Chapter 2

# Environmental Report

Kubota's mission is to solve global issues in the fields of food, water, and the environment, and in order for us to help bring about a sustainable society, we have formulated a vision and medium- to long-term targets for environmental conservation. As we work towards achieving them, we will make every effort to minimize the environmental footprint and environmental risks of our corporate activities and contribute to the development of a sustainable society and the conservation of the global environment.



<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. With our promise of “For Earth, For Life,” the Kubota Group will contribute to the realization of a sustainable society through its environmental management initiatives.

## Environmental Charter / Action Guidelines

### The Kubota Group Environmental Charter

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

### The Kubota Group Environmental Action Guidelines

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





## Environmental Management Approach

### Concepts of Environmental Management

The Kubota Group has established the “For Earth, For Life” Brand Statement as its concept for environmental management. It expresses the Group’s aspiration to balance its business growth and contribution to environmental conservation through its environment-friendly products, technologies, services and corporate activities, as it aims for ongoing synergistic development with society in order to continue supporting the prosperous life of humans while protecting the environment of this beautiful Earth.

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

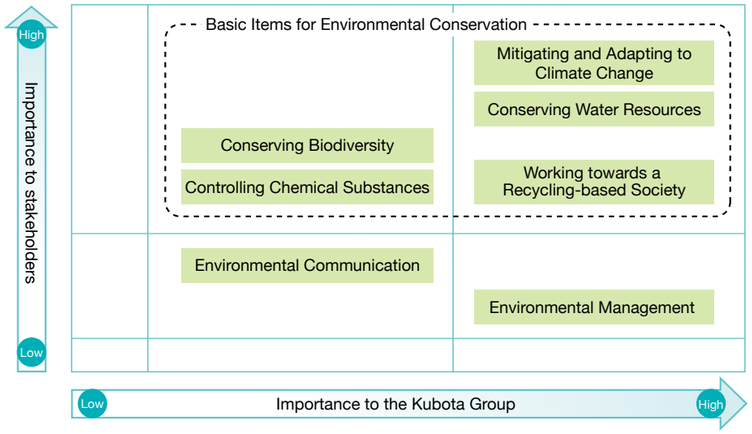
## Materiality in Environmental Management

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

### Process for Identifying Materiality

| | |
|---|---|
| Step 1 | **Gathering and analyzing information**<br>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**<br>Through discussions at the ESG Management Strategy Meeting 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**<br>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**<br>After identifying the impacts (risks and opportunities) related to issues with a high degree of importance for both stakeholders and the Kubota Group, we formulate key measures and promote the steady implementation thereof. |

### Materiality Matrix




### Materiality Awareness

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





## Risks and Opportunities

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

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

| | | Envisaged scenario | Impact on the Group | Time horizon* | | |
|---|---|---|---|---|---|---|
| | | | | Short term | Medium term | Long term |
| Mitigating and Adapting to Climate Change | Risks | • Stricter regulations for companies related to energy saving and controls on the emissions of greenhouse gases, etc. | Increase in regulatory compliance cost | → | → | → |
| | | • High energy prices due to structural changes in energy driven by accelerating moves towards decarbonization and expanded use of renewable energy, etc. | Increase in product development and manufacturing costs | → | → | → |
| | | • Increasing frequency and severity of weather disasters such as typhoons and torrential rains driven by climate change | Negative impact on the Group and its suppliers | → | → | → |
| | | • More pests, lower crop yields<br>• Changes in agricultural style due to relocation of suitable farming land, etc. | Loss of selling opportunities | | | → |
| | | • Transition to next-generation power, such as electrification, and discontinuation of products with poor energy efficiency in line with growing interest in climate change among our markets and customer base | Increase in product development cost<br>Loss of selling opportunities | | | → |
| | | • Stronger calls for disclosure of climate action | Deterioration in stakeholder trust | → | → | → |
| | Opportunities | • Launch of products and services that facilitate energy savings, energy creation, and decarbonization | Expansion of selling opportunities | → | → | → |
| | | • Accelerate energy-saving measures, such as upgrading to high-efficiency equipment at business sites | Increase in productivity | → | → | → |
| | | • Growing demand for agricultural machinery and farming solutions in step with the change of agricultural practices<br>• Increased demand for water infrastructure that is resilient to floods, droughts, and other weather disasters | Expansion in business related to adapting to climate change | | → | → |
| Working towards a Recycling-based Society | Risks | • Expansion of regulations on import, export and use of discarded plastic and stricter waste-related regulations, etc. | Increase in regulatory compliance cost | → | → | → |
| | | • Resource depletion and soaring resource prices | Increase in manufacturing costs | → | → | → |
| | | • Expanded use of recycled materials towards the transition to a recycling-based economy | Increase in product development and manufacturing costs | | → | → |
| | Opportunities | • Launch of products that consider resource recycling, including the use of recycled materials<br>• Contribution to the effective use of resources through the deployment of environmental and waste-disposal services<br>• Promotion of easier product maintenance and used product recycling | Expansion of selling opportunities | → | → | → |
| | | • Acceleration of resource conservation measures at business sites | Improvement of resource efficiency | → | → | → |
| Conserving Water Resources | Risks | • Non-compliance with wastewater standards, etc.<br>• Stricter water-related regulations, etc. | Fines and shutdowns<br>Lower social credibility<br>Increase in regulatory compliance cost | → | → | → |
| | | • High water prices due to aging water infrastructure and shortage of available water for industrial use | Increase in manufacturing costs | → | → | → |
| | | • Increasing frequency and severity of weather disasters such as flooding and droughts driven by climate change<br>• Water use restrictions in areas of high water risk | Negative impact on the Group and its suppliers | → | → | → |
| | | • Lower crop yields due to shortage of water resources<br>• Changes in agricultural styles due to relocation of suitable farming land, etc. | Loss of selling opportunities | | → | → |
| | | • Changes in needs for products and services in regions with high water risk | Increase in product development and manufacturing costs | | → | → |
| | Opportunities | • Expansion in need for solutions for Water & the Environment-related products that ensure access to safe and secure water and wastewater treatment and recycling treatment facilities that comply with stricter regulations | Expansion of selling opportunities | → | → | → |
| | | • Expansion in water conservation and wastewater reuse at business sites | Increase in productivity | → | → | → |
| | | • Expansion in need for water infrastructure that is highly resistant to flooding, droughts, and other disasters | Expansion in business related to adapting to climate change | → | → | → |
| Controlling Chemical Substances | Risks | • Non-compliance with chemical substance-related environmental standards<br>• Stricter chemical substance-related regulations, etc. | Fines and shutdowns<br>Lower social credibility<br>Increase in regulatory compliance cost | → | → | → |
| | Opportunities | • Launch of products compliant with emissions gas regulation and toxic substance use regulation | Expansion of selling opportunities | → | → | → |
| | | • Decreased use of substances of concern at business sites | Improvement in working environment | → | → | → |
| | | • Decreased use of paints and improved yields at business sites | Increase in productivity | → | → | → |
| Conserving Biodiversity | Risks | • Violation of biodiversity-related regulations | Fines and litigation | | | → |
| | | • Decline in natural capital | Shortages of raw materials and water resources<br>Increase in procurement costs | → | → | → |
| | | • Inappropriate land use, pollutant emissions, and excessive resource consumption, etc.<br>• Sales of products with a low level of environmental performance | Litigation raised by local communities<br>Lower social credibility<br>Customer churn | → | → | → |
| | | • Stronger calls for disclosure of action on biodiversity | Deterioration in stakeholder trust | → | → | → |
| | Opportunities | • Greater demand for products and services that contribute to sustainable agriculture, including restrictions on the excessive use of agrochemicals and fertilizer<br>• Launch of products and the like that curb exhaust gas emissions, noise, and vibrations<br>• Rising demand for products and services that contribute to the recovery and recycling of resources | Expansion of selling opportunities | | → | → |
| | | • Promotion of activities that consider biodiversity and environmental communication with local communities | Improve brand image<br>Improvement of employees' environmental awareness | → | → | → |

* Timing of manifestation is presented as short term (within three years), medium term (between three and five years), and long term (more than five years).

## Key Measures

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

| | Value chain of business (Expanding Environment-friendly Products and Services P66-73) | | |
|---|---|---|---|
| | Design and development, procurement | Manufacturing and distribution | Use and disposal |
| Mitigating and Adapting to Climate Change (P36-50) | • Optimal regional procurement<br>• Distributed procurement | • Reduce waste and loss in the use of energy based on the Kubota Production System concept<br>• Recover and reuse waste energy<br>• Fuel conversion<br>• Expand use of renewable energy<br>• Improve distribution efficiency<br>• Promote modal shift<br>• Promote BCP measures | • Lower fuel consumption<br>• Shift to next-generation power<br>• R&D for decarbonization of motive power<br>• Improve efficiency and save labor for work and management<br>• Conserve energy during construction |
| Working towards a Recycling-based Society (P51-54) | • Use recycled materials<br>• Reduce the number of parts<br>• Reduce packing material | • Conserve resources<br>• Promote the 3Rs for waste and convert waste into functional materials<br>• Reduce plastic<br>• Reduce packing material<br>• Ensure proper waste management<br>• Strengthen waste management using systems | • Extend product life<br>• Improve ease of maintenance<br>• Promote product recycling<br>• Ensure proper disposal |
| Conserving Water Resources (P55-57) | • Assess water risks<br>• Optimal regional procurement<br>• Distributed procurement | • Promote the 3Rs for water resources<br>• Ensure proper wastewater management<br>• Promote BCP measures | • Save water consumption<br>• Promote purification or recycling of wastewater |
| Controlling Chemical Substances (P58-60) | • Reduce the use of substances of concern | • Reduce VOC emissions<br>• Substitute for organic solvents<br>• Ensure proper chemical substance management | • Make exhaust gas cleaner<br>• Reduce environmental impacts on soil and water areas |
| Conserving Biodiversity (P61-65) | • Assess the impact on natural capital | • Promote environmental conservation activities and reduce the environmental impact<br>• Beautification and greening of business sites and neighborhoods | • Conserve soil and water areas<br>• Reduce noise and vibration |
| Environmental Management (P74-78) | • Promote global environmental management led by the members at the management class level<br>• Systematically reduce environmental impacts toward achieving the Medium- and Long-Term Environmental Conservation Targets<br>• Reduce environmental risks through environmental risk assessment<br>• Ensure environment-friendly design through product environmental assessment<br>• Promote green procurement<br>• Develop products that contribute to global environmental protection and solving social problems<br>• Enforce compliance in accordance with globally systemized environmental conservation rules<br>• Promote environmental training and environmental awareness-raising activities | | |
| Environmental Communication (P79-81) | • Strengthen information dissemination through the environmental report and website<br>• Promote environmental communication tailored to each target<br>• Enhance two-way communication with stakeholders<br>• Participate in regional environmental conservation activities | | |

## Relationships Between Environmental Conservation Activities and the SDGs

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

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





# Environmental Vision

In a situation with an increased uncertainty about the future due to social problems in a global scale, such as food issues and global warming, long-term, world-common goals have been set such as SDGs, the Paris Agreement, and others. For the climate change problem, the shift to a “decarbonized” society has been accelerated, with each country declaring net zero emissions of $CO_2$ and carbon neutrality. Also, the move from the conventional economy that has led to mass production, mass consumption, and mass waste disposal toward a circular economy has progressed, which aims for an economy with minimized waste generation by preserving and maintaining the values of products and resources as long as possible.

With “For Earth, For Life” as its concept for environmental management, the Kubota Group aims to contribute to the realization of a sustainable society, regarding environmental conservation, including climate change countermeasures, as a priority issue in its corporate activities. The Kubota Group has formulated its “Environmental Vision,” which, together with our Long-Term Vision “GMB2030,” shows the direction of our business activities toward 2050 from an environmental perspective and will promote initiatives to realize this vision.

## Environmental Vision —Target Situation toward 2050 from an Environmental Perspective—

**While challenging to achieve zero environmental impact,
we will contribute to realizing a carbon neutral and
resilient society in the fields of “food, water, and the environment.”**

## Toward the Realization of the Environmental Vision

### Challenge to Achieve Zero Environmental Impact

Procuring raw materials and components, and processing them into products, our company provides our customers with its various products. In this process, and in the use of the products by customers, a large volume of resources, including energy, is consumed. To continue our business globally, we need to use limited resources in an efficient and sustainable way.

Toward the realization of zero environmental impact, we will promote the reduction of greenhouse gas emissions in our business activities, a thorough reduction of waste or loss of energy based on the Kubota Production System (KPS), the expansion of the recovery and reuse of waste energy and of the use of renewable energy, water-saving in areas under high water stress, and maximizing the utilization efficiency of resources in the product lifecycle. In addition, we will develop our efforts toward zero environmental impact in our entire business value chain.

However, it is not easy to achieve zero environmental impact. To steadily approach zero environmental impact, we will systematically promote the reduction of greenhouse gases, implementation of energy-saving, reduction of waste, water-saving, and reduction of Volatile Organic Compounds (VOCs). We will also take up a challenge of sustainable business activities that can maintain the Earth’s self-purification capability and carrying capacity.

### Toward the Realization of a Carbon-Neutral and Resilient Society

In addition to the mitigation of climate change (controlling greenhouse gas emissions), Kubota also engages in environmental conservation activities and provides environmentally friendly products and solutions to adapt to the effects of climate change (avoiding or minimizing damage brought about by climate change) and to address water and waste issues. In these ways, we are contributing to the realization of a sustainable, especially carbon neutral and resilient society.

Greenhouse gas emissions from the food sector, including land use in the agricultural field, are said to account for about 24% of the world’s total emissions. It is believed that without efficient food production, greenhouse gas emissions will increase. According to the IPCC’s Sixth Assessment Report, atmospheric concentrations of methane and nitrous oxide, which are far more damaging greenhouse gases than $CO_2$, are rising and measures are needed to curb their emissions. Also, climate change is affecting the reduction and relocation of arable land, agricultural practices, and even ecosystems. Given the declining number of farm workers owing to the impact of urbanization in rural areas, more efficient food production in limited areas under cultivation is now needed.

In the “food” sector, which is one of our business areas, we believe we can reduce emissions of not only $CO_2$, but also methane and nitrous oxide, and contribute to more efficient food production by further evolving smart agriculture, the automatic operation of farm machinery, farming technology, and water environment solutions technology. By increasing the productivity of agriculture, we will help reduce greenhouse gas emissions in the agricultural sector by improving the efficiency of agriculture, reducing energy consumption, conserving resources of fertilizer and pesticides, and curbing deforestation intended to expand agricultural land.

Under the influence of climate change, the frequent occurrence and intensified damage of weather disasters have become remarkable. In addition, with available water resources unevenly distributed depending on the regions, the population who cannot access safe water has risen to 1.6 billion people. Even if we succeed in controlling the global rise of temperature due to climate change to less than 1.5°C, the population who has to face water shortages is expected to increase. Also, population increase and improved living standards are assumed to further aggravate the resource and waste problems and agricultural water shortages due to mass production, mass consumption, and mass waste disposal.

In the “water and the environmental” fields, we will provide products, services, and solutions, such as products to contribute to disaster prevention and disaster recovery, and efficient water monitoring and management systems that utilize AI / IoT, which are designed to avoid and mitigate damage due to the influences of climate change, including frequent occurrence of climate disasters, changes in agricultural styles, and increase in the frequency of work-related heatstroke. We will further expand our products, services, and solutions intended to realize advanced recycling of water resources and waste and control water pollution and air pollution, contributing to natural disaster-resistant community-building and the realization of a resilient society.

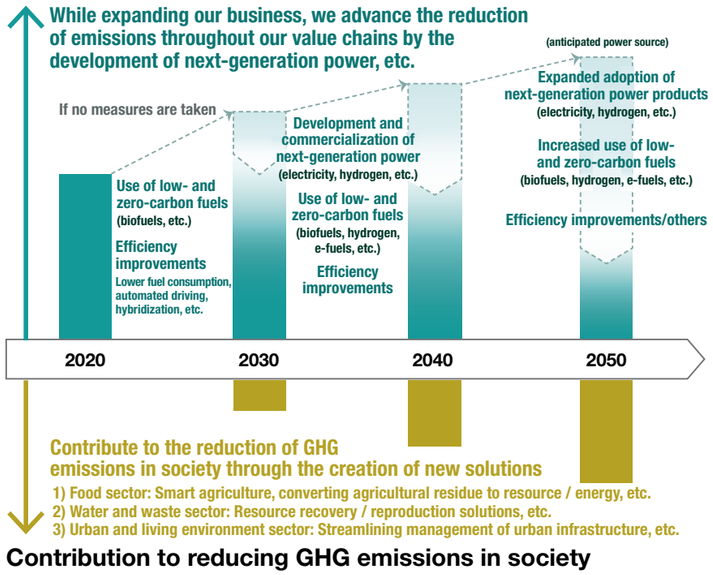
### Taking on the Challenge of Carbon Neutrality

Based on the situation of $CO_2$ emissions in the entire product life cycle as a whole, we believe that it is important to tackle reducing $CO_2$ emissions when manufacturing and using products.

Toward the realization of a carbon-neutral society, we will continue to reduce our greenhouse gas emissions and conserve energy, and also press ahead with plans to improve the fuel-efficiency of our products, or electrify them. However, uncertainty still shrouds the sources of power required of a carbon-neutral era because they are susceptible to regulations and policies geared towards decarbonization, market trends, and the development of infrastructure. With a view to the future at least 10 years from now, the Kubota Group has commenced the development and commercialization of products that can do more work more precisely, but with less energy.

We will continue to reduce $CO_2$ emissions across the entire life cycle of our products, and at the same time, curb GHG emissions in society through the provision of products and services. Having set ourselves the challenging goal of net-zero $CO_2$ emissions by 2050, we intend to push ahead with initiatives to help us achieve it.

**In-house $CO_2$ emission control**




**Contribution to reducing GHG emissions in society**





## Kubota's Initiatives

Future projections for population increase and economic development represent a significant opportunity for our business. However, if the world continues with the same kinds of economic activities as now, they could place a burden on the Earth that exceeds its capability for self-purification and its carrying capacity. This is a risk for the continuity of business activities. We will contribute to the realization of a sustainable society through our business activities and the provision of products and service solutions.

## In-house $CO_2$ Emission Control

### Reducing Scope 1 and 2*1 Emissions

The Kubota Group is continuing to implement energy-saving countermeasures and productivity improvement activities to reduce $CO_2$ emissions from its own sites, with a focus on production sites. While we will continue to focus on these efforts, we are currently transitioning to fuels that have low $CO_2$ emissions mainly by discontinuing the use of coking coal in the melting process at our casting plants and switching to electric furnaces. In addition, we are endeavoring to expand our use of renewable energy by installing solar power generation systems and purchasing green power and so forth. At the same time, as we reorganize and transfer our production sites, we will adopt production methods that have a low environmental impact and make other efforts to save energy and resources through production innovation.

Solar power generation system installed on the rooftop of a plant in China

### Controlling Scope 3*2 Emissions

Over 80% of the Kubota Group's Scope 3 emissions are generated during the use of sold products. Therefore, our efforts to develop products that can perform more work more precisely using less energy by improving the operational fuel consumption of our agricultural and construction machinery tie in directly to emissions reductions.

Through the robotization of agricultural machinery and the use of ICT, we are promoting smart agriculture. This is not only saving labor in agricultural operations, but also contributing to energy and resource savings. Currently, fossil fuels such as diesel and gasoline are the main sources of energy, but we are striving to utilize fuels that have lower $CO_2$ emissions, such as biofuels (e-fuel) and synthetic fuels. We are also actively pursuing R&D aimed at the decarbonization of motive power, such as electrification, hybrid systems, and fuel cells.

Also, in terms of measures for reducing emissions generated from the transportation of products, we are taking steps to improve load efficiency and drive a modal shift mainly by shipping products together and sharing the use of shipping containers with other companies.

Full-scale model of the 130th anniversary concept tractor


Electric construction machinery and tractor

*1 Scope 1: Direct emissions by the Group itself
Scope 2: Indirect emissions from purchased electricity, etc.
*2 Scope 3: Other indirect emissions (Emissions by others or at customers' sites related to the Group's activities)

## Contribution to GHG Reduction in Society and the Realization of a Resilient Society

### Environmental Contribution in the Field of Food

In the field of food, including agriculture, the Kubota Group is working to increase harvest yields per area and the quality of crops by further promoting smart agriculture. The goal is to increase crop yields to meet rising food demand without increasing cultivated area. In addition to saving energy and resources primarily by improving operational efficiency and applying the right amounts of fertilizer and pesticides, we intend to curb deforestation and the destruction of nature for farm land expansion.

In other initiatives, we provide the farm water management system (WATARAS), which allows users to remotely and automatically control water flowing in and out of rice paddies while monitoring the water level of the paddies themselves. We are conducting trials of a "smart rice paddy dam" that temporarily retains rainwater in a rice paddy by enabling users to remotely increase the water level setting for draining water from the rice paddy when there is a danger of river flooding due to heavy rain. This is expected to serve as a way of preventing flooding and increasing the resilience of local areas to water damage.

For the future, we are looking at building a food value chain data linking platform from crop production, food distribution to consumption and supplying an automatic management system that uses AI. This would help visualization of demand trends, promoting a shift to "market-in" agriculture where production and sales are conducted in response to demand. At the same time, it would deliver safe, secure crops with a high level of freshness to consumers, thereby helping to reduce food losses.


Tractors hard at work in global markets


Control screen of Kubota Smart Agri System

### Environmental Contribution in the Field of Water and Waste

The Kubota Group supports water infrastructure as a comprehensive manufacturer of water-related items from pipe materials used for water supply and sewage to engineering of water treatment plants. We use these technologies to provide resource recovery solutions, such as fermenting sewage sludge generated in sewage treatment plants and waste such as food residue generated by agriculture and food plants to extract biogas for reuse as an energy resource, generating electricity using the recovered biogas. We are working on projects that contribute to the building of a circular economy but which also helps lower $CO_2$ emissions by curtailing the need to mine virgin resources from the earth by providing crushing and sorting techniques to recover such resources as metal and plastics from waste—a process known as urban mining—as well as melting technology that enables the reuse of incinerated waste residue.


Farm Water Management System WATARAS


Plastic crushing and sorting facility

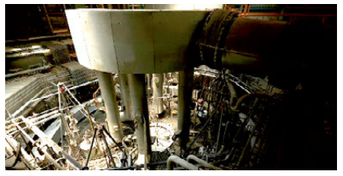
### Environmental Contribution in the Field of Urban and Living Environments

The Kubota Group is saving energy and improving operational efficiency on construction sites by leveraging our strengths in the water environment infrastructure business and construction machinery business. One way we do this is by supplying a smart water pipe installation system that conducts optimal installation based on pipeline information.

In the area of agricultural and construction machinery, we use a fault diagnosis app to reduce downtime of machinery that has a fault, helping to increase the efficiency of maintenance work.

Going forward, we will look at building a platform that aggregates underground pipe data to help in reducing construction time and labor for urban construction projects and so forth and providing a solution for extending the life and renewing underground infrastructure. These initiatives will also help to save energy in the construction field.

We will enhance the disaster resilience of urban infrastructure such as water supply and sewage systems by upgrading water supply and sewage facilities and river flooding monitoring and management platforms using plant information and sensors. Moreover, by appropriately operating these plants and facilities under optimal conditions, we will also contribute to energy-saving.


Rotary-type surface melting furnace that can liquefy residue and ash, turn it into a slag, and reuse it as a resource


Agricultural and construction machinery fault diagnosis app





## Background in establishing the Environmental Vision

### World Around Kubota's Business in 2050

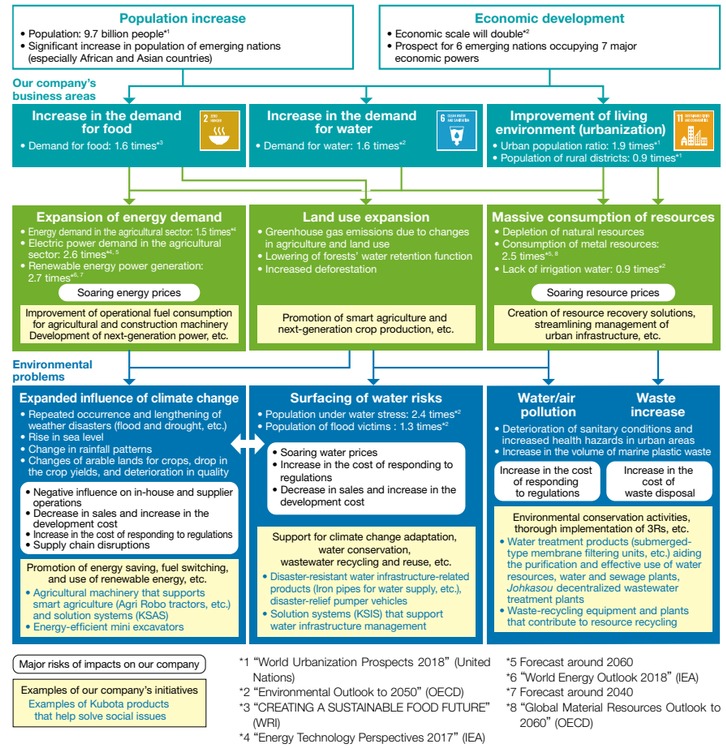
Based on the scenarios of the Intergovernmental Panel on Climate Change (IPCC) and the World Resources Institute (WRI), we analyzed a social image in 2050 when the temperature rises by 1.5°C/2°C and 4°C. Global environmental problems, including climate change and water risks, may not only have negative effects on our company's operation in the future, such as soaring energy and water prices and frequent occurrence of natural disasters, but also further aggravate social problems in the "food, water and the environment" fields, which are part of our company's business areas. Also, the delayed responses to these environmental problems may pose a risk to our company's business activities. To continue our global business, we believe it is essential to strike a balance between business development that can contribute to solving social problems toward the achievement of SDGs and ESG management that includes responses to the environmental problems.

#### ● World in 2050

The world population is expected to approach 10 billion people by 2050, mainly in emerging countries such as Africa and Asia, and the food demand along with the population increase is also expected to increase about 1.6 times. Also, economic development can enhance the need to improve people's living environment, and can result in an increase in global demand for energy and consumption of many resources. The same will be applied to water demand. Water demand will increase, especially in the manufacturing industry and for the use for power generation and for domestic use, and is expected to be about 1.6 times the current demand by 2050.

Increase in food demand and water demand, expansion of energy demand due to urbanization, etc., and cultivation of new land for food production may aggravate the climate change problem. Climate change can have a huge negative impact on people's lives. If rainfall patterns are altered, conventional crop production may become impossible as arid or high-precipitation belts shift geographically. Weather anomalies may also cause populations to be affected by more frequent flooding and other water damage.

If we continue our current economic activities and social activities without efficiently utilizing our limited resources, such as energy, people's current lifestyles themselves may no longer be feasible.



### ● A World Where Temperature Rise Is Less Than 1.5°C/2°C

We believe that to achieve the goals stipulated in the Paris Agreement, each country will accelerate their moves for energy-saving and the reduction of $CO_2$ emissions, and strengthen related laws and regulations, which should result in a growing concern about climate change among markets and customers. This is why we have assumed that the needs for energy-saving, decarbonization, and electrification will be enhanced.

For example, tractors, combine harvesters, rice-transplanters, construction machinery, and diesel engines, which are our company's major products, are under application of the exhaust gas regulations of Japan, European countries, and the U.S., etc. Our diesel engines are also used for construction machinery, which plays an active role in the development of urban areas. In the future, since regulations for each country's engines may be tightened, we believe that we need to invest in the development of diesel engines that conform to new exhaust gas regulations. Also, if each country's efforts toward the mitigation of climate change are advanced, while the ratio of fossil-fuel power generation decreases due to strengthened carbon taxes, energy prices are expected to soar with an increase in the ratio of renewable energy power generation.

As calls for the environmentally sound performance of products grow around the world in connection with climate change, the needs for high-energy-efficiency products and solutions that enable the same effects should be enhanced also in the fields related to water treatment as well as the agricultural machinery and construction machinery that Kubota offers. In our business activities, we also believe that with a risk of increase in the energy procurement cost, energy-saving and expansion of the use of renewable energy will become important issues.

### ● A World Where the Temperature Has Risen by 4°C

If the world's average temperature rises by 4°C, with the changes in the rainfall and climate patterns, weather disasters are expected to further increase, such as with the typhoons and torrential rains that have been observed around the world recently. Depending on the areas, it may be difficult for people to access the safe water required for business activities and livelihood due to drought. These weather disasters may cause a suspension of business activities, affect agricultural produce, and increase damage on the basic needs of people's livelihood such as water infrastructure.

For instance, in coastal regions and rainy regions, heavy rain or flooding may cause inundation of plants, blackouts, logistic suspension, and delayed shipping. Also, with increased frequency and length of these weather disasters, there are concerns over further expansion of damage. Even in the production of farm products, climate change is expected to have negative influences such as causing changes of arable land and a reduction in the amount of harvested crops, and may further affect the sales of agricultural machinery. Climate change may cause the occurrence of drought, which may cause the occurrence of risks for business activities, such as water shortages and restrictions on the amount of water in the relevant regions.

While climate change is expected to affect the changes of arable land and crop production, we believe that the necessity of agricultural solutions for continuing farming even under a range of climate conditions, and of smart agriculture capable of realizing efficient production in limited land, will increase. Likewise, we believe that contributing to the building of a natural disaster-ready city that can maintain people's living environment even after the occurrence of a natural disaster will be our important task.

The above statements are the outline of the results of scenario analysis based on the proposals of TCFD for the examination of the Kubota Group's Environmental Vision. The world in 2050 may be different from each scenario. We will continue to improve our information disclosure based on the proposals of TCFD.

## Expected Image of Society

As people's lives become more and more enriched, new environmental problems to be solved will occur in the future. However, we do not wish to have a new society at the price of the global environment. As a result of analyzing a future society image based on the impact of climate change, the Kubota Group believes that what society expects for us in order to make the world sustainable in or after 2050 is as follows:

◇ Realization of carbon-neutral society aimed at mitigating climate change by curbing greenhouse gas emissions from the agricultural sector
◇ Realization of resilient society capable of adapting to climate change, such as by preparing for natural disasters and dealing with water / air pollution and waste issues





# Medium- and Long-Term Environmental Conservation Targets and Results

As extreme weather events and other impacts of climate change continue to materialize, the global movement aimed at reducing greenhouse gases is growing increasingly active. Global environmental issues pose a significant threat to "ensuring food security," as well as "ensuring a safe and secure water supply."

