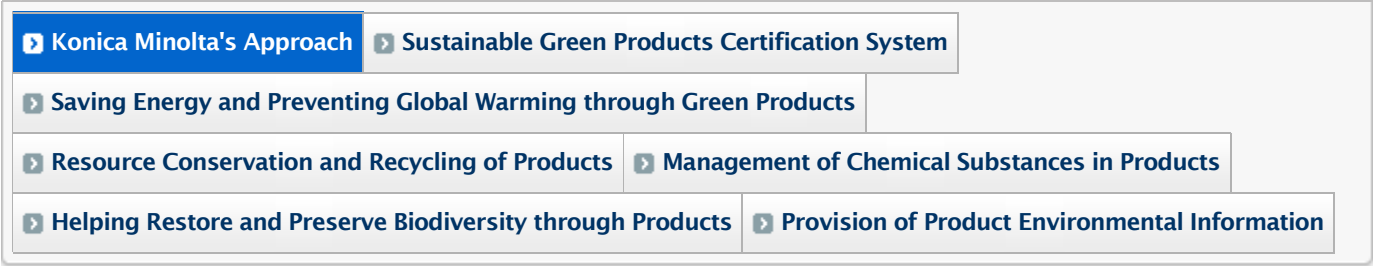


Konica Minolta's Approach



Background and Issues

Given the widespread concern about environmental and social challenges such as climate change and economic disparity faced by the world today, the value that people seek is shifting from material wealth to improving the quality of society. By understanding the evolving values of society and contributing solutions, Konica Minolta is able to continue to provide competitive solutions that enhance its profitability.



Vision

While working to provide solutions that help solve challenges faced by customers and society as a whole, Konica Minolta also aims to encourage the widespread adoption of these solutions by widely promoting their value. Through initiatives like these, while helping to realize the Sustainable Development Goals (SDGs), Konica Minolta strives to help build a sustainable society, earn social confidence, and achieve sustainable growth alongside the broader society as a company of choice.



Key Measures and KPIs

Creating Sustainable Solutions (SS) sought by customers and society (fiscal 2020—fiscal 2022)

- Create Sustainable Solutions and increase their sales ratio
- Enhance contribution toward Carbon Minus status



Sustainable Green Products Certification System



Outline of the Certification System



Konica Minolta introduced its original Green Products Certification System in fiscal 2011 to drive the creation of environmental value that matches business and product characteristics. The goal is to reduce the environmental impact of customers and society, while also raising profitability. The company has developed many Green Products since the program's launch.

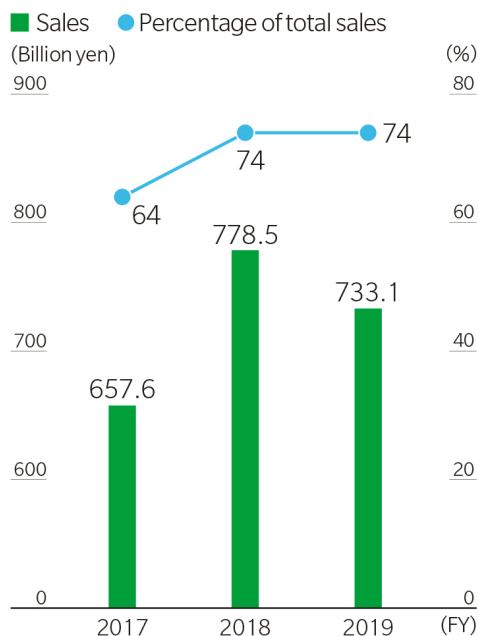
In fiscal 2017, Konica Minolta began combining optical, image processing, measurement, and other technologies with its strengths in digital technology to create products and services that can help provide solutions to environmental and social challenges based on the SDGs.

Konica Minolta also launched a Sustainable Green Products Certification System.

Fiscal 2019 Activity Results

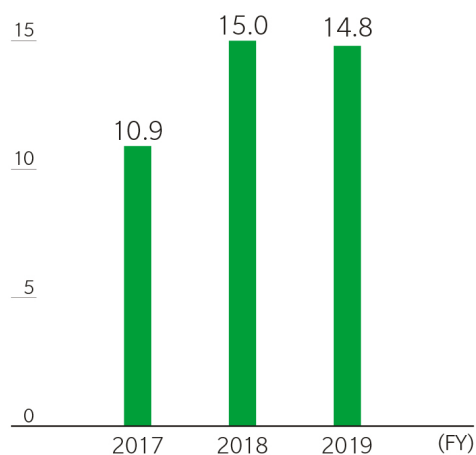
In fiscal 2019, Konica Minolta aimed to increase the sales of certified products to 770 billion yen, equivalent to 70% of the total sales of the Group. It placed 14 new models of certified Sustainable Green Products on the market, bringing the total to 394. Sales of Sustainable Green Products in fiscal 2019 came to 733.1 billion yen, or 74% of the Group's total sales. Due to improved environmental performance, these Sustainable Green Products also had a CO2 emissions reduction effect during product use of 14.8 thousand tons and represented 12.4 thousand tons of effectively used resources.

Sustainable Green Product Sales



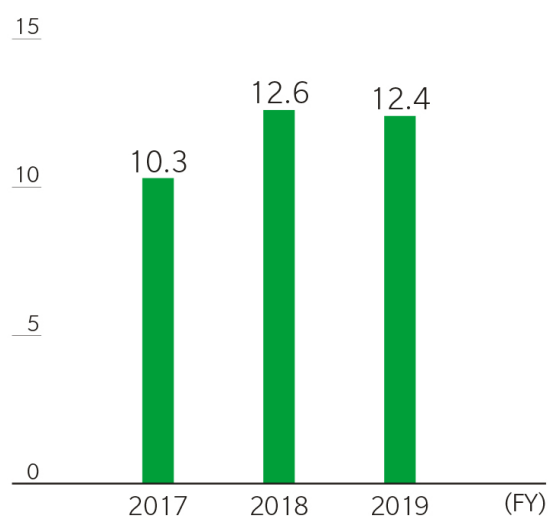
CO₂ Emissions Reduction Effect During Product Use

(Thousand tons)
20



Effective Resource Utilization

(Thousand tons)
20



▶ Konica Minolta's Approach | ▶ **Sustainable Green Products Certification System**

| ▶ Saving Energy and Preventing Global Warming through Green Products

| ▶ Resource Conservation and Recycling of Products | ▶ Management of Chemical Substances in Products

| ▶ Helping Restore and Preserve Biodiversity through Products | ▶ Provision of Product Environmental Information

Saving Energy and Preventing Global Warming through Green Products

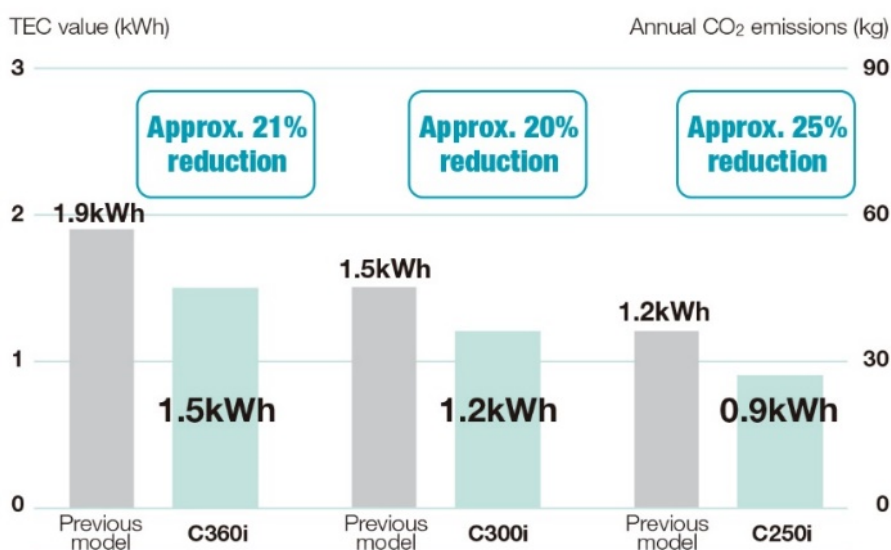
▶ Konica Minolta's Approach	▶ Sustainable Green Products Certification System
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Energy Savings of Office Equipment

Reduction of Power Consumption During Product Use

Konica Minolta is working on the development of low-temperature fixing toner and efficient fixing systems to help save power. The bizhub C360i series released in 2019 offers standard power consumption (TEC value) for one week that is approximately 20% to 26% less than the previous model. By reducing the TEC value, CO₂ emissions are also greatly reduced.

Comparison of TEC values between a previous model and the bizhub C360i series



Simitri V Toner Fixable at a Low Temperature

In MFPs, heat is needed to fix toner to paper, and the power used for that purpose accounts for more than 60% of total power consumption. Konica Minolta has been conducting research and development into toners that can be fixed at lower temperatures, and has developed Simitri V Toner, a proprietary polymerized toner. The company successfully reduced the fixing temperature by about 15 degrees Celsius compared to a previous MFP model (C368). This, combined with a new fixing device, is helping to reduce MFP power consumption. Moreover, Simitri V Toner requires approximately 25% less water to manufacture compared to a previous polymerized toner.

Pad Pressure Fixing System Reduces Power Consumption for Printing

In order to start printing from an MFP, the fixing rollers have to be heated to a certain temperature. Konica Minolta has adopted a pad pressure fixing system for its latest i-Series MFPs in order to efficiently utilize Simitri V Toner, the company's new low-temperature fixing toner. With this new fixing system, the belt and rollers have been reduced in diameter and insulated, thereby substantially cutting the power needed for heating the fixing device during MFP operation.

LED Light Source Reduces Power Consumption During Scanning

Konica Minolta uses LED, which has greater power-saving performance than fluorescent lamps, as the light source for scanners in its MFPs. This has also improved scanning speeds, since LED lights increase the brightness of manuscript exposure.

“Power Save” Feature Reduces Power Consumption When Product Not in Use

Konica Minolta equips its MFPs with a “power save” feature that puts the machine into an energy-saving state, such as automatically turning off the control panel display when the machine has not been used for a certain amount of time. This does not hinder everyday work, since the machine automatically returns to normal mode during power save when it receives a fax or a print signal from a PC.

Proximity Sensor That Can Save Electricity Without Lowering Operational Efficiency

Konica Minolta equips its MFPs with a proximity sensor that automatically returns the machine to normal mode from sleep mode just by bringing a finger close to the control panel. This allows energy savings without lowering operational efficiency, as no time needs to be spent pressing buttons to bring the machine out of sleep mode.



Energy-saving Designs That Power Only the Areas Needed

Konica Minolta minimizes power consumption through energy-saving designs that enable power supply only to areas needed for each function—for example, not starting up the printer control panel when printing from sleep mode or not turning on the toner fixing heater when using the scanner or fax..

“Print Preview” to Reduce Misprints

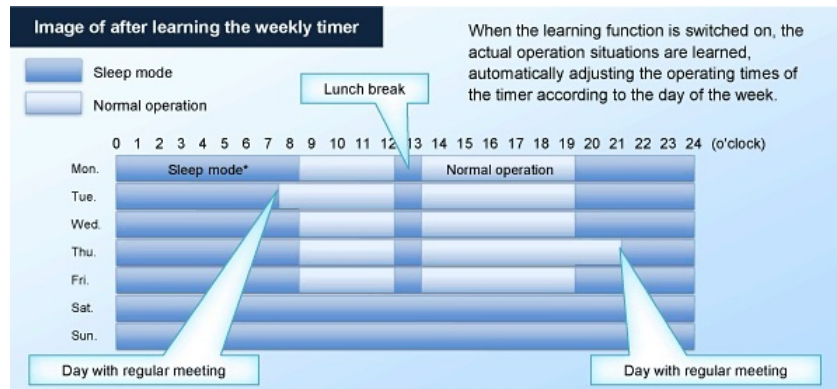
Misprints can be prevented, as it is possible to preview the finished document on the machine’s LCD screen before printing. This saves paper and also reduces wasteful power consumption.



Preview screen

Weekly Timer with a Learning Function

A weekly timer that automatically switches between normal mode and power-saving mode at pre-set times enables efficient electricity savings according to office use, such as at lunchtime, at night, and days off. The machines are also equipped with a learning function that automatically makes corrections when there is a difference between timer settings and actual usage, based on usage data for a four-week period. This enables operational management with greater energy-savings effects.



Eco Dashboard Increases Users' Environmental Awareness

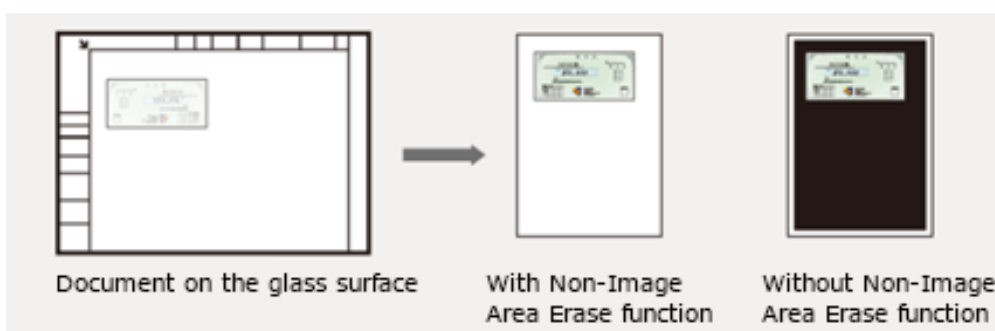
Graphs showing environmental contribution are displayed to increase users' environmental awareness. Reductions for different indicators, such as power consumption and use of toner and paper are displayed on the control panel and can be checked by department and user.



* The above feature is not available on all models.

Non-Image Area Erase function" Saves Toner

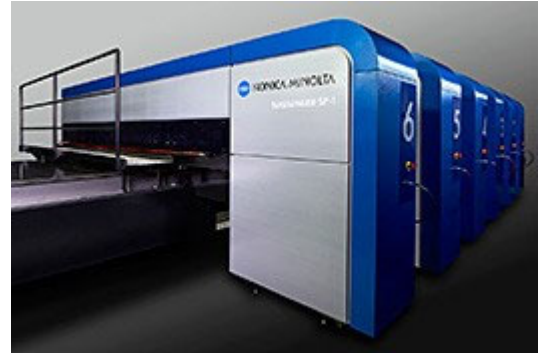
When copying a page from a thick book, the lid often needs to remain open, creating a black area around the document. With this function however, the printed page is automatically detected and the surrounding dark area is eliminated. This reduces unnecessary toner use.



Industrial Inkjets Contributing to Energy Savings in the Textile Printing Process

Textile Printer Reducing Electricity Usage through On-demand Production

The inkjet textile printer does not require the plate making and colored size mixing that is needed with conventional screen-printing. It also contributes to the reduction of energy usage, resources usage, and waste, since it enables on-demand production that uses only the amount of ink and material needed. It reduces environmental impact significantly, with a 57% reduction in electricity usage compared to conventional screen-printing. In addition, it helps save energy for operations such as air conditioning and lighting by increasing customers' production efficiency.



Nassenger SP-1 inkjet textile printer

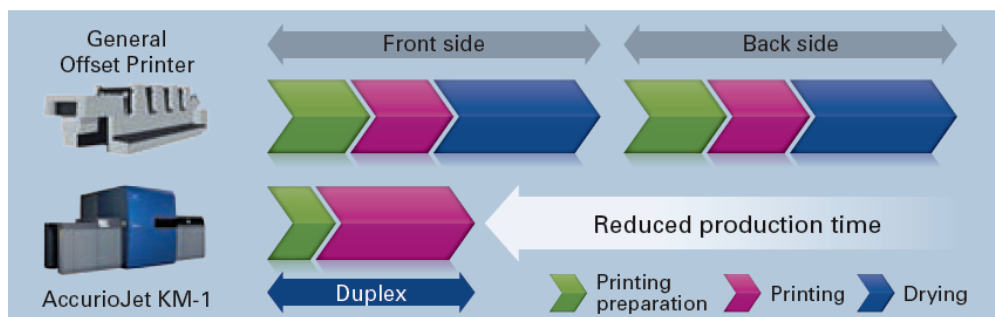
UV Inkjet Digital Printing Machine That Helps Save Energy During Printing

UV Inkjet Digital Printing Machine That Reduces Power Consumption by Realizing Automatic Duplex Printing without Drying Time

The UV inkjet digital printer, AccurioJet KM-1, offers high productivity. With newly developed UV inkjet ink, it can be used for various printing media that were difficult to accommodate with a conventional B2 digital printer and water-based inkjet ink. The AccurioJet KM-1 enables automatic duplex, high-quality printing. Unlike general offset printing, a printing plate is not required. Precise inkjet output control eliminates the need for color matching between devices, which is necessary when using multiple digital printers. This results in a significant reduction in printing preparation time.



UV inkjet digital printer, AccurioJet KM-1



Planetarium Projector Contributes to Energy Conservation

Planetarium Projector Reduces Energy Consumption by Using LED Light Sources

Konica Minolta's Cosmo Leap Σ is an optical planetarium projector for medium-sized domes. The new projector provides bright stars shining with an energy-efficient and compact design almost equivalent to the Infinium Σ , an optical planetarium developed to showcase the beauty of bright stars shining in the night sky.

By using ultra bright LEDs with optical technology, the stellar images projected on the screen are about 2.5-fold brighter than with the conventional model, but power consumption has been reduced by almost half.



Cosmo Leap Σ

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Resource Conservation and Recycling of Products

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Upgraded Recycling That Increases the Value of Materials (Application of Recycled Materials)

Konica Minolta views plastic as one of the high-risk materials due to the fact that its raw material, petroleum, is a finite natural resource, and because ocean plastic pollution has become a major public concern. In order to use post-consumer recycled plastic (PCR) for MFP parts, which require a high degree of functionality, Konica Minolta is actively working on technology development to produce upgraded recycled plastic and is expanding recycled plastic use in many products.

Recycling Used PET Bottles and PC Gallon Bottles into an Outer Casing Material for MFPs

Konica Minolta has been striving to develop innovative technologies to recycle various kinds of plastic. In addition to transforming PET and PC plastic from beverage bottles and gallon jugs into exterior materials for MFPs, the company is also recycling ABS resin recovered from used game machines into inner casing materials. The company has developed technologies that ensure that the recycled plastic components have the necessary strength, flame resistance and molding usability. Now, it has taken its chemical processing technology even further. For MFP products launched in fiscal 2019, the percentage of PCR* was raised to about 70% for PC/PET plastic in exterior materials and to about 95% for ABS plastic in inner casing materials. As a result, the use of recycled materials has increased to about 25% for total resin content by weight in the MFP main body.

* Percentage of post-consumer recycling (PCR): The percentage of material collected from the market that is used in recycled raw materials.



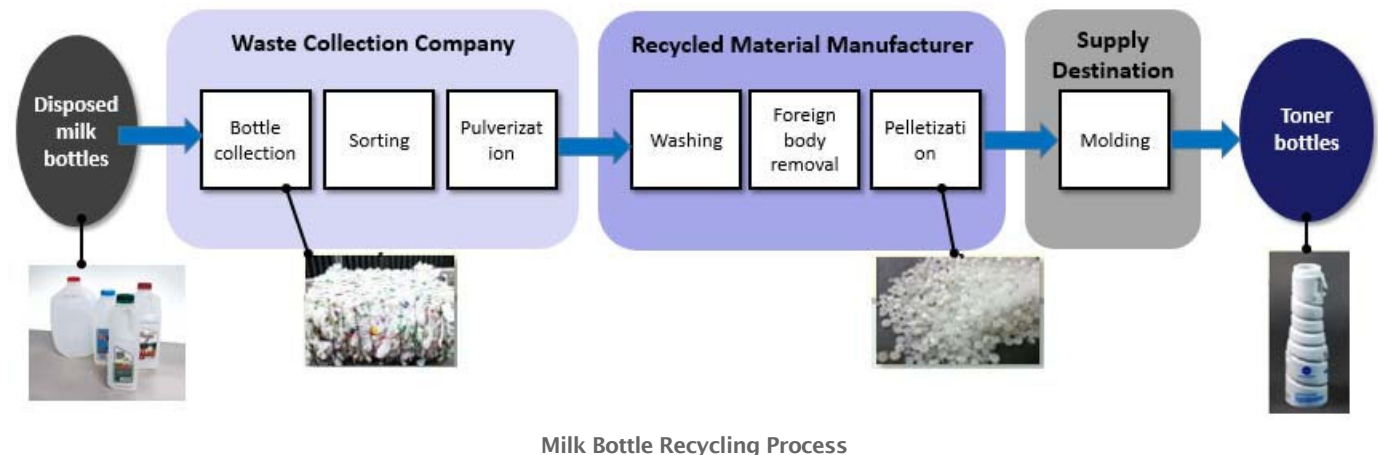
Bizhub C360i series using recycled PC/PET

Recycling Used Milk Bottles into Toner Bottles

Konica Minolta recycles milk containers made from polyethylene and turns them into toner bottles for MFPs. It developed washing technology that removes the smell of milk and minute cells that would lead to quality degradation and established a mass production system in Mexico and Malaysia. The company has succeeded in raising the percentage of PCR in the raw material used for toner containers to 40% and intends to increase it to 100% in the future.



Toner bottles made from recycled material



Milk Bottle Recycling Process

Making Office Equipment Smaller and Lighter

Making products smaller and lighter contributes greatly to reducing raw materials use and energy consumption during production as well as environmental impact during disposal. Through technical development leveraging its core technologies, Konica Minolta is working at reducing the size and weight of its office equipment while increasing their performance. It is also actively pursuing the development of new products with low environmental impact.

Example of a product with compact design launched in fiscal 2019

Space-saving A4 color MFP designed with a small footprint
(420 mm wide and 528 mm deep)



bizhub C4050i

Longer Product Life for Office Equipment

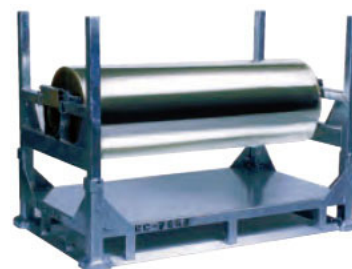
The process unit required for Electrophotographic image forming for MFP has a limited lifespan and sometimes needs to be replaced. Konica Minolta has been working to extend the life of MFP drum units, which is particularly short. With the i-Series it has achieved a 20% longer lifespan compared to a previous model (C368). In addition, by also installing a mechanism to predict when the unit is likely to wear out, the customer can now replace the unit at the optimal point and avoid any image defects.

Conserving Resources with Functional Materials

Making Thinner TAC Films to Protect Liquid Crystal Polarizers

Konica Minolta has drawn on its strengths in film making technology to make increasingly thin TAC film, which protects polarizers in liquid crystal displays. This not only reduces the weight of IT products such as note PCs and smartphones, it also reduces the materials used, thereby contributing to resource conservation.

* TAC: Abbreviation for the substance triacetylcellulose



TAC film

Dramatically Improving Productivity of Polarizer Manufacturers with Obliquely Oriented QWP Film

Utilizing its proprietary optical design technology and the optical properties of cellulosic materials, Konica Minolta has developed obliquely oriented QWP film, which allows users to see the exact colors of images on display even through polarized sunglasses. Furthermore, the oblique orientation of the optical axis eliminates the necessity of cutting the film into sheets and bonding them obliquely in the production process of polarizers. This enables roll-to-roll production of polarizers, thereby helping polarizer manufacturers to drastically increase productivity. Besides enhancing display visibility when viewed through polarized sunglasses, a piece of QWP film also serves as a polarizer protection film, thus contributing to reducing the thickness of displays and the number of parts required for their production.



The image of the “Display with PET film” is an example of how an image can appear when PET (polyethylene terephthalate) film is applied on a display in place of QWP film.

Making Healthcare Products Lighter

Cassette Digital Radiography Systems

The AeroDR series of cassette digital radiography systems is compact, light, and easy to carry around. These products are contributing to the spread of digital radiography (DR), which reduces patients’ exposure to X-rays compared to film radiography and enables the immediate display of high-precision images. As use increased, so did demand for even lighter models.

Accordingly, in December 2016, Konica Minolta launched the AeroDR fine, which, at 2.6 kg, is among the lightest wireless DR detectors.* The grip was improved so that the panel can be easily held with one hand, and the portable DR is now easier to carry around.

* As of November 28, 2016, among 14x17 inch wireless portable DRs.



AeroDR fine

Diagnostic Ultrasound Systems

The SONIMAGE HS1, launched in 2014, has a large market share in orthopedics and is highly regarded in the field of anesthesiology as well, thanks to its superior quality images featuring clear delineation of muscle, tendon, and nerve bundle, and its operability.

The SONIMAGE MX1, released in March 2018, inherits the technology of the HS1, and also features new technology. It is 4.5 kilograms, 43% lighter than the conventional model. *

* Conventional model: SONIMAGE HS1



SONIMAGE MX1

Industrial Inkjet Printers Helping Reduce Use of Natural Resources in Textile Printing Process

Inkjet Textile Printer Reducing Use of Water Resources

The inkjet textile printer does not require the plate making and colored size mixing that is needed with conventional screen-printing. It also contributes to the reduction of resources usage and waste, since it enables on-demand production that uses only the amount of ink and material needed. Compared to conventional screen-printing, it reduces environmental impact significantly, with a 97% reduction in sizing usage, and a 62% reduction in water resources usage.



Nassenger SP-1 inkjet textile printer

Inkjet Press That Saves Resources During Printing

UV Inkjet Press

Rising environmental awareness is driving demands for the field of commercial and industrial printing to break away from conventional methods where large amounts are printed and surplus is discarded. In the world of marketing, meanwhile, labels and packages for each event are being produced in small lots, and product/marketing strategies targeting individual consumers, such as including specific people's names, is gaining ground.

Konica Minolta's digital inkjet printer AccurioJet KM-1 produces high image quality comparable to that of conventional offset printing and can handle a wide range of printing papers. It enables production of printed matter in just the quantity needed, at the time needed, to suit the customer's exact needs. This, in turn, reduces environmental impact by minimizing waste. This solution also helps to reduce the labor-hours needed in the printing process due to its user-friendly operability, even for unskilled workers.



UV inkjet digital printer, AccurioJet KM-1

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Management of Chemical Substances in Products

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Management of Chemical Substances Contained in Products

Konica Minolta manufactures and sells office equipment such as digital MFPs and printers, industrial printers, and chemical products such as toner and ink, which are consumables for the aforementioned products, as well as medical devices, measuring instruments, optical components, and performance materials. As chemical substances regulations for products have been tightened around the world, the Group has not only ensured its compliance with the law but also has established internal standards that ensure the environmental performance and safety of products, thereby practicing the appropriate management of chemical substances so that it can grow its business in these diverse products globally.

Compliance with the RoHS Directive*1

Since the European RoHS Directive, which restricts the amount of specified hazardous substances that can be contained in products, came into effect in 2006, voices calling for compliance with the directive have spread to regions other than Europe. The scope of the directive has also been expanded step by step, with medical devices and control and monitoring devices becoming subject to the directive in 2014.

Konica Minolta has managed chemical substances based on the RoHS Directive since the directive first came into effect. In 2011, with the revisions made to the Directive, the Group reviewed its system for the management of chemical substances and made a declaration of conformity with the revised standards.

The RoHS Directive has become stricter due to revisions such as the addition of specific phthalates to restricted substances and the expiry of exemptions. Konica Minolta has already complied with the changes and will continue to grasp the trend of revisions accurately and take systematic steps to remain in compliance.

*1 RoHS Directive: A directive relating to restrictions on the use of specified hazardous substances contained in electrical and electronic devices

Compliance with REACH Regulations*2

European REACH regulations are comprehensive regulations on the management of chemical substances covering registration, evaluation, authorization, and restrictions when using any chemical substances, whether existing or new. The regulations apply to chemical substances included not only in chemical goods, but also various articles (e.g., devices and molded items). Since coming into effect in 2007, they have been put into force in a phased manner.

Konica Minolta systematically registered substances that only have preliminary registration as chemical goods in order to comply with the regulations. Then, it completed registration by the end of the registration period on May 31, 2018. With respect to articles, the company carefully monitors the authorization candidate substances (substances of very high concern [SVHC]) that are periodically added and investigates matters concerning their use as part of the Group's green procurement surveys. The Group properly manages information for articles containing more than 0.1% of a substance and is preparing for database registration of SVHC content information, starting in January 2021.

