<SDGs related to this section>

Environmental Management Basic Policy

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 has promoted and will further advance its environmental management.

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, and technologies.**

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 for stopping climate change, creating a recycling- based society, and controlling chemical substances.
(2) We promote global environmental conservation by providing technologies and products contributing 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

Kenshiro Ogawa
Director and Senior Managing Executive Officer
General Manager of Manufacturing Headquarters (Environmental Conservation Control Officer)

As the Sustainable Development Goals (SDGs) have been adopted at the United Nations, efforts toward solving global-scale problems are increasingly important. It is now a crucial task for companies to contribute to the achievement of the SDGs.

The Kubota Group upholds the slogan "For Earth, For Life" as its mission, and its business activities are closely related to the SDGs. We address the SDGs as a priority issue in our management policy for this year. We will continue to contribute to the development of society and conservation of the global environment through our business activities, while advancing initiatives toward achieving the SDGs.

In line with these initiatives, toward achieving our Medium and Long-Term Environmental Conservation Targets, we will further enhance our environmental management through accelerating the reduction of the environmental loads and environmental risks, and the enhancement of the lineup of environment-friendly products.

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 to support its businesses. We adopt this concept of KPS in our environmental conservation activities, and will further enhance the activities toward the reduction of waste and loss in the use of energy and resources. For environment-friendly products, 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 to make united efforts toward the establishment of a sustainable society and promote environmental management appropriate to the Global Major Brand Kubota.

Concepts of Environmental Management / Materiality / Key Measures

Concepts of Environmental Management

Toward the realization of "For Earth, For Life," the Kubota Group balances its business growth and contribution to environmental conservation through its environment-friendly products, technologies, services and corporate activities, aiming for ongoing synergistic development with society.

The Group has set five basic items for 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 reduction of environmental loads and environmental risks in corporate activities while contributing to the conservation of the global environment through its products, technologies and services that help solve social problems in the fields of food, water, and the living environment.

Materiality

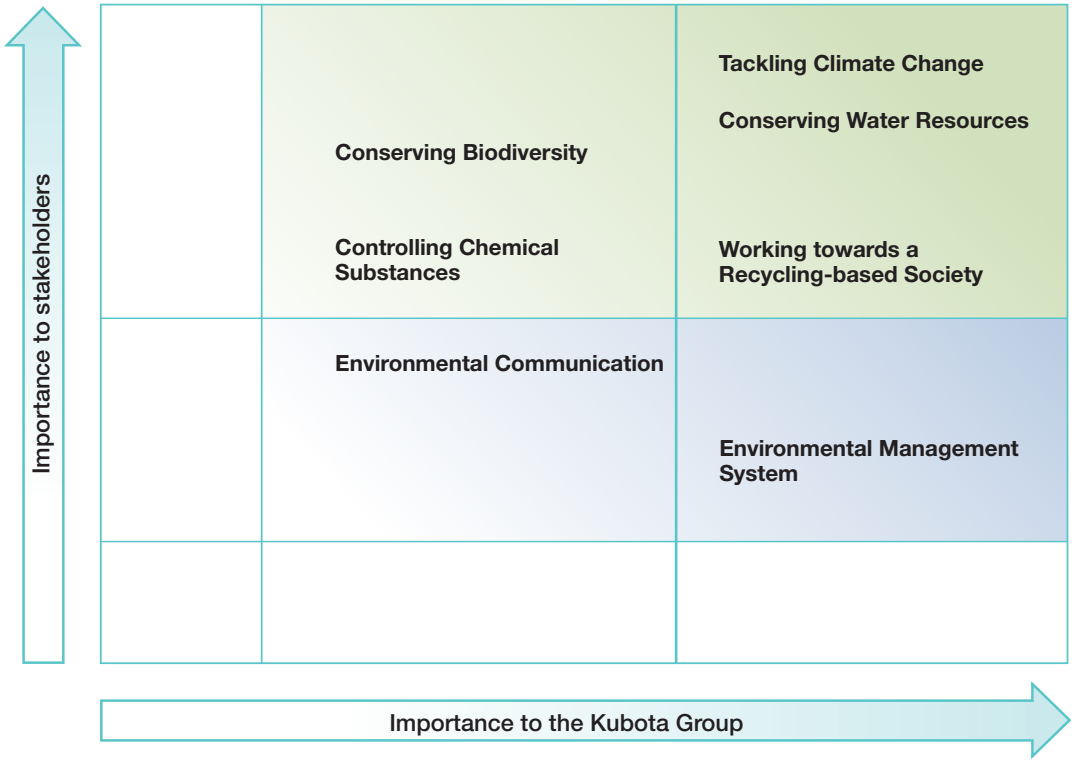
The Kubota Group listed material issues (priority issues) in its environmental conservation activities, taking into consideration their importance in business, requests and expectations from stakeholders, and social trends, and set priorities for tackling these issues.

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 Group's 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** For issues that are highly important to both stakeholders and the Kubota Group, we formulate key measures and promote the steady implementation thereof.

Materiality Matrix

The material issues of the Kubota Group, whose mission is to solve social problems in the fields of food, water and the environment, are as follows:



Key Measures

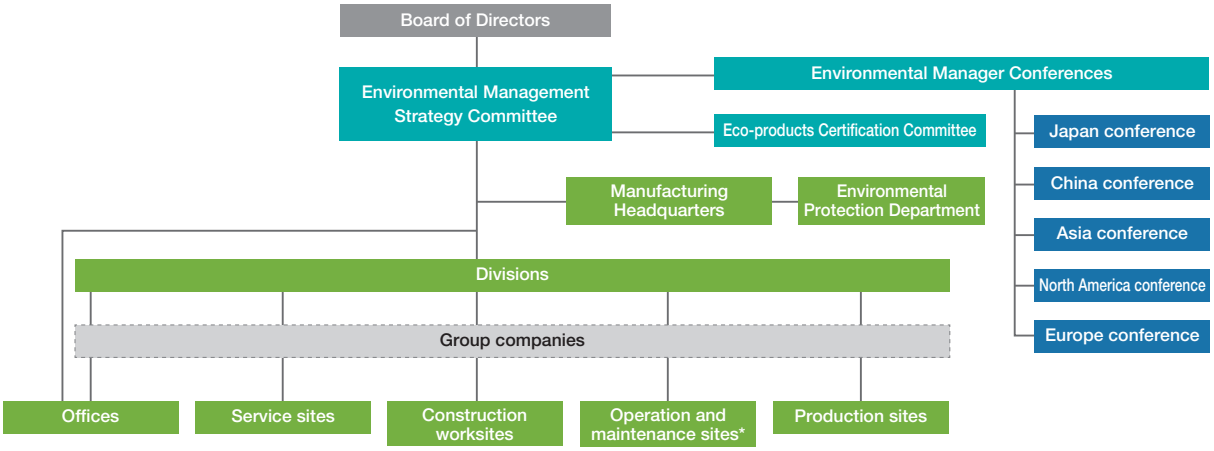
In order to address the issues identified as materiality, the Kubota Group promotes the following key measures from the perspective of the value chain.

	Value chain of business		
	Design and development, procurement	Manufacturing and distribution	Use and disposal
Tackling Climate Change	・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	・Use recycled materials ・Reduce the number of parts	・Conserve resources ・Promote the 3Rs for waste and convert waste into functional materials	・Extend product life ・Improve ease of maintenance ・Promote product recycling ・Ensure proper disposal
Conserving Water Resources	・Assess water risks	・Promote the 3Rs for water resources	・Save water consumption ・Promote purification or recycling of wastewater
Controlling Chemical Substances	・Reduce the use of substances of concern	・Reduce VOC emissions ・Substitute for organic solvents	・Make exhaust gas cleaner
Conserving Biodiversity	・Assess the impact on natural capital	・Manage and reduce the environmental loads ・Promote the beautification and greening of business sites and neighborhoods	・Ensure the proper application of fertilizer ・Conserve water areas ・Reduce noise and vibration
Environmental Management System	・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	・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		

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 chaired by Kubota's executive vice president and is comprised of executive officers. 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. 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.

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 Committee

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

In 2017, the conferences for Europe, Asia and Japan were held. Environmental managers and staff members of three companies that have production sites in Europe gathered for the Europe Conference, and those of eight companies with business sites in Asia, excluding China and Japan, gathered for the Asia 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 21 sites, 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. They also discussed the problems of each operation field faced by each site, as well as Group-wide problems, and examined the countermeasures to be taken. Later, each site prepared an activity implementation plan for a year, sharing the progress thereof with the Kubota Head Office. After the conference, the participants gave positive feedback, such as that it had been a precious opportunity to learn the initiatives of other sites, and that they could deepen their understanding through exchanging opinions.

In Japan, several subcommittees were established under this conference. The Waste Subcommittee set up in 2016 held discussions on matters such as the reduction of waste discharge and the enhancement of on-site investigation of industrial waste treatment contractors, and examined the measures. The Antipollution Subcommittee established in 2017 conducted education and discussion on the improvement of risk sensitivity and examined the measures, with a view to lowering the risk of exceeding the environmental regulation values for the water or air quality.

The Kubota Group plans to establish a business operation system for each region and promote a shift to region-led conference operation, for the purpose of enhancing their governance in the environment and safety aspects and spiraling up the level of their initiatives. As part of this attempt, the Thai Conference was set up in December 2017 by six sites located in Thailand. The Thai Conference is not a conference led by the Kubota Head Office, but is operated under the initiative of local sites. In the conference, staff in charge of practical work play a central role in discussing responses to legal regulations and exchanging information on the reduction of environmental loads and environmental risk management.

We will endeavor to enhance ties within each region and raise the level of environmental conservation activities at each site, while continuing to review the roles of the Environmental Manager Conferences.

Europe Conference　Kubota Baumaschinen GmbH

Asia Conference　KUBOTA Engine (Thailand) Co., Ltd.

Japan Conference　Kubota Head Office

Antipollution Subcommittee　Mukogawa Site, Kubota Hanshin Plant

<SDGs related to this section>

Medium- to Long-Term Environmental Conservation Targets and Results

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.”

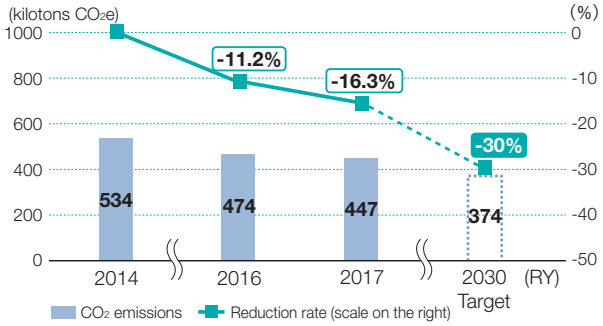
In order to promote environmental management and contribute to the resolution of various issues, such as SDGs, as a sustainable company, the Kubota Group has been promoting environmental activities by formulating its medium -and long-term targets for environmental conservation. The Kubota Group has formulated Long-Term Environmental Conservation Targets 2030 and Medium-Term Environmental Conservation Targets 2020. Toward achieving these targets, the Group is advancing systematic initiatives in both the production and product development stages.

Long-Term Environmental Conservation Targets 2030

Efforts to Stop Climate Change

Goal	**Reduce** CO_2 emissions from the Kubota Group in Japan*1 by **30%** compared to the base year 2014
Result	In 2017, CO_2 emissions of the Kubota Group in Japan*1 were reduced by 16.3% compared to the base year 2014.

Trends in the CO_2 Emissions of the Kubota Group in Japan*2

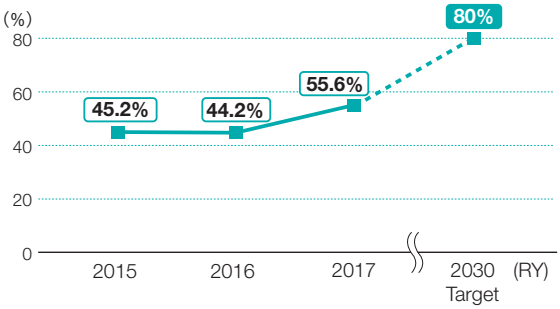


*1 CO_2 emissions include greenhouse gases from non-energy sources.
*2 Values for RY2016 were corrected to improve accuracy.

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-Product-certified products* was 55.6% in RY2017.

Trends in Sales Ratio of Eco-Product-certified 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

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.81).

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 RY2017 are as shown in the table below. For global production sites, the targets for RY2020 for all items were achieved earlier than planned. For the product segment, 34 products were newly certified as Eco-Products, boosting their ratio to sales by 11.4 point from the previous year to 55.6%.

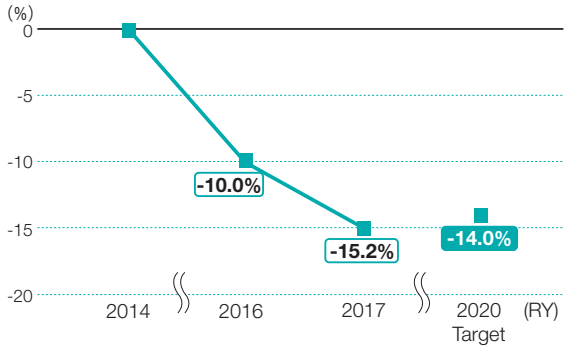
Scope	Issue	Action item	Management indicator*3	Base RY	Target for RY2020*8	Result of RY2017*8	Achievement Status
Global production sites	Tackling Climate Change	Reduce CO_2*1	CO_2 emissions per unit of production	2014	▲14%	▲15.2%	We are promoting the energy-saving initiatives for production equipment, lighting, etc., fuel conversion, and the measures for heat insulation of buildings.
		Save energy	Energy consumption per unit of production	2014	▲10%	▲13.0%	
	Working towards a Recycling-based Society	Reduce waste	Waste discharge per unit of production	2014	▲10%	▲13.6%	We are promoting thorough sorting of wastes and converting waste into valuable resources.
			Recycling ratio (Japan)*4	–	Maintain 99.5% or more	99.8%	We are maintaining the existing level through continuous efforts.
			Recycling ratio (Overseas)*4	–	Maintain 90.0% or more	91.4%	We are promoting the reduction of the amount of waste sent to landfills by changing contractors.
	Conserving Water Resources	Conserve water resources	Water consumption per unit of production	2014	▲10%	▲16.9%	We are promoting recycling of wastewater and saving of water use.
	Controlling Chemical Substances	Reduce VOCs*2	VOC emissions per unit of production	2014	▲10%	▲25.1%	We are promoting the elimination or reduction of VOC-contained paint, thinner.
Product	Improving Product's Environmental Performance	Expand Eco-Products	Sales ratio of Eco-Products*5	–	60% or more	55.6%	In RY2017, 34 products were newly certified as Eco-Products.
		Promote recycling	Usage ratio of recycled materials*6	–	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*7			The following products*9 equipped with the engines that comply with the emissions regulations were launched onto the market. Tractors (GENEST Series): Conforming to the Japan Regulations on Emissions from Non-Road Special Motor Vehicles (75 kW and above, lower than 130 kW, Regulation 2014) Combine harvesters (Korea Special ER595K): Conforming to the Korean Agricultural Machinery Regulations Tier 4 (56 kW and above, lower than 130 kW)	

*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 CO2 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. The figures per unit of production for the base year were adjusted in RY2017 to improve accuracy.
*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 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
*6 Usage ratio of recycled materials (%) in the cast metal products and parts (ductile iron pipes, fittings, machine cast products (engine crankcase, etc.))
*7 Targeting tractors and combine harvesters (output range: 56 kW ≤ P < 560 kW) equipped with engines compliant with the European emissions regulations (Europe Stage IV) level, shipped to Europe, North America, Japan, and Korea
*8 ▲ indicates a negative figure.
*9 Major products of products launched onto markets in 2017

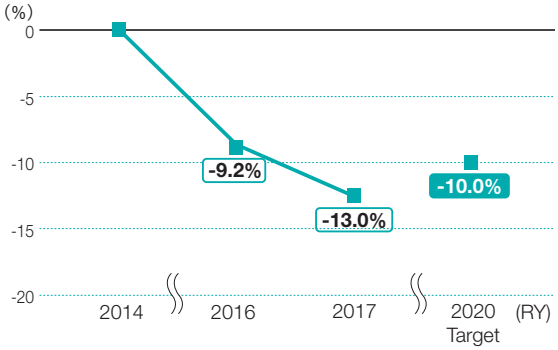
The environmental information provided in the KUBOTA REPORT 2018 Business and CSR Report <Full Version> has received the third-party assurance by KPMG AZSA Sustainability Co., Ltd. The indexes subject to assurance are marked with the "🔍" symbol.