In order to promote environmental management in light of various recent social developments, such as SDGs and the Paris Agreement, as a sustainable company, the Kubota Group has challenged itself to achieve zero environmental impact in its Environmental Vision for 2050. Moreover, to promote systematic reduction of environmental impacts, we have been promoting environmental activities by formulating our medium- and long-term targets for environmental conservation. Toward achieving these targets, the Group is advancing systematic initiatives in both the production and product development stages.

## Long-Term Environmental Conservation Targets 2030 and Results

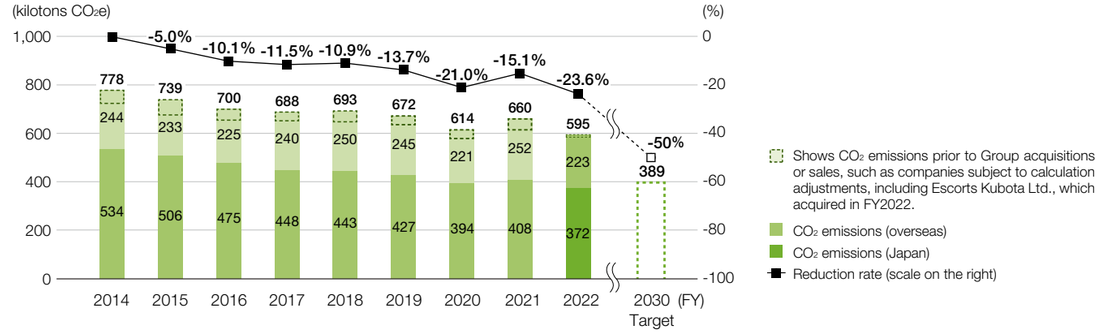
### Mitigating and Adapting to Climate Change

The shift to a decarbonized society has been accelerated, with each country declaring substantially zero emissions of $CO_2$ and carbon neutrality. In its Environmental Vision, the Kubota Group announced its commitment to take up the challenge of achieving carbon neutrality by 2050. Based on these global trends and the image for the company expected by society in the future, in our Long-Term Environmental Conservation Targets 2030, in 2022 we expanded the boundary of our $CO_2$ reduction target from the Kubota Group in Japan to a global boundary, and revised our target upward. We will continue energy-saving to reduce energy consumption at our sites, reduce $CO_2$ emissions through fuel conversion by adopting electric furnaces and so forth, and by expanding our use of renewable energies, we will promote initiatives to achieve carbon neutrality.

| | |
|---|---|
| 2030 Targets | **Reduce** $CO_2$ emissions from the Kubota Group* by **50%** compared to the base year FY2014. |
| Result | In FY2022, $CO_2$ emissions of the Kubota Group* were **reduced** by **23.6%** compared to the base year FY2014. |

* $CO_2$ emissions refer to Scope 1 and 2 emissions from all Kubota Group sites (100%) and include greenhouse gases from non-energy sources

**Kubota Group Scope 1 and 2 $CO_2$ Emissions (Progress on Long-Term Environmental Conservation Targets 2030)**




* $CO_2$ emissions of companies that have been acquired or sold that significantly impact overall Group emissions have been adjusted retroactively to before the acquisition or sale. Namely, Great Plains Manufacturing, Inc. (acquired in 2016), Escorts Kubota Ltd. (acquired in 2022), and P.T. Metec Semarang (sold in 2017). The $CO_2$ emissions before adjustments are 714 kilotons $CO_2e$ in 2014, 674 kilotons $CO_2e$ in 2015, and 647 kilotons $CO_2e$ in 2016, 645 kilotons $CO_2e$ in 2017, 647 kilotons $CO_2e$ in 2018, 630 kilotons $CO_2e$ in 2019, 570 kilotons $CO_2e$ in 2020, and 613 kilotons $CO_2e$ in 2021, 585 kilotons $CO_2e$ in 2022.

**Revision of Targets (2022)**

| | Before revision | After revision |
|---|---|---|
| Target sites | Group sites in Japan | Global group sites |
| Target value | 30% reduction | 50% reduction |
| Base FY | 2014 | 2014 |
| Target $CO_2$ emissions volume | Scopes 1, 2<br>534 kilotons $CO_2e$ | Scopes 1, 2<br>778 kilotons $CO_2e$ |
| Coverage ratio | 68.6% | 100% |

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.88).

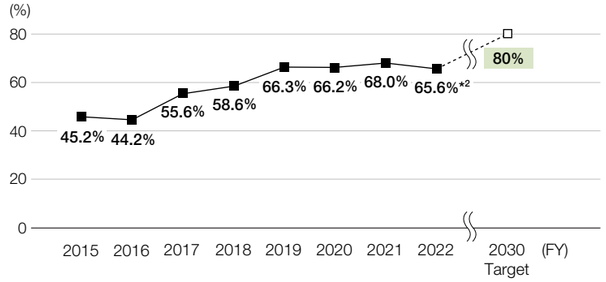
The environmental information provided in the Kubota Group ESG Report 2023 has received the third-party assurance by Deloitte Tohmatsu Sustainability Co., Ltd. The indicators subject to assurance are marked with the "🔍" symbols.

## Efforts to Develop Environment-friendly Products

In FY2022, we designated 56 new Eco-Products, bringing the sales ratio to 65.6%.

| | |
|---|---|
| 2030 Target | **Increase** the sales ratio of Eco-Products to **80%** by FY2030.<br>Aim to put all new products which are certified as Eco-Products in the market in FY2030 and later. |
| Result | The sales ratio of Eco-Products was **65.6%** in FY2022. |

### Trends in Sales Ratio of Eco-Products*1




*1 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
*2 The sales ratio comes to 69.7% when excluding Escorts Kubota Ltd., a Group company acquired in FY2022

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.88).

### Products Certified as Eco-Products in FY2022 (excerpt)

Tractor
Slugger
Special manual transmission model
SL54HSP

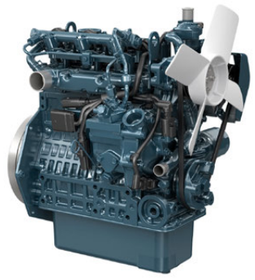
**[Key certification point]**

**Compliant with exhaust gas regulations**

Mini excavator
KX019-4 LPG (Europe)

**[Key certification point]**

**Compliant with exhaust gas regulations**



Diesel engine
D902-K series
D902-K-E4-BB-1
(North America, Europe, China)

**[Key certification point]**

**Compliant with exhaust gas regulations**

For other products certified as Eco-Products, please refer to page 68 or follow the link below.

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





## Medium-Term Environmental Conservation Targets and Results

Since FY2021 we have been undertaking initiatives with the aim of achieving our Medium-Term Environmental Conservation Targets 2025. We have revised the 2025 targets for indicators that we achieved in 2022. And so that we can continuously make improvements going forward, we established a new set of targets for the year 2030. We intend to systematically roll out initiatives aimed at achieving our targets, at our production sites and product development.

| Reporting Boundary | Issue | Action item | Management indicator*4 | Base FY | Target for FY2025*11 | | New Target for FY2030*11 | FY2022 Result |
|---|---|---|---|---|---|---|---|---|
| | | | | | Old | New | | |
| Global Production Sites*1 | Mitigating and Adapting to Climate Change | Reduce $CO_2$*2 | $CO_2$ emissions per unit of production (Scopes 1, 2) | 2014 | ▲25% | ▲45% | ▲60% | ▲38.9% |
| | | | Ratio of renewable energy usage*5 | — | 1% or more | 20% or more | 60% or more | 8.3% |
| | | Save energy | Energy consumption per unit of production | 2014 | ▲18% | ▲35% | ▲40% | ▲32.5% |
| | Working towards a Recycling-based Society | Reduce waste | Waste discharge per unit of production | 2014 | ▲33% | ▲45% | ▲50% | ▲39.7% |
| | | | Hazardous waste discharge per unit of production*6 | 2019 | ▲3% | ▲17% | — | ▲15.5% |
| | | | Recycling ratio (Japan) *7 | — | Maintain 99.5% or more | | — | 99.2% |
| | | | Recycling ratio (Overseas) *7 | — | Maintain 90.0% or more | | — | 94.6% |
| | Conserving Water Resources | Conserve water resources | Water withdrawal per unit of production | 2014 | ▲23% | ▲35% | ▲40% | ▲31.6% |
| | Controlling Chemical Substances | Reduce VOCs*3 | VOC emissions per unit of production | 2014 | ▲42% | | — | ▲37.6% |
| Products | Improving Products' Environmental Performance | Expand Eco-Products | Sales ratio of Eco-Products*8, 9 | — | 70% or more | | — | 65.6% |
| | | Promote recycling | Usage ratio of recycled materials*9, 10 | — | Maintain 70% or more | | — | 70.4% |

| Reporting Boundary | Issue | Action item | Management indicator | Result of FY2022 |
|---|---|---|---|---|
| Global Production Sites | Working towards a Recycling-based Society | Improve resource efficiency | • Reduce disposable plastics at business sites<br>• Work with suppliers to conserve packaging materials and make them returnable<br>• Implement paperless operation | See p.54 |
| | Conserving Water Resources | Control wastewater | • Manage wastewater appropriately in accordance with the standards of the water discharge by operating wastewater treatment facilities and water recycling facilities, etc. | See p.56 |
| | Conserving Biodiversity | Conserve biodiversity at business sites | • Promote the protection of the natural environment by greening our establishments and creating biotopes | See p.64 |
| | | Promote social contribution activities | • Promote conservation of the local natural environment and biodiversity as social contribution activities | See p.65 |
| Products | Improving Products' Environmental Performance | Promote recycling | • Display the material of new parts and provide material information*12 | Currently in progress*14 |
| | | Develop vehicles compliant with exhaust gas regulations | • Development of industrial diesel engines that comply with the latest emissions regulations (Stage V), and launch onto the market of products with such engines*13<br>• Launch the vehicles that comply with the latest emissions regulations onto the market | See p.32 |

*1 The global production sites subject to the Medium-Term Environmental Conservation Targets are as follows.

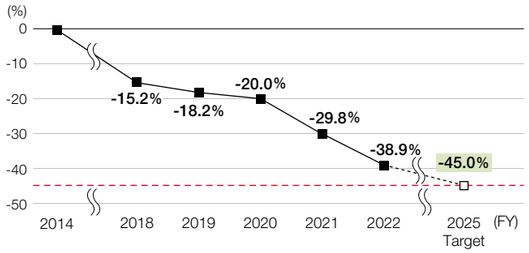
| No. of Sites | Total |
|---|---|
| 70 sites (27 in Japan, 3 in China, 14 in other Asia, 12 in North America, 14 in Europe) | 70 sites (100%) |

*2 $CO_2$ emissions indicate 90.6% of base-year Scope 1 and 2 emissions and include greenhouse gases from non-energy sources. We use the emissions coefficient for electric power of the base year in our calculation of $CO_2$ emissions from energy sources.
*3 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.
*4 The figures per unit of production represent the intensity of the environmental load per unit of money amount of production. The exchange rate for FY2014 is used when translating the money amount of production of overseas sites into Japanese yen.
*5 The applicable boundary is global sites.
*6 In Japan, specially controlled industrial waste as defined in the Waste Management and Public Cleaning Law; Overseas, waste that is defined as hazardous in each country or region.
*7 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.
*8 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
*9 Not subject to the third-party assurance
*10 Usage ratio of recycled materials (%) in the cast metal products and parts manufactured by the Kubota Group (ductile iron pipes, fittings, machine cast products (engine crankcase, etc.))
*11 ▲ indicates a negative figure.
*12 In accordance with internal standards, we provide information on materials through material labeling and specification sheets for plastic components.
*13 Targeting tractors and combine harvesters (output range: 56 kW ≤ P < 560 kW) equipped with engines compliant with the European emissions regulations (Europe Stages IV and V) level, shipped to Europe, North America, Japan, and Korea
*14 Due to the reorganization or new establishment of businesses, our internal standards regarding the method of providing material information have been developed. These standards were into operation since 2023.

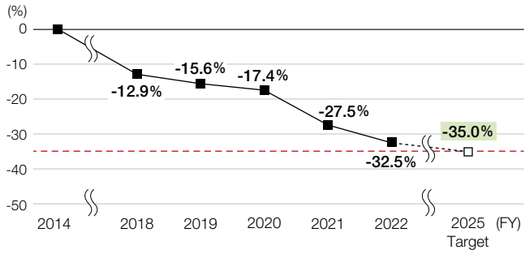
For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.88).

## The Results for Medium-Term Environmental Conservation Targets for Global Production Sites

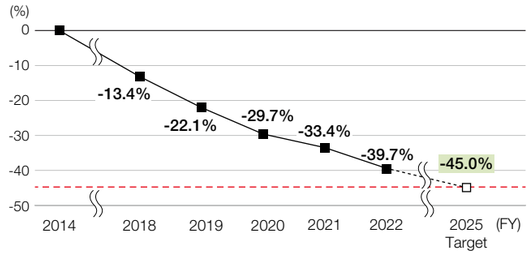
### Trends in Reduction Ratio of $CO_2$ Emissions per Unit of Production*1



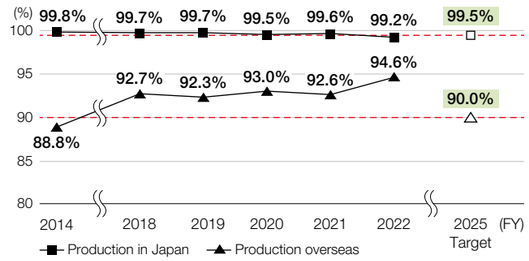

### Trends in Reduction Ratio of Energy Use per Unit of Production*1



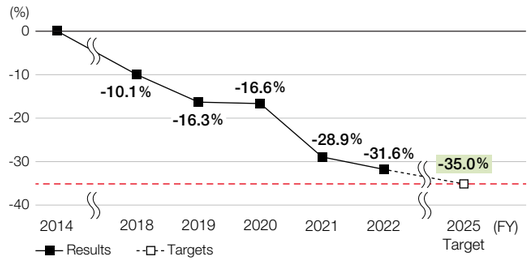

### Trends in Reduction Ratio of Waste Discharge per Unit of Production*1



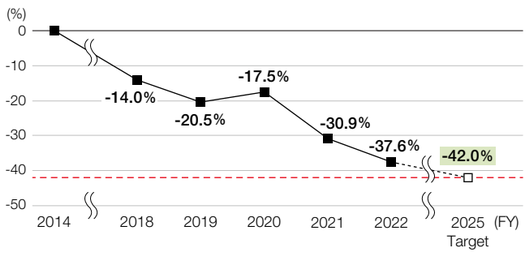

### Trends in Recycling Ratio*1




### Trends in Reduction Ratio of Water Withdrawal per Unit of Production*1




### Trends in Reduction Ratio of VOC Emissions per Unit of Production*1




*1 The environmental impacts of companies that have been acquired or sold that significantly affect the Group's overall environmental impacts have been retroactively adjusted to before the acquisition or sale. The companies subject to calculation adjustments are Great Plains Manufacturing, Inc. and Escorts Kubota Ltd., which were made Group companies in 2016 and 2022, respectively, and P.T. METEC SEMARANG, which was spun off in 2017.





## Results for Medium-Term Environmental Conservation Targets in the Product Sector

| | |
|---|---|
| Target for FY2025 | • Development of industrial diesel engines that comply with the latest emissions regulations (Stage V), and launch onto the market of products with such engines<br>• Launch the vehicles that comply with the latest emissions regulations onto the market |
| Result | Kubota launched the following products equipped with the engines that comply with the emissions regulations.<br>Examples of Products Launched onto Markets in 2022<br>Combine harvester ZR7130K (Korea)<br>• Compliant with South Korea stage V emission standards for agricultural machinery (56 kW and above, lower than 130 kW)<br>Tractor M6 series M6-141 (North America)<br>• Compliant with North America EPA emission standards (56kW and above, lower than 130kW; Tier 4) |

Combine harvester ZR7130K (Korea)

Tractor M6 series M6-141 (North America)

## 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.

In December 2021, we made the “Eco-First Commitment” pledge based on the Medium-Term Targets for 2025, the Long-Term Targets for 2030 and the Environmental Vision for 2050. We have renewed the “Eco-First Commitment” for the following 5 items and been recertified.

- Initiatives for building a decarbonized society
- Initiatives for creating recycling-based society
- Reduction of impact on the atmospheric environment
- Development of environmental products
- Conservation of biodiversity

Eco-First Mark

* The Eco-First Program is designed to promote further action on environmental conservation among industry-leading companies. Companies make a commitment to the Minister of the Environment to conduct environmental conservation initiatives such as global warming prevention measures, and if their targets and initiatives to achieve them are deemed to be among the leading companies in their industry, they are certified as “Eco-First Companies” (Established by the Ministry of the Environment in April 2008).

ECO FIRST Commitment (Updated)

Our initiatives as a leading company in environmental conservation

December 27th, 2021

Mr. Tsuyoshi Yamaguchi
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 focus our efforts on building a decarbonized society.
(1) The Kubota Group has a target, of controlling greenhouse gas emissions and net zeroing in 2050 throughout the value chains. In addition, the Kubota Group will disclose information on our efforts to reduce greenhouse gas emissions (Scope 1, Scope 2 and Scope 3) throughout the value chains.
(2) Production plants of the Kubota Group in Japan and other countries have a target, for 2025, of reducing $CO_2$ emissions per production money amount by 25% or more compared to the base year 2014.
(3) Production plants of the Kubota Group in Japan and other countries have a target, for 2025, of reducing energy consumption per production money amount by 18% or more compared to the base year 2014.
(4) Production plants of the Kubota Group in Japan and other countries have a target, for 2025, of increasing the recyclable energy availability of electric consumption to 1% or more.
(5) The Kubota Group in Japan has a long-term target, for 2030, of reducing $CO_2$ emissions from the business sites by 30% compared to the base year 2014.
(6) To achieve the above targets, the Kubota Group fully utilizes 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; visualize energy and reduce unnecessary use of energy; recover waste heat; and use photovoltaic power generation and green electricity.
(7) The Kubota Group will quantitatively identify the reduction effect of greenhouse gas emissions and actively provide the information on the reduction effects to clients in Japan and other countries to enlighten them in order to promote the reduction of greenhouse gas emissions through the dissemination of decarbonized products, services and technologies. We will improve the working fuel efficiency of agricultural and construction machinery, and promote smart agriculture by using robots and ICT. We will also pursue research and development for decarbonization of power, such as electrification, hybridization and fuel cell application.
(8) The Kubota Group supports the TCFD recommendations and actively discloses information related to climate change.

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 the “3R (Reduce, Reuse, Recycle) of Waste” by reducing the amount of slag generated and concentrating waste liquid to achieve the target, for 2025, of reducing the waste discharge per production money amount by 33% or more compared to the base year 2014. We will also have a target, for 2025, of reducing the hazardous waste* discharge per production money amount by 3% or more compared to the base year 2019.
* Hazardous waste refers to specially controlled industrial waste in Japan and hazardous waste specified by the laws and regulations of the country or region overseas.
(2) The Kubota Group will promote the recycling of wastes and achieve 99.5% or more recycle ratio* of wastes generated by production plants in Japan and 90% or more in overseas production plants in 2025.
* 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 the “3R (Reduce, Reuse, Recycle) of Water” to achieve the target, for 2025, of reducing the water consumption per production money amount by 23% or more compared to the base year 2014.
(4) We will work on the following 3 points to promote the effective use of resources.
1) Reduce disposable plastics at business sites
2) Work with our suppliers to conserve packaging resources and make them returnable
3) Implement paperless operation by individual employees and promotion of computerization at business sites
(5) In order to collect the scattered garbage that causes marine plastic pollution, we will conduct beautification activities on the roads around the production plants of the Kubota Group in Japan at least once a year.
(6) The Kubota Group will make efforts to effectively use resources and reduce waste through the business value chains in order to control plastic emissions. For example, we will promote the elimination of single-use plastics at the cafeteria in the business sites and to label the materials used in our products.

3. We will work toward reducing emissions into the atmosphere.
(1) Production plants of the Kubota Group in Japan and other countries have a target, for 2025, of reducing the amount of VOCs* emission per production money amount by 42% or more compared to the base year 2014.
* VOCs comprise the six VOCs that are most prevalent in emissions from the Kubota Group, namely xylene; toluene; ethylbenzene; styrene; 1, 2, 4-trimethylbenzene; and 1, 3, 5-trimethylbenzene.
(2) Production plants of the Kubota Group in Japan and other countries will take necessary measures to control the emission or spread of VOCs from our business activities.

4. We will develop highly environmentally friendly products.
(1) The Kubota Group will improve environmental performances in the product development phase and reduce environmental impacts throughout the life cycle of products. We will increase the sales ratio of Eco-Products certified products* to 70% or more in 2025. In addition, we will increase the sales ratio of Eco-Products certified products* to 80% in 2030. We also aim to put all new products which are certified as Eco-Products on the market in 2030 and later.
We quantitatively identify the effect of saving energy consumption by supplying low-carbon products and services. We will actively provide the information to our clients.
* The sales ratio of the products which 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
(2) The Kubota Group will maintain the usage ratio of recycled materials* among casting products and their parts as more than 70%.
* Usage ratio of recycled materials (%): materials used in the cast metal products and parts (ductile iron pipes, fittings, machine cast products (engine crankcase, etc.))
(3) We will display the materials for new parts and provide material information.
(4) The Kubota Group will develop industrial diesel engines that comply with the latest emission regulations of Japan, the US and Europe and put on the market of the engine-based products*.
* Targeting the tractors and combine harvesters (output range: 56 kWSP<560 kW) equipped with engines compliant with the European emissions regulations (Europe Stage V) level, shipped to Europe, North America, Japan, and Korea.

5. We will promote activities friendly to the natural environment and biodiversity.
(1) Based on our activity guideline on the conservation of biodiversity, the Kubota Group will appropriately manage environmental impacts and risks accompanying business activities. Also, we will promote the protection of natural environment by greening our establishments and creating biotopes.
(2) We will promote conservation of the local natural environment and biodiversity as social contribution

The Kubota Group will monitor the progress of the above initiatives, report the results to the Ministry of the Environment, and publish annually the results in our Integrated Report and so on.

Yuichi Kitao
Representative Director and President
Kubota Corporation

For Earth, For Life
Kubota

Eco-First Commitment of the Kubota Group

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





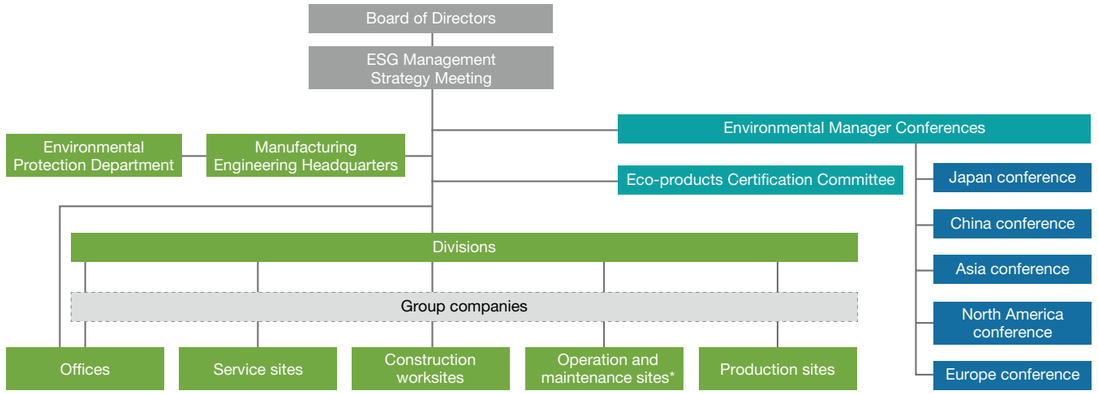
# Environmental Management Promotion System

As a consequence of economic development, numerous environmental problems are occurring all around us, for example, climate change, water risks, and marine plastic waste. As initiatives for transitioning to a decarbonized society and a circular economy gain momentum around the world, corporations are expected to do their part in helping to solve such environmental issues.

While anticipating changes in society, corporations must formulate strategies for determining the course of action for environmental management so that targets can be achieved. The implementation of a PDCA cycle on a global scale is also essential. Going forward, the Kubota Group will continue to strengthen the framework that underpins our environmental management of contributing to the development of society and conservation of the global environment.

## Organization Structure

In 2014, the Environmental Management Strategy Committee was established to take a more strategic and innovative approach to environmental management by management-led promotion. In 2021, the ESG Management Strategy Meeting was launched to strengthen management strategies from an ESG perspective, including environmental considerations. 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

## ESG Management Strategy Meeting

The ESG Management Strategy Meeting is held four times a year, in principle, to provide an opportunity for management to discuss the Kubota Group’s issues and response strategies from an ESG perspective. The discussion covers the medium- and long-term direction of the Kubota Group’s environmental management, such as medium- and long-term targets and key measures in light of global environmental issues such as climate change and the business environment, and the meeting determines priority items and plans. Environmental issues were discussed on four occasions in 2022 at meetings in March, June, August and December.

ESG Management Strategy Meeting

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

Please refer to page 153 (Corporate Governance) for the ESG Management Strategy Meeting

## 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.

To realize the Environmental Vision, it will become necessary to accelerate the further reduction of environmental impacts globally. Moreover, as production has increased in overseas areas, it is necessary to thoroughly implement environmental risk reduction measures. We revised the method of holding the conferences, which were held every second year up until 2019, making use of the online format to stimulate sharing of information such as policies and exchanges of examples within regions. In 2022, we held conferences for the regions of China, Asia, North America, Europe, and Japan. Local company presidents, environmental managers, and staff members participated in the overseas conferences, while the Japan conference brought together environmental managers and staff members from 24 sites across Japan, including Group companies. The focus of the conferences was on communicating the Kubota Group's policies and initiatives, as well as sharing progress on the Medium-Term Environmental Conservation Targets. Participants also presented case studies on mainly energy-saving measures and environment risk countermeasures.

As for conferences held in overseas regions, since 2017 the Kubota Group has been building a framework to enable local business sites to host their own conferences in order to efficiently promote governance, strengthen collaboration, and raise the level of activities within their own region. A conference of five companies in Thailand was launched in December 2017, another with three companies in China's Jiangsu Province in December 2018, and another with six companies in North America in August 2019. Each of these conferences is addressing regional-specific topics by setting targets, regularly inspecting each other's plants, strengthening legal and regulatory compliance, and sharing good practices.

The Group will continue to work diligently to further raise its level of environmental conservation activities across the entire Group by drawing on the contributions of the Environmental Manager Conferences.

China Conference held online


Asia Conference held online

Please refer to page 74 (Environmental Management) for information about business operations based on our environmental management system.





# Mitigating and Adapting to Climate Change

The Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) states that "it is unequivocal that human influence has warmed the atmosphere, ocean and land," and that "widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred." Moreover, a new phase of the Paris Agreement—an international framework—kicked off in 2020. With countries declaring their intentions to achieve net-zero $CO_2$ emissions and carbon neutrality, the movement driving society's transition to a decarbonized society is gaining momentum, which certainly indicates that the initiatives of individual companies to reduce greenhouse gases are growing increasingly important.

The Kubota Group sees "Mitigating and Adapting to Climate Change" as one of its materiality and is committed to the challenge of achieving carbon neutrality by 2050. It has been advancing initiatives toward the "mitigation" of climate change by reducing greenhouse gas emissions mainly through energy-saving activities and the introduction of renewable energy sources and "adaptation" to be prepared for the impact of climate change.

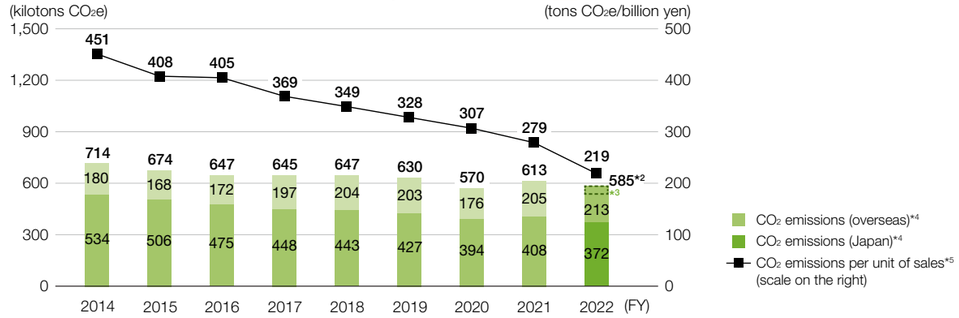
## Mitigation of Climate Change

### $CO_2$ Emissions (Scope 1 and Scope 2)

In FY2022, $CO_2$ emissions were 585 kilotons $CO_2e$, a decrease of 4.4% compared to the previous year. On the other hand, $CO_2$ emissions per unit of sales improved by 21.6% compared to the previous year.

Despite an increase in machinery production sites overseas, mainly as a result of the acquisition of Escorts Kubota Ltd., $CO_2$ emissions decreased due to the increased use of renewable energy, a drop in production at casting production sites, and an improvement in the emissions coefficient for electricity consumption. Emissions per unit of sales were improved as a result of not only an increase in consolidated net sales, but efforts to lower $CO_2$ emissions by promoting reduction measures, such as switching fuels, promoting ways to save energy, and the installation of energy-efficient equipment.

**Trends in $CO_2$ Emissions*1 and Emissions per Unit of Sales**




*1 The $CO_2$ emissions for companies acquired or sold that have a significant impact on the Group's overall $CO_2$ emissions have been retroactively adjusted to before the acquisition or sale. The adjusted values are: 778 kilotons $CO_2e$ in FY2014, 739 kilotons $CO_2e$ in FY2015, 700 kilotons $CO_2e$ in FY2016, 688 kilotons $CO_2e$ in FY2017, 693 kilotons $CO_2e$ in FY2018, 672 kilotons $CO_2e$ in FY2019, 614 kilotons $CO_2e$ in FY2020, 660 kilotons $CO_2e$ in FY2021, and 595 kilotons $CO_2e$ in FY2022.
*2 $CO_2$ emissions (585 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 (15 kilotons $CO_2e$).
*3 Increase from fossil fuels due to FY2022 acquisition of overseas companies (38 kilotons $CO_2e$)
*4 $CO_2$ emissions refer to Scope 1 and 2 emissions from all Kubota Group sites (100%) and include greenhouse gases from non-energy sources.
*5 $CO_2$ emissions per unit of consolidated net sales. The Kubota Group adopted International Financial Reporting Standards (IFRS) instead of accounting principles generally accepted in the United States of America from FY2018.

### Measures to Reduce $CO_2$ Emissions

The Kubota Group has established the Medium- and Long-Term Environmental Conservation Targets (p.28-32) and is devoting efforts to reducing $CO_2$ emissions and energy use associated with its business activities.