*2 REACH regulations: Regulation on Registration, Evaluation, Authorization and Restriction of Chemicals

Compliance with IEC 62474

Based on the regulated substances and substance groups that are included in the Declarable Substance List (DSL) of IEC 62474 (Material Declaration for Products of and for the Electrotechnical Industry) created by the International Electrotechnical Commission (IEC), there are standards for prohibited and monitored substances used in equipment products. Konica Minolta's office equipment products do not contain any IEC 62474 Declarable Substances, other than RoHS exempted substances and REACH-SVHC substances.

Prior Check of Substances Contained in Products

In addition to complying with chemical substance regulations in different countries, such as the RoHS Directive and REACH regulations, Konica Minolta has established standards for prohibited and monitored substances used for devices, standards for prohibited and restricted substances used for chemical products, and product safety standards in order to ensure the environmental safety of its products. Based on these standards, the Group verifies the status of parts and raw materials in advance and conducts product assessments right from the development stage, thereby eliminating hazards to the natural environment and people.

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Helping Restore and Preserve Biodiversity through Products

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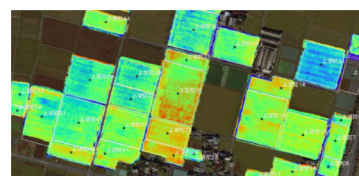
Agricultural Support Solutions Using ICT

Konica Minolta jointly established Farm Eye Co., Ltd. with Yanmar Co., Ltd. in 2017. Konica Minolta operates an agricultural consulting business that provides field sensing and image analysis services for agriculture, diagnosis of crop growth, and proposed improvements for agricultural chemical use at Farm Eye.

With drones collecting data, Konica Minolta's optical technology and unique algorithms are used to analyze the field conditions and visualize the growth of crops. In addition, by linking the analysis data with farm machinery, fertilizer can be applied according to the growth situation. The aim is to stabilize the quality of crops and maximize yield, while contributing to the development of the agricultural industry.



Obtaining aerial views of fields using drones



Visualizing the farming situation using sensing technology



Demonstration experiment in Akita Prefecture: Variable fertilizing eliminates growth differences on the farm, improving yield and quality

Chlorophyll Meters Contributing to the Management of Effects on the Environment from Chemical Fertilizers

The chlorophyll meter developed by Konica Minolta easily measures in a non-destructive manner the amount of chlorophyll in crops such as rice, wheat, and corn without damaging the plants. Periodically measuring the amount of chlorophyll makes it possible to practice appropriate fertilizer management according to the growth situation. In this way, Konica Minolta contributes to the implementation of agriculture that is friendly on the surrounding biodiversity by avoiding the effects of over-fertilization on the ecosystem, including the soil and groundwater.



SPAD-502Plus chlorophyll meter

Evaluating Light Sources Related to Plant Growth

LED and organic EL technologies are attracting attention as next-generation lighting products. LED in particular has spread not only to general lighting, but also to plant-growing facilities.

The Spectrophotometer CL-500A produced by Konica Minolta can help manage lighting in plant-growing facilities. It can also measure photosynthetic photon flux density (PPFD) and the illuminance spectral waveform of light sources, in applications related to plant cultivation.



Spectrophotometer CL-500A

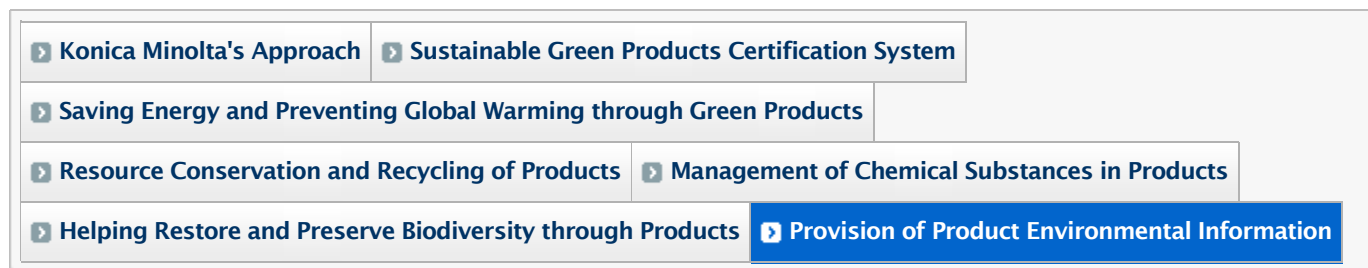
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Provision of Product Environmental Information



Environmental Labels

Actively providing environmental information about products through environmental labels.

Type I Environmental Labels

Type I environmental labelling refers to labels indicating that an independent certification body certifies that a product has a low environmental impact.

Blue Angel Mark

Launched in Germany in 1978 as the world's first environmental labeling system, the Blue Angel Mark is granted to certify products and services that have a small environmental impact. Since receiving the world's first Blue Angel certification in the field of copiers in January 1992, Konica Minolta has continued to receive certification for new products by clearing the certification bar each time it has been raised.



International Energy Star Program

Products that meet certain standards can be registered as Energy Star devices as part of an energy-saving program for OA equipment that was implemented in 1995 through an agreement between the Japanese and U.S. governments. Almost all of Konica Minolta's office equipment meets the latest Energy Star standards. In fiscal 2019, models with International Energy Star Program certification (*including equivalent models sold in the EU and Japan), accounted for 80.3% of sales of Konica Minolta's imaging equipment products.



Eco Mark

The Eco Mark was established by the Japan Environment Association in 1989 as a standard environmental labeling system in Japan. Konica Minolta's basic policy is to obtain Eco Mark certification for all its office equipment.



China Environmental Labelling

This is China's environmental labeling program, introduced by the Chinese government in 1994. Konica Minolta continues to earn this certification for its IT office equipment.



EcoLogo

Established by the Canadian government in 1988, EcoLogo is one of the most widely respected environmental standard and certification systems in North America. Since earning EcoLogo certification for MFPs in the newly established Office Machines category ahead of the competition in 2009, Konica Minolta has been proactive in obtaining certification.



Hong Kong Green Label Scheme

This environmental standard and certification mark is run by the Hong Kong Green Council, a nonprofit organization. To be certified, products are required to meet stringent standards concerning the reduction of harmful substances and consideration for environmental impact throughout the product life cycle. In March 2011, Konica Minolta received certification for three color MFP models, and they became the first MFPs to be certified. Since then, the company has been obtaining certification for its products proactively.



Thai Green Label

Konica Minolta products have been awarded the Thai Green Label operated by the Thailand Environment Institute in the areas of printers (TGL-37-R1-12) and photocopiers (TGL-27-R3-13).

The Thai Green Label was systematized in 1993, and it is a requirement under Thailand's Green Public Procurement as a Type I environmental label based on ISO 14024, which started in August 1994.



Type II Environmental Labels

Type II environmental labeling verifies/certifies the environmental characteristics of a product according to a company's own standards.

Konica Minolta Green Products Certification System

Konica Minolta adopted its Green Products Certification System in fiscal 2011 to evaluate and certify products that have excellent environmental performance. The purpose of the system is to contribute to the reduction of customers' and society's environmental impact by creating environmental value in line with the Group's business and product characteristics, while increasing profits. In fiscal 2017, the company launched a Sustainable Green Products Certification System.



› [Green Products Certification System](#)

Type III Environmental Labels

Type-III environmental labeling provides information on the environmental impact of a product, based on quantitative measurement of environmental impact through the product's entire life cycle, from raw material procurement to production, sales, usage, disposal, and recycling.

Eco Leaf Environmental Label

The Eco Leaf Environmental Label is Type-III environmental labeling, and Konica Minolta has been disclosing environmental impact data concerning its office equipment under this label since 2002, the year when the system was started. Eco Leaf offers a system certification program whereby a third-party institution certifies that a company has mechanisms for the proper and effective gathering of environmental impact data. Konica Minolta has obtained this certification for its copier and printer businesses.



› [Eco Leaf Environmental Label](#)

EPEAT (Electronic Product Environmental Assessment Tool)

EPEAT has been a comprehensive environmental rating that since 2006 helps identify green computers and other electronic equipment. Imaging equipment was added as a new product category in 2013. The EPEAT is managed by the Green Electronics Council, a non-profit organization based in Portland, Oregon. It ranks products as gold, silver or bronze based on 59 environmental performance criteria considering the life cycle of imaging equipment.

In October 2017, Konica Minolta further expanded the scope of its certifications beyond the United States and Australia and acquired Canada's EPEAT certification. Konica Minolta acquired its first "gold" ranking in Australia's imaging equipment category. In fiscal 2019, models with EPEAT certification (*including equivalent models sold in the EU and Japan) accounted for 80.3% of sales of Konica Minolta's imaging equipment products.



› [Information for EPEAT](#)

Products Registered in the Green Purchasing Network

Konica Minolta has registered products that comply with Japan's Green Purchasing Law and the guidelines of the Green Purchasing Network (GPN^{*}) in the GPN's online database of environmentally friendly products, and discloses that information.

* Green Purchasing Network (GPN): A network of companies, governments, and consumers established in February 1996 to promote green purchasing initiatives.

Green Printing Certification

The green printing certification functions as a voluntary environmental standard for the printing industry by the Japan Federation of Printing Industries. Certification is granted to the printing plant and to the materials and equipment purchased by the plant. Konica Minolta has received certification for its products in the dry toner digital printer field of green printing materials and equipment category.

Recyclable Printing Materials

Recyclable Printing Materials are materials that do not interfere with the recycling of printed materials and are certified by the Paper Recycling Promotion Center. The purpose of such certification is to expand the use of waste paper, especially printed and information paper. The certification is also reflected in the determination standards for designated printing procurement items under the Act on Promoting Green Purchasing, overseen by Japan's Ministry of the Environment. Konica Minolta has been certified and registered in the area of recyclable dry toners.

Global Organic Textile Standard (GOTS)

In the past there were many systems certifying that the fibers in textiles were organic. An international working group was formed to unify those systems and create an international standard, and as a result, the Global Organic Textile Standard (GOTS) was established in 2005. GOTS has also established safety standards for things such as the inks used in textiles. In 2014, Konica Minolta applied for registration of reactive dye ink as ink that meets those standards. It became the first ink registered with GOTS by a Japanese manufacturer.

Material Safety Data Sheets (MSDS)/Safety Data Sheets (SDS)

Konica Minolta provides Material Safety Data Sheets (MSDS) with information such as the substances contained in a product and handling precautions in order to facilitate the safe handling of chemical products. MSDS are also called Safety Data Sheets (SDS) to comply with international standards.

Article Information Sheets (AIS)

Konica Minolta provides documents with information such as the substances contained in a product and its handling precautions in order to facilitate the safe handling of articles that are not covered by MSDS, such as printing products.

➤ Konica Minolta's Approach | ➤ Sustainable Green Products Certification System

| ➤ Saving Energy and Preventing Global Warming through Green Products

| ➤ Resource Conservation and Recycling of Products | ➤ Management of Chemical Substances in Products

| ➤ Helping Restore and Preserve Biodiversity through Products | ➤ **Provision of Product Environmental Information**

Konica Minolta's Approach



Background and Issues

Today's increasingly urgent environmental challenges require society to use energy and resources more efficiently. There is a limit to the degree of environmental impact reduction that can be achieved solely by one company. Leading global companies should increase their positive contribution to global environmental preservation by expanding the focus of their activities to suppliers of parts and materials, throughout the entire supply chain.



Vision

Konica Minolta will work to make its production processes even more efficient while promoting the development and improvement of production technology, and to reduce both costs and environmental impact. The Group will also share its environmental technologies and expertise with business partners, and will work with them to reduce their environmental impacts. Konica Minolta intends to make significant contributions to protecting the environment throughout its supply chain.



Key Measures and KPIs

Green Factory activities (fiscal 2020—fiscal 2022)

Achieve Sustainable Factory Certification at major production sites worldwide

- Enhancing CO₂ emissions reduction in production activities
- Enhancing effective resource utilization

Green Supplier activities (fiscal 2020—fiscal 2022)

- Enhancing CO₂ emissions reduction at suppliers

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| ➤ Saving Energy and Preventing Global Warming in Production Operations

| ➤ Resource Conservation and Recycling in Production Operations

| ➤ Reduction of Chemical Substances Risks in Production

➤ Addressing Biodiversity in Production Activities (Consideration of Water Resources and Wastewater, Proper Management of Greenery at Factories)

| ➤ Green Supplier Activities | ➤ Green Procurement System

Excellent Green Factory Certification System

Konica Minolta's Approach

Excellent Green Factory Certification System

Saving Energy and Preventing Global Warming in Production Operations

Resource Conservation and Recycling in Production Operations

Reduction of Chemical Substances Risks in Production

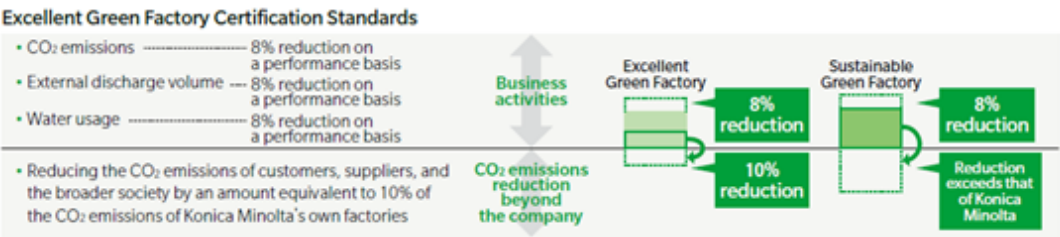
Addressing Biodiversity in Production Activities (Consideration of Water Resources and Wastewater, Proper Management of Greenery at Factories)

Green Supplier Activities

Green Procurement System

Initiatives in Production

Konica Minolta’s Green Factory Certification System aims to reduce both environmental impact and operating costs. All production sites had achieved the highest standard (Level 2) by fiscal 2015. Moving forward, the company launched its Excellent Green Factory Certification System in fiscal 2016. An Excellent Green Factory is a site that has achieved the system’s certification standard of reducing CO₂ emissions from external sources by an amount equivalent to 10% of its own emissions by working in unison with suppliers, customers, and communities. This is in addition to complying with the previous certification standards for reducing environmental impacts from internal sources.



Fiscal 2019 Green Factories Activity Results

In fiscal 2019, the Group's goal was to achieve Excellent Green Factory certification for all its primary production sites worldwide. Eight new sites achieved the certification, and now there are nine primary Excellent Green Factories (4 in Japan, 2 in China, 1 in Malaysia, 1 in the United States, and 1 in France). In addition to its internal environmental activities, each production site also develops its own improvement measures for suppliers and customers through factory tours and environmental seminars. The sites also help reduce CO₂ emissions outside the company by visiting partner facilities and working with them to investigate and implement measures to reduce environmental impact.



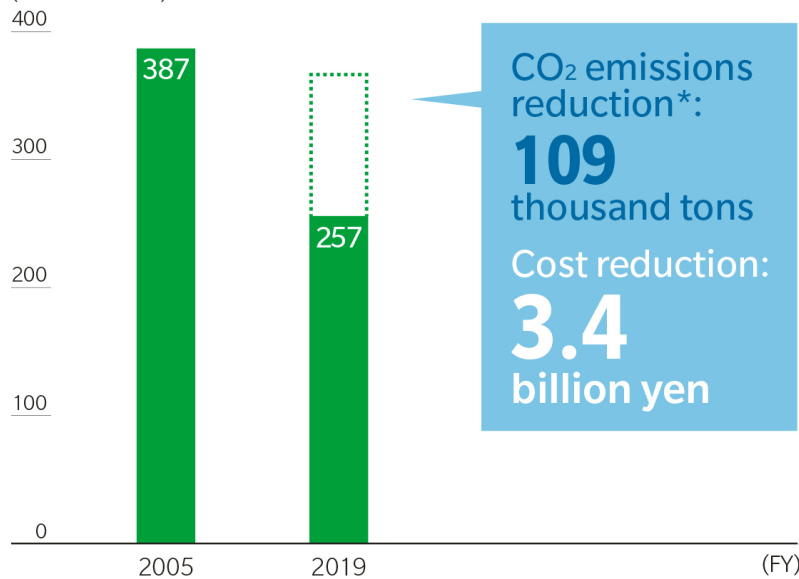
A Group Executive of Konica Minolta, Inc. (center) listens to an explanation of production process environmental measures



Konica Minolta Business Technologies (Malaysia) Sdn. Bhd. was certified as an Excellent Green Factory in September 2019

CO₂ Emissions Reduction Effect during Production

(Thousand tons)

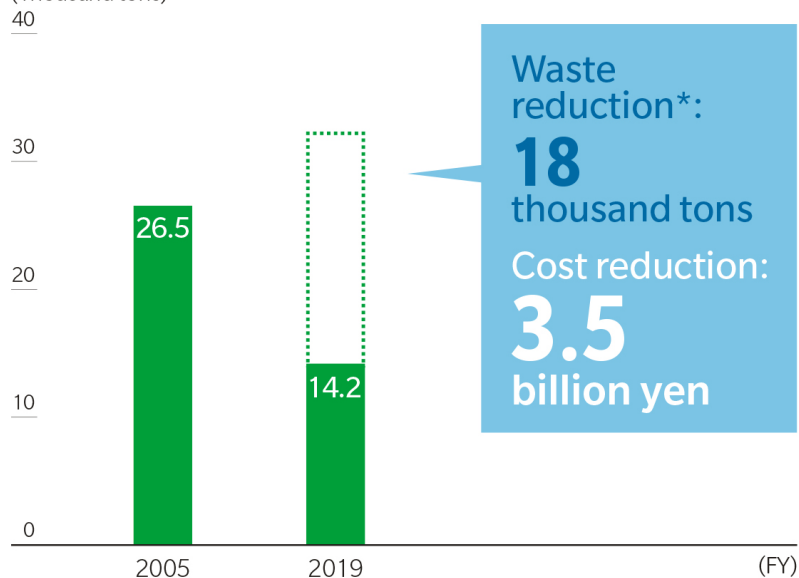


*The amount of reduction is calculated by subtracting the actual fiscal 2019 emissions amount from the estimated amount of emissions that would be produced if environmental conservation activities had not been implemented since fiscal 2005.

Thanks to these efforts, in fiscal 2019, a CO₂ emissions reduction of 109 thousand tons was achieved, along with a waste reduction of 18 thousand tons, both in the production stage compared to fiscal 2005 levels. This resulted in a total cost savings of 6.9 billion yen.

Waste Reduction Effect during Production

(Thousand tons)



*The amount of reduction is calculated by subtracting the actual fiscal 2019 emissions amount from the estimated amount of emissions that would be produced if environmental conservation activities had not been implemented since fiscal 2005.

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Saving Energy and Preventing Global Warming in Production Operations

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Promoting Energy Savings at Production Sites

In line with its Green Factory certification system for comprehensively evaluating environmental activities at production sites, Konica Minolta strives to increase energy productivity and to reduce CO₂ emissions from production operations through a variety of measures.

Energy Conservation Support Program

Konica Minolta has implemented an Energy Conservation Support Program in order to promote the reduction of CO₂ emissions at production sites. Under this program staff members within the Group who are experts in process design, production equipment design, and energy management visit production sites and conduct inspections of everything from the energy management situation to the status of utilities and production equipment such as air conditioning and boilers, based upon which they recommend measures suited to each site. Using these recommendations, the expert staff and personnel at each site conduct simulations of the energy-saving effects, which help with implementing the measures.



Energy Conservation Support Program

Examples of Main Measures

Improve productivity	Industrial engineering (IE) work analysis, yield rate improvement, installation of automatic machines, takt time reduction, production space optimization
Optimize equipment operation time	Shutdown during downtime, reduction of standby power consumption
Reconsider air conditioning operation	Temperature setting optimization, operating time optimization
Save energy in lighting	Thinning out lighting, conversion to high-efficiency lighting
Save energy in molding machines	Infrared heating, installation of servo motors, cylinder insulation
Save energy in compressed air	Installation of inverters, limited number of units, air pressure optimization
Reconsider refrigerator operation	Refrigerator integration, reconsideration of exit temperature setting
Use waste heat	Heat exchange at exhaust/intake, reduction of steam production by using waste heat from dehumidifiers
Reduce heat radiation loss	Steam piping insulation, piping integration, reduction of valve leaks

Participation in RE100, Which Aims to Run Businesses with 100% Renewable Energy

In January 2019, Konica Minolta joined RE100, a global leadership initiative that brings together businesses committed to sourcing 100% renewable energy for their operations.

Konica Minolta aims to procure 100% of the power used in its own business activities from renewable energy sources by 2050. By doing so, Konica Minolta will accelerate its efforts to achieve Eco Vision 2050 while also helping to reduce global CO₂ emissions by expanding the use of renewable energy. As a medium-term step toward achievement of its long-term goal, Konica Minolta set an internal target of sourcing renewable electricity for 30% of its electricity use by 2030. The Group will start reviewing its power procurement contracts one-by-one at production sites and sales sites, starting with countries and regions where renewable electricity is relatively widespread, and begin switching over those sites to renewable electricity where it is possible. In fiscal 2019, the renewable electricity usage ratio*1 was raised to 5.3%.

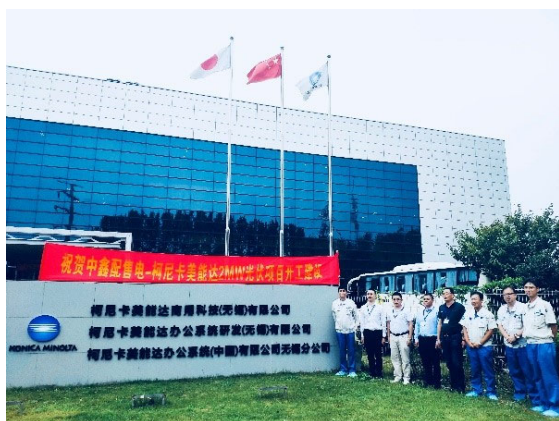
At Konica Minolta Business Technologies (Wuxi) Co., Ltd., one of Konica Minolta's MFP production sites in China, 100% of the energy consumed has come from renewable energy sources since 2020. In January 2020, the company installed a solar power generating system (25,000 m² footprint, 1.7 MW power generating capacity), accounting for about 16%*2 of power usage and, at the same time, it switched the source of the remaining power to power purchased with green power certificates.*3 As a result, the manufacturing site now sources 100% of its energy from renewable sources. It is the second Konica Minolta Business Technologies facility in China to achieve this milestone, following the Dongguan site in January 2019.

Konica Minolta will adopt the optimal method for each world region, starting with manufacturing sites such as the aforementioned site in China, in order to strengthen its efforts to expand energy procurement from renewable sources.

*1 Ratio of renewable energy-derived electricity to the total purchased electricity of the Konica Minolta

*2 Achievements from January 2019 to December 2019

*3 I-REC certification that can be used domestically in China (International Renewable Energy Certificate)



Konica Minolta Business Technologies (Wuxi) Co., Ltd.



Solar power panels installed on the roof

Left: Konica Minolta Business Technologies (Dongguan) Co., Ltd.

Right: Konica Minolta Business Technologies (Wuxi) Co., Ltd.



Examples of Initiatives

Pursuing Energy Savings by Reviewing the Operation of Clean Rooms with High Energy Loads (Konica Minolta Business Technologies (Dongguan) Co., Ltd.)

Konica Minolta Business Technologies (Dongguan) Co., Ltd., which manufactures MFPs and other products in Dongguan, Guangdong Province, China, has achieved dramatic energy savings by conducting reviews of the operational status of clean rooms with high energy loads in the factory. Specifically, it took another look at the temperature and humidity conditions while keeping them within product specification requirements, optimized the ventilation frequency while maintaining cleanliness, reduced clean room equipment operating time by installing a timer, and reduced clean room floor space through layout review. The implementation of these measures has saved energy used by cold energy source equipment and ventilation equipment. In addition, in November 2017, full-scale use of renewable energy began, with the installation of photovoltaic equipment on the roof of the plant, and in 2019, the share of electricity consumption from renewable energy sources reached 100%. These measures have greatly contributed to the Excellent Green Factory Certification System, the Konica Minolta accreditation system launched in fiscal 2016.



Konica Minolta Business Technologies (Dongguan) Co., Ltd.

Energy Savings through Smaller Production Space and Shorter Production Time (Konica Minolta Business Technologies (Wuxi) Co., Ltd.)

Konica Minolta Business Technologies (Wuxi) Co., Ltd., located in Jiangsu Province, China, has adopted industrial engineering (IE) work analysis as a new endeavor aimed at reducing environmental impact through increased productivity. The analysis is based on specialized analytical knowhow cultivated in Japan by Konica Minolta. By thoroughly reconsidering operability and line of flow of production lines, the company reduced production space, shortened production times, and cut energy consumption, including air conditioning and lighting. In addition, all its power now comes from renewable energy sources. This was achieved by installing a solar power generation system in January 2020, and then using green power certificates to meet its remaining electrical needs. The company has become a corporate leader for environmental protection in China, and was certified by the city of Wuxi as a “Clean Manufacturing Company” in 2017.



Konica Minolta Business Technologies (WUXI) Co., Ltd.

Utilizing Waste Heat from Production and Curbing Heat Dissipation to Ensure Energy Conservation (Konica Minolta Supplies Manufacturing Co., Ltd.)

With its head office in Kofu, Yamanashi Prefecture, Konica Minolta Supplies Manufacturing Co., Ltd. makes developers and photosensitive drums for multi-functional peripherals (MFPs). The company has achieved sharp reductions in energy consumption by utilizing the waste heat from the toner production process and curbing the heat dissipation from steam pipes.

Heat exchange with high-temperature water is typically used, but the company actively uses the waste heat from low-temperature water generated in the toner production process through heat exchange and produces heated water to be used in other processes. This significantly reduces the gas consumed to produce heated water. The company also installed an automated control system to supply steam only when and in amounts needed to prevent heat from dissipating from the pipes.

In addition, outside air is used for drying, but the amount of air required differs significantly depending on fluctuations in the humidity of the outside air. The company controls the dew point of the outside air sucked in constantly, then curbs the blower's air volume and number of rotations to conserve energy. It has also upgraded from NAS batteries to large-capacity lithium ion rechargeable batteries in order to adapt to momentary power interruptions and power outages. As a result, heaters no longer have to be used, conversion loss has been reduced and efficiency has improved, delivering significant energy conservation.



Kofu head office at Konica Minolta Supplies Manufacturing Co., Ltd.

Pursuing Energy Savings with High-Efficiency Air Conditioning Systems and Other Energy-Saving Measures (Konica Minolta Business Technologies (Malaysia) Sdn. Bhd.)

Konica Minolta Business Technologies (Malaysia) Sdn. Bhd., which assembles MFPs, has achieved major energy savings by actively employing high-efficiency air conditioning systems.

Since Malaysia is a tropical country where air conditioning use is high, the company has installed a large-temperature-difference air conditioning system and a temperature-stratified air-conditioning system and thus has reduced electricity consumption compared with conventional air conditioning.

In the areas between each factory building, dedicated individual air conditioners had been required, but individual air conditioners were discontinued by supplying surplus cold air from air conditioners in other processes.

Furthermore, in the resin molding process, vented cylinders were installed to remove the moisture and gas contained in resin, during the process. As a result, the drying step that was required before resin could be utilized is no longer necessary, resulting in significant energy savings and improved productivity. In this way, the company has promoted high-efficiency air conditioning operations throughout the plant, along with production process improvements.



Konica Minolta Business Technologies (Malaysia) Sdn. Bhd.

TOPIC: Installing a Gas Turbine Cogeneration System That Provides High Energy Efficiency by Effectively Using Exhaust Heat

On February 1, 2017, the Konica Minolta Kobe Site began operating a gas turbine cogeneration system that uses city gas as fuel. This system provides distributed power generation (7,000 kW class power generation output) that generates power in the places where energy is needed. By effectively utilizing exhaust heat generated at that time, it is possible to achieve overall efficiency at a high 80-90% energy efficiency (general thermal power plants are at about 40%), which greatly contributes to energy saving and CO₂ emission reduction.



Gas turbine

This system is superior from the standpoints of both energy saving and environmental preservation because the fuel uses city gas with high combustion efficiency and low impurity, generates virtually no dust or sulfur oxides, and generates low amounts of nitrogen oxides thanks to the latest low-NO_x combustion technology.



