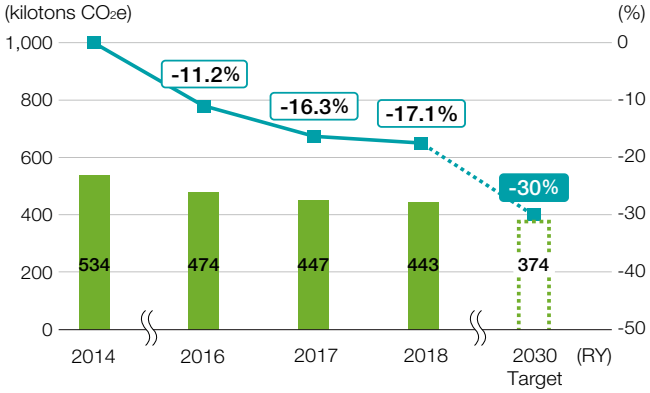
Promoting activities for achieving the medium- to long-term targets → Medium-Term Environmental Conservation Targets 2020 → Medium-Term Environmental Conservation Targets 2025 → Long-Term Environmental Conservation Targets 2030

Tackling Climate Change

Goal	**Reduce** CO_2 emissions from the Kubota Group in Japan* by **30%** compared to the base year 2014.
Result	In 2018, CO_2 emissions of the Kubota Group in Japan* were **reduced** by **17.1%** compared to the base year 2014.

* CO_2 emissions include greenhouse gases from non-energy sources.

Trends in CO_2 Emissions of the Kubota Group in Japan

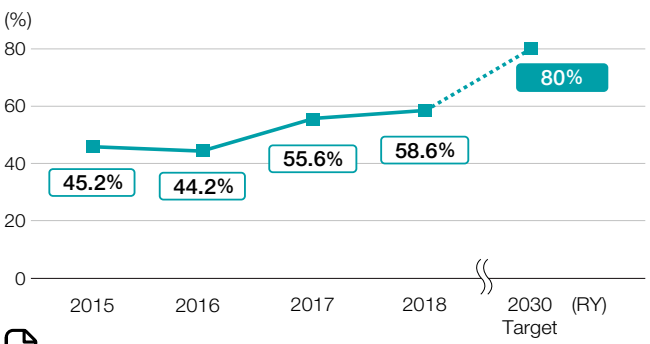


Efforts to Develop Environment-friendly Products

Goal	**Increase** the sales ratio of Eco-Products-certified products* to **80%** by 2030. Aim to put all new products which are certified as Eco-Products in the market in 2030 and later.
Result	The sales ratio of Eco-Products-certified products* was **58.6%** in RY2018.

* The sales ratio of products that have fulfilled the internal requirements in our own Eco-Products Certification System
Sales ratio of Eco-Products (%) = Sales of Eco-Products / Sales of products (excluding construction work, services, software, parts and accessories) × 100

Trends in Sales Ratio of Eco-Products-certified Products



For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.93).

Medium-Term Environmental Conservation Targets 2020

Since 2016, the Kubota Group has been advancing initiatives toward achieving the Medium-Term Environmental Conservation Targets 2020. Each business site and division determined the measures to take, formulated an implementation plan, taking into consideration fluctuations in the volume and contents of business, and has been implementing the plan. The results for RY2018 are as shown in the table below. As in the previous year, global production sites achieved their RY2020 targets for all items earlier than planned, and have continued to promote initiatives towards improving the results per unit of production. For the product segment, 20 products were newly certified as Eco-Products, including 3 Super Eco-Products, increasing their ratio to sales by 3.0 points from the previous year to 58.6%.

Targets for Global Production Sites

SDGs	Issue	Action item	Management indicator*3	Base RY	Target for RY2020*5	Result of RY2018*5	Achievement Status
13, 7	Tackling Climate Change	Reduce CO_2*1	CO_2 emissions per unit of production	2014	▲14%	▲14.3%	We are promoting the energy-saving for production equipment, lighting, air conditioning; fuel conversion; the introduction of renewable energies; and the measures for heat insulation of buildings.
		Save energy	Energy consumption per unit of production	2014	▲10%	▲11.8%	
12	Working towards a Recycling-based Society	Reduce waste	Waste discharge per unit of production	2014	▲10%	▲13.4%	We are promoting thorough sorting of wastes and converting waste into valuable materials.
			Recycling ratio (Japan)*4	—	Maintain 99.5% or more	99.7%	We are maintaining the existing level through continuous efforts.
			Recycling ratio (Overseas)*4	—	Maintain 90.0% or more	91.9%	We are promoting the reduction of the amount of waste sent to landfills by changing contractors.
6	Conserving Water Resources	Conserve water resources	Water consumption per unit of production	2014	▲10%	▲13.4%	We are promoting recycling of wastewater and saving of water use.
12	Controlling Chemical Substances	Reduce VOCs*2	VOC emissions per unit of production	2014	▲10%	▲33.5%	We are promoting the elimination or reduction of VOC-contained paint and thinner.

Targets for Products

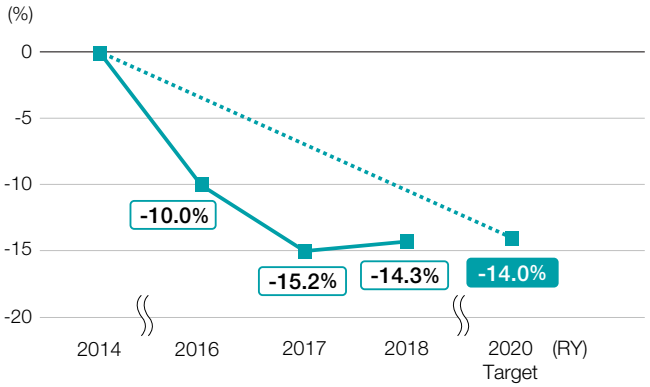
SDGs	Issue	Action item	Management indicator	Target for RY2020	Result of RY2018	Achievement Status
12	Improving Product's Environmental Performance	Expand Eco- Products	Sales ratio of Eco-Products*6	60% or more	58.6%	In RY2018, 20 items were newly certified as Eco-Products.
		Promote recycling	Usage ratio of recycled materials*7	Maintain 70% or more	More than 70%	We are maintaining the usage ratio of recycled materials higher than the target.
		Develop vehicles compliant with exhaust gas regulations	Development of industrial diesel engines that comply with the latest emissions regulations, and launch onto the market of products with such engines*8		The following products*9 equipped with the engines that comply with the emissions regulations were launched onto the market. Tractor WORLD Special Edition M1010W-SE Conforming to the Japan Regulations on Emissions from Non-Road Special Motor Vehicles (75 kW and above, lower than 130 kW, Regulation 2014) Combine harvester WORLD WRH1200 Conforming to the Japan Regulations on Emissions from Non-Road Special Motor Vehicles (75 kW and above, lower than 130 kW, Regulation 2014)	

*1 CO_2 emissions include greenhouse gases from non-energy sources. We use the emissions coefficient for electric power of the base year in our calculation of CO_2 emissions from energy sources.
*2 VOCs (volatile organic compounds) comprise the six substances that are most prevalent in emissions from the Kubota Group: xylene, toluene, ethylbenzene, styrene, 1, 2, 4-trimethylbenzene, and 1, 3, 5-trimethylbenzene.
*3 The figures per unit of production represent the intensity of the environmental load per unit of money amount of production. The exchange rate of the base year is used when translating the money amount of production of overseas sites into Japanese yen.
*4 Recycling ratio (%) = (Sales amount of valuable resources + External recycling amount) / (Sales amount of valuable resources + External recycling amount + Landfill disposal) × 100. Heat recovery is included in the external recycling amount.
*5 ▲ indicates a negative figure.
*6 The sales ratio of products that have fulfilled the internal requirements in our own Eco-Products Certification System
Sales ratio of Eco-Products (%) = Sales of Eco-Products / Sales of products (excluding construction work, services, software, parts and accessories) × 100
*7 Usage ratio of recycled materials (%) in the cast metal products and parts (ductile iron pipes, fittings, machine cast products (engine crankcase, etc.))
*8 Targeting tractors and combine harvesters (output range: 56 kW ≤ P < 560 kW) equipped with engines compliant with the European emissions regulations (Europe Stages IV and V) level, shipped to Europe, North America, Japan, and Korea
*9 Major products launched onto markets in 2018

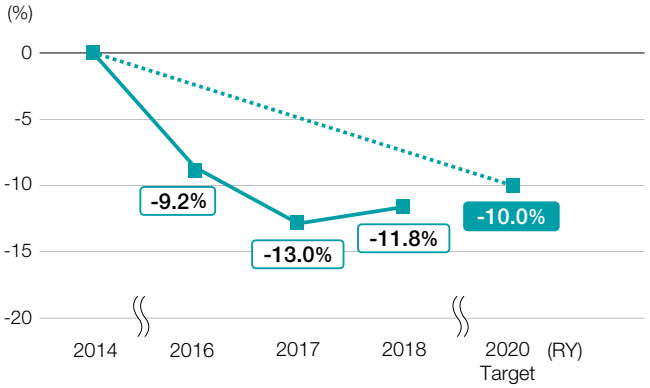
The environmental information provided in the KUBOTA REPORT 2019 <Full Version> has received the third-party assurance by KPMG AZSA Sustainability Co., Ltd. The indexes subject to assurance are marked with the "🔍" symbol.

The results for Medium-Term Environmental Conservation Targets 2020

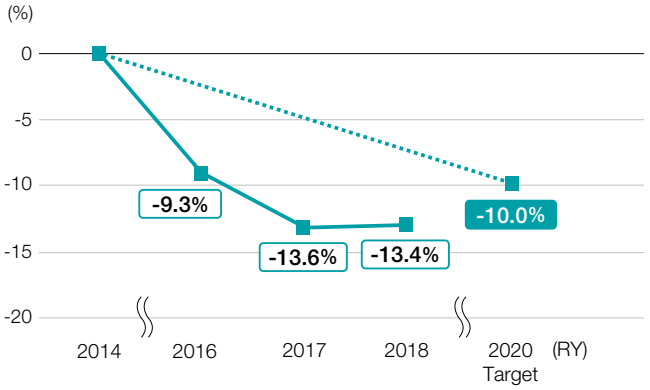
Trends in Reduction Ratio of CO_2 Emissions per Unit of Production



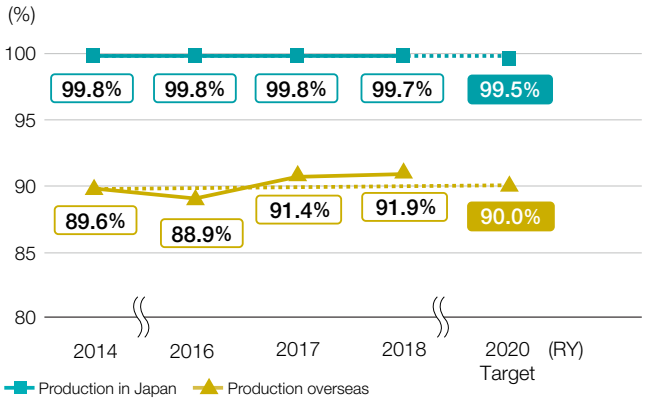
Trends in Reduction Ratio of Energy Use per Unit of Production



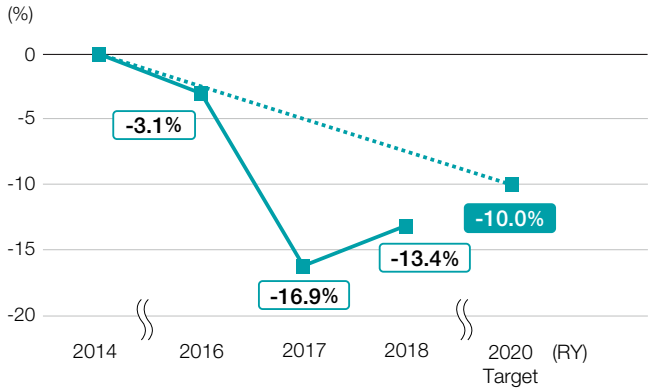
Trends in Reduction Ratio of Waste Discharge per Unit of Production



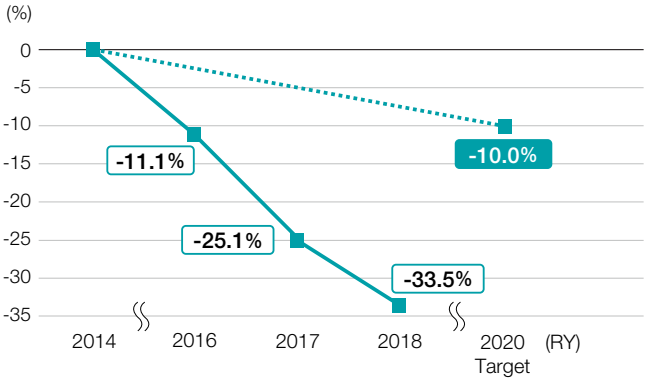
Trends in Waste Recycling Ratio



Trends in Reduction Ratio of Water Consumption per Unit of Production



Trends in Reduction Ratio of VOC Emissions per Unit of Production



Products With Engines Compliant With the Latest Exhaust Gas Regulations (Major Products Launched Onto Markets In 2018)

Tractor WORLD Special Edition M1010W-SE

Combine harvester WORLD WRH1200

As an “Eco-First Company”

In May 2010, the Kubota Group was certified by the Japanese Minister of the Environment as an “Eco-First Company” due to its commitment to environmental conservation. According to the Medium- and Long-Term Environmental Conservation Targets, the Group has renewed its Eco-First Commitment regarding the five items below and was recertified as an Eco-First Company in October 2017.

- Stop climate change
- Work towards a recycling-based society
- Reduce emission into the atmosphere
- Develop environment-friendly products
- Conserve biodiversity

Eco-First Mark

ECO FIRST Commitment (Updated)

Our initiatives as a leading company in environmental conservation

October 2, 2017

Mr. Masaharu Nakagawa
Minister of the Environment

The Kubota Group wishes to become more valuable company that contributes to the improvement of social development and the global environment in the field of food, water, and the environment. We place the greatest importance on environmental conservation regarding our CSR management and continue the following efforts.

1. We will implement measures to prevent climate change as a priority issue.
   (1) Production plants of the Kubota Group in Japan and other countries have a target, for 2020, of reducing CO_2 emission per production money amount by 14% or more compared to the base year 2014.
   (2) Production plants of the Kubota Group in Japan and other countries have a target, for 2020, of reducing energy consumption per production money amount by 10% or more compared to the base year 2014.
   (3) The Kubota Group in Japan has a long-term target, for 2030, of reducing CO_2 emission by 30% compared to the base year 2014.
   (4) To achieve the above targets, the Kubota Group will fully utilize available cutting edge technologies as follows: improve the efficiency of facilities such as production equipment, HVAC, and lighting devices; replace fuel for production equipment; improve the insulation efficiency of buildings and facilities; use photovoltaic power generation; visualize energy and reduce unnecessary use of energy; and recover waste heat.

2. We will work towards recycling-based society in a positive manner.
   (1) Production plants of the Kubota Group in Japan and other countries will promote their “Wastes 3R (Reduce, Reuse, Recycle)” efforts to achieve the target, for 2020, of reducing the waste discharge per production money amount by 10% or more compared to the base year 2014.
   (2) The Kubota Group will promote the recycling of wastes and achieve 99.5% or more recycling ratio* of wastes generated by production plants in Japan and 90% or more in overseas production plants in 2020.
   * Recycling ratio (%) = (Sales amount of valuable resources + External recycling amount) / (Sales amount of valuable resources + External recycling amount + Landfill disposal) × 100.
   (3) Production plants of the Kubota Group in Japan and other countries will promote their “Water 3R (Reduce, Reuse, Recycle)” efforts to achieve their target, for 2020, of reducing the water consumption per production money amount by 10% or more compared to the base year 2014.

For Earth, For Life
Kubota

The Kubota Group Eco-First Commitment

See here for details on Eco-First Company certification
www.kubota.com/company/environment/ecofirst/

<SDGs related to this section>

Tackling Climate Change

The Fifth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC), states that the "warming of the climate system is unequivocal," and that it is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century. With the Paris Agreement, an international framework to tackle climate change, taking effect in November 2016, the world's movement toward the reduction of greenhouse gases has been accelerating.

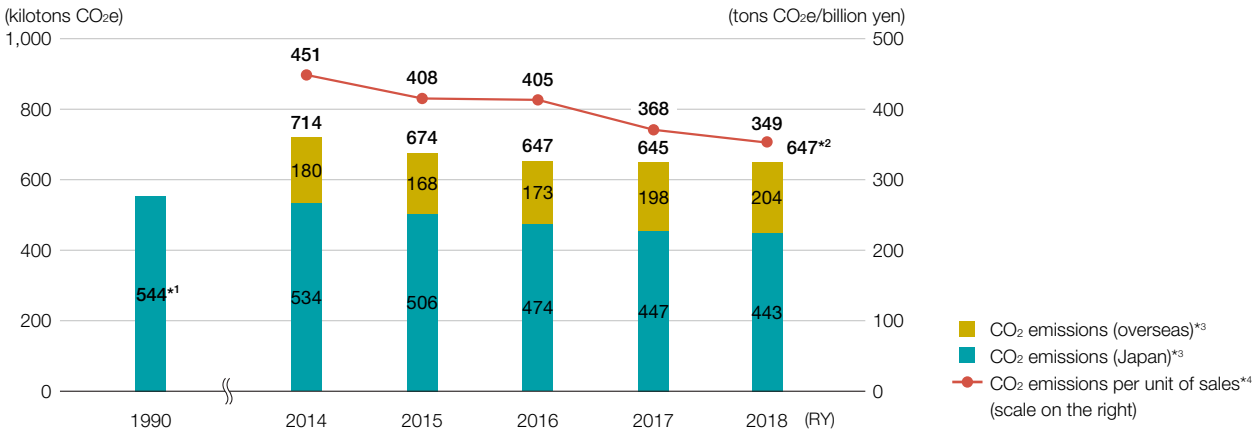
The Kubota Group sees tackling climate change as one of its materiality, and has been advancing initiatives toward the "mitigation" of climate change to reduce greenhouse gas emissions associated with its business activities and "adaptation" to be prepared for the impact of climate change.

Mitigation of Climate Change

CO_2 Emissions (Scope 1 and Scope 2)

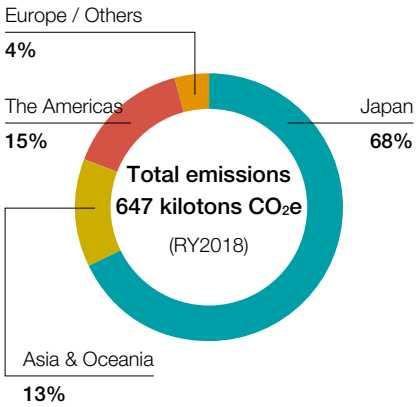
In RY2018, CO_2 emissions were 647 kilotons CO_2e, about the same level as the previous reporting year. Meanwhile, CO_2 emissions per unit of sales improved by 5.1% compared to the previous reporting year. The improvement in CO_2 emissions per unit of sales is mainly due to improvements in the CO_2 emission coefficients for each electricity utility, as well as the promotion of CO_2 reduction measures, such as eliminating loss in energy consumption and expanding the use of LED lighting.

Trends in CO_2 Emissions and Emissions Per Unit of Sales

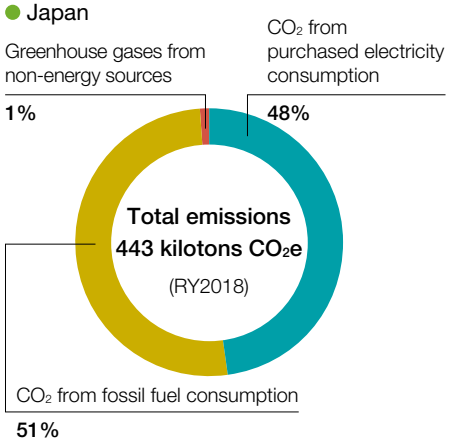


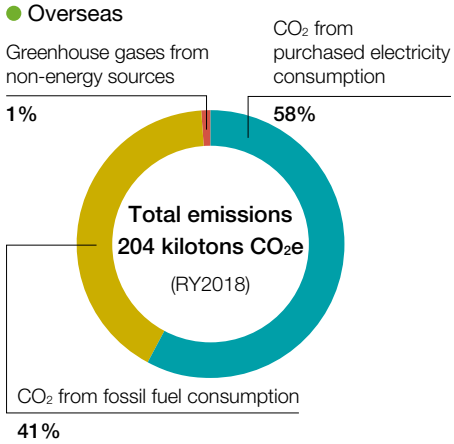
*1 CO_2 emissions for RY1990 are the emissions from energy sources at Kubota production sites in Japan.
*2 CO_2 emissions (647 kilotons CO_2e) include portions of CO_2 that were not released into the atmosphere but absorbed as carbon into products such as iron pipe (20 kilotons CO_2e).
*3 CO_2 emissions include greenhouse gases from non-energy sources.
*4 CO_2 emissions per unit of consolidated net sales. The Kubota Group adopted International Financial Reporting Standards (IFRS) instead of accounting principles generally accepted in the United States of America from RY2018.

CO_2 Emissions by Region



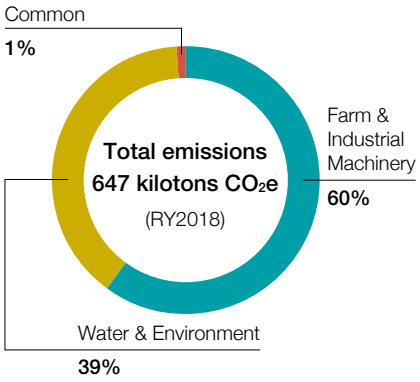
CO_2 Emissions by Emission Source



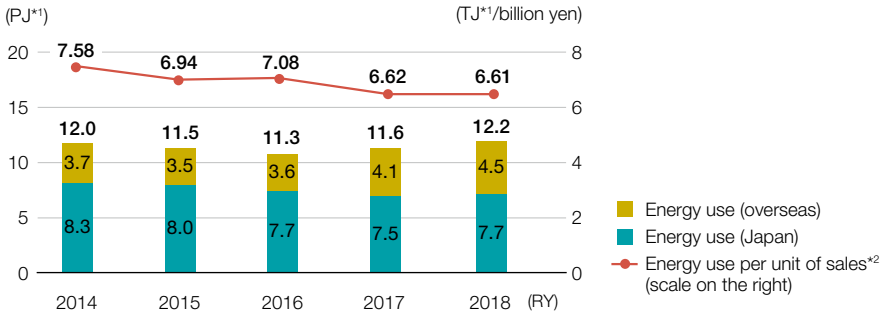


For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.93).

CO_2 Emissions by Business



Trends in Energy Use at Business Sites



*1 PJ = 10^{15}J, TJ = 10^{12}J
*2 Energy use per unit of consolidated net sales. The Kubota Group adopted International Financial Reporting Standards (IFRS) instead of accounting principles generally accepted in the United States of America from RY2018.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.93).

Measures to Reduce CO_2 Emissions

The Kubota Group has established its Medium- and Long-Term Environmental Conservation Targets (p.35-36) and is devoting efforts to reducing CO_2 emissions and energy use associated with its business activities.

We have also established medium-term reduction measure implementation plans, which are reviewed every year by each production site. When the plans are reviewed, Internal Carbon Pricing* is introduced to calculate their effect on reducing CO_2 emissions and energy consumption, as well as the investment cost for the amount of CO_2 reduced, in the capital expenditure plans. The effectiveness and economical rationality of each project are identified from an environmental standpoint and used as resources for making investment decisions.

Installation of solar power generation system
Kubota Baumaschinen GmbH (Germany)

Some of the specific reduction measures that have been implemented include eliminating loss in energy consumption through a switch to equipment with higher energy efficiency and proper operation management, and promoting the visualization of power consumption in each process. At the same time, all global sites have been expanding their use of LED lighting. The initiatives implemented during RY2018 include improving the method of temperature control in the melting process, which emits a large amount of CO_2, and raising the efficiency of production equipment for processing lines.

The introduction of renewable energies has also been accelerating. SIAM Kubota Corporation Co., Ltd. (Thailand), Kubota Baumaschinen GmbH (Germany), and others also introduced new solar power generation systems, which went into full-scale operation in RY2018. The amount of electricity generated during this period from these systems was 630 MWh, which is an equivalent reduction in CO_2 emissions of 299 tons. This brings the renewable energy consumption of the entire Group to 2,486 MWh, an increase of 29% compared to RY2017.

As a result of the efforts toward achieving the Medium-Term Environmental Conservation Targets 2020 for CO_2 reduction, global production sites achieved a reduction of 36.5 kilotons CO_2e in RY2018 compared with the case where countermeasures were not implemented from the base year (RY2014). The economic effects of these measures reached 0.90 billion yen compared to RY2014. CO_2 emissions per unit of production in RY2018 improved by 14.3% compared to RY2014.

We will continue to implement measures to save energy on production equipment and air-conditioning/lighting, as well as promote measures to reduce waste and loss in the use of energy based on the concept of the Kubota Production System (KPS) and expand the use of renewable energy.

* Refers to the placing of an internal monetary value on carbon by an organization

VOICE

Reducing CO_2 emissions through the introduction of a gas cogeneration system and solar power generation

The Kubota Sakai Plant introduced a gas cogeneration system and solar power generators to help curb CO_2 emissions.

The plant manufactures engines, construction machinery such as tractors and loaders, and others. Energy used at the plant is largely city gas and electricity, accounting for approximately 86% of total energy used in terms of CO_2 emissions.

While we have been enacting a variety of CO_2 reduction measures, including improving facility operations and upgrading to high-efficiency equipment, we have also introduced a new gas cogeneration system to further reduce CO_2 emissions. Gas cogeneration is a system that uses city gas to generate electricity and makes effective use of the waste heat generated through the process. The system introduced to the plant generates electricity using a 1,000 kW gas engine, with waste heat used to produce hot water and steam for use in pre-coating treatment equipment. This has resulted in a reduced need for boiler fuel and a reduction in CO_2 emissions. It also contributes to energy cost reductions and reduced energy use during peak times.

We have also installed solar panels producing a total of 124 kW of power to date, with power generation from these trending at approximately 146 MWh per year.

From these efforts, we have been able to reduce CO_2 emissions by approximately 450 tons in RY2018.

We will continue to conduct our production activities with the utmost consideration for the environment and we will work further to reduce our CO_2 emissions in line with our goal of becoming a well-loved facility.