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

We have implemented some of the specific reduction measures that include eliminating loss in energy consumption through a switch to equipment with higher energy efficiency and proper operation management, and promoting the visualization of power consumption in each process. At the same time, we have expanded the use of LED lighting at all our global sites—as of end-FY2022 the ratio of LEDs as a percentage of all lights at production sites had increased to 79.8%. In FY2022, we worked on energy-saving measures for compressed air as well.

We are also accelerating the introduction of renewable energy. In FY2022, new solar power generation systems came online at the Kubota Global Institute of Technology (Japan), Kubota Seiki Co., Ltd. (Japan), and Kubota Precision Machinery (Thailand) Co., Ltd. This brought the renewable energy consumption of the entire Group to 68,183 MWh (roughly equivalent to a 41,831-ton reduction in $CO_2$ emissions). We have raised the FY2025 target for the ratio of renewable energy usage to 25% or more. The result in FY2022 was 8.3%.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.88).

As a result of the efforts toward achieving the Medium-Term Environmental Conservation Targets 2025 for $CO_2$ reduction, global production sites achieved a reduction of 7.1 kilotons $CO_2e$ in FY2022 compared with the case where countermeasures were not implemented from the previous year. The economic effects of these measures reached 180 million yen compared to the previous year. $CO_2$ emissions per unit of production in FY2022 improved by 38.9% compared to the base year (FY2014).

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

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

Solar panels capable of generating 1,566 kW of power were installed at the Kubota Global Institute of Technology (Japan), a facility that opened in September 2022.

Practice Report

## Upgrading Production Lines and Installing Electric Furnaces with a View to Decarbonization

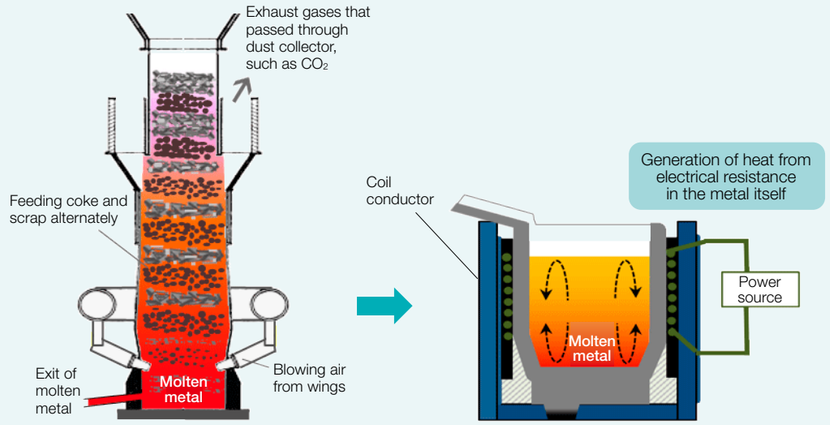
At the Kubota Hanshin Plant (Japan), the feedstock melting equipment used to manufacture cast iron pipes for water supply systems and other applications will be upgraded through to the end of 2023. The plant currently uses a cupola melting furnace that requires coal-derived coke as a fuel source, one of the major sources of $CO_2$ emissions. By replacing a cupola furnace with three electric furnaces, we aim to decarbonize the plant's operations. The introduction of electric furnaces is expected to reduce the plant's $CO_2$ emissions by around 15,000 tons annually.

One advantage of the cupola furnace is that it can continuously melt large volumes of metal into liquid. On the other hand, the disadvantages include an extremely complex furnace operation method that requires expertise, the need for large equipment such as a heat exchanger and dust collector, considerable upfront costs, and a negative environmental impact from significant volumes of dust waste and $CO_2$ emissions.

The electric furnaces slated for installation are high-frequency induction crucible furnaces used for melting cast iron. When an alternating current flows through a coil, it creates a magnetic field inside the crucible and the current runs through the metal as a result of electromagnetic induction. The metal then heats up because of electrical resistance in the metal itself.

A familiar example of this process would be induction cooktops, which make use of the same principle to heat up metal pots and pans by way of electromagnetic induction. Industrial electric furnaces leverage this same principle, but on a much larger and sturdier scale. The furnaces slated for installation at the Hanshin Plant have a rated melting capacity of 15 tons for cast iron and a rated temperature of 1,500°C. Compared to the cupola, an electric furnace is best suited to small-lot, high-mix production, and offers such advantages as low running costs and minimal energy consumption.

In our Environmental Vision we have outlined our commitment to work towards achieving carbon neutrality by 2050, which is why we are focusing on reducing $CO_2$ emissions at the production stage. The shift away from cupola to electric is one part of this initiative.

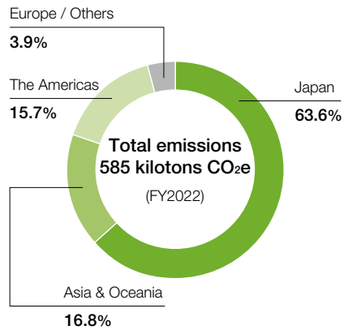



Structure of cupola　　Structure of induction crucible furnace

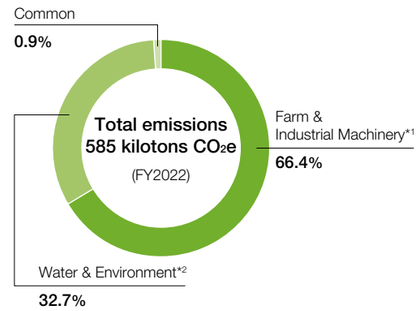




### $CO_2$ Emissions by Region

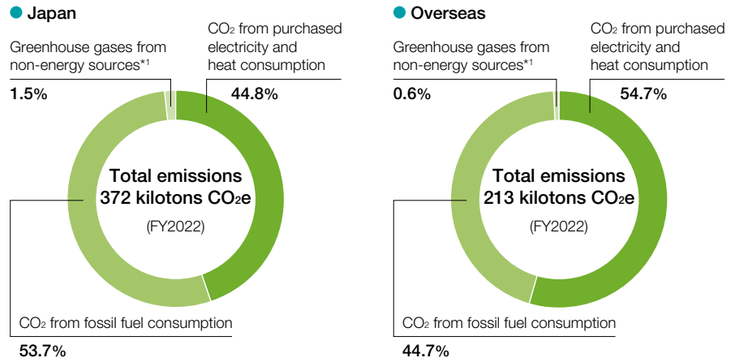



### $CO_2$ Emissions by Business



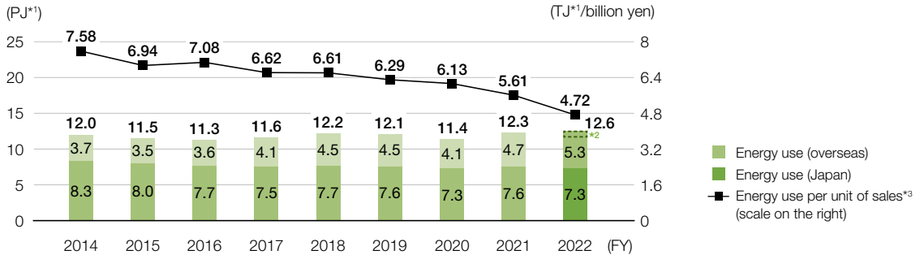

*1 $CO_2$ emissions generated from the production of products such as agricultural machinery, construction machinery, and engines.
*2 $CO_2$ emissions generated from the production of products such as ductile iron pipes and cast steel.

### $CO_2$ Emissions by Emission Source




*1 Greenhouse gases from non-energy sources include the following: $CO_2$ 4.3 kilotons $CO_2e$, $CH_4$ 0.9 kilotons $CO_2e$, $N_2O$ 0.4 kilotons $CO_2e$, HFC 1.3 kilotons $CO_2e$, PFC 0 kilotons $CO_2e$, $SF_6$ 0.02 kilotons $CO_2e$, and $NF_3$ 0 kilotons $CO_2e$

### Trends in Energy Use at Business Sites and Energy Use per Unit of Sales




*1 PJ = $10^{15}$J, TJ = $10^{12}$J
*2 Increase from fossil fuels due to FY2022 acquisition of overseas companies (0.6 PJ)
*3 Energy use per unit of consolidated net sales. The Kubota Group adopted International Financial Reporting Standards (IFRS) instead of accounting principles generally accepted in the United States of America from FY2018.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.88).

## $CO_2$ 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 Scope 3 $CO_2$ emissions, and continue to expand the categories in the Scope of its calculation of $CO_2$ emissions.

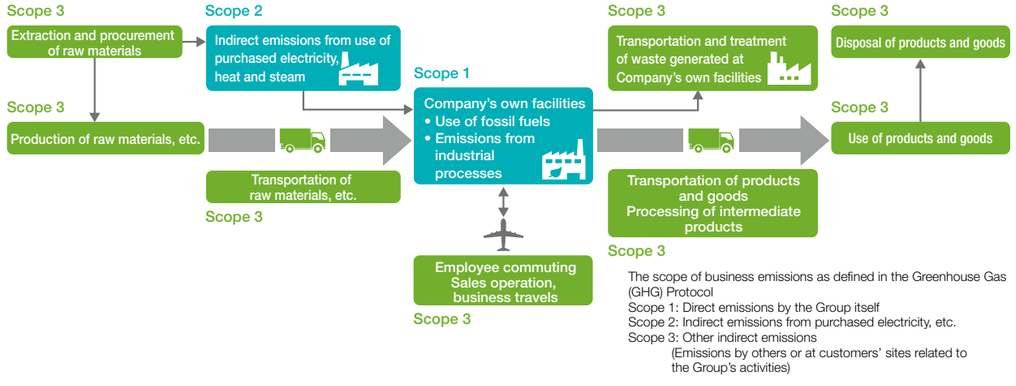
* Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain issued by the Japanese Ministry of the Environment and Ministry of Economy, Trade and Industry

### $CO_2$ Emissions in Each Stage of Value Chain

| Classification | | | | Scope of calculation | $CO_2$ emissions (kilotons $CO_2e$)*4 | | |
|---|---|---|---|---|---|---|---|
| | | | | | 2020 | 2021 | 2022 |
| Emissions of the Kubota Group's business sites | Direct emissions (Scope 1)*1 | | | Use of fossil fuels | 285 | 303 | 295 |
| | | | | Non-energy-derived greenhouse gas emissions | 6 | 6 | 7 |
| | Indirect emissions (Scope 2)*1 | | | Purchased electricity and heat use | 279 | 304 | 283 |
| Upstream and Downstream emissions | Other indirect emissions (Scope 3) | Category | 1 | Resource extraction, manufacturing and transportation related to purchased goods/services*2, 3 | 3,046 | 3,732 | 4,104 |
| | | | 2 | Manufacturing and transportation of capital goods such as purchased equipment | 292 | 406 | 567 |
| | | | 3 | Resource extraction, manufacturing and transportation related to purchased fuels/energy | 105 | 112 | 111 |
| | | | 4 | Upstream transportation and distribution | 199 | 285 | 282 |
| | | | 5 | Disposal of wastes discharged from business sites | 28 | 31 | 31 |
| | | | 6 | Employee business travels | 11 | 11 | 19 |
| | | | 7 | Employee commuting | 10 | 10 | 10 |
| | | | 8 | Operation of assets leased to the Kubota Group | Not applicable*5 | Not applicable*5 | Not applicable*5 |
| | | | 9 | Downstream transportation and distribution | 0 | 0 | 0 |
| | | | 10 | Processing of intermediate products | 90 | 117 | 141 |
| | | | 11 | Use of sold products*2, 3 | 21,957 | 28,409 | 37,156 |
| | | | 12 | End-of-life treatment of sold products*2, 3 | 49 | 61 | 68 |
| | | | 13 | Operation of assets leased to other entities | Not applicable*5 | Not applicable*5 | Not applicable*5 |
| | | | 14 | Operation of franchises | Not applicable*5 | Not applicable*5 | Not applicable*5 |
| | | | 15 | Investments | Not applicable*5 | Not applicable*5 | Not applicable*5 |
| | | Total of Scope 3 | | | 25,787 | 33,174 | 42,489 |
| Total of Scopes 1, 2, and 3 | | | | | 26,357 | 33,787 | 43,074 |

*1 $CO_2$ emissions refers to emissions from all Kubota Group sites (100%).
*2 From FY2022 the boundary of products subject to calculations was changed. This change has been retroactively applied to prior years.
*3 $CO_2$ emissions per unit of sales for each product have been adjusted in order to improve accuracy. This change has been retroactively applied to prior years.
*4 Totals shown may differ from the simple sum of values shown due to rounding.
*5 $CO_2$ emissions shown as "not applicable" correspond to zero.

### Example Activities of Each Scope




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

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.88).





# Adaptation to Climate Change

## Measures to Adapt to Climate Change

It is likely that the progression of climate change will have a negative impact on our lives. For example, the frequent occurrence of weather disasters, changes in agricultural practices, and an increase in the number of heat stroke cases. Our response to climate change needs to include ongoing measures aimed at reducing greenhouse gas emissions, as well as policies for avoiding or reducing damage brought on by climate change.

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

### ● Initiatives on Products and Services

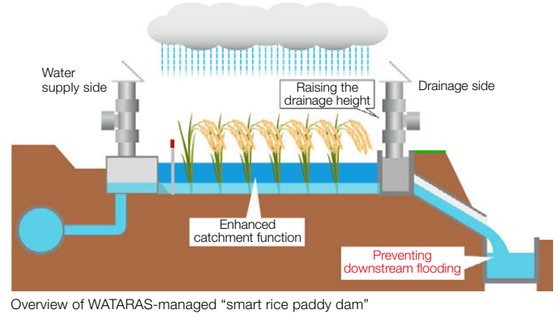
| Category | | Major initiatives |
|---|---|---|
| Food | | • Provision of tractors that are capable of deep plowing necessary for growing rice in abnormally high temperatures without lowering the quality/yield, and the provision of information useful for soil cultivation, such as the proper distribution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

#### Provision of Farm Water Management System WATARAS

WATARAS is a farm water management system that allows users to remotely and automatically control water flowing in and out of rice paddies while monitoring water levels on a smartphone or PC.

So-called "smart rice paddy dam" demonstrations are underway in which rice paddies are temporarily filled with rainwater by using the KSIS to centrally operate the WATARAS in order to drain the paddies before raising their drainage level settings when rivers are expected to flood during heavy rainfall. These "rice paddy dams" have the potential to help prevent flooding.

agriculture.kubota.co.jp/product/rice_equipment/watering-WATARAS/ (only in Japanese)




Overview of WATARAS-managed "smart rice paddy dam"

### ● Initiatives taken at Business Sites

Typhoons and pouring rain can affect production equipment and distribution. We have formulated BCP measures and disaster response manuals and we continue to take steps to prevent any holdups or delays in business activity even during weather disasters. Alongside seismic retrofitting, our BCP response includes the planning of measures for minimizing the impact of torrential downpours on buildings and the protection of power supply equipment from flooding. To be prepared for high tides and torrential rain, the sites have also installed sump pumps, hold emergency drills, and are equipped with water tanks for use during water shortages.

# Disclosure in Accordance with the TCFD Recommendations

The Kubota Group expressed its support for the TCFD* recommendations in January 2020.

* The Task Force on Climate-related Financial Disclosures established by the Financial Stability Board (FSB).

## TCFD Recommendations

The various risks and opportunities arising from climate change could have a significant impact on companies' financial statuses. The TCFD recommendations released in 2017 present a framework for corporations to disclose climate-related information to the financial markets. They recommend disclosure of information about the status of the company's response to climate change, which could have a damaging effect on stabilization of financial systems, and about the impact on business and so forth. The recommendations call for companies to autonomously ascertain and disclose information related to Governance, Strategy, Risk Management, and Metrics and Targets, such as the financial impact of risks and opportunities engendered by climate change and the status of the company's response. Also, the TCFD recommendations were partially revised in October 2021 to the effect that companies committed to reducing greenhouse gas emissions are now required to explain their plans for transitioning to a low-carbon economy. The Kubota Group will continue to examine how we can tackle climate change and make every effort to expand the information it discloses.

The status of the Group's disclosures related to the TCFD recommendations is as follows.

| Disclosure Items in the TCFD Recommendations | Relevant Section | Page |
|---|---|---|
| **Governance** | | |
| a. Describe the board's oversight of climate-related risks and opportunities. | Environmental Management Promotion System, Corporate Governance Structure | P34<br>P153 |
| b. Describe management's role in assessing and managing risks and opportunities. | Environmental Management Promotion System, Remuneration | P34<br>P160 |
| **Strategy** | | |
| a. Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term. | Environmental Management Approach —Materiality in Environmental Management, Environmental Management Approach —Risks and Opportunities | P19<br>P20 |
| b. Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning. | Environmental Management Approach —Risks and Opportunities, Environmental Management Approach —Key Measures | P20<br>P21 |
| c. Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario. | Environmental Vision, Mitigating and Adapting to Climate Change, Expanding Environment-friendly Products and Services | P22<br>P36<br>P66 |
| **Risk Management** | | |
| a. Describe the organization's processes for identifying and assessing climate-related risks. | Environmental Management Approach —Materiality in Environmental Management | P19 |
| b. Describe the organization's processes for managing climate-related risks. | Environmental Management Approach —Materiality in Environmental Management, Environmental Management Promotion System, Expanding Environment-friendly Products and Services, Internal Control—Internal Control System, Internal Control—Internal Control System Operation Activities (Risk Management Activities) | P19<br>P34<br>P66<br>P166<br>P166 |
| c. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management. | Environmental Management Promotion System, Corporate Governance Structure, Internal Control—Internal Control System | P34<br>P153<br>P166 |
| **Metrics and Targets** | | |
| a. Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process. | Medium- and Long-Term Environmental Conservation Targets and Results, Mitigating and Adapting to Climate Change —Measures to Reduce $CO_2$ Emissions, Remuneration | P28<br>P36<br>P160 |
| b. Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks. | Mitigating and Adapting to Climate Change —$CO_2$ Emissions throughout the Value Chain, Environmental Data | P39<br>P82 |
| c. Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets. | Medium- and Long-Term Environmental Conservation Targets and Results | P28 |

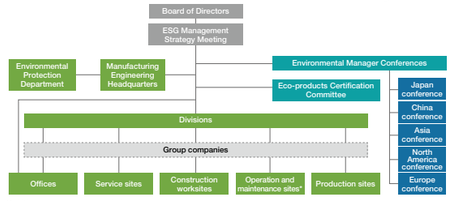




## Governance

In 2014 the Kubota Group established the Environmental Management Strategy Committee to deliberate on medium- and long-term targets and key measures relating to environmental conservation, as well as an environmental vision, in light of climate change and other global environmental problems and the Group's business environment. In 2021, with the objective of realizing our own ESG management, that committee was reorganized as the ESG Management Strategy Meeting to engage in discussion of ESG-related issues on a Group-wide basis. In addition, Environmental Manager Conferences are held in each of five regions—Japan, China, Asia, North America, and Europe—to promote environmental management of the entire Group globally.

**Environmental Management Promotion System**




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

ESG Management Strategy Meeting

The ESG Management Strategy Meeting is chaired by the president & representative director and attended by all inside directors, directors in charge of business divisions, the director in charge of finance, the director in charge of human resources, the director in charge of R&D, the director in charge of manufacturing, the director in charge of environmental management, and the general manager of the Corporate Planning & Control Department. The meeting participants discuss the medium- and long-term direction of environmental management in light of global environmental issues such as climate change and the business environment. They also decide on plans for key initiatives aimed at reducing environmental impacts and risks, and enhancing the lineup of environment-friendly products. The results of the meetings are reported to the Board of Directors and the Executive Officers' Meeting, and are distributed throughout the Group. It also promotes management based on the plan-do-check-action (PDCA) cycle by assessing and analyzing the progress of the entire Group's environmental conservation activities and reflecting the results when formulating new plans and policies. The ESG Management Strategy Meeting was convened four times in FY2022 to discuss environmental issues.

At the Environmental Manager Conferences, the Kubota Group policy and promotion items are communicated and the status of progress on medium-term environmental conservation targets is shared, along with case studies of energy-conservation measures, environmental risk countermeasures, and so forth. The conferences discuss matters such as how to solve issues related to environmental conservation activities in each region.

Moreover, the Group has set out environmental conservation targets taking medium-term (five-year activity period) and long-term (15-year activity period) perspectives, based on social trends and regulations in each country related to the environmental issues. The medium-term environmental conservation targets are revised every five years, or whenever necessary depending on the progress in achieving them. Medium-term environmental conservation plans are made individually by each site for global production sites. The Environmental Protection Department checks the status of progress on targets twice a year. In the same way, medium- to long-term targets for the sales ratio of products certified as Eco-Products are set and the department checks the status of progress once a year. The details and progress of the plans are also reported to the Executive Officers' Meeting.

### Initiatives to Date

Since announcing our support of the TCFD recommendations, we have discussed the items in the chart to the right related to tackling climate change within the framework of our corporate governance structure. We will continue to ramp up our climate change initiatives as we push ahead with environmental management on a global scale.

| 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|
| • Supporting the recommendations of the TCFD<br>• Examining scenario analysis results before formulating an environmental vision<br>• Formulation of Medium-Term Environmental Conservation Targets 2025 | • Formulation of the Environmental Vision toward 2050<br>• Launch of the ESG Management Strategy Meeting<br>• Examining business domain risk and opportunity analysis results | • Revisions to Long-Term Environmental Conservation Targets 2030<br>• Disclosure of climate change strategies for the agricultural machinery and water-related businesses<br>• Reflection of ESG evaluation in the executive remuneration system | • Disclosure of scenario analysis results for all businesses<br>• Expanded disclosure of financial impacts<br>• Development of a transition plan<br>• Revisions to Medium-Term Environmental Conservation Targets |

Related pages "Environmental Management Promotion System" (p.34), "Corporate Governance Structure" (p.153), "Remuneration" (p.160)

## Strategy

In 2021, the Group formulated the Environmental Vision, which presents the direction for its business activities from an environmental perspective towards 2050, having made an analysis of future society based on the scenarios for 1.5°C/2°C and 4°C temperature rises by the Intergovernmental Panel on Climate Change (IPCC), the International Energy Agency (IEA), and others. The Environmental Vision not only lays down the challenge of achieving zero environmental impacts through efforts aimed at reducing $CO_2$ emissions at our production sites, but also represents our commitment to help solve various social issues in the fields of food, water, and the environment through the provision of environmentally friendly products and solutions and to help bring about a carbon-neutral and resilient society. In order to achieve the Environmental Vision, we need to take into account how our business activities are impacted by regulatory developments, technological advancements, and changes in the market. We also need to focus on the physical changes brought on by the acceleration of climate change. That is why we analyzed and evaluated the impacts of climate change on our business domains in light of the anticipated future changes in the market and business environment with the use of 1.5°C/2°C and 4°C scenarios.

Going forward, we will continue to analyze climate change risks and opportunities under each scenario, examine methods for evaluating the foreseeable impacts on business activities as well as the financial impacts of climate change, and strive to provide even greater information disclosure to the public.

Related page "Environmental Vision" (p.22)

### ❶ Scenario Analysis

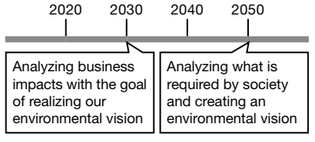
The scenario analysis in the TCFD recommendations will be used to examine the financial impact on business due to highly uncertain climate change problems and the impact on future business strategy. In our scenario analysis of the impacts of climate change, we conducted an assessment of the anticipated impacts on business in the year 2030 with the use of the publicly available 1.5°C/2°C and 4°C scenarios of mainly the IPCC and the IEA based on population increase and economic development projections through 2050.

## ❷ Scenario Analysis Process

### Step 1: Selecting target business fields and climate scenario

For the Environmental Vision we formulated in 2021, we projected what society might look like in 2050 and set goals for contributing to the realization of carbon neutrality within that timeframe. Moreover, in order to construct an image of the environmental businesses thought to be necessary in the future, we conducted an analysis of anticipated business lines in the year 2030. The Kubota Group operates businesses in the areas of food, water, and the environment, but of those three fields, in 2021 we analyzed our business operations in food (agricultural machinery) and water, the two fields we expect will be impacted significantly by climate change from both a financial (revenue, etc.) and non-financial point of view. In 2022 we expanded our analyses to include all of our business fields.

**Scenario Analysis Time Horizon**




To assess the impacts on our businesses in the year 2030, we selected the 1.5°C/2°C and 4°C scenarios in light of the available scientific evidence.

| Item | Assumptions |
|---|---|
| Target businesses | All businesses (Farm & Industrial machinery and Water & Environment) |
| Time horizon | Analyzing impacts on business in 2030 taking into account the anticipated changes in around 2050 as a result of climate change |

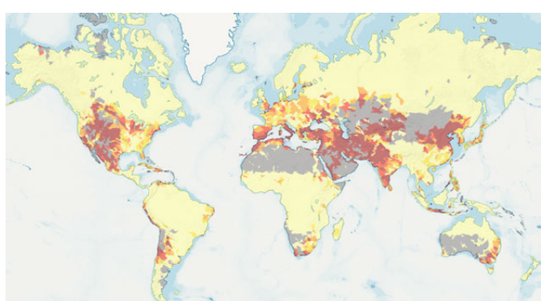
| Setting scenario | | Reference scenario |
|---|---|---|
| Transition aspect | 1.5°C/2°C scenario | The IEA's Net Zero Emissions by 2050 Scenario (NZE 2050)*1, Sustainable Development Scenario (SDS)*1, 2, and the FAO's Towards Sustainability Scenario (TSS)*3 |
| | 4°C scenario | The IEA's Stated Policies Scenario (STEPS)*1, 2<br>The FAO's Business-as-usual Scenario (BAU)*3 |
| Physical aspect | 1.5°C/2°C and 4°C scenarios | IPCC's Shared Socio-economic Pathway (SSP) scenario*4 |

*1 Source: IEA "World Energy Outlook 2020" *2 Source: IEA "Energy Technology Perspective 2020"
*3 Source: FAO "The future of food and agriculture – Alternative pathways to 2050" *4 Source: IPCC "Sixth Assessment Report"

### Step 2: Identifying risks and opportunities

By making best use of publicly available documents and data, we picked out the risks and opportunities expected to have an impact on our businesses and conducted an analysis of what the world might look like in 2030 in relation to our Farm & Industrial machinery and Water & Environment businesses. Much like the decarbonization of the automotive industry, we expect more stringent regulations to be adopted in the Farm & Industrial machinery business in the future and we therefore anticipate that the push for greater diversification of power sources will gain increasing momentum in industrial machinery fields. Given the listing (taxonomy) of sustainable economic activity in Europe and the adoption of restrictions on vehicles with internal combustion engines driving into urban areas, demand for electrification in industrial machinery is expected to increase. This will likely include construction machinery used in works projects and lawnmowers used to maintain public parks. In India, the uptake of natural gas infrastructure is gaining traction and the supply-demand situation for low- and zero-carbon energy currently differs depending on the region. In Japan, the announcement of strategies geared towards sustainable agriculture points to the growing need to curb greenhouse gases derived from agricultural practices. We expect industrial machinery to be used in regions where there is no easy access to charging infrastructure; for example, construction work and farming, where long working hours are a must. We do expect to see the increased use of electric machinery and low- and zero-carbon fuels over the long run, but their uptake for applications in agricultural and construction machinery fields is still unclear. Even though the use of electrified machinery and low- and zero-carbon fuels will have spread to some regions by 2030, we think demand for products that use fossil fuels will still persist. At the same time, we can expect to see demand for next-generation sustainable farming methods and a reduction in greenhouse gases emitted by agricultural machinery designed to operate under such methods. Furthermore, changing weather conditions will likely affect the amount of precipitation and water resources, which in turn will probably transform crop-growing environments, so adapting to these changes will be imperative.

As for the future pertaining to our Water & Environment business, we expect impacts to materialize in procurement, manufacturing, and other parts of the value chain owing to the decarbonization of production methods and a higher carbon tax for iron, a key raw material in many products. We also forecast the greater use of mainly mineral resources owing to population increase and economic development. As awareness of decarbonization and a circular economy grows stronger in society as a whole, we think the recycling movement will gather pace in order to avoid the mining of new resources. We anticipate increased demand for water resources, but there are concerns that water quality will deteriorate mainly because of the salification of groundwater caused by rising sea levels and increased turbidity of rivers stemming from torrential rain. All of this likely means that water resources will have to be managed even more rigorously. In addition, we expect impacts on water for agriculture and domestic use to materialize as a result of heightened water stress in Japan and other parts of Asia, North America, and Europe (shown in the image to the right). Also, torrential rain will likely become more frequent and cause greater damage in the middle latitudes, the tropics, and monsoon regions and we expect this phenomena to have a significantly negative impact on people's lives.