The results for Medium-Term Environmental Conservation Targets 2020

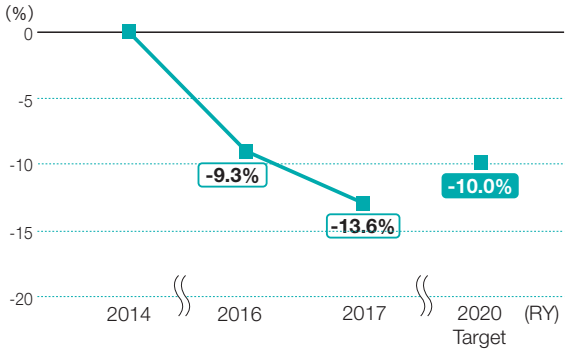
Trends in the Reduction Ratio of CO_2 Emissions per Unit of Production



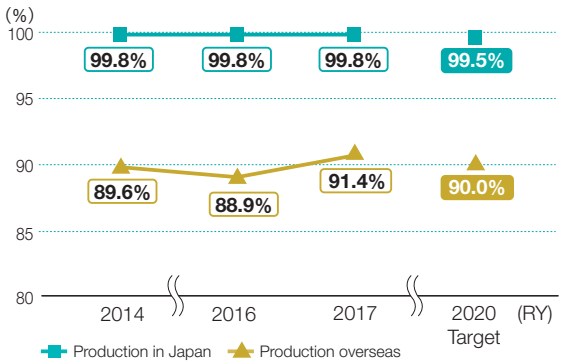
Trends in the Reduction Ratio of Energy Use per Unit of Production



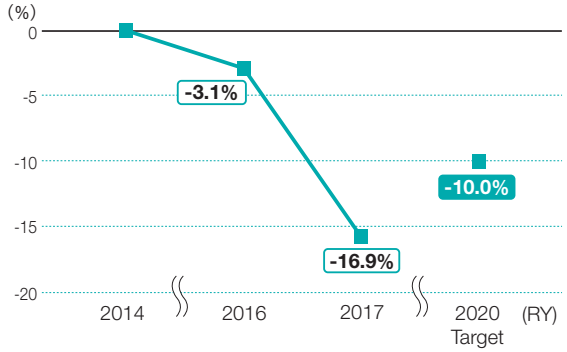
Trends in the Reduction Ratio of Waste Discharge per Unit of Production



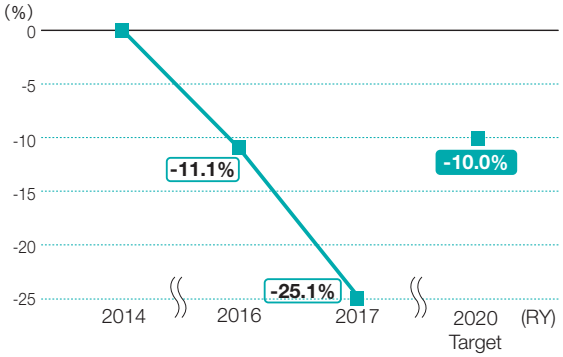
Trends in the Waste Recycling Ratio



Trends in the Reduction Ratio of Water Consumption per Unit of Production



Trends in the Reduction Ratio of VOC Emissions per Unit of Production



* Values for the base year (RY2014) and RY2016 were corrected to improve accuracy. Therefore, the reduction rates per unit of production for RY2016 were corrected retrospectively.

Products with engines compliant with the latest exhaust gas regulations (Major products launched onto markets in 2017)

Tractor of the GENEST Series

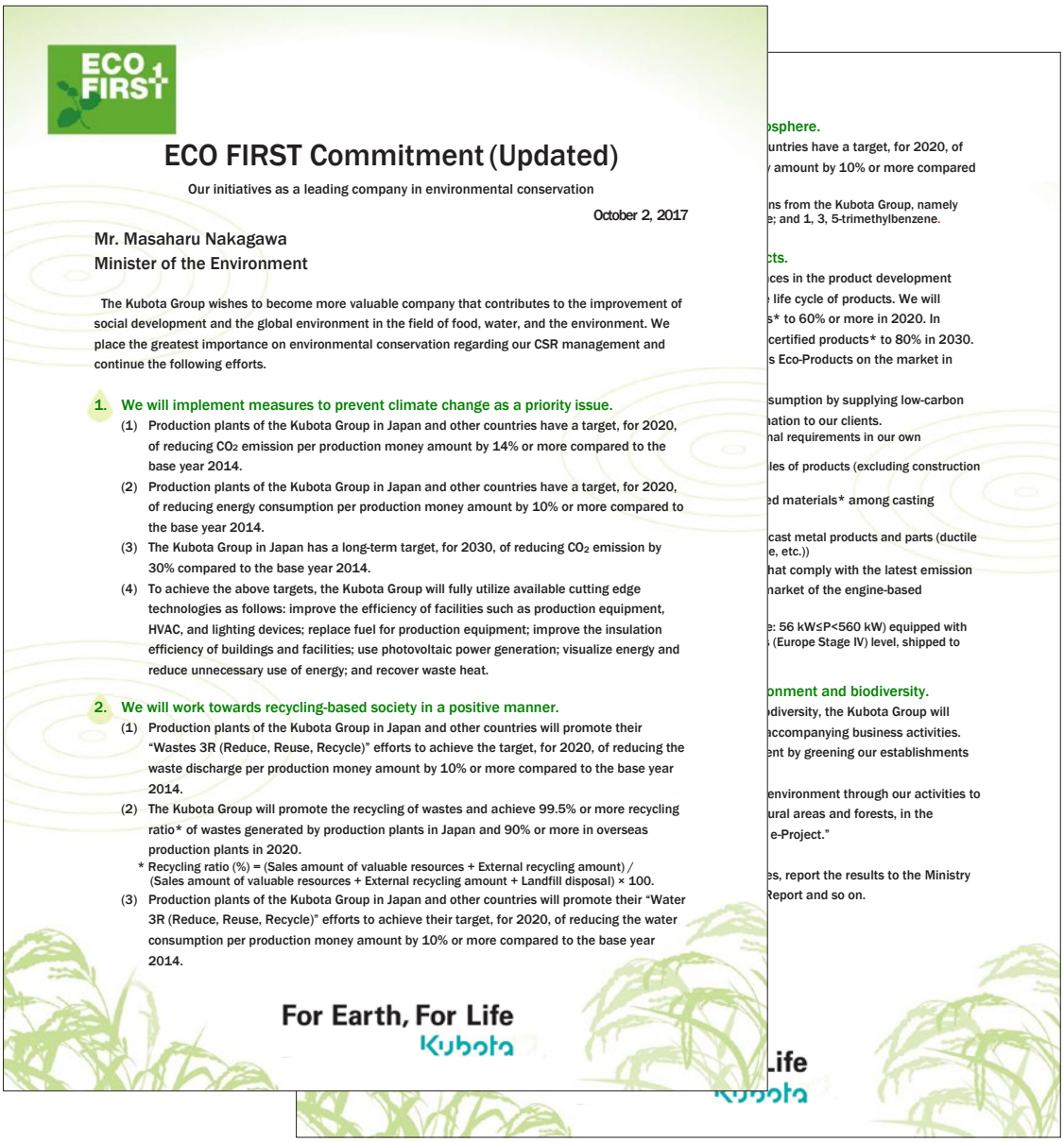
Combine harvester Korea Special ER595K

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- to 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.

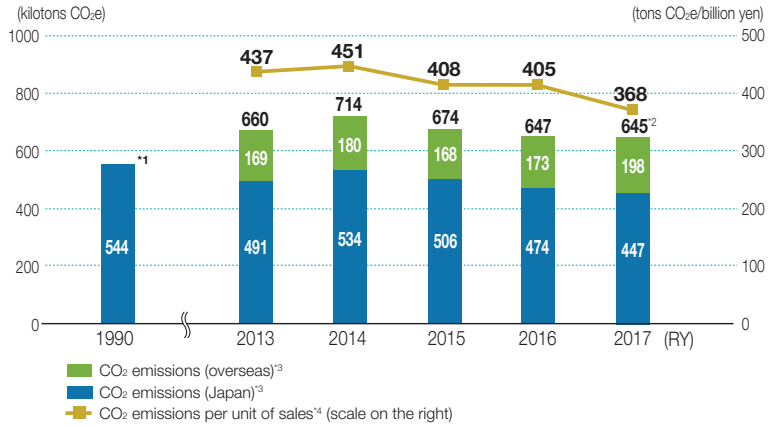
The Kubota Group sees tackling climate change as one of its materiality, and has been advancing initiatives toward the "mitigation" of climate change to reduce greenhouse gas emissions associated with its business activities and "adaptation" to be prepared for the impact of climate change.

Mitigation of Climate Change

CO_2 Emissions (Scope 1 and Scope 2)

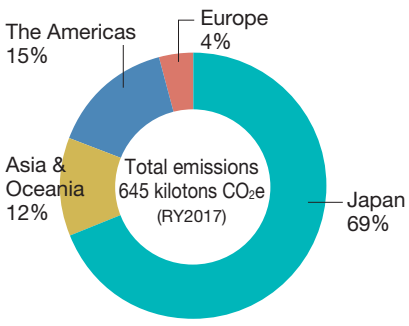
In RY2017, CO_2 emissions were 645 kilotons CO_2e, about the same level as the previous reporting year. Meanwhile, CO_2 emissions per unit of sales improved by 9.1% compared to the previous reporting year. The improvement in CO_2 emissions per unit of sales is mainly due to the measures implemented to reduce CO_2 emissions, as well as the reduction of emissions rate at cast iron production sites in Japan, which take large part of per-unit-sales of CO_2.

Trends in CO_2 Emissions and Emissions Per Unit of Sales

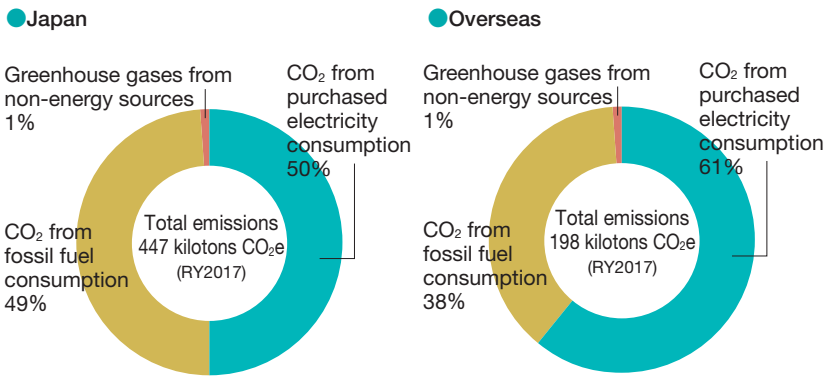


*1 CO_2 emissions for RY1990 are the emissions from energy sources at Kubota production sites.
*2 CO_2 emissions (645 kilotons CO_2e) include portions of CO_2 that were not released into the atmosphere but absorbed as carbon into products such as iron pipe (19 kilotons CO_2e).
*3 CO_2 emissions after RY2013 include greenhouse gases from non-energy sources.
*4 CO_2 emissions per unit of consolidated net sales
*5 Values for RY2013 through RY2015 were corrected to improve accuracy.

CO_2 Emissions by Region

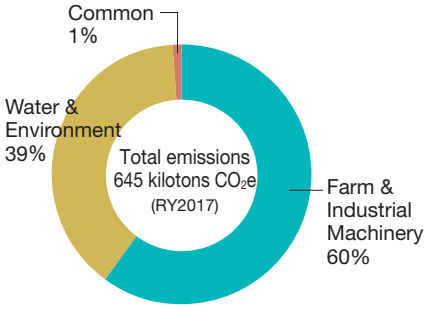


CO_2 Emissions by Emission Source

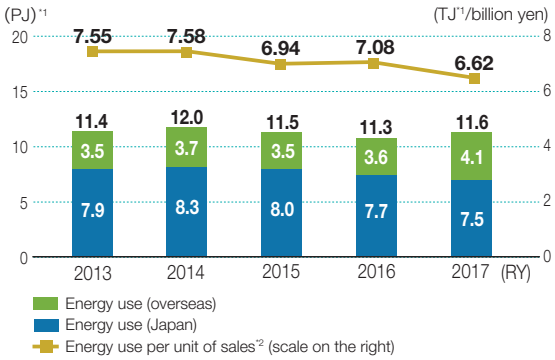


For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.81).

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
*3 Values for RY2013 through RY2016 were corrected to improve accuracy.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.81).

Measures to Reduce CO_2 Emissions

The Kubota Group has established its Medium- to Long-Term Environmental Conservation Targets (p.31-32) and is devoting efforts to reducing CO_2 emissions and energy use associated with its business activities. Various initiatives, including 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, have been implemented mainly at production sites. At the same time, all global sites have been expanding their use of LED lighting.

The initiatives implemented during RY2017 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. Kubota Construction Machinery (Wuxi) Co., Ltd. (China) introduced a solar power generation system in RY2015. In RY2017, it generated 1,593 MWh of electricity and reduced CO_2 emissions equivalent to approximately 1,047 tons. SIAM Kubota Corporation (Thailand) also introduced a solar power generation system, which started full-scale operation from RY2018.

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 26.6 kilotons CO_2e in RY2017 compared with the case where countermeasures were not implemented from the base year (RY2014). The economic effects of these measures reached 0.59 billion yen compared to RY2014. CO_2 emissions per unit of production in RY2017 improved by 15.2% compared to RY2014.

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

VOICE

Reducing CO_2 emissions by introducing a solar power generation system

The Amata Nakorn Plant of SIAM Kubota Corporation Co., Ltd. (Thailand) introduced a solar power generation system in the plant building, which had been expanded along with the enhancement of the production capacity for combine harvesters.

SIAM Kubota Corporation Co., Ltd.
Amata Nakorn Plant
Production Engineering Dept.
Thouchapol Jiramoree

Around 70% of the energy used at the Amata Nakorn Plant is electricity. The Plant uses approximately 12,600 MWh of electricity (in RY2016) annually. In line with the production capacity enhancement, which is expected to boost electricity consumption in the future, we installed solar panels on the roof and walls of the expanded plant, reflecting our wish to make our plant, which uses renewable energy in addition to promoting energy-saving activities on production lines, more environment-friendly. We used the Thai Government's investment incentive program for environmental equipment to lower the cost for installation.

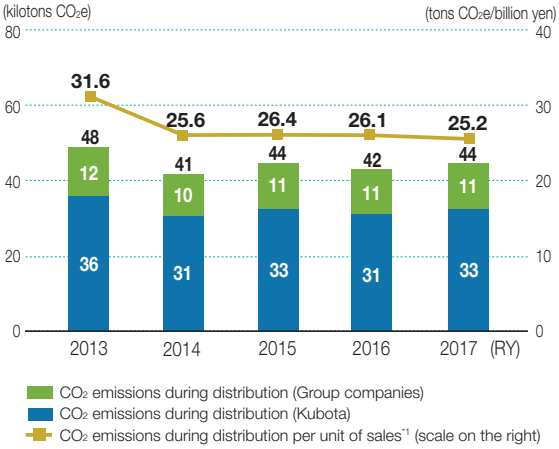
The expanded area of the plant started full-scale operation in October 2017, and the solar power generation system started operation in 2018. Output of the power generation facility is 535.5 kW in total, with an annual power generation of approximately 780 MWh, and a CO_2 reduction of approximately 350 tons is expected.

We will make continued efforts to further reduce CO_2 emissions.