Boiler

Primary Advantage of Installation

CO₂ reduction: CO₂ reduction of 20% or more compared with previous methods

Peak cut: Leveling of electricity demand: Electric power peak cut rate is 70%

BCP: The system supplies power to the premises critical load in the case of emergency

Subsidies: Subsidy support was received from the Energy Use Rationalization Business Support Program, in recognition of the high energy savings of the installed equipment.

At this site, the company has continued to install energy-saving equipment, streamlined product manufacturing processes. The operation of this system is positioned as the core of the energy saving and CO₂ emissions reduction plan in the Medium-Term Environmental Plan 2019.

TOPIC: New Environmentally Friendly Research Building SKT

The new R&D building (SKT) opened in April 2014 at Konica Minolta Tokyo Site Hachioji integrates environmental facilities that will contribute to environmental impact reduction, including solar panels on the roof, an atrium that brings in lots of natural light, daylight sensors to reduce lighting electricity consumption, effective natural ventilation, and use of well water. As a building with excellent environmental friendliness, SKT received the highest certification, “Class S,” in the Comprehensive Assessment System for Built Environment Efficiency (CASBEE), which is an evaluation of the environmental performance of buildings led by Japan’s Ministry of Land, Infrastructure, Transport and Tourism. The building also won a fiscal 2014 Good Design Award from the Japan Institute of Design Promotion (JDP).



SKT's atrium

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Resource Conservation and Recycling in Production Operations



Promoting Resource Conservation and Recycling at Production Sites

Konica Minolta has implemented a variety of measures to reduce and recycle waste generated from production operations and is striving to reduce the amount of waste discharged, with the aim of creating a recycling-oriented society.

Examples of Main Measures

Reduce material loss	Improvement in materials, parts, and product yield rates
Reduce packaging materials	Switching to simple packaging, increasing quantities inside packages
Reuse packaging materials	Switching to reusable shipping containers within the company, between production sites, and with parts suppliers
Reduce mold scrap	Adoption of dies with no molding scrap, minimization and internal recycling of molding scrap
Reduce press scrap	Minimization of feed pitch
Reduce support materials	Reuse of cleaning solvents, reuse of molding machine oil
Reuse pallets	Switching to reusable pallets with parts suppliers, changing the size of pallets for parts and using them to ship products

Examples of Initiatives

Reducing the Amount of Waste Discharged by Applying the 3Rs to Plastic Mill Ends

Konica Minolta makes an active effort to apply the 3Rs (reduce, reuse, and recycle) to the mill ends generated at production sites in the molding processes for plastic parts. Konica Minolta Business Technologies (WUXI) Co., Ltd. and Konica Minolta Business Technologies (Dongguan) Co., Ltd., which are companies producing business technologies products in China, reduced their use of plastic raw material by developing and installing molding dies that do not generate mill ends.

They reduced the material input through the use of hot runners in molding dies, the minimization of runner sizes, and the pulverization and reuse of runner mill ends. Then, they made effective use of unneeded mill ends as material in such things as parts racks used in factories and parts boxes used in the shipment of parts from suppliers.

Reducing Packaging Material Waste

Konica Minolta is making efforts to reduce the disposal of packaging materials used at production sites when procuring materials and parts. For instance, it has simplified packaging, such as switching from stretch film for wrapping parts boxes together to packing belts that can be reused, and it has reduced the amount of packaging materials used by changing the number of units purchased when procuring materials to increase the number of units packed into boxes. Additionally, it has changed parts boxes from cardboard to reusable foldable boxes made using mill ends recycled from plastic parts. It also does not dispose of packaging cushioning, but instead returns it to suppliers for reuse, in order to reduce waste discharge. Konica Minolta Business Technologies (Malaysia) Sdn. Bhd., which assembles MFPs in Malaysia, uses ABS plastic recovered from used game machines as a material for containers used in procurement and in-process transport in an effort to efficiently use resources. In an effort to streamline logistics, Konica Minolta Business Technologies (Malaysia) established a Smart Industry Center (SIC) in January 2018, which brings together major suppliers in a suburb near its plant. The aim is to reduce packaging and make more effective use of resources. This is done by adopting recycled ABS resin for shared plastic pallets used when parts are delivered within the SIC and to the factory.

Reducing Wastewater Discharge

The Group is actively working to reduce wastewater generated in production processes. Konica Minolta Chemical Co., Ltd., which produces chemical products in Japan, is working to reduce the volume of its wastewater discharge. It is doing this by concentrating waste liquid using its own distillation equipment and treating some of the wastewater at the company's own wastewater treatment facility.

Lowering Defect Rates Using Production Data

Konica Minolta is striving to improve its product defect rates by utilizing various data gathered from production facilities for quality improvement. Konica Minolta Mechatronics Co., Ltd., the mother plant for Konica Minolta's digital manufacturing, is collecting various data by monitoring production equipment and product inspections as necessary. This enables the detection of data parameters that strongly correlate with the occurrence of product defects. By checking for changes in these parameters, the company aims to achieve highly efficient manufacturing that helps prevent the occurrence of defects. Implementation of these efforts is being accelerated at all Konica Minolta production sites.

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Reduction of Chemical Substances Risks in Production

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Basic Concept

Working on reducing chemical risks based on the concept of the precautionary principle

There is international consensus on the need for companies that manufacture and use chemical substances to take steps to minimize the adverse effects of chemicals, not only on human health, but also on the environment. Based on this shared perception, many countries around the world are revising their regulations concerning chemical substances. Having taken a position in advance of this new international current, and based on a concept known as the "precautionary principle," Konica Minolta has focused on enhancing its advance evaluation of chemical risks, reducing the emission of harmful substances into the atmosphere, and eliminating hazardous substances from production processes and products to improve safety management for workers and product users.

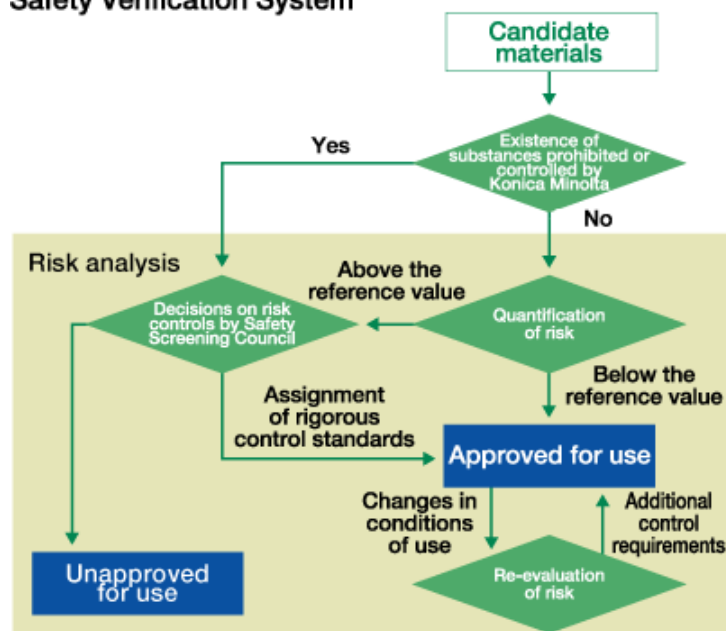
Prior Risk Assessment of Chemical Substances

Using its unique safety verification system to achieve the appropriate management of chemicals

Risk assessment of candidate materials using a safety verification system

Konica Minolta has established a safety verification system that assesses the risk of candidate materials when considering the use of new chemicals in the process of creating products. Using this system, the Group practices appropriate management based on comprehensive chemical risk assessment in terms of product safety, environmental safety, and work safety.

Safety Verification System



Designation of prohibited and restricted chemical substances

Konica Minolta designates prohibited and restricted chemicals based on its own criteria in order to eliminate chemicals with unacceptable hazards in the prior risk assessment carried out before the adoption of a chemical substance. These criteria include not only chemicals regulated by law, but also chemicals recognized as significantly hazardous by specialized institutions.

Calculating risk points for chemicals

Konica Minolta calculates points for the hazard risk of substances based on a unique calculation method used in its safety verification system. This quantifies the hazardousness points based on three factors: (1) type and degree of hazardousness; (2) level of safety measures; and (3) amount used. Using these numbers, it is possible to compare different types of risks—such as the danger of an explosion or serious health effects such as carcinogenicity—on the same scale. In this way, Konica Minolta quantitatively assesses the potential risks of hazardousness in chemicals.

Risk management that envisions substance usage

Since risks differ depending on the form of exposure, Konica Minolta classifies substances into four categories that envision usage, ranging from use under strict safety controls (e.g., at production sites) to use by the general public, which cannot be assumed to take safety measures. It then specifies safety requirements according to the different risks in order to carry out more practical risk management.

When there is a necessity to use highly hazardous chemicals, Konica Minolta holds a safety determination meeting to stipulate rigorous management conditions for minimizing risks in terms of procurement, storage, handling, and disposal.

Risk assessment during continual use

Even after incorporating a chemical into the production process following risk assessment, Konica Minolta checks periodically to make sure that there are no changes in the amount used or the conditions of use. If there are any changes, a risk assessment is performed again to ensure appropriate management.

Reducing and Fully Phasing out Chemicals

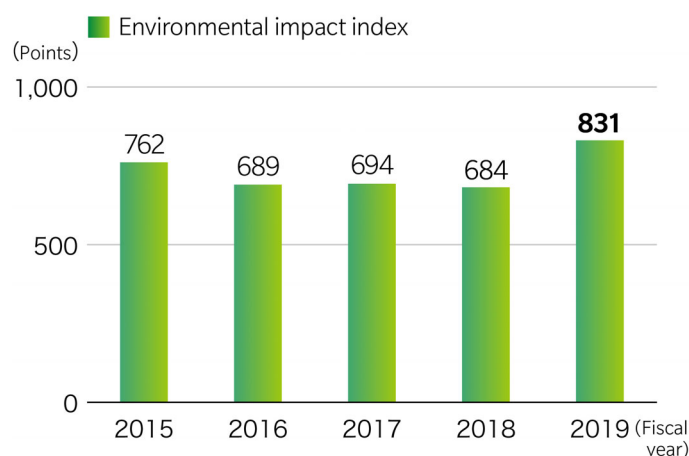
Reducing VOCs based on Konica Minolta's own risk management indicators

Konica Minolta assesses risk based on a chemical's hazardousness and amount of use and is committed to finding alternatives and reducing those substances judged to have a high risk. Since 1993 it has been making efforts to reduce atmospheric emissions of volatile organic compounds (VOCs) from production sites worldwide. It identified VOCs with particularly high risks for full phase-out, and has maintained the full phase-out status for those identified items.

Reducing atmospheric emissions of VOCs

Konica Minolta is systematically reducing VOCs in line with its own environmental impact index, which multiplies the impact on the human body and the environment by a location coefficient as a management indicator. Each site has established reduction goals in line with the Green Factory Certification System and is working to achieve them.

Atmospheric VOC Emissions (Environmental impact index)



Calculation of Environmental Impact Index

	Hazard coefficient	Example of substances
Substances that pose a risk to human health	×100	1, 2-dichloroethane
Substances that pose a risk to ecosystems	×10	dichloromethane, ethyl acrylate, n-heptane
Substances that pose a risk of atmospheric pollution	×1	isopropyl alcohol, methanol, ethanol, acetone, ethyl acetate
Substances that pose a risk of having an indirect adverse impact on the environment	×1	

* Environmental impact index: An index unique to Konica Minolta.

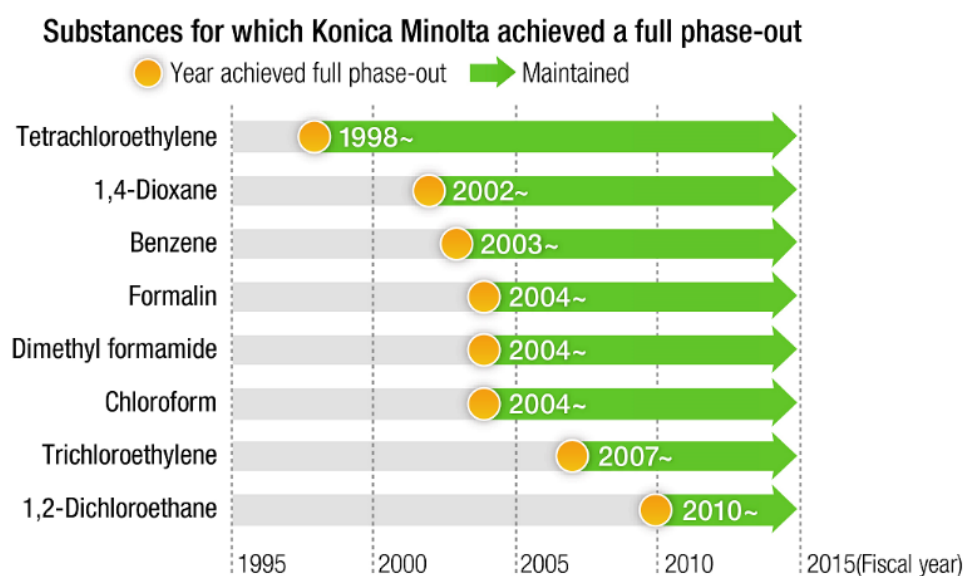
Environmental impact index (point) = Atmospheric emissions of VOCs [t] × Hazard coefficient × Location coefficient

Hazard coefficient: Set at 1-fold, 10-fold, or 100-fold depending on the severity of the impact on human health and the environment (set independently by Konica Minolta based on the coefficient used in the safety evaluations conducted by Kanagawa Prefecture in Japan)

Location coefficient: Outside the industrial park: 5; inside the industrial park: 1

Substances for Which Konica Minolta Achieved a Full Phase-Out

Konica Minolta earmarked the VOCs below for full phase-out, having judged them as having an especially high risk based on the hazardousness and amount of use of each substance and made systematic efforts from early on toward that end. Those efforts resulted in the achievement of a full phase-out in fiscal 2010, which has been maintained ever since.



Countermeasures against Contamination of Soil and Ground Water

Striving to manage the state of contamination through regular monitoring, to facilitate cleanup, and to prevent the spread of contamination

Konica Minolta has implemented countermeasures at sites where soil or ground water contamination has been identified to ensure that the contaminants do not affect the surrounding environment. This is followed up by periodic observation and strict management.

The Group has organized a specialist team to manage remediation of polluted sites and to prevent the spread of contamination. Detailed surveys conducted under the team's supervision serve as the basis for developing countermeasures and examining suitable purification technologies.

The Group reports the results of its observations and remediation efforts to local government agencies.

› [Summary of Contaminated Soil or Ground Water at Operation Sites](#)

Dealing with Asbestos

Konica Minolta is conducting a survey into the usage of sprayed asbestos in the buildings of all its sites and affiliated companies in Japan. As of March 2014, it had confirmed that there are no health risks due to exposure. Going forward, it will continue to maintain and manage this situation while systematically removing the asbestos.

Dealing with PCBs (Condition of Storage)

Konica Minolta takes steps for the proper storage and management of PCB wastes kept in all its sites and affiliated companies in Japan. It also reports the condition of storage to the government in accordance with the law. Since 2007, it has been commissioning the disposal of wastes with high concentrations of PCBs to JESCO.* From here on the Group will continue to dispose of the waste as soon as possible according to JESCO's capacity to take in batches. Since fiscal 2012, it has also been gradually disposing of waste with low concentrations of PCBs, in light of the certification status for treatment.

* JESCO: Japan Environmental Storage & Safety Corporation

Condition of Storage of PCB Waste in Japan (March 31, 2020)

Stored items	Unit	Quantity
		Figures in parentheses indicates low-concentration PCBs
Transformers	Units	4 (4)
Capacitors	Units	6 (6)
Fluorescent ballasts	Units	273 (0)
Other devices	Units	1 (1)
PCB oil	kg	285 (0)
PCB pollutants	kg	941 (916)

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| ▶ Saving Energy and Preventing Global Warming in Production Operations

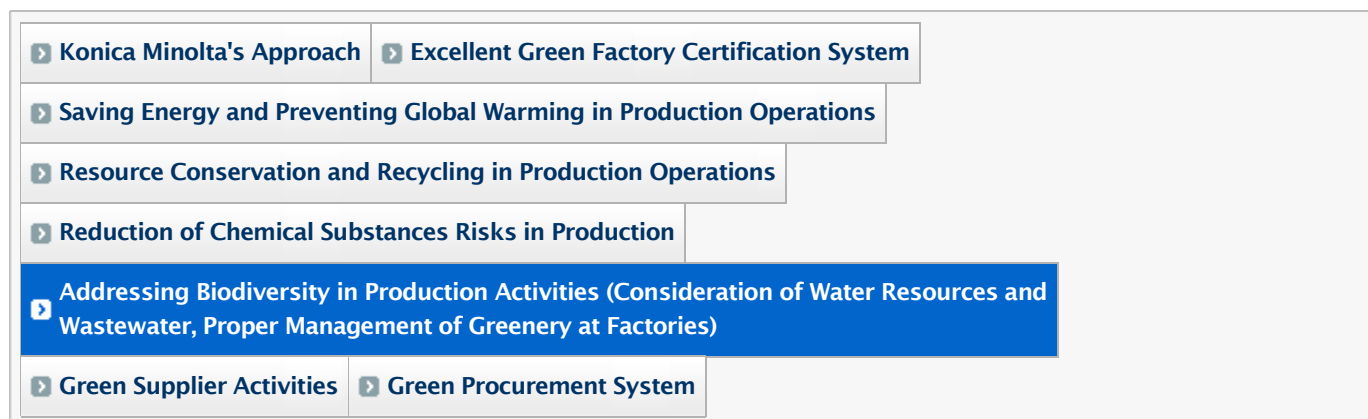
| ▶ Resource Conservation and Recycling in Production Operations

| ▶ **Reduction of Chemical Substances Risks in Production**

| ▶ Addressing Biodiversity in Production Activities (Consideration of Water Resources and Wastewater, Proper Management of Greenery at Factories)

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Addressing Biodiversity in Production Activities (Consideration of Water Resources and Wastewater, Proper Management of Greenery at Factories)



Consideration of Biodiversity at Production Sites

Carrying out efforts in accordance with the Guidelines for Biodiversity Preservation

Under its long-term environmental target, Eco Vision 2050, Konica Minolta is committed to the restoration and preservation of biodiversity. The Group has identified how its business activities worldwide depend on ecosystem services and the impact they have on those ecosystems. It did this by utilizing the Corporate Ecosystem Services Review (ESR) developed for the Millennium Ecosystem Assessment, a major study initiated by the United Nations concerning human impact on the environment. A relationship map was created, summarizing the benefits ecosystems provide to Konica Minolta's business activities and the impacts of the company's activities on those ecosystems, for each stage of the product life cycle. The map was used for evaluation, and specific issues were identified for Konica Minolta to address. This evaluation and identification process incorporated the opinions of third parties, including Japan's Ministry of the Environment and another expert organization. Konica Minolta is working to preserve biodiversity as part of its unique Excellent Green Factory Certification System for comprehensive evaluation of the environmental activities of its production sites. In April 2011, it established Guidelines for Biodiversity Preservation, which outline targets and standards for preservation activities identified as having a high impact on biodiversity and benefitting ecosystems supporting business activities. Compliance with these guidelines is required, and efforts are made to reduce water intake within the certification system.

Guidelines for Biodiversity Preservation

<Consideration of water resources>

- Reduction targets are set for total water consumption, or for water used on site, and reduction measures are implemented
- If groundwater is used, measures must be taken to reduce the amount used

<Consideration of wastewater>

- In order to prevent ecological damage to rivers and lakes, a risk management system must be established to eliminate highly polluted wastewater
- Checks are in place to determine the impact on ecosystems such as aquatic habitats of wastewater emitted into public water areas

<Proper management of greenery at factories>

- Invasive alien species that are likely to have a negative impact on ecosystems are not planted or sown on the factory's premises
- When planting trees on factory grounds, management and protection must be accorded to any rare species that are discovered

Consideration of Water Resources

Konica Minolta monitors and manages the volume of water use at each site and strives to reduce its total water consumption in line with the reduction targets it has established.

In initiatives for the Excellent Green Factory Certification System, Konica Minolta's key production sites around the world are currently working to reduce water intake to meet targets for reduction of water consumption.

To be certified under this system, a factory must reduce its water intake per unit of production by 8% compared to 2015. This standard has been applied to the Group's major production sites around the world. The target was to reduce water intake by 378,000 cubic meters compared to 2015, before the end of fiscal 2019. As a result of various initiatives at each production site, Excellent Green Factory certification was achieved at nine sites, and in fiscal 2019 the Group's water intake was down by 409,000 cubic meters compared to 2015.

As part of these initiatives, Konica Minolta's key production sites reviewed their use of water in plants and worked to make reductions. These efforts included measures to reduce the volume of heated water used and the energy required to produce the heated water, such as changing temperature controls to only steam rather than a two-stage control process involving steam and hot water during in-process regulation of reaction temperatures. In addition, after considering the impact on users and the backup system in the event of problems, the sites decided to reuse drain water, which has relatively few impurities and is easy to reuse, as a supplementary feed for the cooling tower. The sites are also working to save water through other detailed efforts. These include reducing tool cleaning frequency by coating mesh surfaces on tools so material is less likely to adhere, and moving away from equipment cleaning using water to air blowing devices. Moreover, sites are collecting rainwater for use in cooling towers. They are also working to efficiently use water resources outside of the production process as well through measures such as installing water-saving faucet valves, checking for leakage from piping and repairing piping damage.

In fiscal 2013, the Group adopted an analysis method using the World Resources Institute's (WRI)^{*1} Aqueduct^{*2} to conduct a comprehensive risk assessment on usage of water resources at the Group's production sites and R&D sites and major suppliers around the world. Every year since, the results have confirmed that the Group has no sites with an extremely high risk.

One Group site is rated as having high water stress, but sales from this site accounted for less than 1% of total Group sales. In fiscal 2019, the water intake at this site was 93,000 cubic meters, and its water consumption was 14,000 cubic meters. With the goal of reducing its annual water intake by 5,700 cubic meters, the plant installed water-saving faucets and worked to reduce product cleaning water by improving manufacturing yield. As a result, intake was reduced by 9,800 cubic meters in fiscal 2019. In the future, the Group will continue to conduct water risk assessments when establishing new sites and changing the business environment, and it will take measures to reduce water use as necessary.

Additionally, production sites that use groundwater as their main intake source are making efforts to reduce the amount of groundwater used, such as by turning off the supply of cooling water when production is stopped.

^{*1} WRI (World Resources Institute)

^{*2} Aqueduct: World maps and information showing the latest water risks published by the WRI. Produced based on 12 key water risk indicators such as physical water stress and regulatory risk related to water resources.

Consideration of Wastewater

Konica Minolta regularly conducts compliance assessments on a global basis to confirm the status of compliance with laws, ordinances, agreements, and other relevant regulations related to effluent, with the aim of preventing water pollution from effluent.

The Group has assessed the effect of effluent on the ecosystem at production sites that release effluent used in the production process into rivers. It adopted WET,^{*} a new effluent management method using bioassays that is gaining worldwide attention, when conducting the assessments. With the cooperation of Japan's National Institute for Environmental Studies, the Group conducted tests using three aquatic species (algae, crustaceans, and fish). The results indicated that there was no negative impact (algae: inhibition of growth; crustaceans: inhibition of breeding; fish: reduced hatching rate or reduced survival rate after hatching) on any of the three test organisms.

^{*} WET (Whole Effluent Toxicity): A method that assesses the aggregate toxic effect of wastewater on aquatic life rather than the evaluation of individual chemical substances. Unlike conventional effluent management methods, it enables holistic assessment of the effect of an effluent, detecting impact caused by any non-regulated chemical substance or the combined impact of multiple substances.



Proper Management of Greenery at Factories

Konica Minolta practices proper management of greenery on the grounds of the Group's production sites. By preparing greenery management lists for each site and conducting periodic checks, it makes sure that there are no invasive species, including sowing seeds.

Additionally, when rare species are discovered at a site, efforts are made to protect the species by making employees and visitors aware of its presence by putting up signs and fences. For instance, the Tokyo Site Hino is managing and protecting Golden Orchid (*Cephalanthera falcata*) and Japanese lily (*Lilium speciosum*), which are endangered species.



Golden orchid at the Tokyo Site Hino

Consideration of Biodiversity in Procurement

As part of its procurement activities, Konica Minolta aims to help realize a sustainable society. To do this it is building strong relationships with business partners to fulfill corporate social responsibilities, based on transparency and fairness. In order to reduce the impact of its procurement activities on the ecosystem, Konica Minolta has set an example by implementing a green procurement policy. It has established a Supplier Code of Conduct and is asking business partners to adhere to its principles in order to minimize the depletion of natural resources.

The Group also provides suppliers with the environmental technology and expertise that it has cultivated in its Green Factory activities, thereby promoting Green Supplier initiatives that reduce both environmental impact and costs. As part of these activities, environmental experts from Konica Minolta visit suppliers to advise them on measures to reduce water usage. Konica Minolta also uses its CSR Procurement Promotion Program to require suppliers to properly manage their water use by adhering to the Konica Minolta Code of Conduct for Suppliers.

Konica Minolta Japan, Inc., a sales company in Japan, has established the PPC Paper Purchase Standards, which have been implemented since 2007. The Standards stipulate that copy paper supplied to customers should be procured by taking into account the impact of forest destruction and degradation on the living environments of animals, plants, and people.

▶ Konica Minolta's Approach | ▶ Excellent Green Factory Certification System

| ▶ Saving Energy and Preventing Global Warming in Production Operations

| ▶ Resource Conservation and Recycling in Production Operations

| ▶ Reduction of Chemical Substances Risks in Production

▶ **Addressing Biodiversity in Production Activities (Consideration of Water Resources and Wastewater, Proper Management of Greenery at Factories)**

| ▶ Green Supplier Activities | ▶ Green Procurement System

Green Supplier Activities

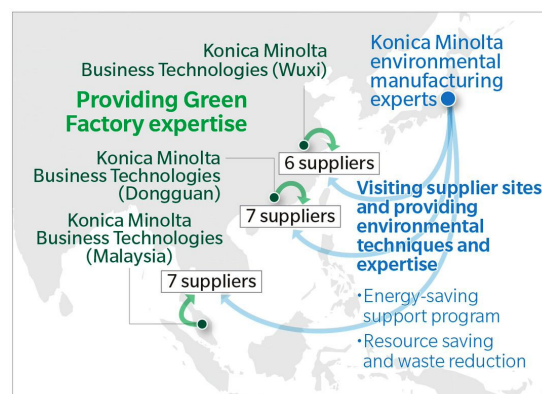


Overview of the Activities

Konica Minolta conducts Green Supplier activities to reduce both environmental impact and operating costs by providing suppliers with environmental technologies and expertise that it has developed via its Green Factory activities. Konica Minolta's environmental experts visit supplier production sites and propose suggestions for improvement, outlining cost reduction benefits, investment rationale, and other information. They then cooperate with suppliers as they take action to reduce their environmental impact.

Fiscal 2019 Activity Results

In fiscal 2019, Green Supplier activities were initiated with six new companies, bringing the total number of companies Konica Minolta is working with to 23. Starting in fiscal 2019, the Group began trials of new Green Supplier activities that do not involve supplier visits. Instead, an energy-saving diagnostic tool is used, based on the digitized expertise of energy-saving experts. By the end of fiscal 2019, a total of 14 companies had achieved their Green Supplier activity targets, which are equivalent to the level of the Green Factory Certification Standards.