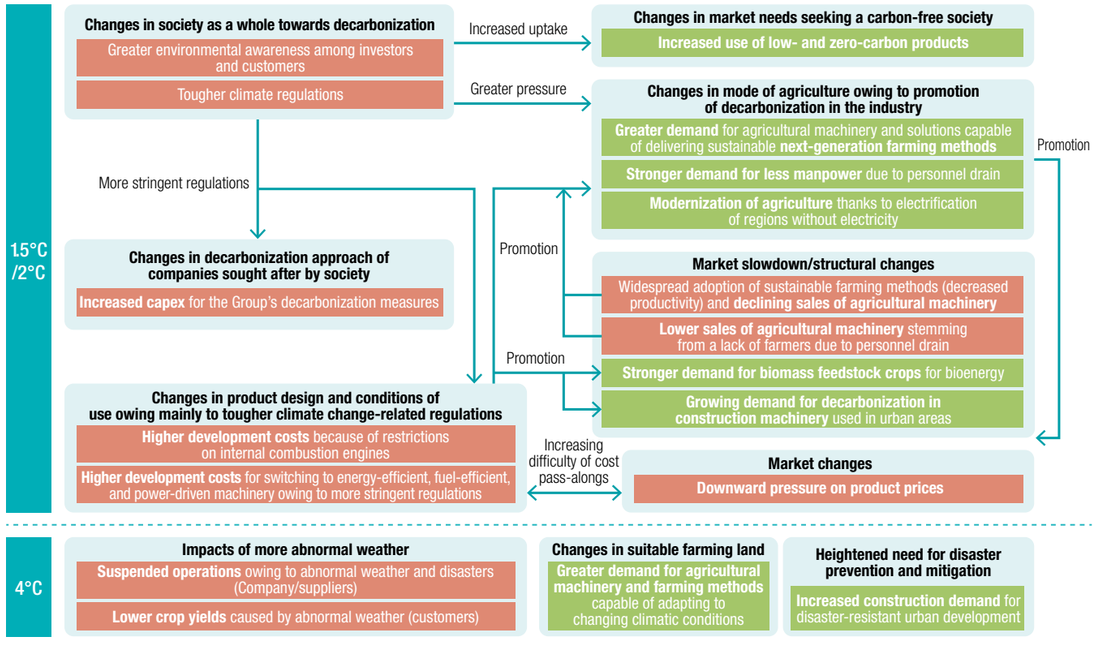
Regions of water stress in 2030 under a 4°C temperature increase scenario (taken from the Aqueduct water risk assessment tool)



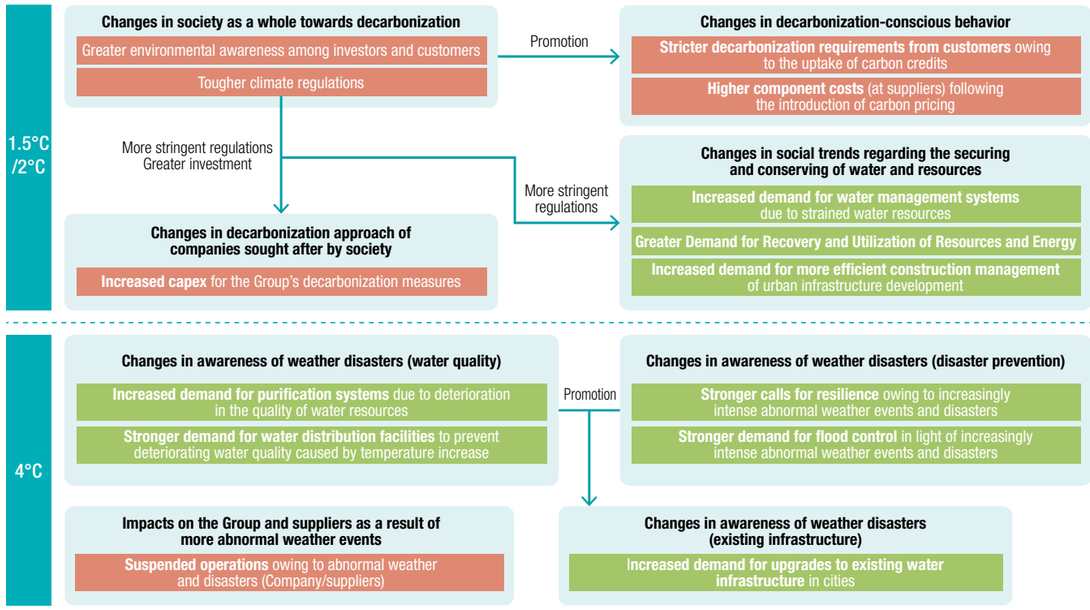


### The world in 2030 in anticipation of climate change impacts

**The World in 2030 with Respect to the Farm & Industrial Machinery Business**




**The World in 2030 with Respect to the Water & Environment Business**




Key: Examples of anticipated risks and opportunities

### Step 3: Identification of changes that bear watching

We identified changes in the market and operating environment that bear watching in order to undertake business activities in the future, taking into account the market size and environmental changes brought about by climate change, the importance of businesses and regions impacted, and implications in the value chain.

### Step 4: Scenario analysis

For each change that bears watching, we assessed the impacts (risks and opportunities) on business from the perspectives of Farm & Industrial Machinery and Water & Environment businesses and then formulated strategies to deal with those impacts.

### ❸ Results of Climate Change Scenario Analysis of Each Business Field

#### <Changes considered in Farm & Industrial Machinery business>

| Changes considered | Value chain impacts | | | Scenario | |
|---|---|---|---|---|---|
| | Procurement | Direct operations | Products | 1.5°C/2°C | 4°C |
| Changes in product design and conditions of use owing mainly to tougher climate change-related regulations | | ○ | ○ | ○ | |
| Changes in market needs seeking decarbonized products and services | | ○ | ○ | ○ | |
| Changes in mode of agriculture owing to promotion of decarbonization in the industry | | ○ | ○ | ○ | |
| Changes in suitable farming land (changes in demand for agricultural machinery and farming methods) | | | ○ | | ○ |

#### <Results of analysis of Farm & Industrial Machinery business>

| Scenario | Summary of scenario analysis results (changes in market and operating environment) | | Evaluation results (2030) | Financial impacts* (2030) |
|---|---|---|---|---|
| 1.5°C/2°C | Risks [Technologies] / Opportunities [Products] | **Changes in product design and conditions of use owing mainly to tougher climate change-related regulations**<br>• Controls on fuel-efficiency improvements in internal combustion engines will be further tightened up ahead.<br>• Japan, the US, and European countries have announced carbon neutrality roadmaps for around 2050 and the transition to electrification and BEVs in the passenger car market in particular is gaining momentum.<br>• New regulations will be applied to products that use internal combustion engines, like agricultural and construction machinery and utility vehicles, and that the need to reduce $CO_2$ emissions will grow stronger and demand for electrification, fuel cells, low- and zero-carbon fuels (hydrogen engines and synthetic fuel engines), and other power sources will grow increasingly diversified.<br>• For large machinery not suited to electrification because of the requirement for long operating hours and higher power, products with internal combustion engines will be used. The use of low- and zero-carbon fuels in internal combustion engines will also increase. | We will need to secure business opportunities in the future by aggressively pursuing R&D of products that offer improved fuel efficiency and can run on various power sources<br>The impact on revenue of decarbonized products will be limited even though restrictions will have been adopted in some developed regions by 2030 | Medium<br>Low to medium |
| | Opportunities [Markets] | **Changes in market needs seeking decarbonized products and services**<br>• Market demand will increase for new value nonexistent in construction machinery, lawnmower, and utility vehicle products with internal combustion engines. For example, reduced noise pollution, no refueling hassles, and indoor use.<br>• Depending on the fuel supply infrastructure in the region, demand will grow stronger for products equipped with a gas/hydrogen engine or a hybrid engine that runs on low- or zero-carbon fuels. | The impact on revenue by 2030 will be limited even though in some lead markets and existing markets there will be customers wanting electrified UVs, lawnmower, and construction machinery and the like | Low to medium |
| | Opportunities [Markets] | **Changes in mode of agriculture owing to promotion of decarbonization in the industry**<br>• Crop yields will increase as farming technology advances and the effective use of farming land is further encouraged to mitigate the impacts of climate change.<br>• Decarbonization in agriculture will continue to gather momentum in developed economies and the adoption of sustainable farming methods will become more widespread.<br>• Decarbonization and modernization of agriculture in emerging economies will progress concurrently and give rise to smart farming and farming solutions, which in turn will spur demand for energy-efficient agricultural machinery.<br>• Demand will grow stronger for carbon-free farming methods, such as non-tilled cropping, that lead to increased carbon storage in the soil. | Prospects for higher revenue from mainly agricultural machinery and smart farming solutions that contribute to low- and zero-carbon agriculture | Medium to high |
| 4°C | Opportunities [Resilience] | **Changes in suitable farming land (changes in demand for agricultural machinery and farming methods)**<br>• Climate change will affect the relocation of suitable farming land and crop production.<br>• Demand will increase for farming solutions and support on transitioning to new agricultural machinery and farming methods, including smart machinery and precision agriculture.<br>• Changes in demand for farming solutions are emerging in wet climate regions, especially North America, Asia, and some parts of Europe. | Prospects for higher revenue from agricultural machinery and farming solutions that can be adapted to changing weather conditions. | Medium to high |

**Countermeasure strategies**

**We intend to contribute to the reduction of $CO_2$ emissions at the product use stage through innovation.**
- Continue to bolster hybridization efforts and other R&D activities aimed at improving fuel efficiency of engines most likely subject to tighter restrictions up ahead
- Expand our lineup of products that can help bring about carbon neutrality, in keeping with the needs of the market
- Accelerate R&D towards the practical application of various power sources, such as electrification, fuel cells, low- and zero-carbon fuels (hydrogen engines and synthetic fuel engines) according to the energy supply situation in each region

**We will look to help lower greenhouse gas emissions from farming and support sustainable food production activity.**
- Propel R&D in products and services that can be adapted to low- or zero-carbon farming practices and changing weather conditions; for example, recycling of local biomass resources and carbon storage
- Expand and popularize agricultural machinery and services that make smart farming (automated machinery, precision agriculture, etc.) possible so as to contribute to more efficient farming that requires less manpower
- Contribute to the establishment of sustainable agriculture through next-generation crop production to help solve issues in the food value chain with the use of vegetable factories and the like
- Give tangible shape to farming solutions in regions affected by changing weather conditions
- Expand applications for the following systems that integrate cutting-edge technology with ICT to contribute to greater farming efficiency: Kubota Smart Agri System (KSAS), a system that supports farm operations; Kubota Smart Infrastructure System (KSIS), an IoT solutions system; and WATARAS, Kubota's farm water management system

* Impact on earnings shown as low (less than or equal to ¥2.5 bn), medium (greater than ¥2.5 bn but less than or equal to ¥25.0 bn), or high (greater than ¥25.0 bn).

#### <Initiatives helping to fight climate change>

Contributing to greater efficiency and labor-saving in agriculture with the Agri Robo tractor


Contributing to lower $CO_2$ emissions from the operation of battery-powered construction machinery and tractors

Compact and electronically controlled fuel-efficient diesel engine


Contributing to more efficient farming with the Kubota Smart Agri System (KSAS)





#### <Changes considered in Water & Environment business>

| Changes considered | Value chain impacts | | | Scenario | |
|---|---|---|---|---|---|
| | Procurement | Direct operations | Products | 1.5°C/2°C | 4°C |
| Changes in decarbonization approach of companies sought after by society | ○ | ○ | ○ | ○ | |
| Changes in social trends regarding the securing and conserving of water and resources | | | ○ | ○ | |
| Changes in awareness of weather disasters | | | ○ | | ○ |

#### <Results of analysis of Water & Environment business>

| Scenario | Summary of scenario analysis results (changes in market and operating environment) | | Evaluation results (2030) | Financial impacts* (2030) |
|---|---|---|---|---|
| 1.5°C/2°C | Risks [Regulations & Technology] | **Changes in decarbonization approach of companies sought after by society**<br>• Calls will grow stronger for decarbonization across a product's life cycle worldwide, including the introduction of carbon pricing schemes and carbon border adjustment mechanisms.<br>• Customers will demand low- or zero-carbon manufacturing processes. | Investment in carbon-free and energy-saving equipment will increase | Low |
| | Opportunities [Markets] | **Changes in social trends regarding the securing and conserving of water and resources**<br>• Ongoing population increase and economic development will further drive up demand for water.<br>• Restrictions will be enforced on the intake and discharge of water for household and industrial use in developed countries and Asia as a preventive measure against stretched water resources and deteriorating water quality owing to the impacts of climate change.<br>• Demand will increase for solutions that resolve water shortages and poor water quality. | Prospects for higher revenue from products and solutions in connection with the development of water and sewage infrastructure | Medium to high |
| | Opportunities [Resource Efficiency] | **Changes in social trends regarding the securing and conserving of water and resources**<br>• Demand will rise for solutions that facilitate the effective utilization of energy and resources, such as the use and exploitation of rubbish and agricultural waste, as well as the recovery of energy from previously unused small-scale hydropower.<br>• Decarbonization combined with a circular economy will gather momentum, the mining of new resources will be avoided, and the recycling of resources will further increase.<br>• Demand will grow stronger for solutions that can make the construction of water infrastructure more efficient, primarily as a result of increased urbanization construction work and fewer workers. | Prospects for higher revenue from solutions related to the reclamation/recovery and more efficient use of resources and energy. | Medium to high |
| 4°C | Opportunities [Resilience] | **Changes in awareness of weather disasters**<br>• Climate change is expected to negatively affect people's living environment chiefly because of the more frequent occurrence of typhoons, torrential rain, and other natural disasters, alongside drought and deterioration in water quality.<br>• Demand will increase for stronger resilience of existing water and sewage infrastructure, upgrades to aging facilities, and improvements in water quality in order to combat increasingly intense natural disasters.<br>• Demand will grow in Japan for water-related products aimed at bolstering national resilience in response to increasingly intense natural disasters as a consequence of climate change. | Prospects for higher revenue from ongoing demand for products and solutions in connection with the development of more resilient water infrastructure, disaster response measures, and water quality improvements | Low to medium |

**Countermeasure strategies**

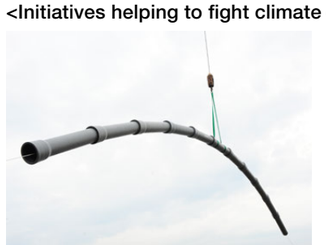
**We intend to contribute to the effective use of various resources (water, energy, minerals, etc.).**
- Contribute to the development of water and sewage infrastructure to meet increased water demand
- Expand offerings of purification and sewage treatment products and solutions to help improve water quality
- Manufacture and promote the use of biofuels derived from mainly agricultural waste, household waste, and sewage sludge so as to contribute to the development of resource recycling schemes in communities
- Recover useful metals from waste sent to final disposal sites and further the development of deep recycling technology to extract energy when melting incinerated ash
- Expand the use of smart waterworks systems that contribute to energy savings during water pipeline construction and management

**We intend to contribute to the building of water infrastructure that is resilient to weather disasters.**
- Expand provision of disaster prevention and disaster response products; for example, ductile iron pipes that can withstand disasters and drainage pump trucks that can meaningfully contribute to disaster recovery efforts
- Expand applications for the Kubota Smart Infrastructure System (KSIS) to support water treatment plant operations and the remote monitoring, diagnosis, and control of equipment

**We will endeavor to reduce the $CO_2$ emissions generated by our business activities.**
- Promote initiatives aimed at conserving energy use, installing energy-efficient equipment, switching fuels, installing LED lighting, and expanding the use of renewable energy at production sites

* Impact on earnings shown as low (less than or equal to ¥2.5 bn), medium (greater than ¥2.5 bn but less than or equal to ¥25.0 bn), or high (greater than ¥25.0 bn).

#### <Initiatives helping to fight climate change>



Ductile iron pipes make water supply possible even during times of disaster

Submerged membranes can also be used to recycle wastewater


The Kubota Smart Infrastructure System (KSIS) makes facility management and operation more efficient and less reliant on manual labor

**<Changes considered that apply to all businesses>**

| Changes considered | Value chain impacts | | | Scenario | |
|---|---|---|---|---|---|
| | Procurement | Direct operations | Products | 1.5°C/2°C | 4°C |
| Changes in decarbonization approach of companies sought after by society | ○ | ○ | | ○ | |
| Impacts on the Group and suppliers as a result of more abnormal weather events | ○ | ○ | | ○ | ○ |

**<Analysis results shared by all businesses>**

| Scenario | Summary of scenario analysis results (changes in market and operating environment) | | Evaluation results (2030) | Financial impacts*1 (2030) |
|---|---|---|---|---|
| 1.5°C/ 2°C | Risks [Regulations] | **Changes in decarbonization approach of companies sought after by society**<br>• Regulations and measures geared towards decarbonization will gather momentum and the rollout of a carbon tax scheme and impetus for the use of renewable energy will accelerate, thus driving up energy prices.<br>• Taxes on fossil fuels and $CO_2$ emissions will increase owing to the introduction of a carbon tax.<br>• Energy costs and expenses associated with energy-saving measures are expected to rise when governments worldwide enforce stricter energy-saving restrictions. | Manufacturing costs will rise, driven by higher energy and raw material prices | Medium |
| | | | An expected carbon tax burden will materialize when emission reduction targets are met as a result of measures taken to save energy and curb $CO_2$ emissions | Low (Approx. ¥2.5bn*2) |
| 4°C | Risks [Physical] | **Impacts on the Group and suppliers as a result of more abnormal weather events**<br>• There will be increasingly intense and more frequent meteorological disasters like torrential downpours and floods.<br>• Negative effects on business activities are expected to be felt at the Group's sites and at suppliers.<br>• Production and sales activities will be affected by delays in procuring raw materials. | Disaster-related losses may arise as a result of weather disasters | Medium (Approx. ¥3.0–6.0bn*3) |
| | | | Costs associated with BCP measures for avoiding the adverse impacts of weather disasters could increase | Medium |

**Countermeasure strategies**

**We intend to contribute to the reduction in $CO_2$ emissions generated by business activities.**

- Promote initiatives aimed at conserving energy use, installing energy-efficient equipment, switching fuels, installing LED lighting, and expanding the use of renewable energy at production sites

**We will aim to beef up climate change risk countermeasures at the Group's sites and at suppliers.**

- Use hazard maps to identify sites that are at high risk of suffering damage from torrential rain, flooding, and strong winds and systematically push ahead with the reinforcement of buildings and measures to prevent electrical equipment from being inundated by water
- Decentralize the purchasing of parts and materials by diversifying procurement routes
- Construct a manufacturing system that is resilient to weather disasters based on a business continuity plan (BCP)

*1 Impact on earnings shown as low (less than or equal to ¥2.5 bn), medium (greater than ¥2.5 bn but less than or equal to ¥25.0 bn), or high (greater than ¥25.0 bn).
*2 Calculated by multiplying the projected carbon tax as of 2030.
*3 Calculated with reference to losses stemming from previous weather disasters.



Chapter 2
E Environmental Report

## ❹ Transition Plan to a Low-Carbon Economy

By performing climate change scenario analyses, we identified the impacts on our businesses and studied what strategies we can take to deal with those impacts. In particular, we believe climate change will have significant impacts on food production and water resources vital to people's livelihoods. Based on the Kubota Group's Environmental Vision, we aim to contribute to the establishment of a carbon-neutral and resilient society. We have formulated a transition plan (roadmap) to demonstrate how we intend to solve these issues in society by achieving our vision.

**<Disclosure of Transition Plan in line with TCFD recommendations>**

| Elements considered for the transition plan | | Kubota's circumstances |
|---|---|---|
| Governance | Approval, oversight, accountability, reporting, review | Reports and reviews are handled by the ESG Management Strategy Meeting |
| | Transparency | Progress and new initiatives are reported in mainly integrated reports and ESG reports |
| | Incentives | Assessments of efforts to promote ESG are reflected in officer remuneration (see p.160) |
| | Assurance | Medium- and long-term environmental conservation targets, energy consumption, and $CO_2$ emissions are subject to third-party assurance |
| Strategy | Alignment | "Mitigating and adapting to climate change" identified as an item of materiality in Kubota's ESG management policy |
| | Scenario analysis | Disclosing the results of analyses of 1.5°C/2°C and 4°C temperature increase scenarios and background to our environmental vision |
| | Assumptions | Megatrends in broader society include population increase, economic development, and urbanization |
| | Prioritized opportunities | Provision of products and solutions that help solve climate change issues in society pertaining to agriculture and water resources |
| | Action plans | Roadmap formulated from short-, medium-, and long-term perspectives |
| | Financial plans | Capex and R&D costs associated with climate change measures included in Mid-Term Business Plan 2025 |
| Risk management | Description of risks | Identification of risks in the 1.5°C/2°C and 4°C temperature increase scenarios for the Farm & Industrial machinery and Water & Environment businesses |
| | Challenges and uncertainties | Subject to major changes, depending on future technological development and market trends, because roadmap is based on mainly data currently available for analysis |
| Metrics and targets | Metrics, targets, dates | See p.28 to 32, 50 |
| | Methodology | For Scope 1 and 2, both total emissions and per-unit emissions have been set as metrics. The total emissions metric is based on the target level (halved by 2030 and carbon neutral by 2050) required under the 1.5°C temperature increase scenario. The rate of renewable energy utilization has also been added as a metric. Results assured by a third party for each fiscal year are disclosed on our website. |
| | GHG emissions reductions | For Scope 1 and 2, we will reduce emissions by 50% by 2030 compared to 2014 levels.<br>See p.36-37 for 2022 emissions.<br>Scope 3 emission reductions currently being examined |

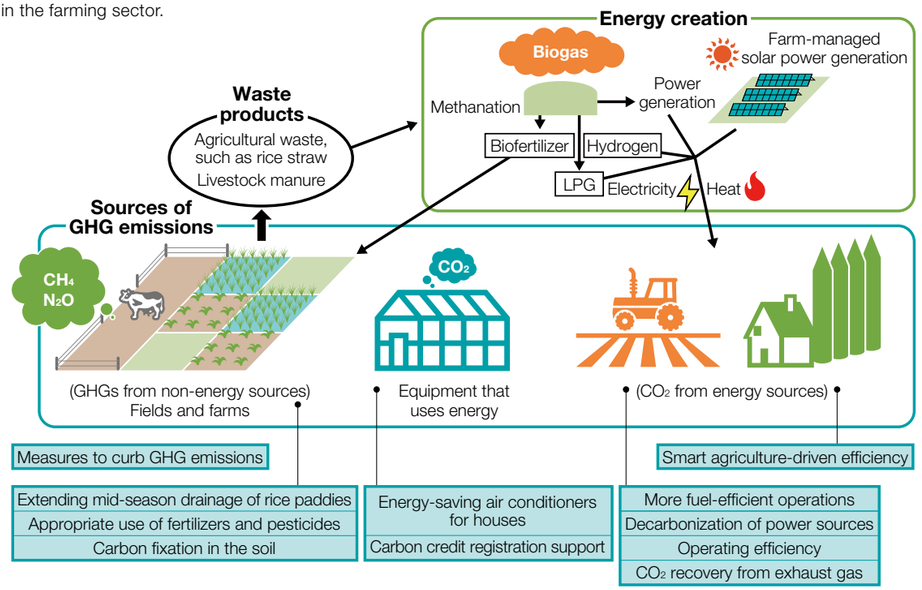
**Transition plan**

In the TCFD recommendations, a transition plan is defined as "...an aspect of an organization's overall business strategy that lays out a set of targets and actions supporting its transition toward a low-carbon economy, including actions such as reducing its GHG emissions." Investors and other users of TCFD information are interested to know how organizations will reduce climate risks and increase business opportunities as they transition to a low-carbon economy. The TCFD revised its recommendations in October 2021 and also released a document that provides guidance on disclosing a transition plan.

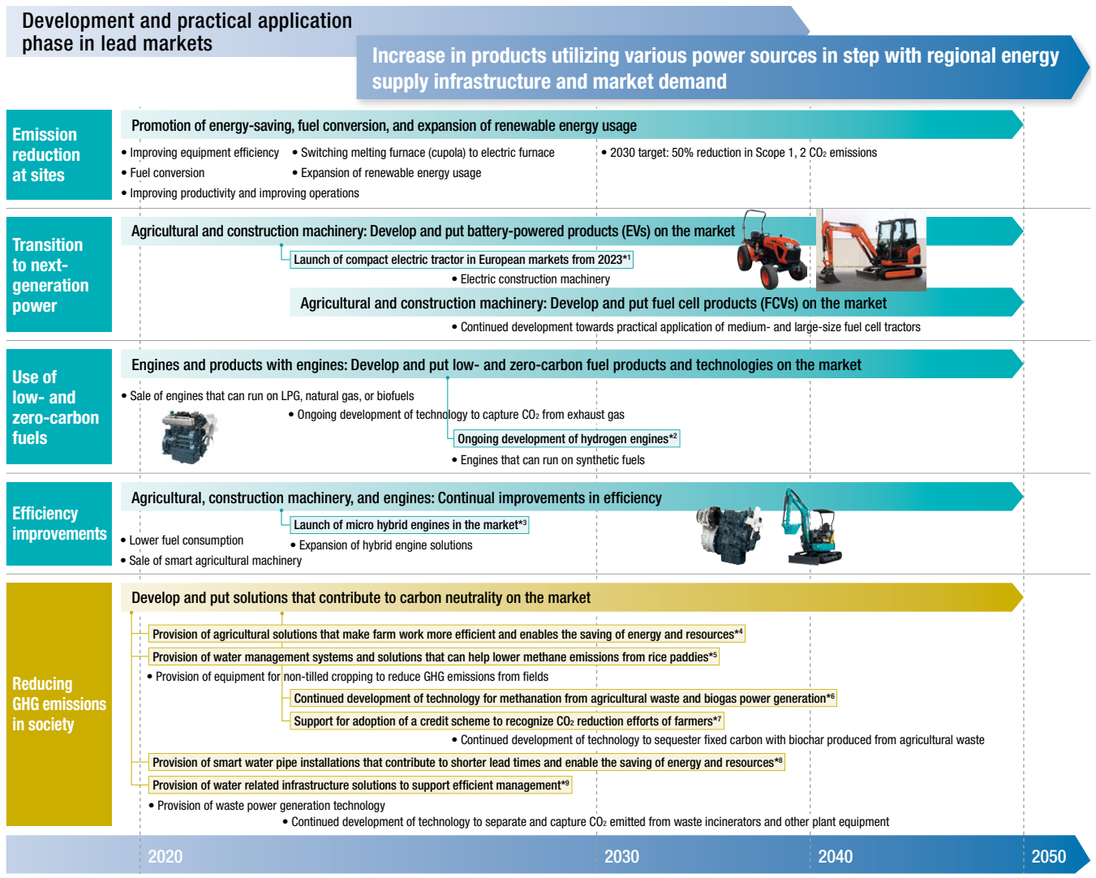
Please visit the website below for more information about the TCFD.
https://www.fsb-tcfd.org/

**<Carbon neutrality and recycling-based society sought by Kubota in the farming sector>**

The diagram below represents Kubota's contributions, through its products and services, to carbon neutrality and the recycling of resources in the farming sector.



<Roadmap to Carbon Neutrality>




The above roadmap is based on information that can be studied at present. It is subject to major changes, depending on future technological development and market trends.

*1) Compact electric tractors: www.kubota.com/news/2022/20220905.html
*2) Hydrogen engines: www.kubota.com/news/2022/20221003.html
*3) Micro hybrid engines: global.engine.kubota.co.jp/en/technology/microhybrid/
*4) Agricultural solutions: www.kubota.com/innovation/smartagri/
*5) Farm water management systems: agriculture.kubota.co.jp/product/kanren/wataras/ (only in Japanese)
*6) Systems for recycling local resources using agricultural biomass: www.kubota.co.jp/news/2022/management-20220405.html (only in Japanese)
*7) J-Credit Scheme certification for $CO_2$ reduction projects: www.kubota.co.jp/news/2022/management-20221226.html (only in Japanese)
*8) Smart water pipe installation: www.kubota.co.jp/product/ironpipe/products/technology/innovation/ (only in Japanese)
*9) IoT solutions for water related plants and equipment: www.kubota.co.jp/product/ksis/ (only in Japanese)

### Kubota Smart Village concept

The Kubota Group has formulated a long-term vision called GMB2030 to which it aspires to achieve by the year 2030. We unveiled the Kubota Smart Village concept for a world in which we have fulfilled our ideal role as a provider of platforms that support people's lives as part of our commitment to achieving a prosperous society and the cycle of nature. The Kubota Smart Village concept envisions a future world in which we leverage AI, IoT, and other technologies to provide hardware, software, and solutions to realize carbon neutrality and the recycling of resources.

Please visit the website below for more information.
https://www.kubota.com/smartvillage/





## Risk Management

### Risk management in environmental conservation activities

In FY2014 the Kubota Group set up the Environmental Management Strategy Committee to deliberate on medium- and long-term targets and key measures relating to environmental conservation, as well as the longer-term direction of environmental management, in light of climate change and other global environmental problems and the Group's operating environment. From FY2021, discussions of environmental issues were transferred to the ESG Management Strategy Meeting, which is chaired by the president. The objective of this meeting is to formulate policies for generating medium- to long-term corporate value from an ESG perspective and examine and evaluate key measures. Also, the outcomes of its discussions are reported to the Board of Directors and Executive Officers' Meeting, when required.

### ❶ Process for identifying risks and opportunities

So that we can identify transition and physical risks and opportunities pertaining to climate change across the entire value chain (including direct operations and upstream and downstream processes), we identify issues of materiality relating to environmental conservation activities, including how we are tackling climate change. We identify risks and opportunities from a near-term, medium-term, and long-term point of view and review them every year. Our materiality identification process is as follows.

Step 1: Collection and analysis of information, including international policies, third-party assessment indicators, and global trends in the Group's fields of business
Step 2: ESG Management Strategy Meeting review and discussions with related departments and identification of issues through dialogue with ESG investment institutions
Step 3: Examination of importance to stakeholders and the Kubota Group and mapping of key issues with a matrix chart
Step 4: Formulation and steady promotion of key policies after identifying the impacts (risks and opportunities) on important issues

### ❷ Process for addressing and evaluating risks and opportunities

As for our process for addressing and evaluating risks and opportunities, we have set medium- and long-term environmental conservation targets and we continuously manage our progress towards achieving them. When establishing these targets, the ESG Management Strategy Meeting discusses the draft measures on environmental conservation as well as the medium-term (3–5 years) and long-term (5–15 years) targets. Each business site draws up a plan and then the Environmental Protection Department monitors the progress of those plans annually. The ESG Management Strategy Meeting discusses the direction of key policies and medium- and long-term initiatives based on how close the Group is to achieving its targets. Also, to tackle climate change in a way that best reflects the circumstances of each region, the Group organizes Environmental Manager Conferences in the five regions where Kubota has a business presence so that region-specific issues can be assessed and response measures studied.

Related pages "Environmental Management Approach" (p.18), "Environmental Management Promotion System" (p.34)

## Metrics and Targets

The Kubota Group has set, and is working towards achieving, Medium- and Long-Term Environmental Conservation Targets with the aim of reducing climate change risks and expanding opportunities. We also calculate $CO_2$ emissions (Scope 1 and 2) at the Group's global sites (production and non-production sites) and $CO_2$ emissions from upstream and downstream processes (Scope 3) and disclose this data every year. We have obtained third-party assurance for our key disclosure data and we are making every effort to improve its accuracy.

Our Long-Term Environmental Conservation Targets 2030 call for a 50% reduction (vs. 2014) in Scope 1 and 2 emissions at global business sites. We also aim to achieve carbon neutrality by the year 2050, as outlined in our Environmental Vision. In order to realize that goal, we will continue to find ways to lower our energy consumption at business sites, transition away from fossil fuels primarily by replacing our cupola furnaces with electric furnaces, and ramp up our use of renewable energy.

Looking ahead, we will promote initiatives that lead to solutions for the issues of climate change by promoting environmental conservation activities and expanding our environment-friendly products and services globally.

### ● Climate Change-related Targets and FY2022 Results

| Action item | Management indicator | Base FY | FY2025 target*3 | FY2030 target*3 | Result*3 |
|---|---|---|---|---|---|
| Reduce $CO_2$ emissions (Scope 1 and 2) | $CO_2$ emissions*1 | 2014 | — | ▲50% | ▲23.6% |
| | $CO_2$ emissions per unit of production*2 | 2014 | ▲45% | ▲60% | ▲38.9% |
| | Ratio of renewable energy usage*1 | — | 20% or more | 60% or more | 8.3% |
| Save energy | Energy consumption per unit of production*2 | 2014 | ▲35% | ▲40% | ▲32.5% |
| Expand Eco-Products | Sales ratio of Eco-Products | — | 70% or more | 80% or more | 65.6% |

*1 Global business sites *2 Global production sites *3 ▲ indicates a negative figure.