CO_2 Emissions during Distribution

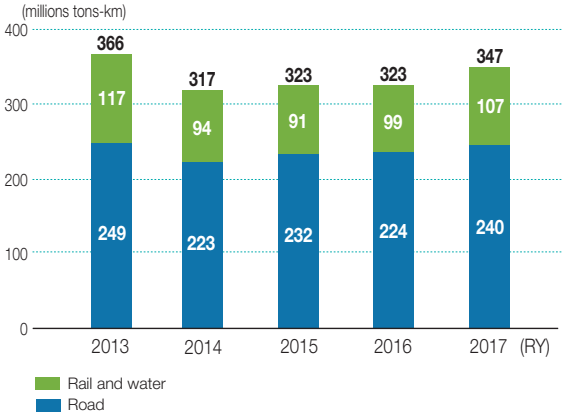
In RY2017, CO_2 emissions during distribution were 44 kilotons CO_2e, an increase of 6.1% compared to the previous reporting year. Meanwhile, CO_2 emissions during distribution per unit of sales improved by 3.3% compared to the previous reporting year. The increase in CO_2 emissions during distribution is mainly due to an increase in the volume of freight traffic, although the Kubota Group continuously promoted various approaches such as improving loading efficiency by combining transportation and realizing a modal shift through the use of ships.

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



*1 CO_2 emissions during distribution per unit of consolidated net sales
*2 Values for RY2015 were corrected to improve accuracy.

Trends in Freight Traffic (Japan)



* Values for RY2015 were corrected to improve accuracy.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.81).

CO_2 Emissions throughout the Value Chain

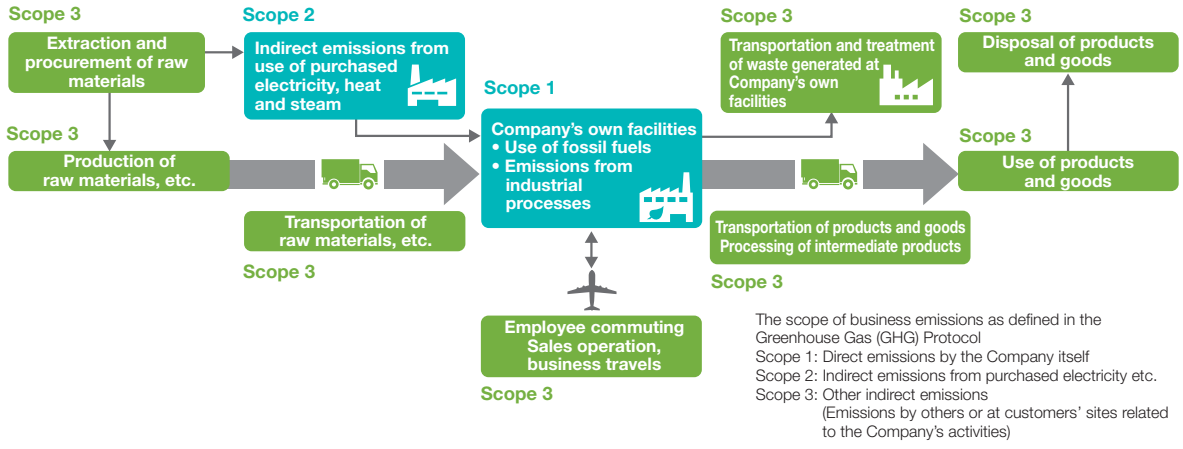
The Kubota Group makes concerted efforts to figure out CO_2 emissions throughout the value chain in addition to its business sites. Following guidelines*, we calculate CO_2 emissions based on Scope 3, and continue to expand the categories in the Scope of its calculation of CO_2 emissions.

* 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 (RY2017 results)

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

Example Activities of Each Scope



For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.81).

Adaptation to Climate Change

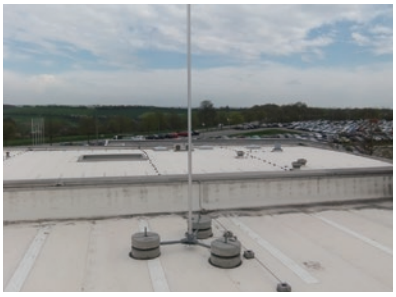
Measures to Adapt to Climate Change

In response to climate change, the Kubota Group has been advancing initiatives in terms of “adaptation” to be prepared for the impact of climate change, as well as the initiatives for “mitigation” aimed at reducing CO_2 and other greenhouse gas emissions.

As part of the measures for adaptation to climate change, business sites have formulated BCPs and disaster response manuals. To be prepared for high tides and torrential rain, they have also installed sump pumps and hold emergency drills.

Major initiatives in the products and services field are as follows.

- 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
- 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 using membrane technology to facilitate the use of seawater
- Provision of information for farmers on changes in temperature, precipitation, and the amount of solar radiation, as well as the impact thereof on crops
- Provision of a water level management service using weather information in collaboration with the NTT Group in the sewerage area
- As a measure for floods or other disaster caused by abnormal climate, provision of disaster-relief pumper vehicles, ultra-light, emergency sump pump units, piping systems for manhole toilets, and so on



The lightning protection system introduced in response to frequent thunderstorm
Kubota Baumaschinen GmbH

<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.

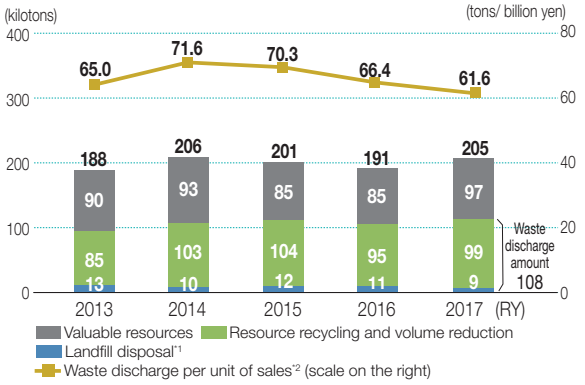
The Kubota Group sees working towards a recycling-based society as one of its materiality, and has been advancing initiatives to promote “reduce” (reducing the amount generated), “reuse” (internal recycling and reuse), and “recycle” (improving the recycling ratio) of waste, in addition to initiatives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

Waste, Etc. from Business Sites

In RY2017, the waste discharge amount was 108 kilotons, an increase of 1.8% compared to the previous reporting year. Meanwhile, the waste discharge per unit of sales improved by 7.2% compared to the previous reporting year. The improvement in waste discharge per unit of sales is mainly due to the measures implemented to reduce waste, as well as the reduction of production volume at cast iron production sites in Japan, which discharge large per-unit-sales of waste.

Of the waste etc. discharge amount in RY2017, the amount of hazardous waste discharge was 6.0 kilotons (2.9 kilotons in Japan and 3.1 kilotons overseas).

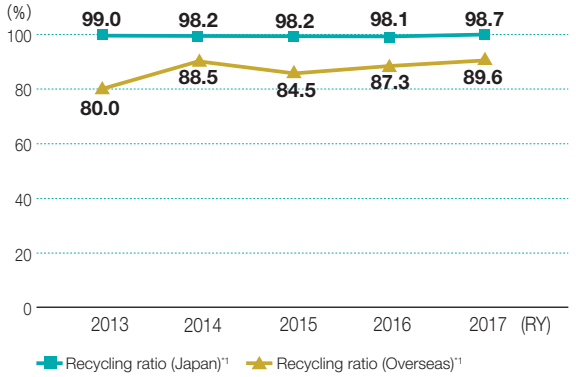
Trends in Waste, Etc. (including valuable resources) and Waste Discharge per Unit of Sales



*1 Landfill disposal = Direct landfill disposal + Final landfill disposal following intermediate treatment
*2 Waste discharge per unit of consolidated net sales.
Waste discharge = Resource recycling and Volume reduction + Landfill disposal
*3 Values for RY2014 were corrected to improve accuracy.

The resource recycling ratio in RY2017 was 98.7% in Japan, maintaining about the conventional level. The recycling ratio overseas was 89.6%, a 2.3-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.

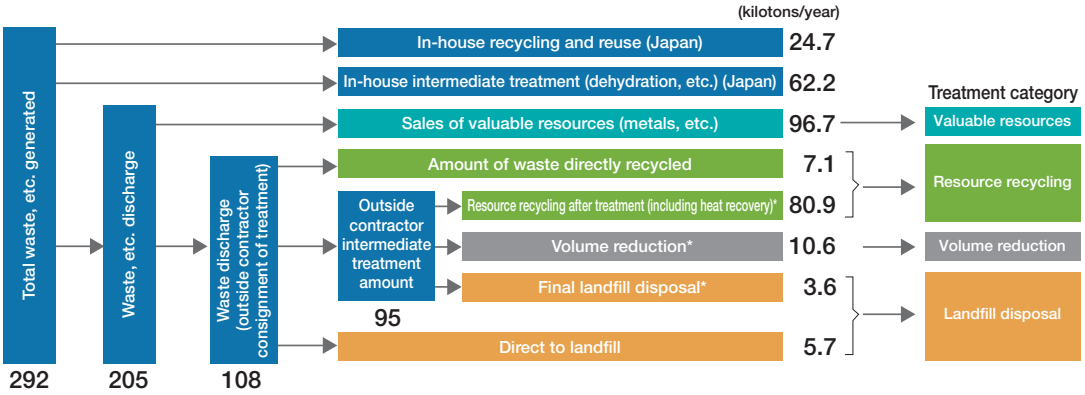
Trends in Recycling Ratio



*1 Recycling ratio (%) = (Sales amount of valuable resources + External recycling amount) / (Sales amount of valuable resources + External recycling amount + Landfill disposal) × 100.
*2 Value of the resource recycling ratio (overseas) for RY2014 was corrected to improve accuracy.

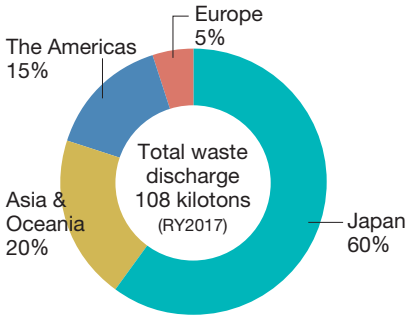
For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.81).

Waste Recycling and Treatment Flow (RY2017 results)

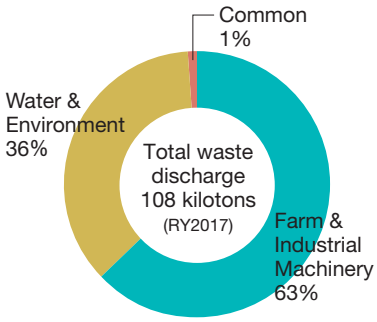


*The amounts of resource recycling after treatment, volume reduction, and final landfill disposal were the results of surveys conducted by outside intermediate treatment companies

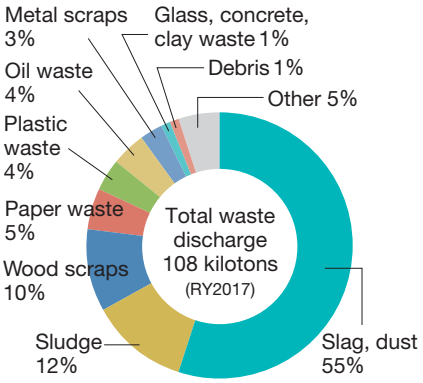
Waste Discharge by Region



Waste Discharge by Business

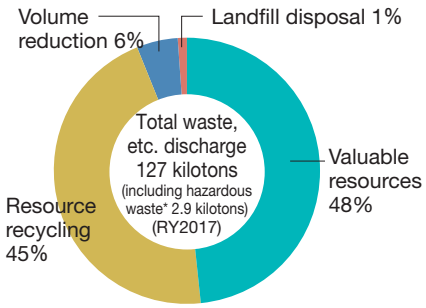


Waste Discharge by Type

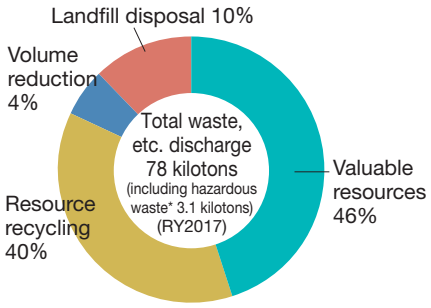


Waste, Etc. Discharge by Treatment Category

Japan



Overseas



* Hazardous waste: 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 (Not subject to the third-party assurance).

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.81).

Measures to Reduce Waste

The Kubota Group has established its Medium-Term Environmental Conservation Targets 2020 (p.32) 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 RY2017, 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, which is generated in large amounts in the casting process, and the conversion of waste into valuable resources out of the sand. The Group also explores the use of recycled waste. Focusing on the useful components of slag generated in the melting process, such as silicic acid, the Group has been making efforts in converting such components into valuable materials, such as greening base material and soil conditioners. Machinery production sites have been continuously promoting the reduction of the amount of sludge and waste oil or oil-containing wastewater generated in the painting booth.

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 2,500 tons of waste in RY2017 compared with the case where countermeasures were not implemented from the base year (RY2014). The economic effects of these measures reached 66 million yen compared to RY2014. Waste discharge per unit of production in RY2017 improved by 13.6% compared to RY2014. The recycling ratio was 99.8% at production sites in Japan and 91.4% at production sites overseas, both achieving the targets of the Medium-Term Environmental Conservation Targets 2020.

Moreover, production sites in Japan have raised the introduction rate of electronic manifests to 91%, 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 the landfill disposal of waste by recycling casting dust, etc.

SIAM KUBOTA Metal Technology Co., Ltd. (SKMT) (Thailand) worked on improving the recycling rate and reducing the landfill disposal of waste by recycling casting dust, etc.

SKMT manufactures cast iron items for engines and tractors. Dust generated in manufacturing activities and slag generated in furnaces contain a lot of impurities, and therefore could not be recycled but had to be disposed of by landfill. Because of this situation, the waste recycling ratio during the period from RY2013 to RY2015 was between 67.6% and 75.0%.

To promote the effective use of resources, we set a target for the waste recycling ratio of 86% or above, and examined the measures for improvement and explored local business operators to undertake recycling. Internally, we collected dust with few impurities after separating impurities such as metal strips and plastic materials from dust using a sieving machine. For slag, we also thoroughly separated impurities from the slag. Consequently, we succeeded in recycling pure dust as an admixture for cement kilns and slag as a building material. As a result of these efforts, our recycling ratio reached 77.3% in RY2016 and 88.7% in RY2017.

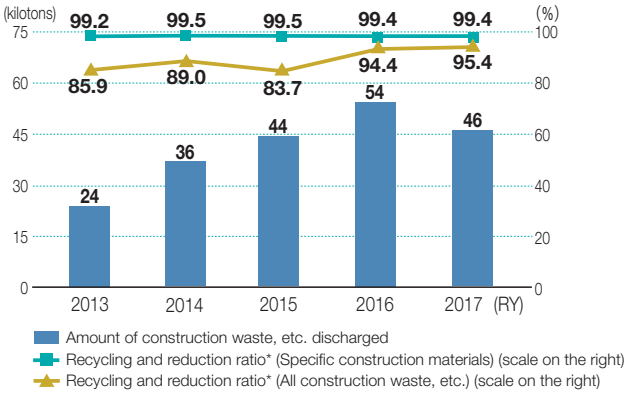
We will make continued efforts to further improve the waste recycling ratio and reduce waste generation, thereby contributing to the conservation of the global environment.

SIAM KUBOTA Metal Technology Co., Ltd.
Business Support Dept.
Safety & Environment Technician
Suttisarn Tunlai (left)
Environment Officer
Thanitta Patsa (right)

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.81).

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

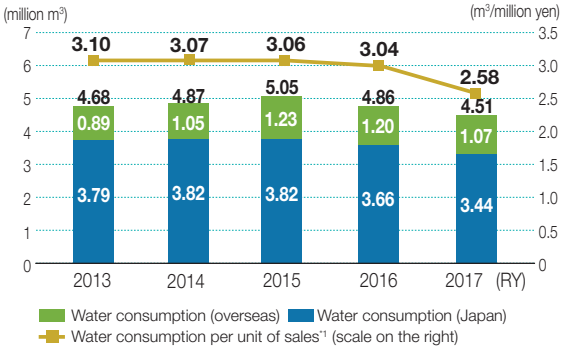
The Environmental Outlook to 2050 (2012) produced by the Organization for Economic Co-operation and Development (OECD) reports that during the period between 2000 and 2050, global demand for water will increase by approximately 55%, and over 40% of the global population will be living in river basins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

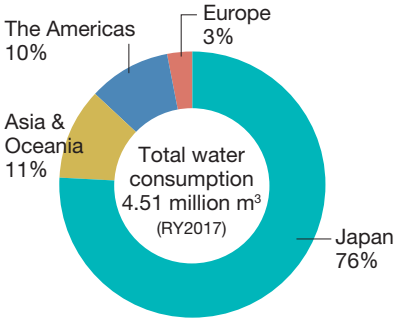
In RY2017, water consumption was 4.51 million m^3, a decrease of 7.1% compared to the previous reporting year. Additionally, water consumption per unit of sales improved by 15.4% compared to the previous reporting year. These achievements are mainly due to the measures implemented to reduce water consumption, as well as the reduction of production volume at cast iron production sites in Japan.