Green Supplier Activity Targets

Issue	Management Index	Target (2.5 years after activity launch)
Prevention of global warming	CO ₂ emissions	5% reduction (compared to the last year before activity launch)
	Energy costs	5% reduction (compared to the last year before activity launch)
Waste reduction	External discharge quantity	12.5% reduction (compared to the last year before activity launch)
	Material / waste costs	Cost reduction greater than waste expenses
	Final disposal rate	0.5% or less
Reduction of chemical risk	Reduction of chemical risk	Compliance with chemical substance guidelines

Companies That Achieved Green Supplier Activity Targets

Achievement Date	Company	Activity Launch
Mar. 2016	Shenzhen Changhong Technology Co., Ltd.	FY2014
Mar. 2017	Toyo Communication Technology (Shenzhen) Co., Ltd.	FY2014
Mar. 2017	Allied Technologies (Saigon) Co., Ltd.	FY2015
Mar. 2017	Szepak Precision (Wuxi) Co., Ltd.	FY2015
Mar. 2017	Catthai Manufacturing & Trading Co., Ltd. (CATHACO., Ltd.)	FY2016
Mar. 2018	Well King Plastic Manufacturing Co., Ltd.	FY2015
Mar. 2019	Changshu Xinda Plastic Molding & Injection Co., Ltd	FY2016
Mar. 2019	Guppy Plastic Industries (Penang) Sdn. Bhd.	FY2016
Mar. 2019	TRIPLUS INDUSTRY SDN. BHD.	FY2016
Mar. 2020	Dongguan Konka Mould Plastic Co.,Ltd	FY2017
Mar. 2020	PENGDE PRECISION TECHNOLOGY (SHENZHEN) CO., LTD	FY2017
Mar. 2020	Shanghai KUMHO_SUNNY Plastics Co.,LTD.	FY2017
Mar. 2020	NIPPON SEIKI CONSUMER PRODUCTS (THAILAND) CO., LTD. THAI NIPPON SEIKI CO., LTD.	FY2017
Mar. 2020	ASIAN STANLEY INTERNATIONAL CO., LTD.	FY2017

Voice of a Supplier | Guppy Plastic Industries (Penang) Sdn. Bhd.

Our environmental conservation activities started with small and simple activities since our inception days. Our program continues internally and later on, enhanced to include involvement with external parties such as the local council, schools, and the public. The program included city beautification, zero waste, and school beautification.

Recent years are showing the rise of the negative impact to the environment from plastic products. However, we as plastic injection moulding manufacturer remained positive in our position as a diversified supplier in supplying to various industries.

Green Supplier Activity by Konica Minolta has given us the opportunity to further enhance our program to higher level. The program will support us in meeting our goal which also aligned with our environmental policy that is to contribute toward environmentally sustainable development.

We have shared good practices and gained additional knowledge from the Konica Minolta team and appreciate the exposure of the new ideas and methodologies introduced in implementing waste elimination. We look forward for continuous support from Konica Minolta in our journey to improve the quality of life for our employees, business partners, and future generations.



BK Goh
Managing Director
Guppy Plastic Ind.
Sdn. Bhd.

Voice of a Supplier | Well King Plastic Manufacturing Co., Ltd.

We view environmental conservation as an extremely important initiative in the context of China's recent pursuit of rapid economic growth and the advancement of its manufacturing industry. Konica Minolta's Eco Vision 2050 is aimed at sustainable growth, which is an approach that matches the course we wish to follow.

In the manufacturing industry, resource and energy consumption increase with business expansion and rises in production. This is why I believe that the "waste elimination activities" we worked on as part of the Green Supplier activities are essential for a growing manufacturing industry. Moreover, Konica Minolta's sharing of its environmental expertise enabled us to reduce our environmental impact while increasing our performance, giving us the experience of simultaneously contributing to the environment and supplying competitive products.

We will continue to practice environmental conservation and energy reduction activities and will do our best to pursue sustainable development in collaboration with Konica Minolta.

Happy Tsai
President
WELLMEI HOLDING CO., LTD.

Voice of a Supplier | Szepak Precision (Wuxi) Co., Ltd.

Through the Green Supplier activities, we received a wealth of advice on things such as energy conservation, resource reduction measures, and calculation methods. Thanks to Konica Minolta, we were able to take the first steps toward environmental contribution. For environmental measures requiring investment, we received proposals from a management perspective, including measures sorted into short-, medium-, and long-term investments, as well as by depreciation period. The government also has several requirements for environmental conservation measures, and we were able to work even more positively on them by pursuing the Green Supplier activities. In the future, we would like to develop self-diagnosis mechanisms while applying diagnostic tools from Konica Minolta.

Yushi Ueda
Director / General Manager
Szepak Precision (Wuxi) Co., Ltd.

Voice of a Supplier | Allied Technologies (Saigon) Co., Ltd

In our daily lives, we receive much information about global warming, the greenhouse effect, and CO₂ emissions, which are contributing to environmental risk with rising temperatures, rising sea levels and extreme weather conditions that affect the lives of human beings and other living organisms around the world.

Konica Minolta introduced the Green Activity program at Allied Vietnam in 2015. Through the Green Activity program, my team has been introduced to the benefits these activities can have for the company. We understand that it can contribute to cost reduction, increased sales opportunities, reduced business risk, and the environmental awareness of every employee.

Through the program, Konica Minolta, working with Allied, evaluated ways to save energy and reduce waste, took productive measures to make plans, and executed to meet the targets set. This, in turn, met the wider goal of working to curb global warming and supporting a recycling oriented society.

During the activity, Konica Minolta continuously shared with Allied many methods for reducing energy use, and also shared their experience with best practices to enable us to execute the program effectively.

Moving forward, Allied will continue to sustain the activities that are in place, and will also continue to make plans for reducing energy and recycling waste, working to be part of a company that exercises its social responsibility to the community.

Tung Gee Khim
Group Operation Manager
Allied Technologies (Saigon) Co., Ltd.

Voice of a Supplier | Changhong Technology Co., Ltd.

As part of the Green Supplier activities, Konica Minolta environmental manufacturing experts visited our production site, and we discussed environmental measures for molding machines and utilities use. Preparing for the actual implementation of the suggested measures, we visited a Konica Minolta production site in China, and we were able to address our situation while discussing specific ways to proceed. The local government places great importance on energy-saving activities, and we received a monetary incentive after reporting the energy-saving initiatives we took through the Green Supplier activities. We were able to reduce our emissions by 800 tons per year, and also contributed to CO₂ emissions reduction in China.

Xu Yanping
President
Changhong Technology Co., Ltd.



Visiting a Konica Minolta site to see environmental measures

Voice of a Supplier | Toyo Communication Technology (Shenzhen) Co., Ltd.

I think the biggest feature of the Green Supplier Initiative is the way in which Konica Minolta is committed to coming into suppliers' sites and working with them to make improvements.

Indeed, the people who visited our factory did not just bring the methods cultivated in Japan as-is; rather, they thought together with us about what kinds of measures we need. This method improved the motivation of our employees, and an attitude of thinking on one's own and devising improvements started to spread throughout the company.

Going forward, we are determined to keep cooperating with Konica Minolta to form and implement environmental plans and measures, and foster a system and culture that values environmental management.

Lou Yiliang
Chairman and Managing Director
Toyo Communication Technology (Shenzhen) Co., Ltd.

▶ Konica Minolta's Approach | ▶ Excellent Green Factory Certification System

▶ Saving Energy and Preventing Global Warming in Production Operations

▶ Resource Conservation and Recycling in Production Operations

▶ Reduction of Chemical Substances Risks in Production

▶ Addressing Biodiversity in Production Activities (Consideration of Water Resources and Wastewater, Proper Management of Greenery at Factories)

▶ Green Supplier Activities | ▶ Green Procurement System

Green Procurement System



Implementing green procurement to assess the chemical constituents of parts and components and give preference to those with the least environmental impact

Green Procurement System

Konica Minolta operates a Green Procurement System in compliance with laws and regulations for chemical substances. In the operation of the SIGMA Green Procurement System, the Group ensures its compliance with the RoHS directive,^{*1} and also rapidly complies with more stringent regulations on chemical substances in products by expanding its coverage to include substances of very high concern (SVHCs) on the candidate list for authorization and other substances restricted under REACH regulations.^{*2} Through these efforts in assessment and management of chemical substances in products, the Group is keeping an eye on trends in regulations and alternative technologies and is working on plans to eliminate hazardous materials in order to be sure it avoids risks.

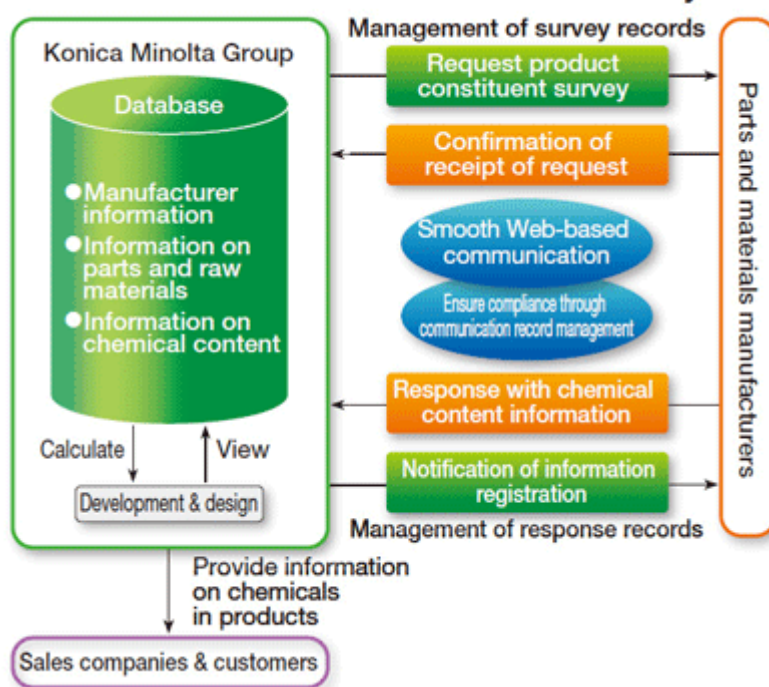
In addition, in order to ease the workload of suppliers, the Group uses the chemSHERPA^{*3} scheme to define the substances covered in its survey. Moreover, the Group regularly holds briefings on trends in environmental laws and regulations for its suppliers to ensure understanding of Konica Minolta's initiatives.

*1 RoHS directive: Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment

*2 REACH regulations: Regulations enacted by the EU in June 2007 concerning the registration, evaluation, authorization and restriction of chemicals, to consolidate existing regulations concerning chemical substances.

*3 chemSHERPA: A scheme developed by Japan's Ministry of Economy, Trade and Industry to facilitate the sharing of information on chemical substances contained in products in the supply chain. The Joint Article Management Promotion-consortium is responsible for its administration.

Overview of the SIGMA Green Procurement System



Main Features

- Japanese, English and Chinese language support
- Supports a standard chemical substance survey (chemSHERPA)
- Separates the procedures for checking for prohibited substances and for collection of information on reported substances in products
- Sharing of information from surveys and responses with business partners
- Storage of communication records in databases ensures compliance through tracking
- Simplifies the response to changes in regulations and substances subject to control

› [Green Procurement Guidelines \(Japanese, English, Chinese\)](#)

Environmental Collaboration

The Business Technologies Business has implemented Environmental Collaboration to establish strong partnerships through on-site evaluations and educational support for suppliers in order to strengthen suppliers' environmental management. This is an initiative to help suppliers develop independent environmental management. Konica Minolta employees go directly to suppliers' factories and provide guidance based on assessment results for the management of chemical substances as well as to provide guidance in document management, including for measurement results and materials information.

Every year Konica Minolta provides education to suppliers' employees and certifies those who pass as internal evaluators for suppliers. In addition, each year the Group also conducts e-Learning for new evaluators as well as paper-based follow-up education for existing internal evaluators.

› [Konica Minolta's Approach](#) | › [Excellent Green Factory Certification System](#)

| › [Saving Energy and Preventing Global Warming in Production Operations](#)

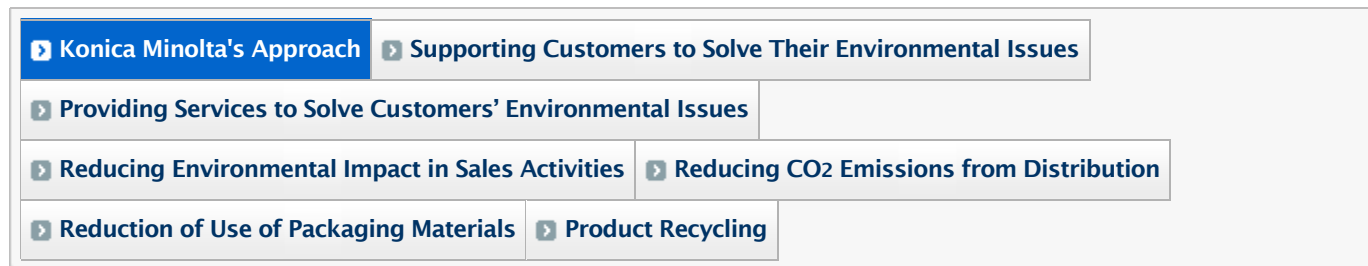
| › [Resource Conservation and Recycling in Production Operations](#)

| › [Reduction of Chemical Substances Risks in Production](#)

› [Addressing Biodiversity in Production Activities \(Consideration of Water Resources and Wastewater, Proper Management of Greenery at Factories\)](#)

| › [Green Supplier Activities](#) | › [Green Procurement System](#)

Konica Minolta's Approach



Background and Issues

With growing public demands to address environmental problems such as climate change and resource depletion, corporations are expected to carry out environmental activities that not only minimize risks but also promote business growth. To do this, companies need to reach beyond their own organizations and share value with customers, local communities, and other stakeholders. By promoting activities together, companies and their stakeholders can raise their level of contribution to global environment preservation throughout the value chain.



Vision

Konica Minolta has been contributing to the entire value chain by sharing its expertise and experience with customers to help resolve their environmental challenges. It seeks to strengthen relationships with customers and continually create shared value, building on the foundation of trust they have with Konica Minolta.



Key Measures

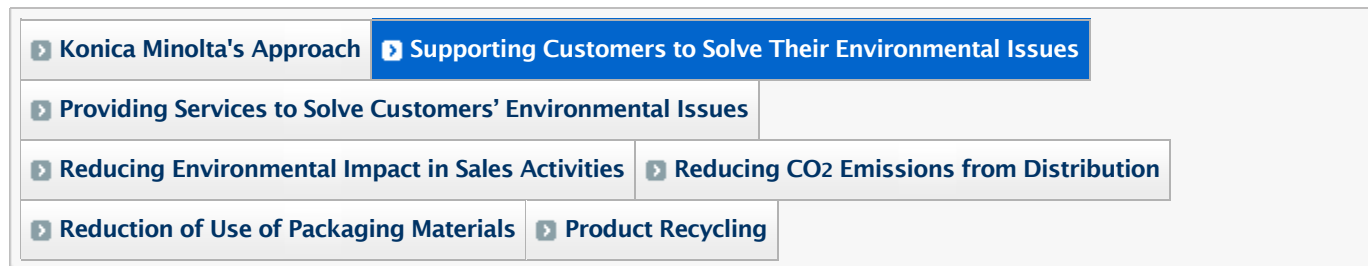
Strengthening relationships and helping customers solve their environmental challenges (fiscal 2020—fiscal 2022)

- Reduce customers' environmental impact
- Generate sales opportunities
- Leverage co-creation to solve environmental issues by reaching across corporate boundaries

▶ Konica Minolta's Approach | ▶ Supporting Customers to Solve Their Environmental Issues

▶ Providing Services to Solve Customers' Environmental Issues | ▶ Reducing Environmental Impact in Sales Activities
 ▶ Reducing CO₂ Emissions from Distribution | ▶ Reduction of Use of Packaging Materials | ▶ Product Recycling

Supporting Customers to Solve Their Environmental Issues



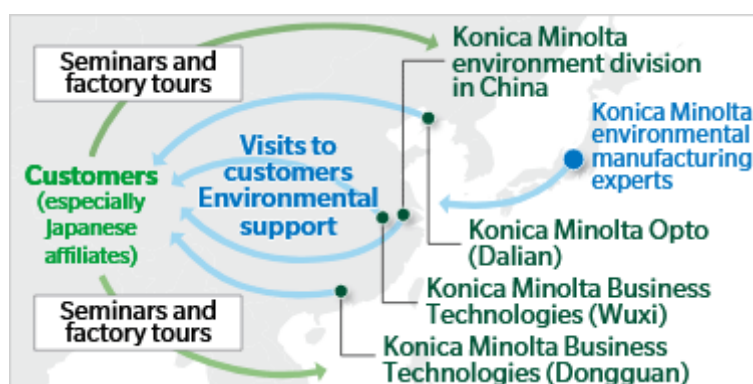
Overview of Activities

The solutions provided by Konica Minolta include not only products and services, but also environmental expertise that is useful to customers. Through Green Marketing activities that provide the proven environmental expertise the company already possesses, Konica Minolta seeks to build corporate relationships by working with customers who appreciate its approach to environmental management to help them solve environmental issues. The aim of these efforts is to become the business partner of choice for companies around the world.

Fiscal 2019 Activity Results

Konica Minolta provided environmental seminars and lectures in Japan to an audience of 1,560 people from 948 companies to introduce Konica Minolta's approach to environmental management, including practical examples. At EcoPro 2019, held in December in Tokyo, visitors were introduced to Konica Minolta's environmental management approach to solving environmental issues linked with a business plan, and the response was very favorable. The company's environmental consultation stand offered advice to visitors from 188 companies. Along with providing the environmental expertise practiced by Konica Minolta through the years, Konica Minolta representatives also visited some of the consultation recipients after the event to talk about environmental performance.

In China, where environmental laws and regulations have been substantially tightened, Konica Minolta held 22 environmental exchange meetings at customer sites and at its own factories. A total of 102 people from 62 customer companies gained expertise developed at Konica Minolta production sites in China and toured Konica Minolta facilities where the expertise is implemented. In some cases, expertise was mutually shared concerning a wide range of fields in addition to environmental performance, such as quality, production technology, and human resources development. There are also ongoing exchanges now being carried out between Konica Minolta sites and other factories.

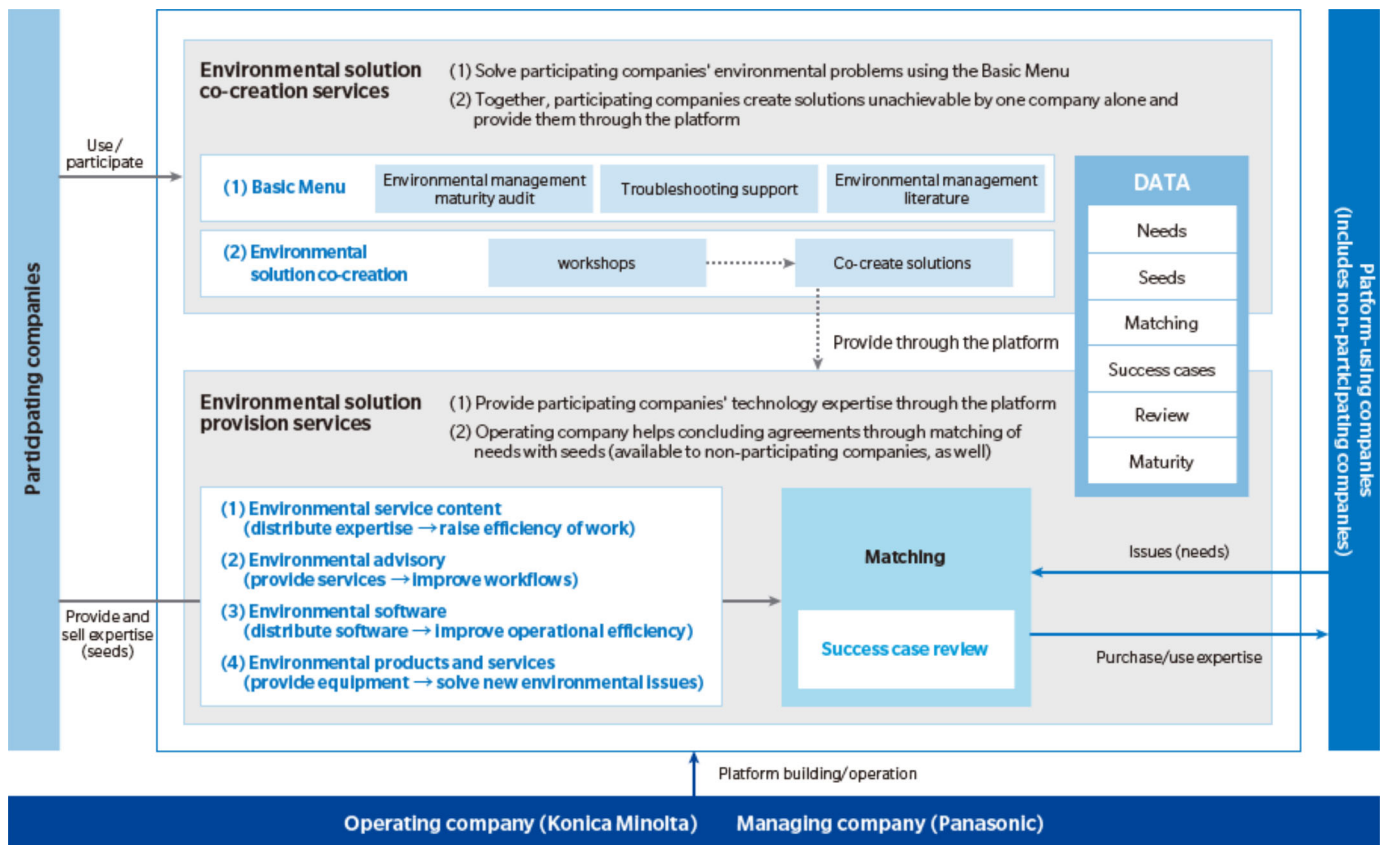


Building the Environmental Digital Platform

Global environmental problems are pressing challenges facing the whole world and cannot be solved by the isolated efforts of individual companies. Recognizing this, Konica Minolta has already opened up its reservoir of expertise in environmental management for business growth and cost reduction, has been sharing it with many other companies through digitization of our expertise.

Konica Minolta is in the process of digitally sharing its environmental expertise with a base of more than 1,000 companies that it has built through its environmental activities. By allowing these companies to share their environmental knowledge with each other and by providing a place to collaborate and create new value, Konica Minolta believes it can dramatically increase its contribution to environment. Konica Minolta launches the Environmental Digital Platform, aiming to help reduce the environmental impact of industry and society as a whole. The platform will enable companies to share and utilize their outstanding environmental technologies and expertise that Japanese companies have amassed. At EcoPro 2019 in December, Konica Minolta introduced the Environmental Digital Platform to customers via a panel exhibit and seminars, and over 80 companies showed their interest in their participation to the Platform.

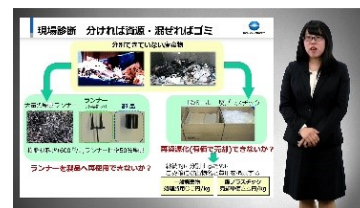
Pilot run Trial operation of the Environmental Digital Platform began in June 2020 with 16 companies participating. The Group believes that the more our stakeholders use this platform, the more the Platform will grow, and it will become a place to find highly convenient solutions. The aim is not only to create opportunities to grow by helping to solve environmental and social issues, such as those addressed by the UN Sustainable Development Goals (SDGs), but also to accumulate advanced technologies and expertise, increase their utility value, and create business opportunities.



Example of Environmental Digital Platform Content

biz-Library : Environmental management Support Solution

Konica Minolta believes that digitizing and sharing the environmental management expertise it has accumulated with even more companies will dramatically increase its contribution to the environment. It has provided an online content service, biz-Library (environmental management), since fiscal 2016. This service provides videos and documents featuring practical case studies from Konica Minolta. The content targets seven challenges faced by many companies: (1) formulating environmental strategy, (2) responding to revised environmental ISO standards, (3) energy saving and cost reduction in factories, (4) management of chemical substances, (5) efficient use of resources and cost reductions in factories, (6) methods of calculating Scope3 CO₂ emissions, and (7) waste management by companies. Customers can use the manuals and tools actually implemented in Konica Minolta, allowing them to promote effective and efficient environmental impact reduction activities in their companies. These contents are shared on the Environmental Digital Platform mentioned above.



Efficient use of resources and cost reductions in factories



Methods of calculating Scope 3 CO₂ emissions



Waste management by companies

Voice of a Customer | Panasonic Corporation

The Panasonic Environmental Vision 2050 was established in 2017 with the goal of “energy used < energy created.” However, by working alone on specific environmental activities to achieve that goal, it seemed like the speed of Panasonic's efforts was limited. Over many years, I have heard about Konica Minolta's environmental management efforts via my interactions with its people in various situations, such as social events for our neighboring plants in China. Recently, I was invited to learn about Konica Minolta's Environmental Digital Platform. The concept was very appealing, so we joined the platform. I would like to work with Konica Minolta to share expertise across corporate boundaries and to collaborate and create new value by solving the challenges already faced by the participating companies. I am very excited about working with everyone to make this fantastic initiative succeed. Thank you for this opportunity.

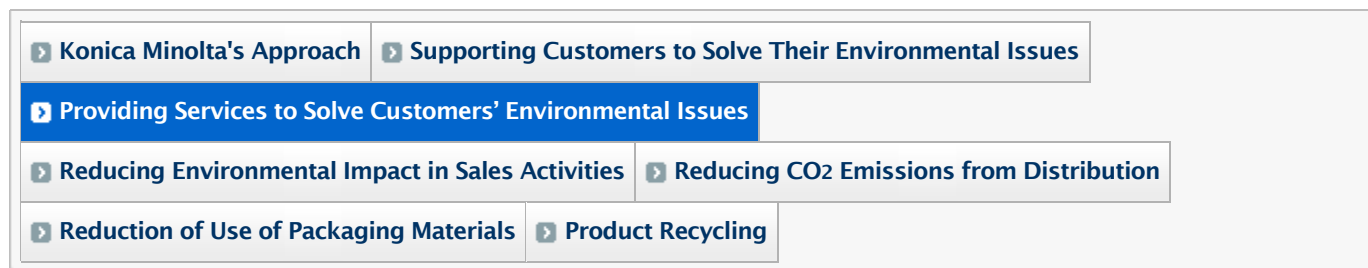


Masaharu Kusumoto
Director, Environmental Management Department, Quality & Environment Division, Panasonic Corporation

▶ Konica Minolta's Approach | ▶ Supporting Customers to Solve Their Environmental Issues

- ▶ Providing Services to Solve Customers' Environmental Issues | ▶ Reducing Environmental Impact in Sales Activities
- ▶ Reducing CO₂ Emissions from Distribution | ▶ Reduction of Use of Packaging Materials | ▶ Product Recycling

Providing Services to Solve Customers' Environmental Issues



Support to Reduce Environmental Impact and Innovate Work Styles

Enhancing the ability to provide solutions through actual practice in Konica Minolta's own offices—comprehensive solutions for work space design

Konica Minolta offers office solution services that contribute to work style reforms, on top of reducing environmental impact, through optimization of office environments. When Konica Minolta Japan, Inc. moved its head office, it took a variety of measures in its new office in order to verify for itself the effects of its solutions and also to enhance its ability to propose solutions to customers by demonstrating actual practice. This practical experience was used to create comprehensive services with office space design solutions such as the “Design Your Time!” initiative.

For example, it implemented wide-ranging office solutions such as the optimal positioning of MFPs, the reduction of printouts and document storage space through document digitization, the reduction of business trips and transportation through the adoption of teleconferencing, and the increase of information management sophistication using the cloud environment.

These solutions led to reductions in environmental impact and costs, including a 24% reduction in copy paper printouts, a 44% reduction in electricity consumption, and a 44% reduction in CO2 emissions. They also freed up more than 200 square meters of space within the office. Additionally, work style improvements stimulated communication among employees, creating a highly productive office environment marked by on-target communication. Through the use of telework, CO2 emissions from commuting are reduced, along with total travel and transportation expenses. By providing flexible and convenient work environments, employee retention rates can be increased and excellent human resources can be secured. What is more, this new office is used as a live showroom that customers can experience.

Support for Environmental Impact Reduction That Addresses Customers' Environmental Issues and Concerns

Bizhub Eco

Konica Minolta has been developing Bizhub Eco service package revolving around MFPs to solve customers' environmental issues and concerns in Europe. Bizhub Eco uses Konica Minolta's Optimized Print Services (OPS) to set the installed MFPs to the most energy and resource-efficient setting for the usage situation of the customer. For a fee, the package also includes a carbon offset for the entire product lifecycle, biodiversity protection measures in the form of tree planting activities, and local NPO support. By also providing signage to explain the green activities promoted by Bizhub Eco, Konica Minolta facilitates internal communication in the 'customers' office.