Related pages "Medium- and Long-Term Environmental Conservation Targets and Results" (p.28), "Mitigating and Adapting to Climate Change" (p.36), "Environmental Data" (p.82), "Remuneration" (p.160)

# 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 increase in plastic waste has led to marine plastic pollution in the world's oceans–now a serious problem for society.

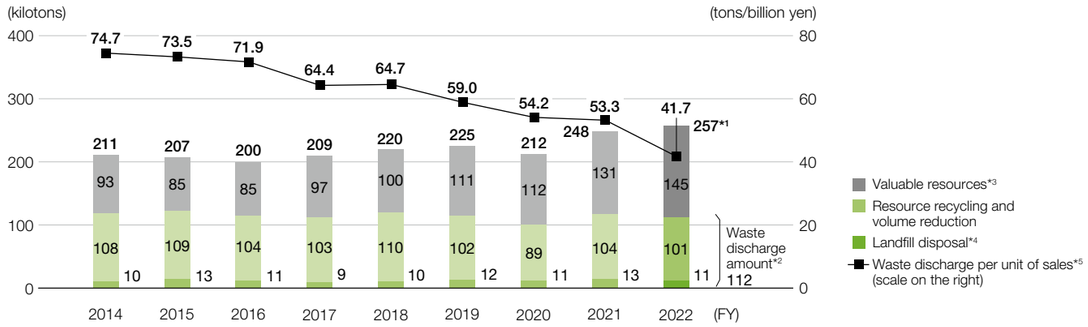
The Kubota Group sees working towards a recycling-based society as one of its materiality, and has been advancing initiatives to promote "reduce" (reducing the amount generated), "reuse" (internal recycling and reuse), and "recycle" (improving the recycling ratio) of waste, in addition to initiatives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

## Waste, etc. from Business Sites

In FY2022, the waste discharge amount was 112 kilotons, a decrease of 4.3% compared to the previous year. Also, waste discharge per unit of sales improved by 21.8% year on year. The amount of waste discharge decreased due to less slag being produced as a result of a decline in production volume at casting production sites. Waste discharge per unit of sales improved as consolidated net sales increased (up 21.9% from the previous year), in addition to less discharge overall.

Of the waste discharge amount in FY2022, the amount of hazardous waste discharge was 6.3 kilotons, up 0.4% from the previous year.

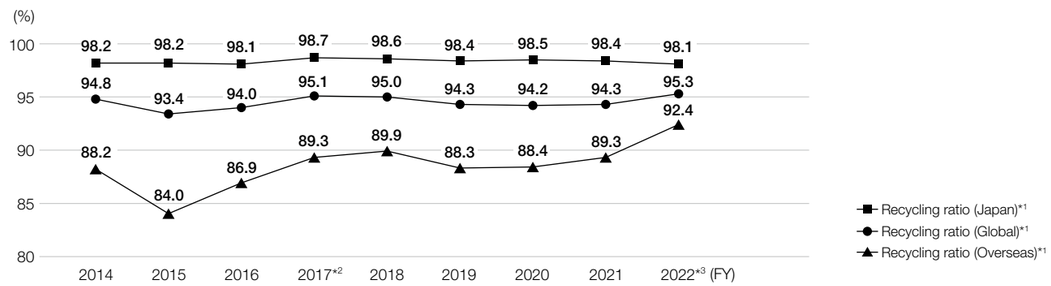
### Trends in Waste, Etc. (including valuable resources) and Waste Discharge per Unit of Sales




*1 Includes waste discharge and the like (12 kilotons) from overseas companies acquired in FY2022
*2 Waste discharge = Resource recycling and Volume reduction + Landfill disposal
*3 To reduce overall emissions to the outside of the Group, including valuable resources, metal scraps generated at machinery production and related sites are collected for recycling at cast iron production sites within the Group. From FY2019, as a way of evaluating the progress of these activities, calculation standards have been changed so that transfer of valuable resources between business sites within the Group is no longer included in the valuable resources figure, but is counted instead as in-house recycling and reuse.
*4 Landfill disposal = Direct landfill disposal + Final landfill disposal following external intermediate treatment
*5 Waste discharge per unit of consolidated net sales. The Kubota Group adopted International Financial Reporting Standards (IFRS) instead of accounting principles generally accepted in the United States of America from FY2018.

The recycling ratio in FY2022 was 98.1% in Japan decreased 0.3 points from the previous year, but overseas improved by 3.1 points to 92.4%, and globally improved 1.0 point to 95.3%. We will make continuous efforts to 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.
External recycling amount includes heat recovery
*2 Values were corrected to improve accuracy.
*3 The recycling ratio includes data for overseas companies acquired in FY2022.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.88).





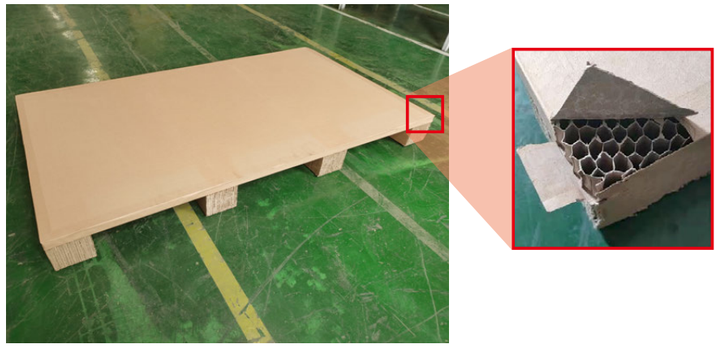
## Measures to Reduce Waste

The Kubota Group has established the Medium-Term Environmental Conservation Targets (p.28-32) and is working to reduce the emissions of waste and hazardous waste and increase the resource recycling ratio at production sites. 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 packaging materials, and shared waste recycling between sites. The Group is continuing to promote reductions in the volume of sludge, waste oil, and oily wastewater generated at painting booths, and to reduce the volume of waste plastic emitted from plastic molding processes. Meanwhile, as measures to reduce disposable plastics, we introduced initiatives at certain worksites to withdraw the use of disposable tableware in the employee cafeteria and reduce the issue of plastic shopping bags in on-site stores.

As a result of the efforts toward achieving the Medium-Term Environmental Conservation Targets 2025 for waste reduction, global production sites achieved a reduction of 3,200 tons of waste in FY2022 compared with the case where countermeasures were not implemented from the previous year. The economic effects of these measures reached 52 million yen. Waste discharge per unit of production in FY2022 improved by 39.7% compared to the base year (FY2014). The recycling ratio was 99.2% at production sites in Japan and 94.6% at production sites overseas.

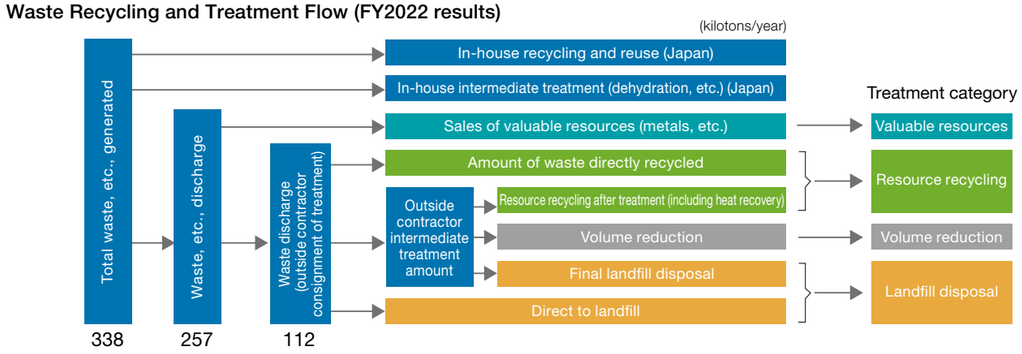
Moreover, production sites in Japan have raised the utilization rate of electronic manifests to 97.7%, enabling real-time assessment of the reduction effects. We will continue to promote the reduction of waste through encouraging sharing of good reduction practices and visualization of waste by utilizing electronic manifests.

### Cardboard Pallets

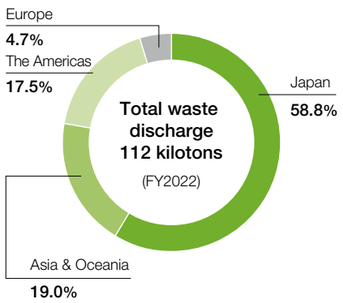


At the Kubota Sakai Plant (Japan), some of the wooden boxes and pallets used for test components imported from our Group company in China have been swapped for reinforced cardboard, helping to reduce wood scraps. Furthermore, we are taking steps to introduce reusable plastic pallets and to make wooden pallets returnable.

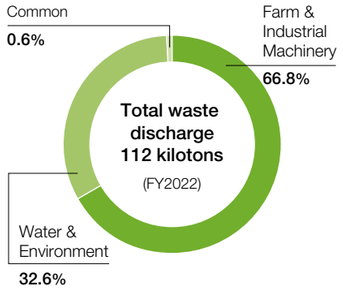
### Waste Recycling and Treatment Flow (FY2022 results)



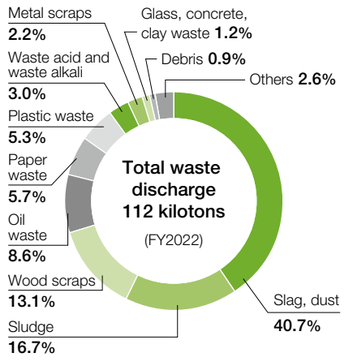

### Waste Discharge by Region




### Waste Discharge by Business

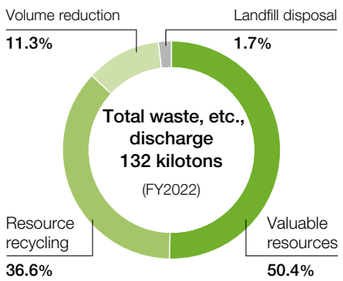



### Waste Discharge by Type

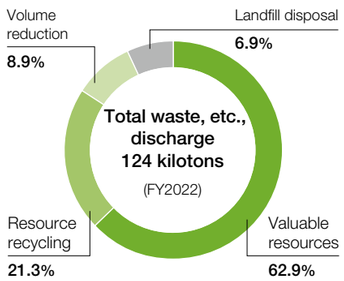



### Waste, Etc., Discharge by Treatment Category

#### ● Japan




#### ● Overseas




For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.88).





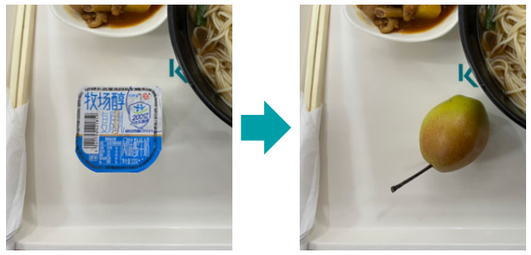
## Improvement of Resource Efficiency

As the global population continues to increase and economic development progresses, resource consumption is expected to increase as well. Moreover, in recent years, the marine plastic pollution has become a global problem, as used plastic flows onto beaches and into the sea via rivers and so forth. The Kubota Group has been contributing to the formation of a recycling-based society by promoting improvement of waste discharge per unit of production and increases in the recycling ratio at its global production sites in the Medium-Term Environmental Conservation Targets 2025. In tandem with this, we have also set new targets for the 3Rs (Reduce, Reuse, and Recycle) of waste plastic generated by business activities, and reduction of packaging and paper resource use.

The Kubota Group will continue to improve resource efficiency through initiatives such as effective use of resources throughout the entire business value chain and reduction of waste.

### ● Reducing Plastic Waste

Based on the Medium-Term Environmental Conservation Targets 2025, we are reducing plastic use in our business sites, with a particular focus on single-use plastics. We are promoting efforts to reduce the use of plastic containers in cafeterias, plastic shopping bags at on-site stores, and PET bottle waste by encouraging people to bring reusable bottles.



At Kubota Agricultural Machinery (Suzhou) Co., Ltd. (China), we ran an initiative to swap individually packaged drinks for fruit during environment month in June in a bid to reduce plastic trash.

### ● Reducing Resource Usage in Packaging and Adopting Returnable Packaging

Based on the Medium-Term Environmental Conservation Targets 2025, we are collaborating with our business partners to reduce resource use in packaging materials and encourage adoption of returnable packaging in an effort to reduce waste discharge. At our business sites, we are promoting the replacement of stretch film and wooden pallets used for packaging components and so forth with reusable containers and packaging materials.

At Kubota Precision Machinery (Thailand) Co., Ltd., we reviewed our use of single-use cardboard and plastic film packaging in an effort to reduce waste and conserve labor resources.

### ● Transition to Paperless Operations

Under our Medium-Term Environmental Conservation Targets 2025, we are taking steps to transition to paperless operations with the goals of increasing operational efficiency and reducing environmental impacts. As workstyles shift from office work to telework (working from home) due to the COVID-19 pandemic, we promoted adoption of electronic systems for internal request approvals and determinations, and a reduction in documents stored in paper format. Moreover, we were also promoting effective use of office space and online meetings, enabling us to reduce the use of paper printouts. At our production sites, we have also made progress on switching to electronic check sheets and forms.

## 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 Law. 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.

# Conserving Water Resources

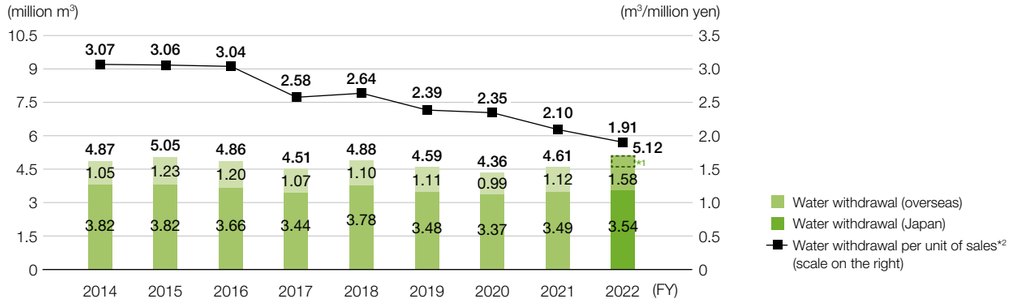
The OECD's 2012 report entitled Environmental Outlook to 2050 states that during the period between 2000 and 2050, global demand for water will increase by approximately 55% owing to economic development and population increase, while more than 40% of the world's population will be living in river basins that suffer from severe water shortages.

The Kubota Group sees conserving water resources as one of its materiality issues, and has been advancing initiatives to promote the effective utilization of water resources and to address water risks, such as the reduction of water withdrawal 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 Withdrawal

In FY2022, water withdrawal was 5.12 million $m^3$, an increase of 11.1% compared to the previous year. On the other hand, water withdrawal per unit of sales improved by 8.9% compared to the previous year. Even though water withdrawal decreased at casting production sites, it increased overall in FY2022 mainly due to an increase in new machinery production sites overseas. Water withdrawal per unit of sales improved as consolidated net sales increased (up 21.9% from the previous year), while the Group made progress on measures such as switching to the use of drying booths in the painting process, making greater use of recycled water, and increasing control precision over the amount of cooling water used.

### Trends in Total Water Withdrawal and Withdrawal per Unit of Sales




*1 Increase (0.47 million $m^3$) due to FY2022 acquisition of overseas companies
*2 Water withdrawal per unit of consolidated net sales. The Kubota Group adopted International Financial Reporting Standards (IFRS) instead of accounting principles generally accepted in the United States of America from FY2018.

### Measures to Reduce Water Withdrawal

The Kubota Group has established the Medium-Term Environmental Conservation Targets (p.28-32) and is working to reduce water withdrawal at production sites. Our production sites, such as those in China, Thailand, Indonesia and the United States, have introduced wastewater treatment facilities or wastewater recycling systems utilizing technologies of the Kubota Group.

In FY2022, in addition to routine activities such as raising employee awareness of water conservation and conducting patrols to check for water leakage, the Kubota Group improved watering methods for green areas, etc. We reduced water withdrawal in the production process by more accurately controlling the amount of cooling water used. As a result of the efforts toward achieving the Medium-Term Environmental Conservation Targets 2025 for water withdrawal reduction, global production sites achieved a reduction of approximately 9,800 $m^3$ in FY2022 compared to the case where countermeasures were not implemented from the previous year. The economic effects of these measures reached 1.5 million yen compared to the previous year. Water withdrawal per unit of production in FY2022 improved by 31.6% compared to the base year (FY2014).

Kubota Engine (Thailand) Co., Ltd. has added additional capacity to its wastewater treatment system with the use of a membrane bioreactor (MBR). Recycled water is being used to water the gardens around the plant and as domestic water.

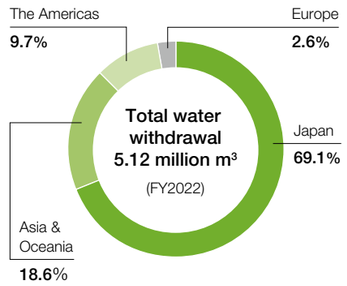
We will continue to promote the reduction of water withdrawal through initiatives to promote the 3Rs of water, such as conducting water-saving activities and promoting water recycling by using the Kubota Group's technologies.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.88).

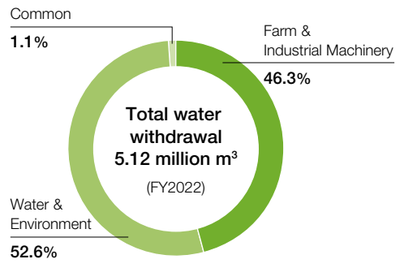




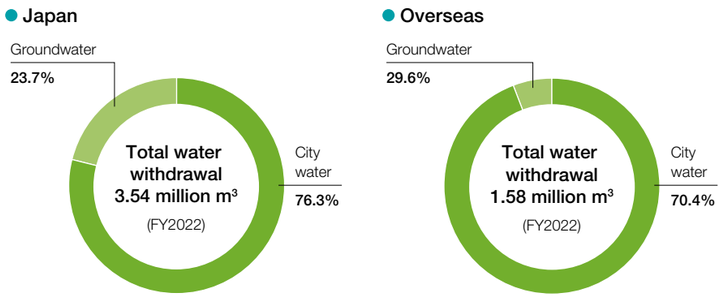
### Water Withdrawal by Region




### Water Withdrawal by Business




### Water Withdrawal by Type



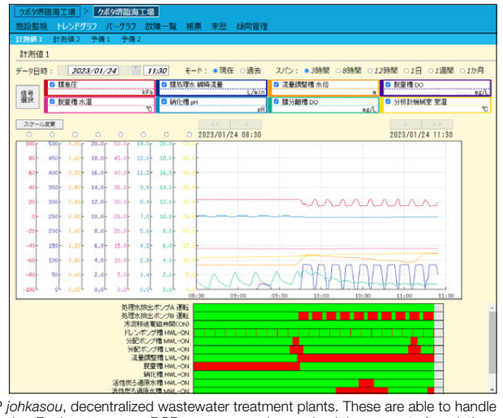

## Controlling Water Discharge

The Kubota Group has set its own control values that are stricter than the emission standards of relevant laws and regulations. To ensure that the standard values are not exceeded, the Kubota Group carries out regular measurement of designated monitoring items. Under the Medium-Term Environmental Conservation Targets 2025, the Group has established a new target of managing water discharge appropriately in line with standards for the areas where wastewater is released by operating wastewater treatment and water recycling facilities.

The amount of water discharge* in FY2022 was 5.01 million $m^3$ (1.10 million $m^3$ into surface water, 1.93 million $m^3$ into seawater, and 1.98 million $m^3$ into sewage) due to mainly an increase in water withdrawal, an increase of 2.6% from the previous year. At each site, we promote the reduction of water withdrawal by taking measures to reduce the amount of water discharge.

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

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



At the Kubota Sakai Rinkai Plant (Japan), we expanded our installation of submerged-type FRP *johkasou*, decentralized wastewater treatment plants. These are able to handle high-level treatment of household wastewater and can process up to 110 $m^3$ of wastewater per day. Furthermore, as a BCP measure, we have raised the concrete foundations of the wastewater treatment facility. We introduced a water management solution using IoT, "KSIS," to realize proper management of plant wastewater.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.88).

## Survey on Regional Water Stress

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

The results of a survey on water stress level of a total of 66 sites in 17 countries using Aqueduct (water risk assessment tool developed by the World Resource Institute (WRI)) are as follows:

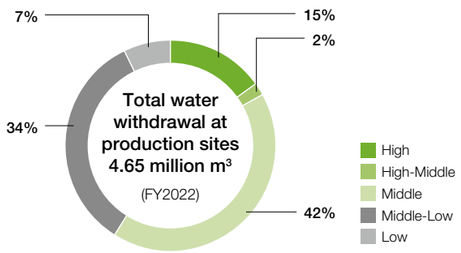
* Water stress refers to the state where the annual water availability per capita is less than 1,700 tons and people feel inconvenience in their daily life. Water stress in this survey is the water stress for each river basin, which is calculated based on the ratio of water intake to the amount of available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

### Results of the Survey on Water Stress of Production Sites (FY2022)

| Region, country | | Water withdrawal by water stress level (thousand m³) <number of sites> | | | | |
|---|---|---|---|---|---|---|
| | | High | High-Middle | Middle | Middle-Low | Low |
| Asia | Japan | 0 | 0 | 1,726 〈8〉 | 1,533 〈13〉 | 20 〈2〉 |
| | China | 0 | 79 〈1〉 | 0 | 0 | 20 〈2〉 |
| | Indonesia | 0 | 0 | 10 〈1〉 | 0 | 0 |
| | Thailand | 232 〈3〉 | 27 〈1〉 | 7 〈1〉 | 0 | 0 |
| | Saudi Arabia | 17 〈1〉 | 0 | 0 | 0 | 0 |
| | India | 437 〈7〉 | 0 | 0 | 0 | 0 |
| Europe | Russia | 0 | 0.4 〈1〉 | 0 | 0 | 0 |
| | Norway | 0 | 0 | 0 | 0 | 21 〈1〉 |
| | Denmark | 0 | 0 | 37 〈1〉 | 0 | 0 |
| | Netherlands | 0 | 0 | 0 | 0 | 32 〈1〉 |
| | Germany | 0 | 0 | 10 〈1〉 | 0 | 3 〈2〉 |
| | France | 0 | 0 | 5 〈1〉 | 0 | 1 〈1〉 |
| | Spain | 0 | 0 | 0 | 1 〈1〉 | 0 |
| | Poland | 0 | 0 | 0 | 0 | 0.4 〈1〉 |
| | Italy | 14 〈2〉 | 0 | 0 | 0 | 0.4 〈1〉 |
| North America | Canada | 0 | 0 | 0 | 0 | 240 〈2〉 |
| | United States | 0 | 0 | 150 〈2〉 | 22 〈8〉 | 0 |
| Total*1 | | 701 〈13〉 | 107 〈3〉 | 1,944 〈15〉 | 1,556 〈22〉 | 338 〈13〉 |

*1 Totals shown may differ from the simple sum of values shown due to rounding.

### Water Withdrawal by Water Stress Level




The survey results showed that “High” or “High-Middle” levels of water stress applied to 16 production sites, located in the Chinese cities of Suzhou, central Thailand, Saudi Arabia, India, Russia and Italy, which account for approximately 17% of the Group’s total water withdrawal. In the next “Middle” level category were 15 production sites situated in Japan’s Kanto region and Aichi Prefecture, Indonesia, coastal regions of Thailand, the southeast United States and a number of locations in Europe, which together account for approximately 42% of total water withdrawal. Production sites in the “Middle-Low” and “Low” categories accounted for approximately 41% of total water withdrawal.

Although the majority of the water withdrawal in the Kubota Group’s production activities is sourced in areas with stress levels in the “Middle” or lower categories, the survey showed that some of the main sites primarily in Thailand and India are located in areas of high water stress. At these production sites, the Kubota Group is now promoting the horizontal rollout of regional examples of good practice in areas including the reduction of water withdrawal and appropriate management of water discharge.

We will also conduct water stress surveys in each case for the water areas around new sites that are scheduled for construction as part of the Group’s more globally oriented business growth.





# Controlling Chemical Substances

Chemical substances have become an essential part of our lifestyles. On the other hand, to control the impact of chemical substances on humans and ecosystems, countries are strengthening laws and regulations related to their use and management.

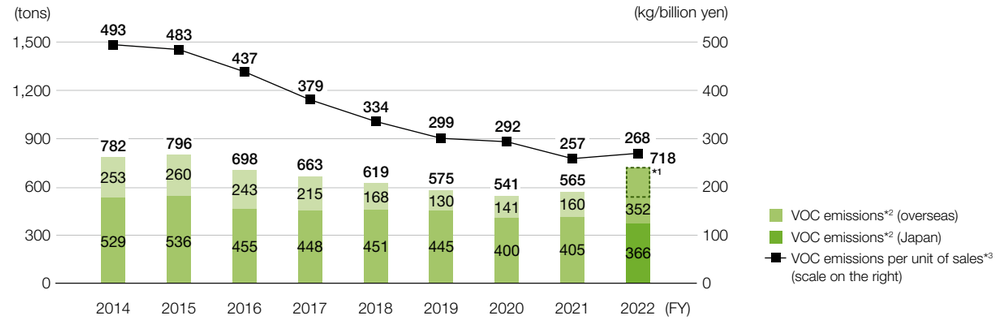
The Kubota Group sees controlling chemical substances as one of its materiality issues, and has been advancing initiatives toward reducing the burden on the environment from chemical substances, including the reduction of VOCs (volatile organic compounds) generated in coating processes at production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

## VOC Emissions

In FY2022, VOC emissions were 718 tons, an increase of 27% compared to the previous year. VOC emissions per unit of sales were worsened by 4.2% year on year.

In Japan, VOC emissions were decreased by 39 tons owing to a drop in production volume at casting production sites and by virtue of measures aimed at improving painting processes at machinery production sites. Even though steps were taken to reduce VOC emissions mainly by switching to VOC-free paint, overseas emissions were increased by 192 tons due to the addition of new sites to the Group. VOC emissions per unit of sales were worsened because the volume of emissions outweighed the increase in consolidated revenue.

### Trends in VOC Emissions and Emissions per Unit of Sales




*1 Includes emissions (221 t) from overseas companies acquired in FY2022
*2 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.
*3 VOC emissions per unit of consolidated net sales. The Kubota Group adopted International Financial Reporting Standards (IFRS) instead of accounting principles generally accepted in the United States of America from FY2018.

### Measures to Reduce VOCs

The Kubota Group has established the Medium-Term Environmental Conservation Targets (p.28-32) and is working to reduce the emissions of VOC at production sites. The Group has been promoting the risk management of the chemical substances we handle and the reduction of VOC-containing materials, such as paint and thinner at production sites. Additionally, by promoting the introduction of paint robots, the Group achieved not only a reduction in VOC, but also improved productivity.

In FY2022, we worked to switch to VOC-free paints and expand the use of VOC removal devices.

As a result of the efforts toward achieving the Medium-Term Environmental Conservation Targets 2025 for VOC reduction, global production sites achieved a reduction of 16 tons in FY2022 compared to the case where countermeasures were not implemented from the previous year.

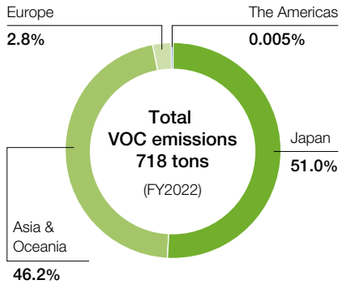
Kubota Engine (WUXI) Co., Ltd. (China) has installed a regenerative thermal oxidizer (RTO) and is working to reduce its VOC emissions.

The economic effects of these measures reached 40 million yen compared to the previous year. VOC emissions per unit of production in FY2022 improved by 37.6% compared to the base year (FY2014).

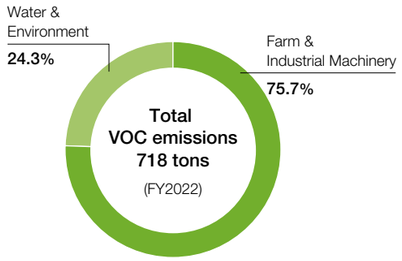
We will continue to promote the reduction of VOC emissions by introducing exhaust treatment equipment that is conscious of compliance with laws and the reduction of impacts on neighborhoods, in addition to the efforts to stop the use of VOC-containing paint and thinner or replace them with substitutes.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.88).

### VOC Emissions by Region

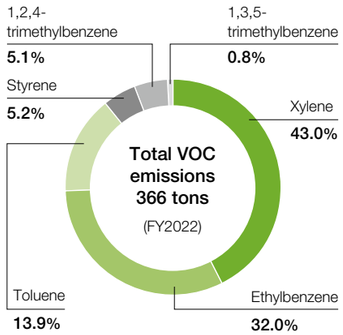



### VOC Emissions by Business

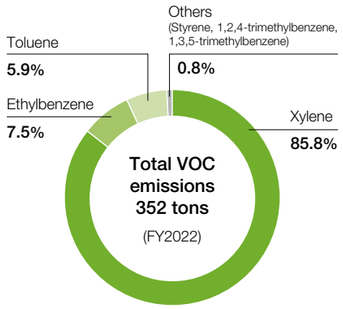



### VOC Emissions by Substance

● Japan




● Overseas

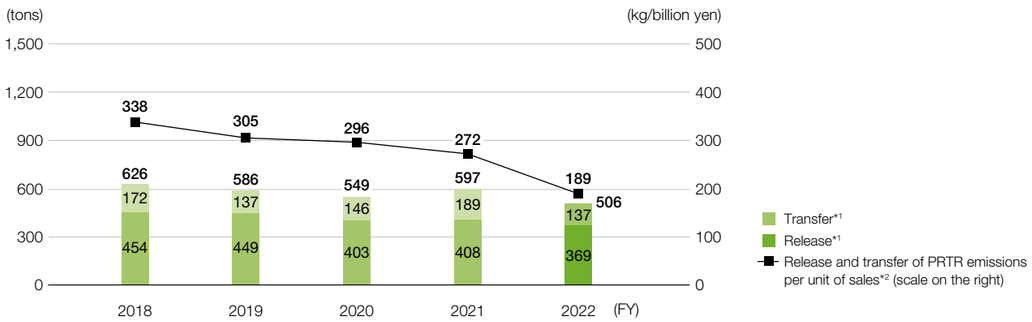



## Release and Transfer of PRTR-designated Substances

In FY2022, a total of 506 tons of substances stipulated in the PRTR Law* were released and transferred, a decrease of 15.3% compared to the previous year. Additionally, the release and transfer per unit of sales improved by 30.5% compared to the previous year. Similar to reduction of VOC emissions, the Group is promoting the ongoing measures to reduce the PRTR-designated substances.