Trends in Total Water Consumption and Consumption per Unit of Sales

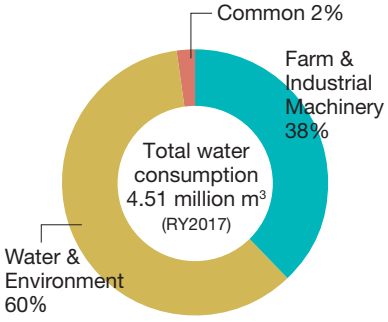


*1 Water consumption per unit of consolidated net sales
*2 Values for RY2014 and RY2015 were corrected to improve accuracy.

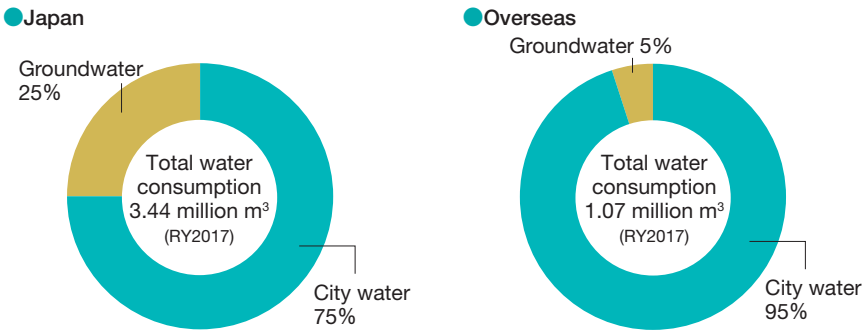
Water Consumption by Region



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.81).

Measures to Reduce Water Consumption

The Kubota Group has established its Medium-Term Environmental Conservation Targets (p.32), 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 equipment or wastewater recycling systems utilizing technologies of the Kubota Group.

In 2017, in addition to daily activities such as raising employees' awareness of saving water and conducting patrols to check water leakage, efforts were made to raise the ratio of utilization of recycled water at the sites where the wastewater recycling system has been introduced. Kubota Agricultural Machinery (Suzhou) Co., Ltd. (China) succeeded in reducing water consumption approximately 16,000 m^3 per year by reusing the water recycled by the MBR* it had introduced in the precoating process. The total amount of recycled water at all sites where the wastewater recycling system has been introduced was 89,000 m^3, which was reused in production processes or used for watering of green zones.

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 296,000 m^3 in RY2017 compared with the case where countermeasures were not implemented from the base year (RY2014). The economic effects of these measures reached 48 million yen compared to RY2014. Water consumption per unit of production in RY2017 improved by 16.9% 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.

* MBR (Membrane Bio Reactor = membrane separation activated sludge method): A wastewater treatment method combining biological treatment using microorganisms and solid-liquid separation using membranes

VOICE

Reducing water consumption by the recycling of in-process wastewater

Kubota Engine (Wuxi) Co., Ltd.
Quality Assurance ISO Group
Li Wei (left), Zhang Yanbei (right)

Since the beginning of its plant operation in September 2013, Kubota Engine (Wuxi) Co., Ltd. (KEW) (China) has introduced RO (reverse osmosis) membrane treatment and MBR wastewater treatment systems in response to the wastewater regulations of Wuxi City, and has promoted the recycling of in-process wastewater by filtration and the recycling of residential wastewater by making it harmless.

In-process waste liquid discharged from the processes of operation and the coating of manufactured engines contains impurities such as oil and coating refuse. The disposal of oil and coating refuse should be commissioned to external professional contractors. Nevertheless, we reduce in-process waste liquid to 95% by distillation and concentration to remove impurities in the waste liquid, and then purify it by RO membrane treatment. The purified water is reused as water for cooling operations and for pre-coating treatment. This helps us stabilize the product quality and reduce water consumption and waste.

At the same time, the introduction of Kubota's MBR membrane-type wastewater treatment system has enabled the treatment of all of residential wastewater from bathrooms and toilets in the plant. The treated water is reused for watering in the plant and for toilets.

For these initiatives, KEW was certified as a "water conservation model company" of Wuxi City in May 2017.

KEW will continue to enhance its environment-friendly manufacturing, thereby further contributing to the conservation of 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 RY2017, the amount of wastewater discharge was 4.68 million m^3 (3.26 million m^3 into public water areas, 1.42 million m^3 into sewage lines), a decrease of 10.8% 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.

VOICE

Reducing risk in wastewater by visualizing wastewater management

The Mukogawa Site of the Kubota Hanshin Plant promotes the “visualization of wastewater management” as part of its initiatives to enhance environmental risk management.

At the Mukogawa Site, wastewater discharged from manufacturing processes is treated in the wastewater treatment facility inside the plant before being released to a public water area. For wastewater management, we have set self-control values that are stricter than the control values of the laws or ordinances in accordance with the rules of the Kubota Group, while visualizing the water quality values measured by an automatic measuring instrument.

Kubota Hanshin Plant
Back row from left: Tomonori Aragaki, Makoto Adachi, Mitsuhiko Kawamura, and Yasuhiro Nakaya (foreman)
Front row from left: Yasuhiro Fukuda (team leader), Tetsuo Kuroyama, Kazuki Motokura

In management of the pollution load (pollution concentration × amount of water discharge), in particular, we have made visible the trends of changes in the concentration and pollution load of pollutants contained in wastewater, so that anyone can determine whether wastewater is normal or abnormal. This enables operators to discover any unusual condition of wastewater at an early stage and to promptly take preventive action. The introduction of monitoring of water quality trends has also enabled operators to proactively think and take action, leading also to the vitalization of workplaces.

In order to reduce human errors in decision making, besides the standardization of work procedures, we automatically stop water discharge in an emergency without relying on decisions by persons, thereby eliminating the risk of exceeding the standard values.

We will continue to promote management with the “visualization of wastewater management” and the “automatic stopping of abnormal water discharge.” We will also apply these activities to other equipment in the plant, with the aim of further reducing environmental risks and promoting the prevention of environmental pollution and the conservation of the regional environment.

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*1 for all of its production sites.

The results of a survey on water stress of a total of 53 sites in 15 countries using WRI Aqueduct 2014*2 and WBCSD Global Water Tool (Version2015 1.3.5)*3 are as follows:

Results of the Survey on Water Stress of Production Sites (RY2017)

Region, country		Water stress level / Water consumption (thousand m³) <number of sites>				
		High	High-Middle	Middle	Middle-Low	Low
Asia	Japan	96 〈3〉	1,378 〈8〉	1,608 〈9〉	59 〈2〉	0
	China	0	114 〈3〉	0.4 〈1〉	0	0
	Indonesia	0	32 〈2〉	0	0	0
	Thailand	0	0	267 〈4〉	18 〈1〉	0
	Saudi Arabia	11 〈1〉	0	0	0	0
Europe	Russia	0	0.4 〈1〉	0	0	0
	Norway	0	0	0	0	31 〈1〉
	Denmark	0	0	0	0	34 〈1〉
	Netherland	0	0	0	13 〈1〉	0
	Germany	0	0	8 〈1〉	4 〈1〉	0
	France	0	1 〈1〉	0	0	1 〈1〉
	Italy	0	8 〈1〉	0	0	0
	United Kingdom	0	0	0.5 〈1〉	0	0
North America	Canada	0	0	0	0	229 〈1〉
	United States	27 〈6〉	0	121 〈2〉	0	0
Total		134 〈10〉	1,533 〈16〉	2,005 〈18〉	94 〈5〉	295 〈4〉

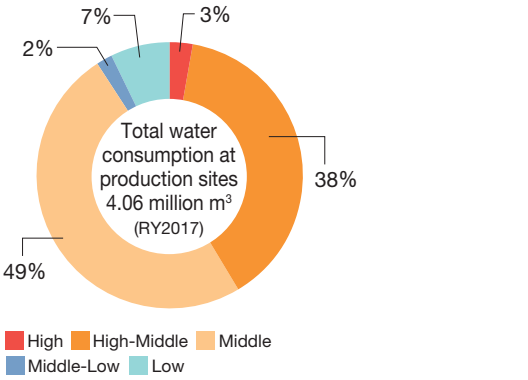
The survey results showed that the water consumption at the production sites with water stress of “Middle” level accounts for about a half of total (49%), followed by the water consumption at the sites with “High-Middle” level, accounting for 38%.

The production sites with “High” level of water stress 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 account for around 3% of total, and the number of such sites is 10.

Knowing that much of the water used for its production activities is taken in areas with relatively high level of water stress, the Kubota Group will implement measures to minimize the impact on business activities, while promoting management not to cause adverse effects on lives of local residents and ecosystems.

The Kubota Group plans to set up new business sites with the aim of expanding its businesses on a more global scale. For such new sites, the Group will conduct water stress surveys for their respective water areas.

Water Consumption by Water Stress Level



*1 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))

*2 A tool developed and released by the World Resources Institute (WRI) to assess water risk information

*3 A tool developed and released by the World Business Council for Sustainable Development (WBCSD) to assess water risk information

<SDGs related to this section>

Controlling Chemical Substances

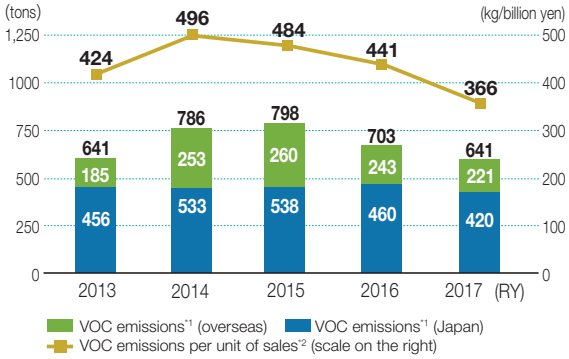
The World Summit on Sustainable Development (WSSD) held in 2002 adopted a resolution that chemical substances would be managed in such a manner as to minimize the impact of the chemical substances on human health and the environment, and relevant regulations therefor have been formulated by each member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

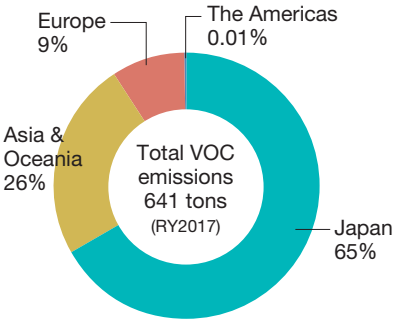
In RY2017, VOC emissions were 641 tons, a decrease of 8.8% compared to the previous reporting year. Additionally, the VOC emissions per unit of sales improved by 16.9% compared to the previous reporting year. These achievements are mainly due to the measures implemented to reduce VOC emissions, as well as the reduction of production volume at cast iron production sites in Japan.

Trends in VOC Emissions and Emissions per Unit of Sales

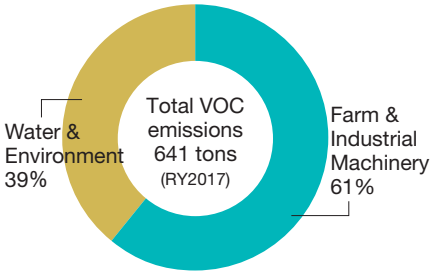


*1 VOCs comprise the six substances that are most prevalent in emissions from the Kubota Group: xylene, toluene, ethylbenzene, styrene, 1, 2, 4-trimethylbenzene, and 1, 3, 5-trimethylbenzene.
*2 VOC emissions per unit of consolidated net sales
*3 Values for RY2013 through RY2016 were corrected to improve accuracy.

VOC Emissions by Region

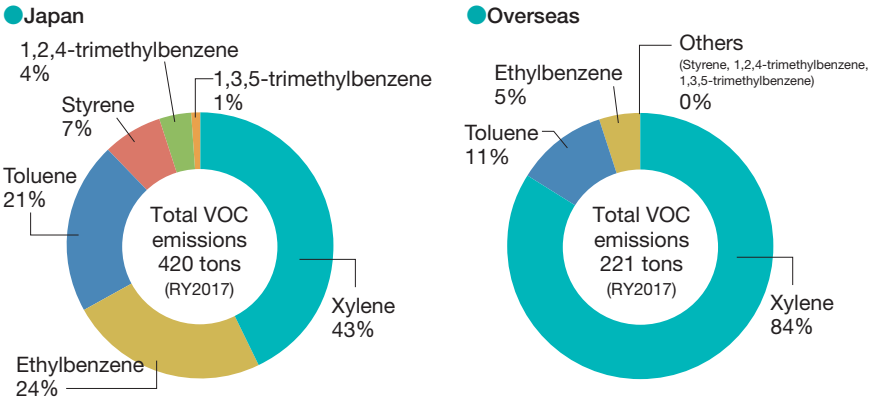


VOC Emissions by Business



For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.81).

VOC Emissions by Substance



For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.81).

Measures to Reduce VOCs

The Kubota Group has established its Medium-Term Environmental Conservation Targets (p.32) 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 RY2017, the Kubota Group reduced the amount of VOCs it handles through efforts such as improving the coating method to improve the coating efficiency of paint, promoting replacement with VOC-free materials, and collecting and recycling used thinner. Kubota Construction Machinery (Wuxi) Co., Ltd. (China) introduced a device to collect thinner, a VOC-containing material, and has collected approximately 1.6 tons of VOCs. At machinery production sites in Japan, China, Germany, etc., VOC removal equipment has been introduced in phases. Sites that have introduced the equipment have achieved reduction of VOC emissions into the atmosphere of 90%.

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 102 tons in RY2017 compared with the case where countermeasures were not implemented from the base year (RY2014). The economic effects of these measures reached 0.16 billion yen compared to RY2014. VOC emissions per unit of production in RY2017 improved by 25.1% 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 burden on neighborhoods, in addition to the efforts to stop the use of VOC-containing paint and thinner or replace them with substitutes.

VOICE

Reducing VOC emissions by installing the latest VOC removal equipment

Kubota Agricultural Machinery (Suzhou) Co., Ltd.
Environmental Management Department
Shen Qi

Kubota Agricultural Machinery (Suzhou) Co., Ltd. (China) has introduced VOC (volatile organic compound) removal equipment that employs the latest two-step zeolite rotor, for coating exhaust gas treatment at its new plant.

In November 2017, the Company built a new plant in response to the production increase of tractors and combine harvesters. Since paint and thinner used for coating contain VOCs, the exhaust gas generated at the new plant must satisfy the emissions standards of the Chinese Government and reduce the environmental loads on the surrounding areas.

We have introduced the VOC removal equipment using a two-step zeolite rotor, which absorbs with zeolite the VOCs in exhaust gas generated in coating processes, and sufficiently lowers the VOC concentration before emitting the exhaust gas into the atmosphere. The VOCs absorbed by zeolite are heated so as to be desorbed from the zeolite, and then sent to heat regenerative combustion equipment where they are dissociated into water and CO_2. The rotor keeps turning to repeatedly perform this absorption-desorption cycle.

By the introduction of this equipment, we expect a 97% reduction in VOCs generated in coating processes. The equipment started full-scale operation in December 2017, and we are currently measuring its performance.

At the same time, we are promoting the use of VOC-free paint and have started to implement replacement with water-soluble paint.

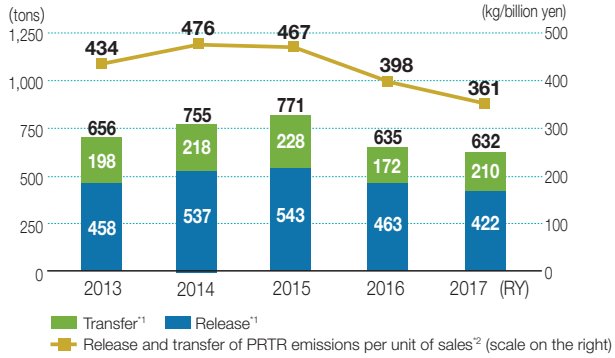
In January 2018, at the Communist Party (expanded) committee meeting for the Suzhou Industrial Park, our plant was selected as one of the 10 best energy-saving and exhaust-reducing companies of 2017. In addition to our VOC reduction initiatives described above, efforts to reduce hazardous chemical substances in wastewater and to reduce electricity consumption by replacing motor fans with new energy-saving type fans were highly appreciated.