The Kubota Sakai Plant
Back row from left: **Shinpei Yasuoka, Kan Kato, Toshihiro Inaba**
Front row from left: **Kenji Nishio, Shiori Tomihisa, Shinya Onishi (supervisor)**

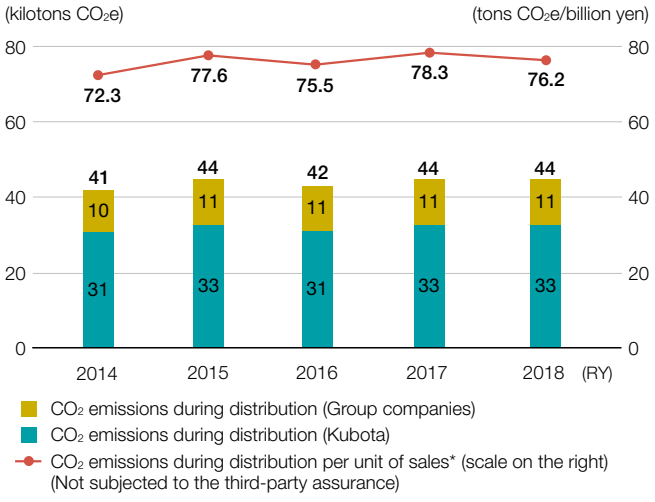
Newly introduced gas cogeneration system

CO_2 Emissions during Distribution

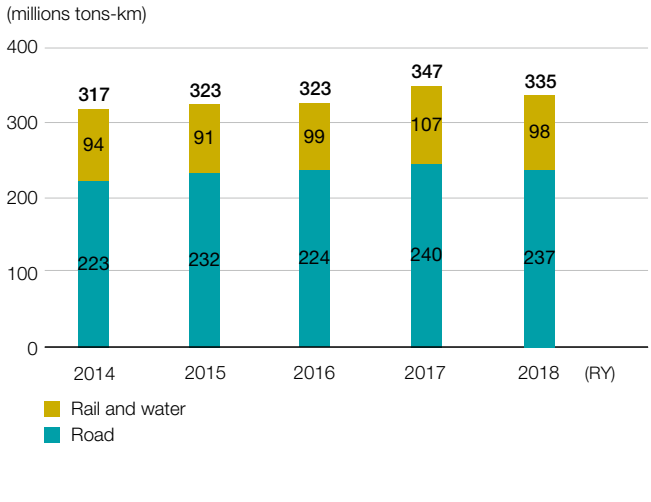
In RY2018, CO_2 emissions during distribution were 44 kilotons CO_2e, the same level as in the previous reporting year. Meanwhile, CO_2 emissions during distribution per unit of sales improved by 2.7% compared to the previous reporting year.

The Kubota Group continuously promotes various initiatives, including such as improving loading efficiency and realizing a modal shift through the use of ships.

Trends in CO_2 Emissions during Distribution and Emissions per Unit of Sales (Japan)



Trends in Freight Traffic (Japan)



* CO_2 emissions during distribution per unit of consolidated net sales. The Kubota Group adopted International Financial Reporting Standards (IFRS) instead of accounting principles generally accepted in the United States of America from RY2018.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.93).

CO_2 Emissions throughout the Value Chain

The Kubota Group makes concerted efforts to figure out CO_2 emissions throughout the value chain in addition to its business sites. Following guidelines*, we calculate CO_2 emissions based on Scope 3, and continue to expand the categories in the Scope of its calculation of CO_2 emissions.

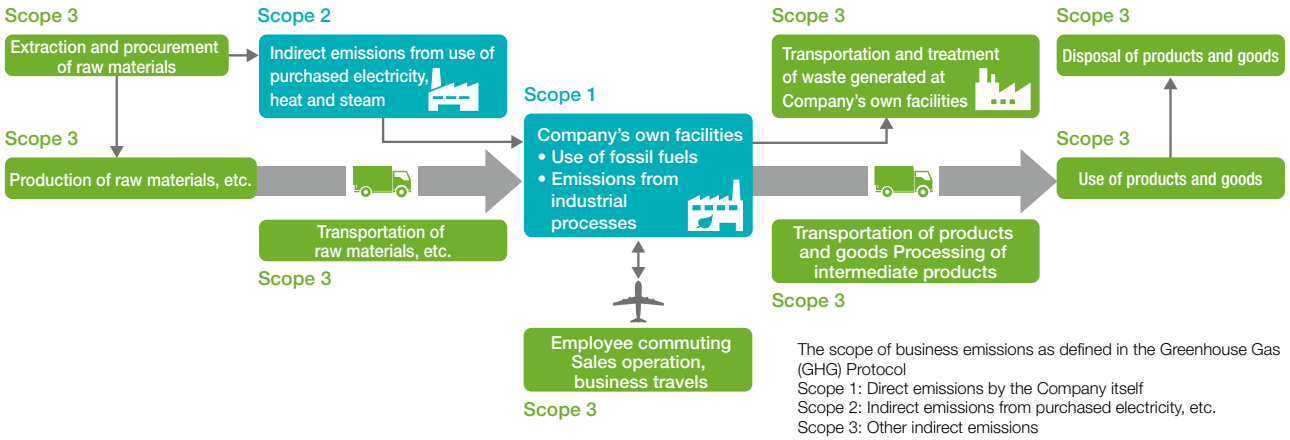
* Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain issued by the Japanese Ministry of the Environment and Ministry of Economy, Trade and Industry

CO_2 Emissions in Each Stage of Value Chain (RY2018 results)

Classification				Scope of calculation	CO_2 emissions (kilotons CO_2e)		
					2016	2017	2018
Emissions of the Kubota Group's business sites	Direct emissions (Scope 1)			Use of fossil fuels	306	292	309
				Non-energy-derived greenhouse gas emissions	7	7	7
	Indirect emissions (Scope 2)			Purchased electricity use	334	346	331
Upstream and Downstream emissions	Other indirect emissions (Scope 3)	Category	1	Resource extraction, manufacturing and transportation related to purchased goods/services	2,061	2,412	2,391
			2	Manufacturing and transportation of capital goods such as purchased equipment	219	175	215
			3	Resource extraction, manufacturing and transportation related to purchased fuels/energy	25	26	27
			4	Transportation of purchased products, etc.	Not calculated	Not calculated	Not calculated
			5	Disposal of wastes discharged from business sites	16	18	20
			6	Employee business travels	9	9	10
			7	Employee commuting	3	3	3
			8	Operation of assets leased to the Kubota Group	Not applicable	Not applicable	Not applicable
			9	Transportation of sold products*	42	44	180
			10	Processing of intermediate products	65	59	173
			11	Use of sold products	18,440	21,486	21,060
			12	End-of-life treatment of sold products	38	44	42
			13	Operation of assets leased to other entities	Not applicable	Not applicable	Not applicable
			14	Operation of franchises	Not applicable	Not applicable	Not applicable
			15	Investments	Not applicable	Not applicable	Not applicable

* In addition to the data for Japan, CO_2 emissions associated with the overseas shipping of certain products from Japan has been included from RY2018.

Example Activities of Each Scope



The scope of business emissions as defined in the Greenhouse Gas (GHG) Protocol
Scope 1: Direct emissions by the Company itself
Scope 2: Indirect emissions from purchased electricity, etc.
Scope 3: Other indirect emissions
(Emissions by others or at customers' sites related to the Company's activities)

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.93).

Adaptation to Climate Change

Measures to Adapt to Climate Change

Ongoing climate change raises a number of concerns, including in regard to an increase in the number of heat stroke cases, changes to the areas in which crops are planted, and the frequency of climate-related disasters. The response to climate change needs to include measures to reduce greenhouse gas emissions, as well as to avoid or reduce damage brought on by climate change.

As part of its strategy to adapt to climate change, the Kubota Group is implementing a number of initiatives at its business sites and in its products and services.

Initiatives on Products and Services

Category		Major initiatives
Food		• Provision of tractors that are capable of deep plowing necessary for growing rice in abnormally high temperatures without lowering the quality/yield, and the provision of information useful for soil cultivation, such as the proper distribution of fertilizers appropriate for high-temperature conditions • Provision of the Kubota Smart Agri System (KSAS) which uses ICT and robot technology, and high-performance machinery that lightens the workload in fields such as agriculture, where workers often labor in scorching heat • Provision of information for farmers on changes in temperature, precipitation, and the amount of solar radiation, as well as the impact thereof on crops
Water	Flooding	• As a measure for floods or other disasters caused by abnormal climate, provision of disaster-relief pumper vehicles, ultra-light, emergency sump pump units, rainwater storage and filtration products, and piping systems for manhole toilets, and so on • Provision of ductile iron pipes with tough tube body and excellent joint performance, which is highly effective during disasters such as typhoons and torrential rainfall
	Drought	• To address water shortage, the provision of management systems using IoT, which contribute to the efficient operation of water supply and sewage treatment systems and treatment plants • Provision of tank-submerged-type ceramic membrane filtering equipment and submerged membranes that purify wastewater for reuse
	Management systems	• Provision of the Kubota Smart Infrastructure System (KSIS) that leverages IoT technology to manage a variety of facilities, from dams to drainage locations, using weather information in collaboration with the NTT Group • Provision of the WATARAS farm water management system that allows accurate water management for remote rice paddies
Living environment		• Provision of highly efficient air-conditioning equipment that creates a clean and comfortable indoor environment, even amid abnormal weather conditions

Drainage Pump with Vehicle for Disaster Recovery

With all the equipment necessary for effective drainage, including a drainage hose, a control panel, and a generator, as well as a lightweight specialized submersible pump that a person can easily carry, the equipment can be dispatched immediately to sites where flooding is in progress due to torrential rains and rapidly drain water from the location.

Initiatives taken at Business Sites

Efforts at our business sites include the formulation of BCPs and disaster response manuals. To be prepared for high tides and torrential rain, the sites have also installed sump pumps, hold emergency drills, and are equipped with water tanks for use during water shortages.

Before and after the removal of plants
Kubota Manufacturing of America Corporation (US)

To reduce the risk of damage from falling trees during violent storms, plants around the propane gas tanks were removed.

<SDGs related to this section>

Working towards a Recycling-based Society

As a result of being a mass-production, mass-consumption and mass-disposal society, we now face many problems such as the depletion of resources and increasing waste.

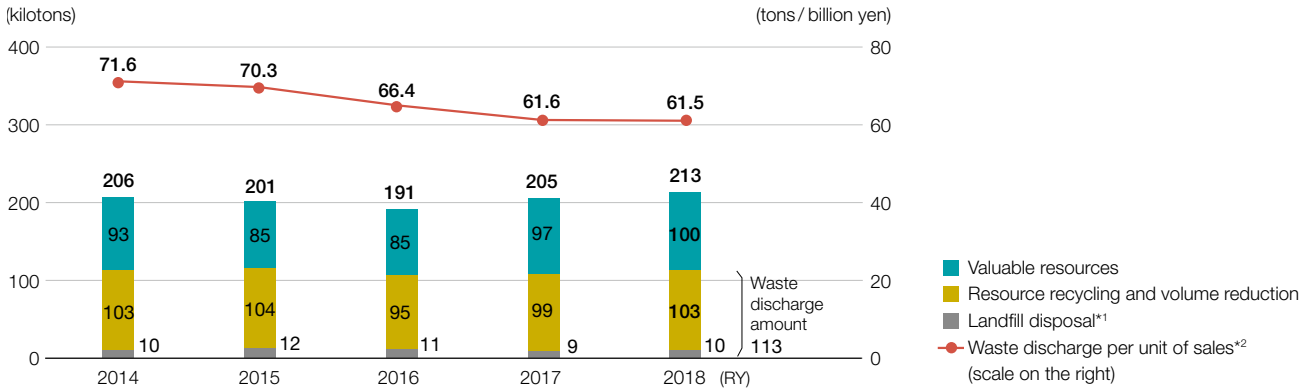
The Kubota Group sees working towards a recycling-based society as one of its materiality, and has been advancing initiatives to promote “reduce” (reducing the amount generated), “reuse” (internal recycling and reuse), and “recycle” (improving the recycling ratio) of waste, in addition to initiatives to promote the effective use of resources and resource saving.

Waste, etc. from Business Sites

In RY2018, the waste discharge amount was 113 kilotons, an increase of 5% compared to the previous reporting year. Meanwhile, the waste discharge per unit of sales was about the same level as in the previous reporting year. While we have continued to promote measures inside and outside the company aimed at recycling, as well as reducing and dehydrating waste liquid, waste discharge increased, mainly due to the increase of production volume at overseas cast iron production sites.

Of the waste, etc. discharge amount in RY2018, the amount of hazardous waste discharge was 5.3 kilotons (2.6 kilotons in Japan and 2.7 kilotons overseas).

Trends in Waste, Etc. (including valuable resources) and Waste Discharge per Unit of Sales

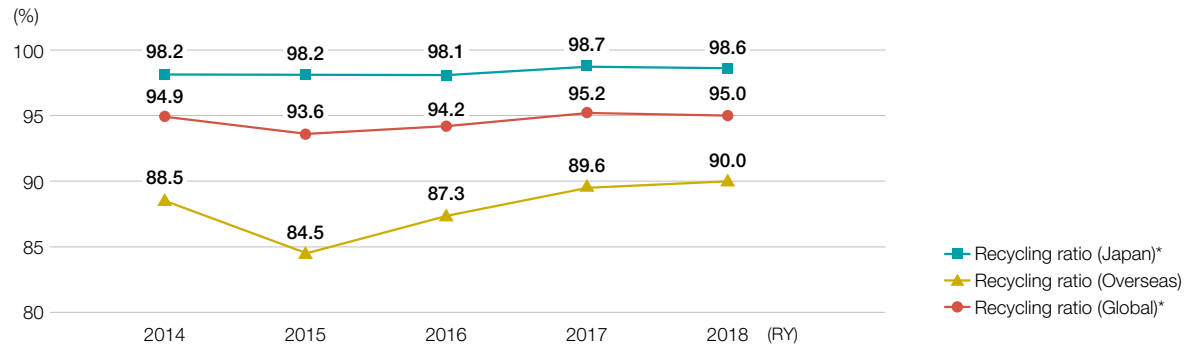


*1 Landfill disposal = Direct landfill disposal + Final landfill disposal following external intermediate treatment

*2 Waste discharge per unit of consolidated net sales. The Kubota Group adopted International Financial Reporting Standards (IFRS) instead of accounting principles generally accepted in the United States of America from RY2018.
Waste discharge = Resource recycling and Volume reduction + Landfill disposal

The resource recycling ratio in RY2018 was 98.6% in Japan, maintaining about the conventional level. The recycling ratio overseas was 90.0%, a 0.4-point improvement compared to the previous reporting year, due to ongoing promotion of the recycling of casting dust. We will make continuous efforts to further improve the resource recycling ratio.

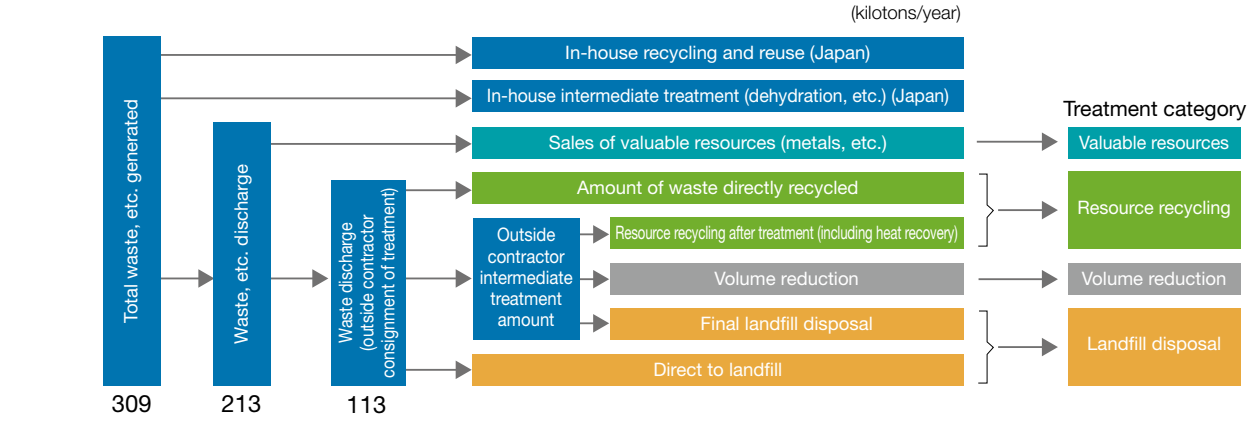
Trends in Recycling Ratio



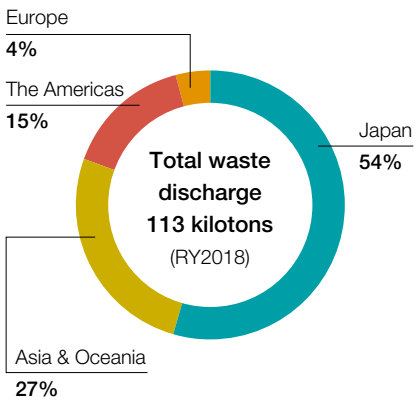
* Recycling ratio (%) = (Sales amount of valuable resources + External recycling amount) / (Sales amount of valuable resources + External recycling amount + Landfill disposal) × 100.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.93).

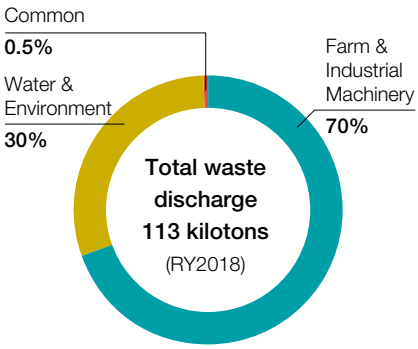
Waste Recycling and Treatment Flow (RY2018 results)



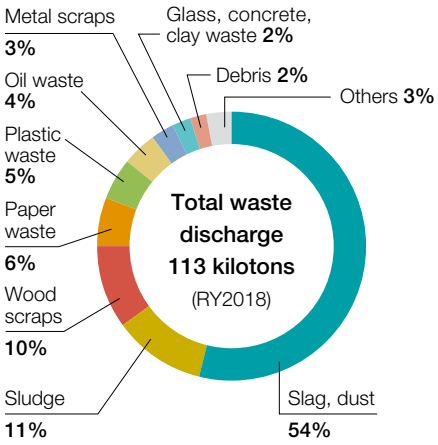
Waste Discharge by Region



Waste Discharge by Business

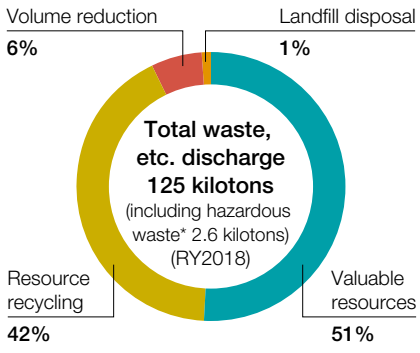


Waste Discharge by Type

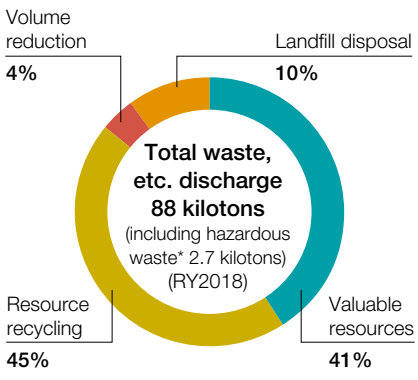


Waste, Etc. Discharge by Treatment Category

Japan



Overseas



* Industrial waste subject to special control as defined in the Waste Disposal and Cleaning Act in Japan, and industrial waste as defined in each country overseas.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.93).

Measures to Reduce Waste

The Kubota Group has established its Medium-Term Environmental Conservation Targets 2020 (p.36) and is working on the reduction of waste discharge from its business sites and the improvement of the recycling ratio. The Group has been promoting various measures, such as the thorough separation of waste according to the type and disposal method of waste, the introduction of returnable packing materials, and shared waste recycling between sites. The Group is also committed to the reduction of hazardous waste through ensuring thorough monitoring and management thereof.

In RY2018, at cast iron production sites, which generate a large amount of waste, the Kubota Group continuously promoted the internal and external reuse of casting sand, and the conversion of waste into valuable resources out of the sand. With regard to the dust from the melting process that was treated as waste previously, the Group has also reduced 240 tons of waste annually by converting those with high iron content into valuable materials. Machinery production sites have been continuously promoting the reduction of the amount of sludge generated in the painting booth and waste oil or oil-containing wastewater.

Reducing the amount of waste discharge through the internal recycling of wasted casting sand
Kubota Keiyo Plant

As a result of the efforts toward achieving the Medium-Term Environmental Conservation Targets 2020 for waste reduction, global production sites achieved a reduction of 3,800 tons of waste in RY2018 compared with the case where countermeasures were not implemented from the base year (RY2014). The economic effects of these measures reached 59 million yen compared to RY2014. Waste discharge per unit of production in RY2018 improved by 13.4% compared to RY2014. The recycling ratio was 99.7% at production sites in Japan and 91.9% at production sites overseas, both achieving the targets of the Medium-Term Environmental Conservation Targets 2020.

Moreover, production sites in Japan have raised the implementation rate of electronic manifests to 93.8%, enabling real-time assessment of the reduction effects. We will continue to promote the reduction of waste through promoting sharing of good reduction practices and visualization of waste by utilizing electronic manifests.

VOICE

Reducing Waste Emissions by Extending the Lifespan of Cutting Oil

SIAM KUBOTA Corporation Co., Ltd. (Headquarters) (Thailand) reduced waste by increasing the lifespan of cutting oil used in the engine manufacturing process.

The plant manufactures diesel engines and cultivators. As in the engine manufacturing process, cutting oil is used during component processing. It is necessary to be replaced periodically to maintain processing quality and prevent odor. In the past, the appearance of bacteria in the cutting oil and degradation affected cutting oil usage being limited to six months. Cutting oil waste accounted for approximately 40% of total waste discharged at the plant.

With the goal of reducing the substantial amount of waste generated at the plant, we conducted joint research with a Thai research institute into extending the cutting oil lifespan. As a result of the research, we were able to successfully suppress bacteria using an enzyme-based biological approach. This has allowed us to use our cutting oil for up to 10 months, resulting in a 44% reduction in cutting oil waste compared to the previous fiscal year. It has also contributed to a 14% reduction in purchasing costs.

We will continue to contribute to the preservation of our environment through efforts aimed at reducing discharged waste.

SIAM KUBOTA Corporation Co., Ltd. (Headquarters)
From left: **Thitima Kruesri, Junnapa Srimuen, Laddawan Sriprangtong, Kanokpit Aunnapun, Supunnisa Jitaree, Supanee Nopparat, Pongsakorn Nualchavee, Phakamas Tamthirat**

Practice Report

Recycling Water Granulated Slag

The Kubota Keiyo Plant manufactures ductile iron pipes, at which time the steel scrap melting process generates a by-product (water granulated slag). Kubota uses soil conditioners made with this water granulated slag as a raw material to help grow natural grass on the rugby field used by the Kubota Spears rugby team.

Water granulated slag contains useful components like silicic acid that are desired by plants in the grass family, so has previously been recycled as a soil conditioner ingredient used on golf course lawns. Since September 2018, we have used this material to grow natural grass on the rugby field located on the grounds of the Kubota Keiyo Plant.

We will continue to use this material for the rugby field and will endeavor to further expand its reuse.

Soil conditioner made from water granulated slag as a raw material

Rugby field on which water granulated slag is used

Reducing Plastic

Marine plastic pollution, used plastic that flows down rivers and waterways to be discharged along coasts and oceans, has become a global issue. The Kubota Group's business sites promote the 3Rs and efforts to convert the plastic waste generated through their business activities into valuable resources.

As a Group company involved in the manufacture and sale of plastic pipes and couplings, Kubota ChemiX Co., Ltd. manufactures and sells recycled triple layer pipes and recycled foamed triple layer pipes made using recycled materials (rigid PVC pipe waste, PVC made of recycled couplings) to promote the effective use of resources. Meanwhile, Kubota Environmental Service Co., Ltd., a Group company involved in business activities related to construction, maintenance, and operations management of water and environmental facilities, provides engineering services for plastic to fuel facilities that pulverize and sort plastic waste for use as fuel.

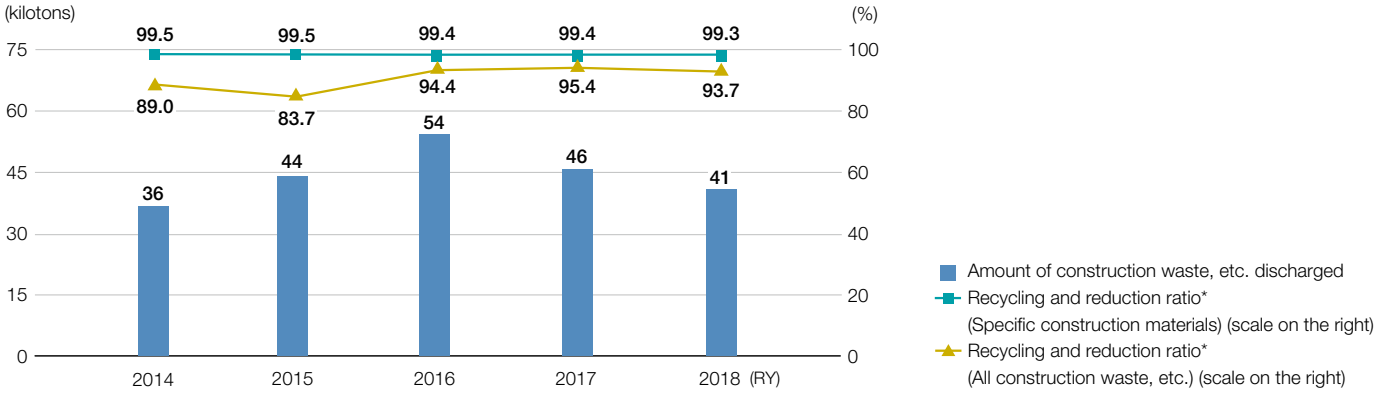
The Kubota Group works to reduce the release of plastic through initiatives including the effective use of resources and reducing waste throughout the business value chain.

Plastic to fuel facility
Kubota Environmental Service Co., Ltd.

Waste, etc. Generated from Construction Work

The type and the amount of waste generated from construction work vary depending on the type of work being done, resulting in fluctuation in the amount of discharge, and the recycling and reduction ratio. However, the Kubota Group maintains a high recycling and reduction ratio for specific construction materials.

Trends in Discharge, and Recycling and Reduction Ratio of Construction Waste, Etc. (Japan)



* Recycling and reduction ratio = [Sales of valuable resources + Resource recycling (including heat recovery) + Volume of reduction] /Amount of construction waste, etc. discharged (including sales amount of valuable resources) x 100 (%)

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.93).

Handling and Storage of Equipment Containing PCB (in Japan)

Transformers, capacitors and other equipment containing polychlorinated biphenyls (PCB) are properly reported, stored and handled based on the Japanese Act on Special Measures concerning Promotion of Proper Treatment of PCB Wastes, and the Japanese Waste Management and Public Cleansing Act. Waste with a high concentration of PCB is being disposed of steadily, beginning with sites where PCB-treatment facilities are available. Waste with a low concentration of PCB will be properly disposed of by the disposal deadline of March 2027.

PCB-containing equipment in storage is thoroughly managed by multiple means, such as the locking of storage cabinets, periodic inspection, and environmental audits.

<SDGs related to this section>

Conserving Water Resources

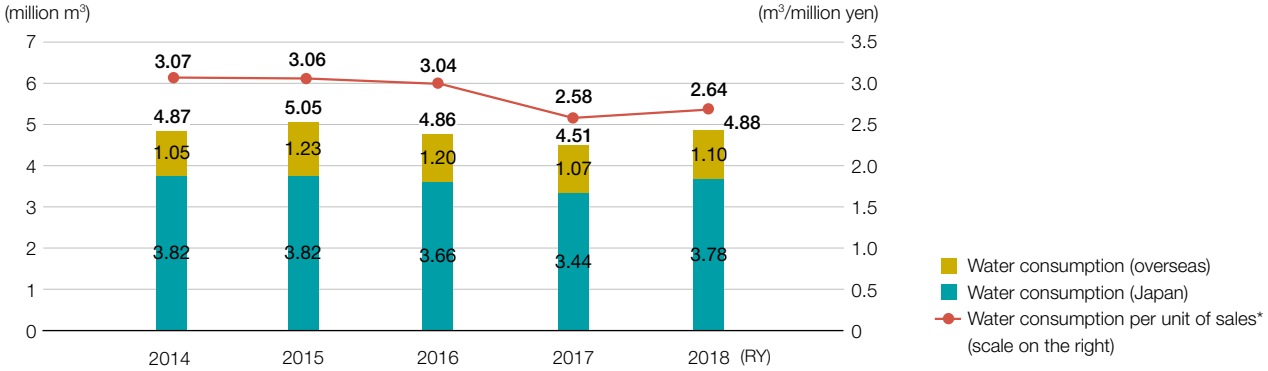
The Environmental Outlook to 2050 (2012) produced by the Organization for Economic Co-operation and Development (OECD) reports that during the period between 2000 and 2050, global demand for water will increase by approximately 55%, and over 40% of the global population will be living in river basins under severe water stress.