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

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




*1 Total amount of reported substances that are handled at each site (annual volume of 1 ton or more (or 0.5 tons for Specific Class I designations))
*2 Release and transfer of PRTR-designated substances per unit of consolidated net sales. The Kubota Group adopted International Financial Reporting Standards (IFRS) instead of accounting principles generally accepted in the United States of America from FY2018.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.88).





## 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 FY2016, and no ozone-depleting substances subject to notification under the PRTR Law*2 are handled and released at present.

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

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

## Control 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 FY2022 were 5.3* tons for SOx (up 86.2% from the previous year), 65.3 tons for NOx (up 16.5%), and 37.2 tons for soot and dust (up 93.6%). The increases mainly owe to the addition of Escorts Kubota Ltd., a new Group company acquired in FY2022. We will continue to reduce emissions of air pollutants through initiatives such as controlling sources by fuel conversion and maintaining dust-collecting equipment.

* At a site in Japan, sulfur emissions are calculated, not from actual measurements of exhaust gas concentrations and amounts, but by making estimates based on the sulfur weights of raw materials, materials produced, and waste.
(Atmospheric emissions = coal input - iron produced - waste slag - waste dust)
If sulfur contained in the slag managed onsite at end of FY2022 (December 31, 2022) by the site was included, SOx emissions for FY2022 amounted to 4.9 tons.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.88).

## 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 (FY2022)

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

## Reduction of Chemical Substances Contained in Products

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

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

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

### ● Three Control Levels

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

# Conserving Biodiversity

Our corporate activities rely on various ecosystem services, which are provided by natural capital comprising soil, air, water, animals and plants, and other elements. Meanwhile, biodiversity is facing various crises in different locations worldwide, therefore corporations are required to do their part in protecting biodiversity and making sustainable use of ecosystem services.

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

Taking this into account and beginning with our Medium-Term Environmental Conservation Targets 2025, we have started establishing targets for biodiversity conservation activities in accordance with the characteristics and business operations of each site. We are currently monitoring the progress of these activities.

## Approach to Conserving Biodiversity

The Kubota Group has set Conserving Biodiversity as one of the five basic items for environmental conservation. In December 2009, we incorporated corporate activities that consider biodiversity into the Kubota Group Environmental Action Guidelines. Then, in our Eco-First Commitment, which was renewed in 2021, we also included a commitment to promoting activities for conserving biodiversity.

### Approach to Conserving Biodiversity

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

[Major Initiatives]

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



Chapter 2
E Environmental Report

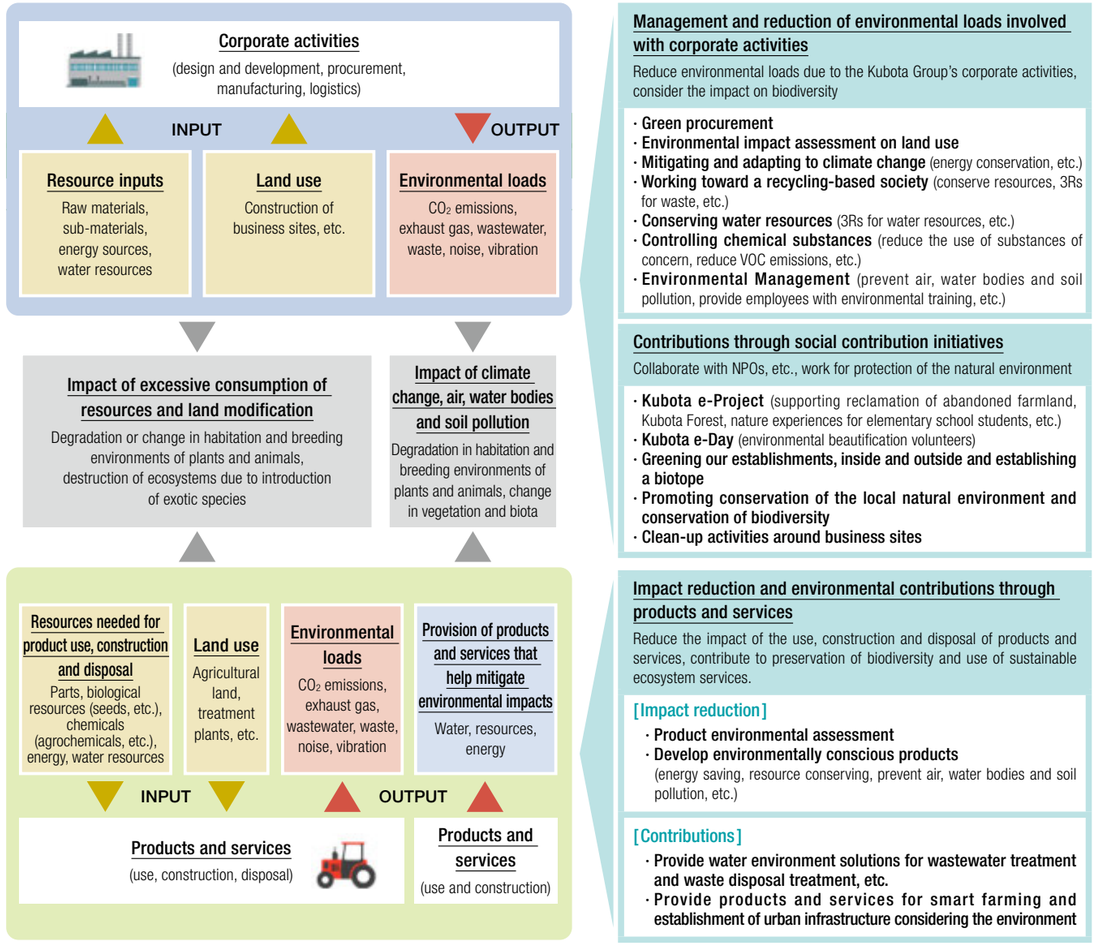
## Evaluating our Relationship with Biodiversity

According to the World Economic Forum, the loss of biodiversity currently ranks alongside climate change-related risks as one of the most severe global risks. Corporations are being urged to take action to mitigate and reverse the loss of biodiversity, or in other words, transition to a “nature-positive” approach to their business activities. In these circumstances, a number of international initiatives and frameworks are being developed, one of which is the Taskforce on Nature-related Financial Disclosures (TNFD).

The TNFD proposes that companies identify the scope of their corporate activities, evaluate what kind of biodiversity and natural capital their business activities are dependent upon in each region, as well as the impacts of their activities, analyzing how these impacts represent risks and opportunities for the company’s initiatives. This analytical methodology is called the LEAP approach.

The chart below shows an overall picture of how the Kubota Group’s corporate and social contribution activities are related to biodiversity. The assessment results for agriculture and water environment—the two fields thought to be important in terms of the relationship with biodiversity—are shown on the next page.

### Relationship between the Kubota Group’s activities and biodiversity




**LEAP Approach**

The TNFD has developed an integrated assessment process for nature-related risk and opportunity management called LEAP approach. An assessment with the LEAP approach comprises four steps: (1) “locate” your interface with nature; (2) “evaluate” your dependencies and impacts; (3) “assess” your risks and opportunities; and (4) “prepare” to respond to nature-related risks and opportunities and report.

The four steps of the LEAP approach

| Locate | Evaluate | Assess | Prepare |
|---|---|---|---|

Please visit the website below for more information about the TNFD.
https://tnfd.global/

## LEAP Approach Assessment Results

### Impact on Biodiversity in the Agricultural Field and Kubota's Contributions

By the year 2050 the world's population will be close to 10 billion, a large percentage of which will be in developing countries. Accordingly, demand for food is expected to increase. Guaranteeing agricultural crop yields will be key to solving this food crisis. However, the clearing of new farming land and the excessive use of pesticides and fertilizer to ensure sufficient crop yields have an adverse impact on biodiversity. Also, the relocation of suitable farming land owing to droughts, warmer temperatures, fluctuations in rainfall, and other weather events caused by climate change is leading to the clearing of new farming land and may encroach on the habitats of animals and plants. We therefore conducted an assessment based on the LEAP framework to take stock of the relationship between the Kubota Group's business activities and biodiversity in the field of agriculture.

**Assessment of business in rice farming regions**

| | |
|---|---|
| Locate | Rice farming is prevalent in Japan and other parts of Asia and agricultural machinery and related products and services are widely used. |
| Evaluate | Pesticides and fertilizer:<br>Pesticides and chemical fertilizers are used to boost yields. Excessive use leads to soil contamination and deterioration in water quality.<br>Land: Clearing and deforestation could be carried out to expand farming land. |
| Assess | We operate a business in rice farming regions to provide agricultural machinery and related products and services.<br>Risks: The possibility of farmers quitting the industry because of unsustainable agriculture and customer attrition owing to the provision of products with a low environmental performance.<br>Opportunities: Expectations on Kubota to help protect biodiversity and drive revenue higher by providing machinery that contributes to productivity improvements in agriculture and solutions that realize sustainable farming practices. |
| Prepare | Minimize the negative impacts on ecosystems and habitats by providing products that contribute to greater crop yields and more appropriate rates of fertilizer application. |
| | Examples of our initiatives:<br>• Our KSAS, smart agricultural machinery, and other products can contribute to improved farming productivity by way of precision agriculture and boost yields per unit area. |

**Assessment of business in dry farming and orcharding regions**

| | |
|---|---|
| Locate | Agricultural machinery and farm work implements are widely used in dry farming and fruit growing regions of Europe. |
| Evaluate | Pesticides and fertilizer:<br>Excessive use leads to soil contamination and deterioration in water quality. Also, more stringent regulations on limiting the use of pesticides are currently being debated in the EU. |
| Assess | We operate a business in dry farming and orcharding regions to provide agricultural machinery and farm work implements.<br>Risks: The possibility of farmers quitting the industry because of unsustainable agriculture and customer attrition owing to the provision of products with a low environmental performance.<br>Opportunities: Expectations on Kubota to help protect biodiversity and drive revenue higher by providing machinery that contributes to productivity improvements in agriculture and solutions that realize sustainable farming practices. |
| Prepare | Minimize the negative impacts on ecosystems by providing products that restrict excessive pesticides and fertilizer application rates. |
| | Examples of our initiatives:<br>• Our sprayers and drones can prevent excessive use and promote more appropriate application rates of pesticides and fertilizer. |

### Impact on Biodiversity in the Water Environment Field and Kubota's Contributions

Torrential rainfall and other weather disasters seen around the world in recent years are expected to grow more frequent in the future. Extremely abnormal weather events not only have an impact on human society, but they also deprive living things of their habitat and significantly affect ecosystems. When there is a drought, both humans and living creatures have a hard time getting the water they need to ensure their survival. In addition, the destruction of nature and pollution of the environment caused by the mining of natural resources can also have a negative impact on ecosystems. We therefore conducted an assessment based on the LEAP framework to take stock of the relationship between the Kubota Group's business activities and biodiversity in the water environment field.

**Assessment of water-related business**

| | |
|---|---|
| Locate | In Asia there are regions that lack access to safe drinking water and regions without infrastructure to treat contaminated water. |
| Evaluate | There are many regions where water stress occurs locally, threatening the habitats of living things mainly as a result of a deterioration in water quality or lakes drying up. |
| Assess | We operate a business that contributes to the development, maintenance, and management of water infrastructure.<br>Opportunities: Demand will increase for infrastructure and facilities to purify and effectively utilize water resources and contaminated water. |
| Prepare | Contribute to water infrastructure development and water recycling primarily by providing water supply and sewerage pipes and engineering for water treatment plants. This can help protect waterway environments and biodiversity. |
| | Examples of our initiatives:<br>• By providing submerged membrane units, we can enable the removal of suspended solids or organic matter and the reuse of treated water for non-potable applications. |

**Assessment of resources-related business**

| | |
|---|---|
| Locate | Japan is dependent on overseas imports of phosphorus, metals, and other natural resources for use in fertilizers. |
| Evaluate | The mining of resources destroys much of the natural environment, deprives living things of their habitat, and can also lead to biodiversity loss. |
| Assess | We operate a business that promotes the recycling of resources.<br>Opportunities: Demand for the recovery and recycling of resources will grow stronger because of the limitations placed on the mining of resources that adversely impact the natural environment. |
| Prepare | Help bring about a circular economy by providing recycling plants, such as facilities that pulverize and sort waste to recover metals, plastics, and other resources, and melting furnaces to extract materials that can be used as the source of chemical fertilizer from sewage sludge. |
| | Examples of our initiatives:<br>• By providing crushing machines, we can help realize a recycling-oriented society by crushing waste to "produce" useful metals.<br>• Through the use of sludge melting process technology, we can reduce the volume of waste and enable the sophisticated recovery of resources. |





## Conservation of Biodiversity around Business Sites

In FY2022, we undertook social contribution activities through biotope conservation inside our business sites and clean-up and greening of areas around sites. We also maintained environments for various living organisms and promoted protection of the natural environment and conservation of biodiversity.

### Installation of Insect Hotels

We installed insect hotels on the grounds of Kubota Farm Machinery Europe S.A.S (France) in an effort to protect biodiversity.

### Installation of Biotopes

At Siam Kubota Corporation Co., Ltd. (Thailand), we installed a biotope on site to conserve biodiversity.

### Mangrove Planting

At Kubota Engine (Thailand) Co., Ltd., we worked together with the local government to plant mangroves along the coast. Mangroves help protect biodiversity by preventing coastal erosion.

### Beekeeping

At Kverneland Group Nieuw-Vennep BV (Netherlands), we installed beehives within the factory grounds. More hives were added with the help of an expert beekeeper, so there are now four hives in total.

### Releasing Young Fish

At Siam Kubota Metal Technology Co., Ltd. (Thailand), we collaborated with the local government and companies to release juvenile fish.

### Rooftop Greening of Bicycle Parking Area

At the Kubota Hirakata Plant (Japan), we established a green space on the rooftop of the enclosed bicycle parking area as a way of greening the premises.

## Promoting Social Contribution Activities

The Kubota Group conducts annual beautification activities in areas around its sites to pick up litter, which may become a source of marine plastic pollution.

### Clean-Up Activities around Sites

At the Kubota Utsunomiya Plant (Japan), an assigned team conducts beautification activities around the plant on a bimonthly basis.

At Kyushu Kubota Kasei Co., Ltd. (Japan), an assigned team conducts beautification activities around the plant every second month.

At Kubota Industrial Equipment Corporation (USA), we undertook cleanup activities on the public roads and car parks around the factory.

At Siam Kubota Corporation Co., Ltd. (Thailand), instead of the usual cleanups that were cancelled because of COVID-19, we made donations to an NPO that supports the activities of Buddhist temples.

## Promoting Continuous Conservation Activities

Our Medium-Term Environmental Conservation Targets 2025 include conservation of biodiversity. Our initiatives for this include continuously promoting greening of the inside of our business sites and social contribution activities. Furthermore, the Kubota Group has wide-ranging involvement with biodiversity, from the environmental impacts of its production activities at business sites to the impact of products and services used by customers.

We report to the Executive Officers' Meeting on energy consumption and emissions of $CO_2$, waste, water, and chemicals, etc. at our production sites, as well as the status of progress on reduction measures at each site.

As an initiative to reduce the use of chemical fertilizers on farms, we are working to promote the spread of farm management using the Kubota Smart Agri System (KSAS) along with agriculture drones and combine harvesters fitted with sensors. Through efficient use and distribution of pesticides and fertilizer, we will reduce the impact of chemicals on the environment and contribute to conservation of biodiversity.





# Expanding Environment-friendly Products and Services

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

## Environmental Considerations in the Product Life Cycle

### Major Initiatives to Ensure Environment-friendliness

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

**Raw materials and parts procurement**
- Green procurement
- Optimal regional procurement

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

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

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

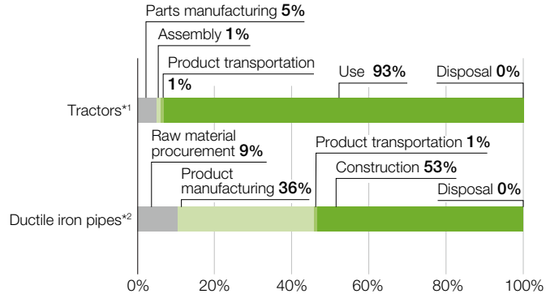
**Use**
- Reduction of fuel consumption
- Improving efficiency, saving labor for work and management
- Improving ease of maintenance, extending product life
- Reduction of exhaust gas
- Reduction of noise, vibration
- Next-generation power such as electrification

**Disposal**
- Collecting/reuse/recycling of used products and parts
- Proper disposal

### Analysis of Greenhouse Gas Emissions 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. The results of the LCA were subject to third-party review in 2014 by the Japan Environmental Management Association for Industry.

**Results of LCA: Proportions of Greenhouse Gases**



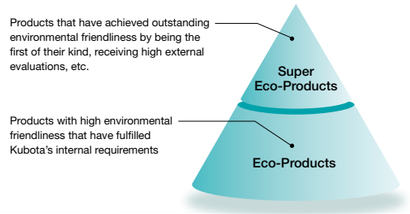

*1 LCA results for tractors were calculated based on the assumption of towing and transporting work for 5,000 hours by the M9540DTHQ-EC agricultural tractor in France.
*2 LCA results for ductile iron pipes were calculated based on the data reported in the "Study on Piping Technologies for Sustainable 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.

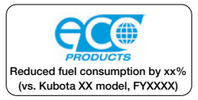
# Internal Certification System for Eco-Products

## 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, "Mitigating and Adapting to 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 |
|---|---|---|
| • Mitigating and Adapting to Climate Change | 1. Energy saving ($CO_2$ reduction)<br>Reducing energy consumption during production, transportation, construction and use, etc. | |
| • Working towards a Recycling-based Society | 2. Resources saving<br>Reducing weight and volume, extending product life, etc. | |
| • Conserving Water Resources | 3. Recycling<br>Using recycled materials and recycled rare metals, etc. | |
| • Controlling Chemical Substances | 4. Reducing environmentally hazardous substances<br>Reducing RoHS-designated substances, reducing gas emissions, etc. | |
| • Conserving Biodiversity | 5. Information disclosure<br>Notes about energy-saving operations, recycling and disposal, etc. | |

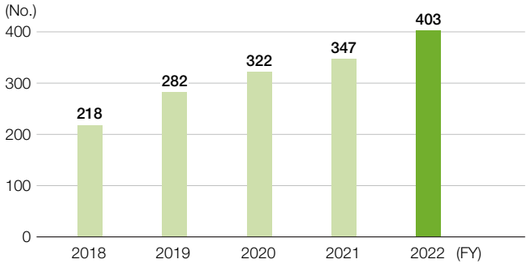
## Eco-Products Certification Committee

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

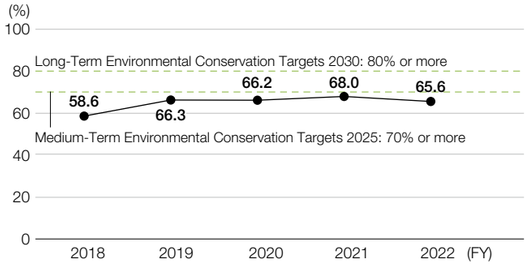

## The Pathway to Expanding Certified Eco-Products

Based on our internal certification system established for Eco-Products, the Kubota Group certified an additional 56 products in FY2022, bringing the total number of certified Eco-Products to 403. The sales ratio of Eco-Products was 65.6% versus the Medium-Term Environmental Conservation Targets 2025 of 70% or higher. The sales ratio of Eco-Products comes to 69.7% when excluding Escorts Kubota Ltd., which was acquired in FY2022. Going forward, we will expand our Eco-Products lineup by continuing to promote the development of environment-friendly products demanded by our customers and society, including products that are energy-saving, lightweight, miniaturized, long-lived, easy maintenance, and compliant with environmental regulations.

### Trends in Numbers 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 FY2022 (excerpt)

Agri Robo tractor
MR1000AH-A
(Unmanned vehicle)

[Key certification point]
Compliant with exhaust gas regulations

Tractor
MU series
MU5502 (India)

[Key certification point]
Saving energy
Compliant with exhaust gas regulations

Corn combine harvesters
4YZB-4 (PRO1408Y-4) (G4) (China)

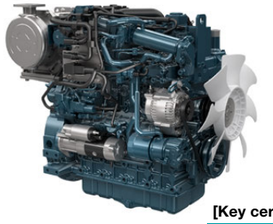
[Key certification point]
Compliant with exhaust gas regulations

Ride-on rice transplanter
SPV series
SPV-6CMD (ASEAN, India, etc.)

[Key certification point]
Conserving resources

Construction machinery
Mini excavator
KX060-5 (Korea)

[Key certification point]
Compliant with exhaust gas regulations



Diesel engine
07-E5 series
V3307-TE5A-BB2 (China)

[Key certification point]
Saving energy
Compliant with exhaust gas regulations

Weighing Equipment
Micro flow rate NX feeder
NX-T12E-MP

[Key certification point]
Saving energy
Conserving resources

Devices for wastewater treatment facilities
MBR scouring
air flow control system
MasPredict

[Key certification point]
Saving energy

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

## Major Initiatives to Ensure Environment-friendliness by Product Group

C Mitigating and Adapting to Climate Change
R Working towards a Recycling-based Society
W Conserving Water Resources
Ch Controlling Chemical Substances
B Conserving Biodiversity, etc.

### Farm & Industrial Machinery

| Product group | Major initiatives to ensure environment-friendliness | Life cycle | | | | |
|---|---|---|---|---|---|---|
| | | Procurement production | Distribution | Construction | Use | Disposal |
| Tractors | Reducing the number of parts | R | | | | |
| | Reducing environmentally hazardous substances contained in paint, electronic components, etc. | Ch | | | | |
| | Reducing fuel consumption by improving loading efficiency in product transportation | | C | | | |
| | Reducing fuel consumption by introducing energy-saving and precision operation modes | | | | 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 transplanters | Reducing environmentally hazardous substances contained in paint, electronic components, etc. | Ch | | | | |
| | Reducing fuel consumption by improving loading efficiency in product transportation | | C | | | |
| | Reducing fuel consumption by introducing energy-saving and precision operation modes or multiple-function capacity to perform simultaneous 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, electronic components, etc. | Ch | | | | |
| | Reducing fuel consumption by improving loading efficiency in product transportation | | C | | | |
| | Reducing fuel consumption by introducing energy-saving and precision operation modes | | | | 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 problems by monitoring the operation status of agricultural machinery | | | | R | |
| Cultivators | Reducing environmentally hazardous substances contained in paint, electronic components, etc. | Ch | | | | |
| | Reducing fuel consumption by improving loading efficiency in product transportation | | C | | | |
| | Reducing $CO_2$ emissions by electrification | | | | C | |
| | Achieving zero $CO_2$ emissions by electrification | | | | Ch | |
| | Conforming to exhaust gas regulations | | | | Ch | |
| | Reducing noise, vibration | | | | B | |
| | Indicating parts materials, providing information on points to be noted for disposal | | | | | R |
| Riding mowers | Reducing environmentally hazardous substances contained in paint, electronic components, etc. | 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 power consumption of electronic circuits | | | | C | |
| | Reducing power consumption of improved thermal insulation efficiency of low-temperature brown rice storage containers | | | | C | |
| | Reducing electric power consumption during waiting time for fruit selector measurement | | | | C | |
| | Reducing the noise of rice-milling machines | | | | B | |
| | Indicating parts materials, providing information on points to be noted for disposal | | | | | R |
| | Reducing RoHS-designated substances | | | | | Ch |
| Engines | Reducing fuel consumption by improving combustion efficiency and reducing losses | | | | C | |
| | Accepting bio diesel/gasoline | | | | C | |
| | Conforming to exhaust gas regulations | | | | Ch | |
| | Reducing noise, vibration | | | | B | |
| | Reducing RoHS-designated substances | | | | | Ch |
| Construction machinery | Reducing environmentally hazardous substances contained in paint, electronic components, etc. | Ch | | | | |
| | Reducing fuel consumption by improving loading efficiency in product transportation | | C | | | |
| | Reducing fuel consumption by designing regulation-compliant on-board engines and introducing an energy-saving mode | | | | C | |
| | Conforming to exhaust gas regulations | | | | Ch | |
| | Reducing noise, vibration | | | | B | |
| | Indicating parts materials, providing information on points to be noted for disposal | | | | | R |
| | Reducing RoHS-designated substances | | | | | Ch |
| Precision machinery (Measuring instruments) | Reducing the number of parts and weight | R | | | | |
| | Reducing fuel consumption by improving loading efficiency in product transportation | | C | | | |
| | Reducing power consumption of electronic circuits | | | | C | |
| | Reducing electric power consumption of peripheral equipment during waiting time for truck scale measurement | | | | C | |
| | Reducing the number of waste batteries by introducing energy-saving measuring instruments | | | | | R |
| | Reducing RoHS-designated substances | | | | | Ch |





C Mitigating and Adapting to Climate Change
R Working towards a Recycling-based Society
W Conserving Water Resources
Ch Controlling Chemical Substances
B Conserving Biodiversity, etc.

### Water & Environment

| Product group | Major initiatives to ensure environment-friendliness | Life cycle | | | | |
|---|---|---|---|---|---|---|
| | | Procurement production | Distribution | Construction | Use | Disposal |
| Ductile iron pipes | Reducing weight by thinning pipes or changing the structure of couplings | R | | | | |
| | Reducing VOC by changing the paint for the inner surface | Ch | | | | |
| | Reducing fuel consumption by improving loading efficiency in product transportation | | C | | | |
| | Reducing the width of the excavation groove by reducing the insertion force at the time of jointing couplings to decrease the number of items necessary for jointing | | | C | | |
| | Reducing polyethylene sleeves by improving anti-corrosion performance | | | R | | |
| | Improving maintenance performance by introducing a coupling structure with reduced insertion force or reducing the number of parts | | | | R | |
| | Extending product life by improving anti-corrosion performance and introducing earthquake-resistant couplings | | | | R | |
| Plastic pipes | Reducing chemical substances specified under the technical standards based on the Water Supply Act | Ch | | | | |
| | Reducing power consumption when joining pipes by a fusing process | | | C | | |
| | Indicating parts materials, providing information on points to be noted for disposal | | | | | R |
| | Reducing RoHS-designated substances | | | | | Ch |
| 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 | |
| | Reducing dehydrated sludge volume | | | | R | |
| KSIS | Saving energy by the efficient operation of equipment through remote monitoring/diagnosis using IoT | | | | C | |
| | Extending equipment life by failure diagnosis using AI | | | | R | |
| | Reducing water consumption through field water management systems | | | | W | |
| Submerged membranes | Reducing weight and volume by reducing the weight per unit membrane area or the membrane filling rate | R | | | | |
| | Reducing fuel consumption by improving loading efficiency in product transportation | | C | | | |
| | Reducing power consumption per unit processing quantity by improving the membrane filtration performance and expanding the membrane-carrying area | | | | C | |
| | Collecting/recycling of used membrane cartridges | | | | | R |
| | Reducing RoHS-designated substances | | | | | Ch |
| Membrane-type methane fermentation units | Generating biogases by the methane fermentation of food waste and palm oil mill effluent | | | | C | |
| | Reducing the volume of food waste | | | | R | |
| Decentralized wastewater treatment plant *(Johkasou)* | Using recycled resin | R | | | | |
| | Reducing the weight and volume of *Johkasou* 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 |
| Air-conditioning equipment | Using recycled resin | R | | | | |
| | Reducing power consumption by installing a heat pump and a highly efficient motor | | | | C | |
| | Easier maintenance by reducing the number of parts and adopting designs that are easy to disassemble | | | | R | |
| | Providing information on points to be noted for disposal | | | | | R |
| | Reducing RoHS-designated substances | | | | | Ch |

## Introduction of Examples of Initiatives to Ensure Environment-friendliness

### Mini cultivator

**Environmental performance through electrification**

- Zero exhaust emissions
- Reduced $CO_2$ emissions
- Reduced noise

www.kubota.com/sustainability/environment/ecopro/data/Mini_Cultivator.pdf

### Riding diesel mower

**Environmental performance through operational improvement**

- Using a proprietary cutting method that reduces the load on the motor achieves a reduction in fuel consumption during operation.

www.kubota.com/sustainability/environment/ecopro/data/Zero_Turn_Mower.pdf

### Humidity control outdoor-air processing unit

**Environmental performance through more compact size**

- Achieves a more compact size compared with a desiccant air-conditioning unit by removing the need for a machine room.
- Reduction of electric power consumption needed for cooling.
- Also enables use of renewable energy.

www.kubota.com/sustainability/environment/ecopro/data/Air-conditioning_Equipment.pdf

### Plastic ribbed pipe

**Environmental performance through change in shape**

- Ribbed construction allows thinner walls, reducing weight.
- Increased flattening strength and ribbed shape enable selection of installation methods and base materials with low environmental impact.

www.kubota.com/sustainability/environment/ecopro/data/Plastic_Pipes.pdf

### Combine harvester

**Environmental performance through resource conservation**

- Increased durability of major replacement parts and increased efficiency of harvesting operations achieve resource conservation throughout the product life cycle.

www.kubota.com/sustainability/environment/ecopro/data/Combine_Harvesters.pdf

### *Johkasou*, Decentralized wastewater treatment plant

**Environmental performance through achieving a more compact size**

- Use of sponge-type carriers to increase processing capacity and achieve a more compact size.
- Reduction in energy consumption during installation and use.

www.kubota.com/sustainability/environment/ecopro/data/jokaso.pdf





## Evolution and History of Environmentally Friendly Products and Services

### Evolution and History of Iron Pipe

In almost 120 years of history since becoming the first company in Japan to successfully manufacture cast-iron pipe in 1893, the Kubota Group has succeeded at developing several technologies, including manufacturing technologies for ductile cast-iron pipe with durability equivalent to that of steel, earthquake-resistant technology for pipelines, and long-life external surface corrosion-resistant technology. Our efforts have contributed to resource conservation by reducing pipe weight, reducing the percentage of water leaked by minimizing the number of pipeline breakages, and further resource conservation through making pipelines with a long service life.

www.kubota.com/sustainability/environment/ecopro/data/The_Evolution_of_Iron_Pipes.pdf

### Evolution and History of Engines

Since it started production of the water-cooled horizontal-type oil engine Type A for agriculture and industry in 1922, the Kubota Group has thoroughly pursued basic performance of industrial engines. Responding also to the increasingly tightened exhaust gas regulations of many countries in the world, Kubota engines have constantly satisfied the needs of the customers worldwide as the power source of various types of industrial machinery, and will continue contributing to reduced environmental impacts.

www.kubota.com/sustainability/environment/ecopro/data/The_Evolution_of_Engines.pdf

### Evolution and History 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 their measuring and weighing technologies to obtain accurate data.

www.kubota.com/sustainability/environment/ecopro/data/The_Evolution_of_Scales.pdf

### Evolution and History of Tractors

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

www.kubota.com/sustainability/environment/ecopro/data/The_Evolution_of_Tractors.pdf

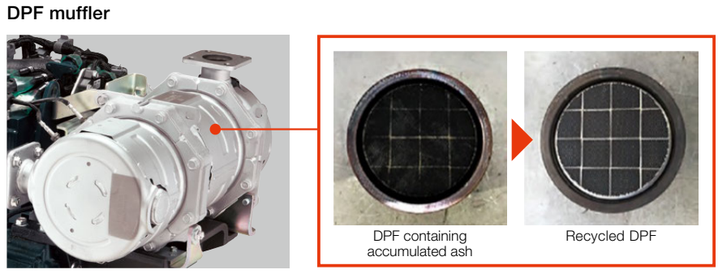
### Evolution and History of Rice Transplanters

The Kubota Group developed the world's first walk-behind rice transplanter using seedling mats in 1968 with the aim of reducing the burden of planting rice. In order to meet demand for labor-saving measures precipitated by the subsequent decline in the number of farmers and the aging of Japan's population, we continued to develop our lineup of rice transplanters—we made them rideable, bigger, and equipped them with more functions. We will continue to implement labor-saving efforts and reduce our impact on the environment by proposing efficient cultivation methods and refining agricultural practices with the use of ICT and automation.

www.kubota.com/sustainability/environment/ecopro/data/The_Evolution_of_planter.pdf

## Managing Used Products

The Kubota Group has several services in which used products and parts are collected for recycling. Kubota Engine Japan Corporation manages the DPF Eco Program to encourage the recycling of diesel particulate filters (DPF). A DPF is a filtering device that removes particulate matter from the exhaust gas of diesel engines. It does this by collecting and regularly burning off the harmful fine particles contained in the gas emitted by the engine. However, ash that cannot be completely removed through combustion continues to accumulate in the DPF. Under this program, recycled DPFs with the same level of performance as a brand new device are provided to customers after being cleaned and inspected in accordance with Kubota's specifications. Kubota Engine Japan also operates a remanufactured parts program for mainly starting motors and alternators used in Kubota engines. These parts are disassembled, cleaned, and given new components so they can be used again like a new product. Kubota Engine America Corporation also provides a similar remanufactured parts service.