Release and Transfer of PRTR-designated Substances

In RY2017, a total of 632 tons of substances stipulated in the PRTR Law* were released and transferred, a decrease of 0.4% compared to the previous reporting year. Additionally, the release and transfer per unit of sales improved by 9.2% compared to the previous reporting year. The release and transfer of PRTR-designated substances slightly decreased due to the reduction of production volume at cast iron production sites, despite an increase in the production volume at machinery production sites. 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
*3 Values for RY2013 through RY2016 were corrected to improve accuracy.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.81).

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 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 RY2017 were 17.5 tons for SOx (down by 44.4% from the previous year), 68.8 tons for NOx (down by 27.0%), and 21.9 tons for soot and dust (down by 17.4%). We will continue to reduce emissions of air pollutants through initiatives such as controlling sources by fuel conversion and maintaining dust collecting equipment.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.81).

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 (RY2017)

Business site	Substance	Measured groundwater value	Environmental standard
Tsukuba Plant	Trichloroethylene	Non-detected (less than 0.0001 mg/L)	Less than 0.03 mg/L
Utsunomiya Plant	Trichloroethylene	Non-detected (less than 0.001mg/L)	Less than 0.03 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

<SDGs related to this section>

Expanding Environment-friendly Products and Services

The Kubota Group is contributing to protecting 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 also 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 based on the concept of the Kubota Production System
- 3Rs for waste and water resources
- 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

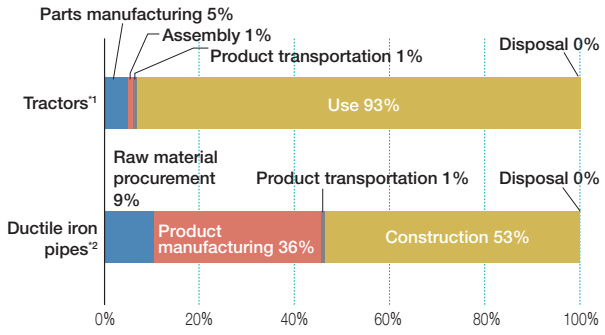
Use
- Reduction of fuel consumption
- Improving efficiency and saving labor for work and management
- Improving ease of maintenance, extending product life
- Reduction of exhaust gas
- Reduction of noise, vibration

Disposal
- Promoting product recycling
- 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.

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	
	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
Agriculture-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 the power consumption of electronic circuits				C	
	Reducing the noise of rice-milling machines				B	
	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 the 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				C	
	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	
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				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

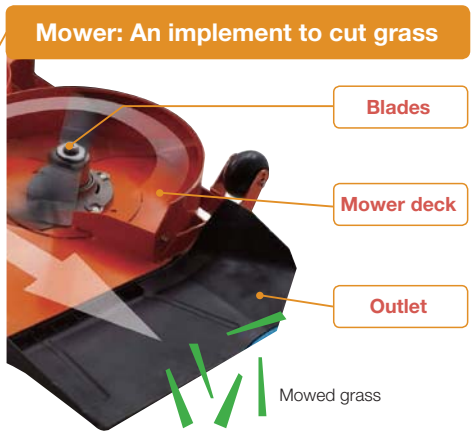
Examples of Initiatives to Ensure Environment-friendliness

(1) Zero-Turn Mowers

The Zero-Turn Mower ZD1500 series is a lineup of riding diesel mowers available in North America. In North America, not only residential houses in general but companies, hospitals and schools also have large lawn gardens, and riding lawn mowers are used for lawn maintenance.

A Zero-Turn Mower cuts grass with an implement called a mower. The mower, composed of blades and a mower deck surrounding the blades, mows the grass by rotating the blades at a high speed to vacuum and raise the grass. The mowed grass is released from the outlet and scattered uniformly on the farmland.

Zero-Turn Mower ZD 1500 series

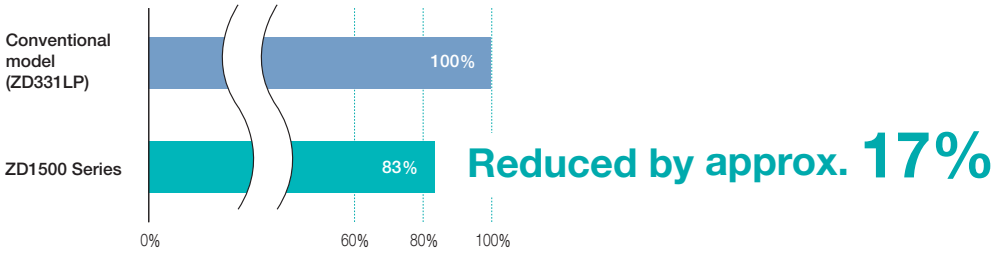


Reverse side of the mower

■Unique mowing system to reduce fuel consumption

- The Zero-Turn Mower ZD1500 series adopts the Aerodynamic Cutting System™ (ACS), Kubota's unique mowing system. The ACS optimizes the rotation rate and the shape of the mowing blades, the shape of the mower deck, etc., so as to alleviate the power load while maintaining a certain performance level of grass mowing and release.
- With the introduction of the ACS, fuel consumption during operation has been reduced by approximately 17% compared to conventional models.

Comparison of Fuel Consumption per Work Unit



■Making exhaust gas cleaner to comply with the latest exhaust gas regulations

- The Zero-Turn Mower ZD1500 series are equipped with Kubota diesel engines complying with the latest exhaust gas regulations EPA Tier4 (engine output of 19 kW or more, but less than 37 kW) in North America.

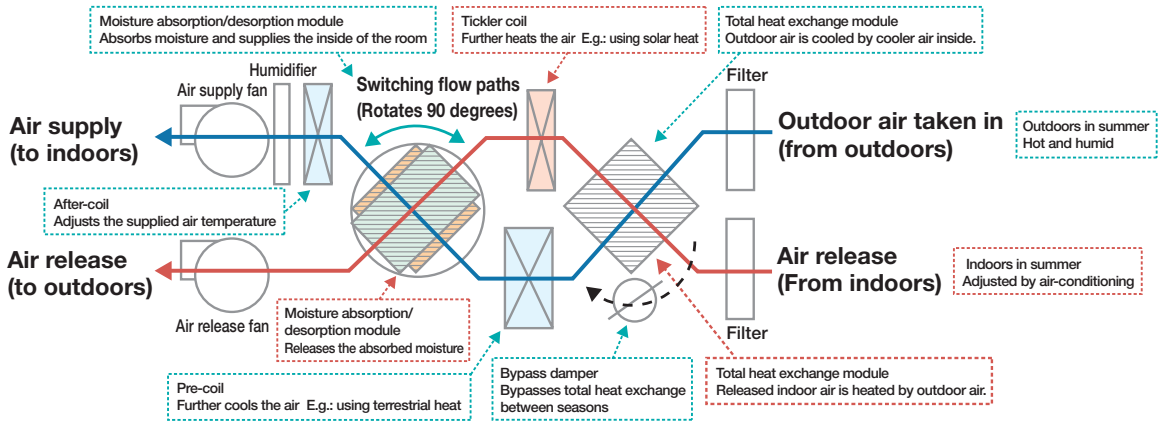
(2) Air-conditioning equipment

The Kubota Group develops various types of air-conditioning equipment suited for various buildings, such as offices and hospitals. Many of the current air-conditioning systems employ a system whereby air is cooled, condensed and dehumidified. In recent years, ZEBs (net-zero energy buildings) have been promoted, through the introduction of energy-saving office equipment/lighting equipment, heat insulation of buildings, and shielding of sunlight. As a result, the heating of rooms has been reduced, and therefore sufficient air cooling for dehumidification is no longer necessary.

This has led to the development of a desiccant air-conditioner, which is able to separately control temperature and humidity. It is, however, equipped with a large desiccant rotor, requiring a dedicated machine room for installing the air-conditioner.

The Kubota Group has developed a humidity control outdoor-air processing unit equipped with an apparatus to switch flow paths by changing the direction of the moisture absorption/desorption block, thereby realizing the substantial downsizing of and energy saving in desiccant air-conditioners.

Appearance of the humidity control outdoor-air processing unit



Structure of the humidity control outdoor-air processing unit and the air flows (in summer)

■Reduced size and weight

The Kubota Group has integrated the air flow-path switching equipment and the moisture absorption/desorption equipment in the humidity control outdoor-air processing unit, achieving a small size installable in the ceiling. By eliminating the need for a machine room for air-conditioning, it can be introduced for the renovation of small or medium-sized buildings with improved workability. The weight has been reduced by 59% from a conventional desiccant air-conditioner.

*1 Comparison of the weight of a unit of Kubota's desiccant air-conditioner for 2013 and the weight of five humidity control outdoor-air processing units, under the premise of air-conditioning for the same space

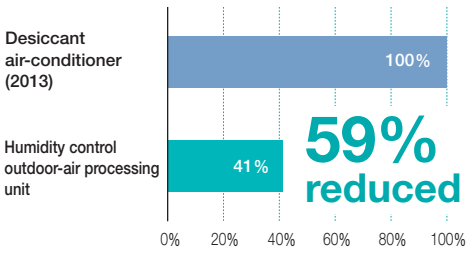
■Energy-saving performance

The humidity control outdoor-air processing unit performs dehumidification with the moisture absorption/desorption block, which requires less energy for cooling, so as to realize energy-saving operation. The power consumption has been reduced by 22% from the conventional desiccant air-conditioner.

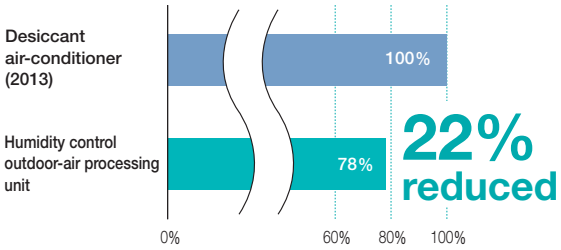
It can also use renewable energy, such as terrestrial heat and solar heat, for the heating or cooling of air.

*2 Energy-saving effect of the entire air-conditioning system. According to a simulation of annual power consumption by Kubota
Comparison of the same air volume with a 2013 desiccant air-conditioner

Comparison of Weight*1



Comparison of Annual Power Consumption*2



VOICE

In developing the humidity control outdoor-air processing unit

The Kubota Group's air-conditioning equipment is widely used in large buildings and plants.

As the movement toward energy saving and CO_2 emission reduction is accelerating globally, Japan is also promoting the ZEB (net zero energy building) initiative to achieve a "net zero" consumption of energy in buildings, requiring substantial reduction of energy consumption related to air-conditioning, which accounts for a large portion of energy consumption in a building.

The humidity control outdoor-air processing unit we have developed controls the temperature and humidity of the outdoor air with its total heat exchange module or moisture absorption/desorption module, and is therefore able to reduce the energy consumption related to air-conditioning by approximately 20%.

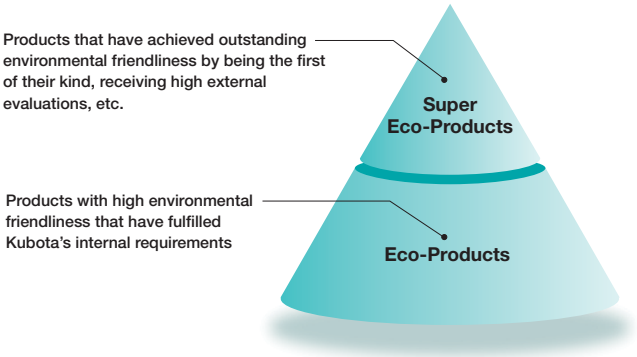
We will continue to advance research and development focusing on improvement of the energy-saving performance of air-conditioners.

Kubota Air Conditioner, Ltd.
Research & Development Dept.,
Hironori Kanno

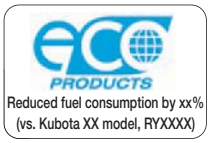
Internal Certification System for Eco-Products

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.



Example of an Eco-Product label

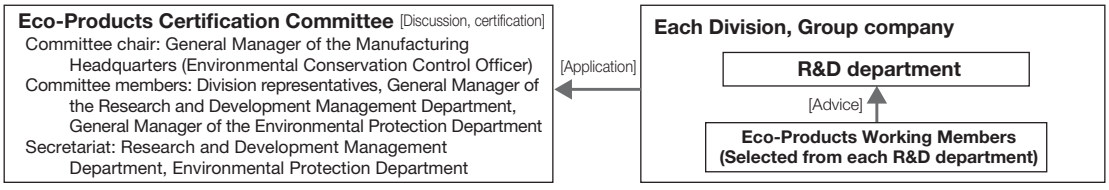


Eco-Products feature a label that shows their certification as Eco-Products.

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.	7, 13
• Working towards a Recycling-based Society	2. Resources saving Reducing weight and volume, extending product life, etc.	12
• Conserving Water Resources	3. Recycling Using recycled materials and recycled rare metals, etc.	12
• Controlling Chemical Substances	4. Reducing environmentally hazardous substances Reducing RoHS-designated substances, reducing gas emissions, etc.	6, 12
• Conserving Biodiversity	5. Information disclosure Notes about energy-saving operations, recycling and disposal, etc.	12, 13

Eco-Products Certification Committee

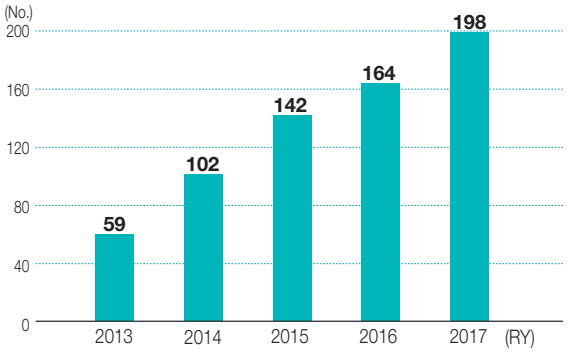
Eco-Products Certification Committee, chaired by the General Manager of the Manufacturing Headquarters, consists of the committee members elected from each Division, as well as the Research and Development Management Department and the Environmental Protection Department Upon receiving an application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



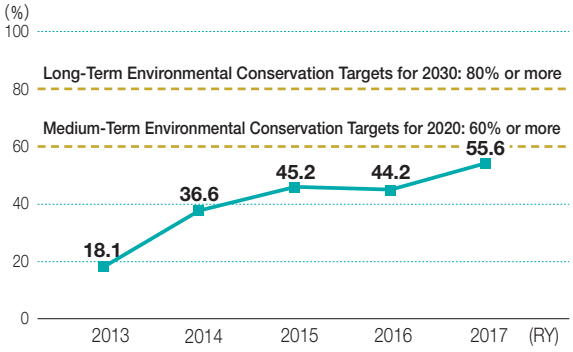
The Pathway to Expanding Certified Eco-Products

Based on the internal certification system established for Eco-Products, the Kubota Group certified additional 34 products in RY2017, bringing the total number of certified Eco-Products to 198. The sales ratio of Eco-Products was 55.6%. 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 Eco-Products in RY2017 (excerpt)

M7-171
Tractor
M7 Series
(Japan, North America, Europe)

Compliant with exhaust gas regulations

DC-105X
Combine harvesters
DC Series
(Thailand, etc.)

Conserving resources

SSV75ISO
Construction equipment
Skid steer loader (North America)

Saving energy

Compliant with exhaust gas regulations

Nominal diameter 150
Earthquake-resistant ductile iron pipe
NECS
NS type (E type pipe)

Conserving resources

Reducing environmentally hazardous substances

ZD1511LF
Riding diesel mowers
Zero-turn mower
ZD1500 Series (North America)

Saving energy

Compliant with exhaust gas regulations

R530E
Construction equipment
Mini wheel loaders

Saving energy

Compliant with exhaust gas regulations

KP-5000AT
Pellet screening system
PLATON II Auto

Saving energy

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

Saving energy

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

The Evolution of Environment-friendly Products and Services

The Evolution of Scales

Since its foundation, the Kubota Group has manufactured cast metal parts for scales. After starting manufacturing mechanical platform scales in 1924, the Group has produced various industrial scales, contributing to the improved efficiency of manufacturing by companies. At manufacturing sites today, technological innovations using huge data, such as IoT and AI, have been rapidly advancing. We will continue to support the manufacturing sites by further sophisticating its measuring and weighing technologies to obtain accurate data.