The Kubota Group sees conserving water resources as one of its materiality, and has been advancing initiatives to promote the effective utilization of water resources and to address water risks, such as the reduction of water consumption by promoting water saving and wastewater recycling, and the proper management of wastewater treatment and wastewater quality. Production sites promote measures not to cause adverse effects on local ecosystems and the lives of local residents, taking into consideration the status of water stress in the respective regions.

Water Consumption in the Business Sites

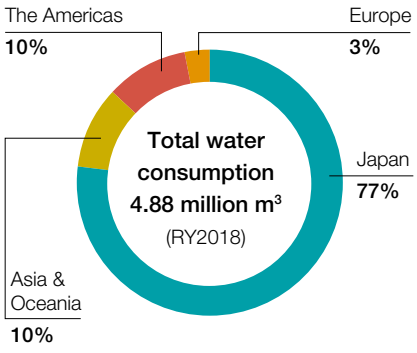
In RY2018, water consumption was 4.88 million m^3, an increase of 8.2% compared to the previous reporting year. Additionally, water consumption per unit of sales worsened by 2.3% compared to the previous reporting year. These changes were mainly due to the increased water usage as a result of the increased production volume at cast iron production sites in Japan.

Trends in Total Water Consumption and Consumption per Unit of Sales

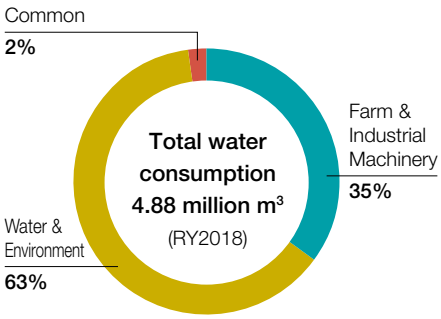


* Water consumption per unit of consolidated net sales. The Kubota Group adopted International Financial Reporting Standards (IFRS) instead of accounting principles generally accepted in the United States of America from RY2018.

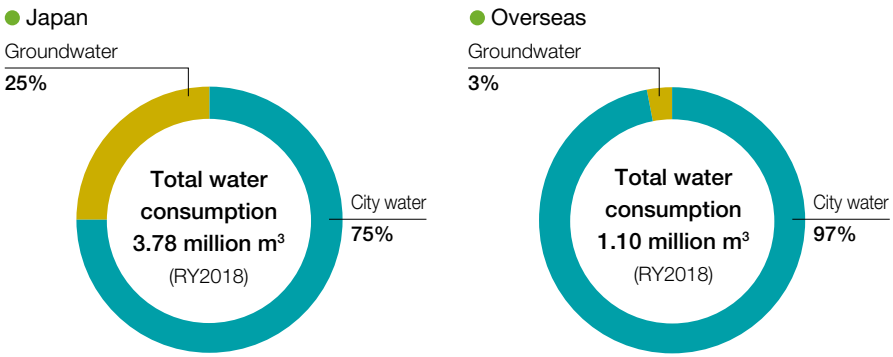
Water Consumption by Region



Water Consumption by Business



Water Consumption by Type



For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.93).

Measures to Reduce Water Consumption

The Kubota Group has established its Medium-Term Environmental Conservation Targets (p.36), and is working on the reduction of water consumption at its business sites. Its production sites, such as those in China, Thailand, Indonesia and the United States, have introduced wastewater treatment facilities or wastewater recycling systems utilizing technologies of the Kubota Group.

In 2018, we continued to implement daily activities such as raising employees' awareness of saving water and conducting patrols to check water leakage. In addition, we installed water-saving valves and worked to improve methods of watering green areas. As a result of the efforts toward achieving the Medium-Term Environmental Conservation Targets 2020 for water consumption reduction, global production sites achieved a reduction of 172,000 m^3 in RY2018 compared with the case where countermeasures were not implemented from the base year (RY2014). The economic effects of these measures reached 62 million yen compared to RY2014. Water consumption per unit of production in RY2018 improved by 13.4% compared to RY2014.

We will continue to promote the reduction of water consumption through initiatives to promote the 3Rs of water, such as conducting water-saving activities and promoting water recycling by using the Kubota Group's technologies.

VOICE

Fully Recycling Wastewater from Production Processes and Achieving "Zero" Process Wastewater

In conjunction with the construction of a new factory that went into operation in November 2017, Kubota Agricultural Machinery (Suzhou) Co., Ltd. (KAMS) (China) reviewed its water treatment systems in order to promote the reuse of wastewater emitted from its production processes.

KAMS manufactures tractors, combine harvesters, and rice transplanters. During the coating process for tractors and other vehicles, KAMS uses large amounts of water to remove contaminants from the surface and to clean the vehicles, a required step for rustproofing. Before the improvement, the wastewater emitted from these production processes was discharged outside the factory after being treated for industrial waste and undergoing wastewater treatment.

Kubota Agricultural Machinery (Suzhou) Co., Ltd.
Environmental Management Department
Ye Kexiao (left), **Zhu Zhiqiang** (right)

In light of the need to comply with increasingly tight wastewater regulations, KAMS made a full review of its water treatment systems in conjunction with the construction of the No. 2 Factory, and has since introduced regenerative treatment systems that enable the reuse of process wastewater from the entire factory. In addition, KAMS introduced a system that can recover the water contained in the treated wastewater sludge through evaporation and reduced pressure dehydration, thereby enabling the recovery of a greater volume of reusable water. After regenerative treatment, the water is reused as cleaning water for the degreasing and chemical conversion treatments applied during the painting process. As a result, KAMS achieved "zero" process wastewater and in RY2018 succeeded in reducing approximately 14,300 m^3 of industrial water used during its production processes.

KAMS practices pioneering activities as a way of reducing environmental loads, and was selected as one of the best 10 energy-saving and exhaust-reducing companies of 2017 from the Suzhou Industrial Park, with which KAMS is affiliated. By continuing to manufacture in ways that consider the environment, KAMS is contributing more deeply to conserving the global environment.

Controlling Wastewater

The Kubota Group has set its own control values that are stricter than the emission standards of relevant laws and regulations. In order not to allow the exceeding of standard values, the Kubota Group implements thorough daily management activities, such as monitoring the trends in water quality data and inspecting the wastewater treatment facilities.

Moreover, we control the amount of water discharge by reducing the amount of water consumption. In RY2018, the amount of wastewater discharge was 5.12 million m^3 (3.62 million m^3 into public water areas, 1.50 million m^3 into sewage lines), an increase of 9.5% compared to the previous reporting year.

We will continue to reduce load on the local water environment through activities to manage water discharge and reduce water consumption.

* The amount of wastewater discharge includes rain and spring water at some business sites.

Survey on Regional Water Stress

In order to identify the risks related to the use of water resources and find effective responses to such water risks, the Kubota Group conducts surveys concerning water stress* for all of its production sites.

The results of a survey on water stress of a total of 50 sites in 14 countries using Aqueduct (water risk assessment tool developed by the World Resource Institute (WRI)) are as follows:

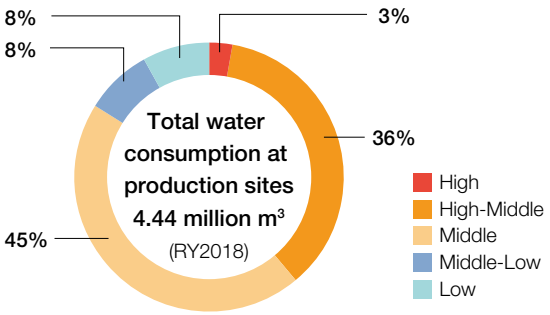
Results of the Survey on Water Stress of Production Sites (RY2018)

Region, country		Water stress level / Water consumption (thousand m^3) <number of sites>				
		High	High-Middle	Middle	Middle-Low	Low
Asia	Japan	91<3>	1,431<8>	1,613<8>	343<2>	0
	China	0	115<3>	0.3<1>	0	0
	Indonesia	0	13<1>	0	0	0
	Thailand	0	0	273<5>	0	0
	Saudi Arabia	14<1>	0	0	0	0
Europe	Russia	0	0.5<1>	0	0	0
	Norway	0	0	0	0	25<1>
	Denmark	0	0	0	0	40<1>
	Netherlands	0	0	0	11<1>	0
	Germany	0	0	9<1>	4<1>	0
	France	0	3<1>	0	0	1<1>
	Italy	0	12<1>	0	0	0
North America	Canada	0	0	0	0	287<1>
	United States	29<6>	0	124<2>	0	0
Total		134<10>	1,576<15>	2,019<17>	358<4>	354<4>

The survey results showed that there are 10 production sites with “High” level of water stress which are located in the Osaka Bay area, Tokyo Bay area, Okinawa, Saudi Arabia, and the Midwest area of the United States. The amount of water consumption by these sites accounts for approximately 3% of the total. Subsequently, there are 15 production sites located in Japan, China, and Indonesia, with a few in Europe, that fall into the “High-Middle” level category. The amount of water consumption by these sites accounts for approximately 36% of the total. The survey revealed that half of all production sites fall under the “High” or “High-Middle” water stress level categories and that these sites account for approximately 38% of water consumption.

In light of the fact that much of the water used for its production activities is taken in areas with relatively high levels of water stress, the Kubota Group implements measures to reduce water risk, including reducing water consumption and properly managing wastewater. The Group will also conduct water stress surveys in each case for the water areas around new sites that are scheduled for construction as part of the Group’s more globally oriented business growth.

Water Consumption by Water Stress Level



* Water stress refers to the state where the annual water availability per capita is less than 1,700 tons and people feel inconvenience in their daily life. Water stress in this survey is the water stress for each river basin, which is calculated based on the ratio of water intake to the amount of available water resources. (World Resources Institute (WRI))

<SDGs related to this section>

Controlling Chemical Substances

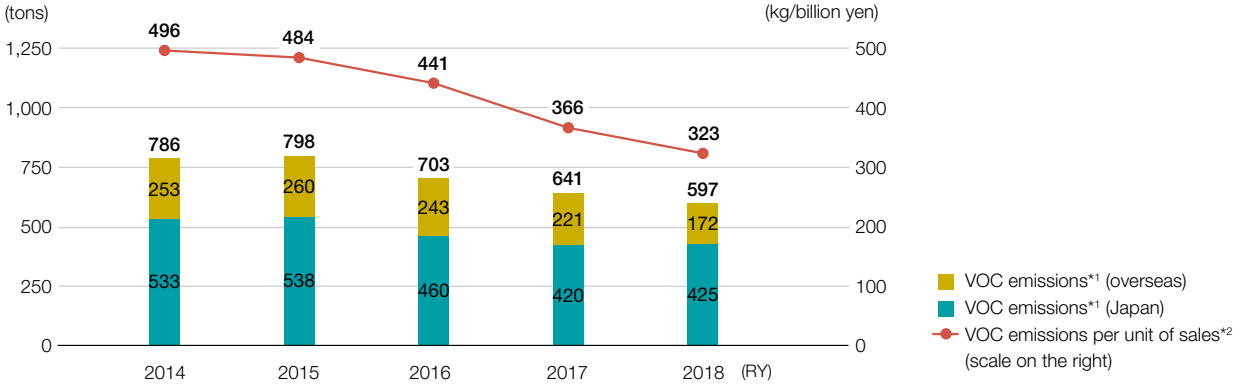
The World Summit on Sustainable Development (WSSD) held in 2002 adopted a resolution that chemical substances would be managed in such a manner as to minimize the impact of the chemical substances on human health and the environment, and relevant regulations therefore have been formulated by each member country.

The Kubota Group sees controlling chemical substances as one of its materiality, and has been advancing initiatives toward reducing the burden on the environment from chemical substances, including the reduction of VOCs (volatile organic compounds) generated in coating processes at production sites, as well as the replacement of fluorocarbons and the prevention of leakage.

VOC Emissions

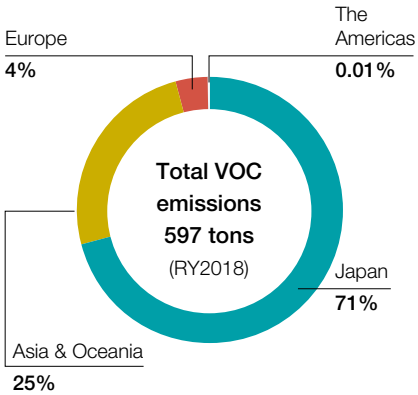
In RY2018, VOC emissions were 597 tons, a decrease of 6.9% compared to the previous reporting year. Additionally, the VOC emissions per unit of sales improved by 11.7% compared to the previous reporting year. These achievements were mainly due to the use of improved VOC emissions-reduction equipment and low-solvent paints as well as the closure of an overseas production site.

Trends in VOC Emissions and Emissions per Unit of Sales

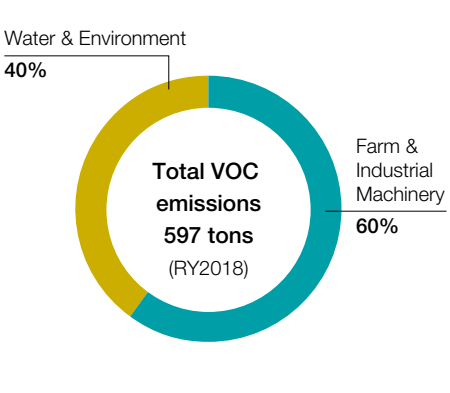


*1 VOCs comprise the six substances that are most prevalent in emissions from the Kubota Group: xylene, toluene, ethylbenzene, styrene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.
*2 VOC emissions per unit of consolidated net sales. The Kubota Group adopted International Financial Reporting Standards (IFRS) instead of accounting principles generally accepted in the United States of America from RY2018.

VOC Emissions by Region

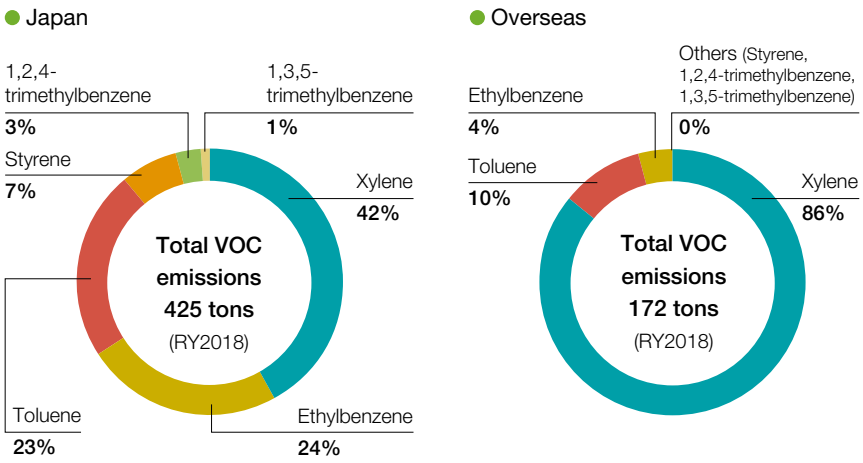


VOC Emissions by Business



For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.93).

VOC Emissions by Substance



For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.93).

Measures to Reduce VOCs

The Kubota Group has established its Medium-Term Environmental Conservation Targets (p.36) and is working on the reduction of VOC emissions from its business sites. The Group has been promoting the risk management of chemical substances handled at production sites and the reduction of VOC-containing materials, such as paint and thinner.

In RY2018, the Kubota Group improved the painting efficiency by setting the pressure of paint guns and adjusting nozzle diameter. Also the Group initiated the reduction of VOC usage by substituting to VOC-free materials and recycling used thinner. Kubota Agricultural Machinery (Suzhou) Co., Ltd. (China) has started using VOC-free water-soluble paints to reduce VOC usage.

As a result of the efforts toward achieving the Medium-Term Environmental Conservation Targets 2020 for VOC reduction, global production sites achieved a reduction of 86 tons in RY2018 compared with the case where countermeasures were not implemented from the base year (RY2014). The economic effects of these measures reached 81 million yen compared to RY2014. VOC emissions per unit of production in RY2018 improved by 33.5% compared to RY2014.

We will continue to promote the reduction of VOC emissions by introducing exhaust treatment equipment that is conscious of compliance with laws and the reduction of impacts on neighborhoods, in addition to the efforts to stop the use of VOC-containing paint and thinner or replace them with substitutes.

VOICE

Reduction in VOC Usage by Improving Painting Processes

SIAM KUBOTA Corporation Co., Ltd. (Amata Nakorn) (Thailand) has reduced VOC consumption by improving painting processes.

The Amata Nakorn Plant manufactures tractors and combine harvesters. Of the four painting lines for products, the combine harvester paint line accounts for roughly 70% of the total paint consumed by the plant. Higher output of combine harvesters was leading to more paint being used during coating.

Amid efforts to cut painting time in response to higher production, the usual painting processes were causing excess paint application and painting defects. To solve these problems, we switched to a new paint to improve coating efficiency, and also adjusted the size of spray nozzles along with the air and spraying pressures. As a result of these improvements we were able to reduce excess paint application along with the reduction of paint defects, and also reduce the amount of VOC usage by approximately 32% as compared to the previous fiscal year.

The Amata Nakorn Plant will continue to reduce VOC usage, thereby further contributing to the conservation of the global environment.

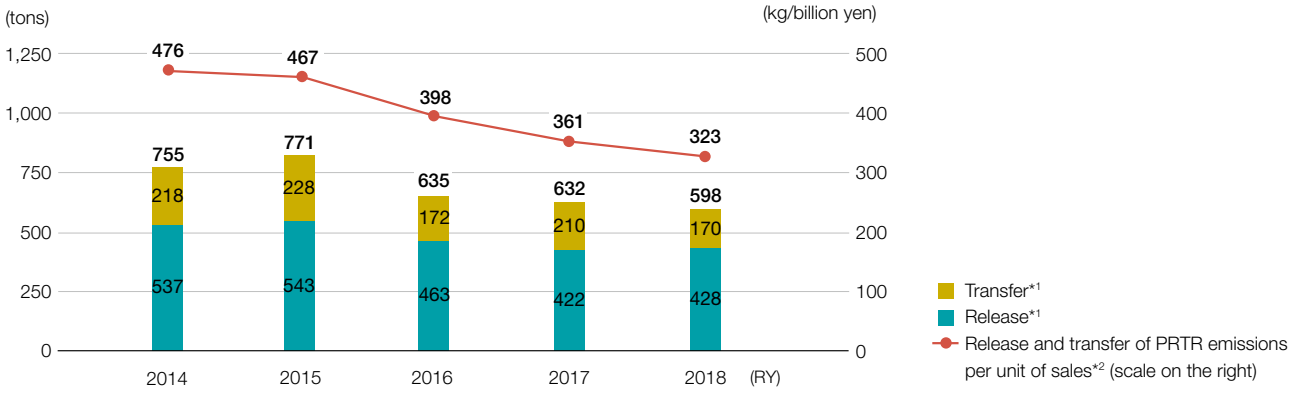
SIAM KUBOTA Corporation Co., Ltd.
(Amata Nakorn)
From left:
Teetuch Leelapornpisit,
Udom Samranjai,
Pullop Chotipaporn,
Boonyanuch Suviwattananphandee,
Sungkom Bualerng,
Boonmee Duangkam,
Panya Chomthong

Release and Transfer of PRTR-designated Substances

In RY2018, a total of 598 tons of substances stipulated in the PRTR Law* were released and transferred, a decrease of 5.5% compared to the previous reporting year. Additionally, the release and transfer per unit of sales improved by 10.5% compared to the previous reporting year. Similar to reduction of VOC emissions, the Group is promoting the ongoing measures to reduce the PRTR-designated substances.

* Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof

Trends in Release and Transfer of PRTR-designated Substances, and Release and Transfer per Unit of Sales (Japan)



*1 Total amount of reported substances that are handled at each site (annual volume of 1 ton or more (or 0.5 tons for Specific Class I designations))
*2 Release and transfer of PRTR-designated substances per unit of consolidated net sales. The Kubota Group adopted International Financial Reporting Standards (IFRS) instead of accounting principles generally accepted in the United States of America from RY2018.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.93).

Control of Ozone-depleting Substances

The Kubota Group prohibits specified CFCs, which are ozone-depleting substances, from being contained in products or added*1 in manufacturing processes of products. In Japan, replacement of materials containing dichloropentafluoropropane with substitute materials was completed during RY2016, and no ozone-depleting substances subject to notification under the PRTR Law*2 are handled and released at present.

In Japan, CFCs that are used in air-conditioners and refrigerating or freezing equipment as refrigerant, are thoroughly managed to control leakage, in accordance with the standards specified by the Fluorocarbons Emission Control Law.*3

*1 For HCFC, intentional adding in products as refrigerant or heat insulator is prohibited.
*2 Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements in the Management Thereof
*3 Act on the Rational Use and Proper Management of Fluorocarbons

Emissions of Air Pollutants

The Kubota Group has set its own control values that are stricter than the emission standards of relevant laws and regulations. In order not to allow the exceeding of standard values, the Group implements thorough daily management activities, such as monitoring operation of the smoke and soot-generating facilities and inspecting the dust-collecting equipment.

The amounts of emissions of air pollutants in RY2018 were 9.4* tons for SOx (down by 46.2% from the previous year), 54.2 tons for NOx (down by 21.2%), and 9.8 tons for soot and dust (down by 55.2%). We will continue to reduce emissions of air pollutants through initiatives such as controlling sources by fuel conversion and maintaining dust-collecting equipment.

* If sulfur contained in the slag managed onsite at end of year (December 31, 2018) by some sites in Japan is included, SOx emissions for RY2018 amounted to 7.3 tons.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.93).

Monitoring Groundwater

Results of groundwater measurements conducted on the premises of the business sites that used organic chlorine-based compounds in the past are as shown below.

Groundwater monitoring (RY2018)

Business site	Substance	Measured groundwater value	Environmental standard
Tsukuba Plant	Trichloroethylene	Non-detected (less than 0.0001 mg/L)	Less than 0.01 mg/L
Utsunomiya Plant	Trichloroethylene	Non-detected (less than 0.001mg/L)	Less than 0.01 mg/L

Reduction of Chemical Substances Contained in Products

The Kubota Group has set rules for identifying and properly managing chemical substances in products in order to comply with REACH Regulations* in Europe and other chemical substance regulations.

Since 2010, chemical substances in products have been classified as one of the three following categories and managed appropriately. With cooperation from our suppliers, we investigate chemical substances in products on a global basis.

* The European Union (EU) Regulations for Registration, Evaluation, Authorization and Restriction of Chemicals

Three Control Levels

1. Substances to be Prohibited: Should not be contained in products
2. Substances to be Restricted: Should not be contained in products under certain conditions and applications
3. Substances to be Controlled: Presence in products should be recognized

Expanding Environment-friendly Products and Services

<SDGs related to this section>

The Kubota Group is contributing to protecting the global environment and solving social issues in the food, water and living environment fields through the provision of environment-friendly products and services. The Group conducts environmental assessment of products in the design and development stages, and promotes environment-friendliness over the entire product life cycle, from the procurement of raw materials to the disposal of products. The Group internally certifies exceptionally environment-friendly products as Eco-Products, and is working to expand its lineup of certified products.

Environmental Considerations in the Product Life Cycle

Major Initiatives to Ensure Environment-friendliness

Design and development
- Product environmental assessment to ensure environment-friendly design
- Internal certification of Eco-Products

Raw materials and parts procurement
- Green procurement
- Global procurement (optimal regional procurement)

Production
- Reduction of waste and loss in the use of energy and other resources
- 3Rs for waste and water resources, use of recycled materials
- Reduction of VOC emissions, replacement of organic solvents with substitutes

Distribution
- Improving loading efficiency
- Modal shift
- Reduction of packing materials

Construction
- Improving efficiency and saving labor for construction work
- Shortening of construction period
- Reduction of resources used for construction

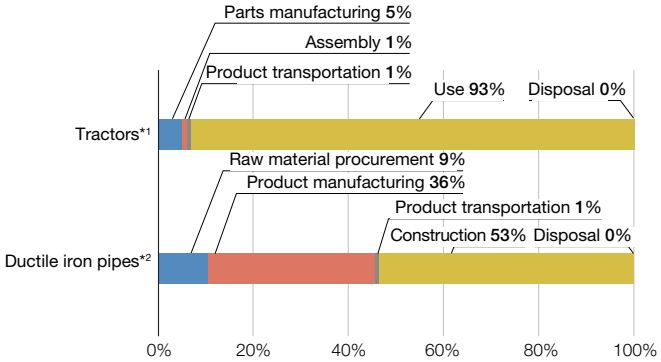
Use
- Reduction of fuel consumption
- Improving efficiency and saving labor for work and management
- Improving ease of maintenance, extending product life
- Reduction of exhaust gas
- Reduction of noise, vibration

Disposal
- Collecting/recycling of used products
- Proper disposal

Analysis of Environmental Loads in the Product Life Cycle

The Kubota Group handles a diverse range of products, from agricultural and construction machinery to pipe systems and water treatment equipment. As part of its product environmental assessment, the Group conducts life cycle assessment (LCA) for its major products to determine the amount of greenhouse gas emissions over each product life cycle.

Results of LCA: Proportions of Greenhouse Gases



*1 LCA results for tractors were calculated based on the assumption of towing and transporting work for 5,000 hours by the M9540DTHQ-EC agricultural tractor in France.
*2 LCA results for ductile iron pipes were calculated based on the data reported in the "Study on Piping Technologies for Sustainable Water Supply Service" (Japan Water Research Center). The proportions of raw material procurement, manufacturing, and product transportation were determined according to Kubota's CO_2 emissions data.

Greenhouse gases emitted in the use stage account for around 90% in the life cycle of agricultural tractors, while gases emitted in the manufacturing and construction stage account for around 90% in ductile iron pipes. Thus the frequency and scale of environmental loads in the life cycle vary depending on the product type. The Kubota Group enhances its environment-friendly products and services by reflecting the results of the analysis of environmental loads in the product life cycle in its environment-friendly design development.

Examples of Initiatives to Ensure Environment-friendliness

Initiatives to Ensure Environment-friendliness in Combine Harvesters

Combine harvesters are farming machinery to harvest crops such as rice or wheat. Catering to customer requirements, the Kubota Group develops various combine harvesters suited to different crop and regional characteristics.