(Available in France, Germany, United Kingdom, Austria, Belgium, the Netherlands, Sweden, and Switzerland)

Clean Planet Program

Konica Minolta collects used consumables from its customers via the Clean Planet recycling program in the United States and Europe.*

Using a portal site, customers can solve their printer cartridge recycling problem by ordering a collection box and returning it as soon as the box is full.

The recovered consumables are material-recycled using the latest technology in cooperation with a leading recycling company, Close the Loop, to maximize the collection of secondary raw materials. No incineration or landfills are used.

*In Europe the program has been launched in Belgium, the Netherlands and Norway, and there are plans to expand to other countries.

Recycling Support at Customer Sites Due to Improvement of Deinking Process

In the European market, a deinking process is required for recycling printed copy paper. Konica Minolta Business Solutions Europe GmbH has been certified for deinking by the International Association of the Deinking Industry (INGEDE). Deinking enables high-level paper recycling and helps promote the effective use of resources.

Contributing to the Reduction of Environmental Impact through Print on Demand (POD) Service

Contributing to cost reductions and energy savings by undertaking customers' printing work

The POD service offered by Kinko's Japan Co., Ltd. handles printing in a short time according to customers' requests. For example, by using this service during their busy seasons, customers no longer need to always have enough of their own printers ready to handle the print volume of peak times. This allows customers to keep down costs for installing and maintaining equipment, and it also translates into resource and energy savings for society as a whole.

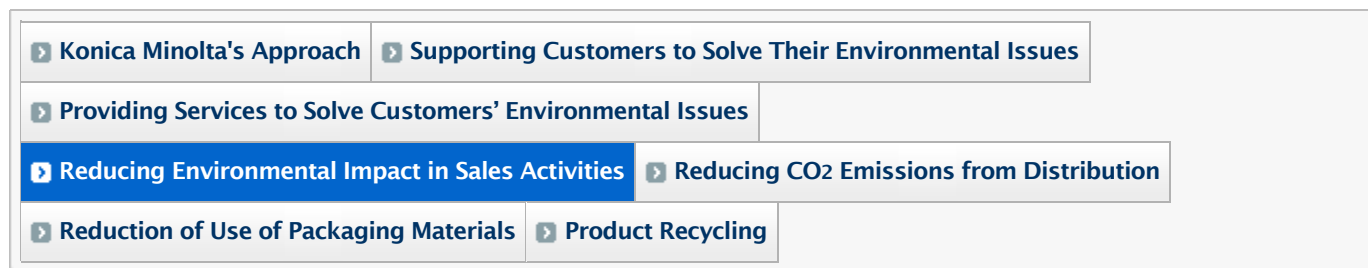


▶ Konica Minolta's Approach | ▶ Supporting Customers to Solve Their Environmental Issues

▶ **Providing Services to Solve Customers' Environmental Issues** | ▶ Reducing Environmental Impact in Sales Activities

▶ Reducing CO₂ Emissions from Distribution | ▶ Reduction of Use of Packaging Materials | ▶ Product Recycling

Reducing Environmental Impact in Sales Activities



Reducing CO₂ Emissions Associated with Sales Activities

Introducing Eco-friendly Vehicles to Its Sales Fleet and Promoting Eco-driving

Konica Minolta promotes the management and reduction of CO₂ emissions from the business vehicles operated by its sales companies around the world. The Group is promoting measures such as reducing the amount of travel through more efficient sales and service activities, introducing eco-friendly vehicles with low emissions of CO₂, and eco-driving to reduce energy consumption.

Eco-driving Initiatives at a Sales Company in Japan

Konica Minolta Japan, Inc. has installed a vehicle operation management system in company-owned vehicles. This system constantly gathers and stores data about the way company-owned cars are being used, including dangerous driving habits such as sudden acceleration and deceleration, as well as driving time, fuel consumption, and so on. Based on the data, drivers of company vehicles are given safe driving guidance. It is also used in eco-driving initiatives to lower fuel costs and reduce the environmental impact of company vehicle use.

Showroom in France Achieves Environmental Label

At a printing center, countless pages must be printed to meet the customers' needs for printed materials. At the same time, the environmental impact of this energy and resource consumption must also be minimized.

Sales company Konica Minolta Business Solutions France S.A.S., has earned the environmental label Imprim'Vert for its showroom, Digital Imaging Square. This certifies that organizations using the showroom for printing will be complying with the major standards for environmental management.

Obtaining Carbon Offsets for Trade Shows in Germany

Konica Minolta Business Solutions Europe GmbH aims to offset all of the CO₂ generated when participating in exhibitions and trade fairs for the purpose of sales promotion, and to achieve carbon neutral sales activities.

Adoption of Renewable Energy

Renewable Energy Initiatives

Konica Minolta is generating and using renewable energy at multiple sites. Meanwhile, Konica Minolta Business Solutions, U.S.A. built a photovoltaic installation in a parking lot in 2013 to generate electricity to power its offices.

Konica Minolta Business Solutions Europe, based in Germany, switched to 100% hydro-energy-derived power at all of its sites, including branches, through a contract with a power company in 2016. Since October 2019, Konica Minolta Business Solutions (UK) Ltd. has been obtaining over 80% of the electricity used at its sales sites from renewable energy sources. In January 2020, Konica Minolta Business Solutions Austria GmbH also accomplished this for its sales sites.



Operating on 100% hydro-energy-derived power (Germany)



Photovoltaic installation in the company parking lot (United States)

Carbon Offsetting Service

Carbon Offsetting for Office and Production Printing

Enabling carbon neutrality is a carbon-offsetting service that uses emissions credits to offset CO₂ emissions at every stage of the product lifecycle, from procurement to use. Konica Minolta Business Solutions Europe introduced the service for office and production printers in July 2015 and offers it across the whole of Europe.

So far it has been introduced in 11 countries, including Germany, France, and the Netherlands, to offset CO₂ emissions throughout the product lifecycle. In addition to these activities, the company uses carbon offsetting for CO₂ emissions from commuting and business trips as well as events such as international exhibitions. It has offset a total of over 34,000 tons of CO₂ emissions thus far as a result. Konica Minolta will increase the number of countries eligible in order to contribute more to the creation of a sustainable planet and society.

Environmental Contribution Activities and Initiatives to Raise Employees' Environmental Awareness

"Sustainability Week" to Raise Employees' Environmental Awareness

Konica Minolta Business Solutions France holds a Sustainability Week that encourages eco-friendly initiatives and participation in charitable organizations, in an effort to raise employees' awareness of sustainability. Enabling contact with various initiatives, such as education about environmental policies, the sale of honey harvested by the company, the use of eco-friendly vehicles (electric cars), and appropriate waste disposal, this event is an opportunity for each and every employee to gain even greater awareness about the creation of a sustainable society.



Internal poster for Sustainability Week

Beekeeping with the Aim of Raising Awareness of Biodiversity

Konica Minolta Business Solutions France has greened the roof of its building in Paris and set up beehives for beekeeping. People in France traditionally exhibit an understanding of beekeeping even in a densely populated city such as Paris. The honeybees raised in these beehives help pollinate many kinds of plants such as fruit trees, vegetables, and flowers, enriching the biodiversity of the surrounding area.

Moreover, the harvested honey is bottled and sold to employees, with the proceeds donated to a charity fund established by Konica Minolta Business Solutions France. The fund promotes cultural, artistic, and sporting activities for people with disabilities throughout the year. Through this initiative, the company is raising employees' awareness of the preservation of biodiversity while also contributing to the community.



Beekeeping on the roof

Supporting the Green Marathon, the Objective of Which Is Reforestation

The Green Marathon has been held in Rennes, France since 2011 with the objective of reforestation in Ethiopia. In an endorsement of this goal, Konica Minolta Business Solutions France has continued to support the marathon since its inception. The marathon intends to contribute to society in various ways, including the spirit of sport and the protection of the natural environment. It conducts an initiative to plant one tree per kilometer run by each participant, in order to support the restoration of forests. In 2019, the marathon resulted in the planting of nearly 120,000 trees. Since 2012, the cumulative distance run by participants has exceeded 840,000 kilometers, and a tree has been planted for every one of those kilometers.



Green Marathon

Raising Environmental Awareness Through Volunteering

Every year, Konica Minolta Business Solutions U.S.A. raises the sustainability awareness of its employees by offering them the opportunity to participate in volunteer activities with non-profit organizations. For the past five years, it has supported the non-profit Mahwah Environmental Volunteers Organization (MEVO) through volunteering and donations. As part of MEVO's "Seeds of Change" program, it supports a paid summer internship for a high school student to work on a farm and learn about sustainability and community leadership. The company also provide teams of employee volunteers two or three times a year. The volunteers help plant and harvest crops while learning about the local environment, as well as sustainable gardening and agriculture.

Konica Minolta Business Solutions U.S.A. employees also participate as volunteers with the New York-New Jersey Trail Conference, where they help to keep local parks, hiking trails and forests sustainable and accessible to the community. In 2020, in cooperation with the Arbor Day Foundation, employees are contributing to global reforestation activities by planting 10,000 trees in areas where forest fires have recently occurred.



New York/ New Jersey Trail Conference



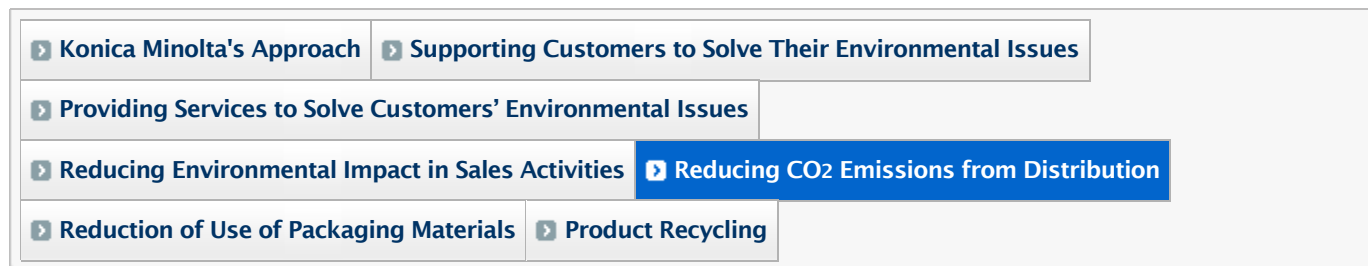
Employees participating in Mahwah Environmental Volunteers Organization (MEVO)

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| ▸ Reducing CO₂ Emissions from Distribution | ▸ Reduction of Use of Packaging Materials | ▸ Product Recycling

Reducing CO₂ Emissions from Distribution



In order to reduce CO₂ emissions associated with distribution, transportation must be streamlined and means of transportation with little environmental impact must be chosen. Konica Minolta is reducing CO₂ emissions derived from distribution operations by measures such as shortening transportation distances through optimization of logistics facilities and routes worldwide, reducing the number of containers through improved loading efficiency.

Major Initiatives

Optimizing Shipping Container Loading Efficiency

Konica Minolta is reducing CO₂ emissions and increasing the efficiency of shipping container loading during transportation by employing consolidated services based on loads. In the Business Technologies Business, for example, when Konica Minolta delivers office equipment to various European countries from its distribution center in Germany, achieving optimal loading efficiency according to the size, shape and changes in the logistic quantity of products is one of the key challenges. The company has been improving loading efficiency through the introduction of a loading simulation program. Furthermore, since fiscal 2016, Konica Minolta has improved loading efficiency by optimizing the packaging form to suit the shipping conditions, focusing on marine transportation of parts procured in Japan to plants in China and ASEAN for assembly, shipment of products from Chinese warehouses to distributors worldwide, and land transportation of products manufactured in Mexico into the U.S.

Promoting a Modal Shift

Konica Minolta has been promoting a modal shift for the transportation of products and parts, switching from aircraft and trucks to ships, railways, and other means that emit less CO₂.

In Europe, for instance, it uses barges that run along the Rhine River as the means of transportation from the Port of Rotterdam in the Netherlands to its base warehouse in Emmerich, Germany. In the U.S., it has reduced CO₂ emissions by using railroads when transporting cargo from the Port of Los Angeles on the West Coast to the interior and the East Coast.

Reconsidering Distribution Routes and Consolidating Logistics Facilities

Konica Minolta is reducing CO₂ emissions from its distribution processes by restructuring its logistics facilities both in Japan and outside of Japan. In fiscal 2019, the company continued its efforts from the previous fiscal year to streamline logistics by optimizing distribution routes for products and service parts shipped from office equipment production and distribution sites in China and ASEAN to customers worldwide.

In production procurement, at its Malaysian factory, Konica Minolta took the external warehouses and parts supplier production sites dotted around distant locations and consolidated them in the vicinity of the factory, establishing a Smart Industrial Center (SIC). This reduced the transportation distance considerably, enabling achievement of just-in-time (JIT) supply to the factory. Transportation distances were also reduced considerably by changing parts shipped to Malaysia from Chinese parts suppliers to Malaysian production.

Moreover, with the proactive utilization of a lead logistics provider (LLP) for distribution in Japan, Konica Minolta reorganized distribution sites, revised routes, and utilized joint transportation with other companies, thereby strategically reducing CO₂ emissions from distribution activities. Improving the efficiency of distribution routes and sites has also led to reductions in the space and energy used at distribution warehouses.

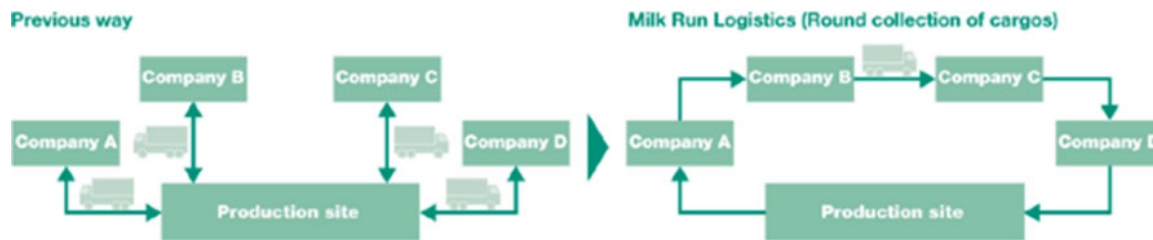
These initiatives resulted in a reduction of around 310 tons in CO₂ emissions in fiscal 2019.

Milk Run Logistics (Common Collection of Cargos)

The term "milk run" originally came from the milk collecting system of dairy producers who visited dairy farms to collect milk in a single vehicle. In the manufacturing industry, it refers to a collection method in which a single vehicle is used to make rounds picking up goods from various suppliers instead of requesting each supplier to deliver goods individually.

Konica Minolta is using milk run logistics in the suburbs of Wuxi City in Jiangsu, China. This helps to reduce CO₂ emissions by shortening the total driving mileage of the trucks.

In addition, the Group is also reducing waste by using re-usable boxes instead of cartons to transport the parts.



Joint Transport

Konica Minolta Japan, Inc., a sales company, carries out joint distribution of office equipment with Epson Sales Japan Corporation, including installation work, in the Kanto and Koshinetsu areas in Japan. These initiatives result in high-quality delivery and installation operations that raise the satisfaction of customers and help reduce CO₂ emissions.

Reducing CO₂ Emissions Associated with Shipping by U.S. Sales Company

Konica Minolta Business Solutions U.S.A., Inc. is a member of the SmartWay program at the United States Environmental Protection Agency (EPA). This initiative helps companies improve their supply chain sustainability by measuring, benchmarking and improving the efficiency of freight transport.

As a member of this program, the company is working on:

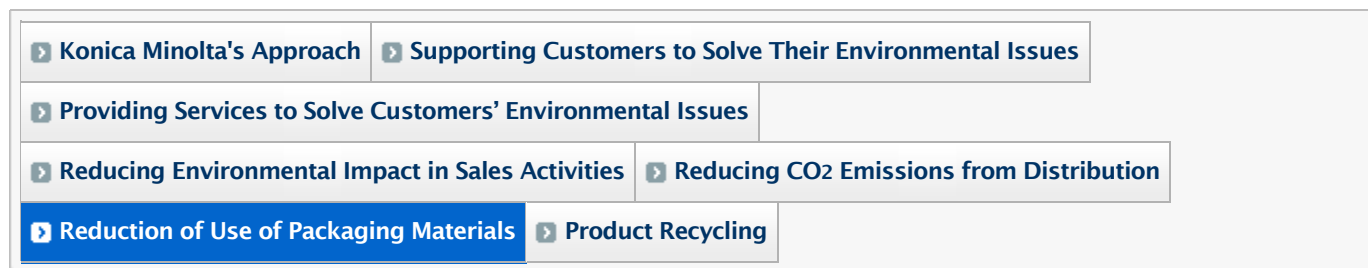
- Reducing emissions and fuel consumption in logistics activities
- Shipping more than 50% of goods through EPA designated SmartWay carriers
- Using railway cars and Smartway truck trailers, avoiding vehicle idling, and reducing transport distances
- Shipping multiple orders together

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➤ **Reducing CO₂ Emissions from Distribution** | ➤ Reduction of Use of Packaging Materials | ➤ Product Recycling

Reduction of Use of Packaging Materials



Konica Minolta is reducing packaging material usage by optimizing shapes and recycling.

Major Initiatives

Reduction of Use of Packaging Materials

Konica Minolta has developed new buffer materials, in addition to techniques to optimize conventional buffer materials, for its multi-function peripherals (MFPs) for offices and production printing machines, thereby substantially reducing the use of packaging materials. In order to confirm the actual transportation environment, the development, production and sales departments worked together to conduct an experiment in 2016. Products were sent from production sites in China on various routes by ship, truck and railway to sales companies worldwide. After arrival, they were checked to see what impact they underwent during shipment. Using these measurements as a reference, the company reexamined its packaging design concept and succeeded in streamlining the cushioning material while maintaining the equivalent shock resistance. This greatly reduced the amount of styrene foam used.

In 2019, Konica Minolta developed a new air cushioning material* that converts the various impact energies produced during transport into heat energy and succeeded in increasing the cushioning efficiency. Compared to conventional packaging from 2005, new packaging that includes this cushioning material uses 83% less styrene foam by weight ratio.

In addition to developing its own technologies, the company has also worked to reduce the use of styrene foam with packaging designs that replace styrene foam with cardboard using TOTO LTD. cardboard cushioning technology (PAT P6362025).

This improvement resulted in smaller packing boxes and a substantial reduction in the use of styrene foam, contributing to greater transportation efficiency, which in turn helped to substantially reduce CO₂ emissions during distribution.

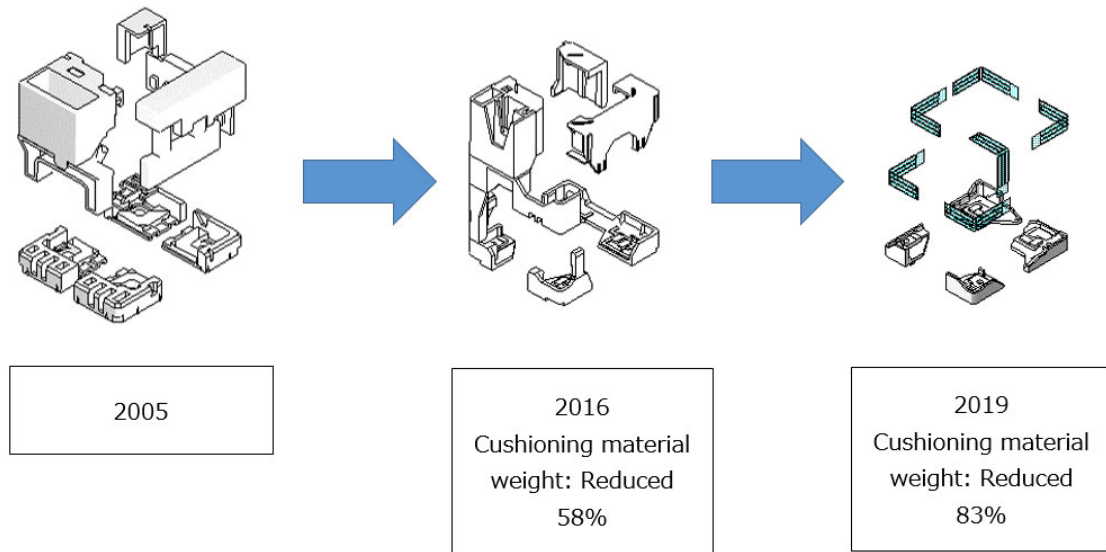
The various initiatives undertaken in 2019 reduce the environmental impact of the company's packaging throughout the entire supply chain from procurement, assembly, distribution, recovery and recycling by the equivalent of approximately 1,200 tons in CO₂ emissions per year.

In order to expand the effects, in addition to increasing the types of office MFPs and production printing machines covered by these initiatives, the company also expanded it to peripheral equipment and consumables.

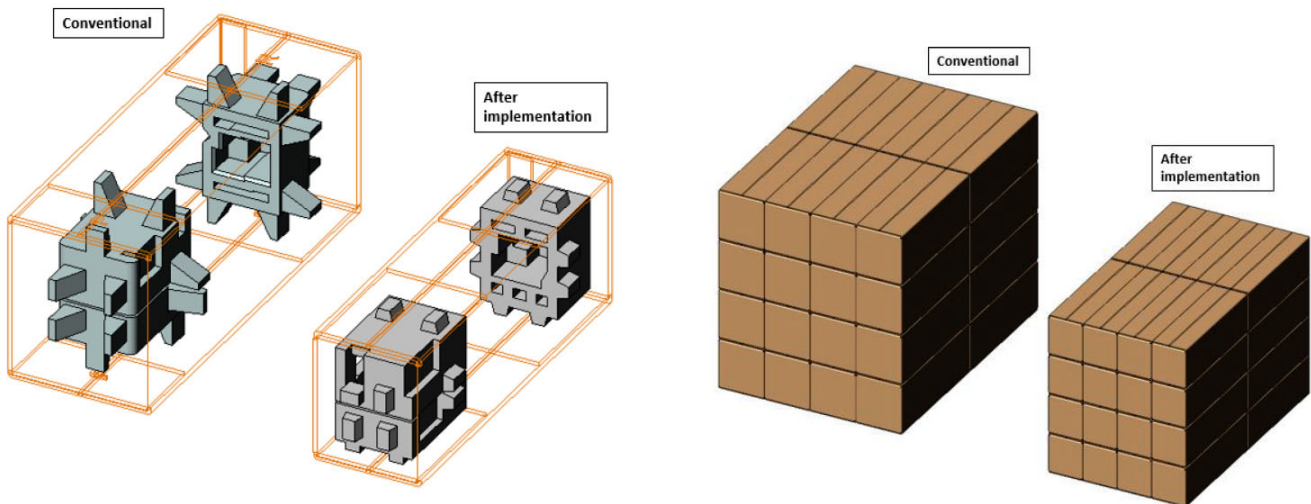
*The new air cushioning material won the President's Award of the Japan Productivity Center, one of the top-ranked Japan Star awards at the Japan Packaging Contest 2019 sponsored by the Japan Packaging institute.



Example of downsized packaging for office MFPs and the application of new air cushioning material



Example of downsized packaging for consumables



Recycling Used Packaging Materials

Konica Minolta's sales companies worldwide are also working hard to recycle used packaging materials. Konica Minolta Business Solutions (UK) Ltd., a sales company in the UK, established the "Greenhub" recycling center inside its logistics warehouse. It separates used packaging materials for MFPs and production printing machines into cardboard, styrene foam, film, and wood, and then sells them to a local recycling operator as material for recycling. In the Greenhub, it pulverizes and compresses styrene foam, which has poor transportation efficiency due to its large volume relative to weight, in an effort to reduce environmental impact associated with its transportation. The Group is carrying out similar initiatives at sales companies in France, Belgium, Germany, Japan and China.

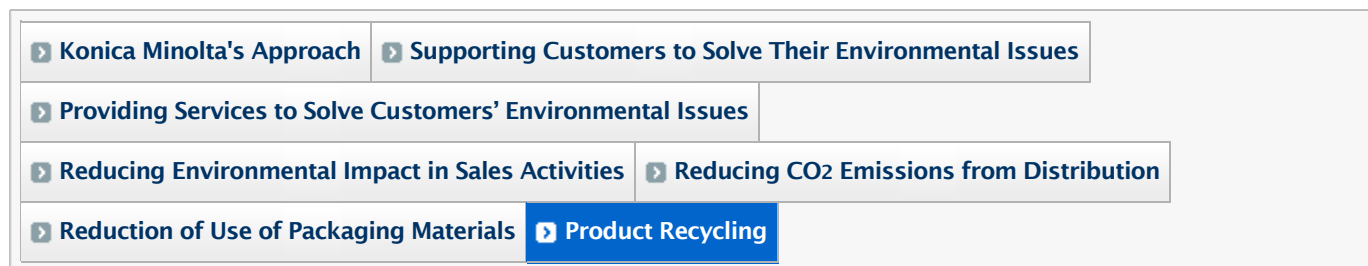


Foamed polystyrene crusher

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 ► Reducing CO₂ Emissions from Distribution | ► **Reduction of Use of Packaging Materials** | ► Product Recycling

Product Recycling



Konica Minolta has developed recovery and recycling programs for used products in regions around the world, each one tailored to local legal systems and market conditions.

Recovery and Recycling of Used Products

Konica Minolta has a program for collecting used MFPs, printers and other products from customers through the Konica Minolta Group's sales companies around the world. These products are recycled by contractors that meet the legal requirements, and obtain approval in each country.

Konica Minolta's recovery and recycling program complies with the waste disposal laws in each country. When forming agreements with contractors, Konica Minolta asks them to comply with the necessary laws and regulations in each location. Moreover, Konica Minolta conducts audits using reports on recycling conditions and appropriate disposal obtained via regular on-site monitoring. In Japan, Konica Minolta carries out on-site inspections once every three years to confirm recycling conditions, including compliance with environmental laws and regulations.

For example, in Japan, after collecting used MFPs and printers from eight collection centers, the used products are recycled at seven designated contractors. The collected products are taken apart by hand, rather than crushed mechanically, to raise the recycling rate. After dismantling, metal and plastic parts are separated, for example, and many are reused as materials. Those that cannot be reused as materials are reused as fuel.

In fiscal 2019, Konica Minolta sold a total of 97,800 tons of office equipment worldwide. Meanwhile, 14,200 tons of end-of-life office equipment were recovered by major sales companies in Japan, China, the United States, and Europe. Of this amount, 14,100 tons of material were recycled.



Recycling process at a designated contractor

In addition, Konica Minolta has received approval from Japan's Ministry of the Environment to dispose of copiers, MFPs and printers that it has sold based on a special system for wide-area treatment of industrial waste. Konica Minolta operates a fee-based recovery program for collecting and recycling used printers and copiers from corporate clients.

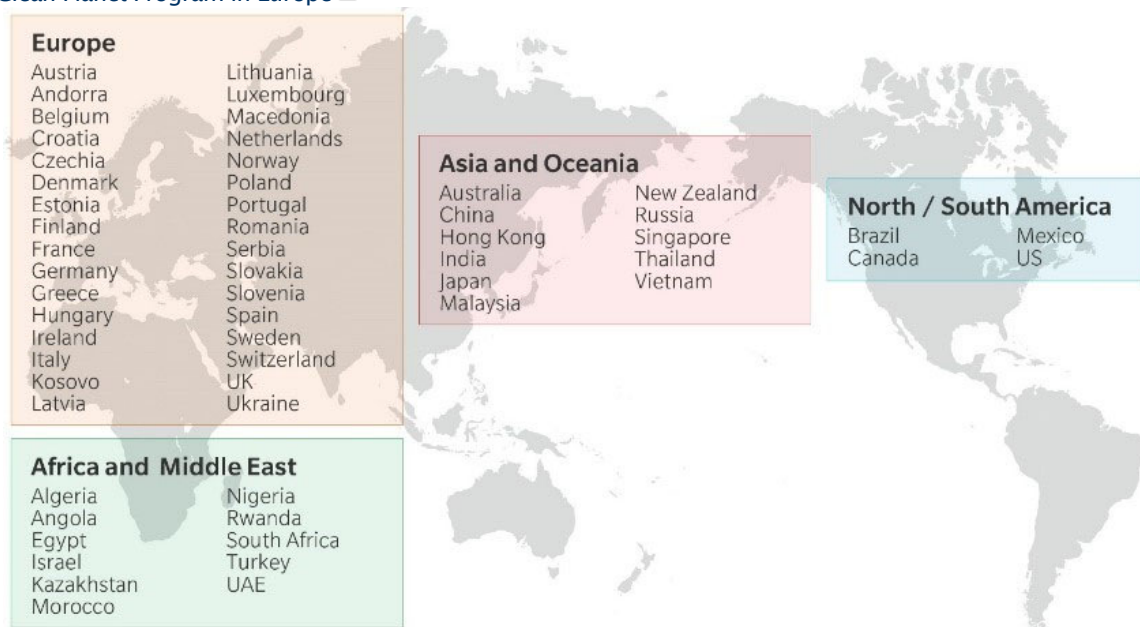
Outside Japan, Konica Minolta is undertaking recycling programs tailored to conditions in specific countries. In Europe, for example, the company has adopted measures in compliance with the EU directive on the disposal of waste electrical and electronic equipment (WEEE). It meets the legal and environmental labeling requirements in various countries including Asian countries such as China and India.