The Evolution of Scales and Expansion of Uses

The Kubota Group has evolved its scales from mechanical platform scales to load cells, which make use of metal strain, and to the development of digital load cells, which can directly output digital signals, satisfying the needs of customers. Today the Group's scales are used for various purposes.

			1890	1920	1950	1980	2010
Social background			・Prefectural system, district system ・The Weights and Measures Act established	・Rationalization of industry ・Standardization of industrial products ・The Weights and Measures Act revised	・Postwar recovery ・Labor shortage ・The Measurement Act established	・Oil crisis	・Strategic Innovation Promotion Program ・Agricultural Competitiveness Enhancement Support Act
Customer needs			・Stabilization of the quality of scales (Supply of defect-free parts with high dimensional accuracy)	・Standardization of equipment (Steel, electricity, gas, cement)	・Automation, labor saving of equipment	・Downsizing, sophistication of equipment ・Cost reduction	・Visualization of data / preventive maintenance ・Improvement in productivity (agriculture)
Evolution of scales			・Supply of weighing parts	・Full-scale launch of weighing machines	・Automation, labor saving	・Advanced functions, sophistication ・Systemization	・Incorporation with optical/image technologies (Measuring colors and tastes, besides quantities)
Uses	Industry	Weighing parts	・Weights, weighing parts		・Surveying equipment with weight indicator	・Load cells (LC)	・Digital load cells (D-LC)
		Platform scales		・Mechanical platform scales		・LC platform scales	・D-LC platform scales
		Truck weighing machines		・Truck weighing machines		・LC truck scales	・D-LC truck scales
		Automatic continuous weighing machines		・Conveyor scales (Coal)	・Void meters (Continuously blending steel raw materials in a certain proportion) ・Measuring, transportation, blending control system ・Automatic bagging equipment (salt, sugar)	・LC feeders	・D-LC feeders
		Explosion-proof products					・Resin filler explosion-proof D-LC ・Pressure-resistant explosion-proof LC ・Pressure-resistant explosion-proof indicators ・LPG fillers ・Equipment safety explosion-proof indicators ・LPG full-automatic fillers ・Pressure-resistant explosion-proof liquid fillers
		System management					・Remote monitoring system
	Agriculture					・Hopper scales (For cooperative facilities for rice drying and rice seedling)	・Color/foreign matter sorter for rice ・Taste and yield sensor

The Evolution of Platform Scales

Platform scales have evolved into easy-to-use, environment-friendly platform scales with high accuracy, reduced weight, and improved energy-saving performance.

From 1920 Mechanical type

From 1980 Load cell type

From 1990 Load cell type

From 2010 Digital load cell type

		Manual beam scale	K2	KL-10	KL-SD/IP
Measuring accuracy		1/2500	1/3000	1/3000	1/6000
Environmental performance	Weight	50kg	20kg	15kg	12kg
	Power	–	AC100V	Size C battery × 6 (300 hours)	Size D battery × 4 (3000 hours)
	Power consumption	–	Approx. 9 W	Approx. 0.15 W	Approx. 0.03 W

Scales Satisfying Diverse Needs

Weight feeder (NX-S/T)

Highly accurate, stable constant fluid volume feeding of powder raw materials

- Highly accurate and stable constant fluid volume feeding
- Simple design for easy maintenance

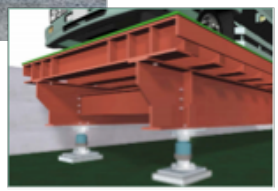
Digital platform scale (U-KM-D)

Lightweight, easy-to-carry platform scale

- Light digital platform scale available for measuring anywhere

Truck scale (ML C-7F-1)

Truck scale with high accuracy and high durability achieved



- Capable of highly accurate and stable measuring regardless of temperature changes
- Waterproof and dust-proof design improving durability

Resin-filled explosion-proof digital load cell

The first digital load cell employing the resin-filled explosion-proof structure in the world

- Compared to conventional models, higher accuracy and 73% reduction in weight and 57% reduction in volume achieved.

Above: Pressure-resistant explosion-proof load cell (conventional model)
Below: Resin-filled explosion-proof digital load cell

<SDGs related to this section>

Conserving Biodiversity

Our business activities rely on various ecosystem services, which are provided by natural capital comprising soil, air, water, animals and plants, and other elements.

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

Relationship between the Kubota Group and Biodiversity

Relationship between the Kubota Group and Biodiversity

Management and reduction of environmental load involved with business activities

In each stage of business activities, the Kubota Group reduces environmental loads and consider its influence on biodiversity.

Input (resources)	Business activities / product life cycles	Output (environmental loads)	Impact on biodiversity (issues to be considered)
Raw materials, sub-materials, water resources, energy sources	Design, procurement, manufacturing, logistics, use of products, maintenance, disposal	CO_2 emissions, wastewater, waste, noise, etc.	Excessive consumption of resources, loss of habitats due to climate change or pollution, transfer of exotic species
Land use: Construction of business sites, etc.	Control of pollution of the air, water bodies and soil		

Impact reduction and environmental contributions through businesses (products/services)

The Kubota Group reduces environmental impacts of its business activities, and contributes to conservation of ecosystems.

Business fields	Environmental loads due to product use, etc.	Contributions to conservation of ecosystems
Food, water, and the environment	CO_2 emissions, exhaust gas, waste, noise, vibration, etc.	Water treatment business (conservation of water bodies), agricultural machinery business (conserving ecosystems by rice transplanters with a pesticide-reduction function and low-emission engines; improving agricultural crop yields)

Symbiosis with the natural environment though social contribution initiatives

As a corporate citizen, the Kubota Group devotes efforts to preserving the natural environment.

Kubota e-Project (supporting reclamation of abandoned farmland), Kubota e-Day (environmental beautification volunteers), Planting trees and installing biotopes on the grounds of business sites, etc.

Initiatives taken at Business Sites

KUBOTA KASUI (THAILAND) CO., LTD. Planting Mangrove Seedlings

KUBOTA KASUI (THAILAND) CO., LTD. (Thailand), as part of its volunteer activities during the Environment Month in 2017, planted mangrove seedlings in the west bank area of the Chao Phraya River in southern Bangkok, an area under the management of a local elementary school. In this area, mangroves have been cut down for the development of lands for shrimp culture and other purposes, causing concerns about the impact on the ecosystem including aquatic creatures, and coastal erosion. In the planting event, 13 Kubota employees participated to learn the effects of mangroves in the conservation of the ecosystem and water quality, and planted around 50 seedlings.

Through activities like this during the Environment Month, KUBOTA KASUI (THAILAND) CO., LTD. raises its employees' awareness of environmental conservation. The Company will continue to promote environmental conservation activities in cooperation with local communities.

Members planting trees

Lecture on mangrove protection

Kverneland Group Nieuw-Vennep Setting up Beehives at the Plant Site

The Kverneland Group Nieuw-Vennep BV (Netherland) has set up beehives at the plant site.

Many plants need the help of honeybees or other insects for pollination in order to grow their flowers and fruit. Recently, however, the number of honeybees is reported to have been declining due to a decrease in their habitats due to global warming and the destruction of the natural environment, as well as environmental pollution. In order to create an environment friendly to honeybees, the Nieuw-Vennep Plant started setting up beehives, weeding the land, and planting flowers that honeybees prefer. In July 2017, a lecture session was held, inviting experts as lecturers, to help employees and their family members to learn the importance of the conservation of ecosystems.

The Nieuw-Vennep Plant will continue to work on the conservation of biodiversity in close cooperation with local communities.

Beehives set under expert guidance

Kubota Construction Machinery (Wuxi) Co., Ltd. Planting Trees in the Wuxi City New District

Kubota Construction Machinery (Wuxi) Co., Ltd. (China) participated in a tree-planting event held in March 2017 in a green zone near the expressway in the Wuxi City New District, and planted approximately 100 trees, including camphor trees, which grow in this area. The event, a big event in which approximately 90 people from around 15 major firms conducting business in the New District and from 25 departments of local government participated, was a good opportunity to reconfirm the importance of environmental conservation through communication with local business operators and government representatives.

Employees of Kubota Construction Machinery also participate in the cleaning of the plant neighborhood every year. The Company will continue its active participation in local environmental conservation activities.

Members planting trees

<SDGs related to this section>

Environmental Management

The Kubota Group has systematically established its environmental management systems in order to facilitate business operation at each site or operational division 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.

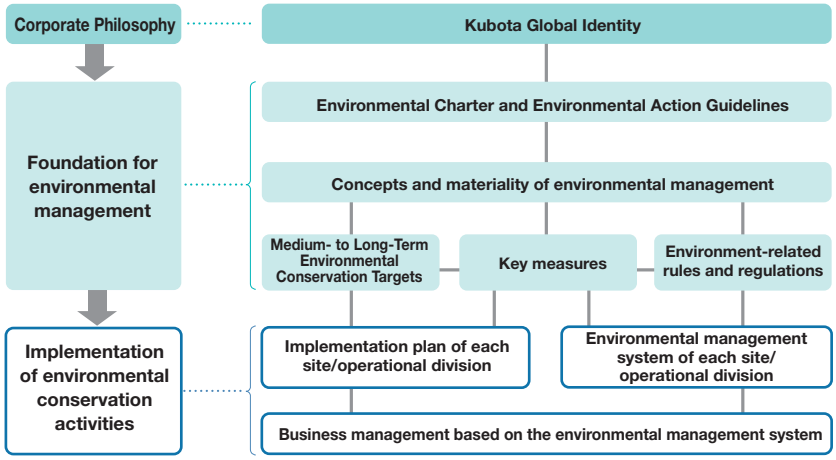
For exhaust gas, wastewater, noise, vibration and other variables, the Group has set and thoroughly manages its own control values at each production site, which are stricter than the corresponding laws and regulations, and has also established a system to promptly report any instances of non-compliance 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 RY2017 we had two cases at production sites in Japan and one case at a Group company in Japan, where wastewater control value was exceeded, one case at a production site in Japan, where oil leakage through a broken underground pipe, and one case of inadequate industrial waste disposal agreement occurred at a Group company in Japan. We implemented measures to prevent any impact on the ambient environment and are working to prevent recurrence. No fines or penalties were imposed on these excess and inadequacy.

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 in an effort to further improve the level of environmental management.

RY2017 Environmental Audit Implementation Status

- Number of subject sites/departments: 280
- 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 SIAM KUBOTA Metal Technology 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	25	71	14 companies*1	93	45	13
	Number of audit items	45	38	49	50	34	20
Overseas group companies	Number of sites audited	19	–	–	–	–	–
	Number of audit items	41					

*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.

RY2017 Environmental Risk Assessment Implementation Status

- Number of subject sites and departments: 37 (27 production sites in Japan, 10 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.

Practice Report

Environmental patrol at Kubota Air Conditioner, Ltd.

Environmental patrol

The Tochigi Plant of Kubota Air Conditioner, Ltd. conducts environmental patrols in accordance with the rules of the Kubota Group.

The Plant evolved its safety and health committee into the safety, health and environment committee participated in by both labor and management by adding to it the environmental management function in 2015. In 2017, the Plant also added a monthly environmental patrol to the functions of the committee. Environmental management operations are related not only to specific personnel in charge but also to a broad range of employees. It is therefore important to make environmental management a habit involving all relevant parties. For environmental patrol, the Environmental Patrol Handbook comprising the Kubota Group's best practices of environmental management is used. Environmental patrols at each worksite are considered as opportunities to raise awareness of social requests for education on environmental conservation and environmental management. Committee members also take turns patrolling periodically, which helps the early discovery of abnormal conditions. In 2017, nine cases of abnormality were discovered, for which the Committee discussed countermeasures and confirmed completion of the measures.

The Kubota Group believes that environmental consideration is a prerequisite for business management. The Tochigi Plant has adopted an initiative participated in by all employees, which invites at least one idea from each employee. By encouraging employees to present their opinions, the Plant promotes organization-wide environmental conservation activities.

The Tochigi Plant will continue to further enhance its periodic environmental patrols and other environmental management activities, with the aim of fostering an organizational culture in which all employees are committed to eliminating wasteful use of energy and preventing environmental accidents.

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 waste oil/PCB
Kubota Okajima Business Center

Emergency response drill simulating the leakage of chemical substances
Kubota Construction Machinery (Wuxi) Co., Ltd. (China)

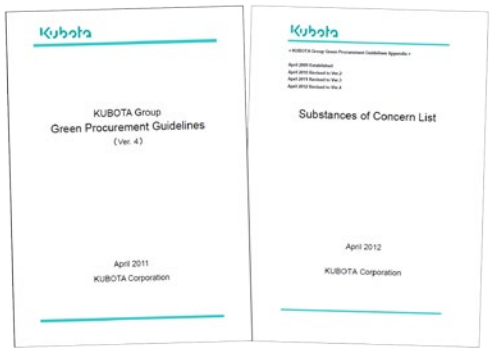
Green Procurement

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 eco-friendly 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 materials and components procured by Kubota. The awards are presented every year.

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

In 2017, of the 144 environmental conservation activities, 12 activities with particularly high achievements were awarded.

We will continue to utilize this 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 2018)

Environmental Education and Enlightenment

Results of Environmental Education in RY2017

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 participant	Course descriptions
Education by employee-level	Training for new employees	2	161	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	47	Kubota's environmental management and efforts as supervisors
	Training for newly appointed foremen	1	21	Kubota's environmental management and efforts as foremen
	Environment and Quality Forum for executive management	1	300	Lecture by Mr. Masafumi Uchida, Executive Officer, General Manager of Environment Management and Quality Promotion Division, Konica Minolta, Inc.
Professional education	Basics of environmental management	1	11	Basic knowledge of legal systems, environmental risk, and environmental conservation
	Waste management	2	48	Waste Management and Public Cleansing Law, practical training in consignment contracts and manifests, etc.
	Environment-related facility management	1	12	Pollution control technologies and pollution control laws
	Education to train ISO 14001 environmental auditors	4	46	The ISO 14001 standard, environment-related laws, audit techniques
	New waste management system training	12	43	Training on waste electronic information management systems
	Education for production sites on environment-related facility management	1	22	Points in maintenance and management of environment-related facilities, emergency responses
General training	Environmental education for domestic sites	2	80	Kubota's environmental management initiatives
	Total	30	800	

Supporting education in outside organizations	"Environment-friendly Plant Tour (for elementary school and kindergarten children)" hosted by Utsunomiya City	1	58	Environmental education and tour of the Utsunomiya Plant facilities

Education on environment-related facility management at a Group company production site
(Participants: personnel in charge of facility management)

Environment and Quality Forum for executive management
(Lecturer: Mr. Masafumi Uchida)

Practice Report

P.T. Kubota Indonesia Practicing environmental education at nearby elementary schools

P.T. Kubota Indonesia (PTKI) provides environmental education at nearby elementary schools every year.

In August 2017, employees of PTKI visited two schools and gave a lecture on the importance of recycling waste to a total of 270 elementary school students. The lecturer taught the students how to sort waste, and provided them all with a recycling bag for waste collection. The students use their recycling bag to collect PET bottles, paper waste, and other waste resources, or to pick up waste at their elementary schools. The waste collected by the students is gathered at their schools and handed over to local recycling firms every month.

Also in Indonesia, as part of the environmental education program for students, the "Adiwitaya Award," a green school contest hosted by the environment ministry, is held annually. A total of 47 schools in Indonesia participated in the contest held in November 2017. Of these schools, PTKI supports three nearby elementary schools, and invited the teachers of these schools to a study session on the environmental initiatives they would present at the contest.

PTKI promotes activities that will help vitalize local environmental education and awareness-raising activities. PTKI will continue to promote environmental conservation activities while establishing communication with local communities.

Recycling bag provided by Kubota


Gathering waste collected by students

Environment Month Report

Raising the environmental awareness of employees and family members through the Kubota Eco Challenge

Starting from 2016, the Kubota Group has hosted the "Kubota Eco Challenge" in order to boost the level of each member's understanding and awareness of the environmental issues toward the realization of its brand statement "For Earth, For Life." The Kubota Eco Challenge is an environmental photo contest, inviting photos of eco-friendly actions by the Group employees and their family members around the world at work or home.