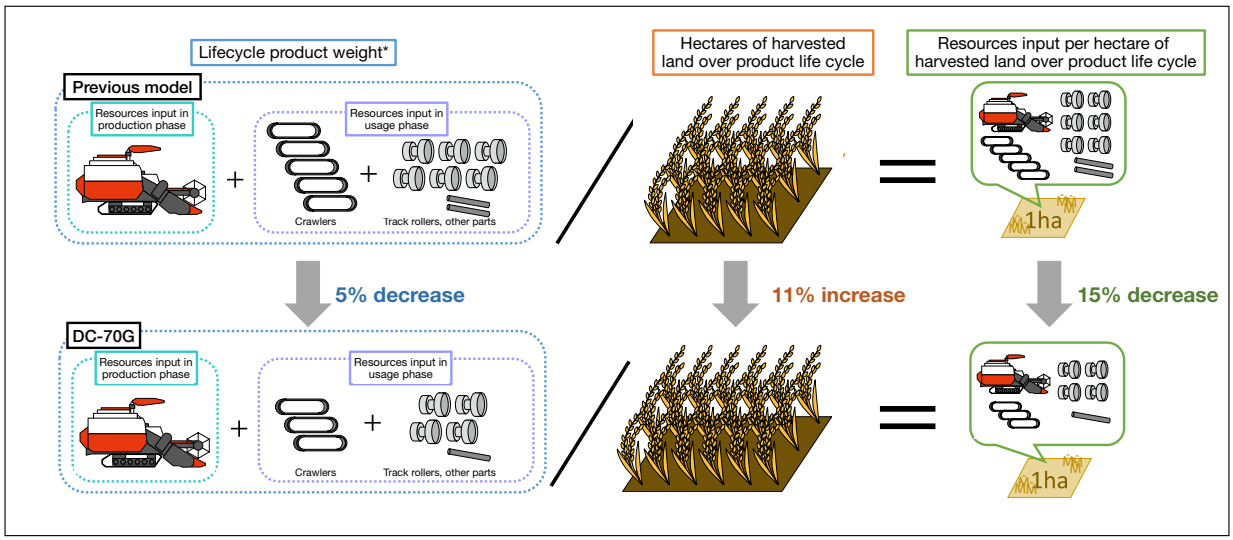
Conserve Resources over Product Life Cycle with DC-70G Combine Harvester

With the DC-70G combine harvester aimed at Southeast Asia and other developing countries, the durability of major parts has been enhanced to cut replacement frequency in the usage phase. Other improvements help to increase the potential acreage harvested per hour by increasing harvesting efficiency.

Over the combine harvester product lifecycle from machine production to customer usage and end-of-life disposal, these improvements contribute to conservation of resources by reducing the amount of materials required per hectare of harvested land by approximately 15% compared with the previous model (DC-68G).

Combine harvester DC-70G

Resources Input per Hectare of Harvested Land Over Product Life Cycle and Comparison with Previous Model



* Lifecycle product weight is defined as the total weight of the combine harvester and all the major replacement parts needed during usage

[1] Improvement of Durability on Major Replacement Parts

More durable major replacement parts such as crawlers and track rollers cut the replacement frequency, reducing lifecycle product weight by 5%. This approach also reduced the parts purchase cost and replacement work time.

Major Replacement Parts with Improved Durability

Major replacement parts	Extend product life (compared to the previous model)	Development points
Crawler	Approx. 1.5 times	Less contact pressure with track rollers, thicker design, etc.
Track roller	Approx. 1.3 times	Less contact pressure with crawler, thicker design, introducing heat-processing, etc.

Crawler

Track roller

Diagram of Lower Replacement Frequency

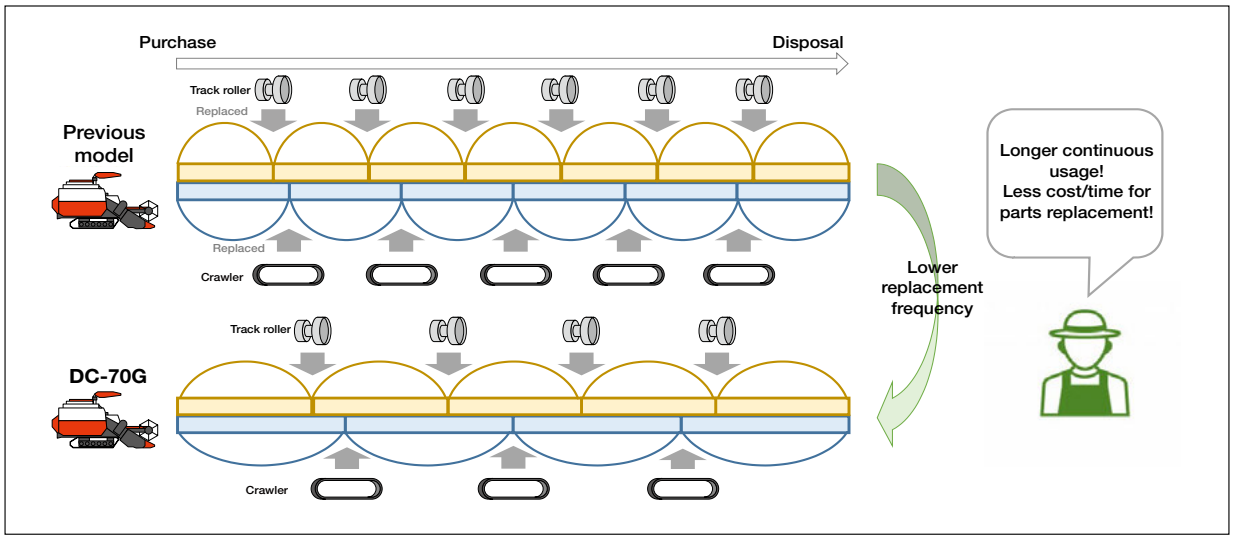
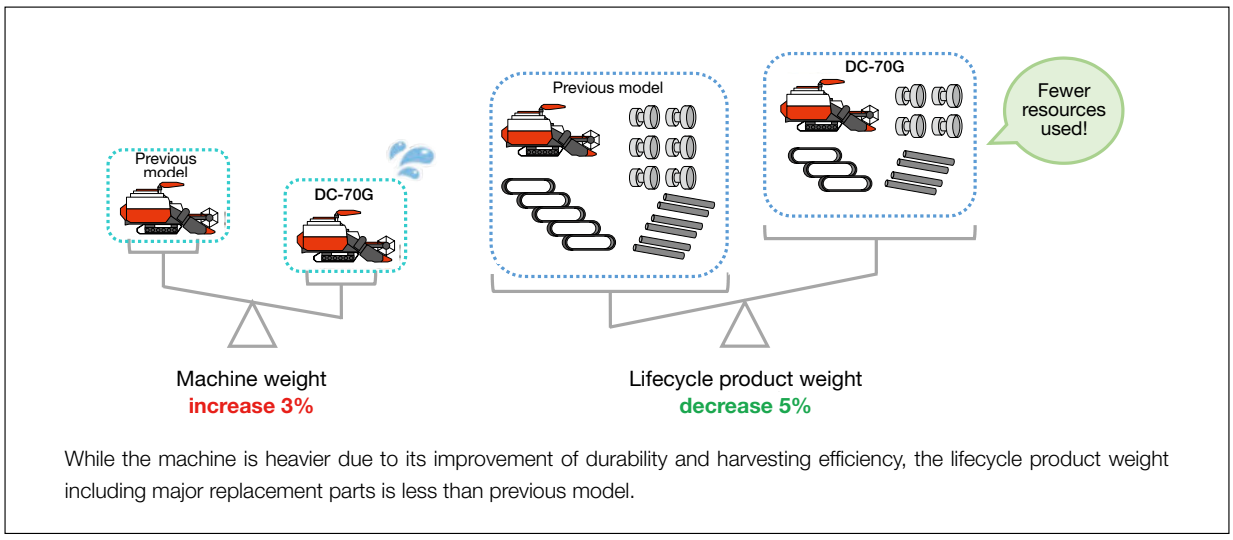


Diagram of Lower Lifecycle Product Weight



While the machine is heavier due to its improvement of durability and harvesting efficiency, the lifecycle product weight including major replacement parts is less than previous model.

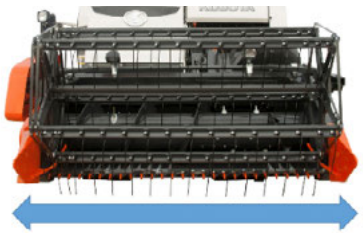
[2] Improvement of Harvesting Efficiency

Harvesting operations are more efficient, with a broadened cutting width and enlarged grain tank enabling harvesting of more hectares per hour. The fuel consumption is reduced to the conventional level.

Main Improvements to Increase Harvesting Efficiency

Improved point	Compared to the previous model	Effect on harvesting efficiency
Cutting width	3.8% wider	The 2,075-mm cutting width can harvest 3.8% more at the same machine speed
Grain tank (storage tank for harvested grain)	70% bigger	The frequency of emptying* harvested grain is reduced, and long continuous work is possible

* Emptying a full grain tank generally means stopping harvesting operations and moving the combine harvester to a footpath to empty the tank.


Cutting width

Large-capacity grain tank

Initiatives to Ensure Environment-friendliness in Plastic Pipes

Plastic pipes play a key role in society in a variety of critical applications, for example water supply, sewage, agriculture water, and building utilities.

Initiative to Ensure Environment-friendliness in Sewage-related Products at Each Stage of the Life Cycle

Efforts to save energy and resources at each lifecycle stage involve the development of products and engineering methods with superior workability.

[1] Ribbed Pipe

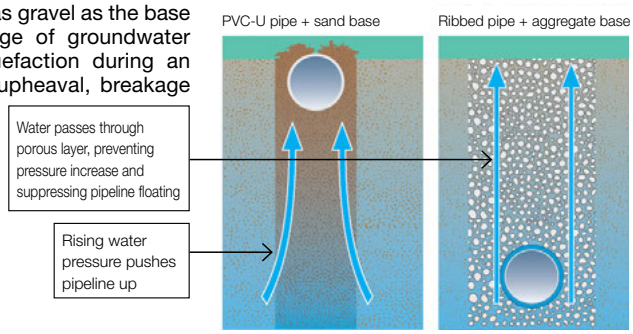
VU pipe which is made from unplasticized polyvinyl chloride (PVC-U) and has thin wall is very popular in Japanese sewage system, since they are low costs, durable and easy to install.

Ribbed pipes supplied by the Kubota Group differ from standard PVC-U pipes because they are thinner but are protected by circular outer ribs. They make the pipes lighter and easier to handle, while ensuring high flatlening strength,* and they contributes to conserving resources.

Outer ribbed structure

* Ability to resist deformation under pressure

Environmental Contribution of Ribbed Pipes at Each Lifecycle Stage

Lifecycle	Product feature	Environmental contribution
Production	Thin-walled	• Amount of plastic raw material: resin, reduced to about two-thirds (compared to the Kubota Group's PVC-U pipes).
Installation	Lightweight	• Reducing need for heavy machinery to transport, leading to low consumption.  Carrying ribbed pipes
	Superior flatlening strength (approx. 1.5–2.0x the Kubota Group's PVC-U pipes)	• Shallower installation, reducing need for heavy machinery and fuel consumption.
	Ribbed structure	• Besides sand or gravel, resource recycling material such as recycled sand and gravel, and sludge molten slag can be used as base materials.  Installation of ribbed pipe  Base materials Recycled gravel / Recycled sand / Sludge molten slag / Coal ash (clinker ash) / Improved soil Possible base materials for ribbed pipe
Usage	Ribbed structure (with gravel base material)	• Using a porous material such as gravel as the base material can reduce the surge of groundwater pressure due to ground liquefaction during an earthquake, preventing pipe upheaval, breakage or disconnection.  PVC-U pipe + sand base Ribbed pipe + aggregate base Water passes through porous layer, preventing pressure increase and suppressing pipeline floating Rising water pressure pushes pipeline up Ground liquefaction countermeasures by ribbed pipe
Disposal	Recyclability	• A recycling system to improve the recycling rate of ribbed plastic pipes has been constructed by the Plastic Rib Pipe Association.

[2] Pipeline Renovation Methods

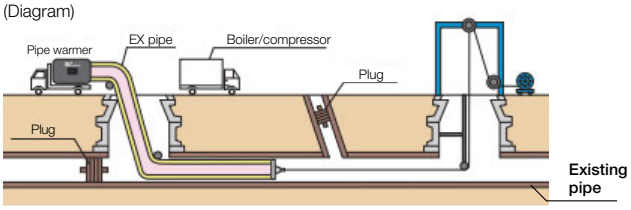
Around 3% of Japan's sewage pipe network (about 470,000 km at end-March 2017*) is older than its standard 50-year operating life. This figure is forecasted to increase rapidly, to about 12% in 10 years and about 30% in 20 years.

The Kubota Group uses the proprietary non-open-wt method "EX" or "Danby" pipeline renovation methods to insert unplasticized polyvinyl chloride pipe materials into the existing pipe via manholes to renovate the pipe network. This approach helps save energy and materials.

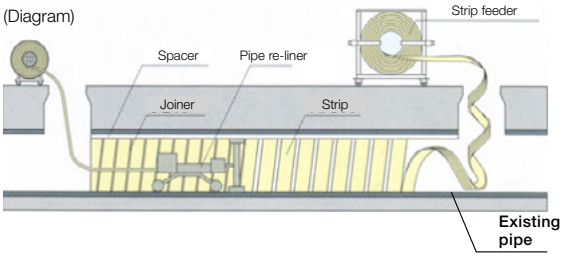
* Source: Ministry of Land, Infrastructure, Transport and Tourism website

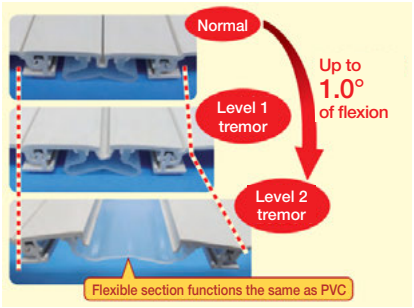
Environmental Contribution of Pipeline Renovation Methods at Each Lifecycle Stage

<table>
<tr><th>Lifecycle</th><th>Product feature</th><th>Environmental contribution</th></tr>
<tr><td>Installation</td><td>No open-wt required</td><td>
• Less need for heavy excavation machine, reducing fuel consumption
• No excavated wastes generated
• Less local traffic disruption

[EX method]
EX pipe is inserted into existing pipe, using steam to expand a pipe and create a seamless contact.
(Diagram)


Note: For nominal diameters of 150–600 mm (single pipe 150–400 mm, dual-layer pipe 150–600 mm)

[Danby method]
Spiral-wound unplasticized polyvinyl chloride strips are installed into the existing pipe using a specialized machine and pieced together with joint materials (Joiner).
(Diagram)



Operation with a pipe re-liner
Note: For large-scale pipes with nominal diameters of 800–3,000 mm
</td></tr>
<tr><td rowspan="2">Usage</td><td>High seismic resistance</td><td>
• Proprietary joint material (SF joiners) with the midsection and flexible section help absorb and can flexibly cope with any bending or deformation caused by an earthquake.


SF joiner deformation in an earthquake
</td></tr>
<tr><td>Extend product life</td><td>• Renovates corroded pipe sections, extending product life by further 50 years.</td></tr>
</table>

Initiatives to Ensure Environment-friendliness in Agricultural Water Product

We contribute to reduction of water consumption and abnormal weather impact by using pipelines for agricultural water and water management systems.

[1] Using Pipelines for Agricultural Water Supply

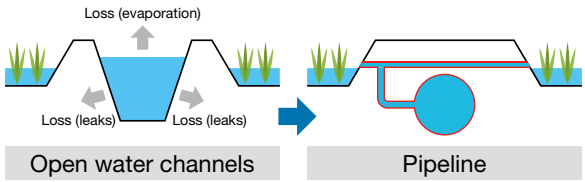
Conventional open water channels require considerable maintenance, such as keeping grass under control and water channels clear. Over time, aging water channels can also leak and lead to ineffective water outflow.* Natural pressure pipelines made with our PVC-U pipes and related products minimize maintenance work and reduce water consumption.

The Kubota Group's range of PVC pipes and joints, valves, air valves and other products are used widely in Japan's network of roughly 7,500 km of agricultural pipelines.

* Occurs when water flows into fields even when water is not required.

Pipes being buried in an open water channels

Environmental Contribution of Pipelines

Item	Reduce water consumption	Respond to abnormal weather conditions
Details	Leaks and ineffective outflow are less likely to occur, ensuring reliable supply of water at the required volume and the required time. 	During droughts, water supply controlling is used to supply only the shortfall in water; during heavy rain, the valves and overflow outlets controlling is used to manage water as appropriates.

[2] WATARAS* – Farm Water Management System

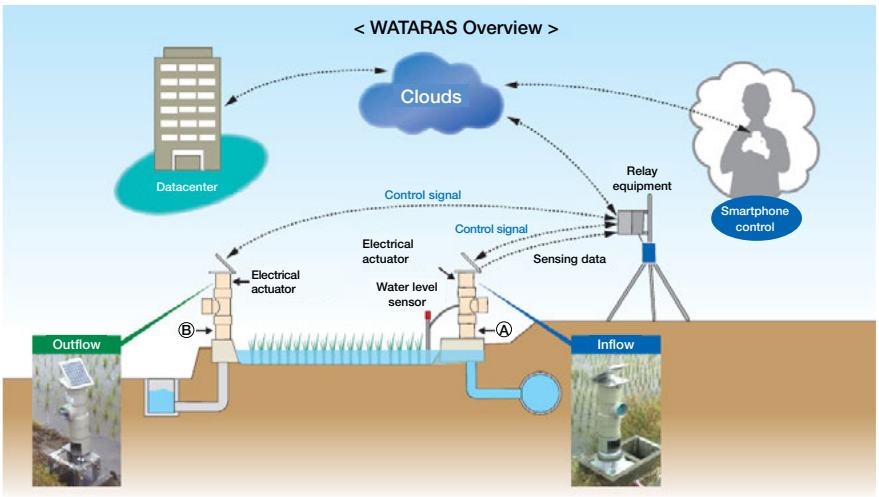
WATARAS is Japan's first farm water management system that allows users to remotely and automatically control water inflow and outflow for rice fields and monitor water levels with a smartphone or PC.

At Japan's National Agriculture and Food Research Organization (NARO), where the system underwent testing, WATARAS helped to cut water consumption and reduced time spent on water management by roughly 80%. Water management typically accounts for around 30% of all working hours in rice cultivation.

* System developed by Kubota ChemiX Co., Ltd. using technology proposed and developed by national research and development agency NARO as part of a Strategic Innovation Promotion Program (SIP) to create next-generation agricultural technology.

Environmental Contribution of WATARAS

Item	Reduce water consumption	Respond to abnormal weather conditions
Details	Reduces water consumption by around 50% during the period from sprouting season to harvesting season.	During torrential downpours and other short periods of heavy rain that raise the risk of river flooding, farmers can remotely increase paddy field water level to temporarily hold water in fields.



Major Initiatives to Ensure Environment-friendliness by Product Group

C Tackling Climate Change
R Working towards a Recycling-based Society
W Conserving Water Resources
Ch Controlling Chemical Substances
B Conserving Biodiversity

Farm & Industrial Machinery

Product group	Major initiatives to ensure environment-friendliness	Life cycle				
		Procurement production	Distribution	Construction	Use	Disposal
Tractor	Reducing the number of parts	R				
	Reducing environmentally hazardous substances contained in paint	Ch				
	Reducing fuel consumption by improving loading efficiency in product transportation		C			
	Reducing fuel consumption by introducing an energy-saving mode				C	
	Conforming to exhaust gas regulations				Ch	
	Reducing noise, vibration				B	
	Indicating parts materials, providing information on points to be noted for disposal					R
Rice transplanter	Reducing environmentally hazardous substances contained in paint	Ch				
	Reducing fuel consumption by improving loading efficiency in product transportation		C			
	Reducing fuel consumption by introducing an energy-saving mode or a multiple-function capacity to simultaneously perform five farming operations				C	
	Reducing seedling cultivation-related materials by sparse planting or dense-sown seedling transplantation, and a straight-line maintenance function				R	
	Conforming to exhaust gas regulations				Ch	
	Indicating parts materials, providing information on points to be noted for disposal					R
Combine harvesters	Reducing the number of parts and weight	R				
	Reducing environmentally hazardous substances contained in paint	Ch				
	Reducing fuel consumption by improving loading efficiency in product transportation		C			
	Reducing fuel consumption by introducing an energy-saving mode				C	
	Reducing fuel consumption with improved reaping accuracy by horizontal control of the vehicle body				C	
	Conforming to exhaust gas regulations				Ch	
	Reducing noise, vibration				B	
	Indicating parts materials, providing information on points to be noted for disposal					R
KSAS (Kubota Smart Agri System)	Reducing fuel consumption per unit yield of agricultural machinery by improving farm work efficiency and increasing yield				C	
	Proper fertilizer application to prevent excessive fertilizers from flowing downstream				W	
	Facilitating self-maintenance and reducing mechanical troubles by monitoring the operation status of agricultural machinery				R	
Cultivators	Reducing environmentally hazardous substances contained in paint	Ch				
	Reducing fuel consumption by improving loading efficiency in product transportation		C			
	Reducing CO_2 emissions by electrification				C	
	Achieving zero CO_2 emissions by electrification				Ch	
	Conforming to exhaust gas regulations				Ch	
	Reducing noise, vibration				B	
	Indicating parts materials, providing information on points to be noted for disposal					R
Riding mowers	Reducing environmentally hazardous substances contained in paint	Ch				
	Reducing fuel consumption by improving loading efficiency in product transportation		C			
	Reducing fuel consumption by introducing a unique mowing method to alleviate power load				C	
	Conforming to exhaust gas regulations				Ch	
	Indicating parts materials, providing information on points to be noted for disposal					R
Utility vehicles	Reducing fuel consumption by improving loading efficiency in product transportation		C			
	Conforming to exhaust gas regulations				Ch	
	Indicating parts materials, providing information on points to be noted for disposal					R
	Reducing RoHS-designated substances					Ch
Agricultural-related products (color sorter, rice-milling machine, etc.)	Reducing the number of parts and weight		C			
	Reducing air consumption necessary for sorting of defective rice by improving the air injection accuracy of color sorters				C	
	Reducing power consumption of electronic circuits				C	
	Reducing power consumption of improved thermal insulation efficiency of low-temperature brown rice storage container				C	
	Reducing the noise of rice-milling machines				B	
	Indicating parts materials, providing information on points to be noted for disposal					R
	Reducing RoHS-designated substances					Ch
Engines	Reducing fuel consumption by improving combustion efficiency and reducing losses				C	
	Accepting bio diesel/gasoline				C	
	Conforming to exhaust gas regulations				Ch	
	Reducing noise, vibration				B	
	Reducing RoHS-designated substances					Ch
Construction machinery	Reducing environmentally hazardous substances contained in paint	Ch				
	Reducing fuel consumption by improving loading efficiency in product transportation		C			
	Reducing fuel consumption by introducing an energy-saving mode				C	
	Conforming to exhaust gas regulations				Ch	
	Reducing noise, vibration				B	
	Indicating parts materials, providing information on points to be noted for disposal					R
	Reducing RoHS-designated substances					Ch
Precision machinery (Measuring instruments)	Reducing the number of parts and weight	R				
	Reducing fuel consumption by improving loading efficiency in product transportation		C			
	Reducing power consumption of electronic circuits				C	
	Reducing the amount of waste batteries by introducing energy-saving measuring instruments					R
	Reducing RoHS-designated substances					Ch
Air-conditioning equipment	Using recycled resin	R				
	Reducing power consumption by installing a heat pump and a highly efficient motor				C	
	Easier maintenance by reducing the number of parts and adopting designs that are easy to disassemble				R	
	Providing information on points to be noted for disposal					R
	Reducing RoHS-designated substances					Ch

C Tackling Climate Change
R Working towards a Recycling-based Society
W Conserving Water Resources
Ch Controlling Chemical Substances
B Conserving Biodiversity

Water & Environment

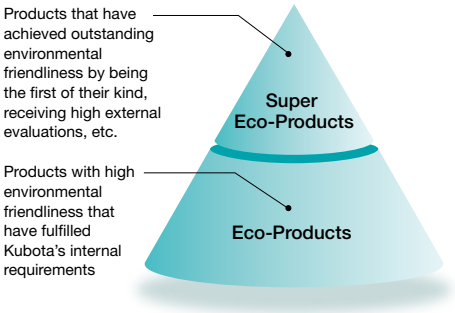
Product group	Major initiatives to ensure environment-friendliness	Life cycle				
		Procurement production	Distribution	Construction	Use	Disposal
Ductile iron pipes	Reducing weight by thinning pipes or changing the structure of couplings	R				
	Reducing VOC by changing the paint for the inner surface	Ch				
	Reducing fuel consumption by improving loading efficiency in product transportation		C			
	Reducing the width of the excavation groove by reducing the insertion force at the time of jointing couplings to decrease the number of items necessary for jointing			C		
	Reducing polyethylene sleeves by improving anti-corrosion performance			R		
	Improving maintenance performance by introducing a coupling structure with reduced insertion force or reducing the number of parts				R	
	Extending product life by improving anti-corrosion performance and introducing earthquake-resistant couplings				R	
Plastic pipes	Reducing chemical substances specified under the technical standards based on the Water Supply Act	Ch				
	Reducing power consumption when joining pipes by a fusing process			C		
	Indicating parts materials, providing information on points to be noted for disposal					R
Valves	Reducing fuel consumption by improving loading efficiency in product transportation		C			
	Reducing the width of excavation grooves by reducing the insertion force at the time of jointing couplings to decrease the number of items necessary for jointing			C		
	Reducing polyethylene sleeves by improving anti-corrosion performance			R		
	Extending product life by improving anti-corrosion performance				R	
Pumps	Reducing the cut amount during processing by introducing compact casings	C				
	Reducing the weight and volume by introducing compact and thinner casings	R				
	Reducing fuel consumption by improving loading efficiency in product transportation		C			
	Reducing power consumption by improving pump efficiency				C	
	Reducing RoHS-designated substances					Ch
Businesses related to water purification, sewage and wastewater treatment (Condensation, dehydration, agitator, etc.)	Reducing weight and the number of parts by eliminating frames or introducing multi-function parts	R				
	Reducing the power consumption of dehydrators by downsizing hydraulic units, etc.				C	
	Reducing the power consumption by introducing agitating blades capable of efficient agitation with low power				C	
	Reducing the power consumption of fans by introducing a low-pressure membrane-type air diffuser				C	
KSIS	Saving energy by the efficient operation of equipment through remote monitoring/ diagnosis using IoT				C	
	Extending equipment life by failure prediction using AI (under development)				R	
Submerged membranes	Reducing weight and volume by reducing the weight per unit membrane area or the membrane filling rate	R				
	Reducing fuel consumption by improving loading efficiency in product transportation		C			
	Reducing power consumption per unit processing quantity by improving the membrane filtration performance and expanding the membrane-carrying area				C	
	Collecting/recycling of used membrane cartridges					R
	Reducing RoHS-designated substances					Ch
Membrane-type methane fermentation units	Generating biogases by the methane fermentation of food waste and palm oil mill effluent				C	
	Reducing the volume of food waste				R	
Wastewater treatment unit (Johkasou)	Using recycled resin	R				
	Reducing the weight and volume of purification tanks by improving the processing capacity per unit volume	R				
	Reducing fuel consumption by improving loading efficiency in product transportation		C			
	Reducing the amount of excavated soil at the time of burying by reducing volume			C		
	Reducing RoHS-designated substances					Ch
Steel pipes	Reducing fuel consumption by improving loading efficiency in product transportation		C			
	Reducing energy during construction by mechanical couplings			C		
	Reducing RoHS-designated substances					Ch
Ethylene thermal cracking pipes	Reducing the use of rare metals, using recycled rare metals	R				
	Reducing fuel consumption by improving loading efficiency in product transportation		C			
	Reducing fuel consumption necessary for decoking (maintenance) by changing the internal structure of pipes				C	
	Reducing RoHS-designated substances					Ch
Rolls	Using recycled rare metals	R				
	Reducing fuel consumption by improving loading efficiency in product transportation		C			
	Extending product life by improving the roll surface strength				R	
	Reducing RoHS-designated substances					Ch

Internal Certification System for Eco-Products

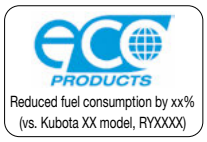
Regarding the Internal Certification System for Eco-Products

The Kubota Group's internal certification system for Eco-Products was introduced to internally certify products with exceptional environmental friendliness. We evaluate products in accordance with matters related to the five basic items for environmental conservation in the Kubota Group's environmental management, namely, "Tackling Climate Change," "Working towards a Recycling-based Society," "Conserving Water Resources," "Controlling Chemical Substances," and "Conserving Biodiversity," and certify those products that satisfy our internal standards as Eco-Products.