Provision of recycled products under the DPF Eco Program

Siam Kubota Corporation Co., Ltd. in Thailand manufactures and sells tractors, combine harvesters, cultivators, diesel engines, and other machinery. In addition to this, it repairs and refurbishes machinery traded in by customers when they purchase a new product and provides assistance to the dealers that sell them as authorized second-hand equipment.

In the water and environment field, Kubota provides submerged membrane units for purifying household and industrial wastewater. To ensure the smooth operation of water treatment facilities, it is essential that the submerged membranes are maintained, including the regular replacement of membrane cartridges. Kubota Membrane Co., Ltd. not only examines and replaces the membrane cartridges, but it also recycles them in an effort to contribute to the reduction of waste emissions.

Kubota ChemiX Co., Ltd., a Group company involved in the manufacture and sale of plastic pipes and fittings, is also engaged in the effective use of resources by making and selling rigid three-layer PVC pipes with the use of recycled PVC that has been processed from cleaned and pulverized waste material. Moreover, KUBOTA Environmental Engineering Corporation—which undertakes construction, maintenance, and operational management of water and environmental facilities—provides engineering services to facilities that pulverize and sort plastic waste for use as fuel and material.

These initiatives mean the Kubota Group can avoid using new raw materials, which in turn helps lower the amount of energy used to make new products and reduces greenhouse gas emissions. We will continue to promote measures that contribute to the effective utilization of resources while also meeting the needs of our customers.





# Environmental Management

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

## Compliance with Environmental Laws and Regulations

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

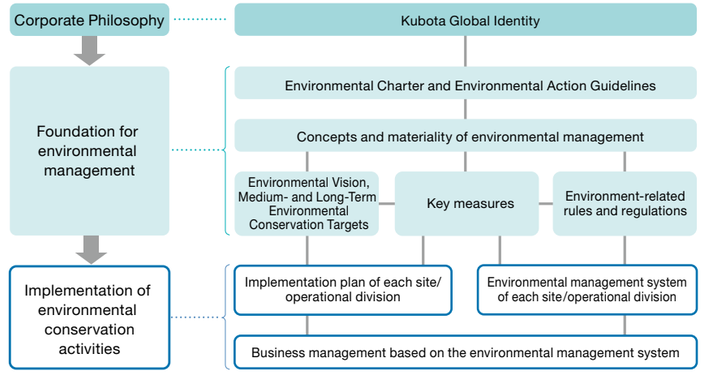
For exhaust gas, wastewater, noise, vibration and other variables, the Group has set and thoroughly manages its own control values at each production site, which are stricter than the corresponding laws and regulations, and has also established a system to promptly report any instances of non-compliance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

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

Despite these efforts, however, in FY2022 in Japan we had two cases of inappropriate disposal of equipment that uses chlorofluorocarbons (CFCs) and three cases of wastewater exceeding regulation levels. We investigated any impacts on the surrounding environment and are working to prevent a recurrence. We were not subject to any fines or punishments.

## The Kubota Group's Environmental Management System

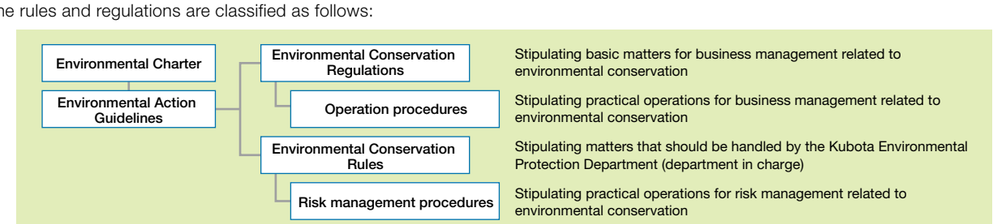
The diagram below shows the structure of the environmental management system of the Kubota Group.




### 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:




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 Environmental Protection Department conducts an environmental audit that incorporates a document audit and a remote audit using IT tools targeting all production sites, service sites, offices, and construction and maintenance management departments in Japan, as well as overseas group production sites.

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

All of the audit results are reported to the President and management at the Group-wide Risk Management Committee in accordance with the Group-wide internal control system.

### FY2022 Environmental Audit Implementation Status

- Number of sites: 294 (281 sites and 13 agricultural machinery sales companies)
- Number of audit items: 28 (for production sites) up to 54 (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

FY2022 Environmental audit
Kubota Itami Office (Japan)

* The FY2022 environmental audit involved both on-site and remote audits.

### Environmental Audit Implementation Status

| | | Production sites | Offices | Service sites | | Construction departments | Maintenance management departments*2 | Total number of sites audited |
|---|---|---|---|---|---|---|---|---|
| | | | | Agricultural machinery distributors | Other | | | |
| Group companies in Japan | Number of sites audited | 25 | 90 | 13 companies*1 | 85 | 46 | 8 | 267 |
| | Number of audit items | 44 | 42 | 53 | 54 | 39 | 29 | |
| Overseas group companies | Number of sites audited | 27 | – | – | – | – | – | 27 |
| | Number of audit items | 28 | | | | | | |

*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

Environmental risks for facilities are evaluated from the function and management methods, etc., of environment-related equipment, and for facilities that are deemed to require countermeasures, risk reduction activities are promoted to strengthen equipment and management countermeasures until environmental risks are at an acceptable level.

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

Environmental risk assessment
Kubota Tsukuba Plant (Japan)

## Environmental Patrols

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

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





## Drills for Responding to Abnormal and Emergency Situations

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

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

Training based on an oil leak scenario
Nagasaki Office,
KUBOTA Construction Machinery Japan Corporation.

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

In order to promote the proper treatment of waste and other materials including valuable resources at its operating sites in Japan, the Kubota Group is increasingly employing the services of top-rated certified operators.

At the same time, the Group has stipulated internal rules for conducting on-site investigations of industrial and other recyclable waste treatment contractors as well as purchasers of valuable resources. As far as industrial waste where there are large numbers of treatment contractors, the Kubota Group conducted investigations using its own on-site investigation appointing system that is run by its production sites, offices, sales companies, and other companies.

In FY2022, due to the COVID-19 pandemic, on-site investigations were conducted only at sites where on-site checking was required due to local government ordinances and so forth. At other sites, we conducted investigations based on published information of treatment contractors and so forth. Looking ahead, we will continue to conduct investigations that increase validity to promote appropriate treatment.

# Green Procurement

## Green Procurement Guidelines

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

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

In addition, we conclude basic trading agreements with Japanese suppliers who deal with Kubota, and through these agreements we ask the suppliers to observe environmental laws and regulations, and take steps to reduce their environmental impact.

For details on the Kubota Group's Green Procurement Guidelines, click here
www.kubota.com/sustainability/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, for the purpose of procuring goods with less environmental impact. The awards are presented every year.

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

In 2022, of the 123 environmental conservation activities that were submitted from our suppliers in Japan, 13 activities with particularly high achievements were awarded, one of which received the Excellent Prize.

We started expanding this system globally in 2018, and presented awards at overseas sites as well. We will continue to utilize the system and carry out activities in the name of green procurement and promote environmental conservation initiatives hand-in-hand with our suppliers.


FY2022 Awarding ceremony (January 2023)

## Supplier Management

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

As a specific example of activities, Kubota Agricultural Machinery (Suzhou) Co., Ltd. (China) conducts “environmental patrols” of existing suppliers to verify compliance with environmental laws and requests suppliers to take recommended steps for addressing any points for improvement found with the goal of minimizing the risk of supply stoppages for procured components. For new suppliers, patrols are carried out prior to their approval, with only those verified as legally compliant selected as new suppliers.

## Environmental Education and Enlightenment

### Results of Environmental Education in 2022

We conduct environmental education and awareness-raising for Kubota Group employees through rank-based training, professional training by subject, and e-learning.

| Classification | Course title | Frequency | No. of participants | Course descriptions |
|---|---|---|---|---|
| Education by employee-level | ESG Forum for executive management | 1 | 240 | Lecture entitled “The Yanagi Model—Relationships Between ESG and Corporate Value” delivered by Dr. Ryohei Yanagi (PhD in Economics), Visiting Professor at the Graduate School of Accountancy, Waseda University, Executive Advisor at Abeam Consulting Ltd., and former CFO at Eisai Co., Ltd. |
| | Training for new employees in staff positions | 1 | 225 | Global and local environmental issues and the Kubota Group’s environmental conservation activities |
| | Training for newly appointed foremen | 1 | 14 | The Kubota Group’s environmental management and efforts as foremen |
| | Training for newly appointed supervisors | 2 | 44 | The Kubota Group’s environmental management and efforts as supervisors |
| Professional education by subject | Basics of environmental management | 1 | 16 | Basic knowledge of environmental legal systems, environmental risk, and environmental conservation |
| | Waste management (Basic) | 2 | 31 | Waste Management and Public Cleansing Law and waste management |
| | Waste management (Advanced) | 1 | 8 | Waste management and resource recycling related laws and waste management and reduction |
| | Environment-related facility management | 1 | 5 | Pollution prevention-related laws and pollution prevention technologies |
| | Education to train ISO 14001 environmental auditors | 2 | 59 | The ISO 14001 standard, environment-related laws, audit techniques |
| e-learning | Environmental management in offices | 1 | 502 | Key points of environmental management in offices |
| | Enhancing sensitivity to environmental risks | 1 | 3,378 | Training on enhancing sensitivity to environmental risks at production sites |
| Total | | 14 | 4,522 | |



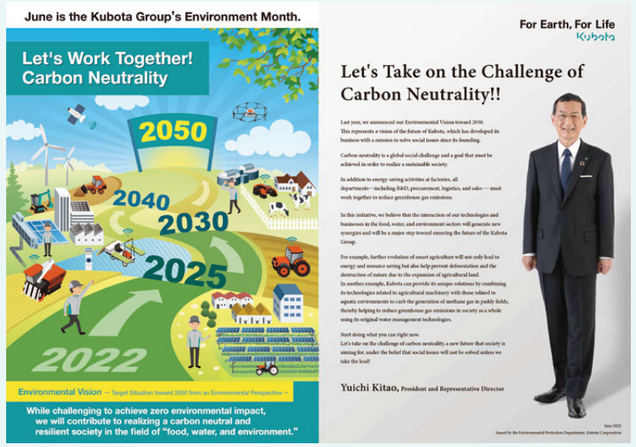


Environment Month Report

### Raising Environmental Awareness of Employees and Families through the Kubota Eco-Challenge

The Kubota Group designates June of each year as “Environment Month” and promotes various programs to raise awareness among its employees. In 2022, we implemented activities with the theme of “Let’s Work Together! Carbon Neutrality”

As one of our Environment Month activities, we held the Kubota Eco Challenge, an environmental photo contest in which Group employees and their families around the world post photographs of eco activities at their workplaces and homes.




Environment Month poster (2022)

Compost recycling

Coastline cleanups

Tree planting

Participation in electric vehicle rallies

## Environmental Achievement Awards

The Kubota Group presents the Environmental Achievement Awards each year 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 FY2022, environmental conservation activities were evaluated in five categories: production, non-production, products, education and awareness-raising, and social contributions. Twenty-two activities were recognized with an award for achievements in energy-saving, waste reduction, VOC reduction, development of environmentally friendly products, and contributions to education and awareness. Two of these were awarded 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 2022

| Category | Company, department | Theme |
|---|---|---|
| Production | Siam Kubota Corporation Co., Ltd. | Zero emission activities spearheaded by inter-departmental collaboration |
| | Siam Kubota Metal Technology Co., Ltd. | Energy savings from improved compressor room heat dissipation |

### Environmental Achievement Awards in 2022 by categories

| Category | Classification, No. of winners |
|---|---|
| Production | Excellent Prize: 2,<br>Encouragement Award: 13 |
| Non-production | Encouragement Award: 1 |

| Category | Classification, No. of winners |
|---|---|
| Product | Encouragement Award: 5 |
| Education and awareness-raising | Education and Awareness-Raising Award: 1 |

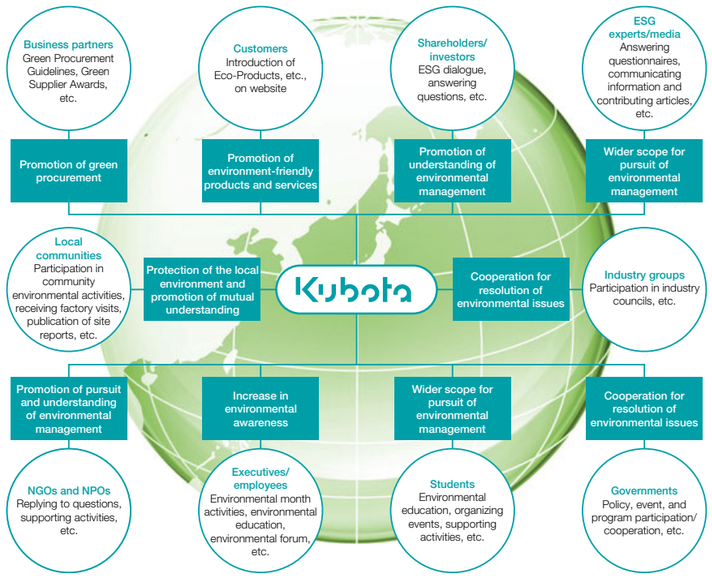
# Environmental Communication

Since it published its first Environmental Report in FY1999, the Kubota Group has continued to disclose environmental information. Along with the globalization of its businesses, the Group has enhanced the content of the environmental information it discloses, to allow the Group's global initiatives to be better understood. To expand and improve disclosures further, the Group will continue to engage in dialogue with stakeholders and further disclose information in line with international standards, such as the environmental reporting guidelines of the Japanese Ministry of the Environment, the GRI Standards, the recommendations of the TCFD, and the EU's Corporate Sustainability Reporting Directive.

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

## Environmental Communication Activities

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








## Cooperation with Environment-related Industry Groups and Governments

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

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

In May 2010, the Kubota Group was certified by the Japanese Minister of the Environment as an "Eco-First Company," and has been a member of the Eco-First Promotion Council since then. Through the Council, the Group submits proposals to or exchanges opinions with the Ministry of the Environment, supports Eco-First companies promoting environmental conservation activities and enhancing cooperation between companies, and engages in activities to raise the environmental awareness of the public. The Group also participates in the "Fun to Share" campaign by the Ministry of the Environment to tackle climate change toward the realization of a low-carbon society, the "Cool Choice" national movement to encourage smart choices contributing to measures against global warming, and the Water Project to raise awareness concerning water circulation and conservation of the water environment. In addition, the Group was also selected as a "Zero-Emissions Challenge" company in the Ministry of Economy, Trade and Industry's project for promoting innovation to realize a decarbonized society.

Zero-Emissions Challenge logo

### Participating in Industry Groups

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

- **Major participating groups**

  Industry groups: Japan Business Federation, Kansai Economic Federation, Japan Society of Industrial Machinery Manufacturers, etc.
  Environmental initiatives: Japan Climate Initiative, Task Force on Climate-Related Financial Disclosures (TCFD)

#### Support for the TCFD Recommendations

The Kubota Group considers mitigating and adapting to climate change to be one of the material issues for environmental management. We are making efforts to respond to climate change through environment-friendly products, technologies, services, and corporate activities. To further enhance stakeholder communication, we expressed support for the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD) in January 2020.

#### Participation in JCI activities

The Kubota Group has participated in the activities of the Japan Climate Initiative (JCI) since October 2018. JCI participants include Japanese companies, local governments, NGOs and others who aim to realize a carbon-free society.

### 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**

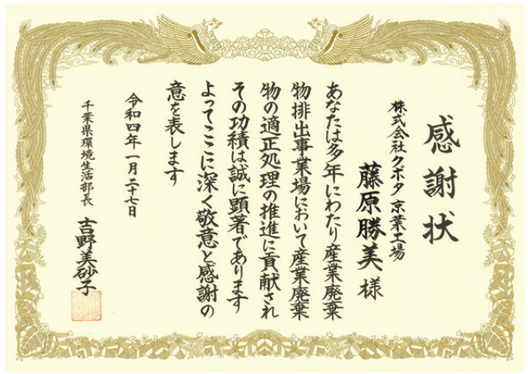
  Gifu Prefecture "Consortium for Forest Technology Development and Promotion," Osaka City "Environmental Management Promotion Council," sponsored flowerbeds in front of the Kyuhoji Green Space in Osaka Prefecture, and so on.

## Receiving Environmental Awards

### Employee at Kubota Keiyo Plant Receives Certificate of Appreciation from Chiba Prefecture

Katsumi Fujiwara, an employee at the Kubota Keiyo Plant (Japan) in charge of environment and safety for many years, was presented with a certificate of appreciation from Chiba Prefecture for his contributions to promoting the appropriate treatment of industrial waste.

The certificate is awarded to people who have worked for many years as a technical manager, as prescribed in Article 21 of the Waste Management and Public Cleansing Act, and played a major role in the appropriate treatment of industrial waste at business sites that discharge industrial waste.


感謝状

株式会社クボタ 京葉工場
藤原勝美 様

あなたは多年にわたり産業廃棄物排出事業場において産業廃棄物の適正処理の推進に貢献されその功績は誠に顕著であります
よってここに深く敬意と感謝の意を表します

令和四年一月二十七日

千葉県環境生活部長
吉野美砂子

Certificate of appreciation from Chiba Prefecture (Japan)

### Siam Kubota Corporation Co., Ltd. (Amata City Plant) Receives Amata Best Waste Management Platinum Award for 9th Consecutive Year

The Amata Best Waste Management award held by Amata Facility Service Company of Thailand was inaugurated in 2014. Held every year since then, the award is presented to plants that properly manage their industrial waste. It aims to promote the 3Rs (Reduce-Reuse-Recycle) and conduct appropriate and efficient industrial waste management processes at plants in Chonburi Industrial Estate and Rayong Industrial Estate, Amata City. In 2022, Siam Kubota Corporation Co., Ltd. (Amata City Plant) received the platinum award, (in the three tier evaluation comprised of silver, gold and platinum awards), for the 9th consecutive year since the award was inaugurated.


AMATA
FACILITY SERVICES
Platinum
บริษัท อมตะ ฟาซิลิตี้ เซอร์วิส จำกัด
ขอประกาศเกียรติคุณเพื่อแสดงว่า
บริษัท สยามคูโบต้าคอร์ปอเรชั่น จำกัด
เป็นโรงงานอุตสาหกรรมที่มีการจัดการกากอุตสาหกรรมและมูลฝอยอย่างมีประสิทธิภาพ
ภายใต้โครงการ "การจัดการกากอุตสาหกรรมและมูลฝอยในโรงงาน
นิคมอุตสาหกรรมอมตะซิตี้ ชลบุรี และ ระยอง ประจำปี 2565"
(AMATA BEST WASTE MANAGEMENT AWARDS 2022)
ผ่านการประเมินระดับ : Platinum Con. (Excellence)
นายอิศรเรศร์ ชูช่วย
กรรมการผู้จัดการ
บริษัท อมตะ ฟาซิลิตี้ เซอร์วิส จำกัด
ให้ไว้ ณ วันที่ 8 ธันวาคม 2565

Platinum Award certificate

### Kubota Manufacturing of America Corporation Receives Environmental Responsibility Award

The Greater Hall Chamber of Commerce in the U.S. state of Georgia held its 14th Industry of the Year Awards ceremony at Lanier Technical College. The awards are presented to outstanding local manufacturers and processing firms in the fields of HR development, safety, corporate responsibility, and environmental responsibility. Kubota Manufacturing of America Corporation took home the environmental responsibility award in the large employer category (200+ employees).


Employees that played a part in winning the award



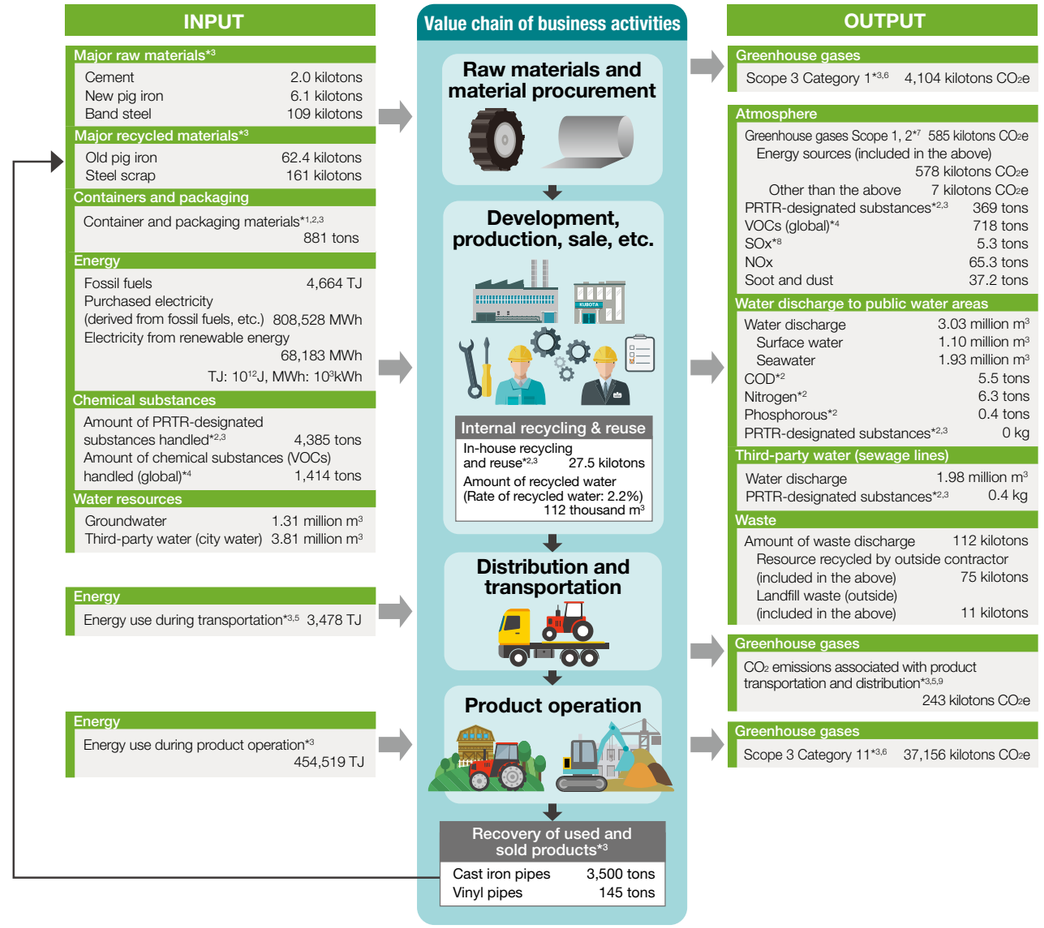


# Environmental Data

## 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 FY2022. The results of the measurement of the overall environmental loads on the entire value chain, from the procurement of raw materials, to manufacturing, distribution, sales, consumption, and the recycling of waste are used for the reduction of greenhouse gas emissions and the effective utilization of resources.

**Overview of the Environmental Loads on the Value Chain (Results in FY2022)**




*1 Packaging materials subject to the Act on the Promotion of Sorted Collection and Recycling of Containers and Packaging, Japan
*2 Data for Japan
*3 Not subject to the third-party assurance
*4 VOCs (volatile organic compounds) comprise the six substances that are most prevalent in emissions from the Kubota Group: xylene, toluene, ethylbenzene, styrene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.
*5 Data for Japan and data associated with the overseas shipping of certain products from Japan, excluding procurement and transportation
*6 For Greenhouse gases Scope 3, only part of the categories are presented. For more details, see the $CO_2$ Emissions throughout the Value Chain (p.39).
*7 $CO_2$ emissions refers to emissions from all Kubota Group sites (100%).
*8 If sulfur contained in the slag managed onsite at end of year (December 31, 2022) by some sites in Japan is included, SOx emissions for FY2022 amounted to 4.9 tons.
*9 $CO_2$ emissions excluding procurement and transportation from Scope 3 Category 4

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.88).

## Trends in Major Environmental Indicators

### Energy

| Environmental indicators | | | Unit | FY2018 | FY2019 | FY2020 | FY2021 | FY2022 |
|---|---|---|---|---|---|---|---|---|
| Energy | Amount of fossil fuel consumption | | TJ | 4,687 | 4,641 | 4,400 | 4,732 | 4,664 |
| | | Natural gas included in the above*1 | TJ | 2,501 | 2,561 | 2,450 | 2,690 | 2,696 |
| | Amount of electricity consumption derived from fossil fuels | Amount of purchased electricity (derived from fossil fuels, etc.) | MWh | 767,255 | 756,013 | 708,209 | 770,262 | 808,528 |
| | | Amount of electricity from cogeneration*1 | MWh | 1,805 | 2,274 | 2,398 | 2,597 | 2,326 |
| | Amount of electricity consumption from renewable energy | Amount of solar power generation (generated and consumed on site) | MWh | 2,412 | 2,604 | 5,683 | 6,244 | 10,179 |
| | | Amount of purchased electricity (from renewable energy) | MWh | 0 | 0 | 0 | 5,184 | 58,005 |

| Environmental indicators | | Unit | FY2018 | FY2019 | FY2020 | FY2021 | FY2022 |
|---|---|---|---|---|---|---|---|
| Energy | Energy consumption | TJ | 12,234 | 12,075 | 11,362 | 12,319 | 12,642 |

### $CO_2$ Emissions

| Environmental indicators | | | Unit | FY2018 | FY2019 | FY2020 | FY2021 | FY2022 |
|---|---|---|---|---|---|---|---|---|
| Greenhouse gases | Scope 1, 2*2 | | kilotons $CO_2e$ | 647 | 630 | 570 | 613 | 585 |
| | | Energy sources | kilotons $CO_2e$ | 640 | 623 | 564 | 607 | 578 |
| | | Other than the above | kilotons $CO_2e$ | 7 | 7 | 6 | 6 | 7 |

### Resources and Materials*1

| Environmental indicators | | Unit | FY2018 | FY2019 | FY2020 | FY2021 | FY2022 |
|---|---|---|---|---|---|---|---|
| Major raw materials | Cement | kilotons | 4.9 | 3.4 | 2.8 | 2.4 | 2.0 |
| | New pig iron | kilotons | 9.7 | 8.8 | 6.4 | 7.8 | 6.1 |
| | Band steel | kilotons | 121 | 112 | 100 | 114 | 109 |
| Major recycled materials | Old pig iron | kilotons | 71.8 | 74.2 | 69.2 | 77.0 | 62.4 |
| | Steel scrap | kilotons | 193 | 183 | 172 | 177 | 161 |
| Containers and packaging | Container and packaging materials (Japan)*3 | tons | 922 | 973 | 879 | 1,005 | 881 |

### Waste

| Environmental indicators | | | Unit | FY2018 | FY2019 | FY2020 | FY2021 | FY2022 |
|---|---|---|---|---|---|---|---|---|
| Waste, others | Amount of waste discharge*4 | | kilotons | 120 | 113 | 100 | 117 | 112 |
| | Hazardous/non-hazardous waste | Hazardous waste | kilotons | 5.3 | 5.5 | 6.1 | 6.3 | 6.3 |
| | | Non-hazardous waste*5 | kilotons | 114 | 108 | 94 | 111 | 105 |
| | By treatment category | Resource recycled by outside contractor | kilotons | 92 | 79 | 66 | 79 | 75 |
| | | Landfill waste (outside) | kilotons | 10 | 12 | 11 | 13 | 11 |

*1 Not subject to the third-party assurance
*2 $CO_2$ emissions refers to emissions from all Kubota Group sites (100%).
*3 Packaging materials subject to the Act on the Promotion of Sorted Collection and Recycling of Containers and Packaging, Japan
*4 Totals shown may differ from the simple sum of values shown due to rounding.
*5 Non-hazardous waste = Amount of waste discharge - Amount of hazardous waste

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.88).