Recovery and Recycling Printer Cartridges

Konica Minolta offers systems for the free-of-charge recovery and recycling of used toner cartridges for laser printers over 20 countries including in Europe, the U.S., and Japan. In the U.S., this free-of-charge recovery system has been expanded to include used toner bottles for MFPs. In Australia, Konica Minolta also offers its own recovery and recycling programs.

➤ [To the Clean Planet Program in the U.S.](#) 

➤ [To the Clean Planet Program in Europe](#) 



Areas Where Toner Cartridge Recovery and Recycling System Has Been Introduced

Machines collected in Japan in fiscal 2019

- Estimated collection rate: 76%
- Recycling rate: 99%

➤ [For more information of product recovery and recycling data:](#)

Participation in Industry Organizations and Networks

Initiatives in Japan

Konica Minolta participates in the recovered equipment exchange system run by the Japan Business Machine and Information System Industries Association (JBMA). Through this initiative, equipment turned in by manufacturers of copiers, MFPs and digital printers, including Konica Minolta, are collected at shared collection centers and returned to manufacturers, thus promoting the recovery and recycling of products in the industry overall. There are 35 collection sites and nine exchange centers for collected machines from Hokkaido to Okinawa, covering all of Japan.

Initiatives in Europe

In France, Konica Minolta Business Solutions France S.A.S. established CONIBI with joint investments from 17 office equipment manufacturers and contracted recovery operations to this joint company. CONIBI created its own free collection system and promotes the recycling of toner cartridges and consumables.

➤ [CONIBI](#) 

➤ [Konica Minolta's Approach](#) | ➤ [Supporting Customers to Solve Their Environmental Issues](#)

| ➤ [Providing Services to Solve Customers' Environmental Issues](#) | ➤ [Reducing Environmental Impact in Sales Activities](#)

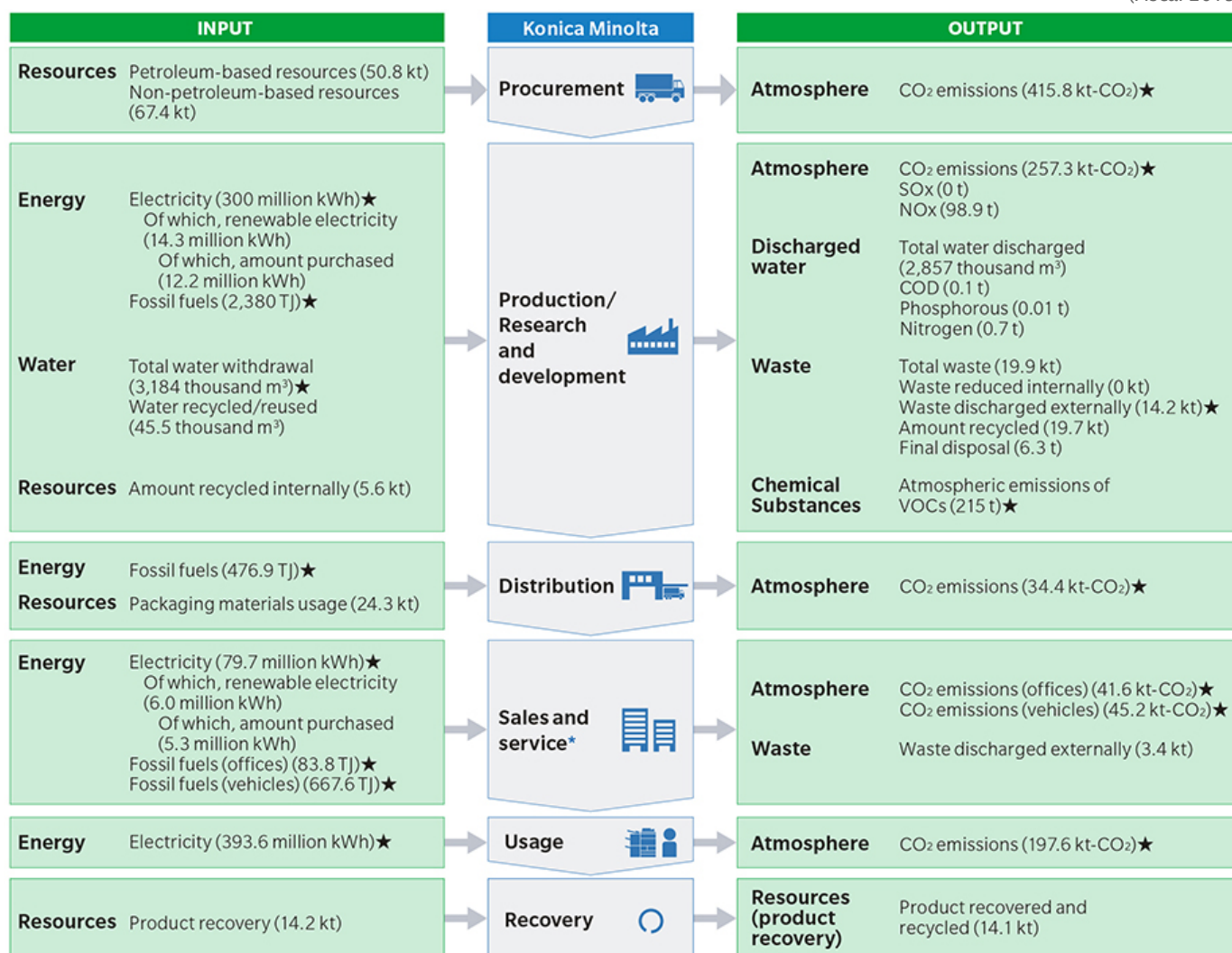
| ➤ [Reducing CO₂ Emissions from Distribution](#) | ➤ [Reduction of Use of Packaging Materials](#) | ☒ [Product Recycling](#)

Environmental Data

Konica Minolta measures the amount of energy and resources used in all its business activities, as well as the amount of greenhouse gases emitted and the amount of waste produced at each stage of a product's life cycle. These results are analyzed and used to facilitate concrete approaches to improvement.

Overall View of Environmental Impacts Resulting from Business Activities

(Fiscal 2019)



* Boundary: All consolidated sales companies worldwide

★: Indicators assured by KPMG AZSA Sustainability Co., Ltd.

Standards for Calculating Environmental Data

See the following webpage for the standards for calculating environmental data for each stage of the product lifecycle related to Konica Minolta business activities.

› [Standards for Calculating Environmental Data](#)

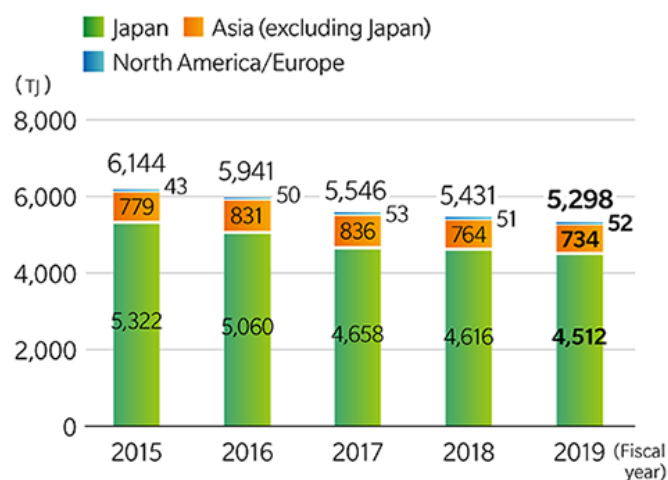
Energy / CO₂

[Energy / CO₂](#)
[Resources](#)
[Water](#)
[Atmosphere and Chemical Substances](#)

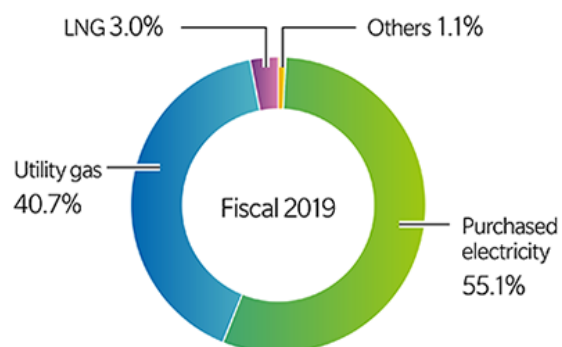
[Environmental Performance Data of Each Site](#)
[Soil and Groundwater](#)

Energy

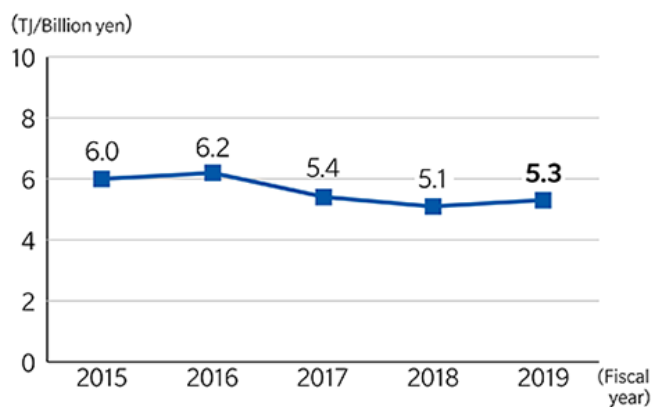
Total Energy Inputs*



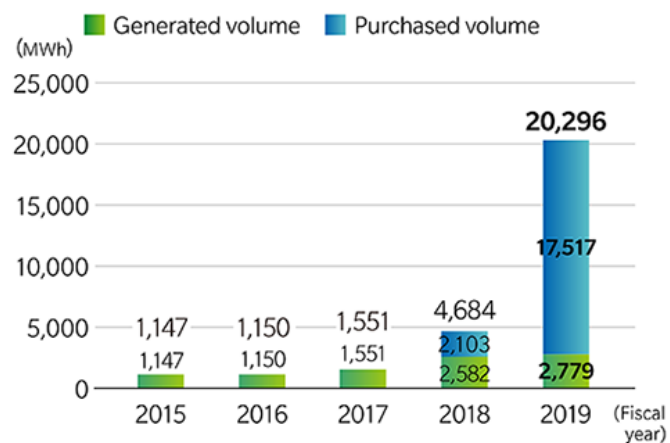
Energy Use by Type



Total Energy Inputs (per unit of sales)

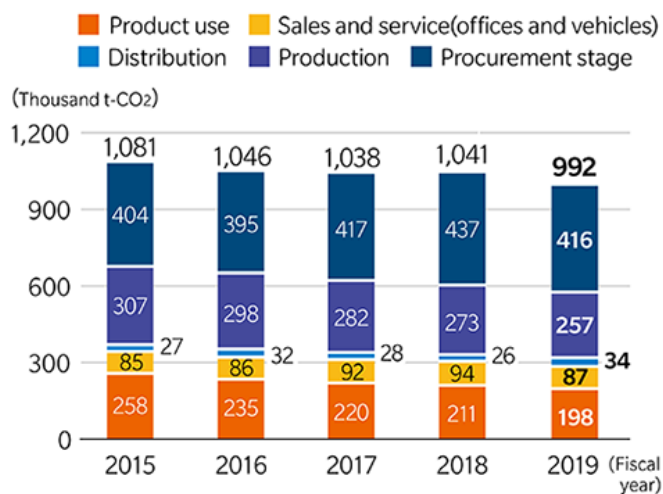


Electricity Generated Using Renewable Energy

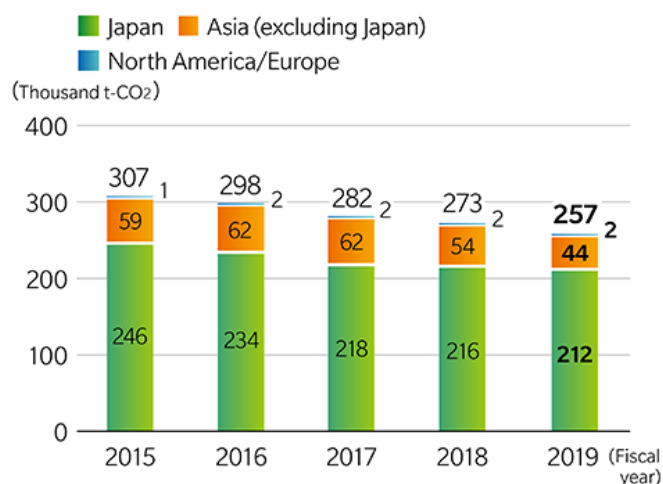


CO₂

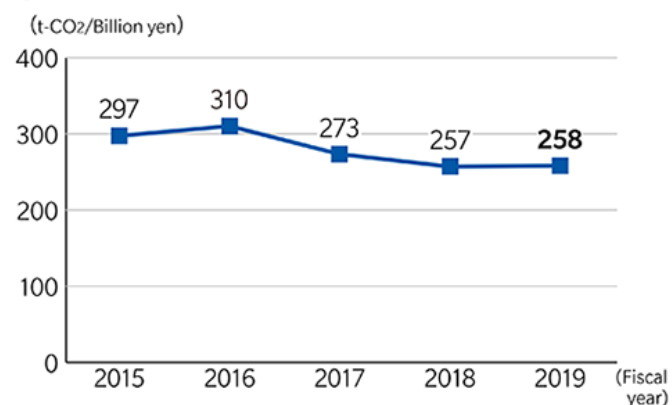
Product Lifecycle CO₂ Emissions★



CO₂ Emissions at the Production Stage★



CO₂ Emissions at the Production Stage (per unit of sales)



★: Indicators assured by KPMG AZSA Sustainability Co., Ltd.

Notes: Figures do not necessarily add precisely to the total due to rounding.

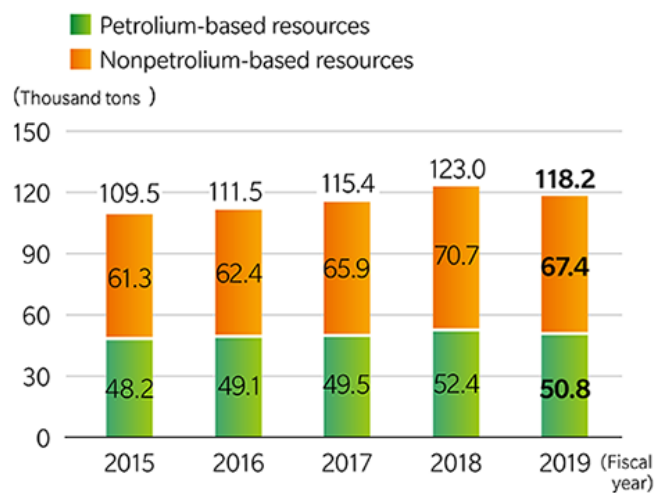
Resources

[Energy / CO2](#)
[Resources](#)
[Water](#)
[Atmosphere and Chemical Substances](#)

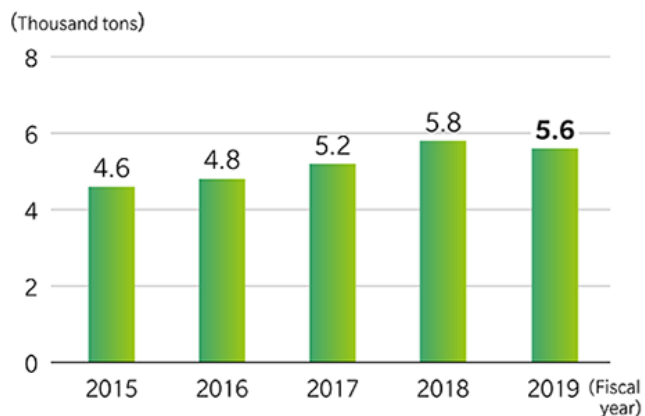
[Environmental Performance Data of Each Site](#)
[Soil and Groundwater](#)

Input of resources

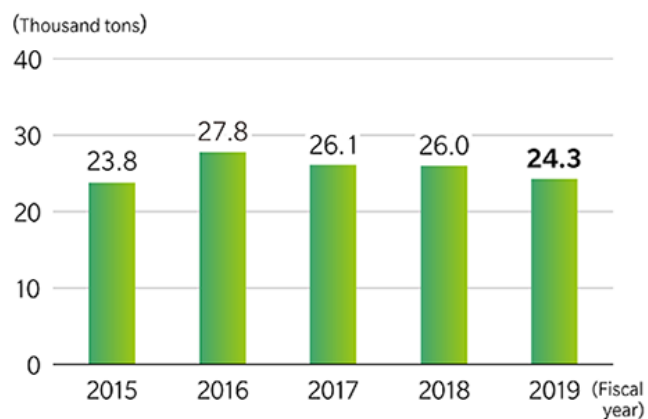
Petroleum-based and nonpetroleum-based resources input



Internal recycling

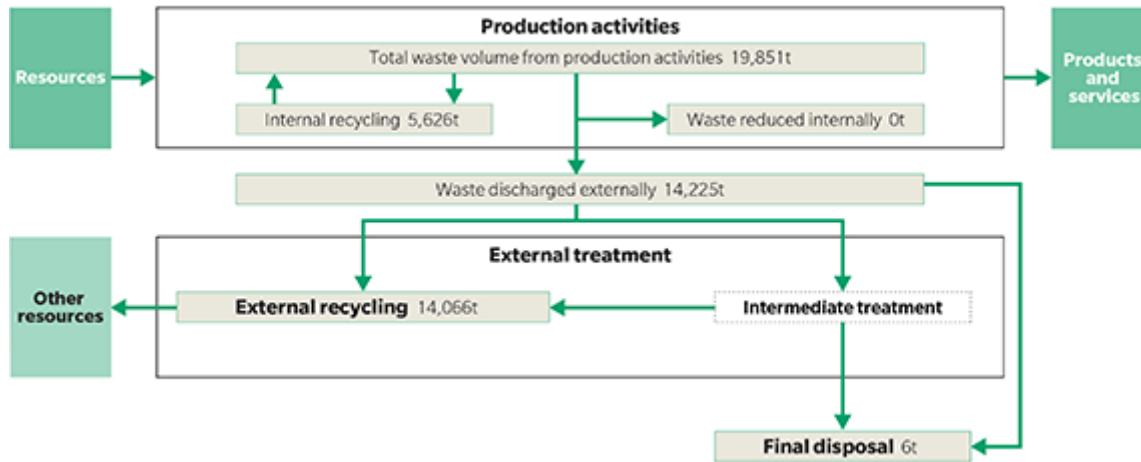


Packaging materials used

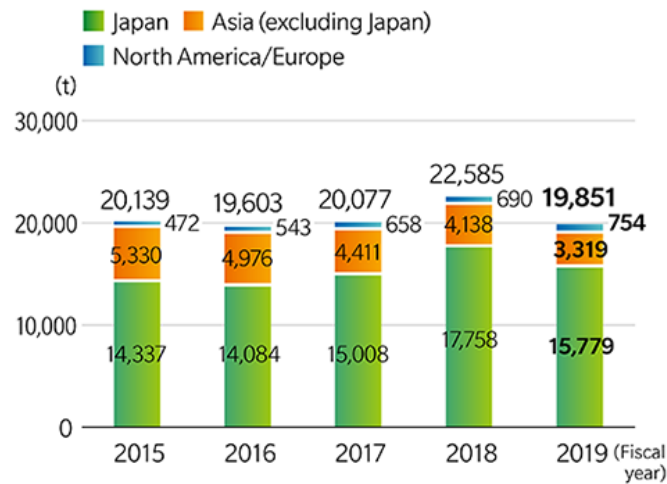


Waste

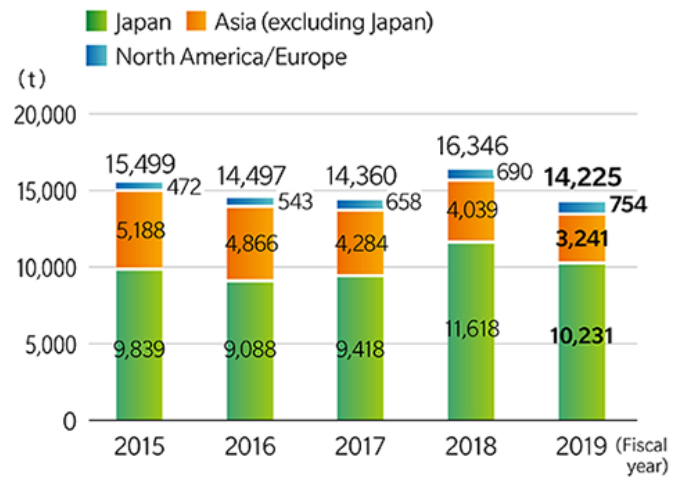
Flow of waste (Fiscal 2019)



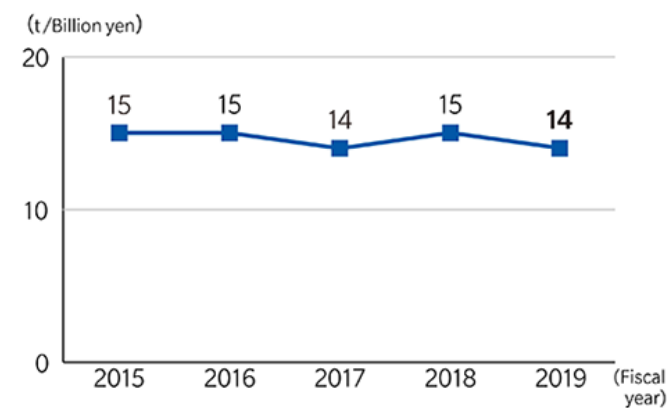
Total Waste



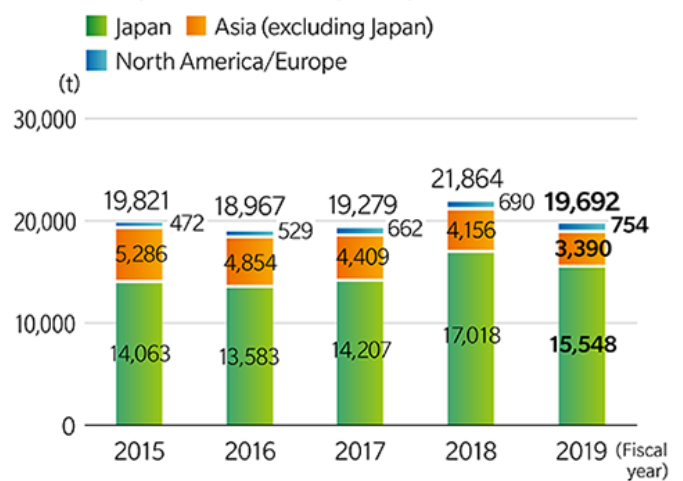
Waste discharged externally*



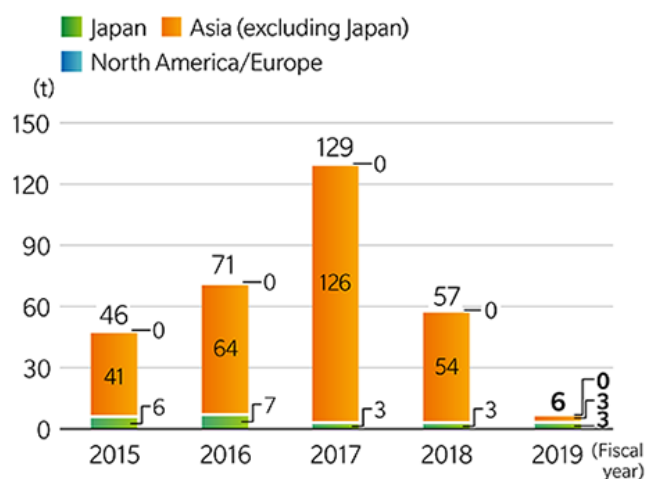
Waste discharged externally (per unit of sales)



Total Volume of Recycled Resources (Internally and Externally Recycled)

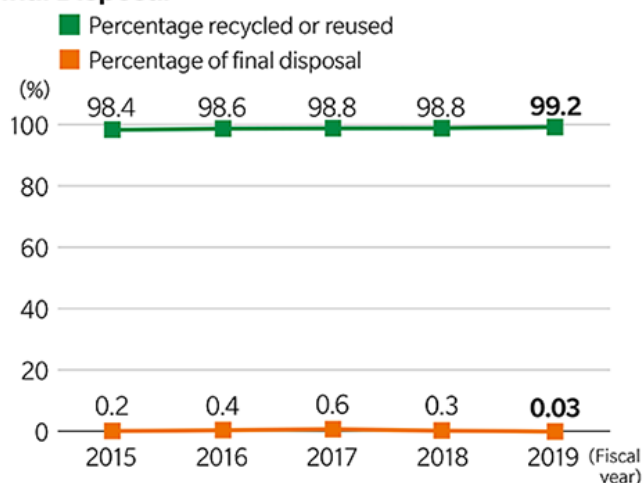


Total Volume of Final Disposal (Landfill Waste)*



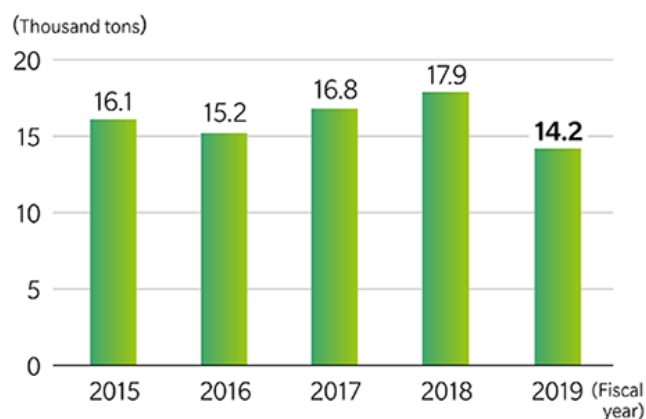
* The figures are the sum of direct landfill and landfill of residual after intermediate treatment.

Percentage Recycled or Reused / Percentage of Final Disposal

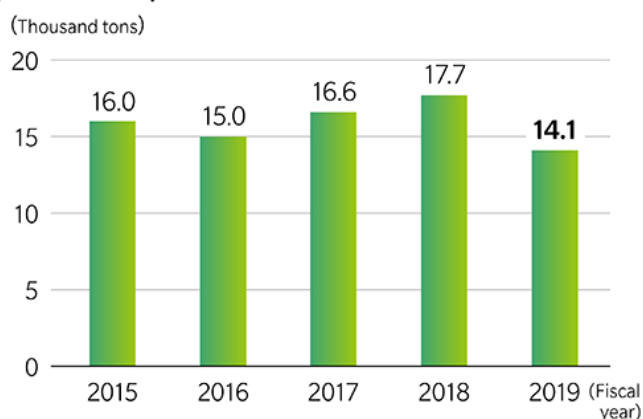


Product recovery and recycling

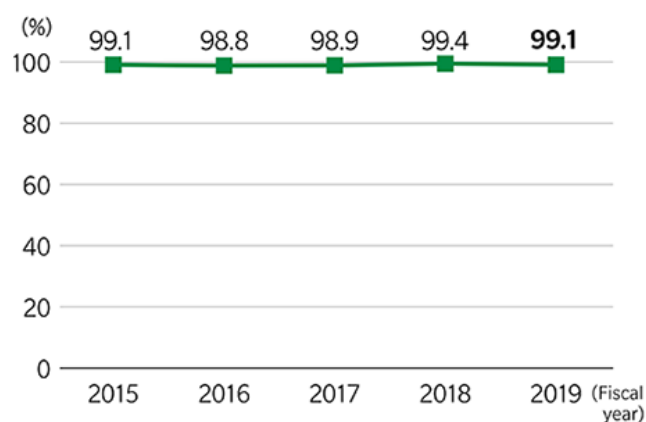
Product Recovery Volume (Worldwide)



Recycling Volume for Recovered Products (Worldwide)



Recycling Rate of Recovered Products



★: Indicators assured by KPMG AZSA Sustainability Co., Ltd.