We have also received third-party assurance for our "Sales Ratio of Eco-Products," which is the ratio of sales generated by Eco-Products certified under our internal system.



Example of an Eco-Product label

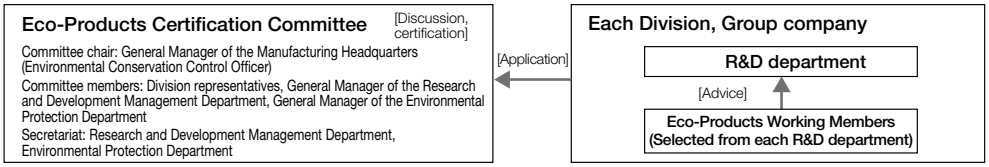


Eco-Products feature a label that shows their certification as Eco-Products.

Five basic items for environmental conservation	Evaluation items	Relationships with SDGs
• Tackling Climate Change	1. Energy saving (CO_2 reduction) Reducing energy consumption during production, transportation, construction and use, etc.	
• Working towards a Recycling-based Society	2. Resources saving Reducing weight and volume, extending product life, etc.	
• Conserving Water Resources	3. Recycling Using recycled materials and recycled rare metals, etc.	
• Controlling Chemical Substances	4. Reducing environmentally hazardous substances Reducing RoHS-designated substances, reducing gas emissions, etc.	
• Conserving Biodiversity	5. Information disclosure Notes about energy-saving operations, recycling and disposal, etc.	

Eco-Products Certification Committee

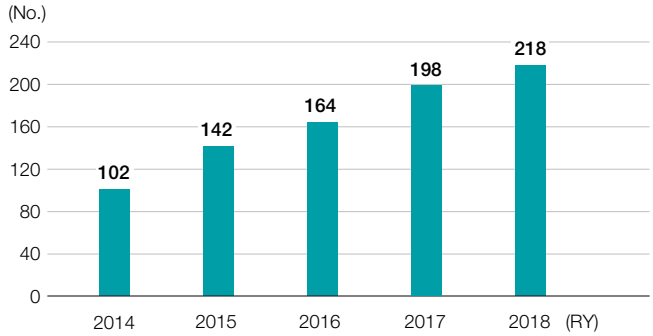
The Eco-Products Certification Committee, chaired by the General Manager of the Manufacturing Headquarters, consists of the committee members elected from each Division, as well as the Research and Development Management Department and the Environmental Protection Department. Upon receiving an application from each Division for the certification of a product, the Committee examines the product's adequacy as an Eco-Product and gives certification.



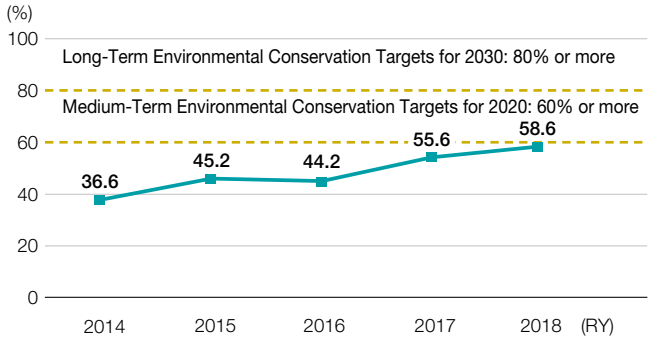
The Pathway to Expanding Certified Eco-Products

Based on our internal certification system established for Eco-Products, the Kubota Group certified an additional 20 products in RY2018, including three (3) Super Eco-Products, bringing the total number of certified Eco-Products to 218. The sales ratio of Eco-Products was 58.6%. We will continue to carry out initiatives focusing on the development of environment-friendly products and expand our Eco-Products lineup.

Trends in No. of Eco-Product Certifications (Total)



Trends in Sales Ratio of Eco-Products



* The sales ratio of products that have fulfilled the internal requirements in our own Eco-Products Certification System
Sales ratio of Eco-Products (%) = Sales of Eco-Products / Sales of products (excluding construction work, services, software, parts and accessories) × 100

Products Certified as Super Eco-Products in RY2018

AGRIROBO tractor

SL60A
AGRIROBO tractor

Compliant with exhaust gas regulations

Kubota has developed the industry's first robot tractor, which will help realize smart agriculture, reduce energy usage and minimize resource use in agriculture.

Awards received:
Nippon Brand Award
48th Machinery Industrial Design Awards
60th Top 10 New Products Award (Both Nikkan Kogyo Shimbun, Ltd.)

Humidity control outdoor-air processing unit

DHM-50C
Air handling unit
Humidity control outdoor-air processing unit

Saving energy
Conserving resources

A compact desiccant air-conditioner with excellent energy efficiency. Used in conjunction with renewable energy, the air-conditioner can help realize ZEB* designs.

* Net zero energy buildings

Awards received:
56th SHASE Award of Technology (Technical Award) (The Society of Heating, Air-Conditioning and Sanitary Engineers of Japan)

Pure Washer

PW24W-EW2
Commercial humidified air cleaner
Pure Washer

Saving energy
Conserving resources

A high-quality air humidifier and purifier with excellent energy efficiency and minimal maintenance, which uses slightly acidic electrolyzed water to effectively remove airborne bacteria.

Awards received:
Japan Society of Industrial Machinery Manufacturers Award
47th Machinery Industrial Design Awards
(Nikkan Kogyo Shimbun, Ltd.)

VOICE — Safe, comfortable air-conditioned environments using water

Pure Washer is a commercial air humidifier and purifier that uses water to keep air and public spaces clean. Our product incorporates air-washer technology, which ejects a fine water mist to remove airborne microscopic dust particles and gaseous substances not caught by conventional filters, and a system that uses slightly acidic electrolyzed water to safely and effectively purify the air.

A single Pure Washer system can sterilize, humidify, deodorize and remove dust from areas that previously required several air purifier and humidifier systems. Moreover, the slightly acidic electrolyzed water provided by the system can be used to disinfect surfaces such as tables and door handles. Those multiple functions make Pure Washer a completely new type of product.

The system allows users to set operating times for each day, select seven different air flow levels and automatically adjust air flow based on predetermined humidity levels. That flexibility means users can set up Pure Washer to match their environments, helping to cut electricity usage. Key components can also be cleaned and reused, reducing the use of resources.

We plan to expand sales of Pure Washer to offices and factories, in addition to nursing care facilities, which are currently the main users.

Our goal is to continue providing safe and comfortable air-conditioned environments to a wide range of customers.

Kubota
Electronic Equipped Machinery Marketing and Sales Dept.
PW Technology Group
Takashi Sagi

Products Certified as Eco-Products in RY2018 (excerpt)

Tractor
L3560 Limited edition
L3560LIM (North America)

Compliant with exhaust gas regulations

Sub-compact tractor
BX Series
BX261 (Europe)

Compliant with exhaust gas regulations

Mini powertiller
“Haruna” Smile
TRS600

Compliant with exhaust gas regulations

Combine harvester
PRO Series
PRO988Q (China)

Compliant with exhaust gas regulations

Low-temperature brown rice storage container
“Ajikura” Eco Premium
KAE32

Saving energy

Mini rice sorting equipment
“Senbetsu” Prince II
KG-S07X

Saving energy

Heat pump air-conditioner
Air conditioner (10HP)
KBHP-ZP280-S

Saving energy
Conserving resources
Reducing environmentally hazardous substances

Polyethylene pipes for water distribution
Straight pipe with single EF socket/EF fitting
Nominal diameter 50–200

Saving energy
Reducing environmentally hazardous substances

Click here for details on products certified as Eco-Products.
www.kubota.com/company/environment/ecopro/

The Evolution and History of Environment-friendly Products and Services

Evolution and History of Kubota Tractors

Since creating the walk-behind cultivator in 1947, the Kubota Group has launched various compact, lightweight, high-powered tractors designed for upland or rice farming in Japan. Over time, we played a key role in the shift to mechanized, efficient farming methods by developing a wide range of new capabilities that reduced the burden of agricultural work. Looking ahead, we aim to help reduce the impact of farming on the environment through smart agriculture, which brings together high-precision farming methods based on ICT and IoT, and ultra-labor-saving farming using automated tractors.

Kubota Tractors: Evolution and Environmental Contribution

Decade	Social trends	Kubota's progress in tractor development	Environmental contribution
1940s	• End of World War II	• Started sales of diesel engine walk-behind cultivator (1947)	Phase 1: Develop compact, lightweight, high-powered products
1950s	• Depleted food resources and famine • Economic growth in Japan spurs shift in labor from rural areas to cities	• **Starts work on developing domestic tractors designed for Japanese agriculture**	
1960s	• Increase in farmers with a side job, elderly people and women working in agriculture	• **Develops Japan's first pure domestic upland farming tractor, the T15 (1960)** • **Launches first tractor for rice cultivation, the L15 (1962)**	
1970s	• Shift from "walk-behind" to "riding" farming • Boom in mechanized agriculture • Economic growth gathers pace	• **Launches ultra-compact four-wheel-drive tractor Bulltra, the B6000 (1971)**	
1980s	• Growing need for reduction of the burden from agricultural work	• **Develops automatic leveling control technology, Monroe Matic (1981)** • **Develops Bi-Speed Turn mechanism (1986)** • **Develops microcomputer-based automated control system for tractor attachments (1986)** • Switches to cleaner TVCS engines with lower exhaust gas emissions (1987)	Phase 2: Improve operating efficiency with additional functions
1990s	• EU introduces rules for exhaust gas emissions	• Develops transmission system with no need for clutch (1992) • Launches Power Krawler tractors (1997) • Complies with EPA Tier 1 regulations (1999)*1	
2000s		• Complies with EPA Tier 2 regulations (2004) • **Develops new energy-efficient and energy-saving functions, e-Assist Turn and e-Cruise (2007)** • Launches products compatible with biodiesel fuel (2008)*2 • Complies with EPA Tier 3 regulations (2008)	
2010s	• High fuel prices • Emergence of high-precision farming using ICT • Shift to robot technologies that enable driverless farming	• Complies with EPA Interim Tier 4 regulations (2012) • **Starts trial providing the Kubota Smart Agri System (KSAS) (2014)** • **Launches first tractor compatible with KSAS (2014)** • Complies with EPA Final Tier 4 regulations (2015) • **Starts trial sales of tractors with autonomous driving technology (2017)**	Phase 3: Eliminate inefficiencies with precision farming Phase 4: Shift to ultra labor-saving methods with automation

*1 Exhaust gas emission regulations based on US Environmental Protection Agency (EPA) standards for non-road diesel engines with power rating of 56–75kW

Click on the link below for more details about our shift to cleaner engines with low emissions
www.kubota.com/company/environment/ecopro/img/The_Evolution_of_Engines.pdf

*2 Please ask to your Kubota Group distributor about using biodiesel

(Phase 1) Developed Compact, Lightweight, High-Powered Models, Contributing to Conservation of Resources

Tractors imported from the US and Europe in the 1950s were large and expensive, making them unsuitable for agriculture in Japan from an operational and economic perspective. In contrast, Kubota developed compact, lightweight, high-powered tractors designed for Japanese farming methods. We also helped to reduce resource usage by lowering vehicle weight for each unit of horsepower.

	Example of European tractor models at the time	Kubota tractors		
Year	Around 1960	1960	1962	1971
Product name	Fiat tractor 411C* 	T15 tractor for upland farming 	L15 tractor for rice cultivation 	Bulltra B6000 utility tractor 
Weight (kg)	2,300	900	800	455
Power (PS)	40	15	17	11
Weight-to-power ratio (Compared with T15)	57.5	60.0	47.1 **(-22%)**	39.1 **(-35%)**

* Example of Fiat tractor that Kubota imported and sold in Japan

(Phase 2) Added Functions to Improve Operating Efficiency and Help Reduce Environmental Loads

Starting with the development of the Monroe Matic in 1981, the industry's first automatic leveling system, Kubota developed a range of additional new functions that made farm work easier and improved accuracy and efficiency, helping to reduce environmental loads.

Examples of Additional Functions That Reduce Environmental Loads

Monroe Matic

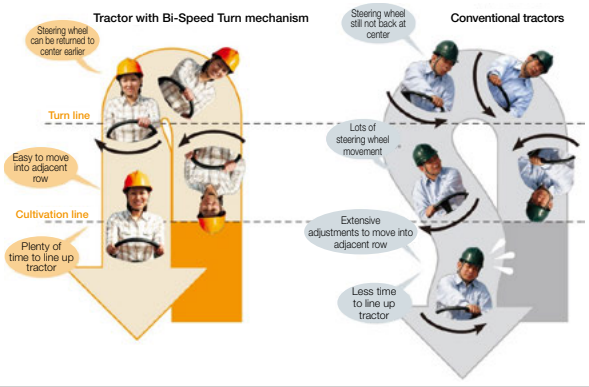
Monroe Matic is an automatic leveling control mechanism for tractor attachments that combines electronic control and hydraulic technologies. The mechanism allows farmers to level off fields and rice paddies in a single operation by preventing any slant in the tractor attachment, eliminating the consolidation of soil.

Labor saving | Energy saving | Soil cultivation

Bi-Speed Turn

When the steering wheel is turned sharply, Kubota's Bi-Speed Turn mechanism rotates the front wheels at around twice the speed of the rear wheels, resulting in a smoother, tighter turn that does not disturb the soil.

Reduced work | Energy saving | Soil cultivation



Microcomputer control

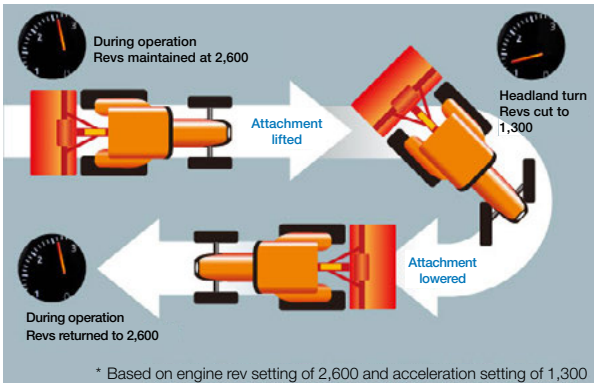
Kubota's microcomputer control systems enable automated control, allowing predetermined tillage depths and pulling power for tractor attachments and non-clutch operation of transmission systems.

Reduced work | Energy saving

e-Assist Turn

During turning, engine revs are automatically reduced by 50% when tractor attachments are lifted and automatically returned to normal levels when attachments are lowered. The system ensures safe and stable turning by giving operators more time, and also helps to save energy by controlling engine revs at appropriate levels.

Reduced work | Energy saving



e-Cruise

During light operation, engine revs are reduced while ensuring tractor speed is maintained at a predetermined level. e-Cruise can reduce fuel consumption by up to approximately 38%*. The reduction in engine revs also helps to lower noise in the surrounding area.

* Based on reduction of 800 engine revs versus rated level

Energy saving | Low noise

Expected effects		Area
Labor saving	Work can be completed with less effort	Easy to work for customers
Reduced work	Tractors can be operated by anybody	
Energy saving	Fuel consumption can be limited when work load declines or greater precision is needed	Environmental conservation
Soil cultivation	Encourages crop root growth and ensures water permeability and affinity to protect crops against drought, reducing the need for excessive use of chemical fertilizers and other agrochemicals.	
Low noise	Lower noise levels during operation	

(Phase 3) Introduced Precision Farming to Eliminate Inefficiencies in Operations and Reduce Environmental Loads

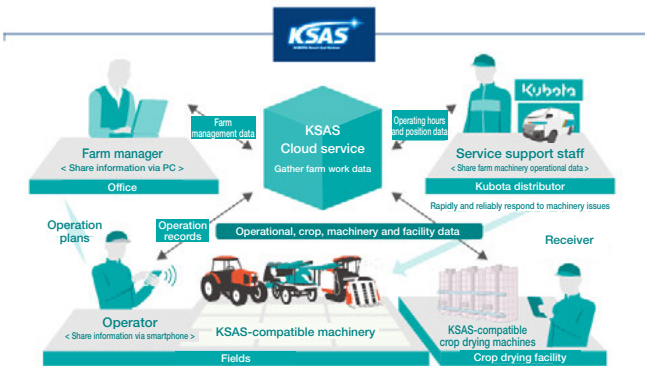
In 2014, Kubota started selling the Kubota Smart Agri System (KSAS), a farm management and service support system that uses ICT to link and integrate the operation of agricultural machinery. The system eliminates inefficiencies in operations and helps to reduce environmental loads through precision farming based on farm land, crop and other data.

Kubota Smart Agri System (KSAS)

KSAS visualizes farm management by integrating all types of information about farm land, crops and operations. The system can be accessed via smartphones and PCs. KSAS information can also be shared with compatible agricultural machinery.

Functions and environmental contribution of KSAS-compatible tractors

- Operational history automatically sent to KSAS. Farm work management based on operational history helps to prevent mistakes.
- Work according to the amount of fertilizer applied to each field set by KSAS. Prevents soil and water pollution caused by excessive application of fertilizer.
- Operating hours automatically sent to KSAS. Data is used to send appropriate maintenance information to customers, helping to prolong the life of tractors.



Click on the link below for more details about KSAS

https://ksas.kubota.co.jp/

* Japanese only

(Phase 4) Introduced Automation for Ultra-Labor Saving and Lower Environmental Loads

In 2017, Kubota started trial sales of the AGRIROBO tractor, which can operate autonomously under manned surveillance and is planning to launch on the market in 2020. To realize our vision for smart agriculture, we are improving integration between KSAS, autonomous tractors and other farm machinery to minimize the cost and environmental loads of farming.

Kubota Tractors – Auto-Steering and Autonomous Operation Functions

Auto-steering function

This function can automatically steer the tractor in straight lines or curves. Accuracy is high, with a margin of less than 10 cm in a straight line of 100 m. **High-precision operation can help to prevent wasteful fuel consumption.**

- Straight-line assist (GS: Go Straight) function: Automatic steering control for straight-line operation
- Auto-steering function: Automatic steering control for straight-line operation and curves

Straight-line test runs by GS-enabled Kubota GRANOVA Tractor (NB21GS)
Left picture shows results achieved with manual steering, right picture shows results with automatic steering, both by inexperienced operators. System also substantially reduces workload for experienced operators by maintaining straight-line accuracy

Autonomous operation function

This system allows machinery to be operated remotely under manual surveillance, with the operator starting or halting operations at any time. Precision GPS and autonomous operation technology enable highly accurate tilling and puddling work.
High-precision operation also has the potential to limit wasteful fuel consumption.

Test operation of one manned and one unmanned AGRIROBO tractor working in collaboration

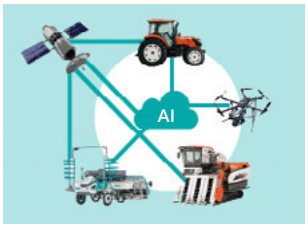
Improving Integration with Tractor Attachments and KSAS

Tractor attachment integration

We have been developing control technologies based on information shared between the tractor and its attachment, helping to optimize operating speeds, engine revolutions and other performance criteria during operation. **Selecting the best operating speed for each attachment can help to limit wasteful fuel consumption.**

KSAS integration

We are using KSAS to build an operational support system for autonomous farm machinery. Our system will enable unmanned operation based on optimal routes, simply by transmitting predetermined plans for fertilizing and other farm operations to the autonomous tractor. **Appropriate application of fertilizer based on those plans will prevent soil and water pollution, while optimal routing has the potential to limit wasteful fuel consumption.**
Our aim is to further enhance data sharing between farm machinery and related equipment using KSAS in order to increase automation and establish autonomous control, helping to minimize the cost and environmental loads of farming.



<SDGs related to this section>

Conserving Biodiversity

Our corporate activities rely on various ecosystem services, which are provided by natural capital comprising soil, air, water, animals and plants, and other elements. Meanwhile, biodiversity is facing various crises in areas around the world, and the Aichi Biodiversity Targets adopted in the SDGs (goals 14 and 15) and the CDB-COP10 (Tenth meeting of the Conference of the Parties to the Convention on Biological Diversity), require business operators to protect biodiversity and make sustainable use of ecosystem services.

The Kubota Group sees conserving biodiversity as one of its materiality. In its corporate activities, provision of products and services, and social contribution initiatives, in view of its impact on natural capital, the Group is endeavoring to ensure that care is taken to conserve biodiversity and protect the natural environment.

Approach to Conserving Biodiversity

The Kubota Group has set Conserving Biodiversity as one of its five basic items for environmental conservation. In December 2009, we incorporated corporate activities that consider biodiversity into the Kubota Group Environmental Action Guidelines. Then, in our ECO FIRST Commitment submitted to the Japanese Minister of the Environment in 2010, we also included a commitment to promoting activities for conserving biodiversity.

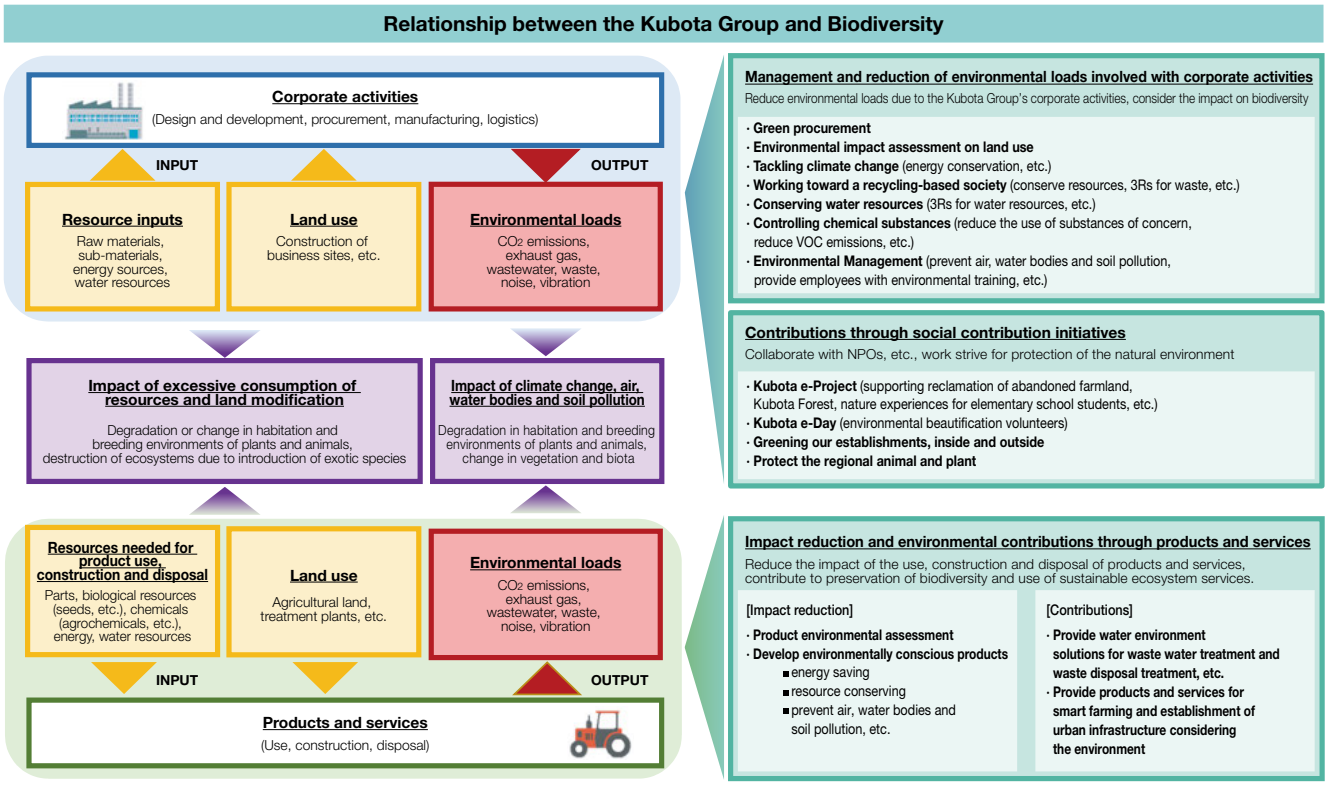
Approach to Conserving Biodiversity

The Kubota Group has included Conserving Biodiversity as one of its five basic items for environmental conservation. In its corporate activities, provision of products and services, and social contribution initiatives, in view of its impact on natural capital, the Group will endeavor to ensure that care is taken to conserve biodiversity and protect the natural environment.

[Major Initiatives]

1. Corporate activities
   1) At the design and development stage, we conduct product environmental assessments to evaluate the impact on natural capital.
   2) At the procurement stage, we present our Green Procurement Guidelines to our suppliers and require them to give consideration for biodiversity.
   3) At the production and logistics stages, we strive to reduce the environmental loads and environmental risks associated with operations at our sites and transport of materials.
   4) As part of our environmental management, we conduct environmental education and awareness-raising for employees to foster their recognition of the value of biodiversity and the importance of conservation activities.
   5) Our environmental communication initiatives include efforts to disseminate information about our biodiversity conservation activities.
2. Provision of products and services
   1) By providing products and services with less environmental loads through fuel efficiency and exhaust gas purification, for example, we are striving to lessen our impact on biodiversity.
   2) By providing water environment solutions such as wastewater treatment and waste treatment, we contribute to improving the ecosystems and nurturing environment for plants and animals.
   3) By providing products and services that contribute to urban infrastructure development that considers smart agriculture and the environment, we contribute to sustainable use of ecosystem services.
3. Social contribution activities
   1) Through our social contribution activity the Kubota e-Project supporting reclamation of abandoned farmland and conservation activities in rural and forest areas, we are promoting protection of the natural environment.
   2) We are promoting the beautification and greening of business sites and neighborhoods as well as protection of plants and animals.

Relationship with Biodiversity



Biodiversity Protection Activity Case Study

Supporting Verification Projects Using a Farming Tractor to Develop Rural Natural Areas and Forests

Wild bamboo groves are spreading, mainly in rural areas in western Japan due to an increase in abandoned farmland and reduction of use and utilization of the undeveloped woodlands near human habitats. Wild bamboo groves not only prevent effective use of land, they become homes to wild birds and animals such as wild boars, raising the risk of damage such as fields being trampled, and seeds or crops being eaten.

The Kubota Group donated a farming tractor to the Gifu Prefectural Consortium for Forest Technology Development and Promotion in 2018 to support the consortium's "Using a Farming Tractor in the Forestry Sector Verification Project." The consortium lent the donated tractor to Minokamo City, Gifu Prefecture, which is using it to verify the effectiveness of carrying bamboo and woods from a project site to develop rural natural areas and forests.

Three reviews were held during 2018 and the tractor was found to have a certain level of effectiveness in carrying bamboo out of areas where the land formation made use of conventional heavy machinery for forestry difficult. Meanwhile, challenges were made clear, such as drivability within the forest work sites and the efficiency of carrying the woods.

Expectations are that this project will promote community participation development of rural natural areas and forests using farming tractors.

[Case study verifying tractor use]


Clearing bamboo on a slope


Carrying trees in a confined grove

Initiatives Taken at Business Sites

Kverneland Group Soest Sets Up Insect Hotel on Plant Site

Kverneland Group Soest GmbH (Germany) has planted flowers and installed an insect hotel on the grounds of its plant.