### Water Resources

| Environmental indicators*1 | | Unit | FY2018 | FY2019 | FY2020 | FY2021 | FY2022 |
|---|---|---|---|---|---|---|---|
| Water withdrawal | | million $m^3$ | 4.88 | 4.59 | 4.36 | 4.61 | 5.12 |
| | Surface water | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Groundwater | | 0.99 | 0.87 | 0.79 | 0.80 | 1.31 |
| | Seawater | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Produced water | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Third-party water (city water*2) | | 3.89 | 3.72 | 3.57 | 3.81 | 3.81 |

| Environmental indicators*3 | | Unit | FY2018 | FY2019 | FY2020 | FY2021 | FY2022 |
|---|---|---|---|---|---|---|---|
| Water withdrawal from water-stressed regions | | million $m^3$ | 0.23 | 0.24 | 0.25 | 0.30 | 0.70 |
| | Surface water | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Groundwater | | 0.00 | 0.00 | 0.01 | 0.05 | 0.40 |
| | Seawater | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Produced water | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Third-party water (city water*2) | | 0.23 | 0.24 | 0.24 | 0.25 | 0.30 |

### Water System Discharge

| Environmental indicators*1 | | Unit | FY2018 | FY2019 | FY2020 | FY2021 | FY2022 |
|---|---|---|---|---|---|---|---|
| Total water discharge in all regions | | million $m^3$ | 5.12 | 4.77 | 4.37 | 4.88 | 5.01 |
| | Surface water | | 1.48 | 1.39 | 1.31 | 1.46 | 1.10 |
| | Groundwater | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Seawater | | 2.14 | 1.87 | 1.70 | 1.90 | 1.93 |
| | Third-party water (sewerage) | | 1.50 | 1.51 | 1.36 | 1.52 | 1.98 |
| COD (Japan)*4 | | tons | 8.6 | 7.6 | 5.8 | 6.3 | 5.5 |
| Nitrogen discharge (Japan)*4 | | tons | 6.9 | 6.2 | 5.8 | 6.2 | 6.3 |
| Phosphorous discharge (Japan)*4 | | tons | 0.38 | 0.30 | 0.30 | 0.34 | 0.35 |
| Amount of PRTR-designated substances released (Japan: public waters)*3 | | kg | 0.9 | 0.6 | 0.4 | 0.0 | 0.0 |
| Amount of PRTR-designated substances transferred (Japan: sewerage)*3 | | kg | 0.1 | 0.2 | 0.4 | 0.5 | 0.4 |

*1 Categories for water withdrawal and water discharge have been added to the ESG Report 2023. This change has been retroactively applied to prior years.
*2 City water includes service water and water for industrial use.
*3 Not subject to the third-party assurance
*4 Total water discharge from business sites subject to total emission control to public waters (surface water, groundwater, seawater).

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.88).

### Chemical Substances

| | Environmental indicators | Unit | FY2018 | FY2019 | FY2020 | FY2021 | FY2022 |
|---|---|---|---|---|---|---|---|
| Chemical substances | Amount of PRTR-designated substances handled (Japan)*1 | tons | 5,339 | 4,918 | 4,276 | 4,426 | 4,385 |
| | Amount of chemical substances (VOCs) handled (global)*2 | tons | 1,707 | 1,412 | 1,291 | 1,302 | 1,414 |

### Atmospheric Discharge

| | Environmental indicators | Unit | FY2018 | FY2019 | FY2020 | FY2021 | FY2022 |
|---|---|---|---|---|---|---|---|
| Atmosphere | Amount of PRTR-designated substances released (Japan)*1 | tons | 454 | 449 | 403 | 408 | 369 |
| | VOC emissions*2 | tons | 619 | 575 | 541 | 565 | 718 |
| | SOx emissions*3, 4 | tons | 9.9 | 3.9 | 7.9 | 2.9 | 5.3 |
| | NOx emissions*3 | tons | 49.7 | 47.3 | 50.8 | 56.1 | 65.3 |
| | Soot and dust emissions*3 | tons | 11.6 | 11.1 | 16.3 | 19.2 | 37.2 |

*1 Not subject to the third-party assurance
*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 Japan data is for facilities that generate soot and smoke and are regulated by the Air Pollution Control Act. Overseas data from 2018 through 2021 is for facilities subjected to measurement requirements under local laws and regulations where business sites are located. Data for 2022 is for facilities subjected to measurement requirements under local laws and regulations where business sites are located for SOx, NOx, and soot and dust generated from the use of fuel, the incineration of other matter, or electricity as a heat source.
*4 If sulfur contained in the slag managed onsite by some sites in Japan is included, SOx emissions is 7.8 tons for FY2018, 5.3 tons for FY2019, 4.3 tons for FY2020, 5.0 tons for FY2021, and 4.9 tons for FY2022.

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.88).



Chapter 2
E Environmental Report

## Calculation Results of PRTR-designated Substances

### FY2022 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 |
| 51 | 2-Ethylhexanoic acid | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 53 | Ethylbenzene | 117,240 | 0.0 | 0.0 | 0.0 | 0.0 | 13,452 |
| 71 | Ferric chloride | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 80 | Xylene | 157,368 | 0.0 | 0.0 | 0.0 | 0.0 | 19,820 |
| 87 | Chromium and chromium (III) compounds | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6,570 |
| 132 | Cobalt and its compounds | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 |
| 188 | N,N-Dicyclohexylamine | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 892 |
| 239 | Organic tin compounds | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 223 |
| 240 | Styrene | 19,034 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 277 | Triethylamine | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 296 | 1,2,4-trimethylbenzene | 18,598 | 0.0 | 0.0 | 0.0 | 0.0 | 6,414 |
| 297 | 1,3,5-trimethylbenzene | 3,007 | 0.0 | 0.0 | 0.0 | 0.0 | 1,173 |
| 300 | Toluene | 50,655 | 0.0 | 0.0 | 0.0 | 0.0 | 12,415 |
| 302 | Naphthalene | 2,879 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 305 | Lead compounds | 98 | 0.0 | 0.0 | 0.0 | 0.4 | 3,771 |
| 308 | Nickel | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 307 |
| 349 | Phenol | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 352 | Diallyl phthalate | 60 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 354 | Di-n-butyl phthalate | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 176 |
| 392 | N-hexane | 27 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 400 | Benzene | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 412 | Manganese and its compounds | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 71,386 |
| 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 | | 368,975 | 0.0 | 0.0 | 0.0 | 0.4 | 136,604 |

Scope: Total of substances with annual handling volume of one ton or more (0.5 ton or more for Specific Class 1 Designations) at each business site
Unit: kg/year
Six VOCs substances targeted for reduction in Medium-Term Environmental Conservation Targets 2025

For the calculation method of each item of environmental data, see the Calculation Standards of Environmental Performance Indicators (p.88).

## 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 | | Main costs | FY2021 | | FY2022 | |
|---|---|---|---|---|---|---|
| | | | Investment | Expenses | Investment | Expenses |
| Within the business area cost | | | 867 | 3,939 | 1,472 | 2,994 |
| | Local environmental conservation cost | Cost of preventing air and water pollution, soil contamination, noise, and vibration. | 294 | 458 | 736 | 509 |
| | Global environmental conservation cost | Prevention of climate change, etc. | 573 | 1,121 | 703 | 1,054 |
| | Resource recycling cost | Cost of treating, disposing, reducing, minimizing, and recycling waste, as well as efficiently utilizing resources | 0 | 2,360 | 33 | 1,431 |
| Upstream and downstream costs | | Collection of used products and commercialization of recycled products | 0 | 127 | 0 | 23 |
| Management activities cost | | Environmental management personnel, ISO maintenance and implementation, environmental information dissemination | 0 | 1,624 | 6 | 1,833 |
| R&D cost | | R&D for reducing of product environmental load and developing environment conservation equipment | 690 | 9,409 | 2,237 | 10,879 |
| | Farm & Industrial Machinery | | 295 | 5,521 | 822 | 6,124 |
| | Water & Environment | | 219 | 3,172 | 948 | 3,341 |
| | Common | | 176 | 716 | 467 | 1,414 |
| Social activities cost | | Local cleanup activities, and membership fees and contributions to environmental groups, etc. | 0 | 0.6 | 0 | 1 |
| Environmental remediation cost | | Contributions and impositions, etc. | 0 | 93 | 0 | 106 |
| Total | | | 1,557 | 15,193 | 3,715 | 15,836 |

| | |
|---|---|
| Total capital investment (including land) for the corresponding period (consolidated data) | 169,400 |
| Total R&D costs for the corresponding period | 88,300 |

### Environmental Conservation Effects

| Effects | Items | FY2021 | FY2022 |
|---|---|---|---|
| Environmental effects related to resources input into business activities | Energy consumption (TJ) | 7,613 | 7,294 |
| | Water withdrawal (million $m^3$) | 3.49 | 3.54 |
| Environmental effect related to waste or environmental impact originating from business activities | $CO_2$ emissions (energy-related $CO_2$) (kilotons $CO_2e$) | 403 | 367 |
| | SOx emissions (tons) | 2.0 | 2.0 |
| | NOx emissions (tons) | 36.0 | 27.6 |
| | Soot and dust emissions (tons) | 2.9 | 5.4 |
| | Releases and transfers of PRTR-designated substances (tons) | 597 | 506 |
| | Waste discharge (kilotons) | 71.7 | 65.6 |
| | Waste to external landfills (kilotons) | 1.9 | 2.2 |

### Economic Effects

(Yen in millions)

| Classifications | Details | Annual effects of the year ended December 31, 2022 |
|---|---|---|
| Energy conservation measures | Improve the operations of production facilities, fuel conversion, and switch to more efficient lighting and air-conditioning systems | 184 |
| Zero-emissions measures | Reduce the amount of industrial waste; promote resource recycling | 1,875 |
| | Sales of valuable resources | 2,570 |
| Total | | 4,629 |

<Environmental accounting principles>
1) The period is from January 1, 2022 to December 31, 2022.
2) The data of business sites in Japan is considered in the calculation.
3) Data was calculated referring to the Environmental Accounting Guidelines 2005, published by Japan's Ministry of the Environment.
4) "Expenses" includes depreciation costs.
Depreciation cost was calculated based on the standards applied to Kubota's financial accounting, and assets acquired in and after 1998 were considered in the calculation.
"Management activities" and "R&D costs" include personnel expenses.
"Resource recycling costs" does not include costs incurred during disposal of construction waste at construction sites.
"R&D costs" represents that which was spent on environmental purposes, calculated on a pro-rata basis.
5) "Economic effects" is obtained only by adding up tangible results and does not include estimated effects.





## Status of Environmental Management System Certification Acquisition

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

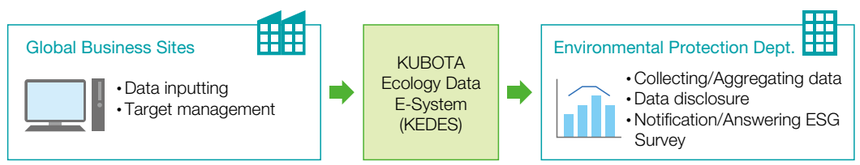
As of the end of December 2022, 50 of the Group's 72 production sites worldwide (acquisition rate of 69%) have acquired environmental management system certification. In Japan, all of its 24 production sites (acquisition rate of 100%) have acquired ISO 14001 certification. Of its 48 overseas production sites, 26 sites (acquisition rate of 54%) have acquired ISO 14001 certification or other certification for environmental management systems. The Kubota Group will make continuous efforts to raise the acquisition rate of the certification.

For details on the Kubota Group's Status of Environmental Management System Certification Acquisition, click here
www.kubota.com/sustainability/environment/ems/

## Calculation Standards of Environmental Performance Indicators

In order to practice environmental conservation activities on a global scale, the Kubota Group utilizes the "KUBOTA Ecology Data E-System" (KEDES) to collect environmental data, which includes information from our business sites on their energy usage, amounts of generated and discharged waste, water withdrawal, and VOC emissions, etc.

"KEDES" is a system that collectively manages environmental data at global business sites. Staff at each business site register monthly environmental data, which is used for target management of their own site. The Environmental Protection Department aggregates and analyzes the data, and uses it for reporting inside and outside the group. The boundary of the environmental data aggregation covers Kubota Corporation and all (100%) of its consolidated subsidiaries.




### Period and Organizations Covered by Environmental Data

| FY | Period | | Organizations covered (No. of companies) | | | |
|---|---|---|---|---|---|---|
| | Data in Japan | Overseas data | Kubota/Consolidated subsidiaries*3 | | | Affiliated companies accounted for under the equity method*4 |
| | | | Japan | Overseas | Total | |
| 2014 | April 2014 to March 2015 | January 2014 to December 2014 | 53 | 103 | 156 | 12 |
| 2015 | April 2015 to March 2016 | January 2015 to December 2015*1 | 51 | 102 | 153 | 13 |
| 2016 | January 2016 to December 2016 | January 2016 to December 2016*2 | 48 | 125 | 173 | 12 |
| 2017 | January 2017 to December 2017 | January 2017 to December 2017 | 49 | 125 | 174 | 9 |
| 2018 | January 2018 to December 2018 | January 2018 to December 2018 | 49 | 124 | 173 | 8 |
| 2019 | January 2019 to December 2019 | January 2019 to December 2019 | 49 | 126 | 175 | 8 |
| 2020 | January 2020 to December 2020 | January 2020 to December 2020 | 45 | 128 | 173 | 8 |
| 2021 | January 2021 to December 2021 | January 2021 to December 2021 | 45 | 130 | 175 | 8 |
| 2022*5 | January 2022 to December 2022 | January 2022 to December 2022 | 45 | 155 | 200 | 9 |

*1 Although the accounting period of FY2015 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 withdrawal, VOC emissions, amount of PRTR-designated substances released and transferred) for FY2015 are the total consolidated sales from April 2015 to March 2016.
*2 For FY2016, 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 FY2016) and four major non-production sites (accounting for over 90% of the employees of non-production sites of the GP Group in FY2015) is estimated. Data of the amount of chemical substances (VOC) handled and VOC emissions is excluded from the calculation. From FY2017, the data for all of the GP Group sites is calculated based on results.
*3 The coverage of consolidated subsidiaries is 100% for each year.
*4 Part of the affiliated companies accounted for under the equity method are covered by the data.
*5 In FY2022, the environmental data for the companies acquired is collected since the acquisition months, ROC S.r.l. from January, Escorts Kubota Ltd. (EKL) and Pulverizadores Fede, S.L.U. from April, Kubota Gianni Ferrari S.r.l. from August, and Kubota Brabender Technologies GmbH from October, respectively. EKL data has been estimated for its 49 non-production sites, with the exception of the seven production sites and two primary non-production sites.

## 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]<br>Energy consumption does not include electricity from cogeneration and solar power generation (generated and consumed on site).<br>• Per-unit heat value is determined in accordance with the Enforcement Regulation for the Act on Rationalizing Energy Use, Japan.<br>However, for purchased electricity (from renewable energy) a heat conversion coefficient of 3.6 GJ/MWh is used. |
| $CO_2$ emissions (tons $CO_2$e) | • $CO_2$ emissions = $CO_2$ emissions from energy sources + non-energy source greenhouse gas emissions<br>• $CO_2$ 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]<br>• Non-energy source greenhouse gas emissions = $CO_2$ emissions from non-energy sources + non-$CO_2$ greenhouse gas emissions<br>• Per-unit heat value is determined in accordance with the Enforcement Regulation for the Act on Rationalizing Energy Use, Japan.<br>• $CO_2$ emission coefficients<br><br>[FY2014 to FY2015]<br><Fuel><br>Based on the Manual for Calculation and Report of Greenhouse Gas Emissions (the Japanese Ministry of the Environment and Ministry of Economy, Trade and Industry)<br><br><Electricity><br>Data for Japan is basic emission coefficients for each electricity utility, and overseas data is according to the GHG emissions from purchased electricity (GHG Protocol).<br><br>[FY2016 to FY2022]<br><Fuel><br>Based on the greenhouse gas emissions accounting and reporting manual issued by the Japanese Ministry of the Environment and Ministry of Economy, Trade and Industry.<br><br><Electricity><br>• Data for Japan is from basic emission coefficients (effective emission coefficients) for each electricity utility<br>• Overseas data is according to emission coefficients for each electricity utility, $CO_2$ Emissions from Fuel Combustion (IEA) or Emission Factors (IEA) and The Emissions & Generation Resource Integrated Database (eGRID) (EPA).<br><br>• 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) |
| 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]<br>• Calculation method is from "Energy Conservation Laws: Guide to Promoting Shipper's Energy Saving, 6th Edition" (Agency for Natural Resources and Energy, Japanese Ministry of Economy, Trade and Industry)<br>• In addition to the data for Japan for the Company's own shipments excluding procurement and transportation, energy use associated with the overseas shipping of certain products from Japan has been included from FY2018. |
| 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]<br>• Products: agricultural machinery (tractors, rice transplanters, combine harvesters), riding mowers, utility vehicles, construction machinery (compact excavators, etc.), engines (external sales)<br>• Calculated by assuming the fuel consumption per hour, annual hours of use, and years of service life for each product.<br>• 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) |
| Ratio of renewable energy usage (%) | • Ratio of renewable energy usage (%) = amount of electricity consumption from renewable energy / (amount of electricity consumption from renewable energy + amount of purchased electricity (derived from fossil fuels))<br>• Amount of electricity consumption from renewable energy = amount of solar power generation (generated and consumed on site) + amount of purchased electricity (from renewable energy)<br>• The amount of electricity consumption from renewable energy is the amount of electricity consumed that was generated by solar power and hydro power, etc. |





## Energy and $CO_2$-related

| Indicator (unit) | Calculation method |
|---|---|
| Scope 3 emissions (tons $CO_2$e) | • The calculation method is based on the 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 and the Emissions per Unit Database for the Purpose of Calculating the Greenhouse Gas and Other Emissions of Organizations throughout the Supply Chain (Ver.3.2) |
| Category 1<br>Resource extraction, manufacture and transportation related to purchased goods/services | • Σ [Production volume × $CO_2$ emissions per unit]<br>• Products: Agricultural machinery (tractors, rice transplanters, combine harvesters), riding mowers, utility vehicles, construction machinery (compact excavators, etc.), engines (external sales), ductile iron pipes, plastic pipes, pumps, air-conditioners, *Johkasou*<br>• Production volume: Number of units shipped for agricultural machinery, riding mowers, utility vehicles, construction machinery, engines, pumps, air-conditioners, and *Johkasou*. Production weight for ductile iron pipes and plastic pipes.<br>• $CO_2$ emissions per unit: Estimated from the $CO_2$ emissions per unit of production of the product<br>$CO_2$ emissions per unit have been adjusted for each product in FY2022 in order to improve accuracy. |
| Category 2<br>Manufacture and transportation of capital goods such as purchased equipment | • Equipment investment amount × $CO_2$ emissions per unit |
| Category 3<br>Resource extraction, manufacture and transportation related to purchased fuels/ energy | • Σ[Purchased electricity and fuel consumed at business sites × $CO_2$ emissions per unit]<br>• $CO_2$ emission units are based on the LCI database IDEA version 2.3 (Research Laboratory for IDEA, Research Institute of Science for Safety and Sustainability, National Institute of Advanced Industrial Science and Technology, and Sustainable Management Promotion Organization) |
| Category 4<br>Upstream transportation and distribution | • [$CO_2$ emissions associated with procurement and transportation] = Procurement amount × $CO_2$ emissions per unit known to Kubota<br>• [$CO_2$ emissions associated with product transportation] = 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]<br>• 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)<br>• In addition to the data for Japan, $CO_2$ emissions associated with the overseas shipping of certain products from Japan has been included. Target products: Agricultural machinery (tractors, rice transplanters, combine harvesters), riding mowers, utility vehicles, construction machinery (compact excavators, etc.), engines<br>• The scope of calculation includes $CO_2$ emissions associated with Kubota's transportation of waste.<br>• $CO_2$ emissions from the procurement and transportation of some parts has been included from FY2021. Machinery production sites are subject to inclusion. |
| Category 5<br>Disposal of wastes discharged from business sites | • Σ [Amount of waste discharge by type × $CO_2$ emissions per unit]<br>• The amount of waste discharge by type excludes the amount of waste discharge whose classification by type is unknown |
| Category 6<br>Employee business travels | • Σ [Transportation expenses paid by method of transport × $CO_2$ emissions per unit]<br>• Transportation expenses paid by method of transport are for airline tickets and railway tickets.<br>• For a part of the overseas subsidiaries, 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. |
| Category 7<br>Employee commuting | • Σ [Transportation expenses paid by method of transport × $CO_2$ emissions per unit]<br>• The amount of transportation expenses is for the amount paid for railway tickets and car travel.<br>• $CO_2$ emissions from overseas subsidiaries have been included in addition to the data for Japan. For overseas subsidiaries, the data is partially estimated by multiplying the ratios of transportation expenses for each means of transportation among the number of employees at major subsidiaries by the number of employees at each subsidiary. |
| Category 9<br>Downstream Transportation and Distribution | • Amount of customer goods sold × $CO_2$ emissions per unit known to Kubota. Cast iron products transported by customers as the consigner are subject to inclusion. |
| Category 10<br>Processing of intermediate products | • Σ [Sales volume of intermediate products × $CO_2$ emissions per unit]<br>• Intermediate products: Engines (external sales only)<br>• $CO_2$ emissions per unit: $CO_2$ emissions per unit at Kubota Group's processing plants from FY2016-2020 |
| Category 11<br>Use of products sold | • Σ [Volume of products shipped × $CO_2$ emissions per unit]<br>• Products: Agricultural machinery (tractors, rice transplanters, combine harvesters), riding mowers, utility vehicles, construction machinery (compact excavators, etc.), engines (external sales), ductile iron pipes, plastic pipes, pumps, air-conditioners, *Johkasou*, plant equipment<br>• Shipment volume: Number of units shipped for agricultural machinery, riding mowers, utility vehicles, construction machinery, engines, pumps, air-conditioners, *Johkasou*, and plant equipment. Production weight for ductile iron pipes and plastic pipes.<br>• $CO_2$ 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<br>(calculated by assuming the fuel consumption per hour, annual hours of use, and years of service life for each product)<br>$CO_2$ emissions per unit have been adjusted for each product in FY2022 in order to improve accuracy.<br>• 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) |
| Category 12<br>End-of-life treatment of sold products | • Σ [Volume of products shipped × $CO_2$ emissions per unit]<br>• Products: Agricultural machinery (tractors, rice transplanters, combine harvesters), riding mowers, utility vehicles, construction machinery (compact excavators, etc.), engines (external sales), ductile iron pipes, plastic pipes, pumps, air-conditioners, *Johkasou*<br>• Shipment volume: Number of units shipped for agricultural machinery, riding mowers, utility vehicles, construction machinery, engines, pumps, air-conditioners, and *Johkasou*. Production weight for ductile iron pipes and plastic pipes.<br>• $CO_2$ emissions per unit: estimated $CO_2$ emissions per unit of product |

### Waste-related

| Indicator (unit) | Calculation method |
|---|---|
| In-house recycling and reuse (tons) | • The amount of resources that are reused or recycled in-house at each Kubota Group business site, and the amount of resources transferred for the purpose of reuse and recycling among Kubota Group business sites |
| Amount of waste, etc., discharge (tons) | • Amount of waste, etc., discharge = sales amount of valuable resources + amount of waste discharge |
| Amount of valuable resources sold (tons) | • The amount of unneeded resources generated within the Kubota Group that are sold outside the Group |
| Amount of waste discharge (tons) | • Amount of waste discharge = Amount of industrial waste discharge + Amount of general waste discharge from business activities |
| Hazardous waste (tons) | • In Japan, specially controlled industrial waste as defined in the Waste Management and Public Cleansing Law; Overseas, waste that is defined as hazardous in each country or region |
| Amount of resource recycling (tons)<br>Amount of volume reduction (tons)<br>Amount of landfill disposal (tons) | • Amount of resource recycling = Amount of waste directly recycled + Amount of resource recycling after external intermediate treatment<br>• Amount of volume reduction = Volume of external intermediate treatment – Amount of resource recycling after external intermediate treatment – Final landfill following external intermediate treatment<br>• Amount of landfill disposal = Direct landfill disposal + Final landfill disposal following external intermediate treatment<br>• Amount of resource recycling after external intermediate treatment includes heat recovery<br>• Amount of resource recycling after external intermediate treatment, amount of final landfill disposal, and 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<br>• External recycling amount includes heat recovery |

### Water-related

| Indicator (unit) | Calculation method |
|---|---|
| Water withdrawal ($m^3$) | • Water withdrawal = surface water + groundwater + seawater + produced water + third-party water (city water)<br>• Water withdrawal from water-stressed regions applies to production sites with a “high” level of water stress<br>• Third-party water (city water) includes service water and water for industrial use |
| Water discharge ($m^3$) | • Water discharge = surface water + groundwater + seawater + third-party water (sewage)<br>• Water 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) |
| Rate of recycled water (%) | • Rate of recycled water = Amount of recycled water / (Water withdrawal + Amount of recycled water) × 100 |
| COD (tons)<br>Nitrogen discharge (tons)<br>Phosphorus discharge (tons) | • COD = COD per unit water discharge amount × water discharge to public water areas<br>• Nitrogen discharge = nitrogen concentration × water discharge to public water areas<br>• Phosphorous discharge = Phosphorous concentration × water discharge to public water areas<br>• 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).<br>• 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<br>• Amount transferred = amount discharged to sewerage + amount transferred out of the business site as waste<br>• The amount of each substance released and transferred is calculated in accordance with the Manual for PRTR Release Estimation Methods Ver. 4.2 (March 2018) of Japan’s Ministry of the Environment and the Ministry of Economy, Trade and Industry, and the Manual for PRTR Release Estimation Methods in the Steel Industry Ver. 13 (March 2014) of the Japan Iron and Steel Federation. |
| Amount of chemical substances (VOC) handled (tons) | • The total amount handled at each site 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)<br>NOx emissions (tons)<br>Soot and dust emissions (tons) | • SOx emissions = Amount of fuel consumed (kg) × sulfur content in the fuel × (1 – desulfurization efficiency) × 64/32<br>or SOx emissions = {(amount of coke consumed × sulfur content in coke) - (amount of molten metal × sulfur content in molten metal) – (volume of slag, dust, etc. × sulfur content in slag, dust, etc.)} × 64/32<br>or SOx emissions = SOx concentration × amount of gas emitted per hour × annual operation hours of the relevant facility<br>• NOx emissions = NOx concentration × amount of gas emitted per hour × annual operation hours of the relevant facility<br>• Soot and dust emissions = soot and dust concentration × amount of gas emitted per hour × annual operation hours of the relevant facility<br>• Japan: Facilities that generate soot and smoke and are regulated by the Air Pollution Control Act.<br>Overseas: [2018 to 2021]<br>• Facilities subjected to measurement requirements under local laws and regulations where business sites are located.<br>[2022]<br>• Facilities subjected to measurement requirements under local laws and regulations where business sites are located for SOx, NOx, and soot and dust generated from the use of fuel, the incineration of other matter, or electricity as a heat source. |

### 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 = Σ {production volume of target products at each production site × usage ratio of recycled materials at each production site} / total production weight of target products<br>• Usage ratio of recycled materials at each production site = Amount of recycled materials input in the melting process at each production site / total material input amount of materials at each production site × 100<br>• Target products: Cast metal products and parts manufactured by the Kubota Group (such as ductile iron pipes, fittings, machine cast products (engine crankcase, etc.))<br>• The amount of recycled materials input and the total material input amount does not include the indirect materials that are not the constituent materials of the casting products and parts.<br>• The amount of recycled materials input does not include the amount of reusage of defective processed products and offcuts, etc., that arise in the manufacturing process on the site. |

# Third-Party Assurance of Environmental Report

Since 2004, the Kubota Group has received third-party assurance for the purpose of improving the reliability and comprehensiveness of its environmental data. Information that is marked with a symbol indicates that the information has been assessed by a third party. Based on the third-party assurance obtained this reporting year, the Kubota Group ESG Report 2023 received the J-SUS Symbol of the Japanese Association of Assurance Organizations for Sustainability Information (J-SUS). This symbol indicates that an assurance was undertaken by an assurance body certified by J-SUS regarding the reliability of the environmental data presented in the report.

Deloitte.
デロイト トーマツ

Independent Practitioner's Assurance Report

To the President and Representative Director of Kubota Corporation

We have undertaken a limited assurance engagement of the environmental information indicated with for the year ended December 31, 2022 (the "Environmental Information") included in the "Kubota Group ESG REPORT 2023" (the "Report") of Kubota Corporation (the "Company").

The Company's Responsibility
The Company is responsible for the preparation of the Environmental Information in accordance with the calculation and reporting standard adopted by the Company (the Report P.88-92). Greenhouse gas quantification is subject to inherent uncertainty for reasons such as incomplete scientific knowledge used to determine emissions factors and numerical data needed to combine emissions of different gases.

Our Independence and Quality Control
We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior. We apply International Standard on Quality Control 1, *Quality Control for Firms that Perform Audits and Reviews of Financial Statements, and Other Assurance and Related Services Engagements*, and accordingly 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.

Our Responsibility
Our responsibility is to express a limited assurance conclusion on the Environmental Information based on the procedures we have performed and the evidence we have obtained. We conducted our limited assurance engagement in accordance with the International Standard on Assurance Engagements ("ISAE") 3000, *Assurance Engagements Other than Audits or Reviews of Historical Financial Information*, issued by the International Auditing and Assurance Standards Board ("IAASB"), ISAE 3410, *Assurance Engagements on Greenhouse Gas Statements*, issued by the IAASB and *the Practical Guideline for the Assurance of Sustainability Information*, issued by the Japanese Association of Assurance Organizations for Sustainability Information.
The procedures we performed were based on our professional judgment and included inquiries, observation of processes performed, inspection of documents, analytical procedures, evaluating the appropriateness of quantification methods and reporting policies, and agreeing or reconciling with underlying records. These procedures also included the following:

- Evaluating whether the Company's methods for estimates are appropriate and had been consistently applied. However, our procedures did not include testing the data on which the estimates are based or reperforming the estimates.
- Undertaking site visits to assess the completeness of the data, data collection methods, source data and relevant assumptions applicable to the sites.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had we performed a reasonable assurance engagement.

Limited Assurance Conclusion
Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the Environmental Information is not prepared, in all material respects, in accordance with the calculation and reporting standard adopted by the Company.

Deloitte Tohmatsu Sustainability Co. Ltd.

Deloitte Tohmatsu Sustainability Co., Ltd.
Tokyo, Japan
June 13, 2023

Member of
**Deloitte Touche Tohmatsu Limited**





## Factory Visit

Kubota Tsukuba Plant

## J-SUS Symbol

This symbol indicates that an assurance was undertaken by an assurance body certified by J-SUS regarding the reliability of the environmental data presented in the Kubota Group ESG Report 2023.

J-SUS

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