Notes: Figures do not necessarily add precisely to the total due to rounding.

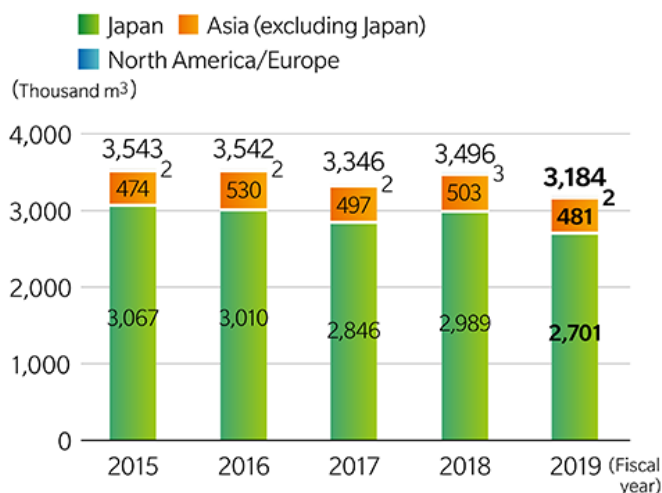
Water

[Energy / CO2](#)
[Resources](#)
[Water](#)
[Atmosphere and Chemical Substances](#)

[Environmental Performance Data of Each Site](#)
[Soil and Groundwater](#)

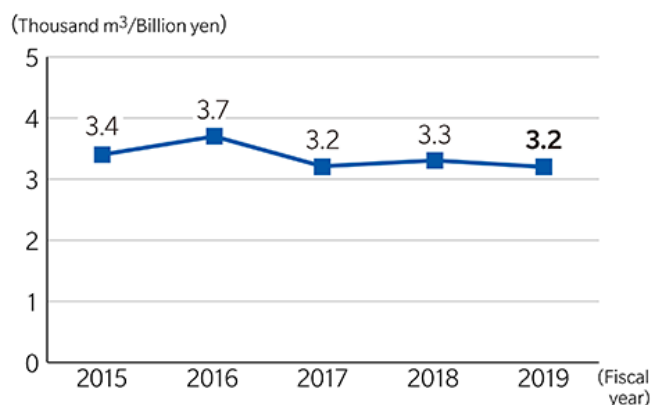
Water Withdrawal

Total Water Withdrawal★

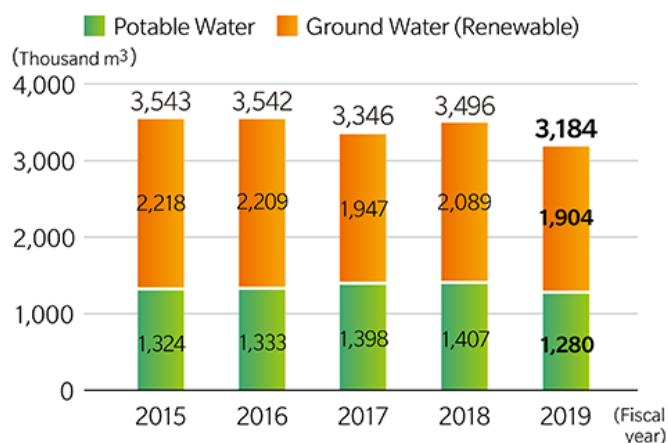


Note: The figures include water used for soil and groundwater remediation.

Total Water Withdrawal (per unit of sales)

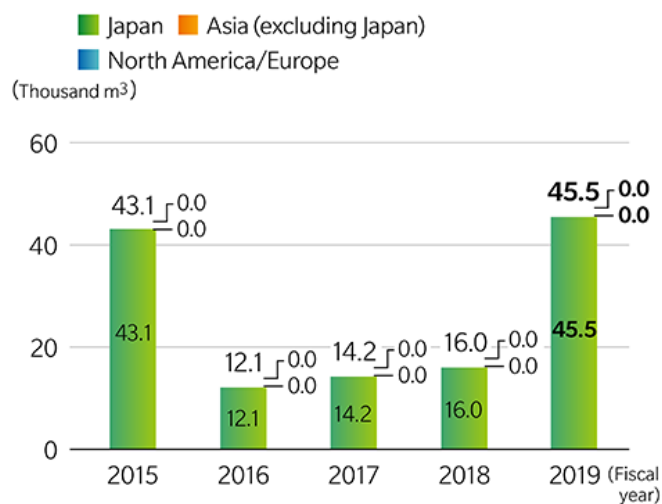


Water Withdrawal by Source



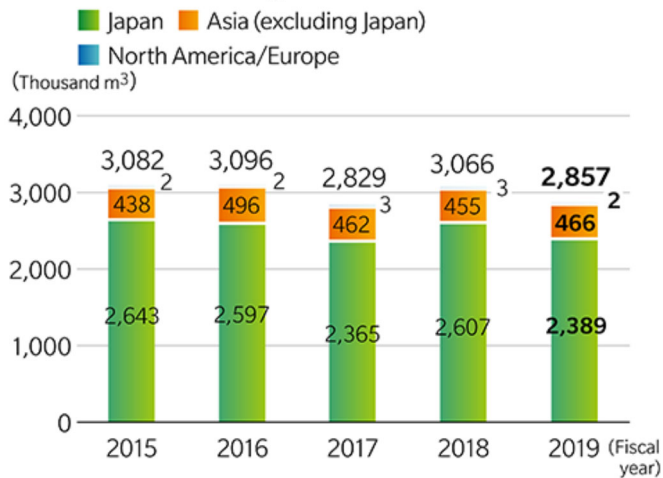
Note: Industrial water is included in potable water from fiscal 2016.

Use of recycled water



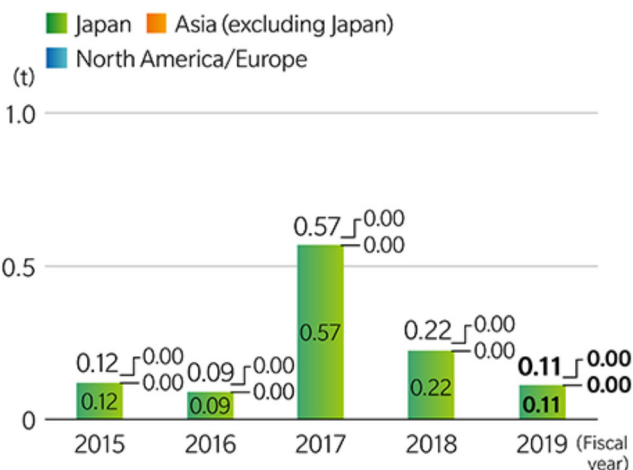
Water Discharged

Total Water Discharged



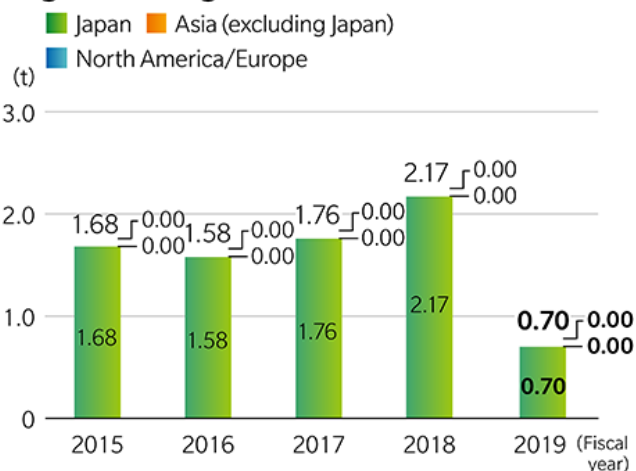
Note: The figures in fiscal 2016 to 2018 have been corrected due to errors for calculation.

COD into Public Waters



Note: The figure in fiscal 2018 has been corrected due to errors for calculation.

Nitrogen Discharged into Public Waters

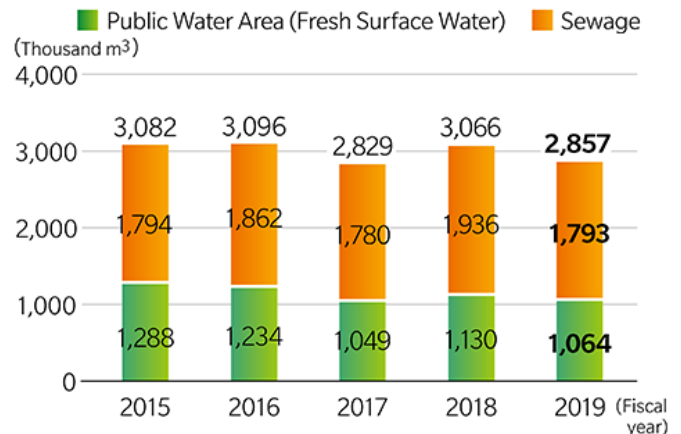


Note: The figure in fiscal 2018 has been corrected due to errors for calculation.

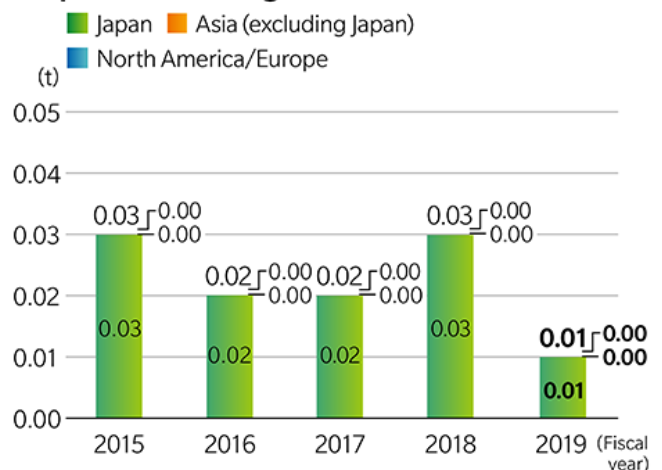
★: Indicators assured by KPMG AZSA Sustainability Co., Ltd.

Notes: Figures do not necessarily add precisely to the total due to rounding.

Water Discharge by Destination



Phosphorus Discharged into Public Waters



Note: The figure in fiscal 2018 has been corrected due to errors for calculation.

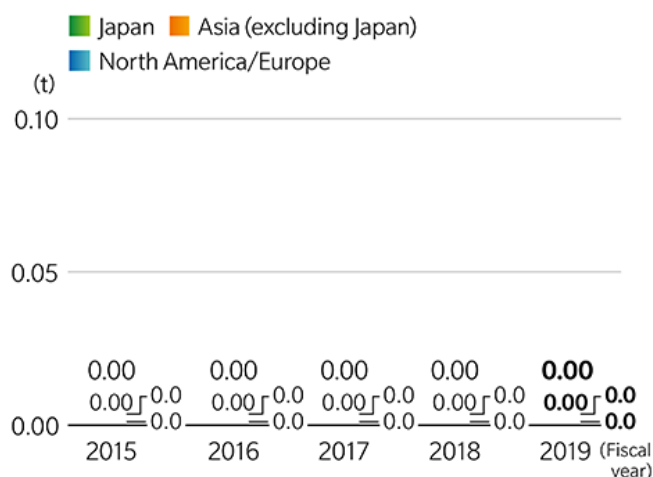
Atmosphere and Chemical Substance

[Energy / CO2](#)
[Resources](#)
[Water](#)
[Atmosphere and Chemical Substances](#)

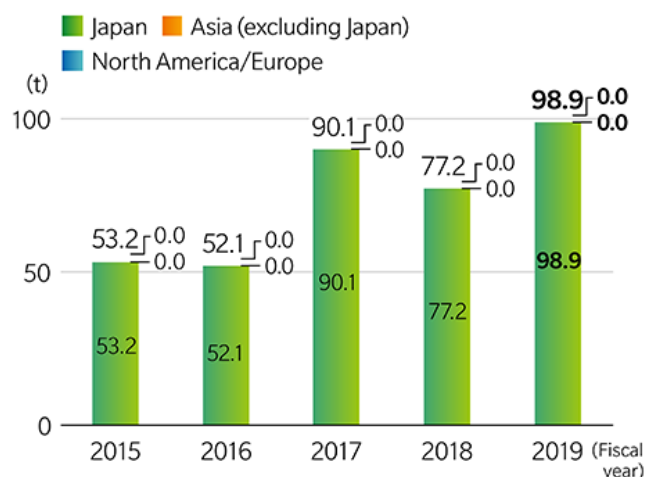
[Environmental Performance Data of Each Site](#)
[Soil and Groundwater](#)

Atmosphere

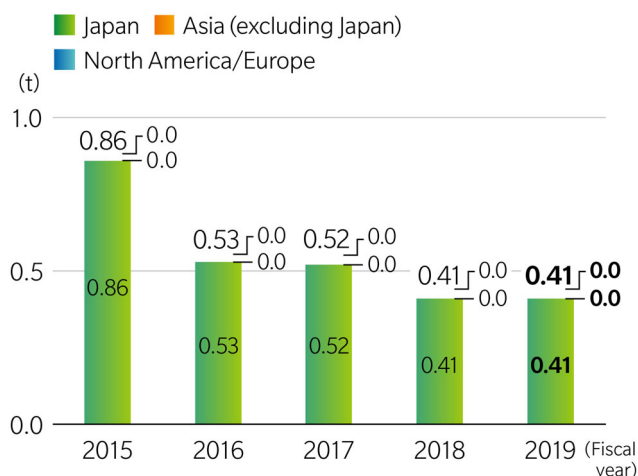
SOx Emissions



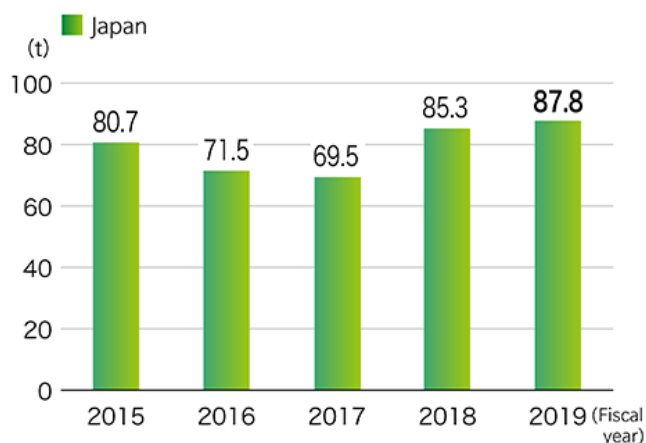
NOx Emissions



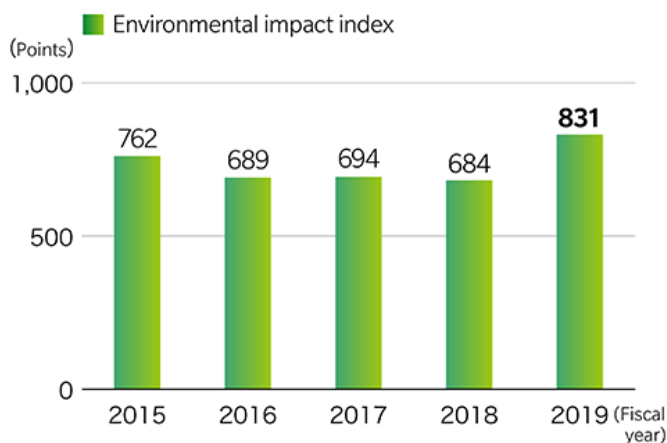
Soot and Dust Emissions



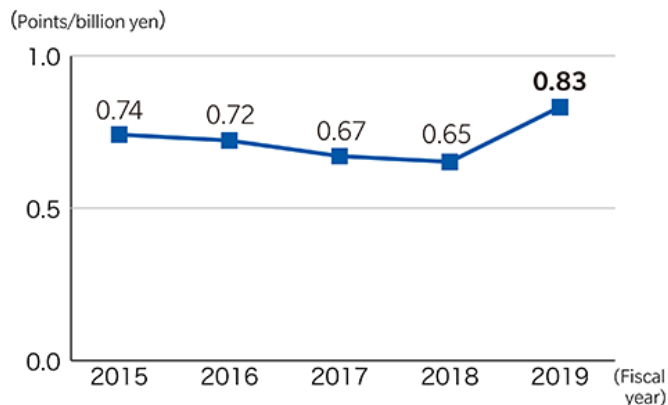
Atmospheric Emissions of PRTR Substances



Atmospheric VOC Emissions (Environmental impact index)



Atmospheric VOC Emissions (Environmental impact index per unit of sales)



Substances Controlled by Pollution Release and Transfer Register (PRTR) System

Substances Controlled by Pollution Release and Transfer Register (PRTR) System Fiscal 2019

(t)

Identification Number	Name of Chemical Substance	Releases			Amount Transferred Externally		Recycled
		To Air	To Water	To Soil	Waste*	Sewage	
7	n-Butyl acrylate	1.5	0.0	0.0	2.1	0.0	0.0
13	Acetonitrile	2	0.0	0.0	6.9	0.0	0.0
81	Ferric chloride	0.0	0.0	0.0	7.5	0.0	0.0
181	Dichlorobenzene	0.0	0.0	0.0	2.4	0.0	0.0
186	Dichloromethane (also known as methylene dichloride)	67	0.0	0.0	434.7	0.0	7.9
232	N, N-Dimethylformamide	0.0	0.0	0.0	381.7	0.0	0.0
240	Styrene	6.2	0.0	0.0	6.2	0.0	0.0
275	Sodium dodecyl sulfate	0.0	0.0	0.0	0.0	1.7	0.0
277	Triethylamine	2.1	0.0	0.0	1.3	0.0	0.0
300	Toluene	10.6	0.0	0.0	330.2	0.0	0.0
392	n-Hexane	0.0	0.0	0.0	13	0.0	0.0
395	Water-soluble salts of peroxodisulfuric acid	0.0	0.0	0.0	1.1	0.0	0.0
412	Manganese and its compounds (Mn equivalent)	0.0	0.0	0.0	0.0	0.0	0.0
415	Methacrylic acid	0.5	0.0	0.0	0.6	0.0	0.0
420	Methyl methacrylate	0.0	0.0	0.0	0.0	0.0	0.0
438	Methylnaphthalene	0.0	0.0	0.0	0.0	0.0	0.0
455	Morpholine	0.0	0.0	0.0	24.1	0.0	0.0

* In accordance with PRTR system definitions, even if materials were recycled later, they were counted here as waste if they were not sold at a profit.

* Boundary of data: Charts cover Konica Minolta Group production sites in Japan.

Environmental Performance Data of Each Site

▶ Energy / CO ₂	▶ Resources	▶ Water	▶ Atmosphere and Chemical Substances
▶ Environmental Performance Data of Each Site	▶ Soil and Groundwater		

Sites of Konica Minolta, Inc. in Japan (FY2019)

Site name / Location	Main Business Contents	CO ₂ Emissions (t-CO ₂)	Waste discharged externally (t)	Final Disposal (t)	Total Water Withdrawal (m ³)	Ground Water (m ³)	Drinking Water (m ³)	Total Water Discharged (m ³)	Atmospheric Emissions of VOC (t)	Atmospheric Emissions of PRTR Substances (t)
Tokyo Site Hino (Hino, Tokyo)	Development, manufacturing and sales of healthcare and printing equipment materials and peripherals	17,652	597	0.0	355,714	355,714	-	358,149	*1	0.0
Tokyo Site Hachioji (Hachioji, Tokyo)	Development and sales of office equipment, optical devices, and healthcare products	16,203	648	0.0	103,744	90,123	13,621	103,744	*1	0.0
Kofu Site (Kofu, Yamanashi Prefecture)	Manufacturing of parts for illumination, and plastic film for display materials	5,096	34	0.0	132,064	62,300	69,764	105,401	*1	0.0
Mizuho Site (Toyokawa, Aichi Prefecture)	Development and Manufacturing management of office equipment-related products	4,306	457	0.4	18,556	-	18,556	17,870	*1	0.0
Mikawa Site (Toyokawa, Aichi Prefecture)	Development of office equipment-related products	729	74	0.0	6,904	-	6,904	5,573	*1	0.0
Toyokawa Site (Toyokawa, Aichi Prefecture)	Manufacturing management of office equipment-related products, and development and manufacturing of planetariums	312	24	0.0	5,559	-	5,559	5,559	*1	0.0
Osakasayama Site (Osakasayama, Osaka)	Development and manufacturing of optical products	5,697	73	2.4	73,431	35,473	37,958	52,951	*1	0.0
Sakai Site (Sakai, Osaka)	Development, manufacturing and sales of measuring instruments for industrial applications	1,586	45	0.0	32,971	23,485	9,486	32,971	*1	0.0
Itami Site (Itami, Hyogo Prefecture)	Office equipment software development	834	84	0.0	10,911	1,308	9,603	8,789	*1	0.0
Takatsuki Site (Takatsuki, Osaka)	Development of office equipment-related products and optical systems for industrial use	1,242	10	0.0	8,948	-	8,948	7,179	*1	0.0

Site name / Location	Main Business Contents	CO ₂ Emissions (t-CO ₂)	Waste discharged externally (t)	Final Disposal (t)	Total Water Withdrawal (m ³)	Ground Water (m ³)	Drinking Water (m ³)	Total Water Discharged (m ³)	Atmospheric Emissions of VOC (t)	Atmospheric Emissions of PRTR Substances (t)
Kobe Site, Seishin Site, Kobe Second Site* (Kobe, Hyogo Prefecture)	Development, manufacturing and sales of plastic film for display materials	123,704	2,162	0.0	704,292	275,215	429,077	449,394	75.1	64.7
Kumamoto Site (Tamana, Kumamoto Prefecture)	Manufacturing of ink jet heads for industrial use	2,642	178	0.0	16,937	16,937	-	16,089	*1	0.0

Affiliate Production Sites in Japan (FY2019)

Site name or Company name / Location	Items produced	CO ₂ Emissions (t-CO ₂)	Waste discharged externally (t)	Final Disposal (t)	Total Water Withdrawal (m ³)	Ground Water (m ³)	Drinking Water (m ³)	Total Water Discharged (m ³)	Atmospheric Emissions of VOC (t)	Atmospheric Emissions of PRTR Substances (t)
Konica Minolta Supplies Manufacturing Co., Ltd. Head Office Head Office Factory (Kofu, Yamanashi Prefecture)	Consumables for MFPs, laser printers and printing equipment	11,155	304	0.0	316,513	301,241	15,271	318,512	53	16.2
Konica Minolta Supplies Manufacturing Co., Ltd., Tatsuno Factory (Tatsunomachi, Nagano Prefecture)	Consumables for MFPs, laser printers and printing equipment	8,660	799	0.0	424,057	422,628	1,429	423,898		
Konica Minolta Mechatronics Co., Ltd., Odabuchi Head Office* (Toyokawa, Aichi Prefecture)	Consumables and mechanism elements for MFPs and printers	755	280	0.0	4,083	-	4,083	4,083	*2	0.0
Konica Minolta Mechatronics Co., Ltd., Fuefuki Plant (Fuefuki, Yamanashi Prefecture)	Optical devices and inkjet printheads	4,055	768	0.4	193,110	193,110	-	192,560	*2	0.0
Konica Minolta Mechatronics Co., Ltd., Ueta Plant (Toyohashi, Aichi Prefecture)	Parts for consumables for MFPs and laser printers	1,608	558	0.0	126,683	126,144	539	126,683	*2	0.0
Konica Minolta Mechatronics Co., Ltd., Tsuru Plant (Tsuru, Yamanashi Prefecture)	Electrical plates for MFPs and printers	1,028	51	0.0	5,725	-	5,725	5,725	*2	0.0
Konica Minolta Technoproducts Co., Ltd., Head Office (Sayama, Saitama Prefecture)	Healthcare imaging equipment	1,908	82	0.0	7,190	-	7,190	7,190	*2	0.0
Konica Minolta Chemical Co., Ltd., (Fukuroi, Shizuoka Prefecture)	Chemicals	2,452	3,004	0.0	153,330	-	153,330	146,949	28.1	6.9

Affiliate Production Sites Outside Japan (FY2019)

Site name or Company name / Location	Items produced	CO ₂ Emissions (t-CO ₂)	Waste discharged externally (t)	Final Disposal (t)	Total Water Withdrawal (m ³)	Ground Water (m ³)	Drinking Water (m ³)	Total Water Discharged (m ³)	Atmospheric VOC Emissions (t)
Konica Minolta Business Technologies (Wuxi) Co., Ltd. (China)	MFPs, printing equipment and consumables	6,413	853	0.0	54,940	-	54,940	54,940	*2
Konica Minolta Business Technologies (Dongguan) Co., Ltd. (China)	MFPs, printing equipment and consumables	17	869	0.0	105,073	-	105,073	105,073	*2
Konica Minolta Supplies Manufacturing U.S.A., Inc. (U.S.A.)	Consumables for MFPs and laser printers	1,338	345	0.0	1,026	-	1,026	1,026	*2
Konica Minolta Supplies Manufacturing France S.A.S. (France)	Consumables for MFPs and laser printers	497	409	0.0	916	-	916	916	*2
Konica Minolta Business Technologies (Malaysia) Sdn. Bhd. (Malaysia)	Consumables for MFPs and printing equipment	11,938	1,217	0.0	216,135	-	216,135	216,135	*2
Konica Minolta (Xiamen) Medical Products Co., Ltd. (China)	Healthcare imaging equipment	152	135	0.0	290	-	290	107	*2
Konica Minolta Opto (Dalian) Co., Ltd. (China)	Optical devices	22,894	145	3	92,990	-	92,990	79,041	59.1
Konica Minolta Optical Products (Shanghai) Co., Ltd. (China)	Optical devices	2,382	23	0.1	11,853	-	11,853	10,668	*2

* Sites outside Japan are not controlled by Japan's PRTR System.

* The amount of substances subject to the PRTR Law released to the atmosphere from sites in Japan do not need to be calculated if the quantity handled is no more than 1 ton

*1 Outside the scope of calculation or under the threshold defined in Standards for Calculation

*2 Under the threshold defined in Standards for Calculation

Standards for Calculating Environmental Data

[Energy / CO₂](#) |
 [Resources](#) |
 [Water](#) |
 [Atmosphere and Chemical Substances](#) |
 [Environmental Performance Data of Each Site](#) |
 [Soil and Groundwater](#)

Soil and Groundwater

▶ Energy / CO ₂	▶ Resources	▶ Water	▶ Atmosphere and Chemical Substances
▶ Environmental Performance Data of Each Site	▶ Soil and Groundwater		

Surveys and Measures Taken on Soil and Groundwater Contamination

Efforts regarding soil and groundwater contamination

Konica Minolta is striving to manage the state of contamination through regular monitoring, to facilitate cleanup, and to prevent the spread of contamination.

It conducts robust management through periodic observation at sites where soil or groundwater contamination has been identified to ensure that the contaminants do not affect the surrounding environment.

The Group has organized a special team to manage remediation of polluted sites and to prevent the spread of contamination. Detailed surveys conducted under the team's supervision serve as the basis for developing countermeasures and examining suitable purification technologies.

The Group reports the results of its observations and remediation efforts to local government agencies.