The Soest plant conducts numerous awareness-raising events during Environment Month in June every year, including planting vegetation and urging employees to ride a bicycle to work. After learning of a report that the number of insects and bees had declined in recent years due to climate change, the plant turned its focus onto activities for preserving ecosystems in 2018. Employees planted wildflowers growing in the surrounding area on the grounds of the plant and set up an insect hotel where bugs or bees could live, using waste materials such as wood, pine cones and bamboo. With the onset of spring, insects will become more active, so employees are eager to see the bugs use the insect hotel.

The Soest plant will continue endeavoring to raise employee awareness of environmental preservation through activities undertaken during Environment Month.

The insect hotel set up on the grounds of the plant

Kverneland Group Manufacturing Lipetsk Conducts Cleaning and Tree-Planting in Green Tract Park

Kverneland Group Manufacturing Lipetsk (Russia) cleaned up trash and planted trees in a green tract park located adjacent to its plant as one aspect of its Environment Month activities in June 2018. The green tract park was not being used appropriately, becoming a dumping ground for lifestyle waste such as plastic bottles, and there were fears that this may lead to an adverse impact on a pond and creatures in the area's ecosystems.

A team of nine, comprising employees and their family members, cleaned up the entire green tract park, concentrating on its pond and surrounding areas. Later, they planted about 20 trees in the park. Employees will continue their cleaning and watch over the growth of the saplings that were planted.

The Lipetsk plant is also conducting other cleaning activities in the surrounding region, engaging in environmental preservation activities in close cooperation with the local community.

Conducting the cleanup

<SDGs related to this section>

Environmental Management

The Kubota Group has systematically established its environmental management systems in order to facilitate business operation throughout the entire value chain including business sites and operational divisions based on the Kubota Global Identity and the Environmental Charter. The Group also promotes environmental management that is appropriate for the type of business activities of the site/operational division. Production sites, in particular, are associated with large environmental loads related to energy and waste, as well as the risks of air pollution and water contamination. In order to properly address such risks, the Group has established environmental management systems based on ISO 14001 and EMAS, and is endeavoring to promote business management in accordance with the required rules and the continuous improvement of environmental conservation activities.

Compliance with Environmental Laws and Regulations

To ensure compliance with environmental laws and regulations and prevent environmental accidents, the Kubota Group conducts its business in accordance with the rules and regulations it has formulated in relation to environmental conservation.

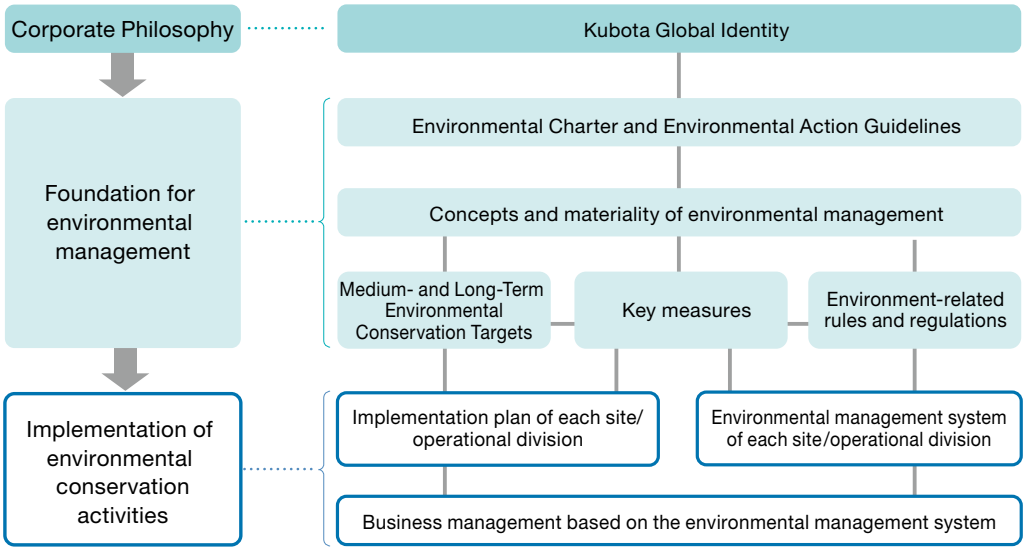
For exhaust gas, wastewater, noise, vibration and other variables, the Group has set and thoroughly manages its own control values at each production site, which are stricter than the corresponding laws and regulations, and has also established a system to promptly report any instances of non-compliance or complaints relating to environmental laws and regulations to relevant government bodies and the head office.

Each year, the Kubota Group also conducts environmental audits to confirm that the environmental conservation systems and activities are properly implemented at each site, as well as environmental risk assessments to clarify the status of environmental risks and establish improvements, with the aim of preventing the violation of environmental laws/regulations and environmental accidents.

Despite these efforts, however, in RY2018 in Japan we had two cases in which wastewater control value was exceeded; one case in which the Air Pollution Control Act report was not properly submitted; three cases of inadequate procedures on industrial waste disposal consignment; and one case of the loss of PCB waste liquid. Outside Japan, there was one case of inadequate industrial waste labeling. We implemented measures to prevent any impact on the ambient environment and are working to prevent recurrence. A fine was assessed for the case outside Japan involving inadequate labeling of industrial waste.

The Kubota Group's Environmental Management System

The diagram below shows the structure of the environmental management system of the Kubota Group.



Environment-related Rules and Regulations

The Kubota Group has formulated environment-related rules and regulations based on its internal control system, targeting Kubota Corporation, all of its consolidated subsidiaries and a part of its affiliated companies accounted for under the equity method that are highly significant in its environmental management.

The rules and regulations are classified as follows:

- "Environmental Conservation Regulations," specifying the basic matters for business management related to environmental conservation
  - Operation procedures specifying practical operations for business management related to environmental conservation
- "Environmental Conservation Rules," specifying the matters that should be handled by the Kubota Environmental Protection Department (department in charge)
  - Risk management procedures specifying practical operations for risk management related to environmental conservation

These rules and regulations are reviewed every year, according to the business environment and revisions of laws and regulations. The latest version of these rules and regulations are available on the Group portal site, allowing employees around the world to refer to them.

Environmental Auditing

Each year, the Kubota Environmental Protection Department conducts an environmental audit that incorporates a document audit targeting all production sites, service sites, offices, and construction and maintenance management departments in Japan, as well as overseas group production sites.

Moreover, in addition to the environmental audit by the Environmental Protection Department, annual internal environmental audits are conducted at production sites. Through these means, and by taking the initiative to self-check the status of environmental management, every effort is being made to further improve management levels.

RY2018 Environmental Audit Implementation Status

- Number of departments: 268
- Number of audit items: 20 (for maintenance and management departments) up to 50 (for service sites)
  * Details are as shown in the table below.
- Audit details: Water and air quality management, noise and vibration management, waste discharge and chemical substance management, climate change prevention, response to abnormalities and emergencies, and environmental management system

Environmental audit at KUBOTA Engine (Thailand) Co., Ltd. (Thailand)

Environmental Audit Implementation Status

		Production sites	Offices	Service sites		Construction departments	Maintenance management departments*2
				Agricultural machinery distributors	Other		
Group companies in Japan	Number of sites audited	23	70	13 companies*1	90	45	9
	Number of audit items	45	38	49	50	35	20
Overseas group companies	Number of sites audited	18	–	–	–	–	–
	Number of audit items	35					

*1 For agricultural machinery distributors, the audit was conducted on a company basis instead of on a site basis.
*2 Departments engaged in the business of operation or maintenance of environmental plants

Environmental Risk Assessment

Each year, detailed environmental risk assessments are conducted to evaluate the use of hazardous substances and the functions of environment-related equipment with the aim of clarifying the status of environmental risk at each production site and establishing systematic improvements.

The Kubota Group is proactively working to reveal possible environmental risks and further reduce risks by conducting environmental audits and environmental risk assessments—two activities with differing perspectives—in parallel.

RY2018 Environmental Risk Assessment Implementation Status

- Number of subject sites and departments: 37 (25 production sites in Japan, 12 overseas production sites)
- Number of audit items: 252 items (146 water quality, 106 air quality)
- Assessment targets: Water quality-related equipment, air quality-related equipment

Environmental Patrols

At each site, environmental patrols are carried out to meticulously assess the entire site and confirm the absence or presence of conditions that may lead to environmental accidents or violations of environmental laws and regulations. The Kubota Group aims to reduce environmental risks by conducting environmental patrols and finding situations that may cause any abnormalities at an early stage.

Environmental patrol
Kubota Construction Machinery (Wuxi) Co., Ltd. (China)

Drills for Responding to Abnormal and Emergency Situations

The Kubota Group is working to identify and minimize environmental risks associated with its business activities through risk-specific response procedures.

We are also conducting drills each year based on response procedures that assume the outbreak of environmental accidents or situations that could arise in environmental accidents, in order to mitigate the impact on the ambient environment.

Emergency response drill simulating the leakage of chemical substances
Kubota Baumaschinen GmbH (Germany)

Emergency response drill simulating the leakage of chemical substances
Kubota Manufacturing of America Corporation (U.S.)

On-site Investigations of Waste Treatment Contractors and Purchasers of Valuable Resources

In order to promote the proper treatment of waste and other materials including valuable resources at its operating sites in Japan, the Kubota Group is increasingly employing the services of top-rated certified operators. At the same time, the Group is conducting on-site investigations of industrial and other recyclable waste treatment contractors as well as purchasers of valuable resources.

As far as industrial waste where there are large numbers of treatment contractors, the Kubota Group has introduced its own on-site investigation appointing system that is run by its production sites, offices, sales companies, and other companies. In those cases where multiple sites including production sites use the same contractor for the treatment of waste, the officer responsible for the treatment of waste at the production site takes responsibility for the investigation. In this manner, successful steps are being taken to increase the effectiveness of investigations.

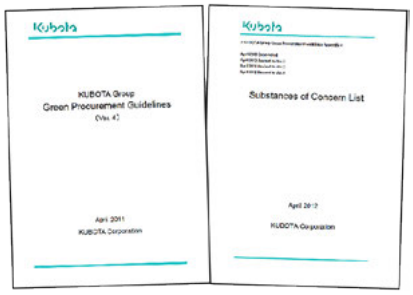
Green Procurement

Green Procurement Guidelines

For the purpose of providing products that are friendly to global and local environments, the Kubota Group is seeking to procure products with reduced environmental impact from ecofriendly suppliers.

In order to proactively promote these activities, the Kubota Group presents its policies on green procurement to suppliers through the Group's Green Procurement Guidelines, asking for their understanding and cooperation.

For details on the Kubota Group's Green Procurement Guidelines, click here
www.kubota.com/company/environment/procure/



The Kubota Group's Green Procurement Guidelines and Appendix [Substances of Concern List] (Published in Japanese, English and Chinese)

Award System for Green Procurement

The Green Supplier Award System was launched in 2015 to award suppliers recognized as having made notable contributions in the area of environmental conservation, such as the supplies (materials, components, equipment, etc.) procured by the Kubota Group. The awards are presented every year.

In accordance with the Kubota Group's Green Procurement Guidelines, this award system quantitatively evaluates goods supplied to Kubota and environmental conservation activities engaged in by suppliers from the perspective of resources and energy-saving and awards notably excellent examples.

In 2018, of the 123 environmental conservation activities, 11 activities with particularly high achievements were awarded, one of which received the Excellent Prize.

This system had been in place for suppliers in Japan, but in 2018 we started expanding it globally. We will continue to utilize the system and carry out activities in the name of green procurement and promote environmental conservation initiatives hand-in-hand with our suppliers.

Awarding ceremony (January 2019)

Supplier Management

The Kubota Group promotes measures to protect the environment, working closely with suppliers who support our environmental management.

Practice Report

In China, a push for stronger environmental regulations has triggered increased fines due to regulatory violations. At Kubota Agricultural Machinery (Suzhou) Co., Ltd. (KAMS) (China), in addition to its own thorough compliance with environmental laws, KAMS conducts "environmental patrols" to verify supplier compliance with environmental laws, with the goal of minimizing supply stoppages for procured components. For suppliers involved in casting, coating, welding and those with heat treatment processes, all of which carry significant risk of environmental law violations, KAMS completed patrols of its suppliers in these areas by 2018.

For environmental patrols, KAMS' procurement and environmental divisions join forces to visit suppliers to conduct inspections based on their own unique checklist. Patrol results are then sent later to suppliers, along with a request to take recommended steps for addressing any points for improvement found. For new suppliers, patrols are carried out prior to their approval, with only those verified as legally compliant selected as new suppliers.

KAMS will continue its cooperation with suppliers to ensure thorough compliance with environmental laws, as it tightens its focus going forward on environmentally sound production activities.

Environmental patrol at a supplier

Kubota Agricultural Machinery (SUZHOU) Co., Ltd.
Purchasing Department, Planning Section
Dai Shaohong (left)
Production Engineering Department,
Environmental Management Section
Bi Ya (right)

Environmental Education and Enlightenment

Results of Environmental Education in RY2018

The Kubota Group offers environmental education programs to raise awareness among its employees. The education program for employees consists of rank-based training, professional training, and general training. The Group also assists external group's environmental education programs.

Classification	Course title	Frequency	No. of participants	Course descriptions
Education by employee-level	Training for new employees	2	146	Global and local environmental issues and Kubota's environmental conservation activities
	Kubota introductory course	1	9	Global and local environmental issues and Kubota's environmental conservation activities
	Training for newly appointed supervisors	2	37	Kubota's environmental management and efforts as supervisors
	Training for newly appointed foremen	1	15	Kubota's environmental management and efforts as foremen
	The Safety, Environment and Quality Forum for executive management	1	380	A lecture on "safety, the environment and quality as the foundation of corporate activities and the very essence of management" by Noboru Furusawa, representative of the Supporting organization of safety and human resource development.
Professional education	Basics of environmental management	1	11	Basic knowledge of legal systems, environmental risk, and environmental conservation
	Waste management	2	44	Waste Management and Public Cleansing Law, practical training in consignment contracts and manifests, etc.
	Environment-related facility management	1	6	Pollution control technologies and pollution control laws
	Education to train ISO 14001 environmental auditors	1	32	The ISO 14001 standard, environment-related laws, audit techniques
General training	Environmental education for sites in Japan	2	80	Kubota's environmental management initiatives
Total		14	760	

Supporting education in outside organizations	"Environment-friendly Plant Tour (for elementary school and kindergarten children)" hosted by Utsunomiya City	1	55	Environmental education and tour of the Utsunomiya Plant facilities

Basics of environmental management training
(Participants: personnel in charge of environmental management at business sites)

Environment Month Report

Raising the Environmental Awareness of Employees and Family Members through the Kubota Eco Challenge

The Kubota Group designates June of each year as "Environment Month" and promotes various programs to raise awareness among its employees. As part of this program, the Group hosts the "Kubota Eco Challenge," an environmental photo contest that encourages Group employees and their families worldwide to submit photos of their eco-friendly activities at work or at home.

The eco-friendly activities captured varied widely, with themes including energy and resource conservation, recycling, regreening, and environmental volunteerism. For the contest in 2018, a total of 547 photos were submitted from locations around the world and posted to the Kubota Group intranet. Sharing photos globally is a valuable opportunity for participants to learn about eco-friendly activities in countries and at business sites with which they normally have little contact. Exposure to activities at other sites can also inspire one's own actions, leading to more dynamic environmental efforts all around.

The Kubota Group will continue hosting this contest both to enhance environmental awareness at work and at home among Group employees, and to facilitate their efforts to implement eco-friendly activities.


Carrying a personal water bottle (Thailand)


Planting trees on production site grounds (India)


"Green curtain" installation (Japan)

Environmental Achievement Awards

During the Environment Month in June every year, the Kubota Group presents the Environmental Achievement Awards to commend individuals and groups that have made notable contributions to environmental conservation, as well as to boost the Group's employees' environmental conservation awareness and activate their environmental activities.

In 2018, environmental conservation activities were evaluated targeting the three segments of production sites, non-production sites, and product development. As a result, 22 cases were awarded for their achievements in energy saving, waste reduction, VOC reduction, reducing environmental risks, development of environment-friendly products, and so on. One case was awarded as the Excellent Prize.

We will continue to award excellent initiatives that contribute to regional or global environmental conservation, and encourage sharing of the details of such initiatives within the Group, with the aim of further activating environmental conservation activities.

Environmental Achievement Award Excellent Prize in 2018

Scope	Company, department	Theme
Production sites	SIAM KUBOTA Corporation Co., Ltd. Amata Nakorn Plant (Thailand)	Reduction in use of volatile organic compounds (VOCs) through improvement in the coating process

Environmental Achievement Awards in 2018

Scope	Classification, No. of winners	Scope	Classification, No. of winners
Production sites	Excellent Prize: 1, Encouragement Award: 10, Good Effort Award: 3	Product development	Encouragement Award: 5
Non-production sites	Encouragement Award: 3		

<SDGs related to this section>

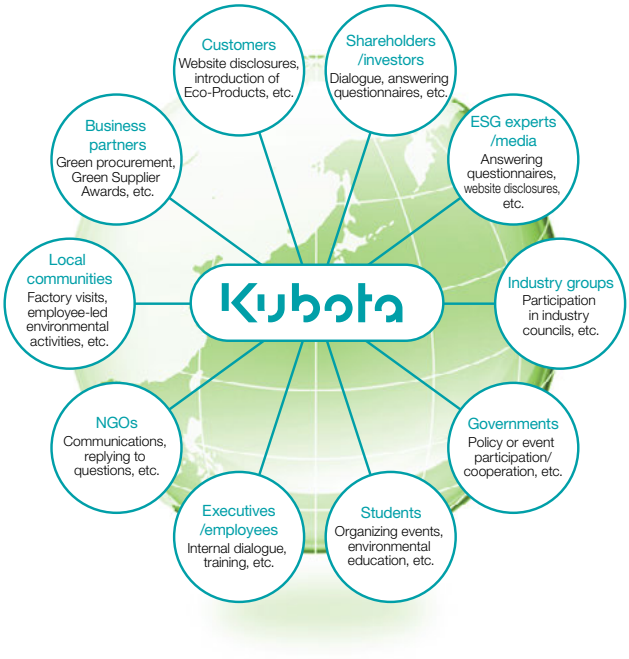
Environmental Communication

Since it published its first Environmental Report in RY1999, the Kubota Group has continued to disclose its environmental information. Along with the globalization of its businesses, the Group has enhanced the contents of the environmental information it discloses, to allow the Group's global initiatives to be understood. To expand and improve disclosures further, the Group will continue disclosing information in line with international standards such as the environmental reporting guidelines by the Japanese Ministry of the Environment, the GRI standards and the recommendations of TCFD.

Each business site also works to enhance understanding of the environmental conservation activities by the local residents and family members of employees by participating in local environmental conservation activities and other environmental communication activities, such as environmental education and protection of the natural environment, for the purpose of achieving symbiosis with local communities.

Environmental Communication Activities

To practice environmental management globally, the Kubota Group is committed to deepening mutual understanding via dialogue with various stakeholders. The opinions and feedback gained from dialogue are used to improve Group environmental management practices with the aim of meeting social expectations and addressing societal issues.



Cooperation with Environment-related Industry Groups and Governments

The Kubota Group believes that in promoting environmental conservation, it is important to promote environmental conservation initiatives not only within its Group but also in cooperation with various sectors, such as the national or local government and relevant industry groups. Through participating in programs and campaigns hosted by government organs and establishing partnerships with various organizations, the Group aims to create synergy and conduct more effective environmental conservation activities.

Participating in Systems, Verification Programs, Campaigns by the National Government

In May 2010, the Kubota Group was certified by the Japanese Minister of the Environment as an "Eco-First Company," and has been a member of the Eco-First Promotion Council since then. Through the Council, the Group submits proposals to or exchanges opinions with the Ministry of the Environment, supports Eco-First companies promoting environmental conservation activities and enhancing cooperation between companies, and engages in activities to raise the environmental awareness of the public. The Group also participates in the "Fun to Share" campaign by the Ministry of the Environment to tackle climate change toward the realization of a low-carbon society, the "Cool Choice" national movement to encourage smart choices contributing to measures against global warming, and the Water Project to raise awareness concerning water circulation and conservation of the water environment. Moreover, the Group also participates in the Environmental Reporting Platform Development Pilot Project to promote ESG dialogues between investors and companies.

Participating in Industry Groups

The Kubota Group is a member of various environment-related committees in the Kansai Economic Federation and other industry groups it is participating in. The committee activities help deepen understanding of the roles that companies should play in addressing environmental issues such as climate change, while providing opportunities to share information and exchange opinions on energy and environmental policies. In addition, the Group actively participates in initiatives to promote global environmental conservation.

●Major participating groups

Industry groups: Japan Business Federation, Kansai Economic Federation, Japan Society of Industrial Machinery Manufacturers, etc.
Environmental initiatives: Japan Climate Initiative

Dialogue and Collaboration with Local Governments

The Kubota Group proactively participates in various committees of Osaka City and other local governments and their related groups, and works to establish partnerships with them. The Group promotes industry-government-academia collaboration through participating in discussions and opinion exchange on environmental issues, and various activities.

●Major collaborating groups/partners

Gifu Prefecture "Consortium for Forest Technology Development and Promotion," Osaka City "Environmental Management Promotion Council," sponsored flowerbeds in front of the Kyuhoji Green Space in Osaka Prefecture, the "Carrying Water Project" by Ono City, Fukui Prefecture, and so on.

Environment-related External Evaluation

Kubota Given "A-" Grade in CDP Climate Change 2018 and CDP Water Security 2018 Surveys

Kubota was awarded an "A-" grade for leadership in the CDP Climate Change 2018 survey on corporate responses to climate change and in the CDP Water Security 2018 survey on water resource management. The UK-based non-profit organization CDP* evaluates what companies are doing to address environmental issues based on the four levels of Leadership, Management, Awareness, and Disclosure. "A-" is the second highest of eight possible grades.

The Kubota Group will further contribute to society through its global business activities, seeing the response to climate change and conservation of water resources as one of its materiality.

CDP
DISCLOSURE INSIGHT ACTION

* Established in the UK in 2000, the CDP is a non-profit organization that works with institutional investors to encourage companies and cities to disclose their strategies and data related to climate change, water, and forests by providing institutional investors with research-based analytical results and environmental performance ratings.

Receiving Environmental Awards

Kubota Report 2018 (Full Version) Given Excellence Award in Environmental Reporting Category at 22nd Environmental Communication Awards

The Kubota Group's Business and CSR Report 2018 (Full Version) received the Excellence Award in the Environmental Reporting category at the 22nd Environmental Communication Awards co-sponsored by the Japanese Ministry of the Environment and the Global Environmental Forum.

By honoring excellence in environmental reporting, the Environmental Communication Awards aim to promote good environmental communications by people related to business operators and stimulate environment-related actions. Awards are given out in the two categories of Environmental Reporting and Environmental Management Reporting.

The receipt of the Excellence Award reflected various points such as the setting of long-term environmental conservation targets to 2030; the development of initiatives related to production and product development; the establishment of Kubota's internal Eco-Products rating system for eco-friendly products; and the promotion of environmental management on a global scale. The award motivates Kubota to maintain its commitment to active and proper disclosure.

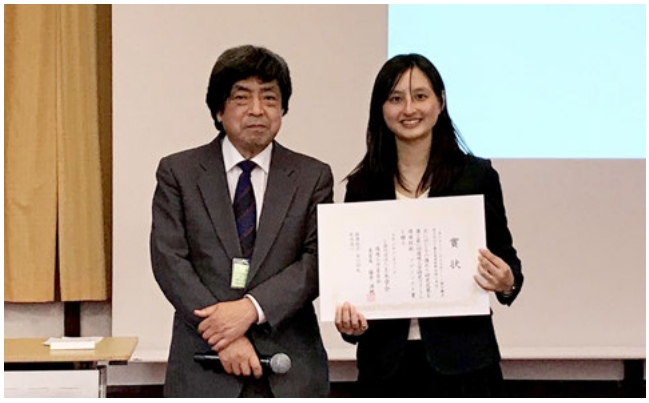
Presentation at the awards ceremony

Logo for Excellence Award received at Environmental Communication Awards

Kubota Environmental Engineering Department Received the Environmental Technology and Project Award

In December 2018, the 55th Environmental Engineering Forum sponsored by the Environmental Engineering Committee, Japan Society of Civil Engineering was held. General Manager Nakagawa, Mr. Shinya Nagae and Ms. Yuko Tsuzuki from Kubota's Environmental Engineering Department received the Environmental Technology and Project Award for their presentation on the practical application of an energy-efficient aeration control method for use with membrane bioreactor (MBR) technology. The award recognizes the best environmental technology from the Environmental Engineering Forum project sessions. Kubota has now received this award two years in a row.

The issue with aeration in the MBR process is the large amount of electricity required. Using MBR process data and expertise acquired over many years, Kubota has developed improved aeration feedback control technology and tested it in a commercial treatment setting. The tests showed an electricity saving of roughly 20% using the aeration control technology. The award encourages efforts by Kubota to expand the MBR business through further development of the technology.


55th Environmental Engineering Forum award ceremony


賞状

「省エネルギー化を目的とした膜分離活性汚泥法の曝気風量制御技術の実証」

右に対しその優れた研究成果を讃え第55回環境工学研究フォーラム環境技術・プロジェクト賞を贈る

平成三十年十二月十八日

公益社団法人土木学会
環境工学委員会
委員長 藤井 滋穂

都築佑子 永江信也
中河浩一

Environmental Technology and Project Award certificate

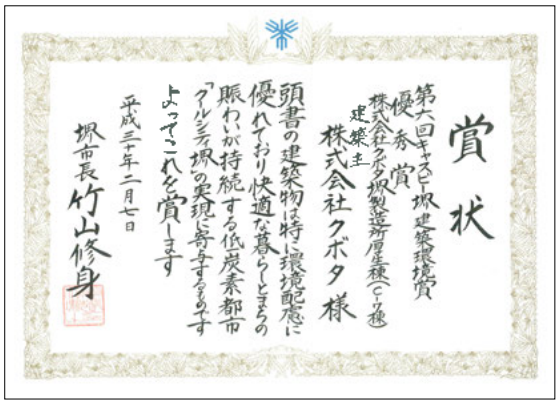
Excellence Award Received by Kubota Sakai Plant at 6th CASBEE Sakai Environmental Building Awards

The Kubota Sakai Plant received an Excellence Award at the 6th CASBEE Sakai Environmental Building Awards held in February 2018 by the city of Sakai in Osaka Prefecture, Japan.

The CASBEE Sakai* Environmental Building Awards are aimed at promoting environmentally friendly buildings and raising awareness to help make Sakai a low-carbon city as part of the “Cool City Sakai” concept. The awards recognize the efforts of eco-friendly building owners.

The Sakai Plant received the Excellence Award for two buildings housing research and welfare facilities. The research building features heat-reflective outer cladding; a comfortable internal environment that is bathed in natural light; and greenery plus solar panels installed on the rooftop. The welfare building features insulating panels and low-E multilayer glass on the outside to reduce heat stress, along with solar panels, while internally the building is fitted with an energy management system that can display energy consumption via the intranet. The award recognizes the broad range of eco-friendly technologies used in these buildings.

Kubota aims to gain the trust of local communities for its factories through such eco-friendly development initiatives.