In the Kubota Eco Challenge in 2017, a total of 584 photos (200 more than the number in 2016) were posted, each demonstrating unique and community-based eco activities conducted at each site.

The posted photos are presented on the intranet of the Kubota Group, offering an important opportunity to know about the eco activities conducted in regions or countries that are usually unfamiliar. The Kubota Group will continue to promote activities that not only help raise individual environmental awareness, but also enable the Group employees and their family members around the world to gather under the same theme and share their thoughts.


Planting trees (Thailand)


Protecting badgers (U.K.)

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 2017, environmental conservation activities were evaluated targeting the five segments of production sites, non-production sites, product development, education and enlightenment, and social contribution. As a result, 36 cases were awarded for their achievements in energy saving, waste reduction, VOC emission reduction, development of environment-friendly products, environmental awareness raising, community environmental activities, 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 2017

Scope	Company, department	Theme
Production sites	SIAM KUBOTA Corporation Co., Ltd. Amata Nakorn Plant (Thailand)	Study on electro-oxidation and photocatalytic treatment technology for used coolants

Environmental Achievement Awards in 2017

Scope	Classification, No. of winners	Scope	Classification, No. of winners
Production sites	Excellent Prize: 1, Encouragement Award: 10, Good Effort Award: 13	Education and enlightenment	Education and Enlightenment Award: 2
Non-production sites	Encouragement Award: 4	Social contribution	Social Contribution Award: 1
Product development	Encouragement Award: 5		

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.

●Major participating groups

Japan Business Federation, Kansai Economic Federation, Japan Society of Industrial Machinery Manufacturers, etc.

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.

<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. Moreover, the Group will promote information disclosure in accordance with both Japanese and international standards by employing GRI standards in addition to the Ministry of the Environment's environmental reporting guidelines.

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 External Rating

Kubota Selected as a CDP Water A List Company in CDP2017

Kubota was selected as an A List company in CDP Water, a survey on water resource management by CDP*, a UK-based non-profit organization, by winning the A (Leadership) rank, the highest rating in the survey. For the CDP Water A List this year, 73 companies, including 12 Japanese companies, were selected globally from among 2,025 companies that had responded to the survey questionnaire. The Kubota Group's contribution to the development of water infrastructures around the world as a comprehensive manufacturer of water-related products, from the intake of water to its discharge, as well as its efforts to reduce water consumption in its business activities, were highly evaluated.

In the CDP survey on climate change, Kubota won "A- (Leadership)," the second highest of eight ranks.

We 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 material issues.

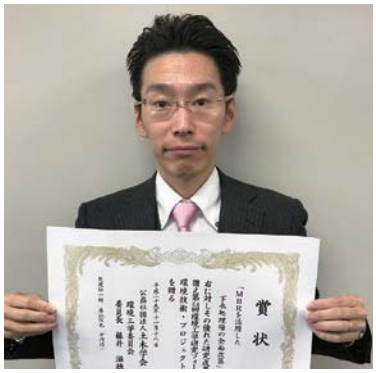
* A project run in collaboration with institutional investors to encourage companies to disclose their strategies and data related to climate change, water, and forests

Receiving Environmental Awards

Kubota Environmental Engineering Department receives the Environmental Technology and Project Award

In December 2017, the 54th Environmental Engineering Forum sponsored by the Environmental Engineering Committee, Japan Society of Civil Engineering was held, and General Manager Nakagawa, Mr. Shinya Nagae and Mr. Soichiro Yatsugi of the Environmental Engineering Department (former Water Treatment System Engineering Department) received the Environmental Technology and Project Award for their presentation on Total Renovation of the Sewage Treatment Plant using MBR. This award is presented to commend excellent technology from among the technologies presented at the Environmental Engineering Forum.

Based on the findings obtained through the project of the Sampo Wastewater Treatment Plant, the first large-scale MBR (membrane bioreactor) in Japan, and the subsequent project of the Semboku Water Recycling Center, the award-winning presentation proposed useful measures to solve future problems with sewage systems, which was appreciated. Encouraged by the award which rewarded the continued efforts made by the employees involved in the projects over a long period, we will strive to further expand its MBR business.



Award winner Mr. Soichiro Yatsugi


Environment Engineering Forum award ceremony

SIAM KUBOTA Corporation Co., Ltd. Amata Nakorn Plant receives the Green Industry Award

The Amata Nakorn Plant of SIAM KUBOTA Corporation Co., Ltd. (Thailand) received the Green Industry Award in 2017 from the Thai government upon being recognized as a clean plant that is environmentally conscious. Of the five levels of the award (with Level 5 being the highest), the plant was awarded Level 4 in recognition of having a well-established corporate culture that carries out environmental conservation activities.

The Plant has actively promoted initiatives to reduce its environmental loads, such as the introduction of a solar power generation system and LEDs to reduce energy consumption, and the development of electric coagulation treatment technology for used coolant in cooperation with research institutions to reduce waste.

Level 4 of this award was also granted to SIAM KUBOTA Corporation Co., Ltd. (headquarter), and Level 3 to SIAM KUBOTA Metal Technology Co., Ltd. and KUBOTA Precision Machinery (Thailand) Co., Ltd. These sites are still recognized as Green Industry.

Certificate of Commendation for Green Industry Award

P.T. Kubota Indonesia receives the BLUE PROPER Award

P.T. Kubota Indonesia received the BLUE PROPER award for the seventh time from the environment minister of the Indonesian government for its corporate activities over a year from 2016 to 2017. 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.

Certificate of Commendation for the BLUE PROPER Award

KBS Kubota Co., Ltd. receives the Japan Logistics Press Award

In June 2017, KBS Kubota Co., Ltd. received the Japan Logistics Press Award at the Logistics Environment Awards sponsored by the Japan Association for Logistics and Transport.

This award is given to organizations/companies or individuals that have contributed to the development of the logistics industry in terms of the reduction of environmental loads by conducting excellent activities for environmental conservation or environmental awareness-raising, or pioneering technology development.

The theme of the award-winning initiative by KBS Kubota Co., Ltd. is the Promotion of Container Round Use across Industries using an Inland Container Depot, and the Establishment of a Next-Generation Logistics Model. This initiative enables the shared use of marine containers that become empty on either the outward or the inward trip of truck transportation across industries, and shuttle transportation via a temporary storage site for empty containers called ICD. This contributes to the substantial reduction of environmental loads and CO_2 emissions through the establishment of an efficient transportation system, which is associated with ease of congestion in the harbor area, as well as the stable supply of containers. These points were appreciated. We will continue to work on reducing environmental load through its efforts to improve the efficiency of logistics.


"Logistics Environment Award" ceremony


Certificate of Commendation for the Japan Logistics Press Award

Kubota Environmental Engineering (Shanghai) Co., Ltd. granted the title of a Brand Company Helping to Improve the Chinese Rural Environment

In December 2016, the 2016 Forum for the Development of Moderately Prosperous and Beautiful Villages in All Aspects sponsored by the China Internet News Center was held in Beijing, where Kubota Environmental Engineering (Shanghai) Co., Ltd. (KEES) was granted the title of a brand company helping to improve the Chinese rural environment. The China Internet News Center is an online news site managed and operated by the China Foreign Languages Publishing Administration, an organ under the direct control of the State Council of the People's Republic of China.

In the Forum, which upheld the theme of "building beautiful villages, developing a green economy and realizing the dream of a moderately prosperous China," Chinese government leaders, experts, representatives of excellent districts around the country and managers participated. The participants discussed and exchanged opinions on various themes, including problems relating to the construction of beautiful villages, the improvement of urban and rural environments, the economic development of rural villages, the Internet and agriculture, and the development of agriculture. After strict examination by experts, six companies including KEES were designated as brand companies helping to improve the Chinese rural environment, for having achieved results satisfying the theme of the Forum.

At the 10th Chinese Environmental Industry Conference held in Beijing in June 2017, KEES also received the Green Award, and was recognized as a model company for water treatment facilities and comprehensive services. This award is given to innovative excellent companies in the environment field by an evaluation committee composed of academic organizations, researchers, and specialized media.

"The brand company helping to improve the Chinese rural environment" award ceremony

Certificate of Commendation for the Green award

Kubota Head Office receives the Kansai Eco-Office Encouragement Award and acquires Certification of an Excellent Waste-reduction Building

In March 2017, Kubota Head Office received the Kansai Eco-Office Encouragement Award at the Kansai Eco-Office Awards 2016 sponsored by the Union of Kansai Governments.

The Kansai Eco-Office Awards program selects from among the business sites engaged in environment-conscious activities such as energy saving, business sites conducting particularly excellent initiatives, with the aim of widely promoting the Kansai Eco-Office campaign.

Kubota Head Office's initiative of "promoting the reuse of office supplies," which involves setting up a corner to gather stationery that is no longer used and thereby achieving reuse across departments, was highly regarded from the perspective of the spillover effects on other offices and continuity, resulting in the winning of the award.

Certificate of commendation for Kansai Eco-Office Encouragement Award

Also in 2017, Kubota Head Office (2nd Building, 2nd Annex Building) received the excellent waste-reducing building certification from Osaka City for its ongoing efforts in promoting waste reduction and implementing proper disposal. We will continue promoting the reuse of office supplies and conducting environment-conscious activities, such as energy saving, water saving, waste separation and recycling, and greening, while launching new eco-office activities.

Kubota Keiyo Plant receives a Certificate of Gratitude as a Person of Merit in the Industrial Waste-related Business (waste generating business category)

In January 2018, at the 17th Chiba Prefecture Industrial Waste Proper Disposal Promotion Conference sponsored by Chiba Prefecture, Mr. Toshifumi Machi and Mr. Masaaki Nakatani of the Kubota Keiyo Plant (Pipe Systems Division) received the certificate of gratitude as a person of merit in the industrial waste-related business (waste generating business category) from the Governor of Chiba Prefecture, and the same certificate of gratitude from the Environment and Life General Manager, respectively.

These certificates of gratitude are awarded to persons who have been engaged in the operations of a technology manager defined in Article 21 of the Waste Management and Public Cleansing Act and are recognized as having made great contributions to the proper disposal of industrial waste.

Mr. Machi and Mr. Nakatani have promoted recycling and the separate management of industrial waste while working to build systems for the proper disposal of industrial waste. These efforts were highly appreciated, resulting in their receipt of the awards.

Mr. Toshifumi Machi and Mr. Masaaki Nakatani with their certificates of gratitude

We will continue to work on reducing environmental loads through its efforts to ensure the proper disposal of industrial waste generated in plants and the 3R activities.

Environmental Communication Report

Practice Report

Plant Tour at Kubota Utsunomiya Plant

Kubota Utsunomiya Plant was selected as a plant for the Environment-friendly Plant Tour program hosted by Utsunomiya City, and invited around 60 elementary school children in Utsunomiya City and their family members on a plant tour in August 2017.

The Environment-friendly Plant Tour is a program in which Utsunomiya City selects applicable companies and offices each year, and introduces to children the plants engaged in unique initiatives to reduce environmental load, for the purpose of providing the next-generation children with hints for thinking about environmental issues. On the day of the event, the Plant offered a plant tour and test-rides of a combine harvester it manufactures as an introduction to the Utsunomiya Plant. The Plant's waste disposal initiatives and wastewater treatment procedure along with some demonstrations were also presented, thereby communicating the importance of environmental conservation.

We will continue to conduct environment-friendly corporate activities, with the aim of becoming a plant that is trusted by local residents.

Plant tour

Test-ride of combine harvester

Practice Report

Office Tour for employee family members

In September 2017, Kubota Tokyo Head Office invited a total of 84 employees and their family members on an office tour of the Tokyo Head Office.

In this tour, businesses of the Kubota Group, as well as the eco-activities promoted by the Tokyo Head Office, were introduced. Eco-performers, who had been invited from outside the Company, explained about the major eco-activities of the Tokyo Head Office, such as promoting the separation of garbage and the reuse of unnecessary office supplies across divisions, in an easy and fun-to-learn manner. Children who participated in the event gave comments such as "It's easy to do" and "I'll do it from today!", indicating that it was a good opportunity for them to understand the importance of environmental conservation and the initiatives by the Tokyo Head Office.

Family members listening to an explanation of Kubota's environmental management initiatives

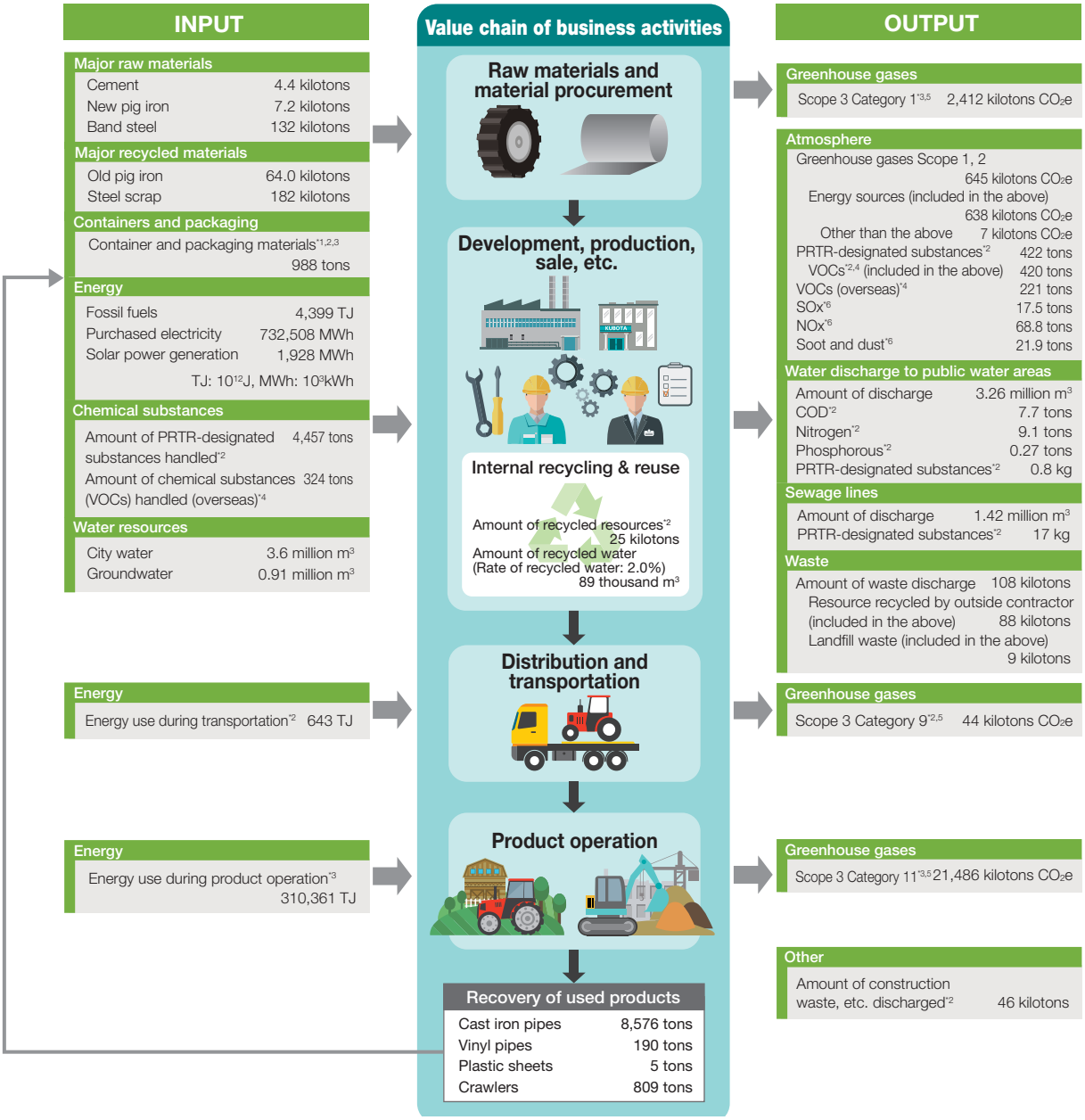
Seeing the employees' family members as an important part of our stakeholders, we will continue to promote the activities to facilitate communication with them.