賞状

第六回キャスビ堺建築環境賞
優秀賞
株式会社クボタ堺製造所尾崎工場（C-2棟）
建築主
株式会社クボタ 様

頭書の建築物は特に環境配慮に優れており快適な暮らしとまちの賑わいが持続する低炭素都市「アルシティ堺」の実現に寄与するものですよってここれを賞します

平成三十年二月七日
堺市長 竹山修身

Excellence Award certificate

* Comprehensive Assessment System for Built Environment Efficiency program applied to buildings in Sakai City

P.T. Kubota Indonesia Received the BLUE PROPER Award for the Eighth Time

P.T. Kubota Indonesia received the BLUE PROPER award for the eighth time from the environment minister of the Indonesian government for its corporate activities over a year from 2017 to 2018. PROPER (the Environmental Performance Rating Program) is a rating program of the Indonesian ministry of the environment, which assesses the companies’ status of compliance with the environmental regulations and the status of implementation of environmental measures, and discloses them to the public. The aim of this program is to raise companies’ awareness of environmental management, and encourage the implementation of activities for energy saving, conservation of biodiversity, and community development.

The BLUE PROPER award is given to companies that comply with 100% of the environmental regulations and properly operate the environmental management system. P.T. Kubota Indonesia will make continuous efforts to enhance environmental management.


KEMENTERIAN LINGKUNGAN HIDUP DAN KEHUTANAN
REPUBLIK INDONESIA
MENGANUGERAHKAN PENGHARGAAN
PROGRAM PENILAIAN PERINGKAT KINERJA PERUSAHAAN
DALAM PENGELOLAAN LINGKUNGAN HIDUP
PROPER
PERINGKAT
BIRU
KEPADA
PT. Kubota Indonesia
PERIODE 2017 - 2018

Certificate of Commendation for the BLUE PROPER Award

Kubota Environmental Engineering (Shanghai) Co., Ltd. Received the Green Award

Kubota Environmental Engineering (Shanghai) Co., Ltd. (KEES) (China) is helping to improve water environments in Chinese farming villages through the sale of septic tanks. KEES also markets submerged membranes for wastewater treatment plants.

At the 11th Chinese Environmental Industry Conference held in Beijing in April 2018, KEES received the Green Award for the third time in recognition of its achievements as a model manufacturer of membranes for use in wastewater treatment. KEES has previously been recognized as a leading firm in China in the wastewater treatment facility sector, as well as a model company for water treatment facilities and comprehensive services. Aiming to honor corporate innovation and excellence in the environment field, the award is judged by an evaluation committee composed of academic organizations, researchers, and specialized media.

KEES will help improve the water environment in China through business operations.

Green Award plaque

KBS Kubota Co., Ltd. Received Environmental Contribution Award

KBS Kubota Co., Ltd. was presented with the Environmental Contribution Award at the 2018 Logistics Awards that were held in October 2018 and sponsored by the Japan Institute of Logistics Systems.

Aimed at highlighting the social importance of logistics and boosting the motivation of people working in the sector, the Logistics Awards recognize corporate excellence in advanced logistics and related initiatives.

The award recognizes the work done by KBS Kubota in reducing the environmental loads of container logistics by developing ways to reliably reduce the CO_2 emissions associated with ICD*1-linked Container Round Use and the related transport of containers by shuttle. Rather than transporting empty shipping containers by truck on the outbound or return trips, the Round Use*2 concept promotes use of containers by firms operating in different sectors, with shuttles transporting containers between cargo owners, ICDs and seaports. The approach reduces total trucking distances and helps to ease congestion at ports. Using this approach, KBS Kubota demonstrated a reduction of about 1,500 t-CO_2 in 2017. Encouraged by this award, KBS Kubota plans to continue developing more efficient logistics.

*1 An Inland Container Depot (ICD) is a facility for handling and temporary storage of shipping containers
*2 'Round Use' involves re-using shipping containers used for imports for export cargos without returning them to a shipping firm's container yard


2018 Logistics Awards ceremony

Environmental Contribution Award certificate

Environmental Communication Report

Practice Report

Participation in World Cleanup Day in Indonesia

Volunteers from P.T. Kubota Indonesia (PTKI) (Indonesia) took part in World Cleanup Day activities held in Tambak Lorok near Semarang, the capital of Central Java Province, on September 15, 2018.

Started in the Baltic state of Estonia in 2008, World Cleanup Day is held annually on the same day across the world. At present, a total of about 17 million people in over 150 countries volunteer to participate in related events. In Indonesia, the country with the largest number of participants, about 7.7 million volunteers took part in 2018, including about 3 million people from Semarang and 34 other cities across Central Java Province.


Clean-up activities

Part of the rationale for PTKI to participate in World Cleanup Day activities in Tambak Lorok is to help educate employees about the importance of waste disposal. Tambak Lorok is an area where improper garbage disposal and illegal dumping of waste are key issues. The garbage collected on the day by cleaning up areas around schools and rivers was enough to fill six trucks.

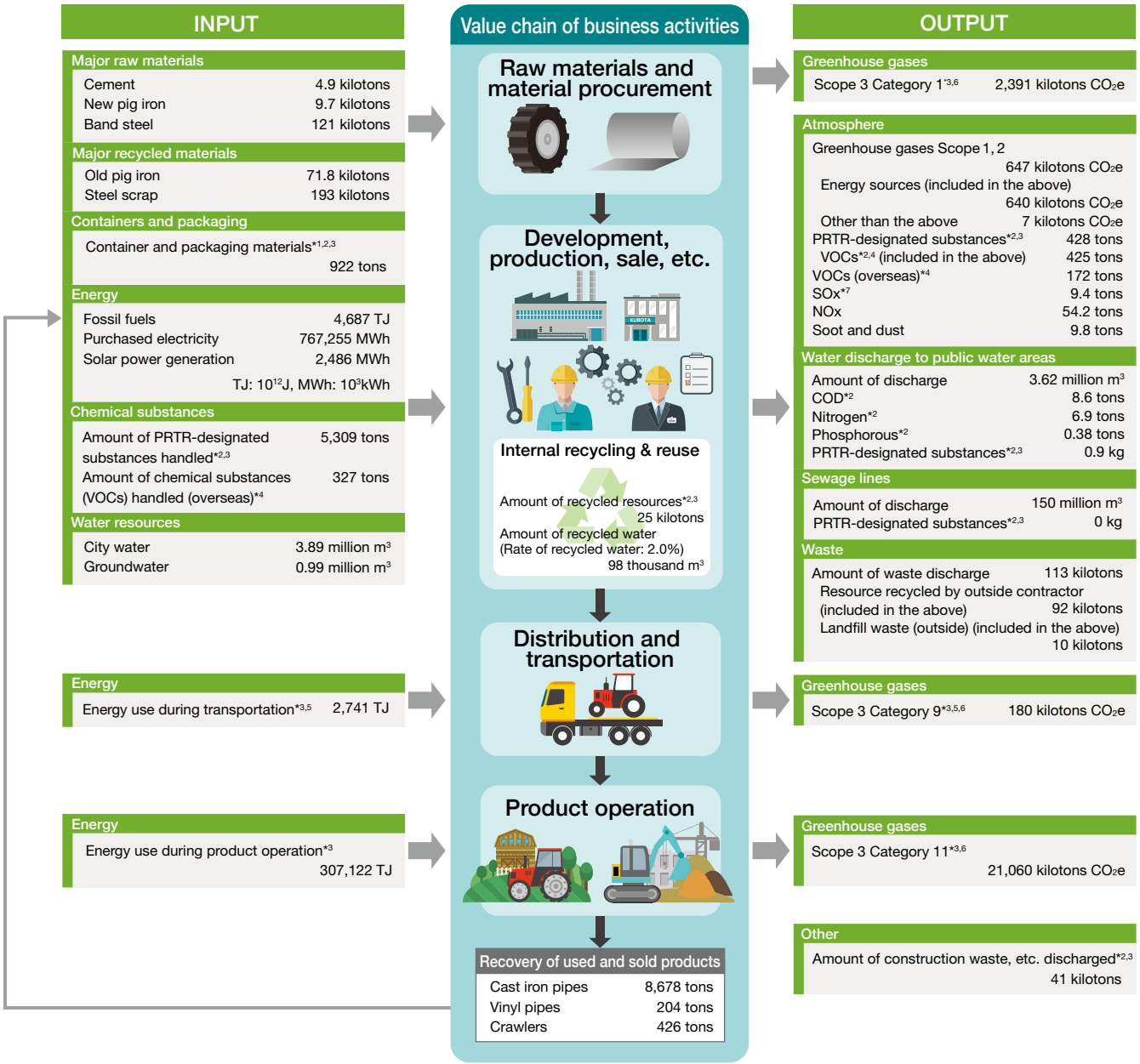
PTKI plans to continue promoting activities to support environmental conservation as part of raising environmental awareness among its employees.

Environmental Data

Overview of the Environmental Load on the Value Chain

This is an overall summary of the Kubota Group's environmental loads associated with its diverse business activities in Japan and overseas in RY2018. The results of the measurement of the overall environmental loads on the entire value chain, from the procurement of raw materials, to manufacturing, distribution, sales, consumption, and the recycling of waste are used for the reduction of greenhouse gas emissions and the effective utilization of resources.

Overview of the Environmental Loads on the Value Chain (Results in RY2018)



*1 Packaging materials subject to the Act on the Promotion of Sorted Collection and Recycling of Containers and Packaging
*2 Data for Japan
*3 Not subject to the third-party assurance
*4 VOCs (volatile organic compounds) comprise the six substances that are most prevalent in emissions from the Kubota Group: xylene, toluene, ethylbenzene, styrene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.
*5 Data for Japan and data associated with the overseas shipping of certain products from Japan
*6 For Greenhouse gases Scope 3, only part of the categories are presented. For more details, see the CO_2 Emissions throughout the Value Chain (p.42).
*7 If sulfur contained in the slag managed onsite at end of year (December 31, 2018) by some sites in Japan is included, SOx emissions for RY2018 amounted to 7.3 tons.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.93).

Trends in Major Environmental Indicators

Energy

Environmental indicators					Unit	RY2014	RY2015	RY2016	RY2017	RY2018
Energy	Within business sites	Energy consumption*1			TJ	12,006	11,450	11,295	11,602	12,234
			Fossil fuels		TJ	4,996	4,575	4,434	4,399	4,687
				Natural gas included in the above*2	TJ	2,104	1,980	2,056	2,267	2,501
			Purchased electricity		MWh	713,837	700,015	698,370	732,508	767,255
		Power generation	Cogeneration*2		MWh	2,524	1,715	1,977	416	1,805
			Solar power generation		MWh	210	1,285	1,801	1,928	2,486
	Energy use during transportation*2,3				TJ	591	634	606	643	2,741

CO_2 Emissions

Environmental indicators				Unit	RY2014	RY2015	RY2016	RY2017	RY2018
Greenhouse gases	Scope 1, 2			kilotons CO_2e	714	674	647	645	647
			Overseas included in the above	kilotons CO_2e	180	168	173	198	204
		Energy sources		kilotons CO_2e	706	666	639	638	640
		Other than the above		kilotons CO_2e	8	8	7	7	7
	Scope 3 Category 9 (Transportation of sold products)*2,4,5			kilotons CO_2e	41	44	42	44	180

Resources and Materials

Environmental indicators		Unit	RY2014	RY2015	RY2016	RY2017	RY2018
Major raw materials	Cement	kilotons	8.3	8.7	6.8	4.4	4.9
	New pig iron	kilotons	7.8	7.5	6.7	7.2	9.7
	Band steel	kilotons	108	99.6	106	132	121
Major recycled materials	Old pig iron	kilotons	62.5	62.9	58.6	64.0	71.8
	Steel scrap	kilotons	304	271	224	182	193
Containers and packaging	Container and packaging materials (Japan)*2,6	tons	—	—	—	988	922

Waste

Environmental indicators				Unit	RY2014	RY2015	RY2016	RY2017	RY2018
Waste, others	Amount of waste discharge			kilotons	113	116	106	108	113
			Overseas included in the above	kilotons	39	40	39	43	52
		Hazardous/non-hazardous waste	Hazardous waste*7	kilotons	—	—	—	6.0	5.3
			Non-hazardous waste*8	kilotons	—	—	—	102	108
		By treatment category	Resource recycled by outside contractor	kilotons	91	93	85	88	92
			External landfill waste	kilotons	10	12	11	9	10
	Amount of construction waste, etc. discharged (Japan)*2			kilotons	36	44	54	46	41

*1 Conventionally, energy use during transportation (Japan) was included in total energy consumption. But starting from RY2017, it is not retrospectively included.
*2 Not subject to the third-party assurance
*3 In addition to the data for Japan, energy use associated with the overseas shipping of certain products from Japan has been included from RY2018.
*4 For Greenhouse gases Scope 3, only part of the categories are presented. For more details, see the CO_2 Emissions throughout the Value Chain (p.42).
*5 In addition to the data for Japan, CO_2 emissions associated with the overseas shipping of certain products from Japan has been included from RY2018.
*6 Packaging materials subject to the Act on the Promotion of Sorted Collection and Recycling of Containers and Packaging.
*7 Industrial waste subject to special control as defined in the Waste Disposal and Cleaning Act in Japan, and industrial waste as defined in each country overseas
*8 Non-hazardous waste = Amount of waste discharge - Amount of hazardous waste

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.93).

Water resources

Environmental indicators			Unit	RY2014	RY2015	RY2016	RY2017	RY2018
Water resources	Water consumption		million m^3	4.87	5.05	4.86	4.51	4.88
		Overseas included in the above	million m^3	1.05	1.23	1.20	1.07	1.10
	City water*1		million m^3	3.87	4.08	3.99	3.60	3.89
	Groundwater		million m^3	1.00	0.97	0.87	0.91	0.99

Water system discharge

Environmental indicators		Unit	RY2014	RY2015	RY2016	RY2017	RY2018
Water discharge to public water areas	Wastewater discharge	million m^3	3.74	3.82	3.71	3.26	3.62
	COD (Japan)*2	tons	9.8	9.9	10.1	7.7	8.6
	Nitrogen discharge (Japan)*2	tons	9.0	9.6	9.2	9.1	6.9
	Phosphorous discharge (Japan)*2	tons	0.37	0.35	0.36	0.27	0.38
	Amount of PRTR-designated substances released (Japan)*3	kg	0	0	0	0.8	0.9
Sewage lines	Wastewater discharge	million m^3	1.52	1.58	1.54	1.42	1.50
	Amount of PRTR-designated substances transferred (Japan)*3	kg	34	23	22	17	0

Chemical Substances

Environmental indicators		Unit	RY2014	RY2015	RY2016	RY2017	RY2018
Chemical substances	Amount of PRTR-designated substances handled (Japan)*3	tons	6,433	5,143	4,875	4,457	5,309
	Amount of chemical substances (VOCs) handled (overseas)*4	tons	386	359	350	324	327

Atmospheric Discharge

Environmental indicators			Unit	RY2014	RY2015	RY2016	RY2017	RY2018
Atmosphere	Amount of PRTR-designated substances released (Japan)*3		tons	537	543	463	423	428
	VOC emissions*4		tons	786	798	703	641	597
		Overseas included in the above*4	tons	253	260	243	221	172
	SOx emissions*5		tons	55.1	24.7	31.5	17.5	9.4
	NOx emissions		tons	82.1	76.2	94.2	68.8	54.2
	Soot and dust emissions		tons	11.1	15.1	26.5	21.9	9.8

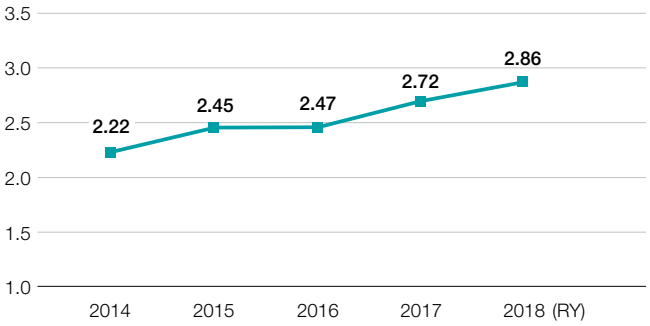
*1 City water includes service water and water for industrial use.
*2 Data for total discharge from business sites subject to total emission control.
*3 Not subject to the third-party assurance
*4 VOCs (volatile organic compounds) comprise the six substances that are most prevalent in emissions from the Kubota Group: xylene, toluene, ethylbenzene, styrene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.
*5 If sulfur contained in the slag managed onsite at end of year (December 31, 2018) by some sites in Japan is included, SOx emissions for RY2018 amounted to 7.3 tons.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.93).

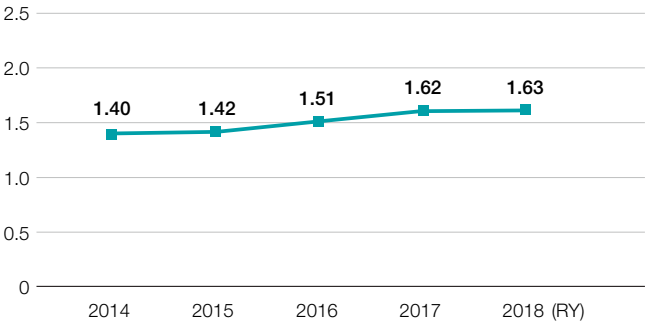
Eco-efficiency

Eco-efficiency was improved in CO_2, waste and VOC. These improvements in figures mean that the sales per unit of environmental loads have increased, which indicates higher eco-efficiency.

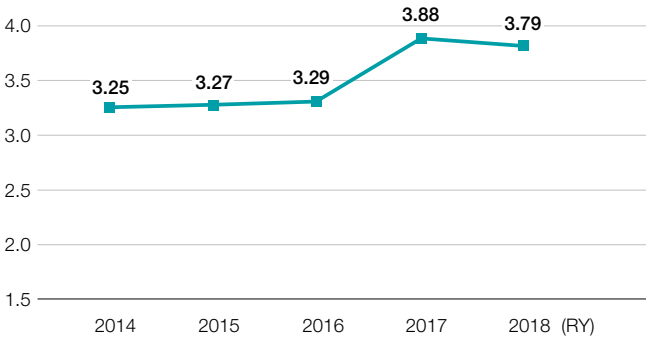
CO_2 Eco-efficiency*1



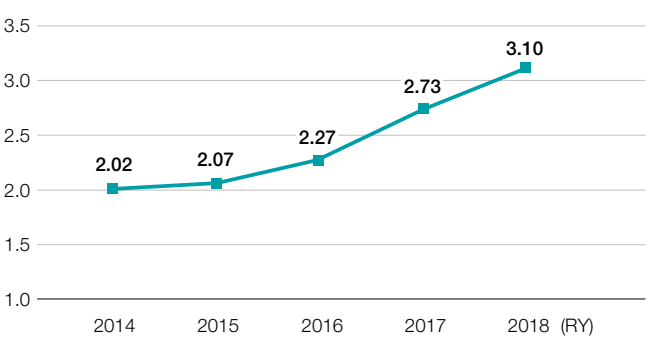
Waste Eco-efficiency*2



Water Eco-efficiency*3



VOC Eco-efficiency*4



*1 CO_2 Eco-efficiency = Consolidated net sales (million yen) / CO_2 emissions (tons CO_2e)
*2 Waste Eco-efficiency = Consolidated net sales (million yen) / Waste discharge (tons) /10
*3 Water Eco-efficiency = Consolidated net sales (million yen) / Water consumption (m^3) × 10
*4 VOC Eco-efficiency = Consolidated net sales (million yen) / VOC emissions (kg)

* The Kubota Group adopted International Financial Reporting Standards (IFRS) instead of accounting principles generally accepted in the United States of America from RY2018.

Calculation Results of PRTR-designated Substances

RY2018 Results of PRTR Reporting (Japan)

Number specified in PRTR	Chemical substance	Releases				Transfers	
		Atmosphere	Public water areas	Soil	On-site landfills	Sewerage	Transfers to off-site
1	Zinc compounds (water-soluble)	0.0	0.0	0.0	0.0	0.0	849
53	Ethylbenzene	104,660	0.0	0.0	0.0	0.0	25,628
71	Ferric chloride	0.0	0.0	0.0	0.0	0.0	0.0
80	Xylene	177,386	0.0	0.0	0.0	0.0	36,293
87	Chromium and chromium (III) compounds	0.0	0.0	0.0	0.0	0.0	3,988
132	Cobalt and its compounds	0.0	0.0	0.0	0.0	0.0	2.2
239	Organic tin compounds	0.0	0.0	0.0	0.0	0.0	10
240	Styrene	29,071	0.0	0.0	0.0	0.0	0.0
277	Triethylamine	0.0	0.0	0.0	0.0	0.0	0.0
296	1,2,4-trimethylbenzene	14,463	0.0	0.0	0.0	0.0	4,340
297	1,3,5-trimethylbenzene	2,786	0.0	0.0	0.0	0.0	478
300	Toluene	96,447	0.0	0.0	0.0	0.0	15,911
302	Naphthalene	2,536	0.0	0.0	0.0	0.0	0.0
305	Lead compounds	8.6	0.90	0.0	0.0	0.06	6,668
308	Nickel	0.8	0.0	0.0	0.0	0.0	315
349	Phenol	0.0	0.0	0.0	0.0	0.0	0.0
352	Diallyl phthalate	102	0.0	0.0	0.0	0.0	0.0
354	Di-n-butyl phthalate	1.6	0.0	0.0	0.0	0.0	139
392	N-hexane	32	0.0	0.0	0.0	0.0	0.0
400	Benzene	2.2	0.0	0.0	0.0	0.0	0.0
405	Boron compounds	0.0	0.0	0.0	0.0	0.0	1,595
412	Manganese and its compounds	0.0	0.0	0.0	0.0	0.0	73,751
419	N-butyl methacrylate	55	0.0	0.0	0.0	0.0	24
448	Methylenebis (4,1-phenylene) diisocyanate	0.0	0.0	0.0	0.0	0.0	0.0
453	Molybdenum and its compounds	0.0	0.0	0.0	0.0	0.0	0.0
Total		427,552	0.90	0.0	0.0	0.06	169,993

Scope: Total of substances with annual handling volume of one ton or more (0.5 ton or more for Specific Class 1 Designations) at each business site
Unit: kg/year

Six VOCs substances targeted for reduction in Medium-Term Environmental Conservation Targets 2020

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.93).

Environmental Accounting

The Kubota Group performs environmental accounting and publicizes data about the cost of investments in environmental conservation and the economic and environmental benefits of these investments.

Environmental Conservation Costs

(Yen in millions)

Classifications		Major activities	RY2017		RY2018	
			Investment	Expenses	Investment	Expenses
Within the business area cost			1,444	2,395	1,319	2,508
	Local environmental conservation cost	Prevention of air and water pollution, soil contamination, noise, vibration, etc.	130	373	200	425
	Global environmental conservation cost	Prevention of climate change, etc.	1,276	798	1,107	938
	Resource recycling cost	Minimizing waste production, reducing quantity of waste, and recycling	38	1,224	12	1,145
Upstream and downstream costs		Collection of used products and commercialization of recycled products	0	24	0	31
Management activities cost		Environmental management personnel, ISO maintenance and implementation, environmental information dissemination	6.6	1,455	2	1,599
R&D cost		R&D for reducing of product environmental load and developing environment conservation equipment	509	6,993	1,254	7,810
Social activities cost		Local cleanup activities, and membership fees and contributions to environmental groups, etc.	0	0.7	0	1.0
Environmental remediation cost		Contributions and impositions, etc.	0	87	0	212
Total			1,960	10,955	2,575	12,161

Total capital investment (including land) for the corresponding period (consolidated data)	64,100
Total R&D costs for the corresponding period	53,800

Environmental Conservation Effects

Effects	Items	RY2017	RY2018
Environmental effects related to resources input into business activities	Energy consumption (TJ)	7,452	7,670
	Water consumption (million m^3)	3.44	3.78
Environmental effect related to waste or environmental impact originating from business activities	CO_2 emissions (energy related CO_2) (kilotons CO_2e)	441	437
	SOx emissions (tons)	17.2	9.3
	NOx emissions (tons)	50.4	49.9
	Soot and dust emissions (tons)	2.9	2.8
	Releases and transfers of PRTR-designated substances (tons)	632	598
	Waste discharge (kilotons)	65.3	61.8
	Waste to landfills (kilotons)	1.5	1.6

Economic effects

(Yen in millions)

Classifications	Details	Annual effects of the year ended December 31, 2018
Energy conservation measures	Improve the operations of production facilities and switch to more efficient lighting and air-conditioning systems	724
Zero-emissions measures	Reduce the amount of industrial waste; promote resource recycling	629
	Sales of valuable resources	1,264
Total		2,617

<Environmental accounting principles>
1) The period is from January 1, 2018 to December 31, 2018.
2) The data of business sites in Japan is considered in the calculation.
3) Data was calculated referring to the Environmental Accounting Guidelines 2005, published by Japan's Ministry of the Environment.
4) "Expenses" includes depreciation costs.
Depreciation cost was calculated based on the standards applied to Kubota's financial accounting, and assets acquired in and after 1998 were considered in the calculation.
"Management activities" and "R&D costs" include personnel expenses.
"Resource recycling costs" does not include costs incurred during disposal of construction waste at construction sites.
"R&D costs" represents that which was spent on environmental purposes, calculated on a pro-rata basis.
5) "Economic effects" is obtained only by adding up tangible results and does not include estimated effects.

Status of Environmental Management System Certification Acquisition

The Kubota Group requires all of its production sites to acquire ISO 14001 certification or other equivalent environmental certification (EMAS, etc.).

As of the end of RY2018, 41 of the Group's 55 production sites worldwide (acquisition rate of 75%) have acquired environmental management system certification. In Japan, 22 of its 23 production sites (acquisition rate of 96%) have acquired ISO 14001 certification. Of its 32 overseas production sites, 19 sites (acquisition rate of 59%) have acquired ISO 14001 certification or other certification for environmental management systems. The Kubota Group will make continuous efforts to raise the acquisition rate of the certification.

ISO 14001 Certification

Kubota Corporation in Japan

No.	Name	Other organizations and subsidiaries included	Main business	Inspecting/ Certifying organization	Date of certification
1	Tsukuba Plant	• Eastern Main Parts Center • Tractor and Agricultural Implement Service Dept. Tsukuba Training Center • Kanto Kubota Precision Machinery Co., Ltd.	Engines, agricultural machinery, etc.	LRQA	November 28, 1997
2	Keiyo Plant	• Ichikawa Plant • Distribution Center	Ductile iron pipes, fittings, spiral welded steel pipe	LRQA	July 16, 1998
3	Hanshin Plant	• Marushima Factory	Ductile iron pipes, fittings, rolling-mill rolls, TXAX	LRQA	March 5, 1999
4	Kyuhoji Business Center	• Kubota Environmental Service Co., Ltd. • KUBOTA Membrane Corp. • KUBOTA Keiso Corp.	Measuring instruments, measuring systems, rice-milling products, waste shredder systems, submerged membranes, and mold temperature controllers, etc.	DNV	March 19, 1999
5	Hirakata Plant		Cast steel, new ceramic materials, and construction machinery	LRQA	September 17, 1999
6	Okajima Business Center		Industrial cast iron products	JICQA	December 22, 1999
7	Sakai Plant, Sakai Rinkai Plant		Engines, agricultural machinery, small-size construction machinery, etc.	LRQA	March 10, 2000
8	Shiga Plant		FRP products	JUSE	May 18, 2000
9	Environmental Plant Business Unit	• Shin-yodogawa Environmental Plant Center	Sewage and sludge treatment, water purification, wastewater treatment facilities, submerged membrane	ICJ	July 14, 2000
10	Pumps and Valves Business Unit	• KUBOTA Kiko Ltd.	Sewage and water purification plants, valves, pumps and pump stations	LRQA	July 14, 2000
11	Utsunomiya Plant	• Tractor and Agricultural Implement Service Dept. Utsunomiya Training Center	Rice transplanters and combine harvesters	LRQA	December 8, 2000

Kubota Group: Companies in Japan

No.	Name	Other organizations and subsidiaries included	Main business	Inspecting/ Certifying organization	Date of certification
1	Nippon Plastic Industry Co., Ltd.	• Head office and plant, Mino Plant	Plastic pipes, plastic sheets, etc.	JSA	October 27, 2000
2	Kubota Construction Co., Ltd.		Design and construction of civil engineering structures and buildings	JQA	December 22, 2000
3	Kubota Environmental Service Co., Ltd.		Installation, maintenance and management of environmental systems for service water, sewage, landfill disposal, raw waste and waste plants, etc.	MSA	November 20, 2002
4	Kubota ChemiX Co., Ltd.	• Tochigi Plant • Sakai Plant • Odawara Plant • Kyushu KUBOTA Chemical Co., Ltd.	Plastic pipes and couplings	JUSE	March 27, 2003 (integrated authentication in 2011)
5	Kubota Air Conditioner Co., Ltd.	• Tochigi Plant	Central air-conditioning systems, heat-pump air-conditioning systems	JQA	August 27, 2004
6	KUBOTA Precision Machinery Co., Ltd.		Hydraulic valves, hydraulic cylinders, transmissions, hydraulic pumps, hydraulic motors, etc.	LRQA	March 17, 2007
7	KUBOTA KASUI Corporation		Design, construction and maintenance management of environmental conservation facilities	BCJ	February 1, 2010
8	Kansouken Inc.		Package software supporting water business	JCQA	April 14, 2014

Kubota Group: Overseas Companies

No.	Name	Main business	Inspecting/ Certifying organization	Date of certification
1	SIAM KUBOTA Corporation Co., Ltd. [Headquarters] (Thailand)	Small diesel engines and agricultural machinery	MASCI	February 28, 2003
2	P.T. Kubota Indonesia (Indonesia)	Diesel engines and agricultural machinery	LRQA	February 10, 2006
3	Kubota Materials Canada Corporation (Canada)	Cast steel products, TXAX	SGS (U.S.)	June 15, 2006
4	KUBOTA Precision Machinery (Thailand) Co., Ltd. (Thailand)	Equipment for tractors	LRQA	August 5, 2015
5	Kubota Manufacturing of America Corporation (U.S.) (including Kubota Industrial Equipment Corporation (U.S.))	Small-sized tractors, utility vehicles and tractor accessories	BSI	September 20, 2012 (integrated in 2015)
6	SIAM KUBOTA Corporation Co., Ltd. [Amata Nakorn] (Thailand)	Tractors and combine harvesters	BV	September 27, 2012
7	KUBOTA KASUI VIETNAM CO., LTD. [Bac Ninh] (Vietnam)	Chemical agents for water treatment	BSI	January 18, 2013
8	KUBOTA SANLIAN PUMP (ANHUI) Co., Ltd. (China)	Pumps	CCSCC	May 29, 2013
9	Kubota Agricultural Machinery (SUZHOU) Co., Ltd. (China)	Combine harvesters, rice transplanters and tractors	SGS	November 13, 2013
10	Kubota Construction Machinery (WUXI) Co., Ltd. (China)	Construction machinery	CQC	December 11, 2014
11	SIAM KUBOTA Metal Technology Co., Ltd. (Thailand)	Cast iron products for engines and tractors	BV	December 19, 2014
12	Kubota Engine (WUXI) Co., Ltd. (China)	Diesel engines	SGS	March 22, 2015
13	KUBOTA Engine (Thailand) Co., Ltd. (Thailand)	Diesel engines	LRQA	July 3, 2015
14	Kubota Saudi Arabia Company, LLC (Saudi Arabia)	Cast steel products	TÜV	September 30, 2016
15	Kubota Farm Machinery Europe S.A.S (France)	Tractors	BV (France)	February 20, 2017
16	KUBOTA KASUI VIETNAM CO., LTD. [Binh Duong] (Vietnam)	Chemical agents for water treatment	BSI	May 22, 2018
17	Kverneland Group Manufacturing Lipetsk (Russia)	Tractor accessories	Russian Register	June 6, 2018

LRQA: Lloyd's Register Quality Assurance Limited (U.K.)
DNV: DNV Certification B.V. (Netherlands)
JUSE: Union of Japanese Scientists and Engineers ISO Center
ICJ: Intertek Certification Japan Limited
JICQA: JIC Quality Assurance Ltd. (Japan)
JSA: Japanese Standards Association
JQA: Japan Quality Assurance Organization
MSA: Management System Assessment Center (Japan)
BCJ: The Building Center of Japan
JCQA: Japan Chemical Quality Assurance Ltd
MASCI: Management System Certification Institute (Thailand)
SGS (U.S.): Systems & Services Certification, a Division of SGS North America Inc. (U.S.)
TÜV: TÜV Rheinland Cert GmbH (Germany)
SGS: SGS United Kingdom Limited (U.K.)
BSI: BSI Assurance UK Limited (U.K.)
BV: Bureau Veritas Certification Holding SAS - UK Branch (U.K.)
CCSCC: China Classification Society Certification Company (China)
CQC: China Quality Certification Centre (China)
BV (France): Bureau Veritas Certification France (France)

EMAS Certification

Kubota Group: Overseas Companies

No.	Name	Main business	Inspecting/ Certifying organization	Date of certification
1	Kubota Baumaschinen GmbH (Germany)	Construction machinery	IHK	January 3, 2013

IHK: Industrie- und Handelskammer fur die Pfalz (Germany)

Calculation Standards of Environmental Performance Indicators

Period and Organizations Covered by Environmental Data

RY	Period		Organizations covered (No. of companies)			
	Data in Japan	Overseas data	Consolidated subsidiaries*3			Affiliated companies accounted for under the equity method*4
			Japan	Overseas	Total	
2014	April 2014 to March 2015	January 2014 to December 2014	53	103	156	12
2015	April 2015 to March 2016*1	January 2015 to December 2015*1	51	102	153	13
2016	January 2016 to December 2016	January 2016 to December 2016*2	47	125	172	12
2017	January 2017 to December 2017	January 2017 to December 2017*2	48	125	173	9
2018	January 2018 to December 2018	January 2018 to December 2018*2	48	124	172	8

*1 Although the accounting period of RY2015 is nine months (April 2015 to December 2015) due to the change of the account closing time, the period for the environmental data is set to be a year. Consolidated net sales used to calculate the environmental load per unit of consolidated net sales (CO_2 emissions, energy use, CO_2 emissions during distribution, amount of waste discharged, water consumption, VOC emissions, amount of PRTR-designated substances released and transferred) for RY2015 are the total consolidated sales from April 2015 to March 2016.

*2 For RY2016, of the overseas consolidated subsidiaries, for Great Plains Manufacturing, Inc. (GP), which became a consolidated subsidiary in July 2016, the period of its environmental data is six months (July 2016 to December 2016), and the data except for its four major production sites (accounting for over 80% of sales of the GP Group in RY2016) and four major non-production sites (accounting for over 90% of the employees of non-production sites of the GP Group in RY2015) is estimated. Data of the amount of chemical substances (VOC) handled and VOC emissions is excluded from the calculation.
From RY2017, the data for all of the GP Group sites is calculated based on results.

*3 The coverage of consolidated subsidiaries is 100% for each year.

*4 Part of the affiliated companies accounted for under the equity method are covered by the data.

Energy and CO_2-related

Indicator (unit)	Calculation method
Energy use (J)	• Energy use = Amount of purchased electricity consumed at business sites × per-unit heat value + Σ [amount of each fuel consumed × per-unit heat value of each fuel] • Per-unit heat value is determined in accordance with the Enforcement Regulation for the Act on Rationalizing Energy Use, Japan.
CO_2 emissions (tons CO_2e)	• CO_2 emissions = CO_2 emissions from energy sources + non-energy source greenhouse gas emissions • CO_2 emissions from energy sources = Amount of purchased electricity consumed at business sites × CO_2 emission coefficient + Σ [amount of each fuel consumed at business sites × per-unit heat value of each fuel × CO_2 emission coefficient of each fuel] • Non-energy source greenhouse gas emissions = CO_2 emissions from non-energy sources + non-CO_2 greenhouse gas emissions • Per-unit heat value is determined in accordance with the Enforcement Regulation for the Act on Rationalizing Energy Use, Japan. • CO_2 emission coefficients [RY1990] Based on the Report on Survey of Carbon Dioxide Emissions (Japan's Environment Agency 1992) and the Guideline for Measures to Prevent Global Warming (Japan's Environment Agency 1993) [RY2014 to RY2015] <Fuel> Based on the Manual for Calculation and Report of Greenhouse Gas Emissions (Japan's Ministry of the Environment and Ministry of Economy, Trade and Industry) <Electricity> Data for Japan is effective emission coefficients for each electricity utility, and overseas data is according to the GHG emissions from purchased electricity (GHG Protocol). [RY2016 to RY2018] <Fuel> Based on the Manual for Calculation and Report of Greenhouse Gas Emissions (Japan's Ministry of the Environment and Ministry of Economy, Trade and Industry) <Electricity> • Data for Japan is effective emission coefficients for each electricity utility • Overseas data is according to effective emission coefficients for each electricity utility, CO_2 Emissions from Fuel Combustion (IEA) and The Emissions & Generation Resource Integrated Database (eGRID) (EPA). • The method for calculating non-energy source greenhouse gas emissions is based on the Manual for Calculation and Report of Greenhouse Gas Emissions (by Japan's Ministry of the Environment and Ministry of Economy, Trade and Industry) • The amount of CO_2 emissions in RY1990 is solely the amount of CO_2 emissions from energy sources at Kubota production sites.

Energy and CO_2-related

Indicator (unit)	Calculation method
Freight traffic (ton-km)	• Freight traffic = Σ [Freight transportation amount (tons) × distance traveled (km)] • Freight traffic refers to the volume of products and Kubota's industrial waste transported during domestic distribution
Energy use during transportation (J)	• Energy use during transportation = Σ [Freight traffic by truck × Fuel consumption per ton-kilometer × per-unit heat value] + Σ [Freight traffic by rail and water × energy use (heat value) per unit ton-kilometer] • Calculation method is from the Manual to Support Merchants regarding Revisions to Energy Conservation Laws, 3rd Edition (April 2006, Japan's Energy Conservation Center of the Agency of Natural Resources and Energy, Japanese Ministry of Economy, Trade and Industry) • In addition to the data for Japan, energy use associated with the overseas shipping of certain products from Japan has been included from RY2018.
CO_2 emissions during distribution (tons CO_2e)	• CO_2 emissions during distribution = Σ [Fuel consumption for freight shipment by truck × CO_2 emission per ton-kilometer by fuel of transportation] + Σ [Fuel consumption for freight shipment by rail and water × CO_2 emission per ton-kilometer by means of transportation] • Calculation method is based on the ton-kilometer method stipulated in the Manual for Calculation and Report of Greenhouse Gas Emission (Japan's Ministry of the Environment and Ministry of Economy, Trade and Industry)
Energy use during product operation (J)	• Energy use during product operation = Σ [Number of product units shipped × Fuel consumption per hour × Annual hours of use × Years of lifespan × Per-unit heat value of each fuel] • Products: agricultural machinery (tractors, rice transplanters, combine harvesters), riding mowers, utility vehicles, construction machinery (compact excavators, etc.) • Calculated by assuming the fuel consumption per hour, annual hours of use, and years of service life for each product. • Per-unit heat value is according to the Manual for Calculation and Report of Greenhouse Gas Emissions (Japan's Ministry of the Environment and Ministry of Economy, Trade and Industry)
Scope 3 emissions (tons CO_2e)	• The calculation method is based on the Basic Guidelines regarding the Calculation of Greenhouse Gas Emissions throughout the Supply Chain (Japan's Ministry of the Environment and Ministry of Economy, Trade and Industry) and the Emissions per Unit Database for the Purpose of Calculating the Greenhouse Gas and Other Emissions of Organizations throughout the Supply Chain
Resource extraction, manufacture and transportation related to purchased goods/ services	• Σ [Production volume × CO_2 emissions per unit] • Products: Agricultural machinery (tractors, rice transplanters, combine harvesters), construction machinery (compact excavators, etc.), and ductile iron pipe • Production volume: Number of units shipped for agricultural and construction machinery, and production weight for ductile iron pipes • CO_2 emissions per unit: Estimated from the CO_2 emissions per unit of production of the product
Manufacture and transportation of capital goods such as purchased equipment	• Equipment investment amount × CO_2 emissions per unit
Resource extraction, manufacture and transportation related to purchased fuels/ energy	• Purchased electricity consumed at business sites × CO_2 emissions per unit
Disposal of wastes discharged from business sites	• Σ [Amount of waste discharge by type × CO_2 emissions per unit]
Employee business travels	• Σ [Transportation expenses paid by method of transport × CO_2 emissions per unit] • Transportation expenses paid by method of transport are for airline tickets and railway tickets. • For a part of the overseas subsidiaries (67 sites), estimate by multiplying the net sales of the subsidiaries in each of the regions and countries mentioned by the ratio of transportation expenses for each method of travel included in the net sales of major subsidiaries in Europe, America, Asia and China.
Employee commuting	• Σ [Transportation expenses paid by method of transport × CO_2 emissions per unit] • The amount of transportation expenses is for the amount paid for Kubota employees' railway tickets and car travel.
Transportation of sold products	• The calculation method is the same as that for CO_2 emissions during distribution. • In addition to the data for Japan, CO_2 emissions associated with the overseas shipping of certain products from Japan has been included from RY2018. Target products: Agricultural machinery (tractors, rice transplanters, combine harvesters), riding mowers, utility vehicles, construction machinery (compact excavators, etc.), engines • The scope of calculation includes CO_2 emissions associated with Kubota's transportation of waste.
Processing of intermediate products	• Σ [Sales volume of intermediate products × CO_2 emissions per unit] • Intermediate products: engines (external sales only) • CO_2 emissions per unit: CO_2 emissions per unit at Kubota Group's processing plants
Use of products sold	• Σ [Number of products sold × CO_2 emissions per unit] • Products: agricultural machinery (tractors, rice transplanters, combine harvesters), riding mowers, utility vehicles, construction machinery (compact excavators, etc.) • CO_2 emissions per unit: Fuel consumption per hour × Annual hours of use × Years of lifespan × per unit heat value of each fuel × CO_2 emission coefficient of each fuel (calculated by assuming the fuel consumption per hour, annual hours of use, and years of service life for each product) • Per-unit heat value is according to the Manual for Calculation and Report of Greenhouse Gas Emissions (Japan's Ministry of the Environment and Ministry of Economy, Trade and Industry)
End-of-life treatment of sold products	• Σ [Number of products shipped × CO_2 emissions per unit] • Products: Agricultural machinery (tractors, rice transplanters, combine harvesters) and construction machinery (compact excavators, etc.) • CO_2 emissions per unit: estimated CO_2 emissions per unit of product

Waste-related

Indicator (unit)	Calculation method
Amount of waste, etc. discharge (tons)	• Amount of waste, etc. discharge = sales amount of valuable resources + amount of waste discharge
Amount of waste discharge (tons)	• Amount of waste discharge = Amount of industrial waste discharge + Amount of general waste discharge from business activities
Amount of resource recycling (tons) Amount of volume reduction (tons) Amount of landfill disposal (tons)	• Amount of resource recycling = Amount of waste directly recycled + Amount of resource recycling after external intermediate treatment • Amount of volume reduction = Volume of external intermediate treatment – Amount of resource recycling after external intermediate treatment – Final landfill following external intermediate treatment • Amount of landfill disposal = Direct landfill disposal + Final landfill disposal following external intermediate treatment • Amount of resource recycling after external intermediate treatment includes heat recovery • Amount of resource recycling after external intermediate treatment, amount of final landfill disposal, amount of volume reduction are calculated based on the results of surveys at the contractor.
Recycling ratio (%)	• Recycling ratio = (Sales amount of valuable resources + external recycling amount) / (Sales amount of valuable resources + external recycling amount + amount of landfill disposal) × 100 • External recycling amount includes heat recovery
Amount of construction waste, etc. discharged (tons)	• Amount of construction waste, etc. discharged = Amount of construction waste discharged + sales amount of valuable resources generated from construction • Targeting construction work in Japan • Amount of construction waste discharged includes construction waste other than specific construction materials • Sales amount of valuable resources covers valuable material operators with whom the Kubota Group is directly contracted
Amount of construction waste, etc. discharged Recycling ratio (%) Recycling and reduction ratio (%)	• In RY2016, a new calculation method was adopted in which the reduction volume is calculated in accordance with the Promotion Plan for Recycling of Construction Waste 2014 (Ministry of Land, Infrastructure, Transport and Tourism) and the recycling and reduction ratio is determined. [RY2014 to 2015] Recycling ratio = {Sales amount of valuable resources + resource recycling + volume reduction (heat recovery)} ÷ amount of construction waste, etc. discharged × 100 [RY2016 to RY2018] Recycling and reduction ratio = {Sales amount of valuable resources + resource recycling (including heat recovery) + volume of reduction} ÷ amount of construction waste, etc. discharged × 100

Water-related

Indicator (unit)	Calculation method
Water consumption (m^3)	• Water consumption = City water consumption + groundwater consumption • City water includes service water and water for industrial use
Wastewater discharge (m^3)	• Wastewater discharge = Amount of wastewater discharge to public water areas + amount of discharge to sewage lines • Wastewater discharge includes rain and spring water at some business sites
Amount of recycled water (m^3)	• Amount of water purified in on-site effluent treatment facilities and recycled (excluding the circulating cooling water used)
COD (tons) Nitrogen discharge (tons) Phosphorus discharge (tons)	• COD = COD per unit wastewater discharge amount × wastewater discharge to public water areas • Nitrogen discharge = nitrogen concentration × wastewater discharge to public water areas • Phosphorous discharge = Phosphorous concentration × wastewater discharge to public water areas • Targeting business sites subject to total emission control in Japan

Chemical Substance-related

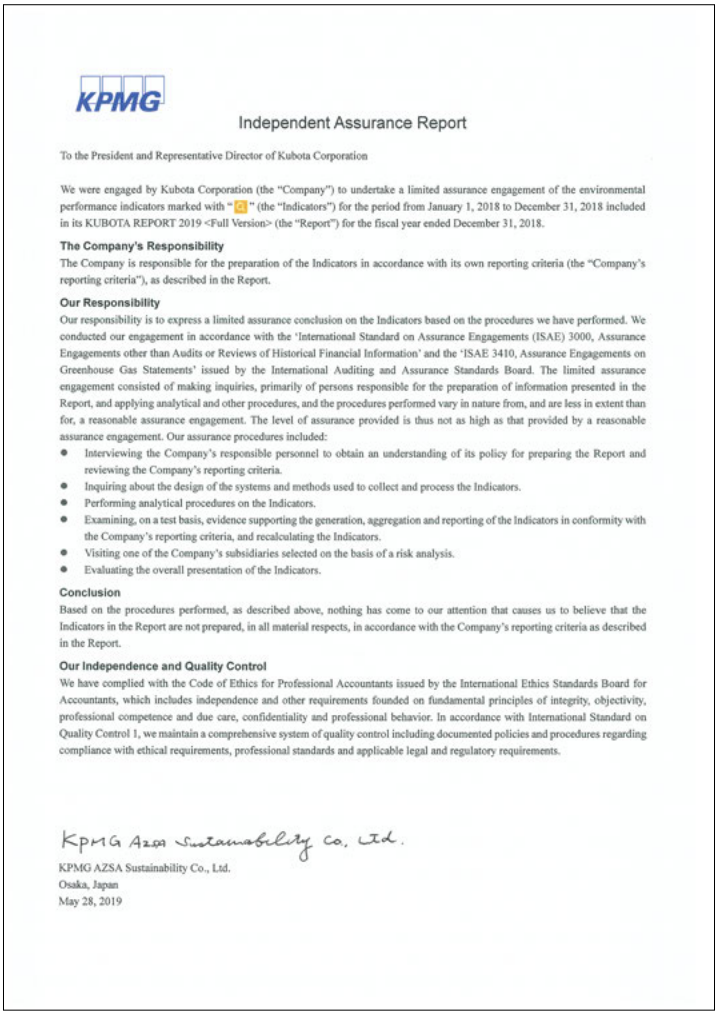
Indicator (unit)	Calculation method
Amount of PRTR-designated substances handled (tons)	• Total amount of chemical substances handled at Japanese sites, which are designated as Class I under the Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (the PRTR Law) whose amount handled by each business site is one ton or more (or 0.5 ton or more for Specific Class I Designated Chemical Substances) per year
Amount of PRTR-designated substances released and transferred (tons)	• Total release and transfer amount of the chemical substances which are designated as Class I under the PRTR Law at Japanese sites and whose annual total amount handled by each business site is one ton or more (or 0.5 ton or more in case of Specific Class I Designated Chemical Substances). • Amount released = amount discharged to the atmosphere + amount discharged to public water areas + amount discharged to soil + amount disposed of by landfill in the premises of the business site • Amount transferred = amount discharged to sewerage + amount transferred out of the business site as waste • The amount of each substance released and transferred is calculated in accordance with the Manual for PRTR Release Estimation Methods Ver. 4.2 (March 2018) of Japan's Ministry of the Environment and the Ministry of Economy, Trade and Industry, and the Manual for PRTR Release Estimation Methods in the Steel Industry Ver. 13 (March 2014) of the Japan Iron and Steel Federation.
Amount of chemical substances (VOC) handled (tons)	• The total amount handled at overseas sites of the six substances of xylene; toluene; ethylbenzene; styrene; 1,2,4-trimethylbenzene; 1,3,5-trimethylbenzene that are at each site handled in amounts of one ton or more per year
VOC emissions (tons)	• The total emissions of the six substances of xylene; toluene; ethylbenzene; styrene; 1,2,4-trimethylbenzene; 1,3,5-trimethylbenzene that are at each site handled in amounts of one ton or more per year
SOx emissions (tons) NOx emissions (tons) Soot and dust emissions (tons)	• SOx emissions = Amount of fuel consumed (kg) × sulfur content in the fuel × (1 – desulfurization efficiency) × 64/32 or SOx emissions = {(amount of coke consumed × sulfur content in coke) - (amount of molten metal × sulfur content in molten metal) – (volume of slag, dust, etc. × sulfur content in slag, dust, etc.)} × 64/32 or SOx emissions = SOx concentration × amount of gas emitted per hour × annual operation hours of the relevant facility • NOx emissions = NOx concentration × amount of gas emitted per hour × annual operation hours of the relevant facility • Soot and dust emissions = soot and dust concentration × amount of gas emitted per hour × annual operation hours of the relevant facility • Targeting the smoke and soot generating facilities at business sites in Japan as defined by the Air Pollution Control Act, and the facilities at overseas business sites subject to the application of measurement obligations stipulated in the statutory and regulatory requirements of those countries in which sites are located

Product-related

Indicator (unit)	Calculation method
Sales ratio of Eco- Products (%)	• Sales ratio of Eco-Products = Sales of Eco-Products/sales of products (excluding construction work, services, software, parts, and accessories) × 100
Usage ratio of recycled materials (%)	• Usage ratio of recycled materials = Amount of recycled materials input in the melting process / total input volume × 100 • Target products: Materials used in the cast metal products and parts manufactured by the Kubota Group (such as ductile iron pipes, fittings, machine cast products (engine crankcase, etc.)) • The amount of recycled materials input and the total input amount does not include the indirect materials that are not the constituent materials of casting products and parts.

Third-Party Assurance of Environmental Report

Since 2004, the Kubota Group has received third-party assurance for the purpose of improving the reliability and comprehensiveness of its environmental data. Information that is marked with a symbol indicates that that information has been assessed by a third party. Based on the third-party assurance obtained this reporting year, the KUBOTA REPORT 2019 <Full Version> received the J-SUS Assurance Symbol of the Japanese Association of Assurance Organizations for Sustainability Information (J-SUS). This symbol indicates that an assurance was undertaken by an assurance body certified by J-SUS regarding the reliability of the environmental data presented in the report.



KPMG

Independent Assurance Report

To the President and Representative Director of Kubota Corporation

We were engaged by Kubota Corporation (the "Company") to undertake a limited assurance engagement of the environmental performance indicators marked with " " (the "Indicators") for the period from January 1, 2018 to December 31, 2018 included in its KUBOTA REPORT 2019 <Full Version> (the "Report") for the fiscal year ended December 31, 2018.

The Company's Responsibility

The Company is responsible for the preparation of the Indicators in accordance with its own reporting criteria (the "Company's reporting criteria"), as described in the Report.

Our Responsibility

Our responsibility is to express a limited assurance conclusion on the Indicators based on the procedures we have performed. We conducted our engagement in accordance with the 'International Standard on Assurance Engagements (ISAE) 3000, Assurance Engagements other than Audits or Reviews of Historical Financial Information' and the 'ISAE 3410, Assurance Engagements on Greenhouse Gas Statements' issued by the International Auditing and Assurance Standards Board. The limited assurance engagement consisted of making inquiries, primarily of persons responsible for the preparation of information presented in the Report, and applying analytical and other procedures, and the procedures performed vary in nature from, and are less in extent than for, a reasonable assurance engagement. The level of assurance provided is thus not as high as that provided by a reasonable assurance engagement. Our assurance procedures included:

- Interviewing the Company's responsible personnel to obtain an understanding of its policy for preparing the Report and reviewing the Company's reporting criteria.
- Inquiring about the design of the systems and methods used to collect and process the Indicators.
- Performing analytical procedures on the Indicators.
- Examining, on a test basis, evidence supporting the generation, aggregation and reporting of the Indicators in conformity with the Company's reporting criteria, and recalculating the Indicators.
- Visiting one of the Company's subsidiaries selected on the basis of a risk analysis.
- Evaluating the overall presentation of the Indicators.

Conclusion

Based on the procedures performed, as described above, nothing has come to our attention that causes us to believe that the Indicators in the Report are not prepared, in all material respects, in accordance with the Company's reporting criteria as described in the Report.

Our Independence and Quality Control

We have complied with the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which includes independence and other requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior. In accordance with International Standard on Quality Control 1, we maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

KPMG AZSA Sustainability Co., Ltd.

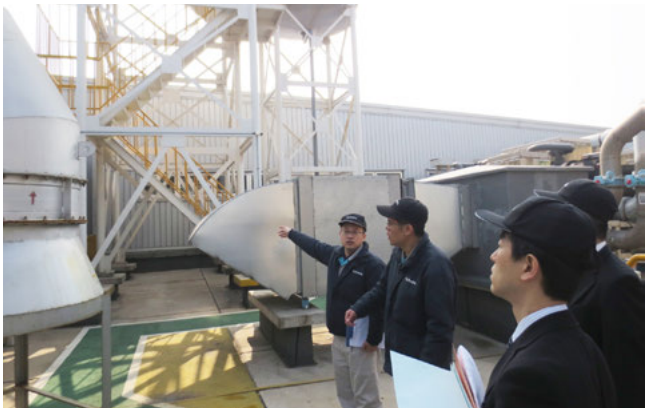
KPMG AZSA Sustainability Co., Ltd.
Osaka, Japan
May 28, 2019

J-SUS Assurance Symbol

This symbol indicates that an assurance was undertaken by an assurance body certified by J-SUS regarding the reliability of the environmental data presented in the KUBOTA REPORT 2019 <Full Version>.

* Japanese version www.j-sus.org/
* English version www.j-sus.org/english.html

Factory Visit



Kubota Agricultural Machinery (Suzhou) Co., Ltd. (China)