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 RY2017. 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



*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 For Greenhouse gases Scope 3, only part of the categories are presented. For more details, see "CO_2 Emissions throughout the Value Chain" (p. 38).
*6 The amount of discharge from the sites in Japan is subject to the third-party assurance and the amount of discharge from the overseas sides is not subject to the third-party assurance. For details, see Trends in Major Environmental Indicators (p. 75).

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.81).

Trends in Major Environmental Indicators

Trends in Major Environmental Indicators in the Last Five Years Listed on "Overview of the Environmental Load on the Value Chain"

	Environmental indicators				Unit	RY2013	RY2014	RY2015	RY2016	RY2017
IN PUT	Energy	Within business sites	Energy consumption*1, 2		TJ	11,406	12,006	11,450	11,295	11,602
				Fossil fuels*2	TJ	4,610	4,996	4,575	4,434	4,399
				Purchased electricity*2	MWh	690,691	713,837	700,015	698,370	732,508
			Solar power generation		MWh	67	210	1,285	1,801	1,928
		Energy use during transportation (Japan)*3			TJ	695	591	634	606	643
	Chemical substances	Amount of PRTR-designated substances handled (Japan)*2			tons	5,542	6,433	5,143	4,875	4,457
		Amount of chemical substances (VOCs) handled (overseas)*4, 5			tons	354	386	359	350	324
	Water resources	Water consumption*6			million m³	4.68	4.87	5.05	4.86	4.51
			Overseas included in the above*6		million m³	0.89	1.05	1.23	1.20	1.07
			City water*6, 7		million m³	3.66	3.87	4.08	3.99	3.60
			Groundwater		million m³	1.02	1.00	0.97	0.87	0.91
	Major raw materials	Cement			kilotons	5.9	8.3	8.7	6.8	4.4
		New pig iron			kilotons	7.7	7.8	7.5	6.7	7.2
		Band steel			kilotons	101	108	99.6	106	132
	Major recycled materials	Old pig iron*3			kilotons	59.4	62.5	62.9	58.6	64.0
		Steel scrap			kilotons	236	304	271	224	182
	Containers and packaging	Container and packaging materials (Japan)*8, 9			tons	—	—	—	—	988
OUT PUT	Atmospheric discharge	Greenhouse gases	Scope 1, 2*10		kilotons CO_2e	660	714	674	647	645
				Overseas included in the above*10	kilotons CO_2e	169	180	168	173	198
			Energy sources*2		kilotons CO_2e	654	706	666	639	638
			Other than the above*11		kilotons CO_2e	6	8	8	8	7
			Scope 3 Category 9 (Japan)*12		kilotons CO_2e	48	41	44	42	44
		Amount of PRTR-designated substances released (Japan)*2			tons	458	537	543	463	423
		VOC emissions*2, 4			tons	641	786	798	703	641
			Overseas included in the above*2, 4		tons	185	253	260	243	221
		SOx emissions*13	Japan		tons	16.2	19.8	17.3	29.2	17.2
			Overseas*8		tons	1.5	35.4	7.4	2.2	0.3
		NOx emissions	Japan		tons	64.7	70.2	60.6	58.6	50.4
			Overseas*8		tons	14.9	16.8	15.5	35.6	18.4
		Soot and dust emissions	Japan		tons	3.4	2.9	2.9	2.7	2.9
			Overseas*8		tons	5.8	8.3	12.3	23.8	19.0
	Water system discharge	Public water areas	Wastewater discharge		million m³	3.82	3.74	3.82	3.71	3.26
			COD (Japan)*14		tons	10.6	9.8	9.9	10.1	7.7
			Nitrogen discharge (Japan)*14		tons	8.9	9.0	9.6	9.2	9.1
			Phosphorous discharge (Japan)*14		tons	0.32	0.37	0.35	0.36	0.27
			Amount of PRTR-designated substances released (Japan)		kg	8.4	0	0	0	0.8
		Sewage lines	Wastewater discharge*3		million m³	1.23	1.52	1.58	1.54	1.42
			Amount of PRTR-designated substances transferred (Japan)		kg	21	34	23	22	17
	Waste	Amount of waste discharge*15			kilotons	98	113	116	106	108
			Overseas included in the above*15		kilotons	33	39	40	39	43
			Resource recycled by outside contractor*15		kilotons	76	91	93	85	88
			Landfill waste		kilotons	13	10	12	11	9
		Amount of construction waste, etc. discharged (Japan)			kilotons	24	36	44	54	46

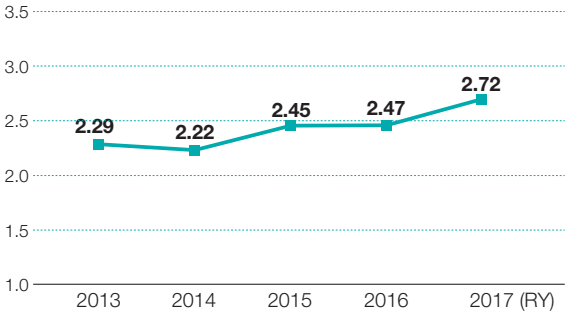
*1 Conventionally, energy use during transportation (Japan) was included in total energy consumption. But starting from RY2017, it is not retrospectively included.
*2 Values for RY2013 through RY2016 were corrected to improve accuracy.
*3 Values for RY2015 were corrected to improve accuracy.
*4 VOCs (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 Values of RY2014 through RY2016 were corrected to improve accuracy.
*6 Values for RY2014 and RY2015 were corrected to improve accuracy.
*7 City water includes service water and water for industrial use.
*8 Not subject to the third-party assurance
*9 Packaging materials subject to the Act on the Promotion of Sorted Collection and Recycling of Containers and Packaging
*10 Values for RY2013 through RY2015 were corrected to improve accuracy.
*11 Values for RY2016 were corrected to improve accuracy.
*12 For Greenhouse gases Scope 3, only part of the categories are presented. For more details, see "CO2 Emissions throughout the Value Chain" (p. 38).
*13 Previously, the sulfur contained in the slag and particulate matter was included in the calculation of SOx emissions emitted from the fuel combustion in casting plants. However, from RY2014, it has been excluded from calculations as it is not emitted into the atmosphere.
*14 Data for total discharge from business sites subject to total emission control.
*15 Values for RY2014 were corrected to improve accuracy.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.81).

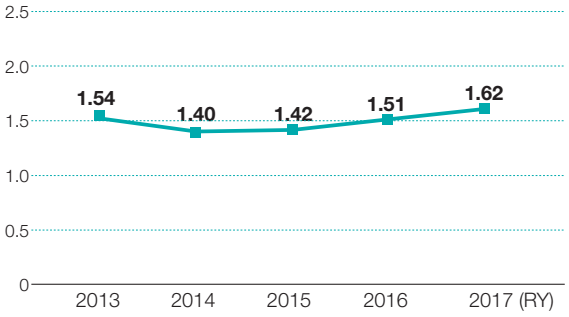
Eco-efficiency

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

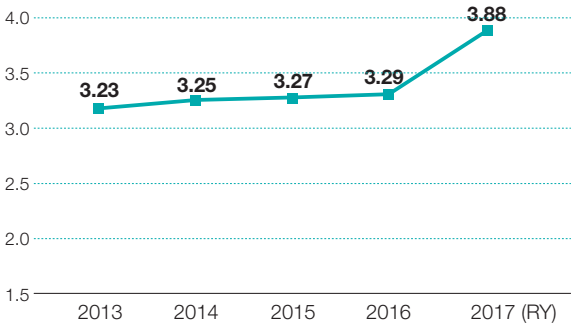
CO_2 Eco-efficiency*1



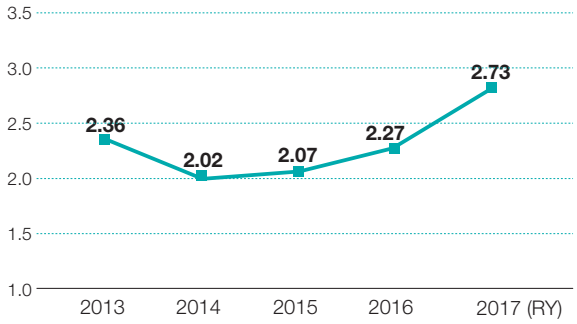
Waste Eco-efficiency*2



Water Eco-efficiency*3



VOC Eco-efficiency*4



*1 CO_2 Eco-efficiency = Consolidated net sales (million yen) / CO_2 emissions (tons CO_2e) Values of RY2013 through RY2015 were corrected to improve accuracy.
*2 Waste Eco-efficiency = Consolidated net sales (million yen) / Waste discharge (tons) /10 Value for RY2014 was corrected to improve accuracy.
*3 Water Eco-efficiency = Consolidated net sales(million yen) / Water consumption (m^3) × 10 Values of RY2013 through RY2016 were corrected to improve accuracy.
*4 VOC Eco-efficiency = Consolidated net sales(million yen) / VOC emissions (kg) Values of RY2013 through RY2016 were corrected to improve accuracy.

Calculation Results of PRTR-designated Substances

RY2017 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	17	854
53	Ethylbenzene	98,972	0.0	0.0	0.0	0.0	24,193
71	Ferric chloride	0.0	0.0	0.0	0.0	0.0	0.0
80	Xylene	182,991	0.0	0.0	0.0	0.0	36,385
87	Chromium and chromium (III) compounds	0.0	0.0	0.0	0.0	0.0	2,134
132	Cobalt and its compounds	0.0	0.0	0.0	0.0	0.0	3.1
239	Organic tin compounds	0.0	0.0	0.0	0.0	0.0	12
240	Styrene	27,677	0.0	0.0	0.0	0.0	0.0
243	Dioxins	0.13	0.0	0.0	0.0	0.0	0.41
277	Triethylamine	0.0	0.0	0.0	0.0	0.0	0.0
296	1, 2, 4-trimethylbenzene	17,055	0.0	0.0	0.0	0.0	4,358
297	1, 3, 5-trimethylbenzene	3,287	0.0	0.0	0.0	0.0	730
300	Toluene	90,119	0.0	0.0	0.0	0.0	17,543
302	Naphthalene	2,445	0.0	0.0	0.0	0.0	0.0
305	Lead compounds	4.9	0.80	0.0	0.0	0.16	7,167
308	Nickel	0.17	0.0	0.0	0.0	0.0	406
349	Phenol	0.0	0.0	0.0	0.0	0.0	0.0
352	Diallyl phthalate	103	0.0	0.0	0.0	0.0	0.0
354	Di-n-butyl phthalate	1.7	0.0	0.0	0.0	0.0	124
400	Benzene	2.1	0.0	0.0	0.0	0.0	0.0
405	Boron compounds	0.0	0.0	0.0	0.0	0.0	1,426
412	Manganese and its compounds	0.021	0.0	0.0	0.0	0.0	114,359
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		422,658	0.80	0.0	0.0	17	209,692

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 (Dioxins: mg-TEQ/year)

Volatile Organic Compounds (VOCs)

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.81).

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	RY2016		RY2017	
			Investment	Expenses	Investment	Expenses
Within the business area cost			1,795	2,610	1,444	2,395
	Local environmental conservation cost	Prevention of air and water pollution, soil contamination, noise, vibration, etc.	505	399	130	373
	Global environmental conservation cost	Prevention of climate change, etc.	1,282	854	1,276	798
	Resource recycling cost	Minimizing waste production, reducing quantity of waste, and recycling	9.0	1,357	38	1,224
Upstream and downstream costs		Collection of used products and commercialization of recycled products	0	35	0	24
Management activities cost		Environmental management personnel, ISO maintenance and implementation, environmental information dissemination	3.5	1,552	6.6	1,455
R&D cost		R&D for reducing of product environmental load and developing environment conservation equipment	540	6,757	509	6,993
Social activities cost		Local cleanup activities, and membership fees and contributions to environmental groups, etc.	0	1.0	0	0.7
Environmental remediation cost		Contributions and impositions, etc.	0	87	0	87
Total			2,339	11,042	1,960	10,955

Total capital investment (including land) for the corresponding period (consolidated data)	52,200
Total R&D costs for the corresponding period	48,100

Environmental Conservation Effects

Effects	Items	RY2016	RY2017
Environmental effects related to resources input into business activities	Energy consumption (TJ)	7,663	7,452
	Water consumption (million m^3)	3.66	3.44
Environmental effect related to waste or environmental impact originating from business activities	CO_2 emissions (energy related CO_2) (kilotons CO_2e)	468	441
	SOx emissions (tons)	29.2	17.2
	NOx emissions (tons)	58.6	50.4
	Soot and dust emissions (tons)	2.7	2.9
	Releases and transfers of PRTR-designated substances (tons)	635	632
	Waste discharge (kilotons)	67.1	65.3
	Waste to landfills (kilotons)	2.1	1.5

Economic effects

(Yen in millions)

Classifications	Details	Annual effects of the year ended December 31, 2017
Energy conservation measure	Use alternative fuels for production facilities and switch to more efficient lighting and air handling systems	449
Zero-emissions measures	Reduce the amount of industrial waste; promote resource recycling	1,176
	Sales of valuable resources	1,084
Total		2,709

<Environmental accounting principles>
1) The period is from January 1, 2017 to December 31, 2017.
2) The data of business sites in Japan are 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 RY2017, 22 of its 23 production sites (acquisition rate of 96%) in Japan have acquired ISO 14001 certification. Of its 32 overseas production sites, 17 sites (acquisition rate of 53%) 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 certificate.

■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 pipe, 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		Valves, 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	Water Engineering & Solution Business Unit	· Shin-yodogawa Environmental Plant Center	Sewage and sludge treatment, water purification, wastewater treatment facilities, submerged membrane	ICJ	July 14, 2000
10	Pumps Business Unit	· KUBOTA Kiko Ltd.	Sewage and water purification plants, 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	ATEC Instrument and Chemical Co., Ltd. (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

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 für 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	
2013	April 2013 to March 2014	January 2013 to December 2013	61	101	162	–
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

*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 RY 2015 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 are excluded from the calculation.
For RY2017, the data for all of the GP Group sites are calculated based on results.

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

*4 Starting from RY2014, 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) [RY2013 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 are effective emission coefficients for each electricity utility, and overseas data are according to the GHG emissions from purchased electricity (GHG Protocol). [RY2016 to RY2017] <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 are effective emission coefficients for each electricity utility, and overseas data are according to 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 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)
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.) · 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 (69 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 same as that for CO_2 emissions during distribution. · The scope of calculation includes CO_2 emissions associated with 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 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 directly contracted companies that purchase valuable materials from the Kubota Group
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. [RY2013 to 2015] Recycling ratio = {Sales amount of valuable resources + resource recycling + volume reduction (heat recovery)} ÷ amount of construction waste, etc. discharged × 100 [RY2016 to RY2017] 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 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 Manual for PRTR Release Estimation Methods Ver. 4.1 (March 2011) of the Japan's Ministry of the Environment and the Ministry of Economy, Trade and Industry, and 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)	· 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 - desulphurization 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 slug, dust, etc. × sulfur content in slug, 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 legal regulations

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. The symbol indicates that the information provided has been confirmed by a third party. Based on the third-party assurance obtained this reporting year, the KUBOTA REPORT 2018 Business and CSR Report <Full Version> received the Environmental Report Assurance and Registration Symbol of the Japanese Association of Assurance Organizations for Sustainability Information (J-SUS).*

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, 2017 to December 31, 2017 included in its KUBOTA REPORT 2018 Business and CSR Report <Full Version> (the "Report") for the fiscal year ended December 31, 2017, and the completeness of the material environmental information in the Report.

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, and for including the material environmental information as defined in the 'Environmental Reporting Assurance and Registration Criteria' of the Japanese Association of Assurance Organizations for Sustainability Information ("J-SUS") 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, as well as the 'Practical Guidelines for the Assurance of Sustainability Information' published by J-SUS. 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 two factories of the Company's subsidiary selected on the basis of a risk analysis.
- Assessing whether or not all the material environmental information as defined by J-SUS is included in the Report.
- 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, and all the material environmental information as defined by J-SUS is not included 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, 2018

Environmental report assurance and registration symbol

J-SUS Assurance

This symbol indicates that the reliability of the environmental data presented in the KUBOTA REPORT 2018 Business and CSR Report <Full Version> satisfies the requirements of J-SUS.

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

Factory visit

SIAM KUBOTA Corporation Co.,Ltd.