Summary of Contaminated Soil or Groundwater at Operation Sites

Operation Site	Substances	Progress in Fiscal 2019
Tokyo Site Hino (Hino, Tokyo)	Fluorine, Boron, Mercury, Benzene, Lead	The company has continued to periodically monitor groundwater at the site boundary and has confirmed that amounts of these substances do not exceed standards.
Tokyo Site Hachioji (Hachioji, Tokyo)	Hexavalent chromium	The company has continued to purify groundwater and prevent dispersion by pumping water at the site. It has periodically monitored the groundwater and confirmed that there is no runoff of these substances from the site.
Kofu Site (Chuo, Yamanashi Prefecture)	Fluorine	The company has continued to periodically monitor groundwater at the site boundary and has confirmed that amounts of fluorine do not exceed standards.
Mikawa Site, Western Zone (Toyokawa, Aichi Prefecture)	TCE ^{*1} , Fluorine	With the construction of a new plant, the company purified soil that exceeded standards for lead. It also carried out purification work for fluorine in fiscal 2018, and is periodically monitoring groundwater for a period of two years to confirm the effects. It has continued to periodically monitor groundwater for TCE, and has confirmed that amounts of this substance do not exceed standards.
Itami Site (Itami, Hyogo Prefecture)	Lead, Arsenic, Cadmium, Fluorine, Boron	The company has confirmed that amounts of lead and cadmium do not exceed standards at periodically monitored wells. It continues to purify and prevent dispersion of other substances by pumping up water at the site.
Sakai Site (Sakai, Osaka)	TCE, PCE ^{*2} , c-DCE ^{*3} , Boron, Lead, Arsenic, Cadmium	The company has found that amounts of lead, arsenic, and cadmium do not exceed standards at periodically monitored wells. It continues to purify and prevent dispersion of other substances by pumping up water at the site.

Operation Site	Substances	Progress in Fiscal 2019
Osaka Sayama Site (Osaka Sayama, Osaka)	TCE, PCE, c-DCE	A survey of the demolition plan for old buildings found soil and groundwater exceeding the standards. The company will continue to take additional measures besides pumping up water at the site to purify and prevent dispersion.
Konica Minolta Mechatronics Co., Ltd. Ueta Plant (Toyohashi, Aichi Prefecture)	TCE, c-DCE, Hexavalent Chromium	The company has continued to purify and prevent dispersion of groundwater by pumping water at the site.
Konica Minolta Mechatronics Co., Ltd. Fuefuki Plant (Fuefuki, Yamanashi Prefecture)	TCE, PCE, c-DCE	The company has continued to purify and prevent dispersion of ground water through pumping, permeable reactive barriers, and bio-barriers.
Konica Minolta Supplies Manufacturing Co., Ltd. Head Office (Kofu, Yamanashi Prefecture)	TCE, PCE, c-DCE	The company has continued to monitor regularly groundwater at observation wells located on site.

*1 TCE: trichloroethylene

*2 PCE: tetrachloroethylene (perchloroethylene)

*3 c-DCE: cis-1,2-dichloroethylene (resolvent of TCE and PCE)

[▶ Energy / CO₂](#) |
 [▶ Resources](#) |
 [▶ Water](#) |
 [▶ Atmosphere and Chemical Substances](#)
 |
 [▶ Environmental Performance Data of Each Site](#) |
 [▶ Soil and Groundwater](#)

Standards for Calculating Environmental Data

Standards for Calculating Environmental Data (CO₂ Emissions)

Boundary and Standards for Calculation

Stage		Methods of Calculation
1.Procurement	1) Boundary	Office equipment and consumable supplies, optical components, equipment for healthcare system manufactured and sold by Konica Minolta, Inc.
	2) Standards	Calculated by multiplying the sales amount or production amount of office equipment and consumables by a cradle-to-gate CO ₂ emission factor for each of the materials that make up a product; and for other products, multiplying the amount of material used by a cradle-to-gate CO ₂ emission factor for that material.
2.Production / R&D	1) Boundary	All production and R&D sites around the world
	2) Standards	CO ₂ emissions are calculated by multiplying the amount of energy used at each site by the following Fuel:Coefficients stipulated in Japan's Act on Promotion of Global Warming Countermeasures Electricity in Japan: Fiscal 2005 average value of all electrical power sources, as specified by the Federation of Electric Power Companies of Japan Electricity outside Japan: Fiscal 2005 emissions coefficients applicable to each country, as specified by the GHG Protocol
3.Distribution	1) Boundary	Japanese domestic distribution, Chinese and Malaysian production distribution (from factory to port), and international distribution of office equipment, optical components, performance materials, and equipment for healthcare systems
	2) Standards	CO ₂ emissions are calculated by multiplying transport distance by cargo weight, and then multiplying that value by the CO ₂ emissions coefficient of each means of transportation.* ¹ Chinese and Malaysian production distribution and international distribution: Coefficients specified by the GHG Protocol Japanese domestic distribution: Coefficients stipulated in Japan's CO ₂ Emissions Calculation Method for Logistics Operations—Joint Guidelines Ver.3.0
4.Sales and service	1) Boundary	All consolidated sales companies around the world
	2) Standards	Offices: CO ₂ emissions are calculated by multiplying the amount of energy used at sites* ² by the following coefficients. Fuel: Coefficients stipulated in Japan's Act on Promotion of Global Warming Countermeasures Electricity in Japan: 2005 average value of all electrical power sources, as specified by the Federation of Electric Power Companies of Japan Electricity outside Japan: 2005 emissions coefficients applicable to each country, as specified by the GHG Protocol Vehicles: CO ₂ emissions are calculated by multiplying the amount of vehicle fuel used* ³ by the following Fuel: Coefficients stipulated in Japan's Act on Promotion of Global Warming Countermeasures

Stage		Methods of Calculation
5.Usage	1) Boundary	Office equipment and equipment for healthcare system * Optical components are excluded since they are used as parts of other companies' products
	2) Standards	CO ₂ emissions are calculated by multiplying the number of units operating in the market (inferred from sales units each year and the life of the product) by the estimated annual amount of electrical consumption ^{*4} for each model and the CO ₂ coefficient equal to the fiscal 2005 world average value specified by the GHG Protocol.

*1 Estimated for optical components based on sales.

*2 The amount of energy used includes some estimated values.

*3 The amount of fuel used includes some estimated values.

*4 The annual amount of electricity consumption for office equipment is estimated based on the Typical Electricity Consumption (TEC) value set by the International Energy Star Program, and for equipment or healthcare systems it is estimated based on each product's specifications.

Note: Figures in graphs may not add up to totals due to rounding.

Standards for Calculating Environmental Data (Emissions Other Than CO₂)

Boundary and Standards for Calculation

Item		Methods of Calculation
1. Petroleum-based resource usage in products	1) Boundary	Office equipment and consumable supplies, performance materials, optical components, and equipment for healthcare systems produced and sold by Konica Minolta, Inc.
	2) Standards	Calculated by multiplying the raw material or part weight by content percentage of petroleum-based resources set for each material, based on the product specification
2. Packaging materials usage	1) Boundary	Raw material and parts used in packaging for office equipment and consumable supplies, performance materials, optical components, and equipment for healthcare systems
	2) Standards	Calculated by multiplying the weight of packaging material per single product (based on product specifications, etc.) by the number of units of the product sold, based on sales results
3. Waste discharged Externally from manufacturing	1) Boundary	All production and R&D sites around the world
	2) Standards	The total actual weight of waste discharged externally from production ^{*1}
4. Final disposal	1) Boundary	All production and R&D sites around the world
	2) Standards	The total weight of final disposal ^{*2} (Weight of waste discharged externally from production × Percentage of final disposal ^{*3})
5. Atmospheric emissions of VOCs	1) Boundary	Production sites around the world with ten or more environmental impact index ^{*4} points, when points are added for every compound that is rated of one point or more.
	2) Standards	The sum of the environmental impact index for atmospheric emissions of VOCs ^{*5}
6. Water consumption	1) Boundary	All production and R&D sites around the world
	2) Standards	The total amount of water intake (city water, ground water, industrial water)

Notes

- *1 Of the waste (refuse, etc.) generated at production and research and development sites for which Konica Minolta has responsibility as generator of waste, the amount discharged outside the Konica Minolta site. However, some wastes unrelated to production are excluded.
- *2 Except for residues after recycling.
- *3 Percentage of final disposal are calculated based on the value from industrial waste disposal companies.
- *4 Environmental impact index: An index unique to Konica Minolta.
Environmental impact index (point) = Atmospheric emissions of VOCs [t] × Hazard coefficient × Location coefficient
Hazard coefficient: Set at 1-fold, 10-fold, or 100-fold depending on the severity of the impact on human health and the environment (set independently by Konica Minolta based on the coefficient used in the safety evaluations conducted by Kanagawa Prefecture in Japan)
Location coefficient: Outside the industrial estate 5, inside the industrial estate 1
- *5 The overall picture of environmental impact does not take into account the hazard coefficient and location coefficient, and the atmospheric emissions are shown as is.

Note: Figures in graphs may not add up to totals due to rounding.

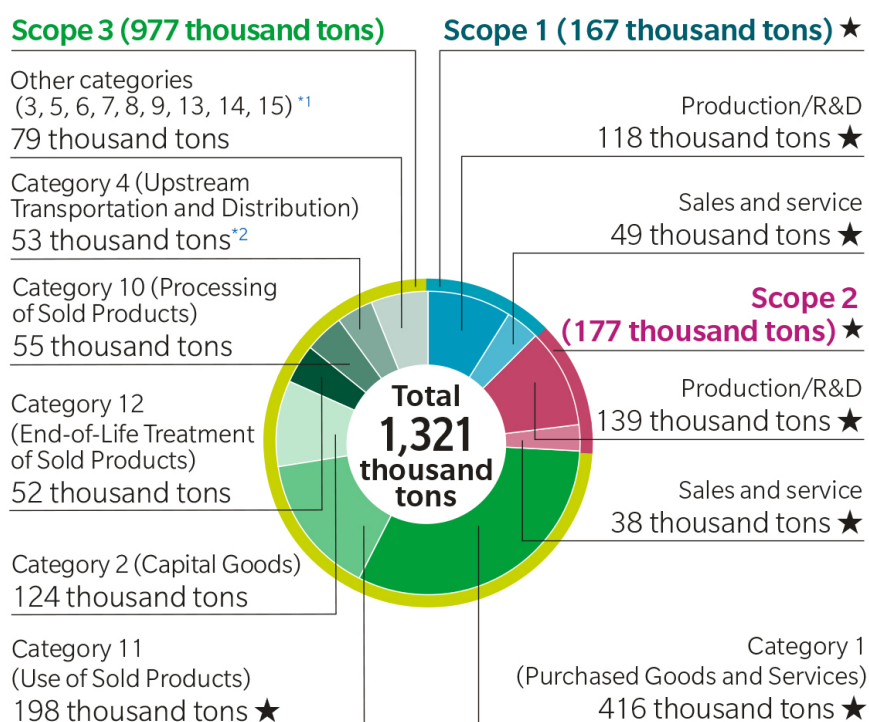
CO₂ Emissions Across the Entire Supply Chain

Calculating CO₂ Emissions Across the Entire Supply Chain

Konica Minolta has calculated the CO₂ emissions associated with the Group's activities across its entire supply chain, from the upstream to the downstream aspects of its operations, based generally on the standards of the GHG Protocol*, the international standard. In fiscal 2019, the calculation showed that CO₂ emissions throughout the supply chain were approximately 1.32 million tons, which represents a decrease of approximately 5.1% from fiscal 2018. Emissions from the Group's activities including direct emissions from fuel use (Scope 1) plus indirect emissions from the consumption of purchased electricity, heat or steam (Scope 2) totaled approximately 0.35 million tons, or approximately 26% of all emissions. Other indirect emissions (Scope 3) associated with the Group's activities totaled approximately 0.98 million tons, accounting for approximately 74% of all emissions. CO₂ emissions for "purchased goods and services" accounted for 31.5% of emissions across the entire supply chain. Since the amount of resources needed per product declined thanks to the development of the latest models with resource-saving designs, the overall CO₂ emissions resulted in a reduction. In terms of the "use of sold products," which accounted for 15.0% of emissions, the Group is working to develop features that encourage customers to save energy, in addition to reducing the power consumption of the products themselves. Konica Minolta will share information with relevant stakeholders in the future based on the results of these calculations and move forward with CO₂ emissions management and reduction activities throughout the supply chain.

* GHG Protocol: Initiatives for developing an international standard for addressing greenhouse gas (GHG) emissions and climate change

Overall View of CO₂ Emissions Across the Entire Supply Chain of Konica Minolta



*¹ Categories 3 (Fuel- and Energy-Related Activities), 5 (Waste Generated in Operations), 6 (Business Travel), 7 (Employee Commuting), 8 (Upstream Leased Assets), 9 (Downstream Transportation and Distribution), 13 (Downstream Leased Assets), 14 (Franchises) and 15 (Investments)

*² CO₂ emissions attributed to product distribution: 34 thousand tons ★

Note: Figures do not necessarily add precisely to the total due to rounding.

★: Indicators assured by KPMG AZSA Sustainability Co., Ltd.

Calculation Result for Each Category

Scope 1,2,3 (Category)		Overview	CO ₂ emissions (t)	Percentage of total (%)	
Scope 1		Production / R&D	118,166	8.9%	12.6%
		Sales and service	48,680	3.7%	
Scope 2		Production / R&D	139,090	10.5%	13.4%
		Sales and service	38,110	2.9%	
Scope 3	1	Purchased goods and services	415,783	31.5%	74.0%
	2	Capital goods	123,952	9.4%	
	3	Fuel- and energy-related activities	10,355	0.8%	
	4	Upstream transportation and distribution	53,067	4.0%	
	5	Waste generated in operations	15,306	1.2%	
	6	Business travel	22,090	1.7%	
	7	Employee commuting	11,629	0.9%	
	8	Upstream leased assets	497	0.04%	
	9	Downstream transportation and distribution	16,894	1.3%	
	10	Processing of sold products	55,110	4.2%	
	11	Use of sold products	197,599	15.0%	
	12	End-of-life treatment of sold products	52,310	4.0%	
	13	Downstream leased assets	0	0%	
	14	Franchises	594	0.04%	
	15	Investments	1,718	0.1%	
Total			1,320,950	100.0%	100.0%

Note: Figures may not add up precisely to the total due to rounding.

Method of Calculation in Each Category of Scope 3 Emissions

Category	Overview	Method of Calculation
1	Purchased goods and services	Calculated by multiplying the sales amount or production amount of office equipment and consumables by a cradle-to-gate CO ₂ emission factor for each of the materials that make up a product; and for other products, multiplying the amount of material used by a cradle-to-gate CO ₂ emission factor for that material.
2	Capital goods	Calculated by multiplying the amount of investment in capital goods purchased over the year by a CO ₂ emission factor per investment value.
3	Fuel- and energy-related activities	Calculated for emissions from the extraction, production, and transportation of fuels purchased by the Group or by electricity producers for the electricity purchased by the Group. (Fuel) Calculated by multiplying the annual purchased volume by a cradle-to-gate CO ₂ emission factor for each type of fuel. (Fuels purchased and used by electricity producers) Calculated by multiplying the annual purchased volume of electricity by source, by a CO ₂ emission factor for each source. Proportion of sources in electricity generation for each country is identified from the Proportions of Generated Power by Source in Major Countries, published by the Federation of Electric Power Companies of Japan.
4	Upstream transportation and distribution	Emissions in this category are the sum of: A) emissions related to transportation of parts and raw materials the Group purchases, and B) emissions related to transportation of the Group's products. A) Calculated for emissions related to procurement distribution from suppliers to Konica Minolta's plants. Calculated by multiplying transport distance by cargo weight, and then multiplying that value by the CO ₂ emission factor for each means of transportation. B) Calculated for emissions related to shipping and distribution internationally, within Japan, within China. Calculated by multiplying transport distance by cargo weight, and then multiplying that value by the CO ₂ emission factor for each means of transportation.
5	Waste generated in operations	Calculated for waste (not including valuables) from production, R&D, and sales offices. Calculated by classifying waste into different types and multiplying the amount of each type of waste entrusted to a party outside the company by a CO ₂ emission factor for each method of waste disposal.
6	Business travel	For business travel by employees of Group companies in Japan, the emissions are calculated by multiplying the annual business travel expenditure by a CO ₂ emission factor per expense for travel for each means of transportation. The CO ₂ emission factor used is that for travel by domestic air flight in Japan, which is the highest among the emission factors for all methods of travel. For Group companies outside Japan, it is estimated by multiplying the number of employees of each company by the emission amount per employee calculated based on the result in Japan.
7	Employee commuting	Calculated by multiplying the annual commutation cost by a CO ₂ emission factor per expense. The CO ₂ emission factor used is for "automobiles (buses and ride-sharing in sales vehicles)," which is the highest among the emission factors for all commuting methods. For Group companies outside Japan, it is estimated by multiplying the number of employees of each company by the emission amount per employee calculated based on the result in Japan.
8	Upstream leased assets	Most leased assets are calculated as Scope 1 and 2 emissions. Scope 3 applies only to some leased assets (e.g., data centers). Calculated by multiplying the actual annual power consumption for the leased servers by a CO ₂ emission factor for electrical power.
9	Downstream transportation and distribution	Calculated for emissions related to distribution of Konica Minolta products sold by dealers. Estimated by identifying a CO ₂ emission factor per unit of sales based on the emissions from distribution for direct sales by the main sales companies and multiplying this by dealer sales volume.

Category	Overview	Method of Calculation
10	Processing of sold products	Konica Minolta's product lineup includes semi-finished product. Emissions in this category are calculated by identifying a CO ₂ emission factor per unit of sales based on the Scope 1 and Scope 2 emissions and sales volume of the main parts sales destinations and multiplying this by overall sales volume.
11	Use of sold products	Calculated by multiplying the number of units operating in the market (inferred from sales units each year and the life of the product) by the estimated annual amount of electrical consumption* for each model and the CO ₂ coefficient equal to the fiscal 2005 world average value specified by the GHG Protocol. The calculation method used by Konica Minolta is slightly different from the GHG Protocol method, but it enables the Group to calculate the emissions that more accurately reflect the Group's business operations and thus allows it to implement initiatives to reduce CO ₂ emissions smoothly.
12	End-of-life treatment of sold products	Calculated for emissions related to the end-of-life treatment of products themselves and their containers and packaging. Calculated by multiplying the weight of materials that make up the products sold by a CO ₂ emission factor for each type of disposal method. The calculation is made for anticipated future emissions from the end-of-life treatment of products sold in the previous fiscal year, which will be reported as the data of that fiscal year.
13	Downstream leased assets	All of Konica Minolta's product leasing is done through leasing companies. Konica Minolta does not enter into lease agreements directly with customers. Also, Konica Minolta did not lease out any large buildings or equipment. It was therefore judged that there were no emissions in this category.
14	Franchises	Emissions from Kinko's franchises in Kyushu, Hiroshima, and Shikoku fall under this category. Estimated based on the proportion of employees, based on energy usage at the head office of Kinko's Japan Co., Ltd.
15	Investments	Calculated for the emissions from the main companies in Konica Minolta's investment portfolio, in which Konica Minolta holds specified investment stocks. Calculated by multiplying the invested companies' CO ₂ emissions by Konica Minolta's shareholding ratio (%) in those companies (number of shares held by Konica Minolta / number of shares issued).

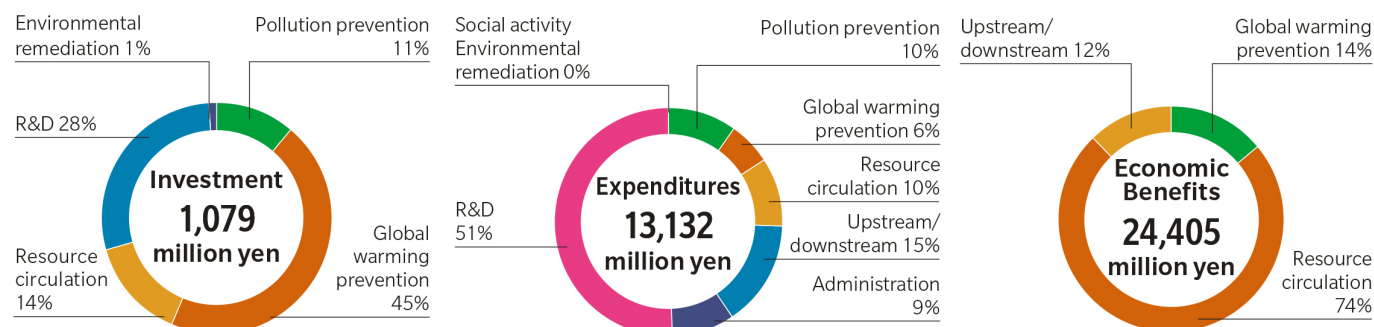
* The annual amount of electrical consumption for office equipment is estimated based on the Typical Electricity Consumption (TEC) value set by the International Energy Star Program, and for equipment for healthcare system it is estimated based on each product's specifications.

Environmental Data

Environmental Accounting in Fiscal 2019

Konica Minolta has implemented global-scale, consolidated environmental accounting in order to quantitatively assess the costs of environmental preservation in business operations and the benefits obtained from those activities.

Expenditures in fiscal 2019 were approximately 13.1 billion yen, a slight decrease from fiscal 2018. Investments remained largely unchanged from the previous fiscal year at 1.1 billion yen. Investments in fiscal 2019 consisted of regular equipment renewal only, and there was no large-scale investment. Economic benefits were almost the same as the previous year at about 24.4 billion yen.



Note: Percentages do not necessarily total to 100 because of rounding.

(Million yen)

Results for Fiscal 2019

Types of Environmental Conservation Activities		Major Initiatives	Fiscal 2019 Results		
			Investment	Expenditures	Economic Benefits
1. Business area cost			762	3,352	21,395
	1) Pollution prevention cost	Implemented wastewater treatment facilities maintenance, reduced atmospheric emission of VOCs, and carried out chemicals management	122	1,341	0
	2) Preventing global warming cost	Promoted energy conservation	488	737	3,410
	3) Resource circulation cost	Recovered solvents	152	1,274	17,985
2. Upstream / downstream costs		Collected and recycled products	0	1,916	3,010
3. Administration cost		Implemented environmental management systems	0	1,134	0
4. R&D cost		Developed energy-saving products and products containing no hazardous substances	307	6,679	0
5. Social activity cost		Implemented environmental conservation activities	0	2	0
6. Environmental remediation cost		Restored contaminated soil	10	49	0
7. Other costs			0	0	0
Total			1,079	13,132	24,405

Fiscal 2019 Results: Environmental Conservation Benefits

Stage	Type of benefit	Benefits
Production	Water use reduced ^{*1}	125,505 t
	Electricity reduced ^{*1}	203,034 MWh
	Natural gas reduced ^{*1}	16,294 thousand m ³
	Heavy oil reduced ^{*1}	0 kl
	Emissions of target chemical substances reduced ^{*1}	16 t
	Resource input reduced ^{*1}	107,184 t
	External recycling and reuse of waste ^{*2}	12,922 t
Sales	Packaging reduced ^{*1}	419 t
	Recycling and reuse of materials from used products ^{*2}	14,117 t
Usage	CO ₂ emissions reduced ^{*3}	14,824 t

^{*1} Calculated by subtracting the actual consumption amount from the consumption amount estimated for cases in which the environmental conservation activity was not implemented.

^{*2} The environmental conservation benefits are calculated as the volume recycled and reused.

^{*3} CO₂ emissions are calculated for major new products that were shipped in this fiscal year by subtracting the estimated CO₂ emissions associated with the new products in use from the estimated CO₂ emissions associated with the conventional products in use.

Fiscal 2019 Results: Impact of End User Usage

Stage	Type of benefit	Benefits
Usage	Electricity consumption reduced ^{*4}	29,530 MWh
	Electricity bills reduced ^{*5}	425 million yen

^{*4} Electricity consumption reduced is calculated for major new products that were shipped in fiscal 2019 by subtracting the estimated energy consumption of the new products in use from the estimated energy consumption of the conventional products in use.

^{*5} Calculated by multiplying the average electrical power unit price over the Group's production sites in Japan by the amount of electricity consumption reduced.

Boundary for Fiscal 2019 Results

Konica Minolta, Inc.

10 Japanese affiliates

- Konica Minolta Planetarium Co., Ltd.
- Konica Minolta Information System Co., Ltd.
- Konica Minolta Supplies Manufacturing Co., Ltd.
- Konica Minolta Mechatronics Co., Ltd.
- Konica Minolta Chemical Co., Ltd.
- Konica Minolta Technoproducts Co., Ltd.
- Konica Minolta Japan, Inc.
- Konica Minolta Engineering Co., Ltd.
- Konica Minolta Business Associates Co., Ltd.
- Kinko's Japan Co., Ltd.

23 affiliates outside Japan

- Konica Minolta Business Technologies (Dongguan) Co., Ltd.
- Konica Minolta Business Technologies (Wuxi) Co., Ltd.
- Konica Minolta Business Solutions (China) Co., Ltd.
- Konica Minolta Supplies Manufacturing U.S.A., Inc.
- Konica Minolta Business Solutions U.S.A., Inc.
- Konica Minolta Business Solutions Europe GmbH.
- Konica Minolta Business Solutions Deutschland GmbH
- Konica Minolta Business Solutions (UK) Ltd.
- Konica Minolta Supplies Manufacturing France S.A.S.
- Konica Minolta Business Solutions France S.A.S.
- Konica Minolta Business Solutions Australia Pty. Ltd.
- Konica Minolta Business Technologies (MALAYSIA) SDN. BHD.
- Konica Minolta Opto (Dalian) Co., Ltd.
- Konica Minolta Optical Products (Shanghai) Co., Ltd.
- Konica Minolta Opto (Shanghai) Co., Ltd.
- Konica Minolta Sensing Americas, Inc.
- Konica Minolta Sensing Europe B.V.
- Konica Minolta Sensing Singapore, Pte. Ltd.
- Instrument Systems GmbH
- Konica Minolta Healthcare Americas, Inc.
- Konica Minolta Medical & Graphic Imaging Europe B.V.
- Konica Minolta Medical & Graphic (SHANGHAI) Co., Ltd.
- Konica Minolta (Xiamen) Medical Products Co., Ltd.

Environmental Communication

Basic Concept

The entire Konica Minolta Group is working to carry out environmental conservation activities and to reduce the environmental impact associated with its business activities. The Group actively provides information on the planning and progress of these efforts. By developing close communication with various stakeholders, Konica Minolta intends to fulfill its responsibilities as a good corporate citizen.

The Group distributes information through its website. In order to inform customers of the environmental performance of its products, Konica Minolta seeks to provide this information through environmental labels. It is actively pursuing various social contribution activities while creating regular opportunities for direct dialogue with community members.

▶ Provision of Product Environmental Information

- › Issuing Environmental Reports
- › Provision of product environmental information
- › Konica Minolta sites report their environmental impact and conservation activities to local communities

Communication with Society

- › A Global Message from Konica Minolta's President
- › Environmental and Social Contribution Activities

Social Innovation

Our Concept

The recent worldwide emergence of social concerns such as climate change, resources and energy, a declining birthrate, and an aging population has spurred calls for innovation that can help solve these issues.

Konica Minolta is integrating the strengths developed in its business over the decades with the latest digital technologies to provide high value-added products and services to different types of customers in various industries. By doing so, Konica Minolta aspires to contribute to the achievement of the Sustainable Development Goals (SDGs) while also helping business and human societies to evolve.





▶ Konica Minolta's Approach

▶ Providing Nursing Care Solutions to Address the Issues of a Super-Aged Society

▶ Supporting customers to Digital Transformation

▶ Supporting Drug Discovery as Well as Accurate and Efficient Cancer Diagnosis

▶ Contributing to Safety and Security as well as Environment-friendly Operation by Visualizing Gas Leaks as Environment-friendly Operation by Visualizing Gas Leaks

▶ Addressing Medical Challenges in Emerging Countries with Remote Healthcare

▶ Using Digital Technology to Reduce the Environmental Impact of Commercial Printing

▶ Supporting Foreign Language Communication at Worksites

Konica Minolta's Approach

Konica Minolta's Approach

Background and Issues

To remain a company that is valued by society, Konica Minolta must continue to develop innovative technologies that contribute solutions to social issues.

Based on this concept, the company is focusing on increasing its capacity to contribute solutions to social issues when developing new businesses.



Vision

Konica Minolta believes that reforming the workflow used by people who work in offices, medicine and industry leads to solutions for various social issues. The company seeks to leverage its technologies, human resources and networks to create a wide range of businesses that help to solve the issues faced by its customers and society.



Key Measures

- Promoting new business development through core technologies and open innovation
- Promoting business development at the company's five Business Innovation Centers (BICs)

Providing Nursing Care Solutions to Address the Issues of a Super-Aged Society—HitomeQ Care Support

Related SDGs

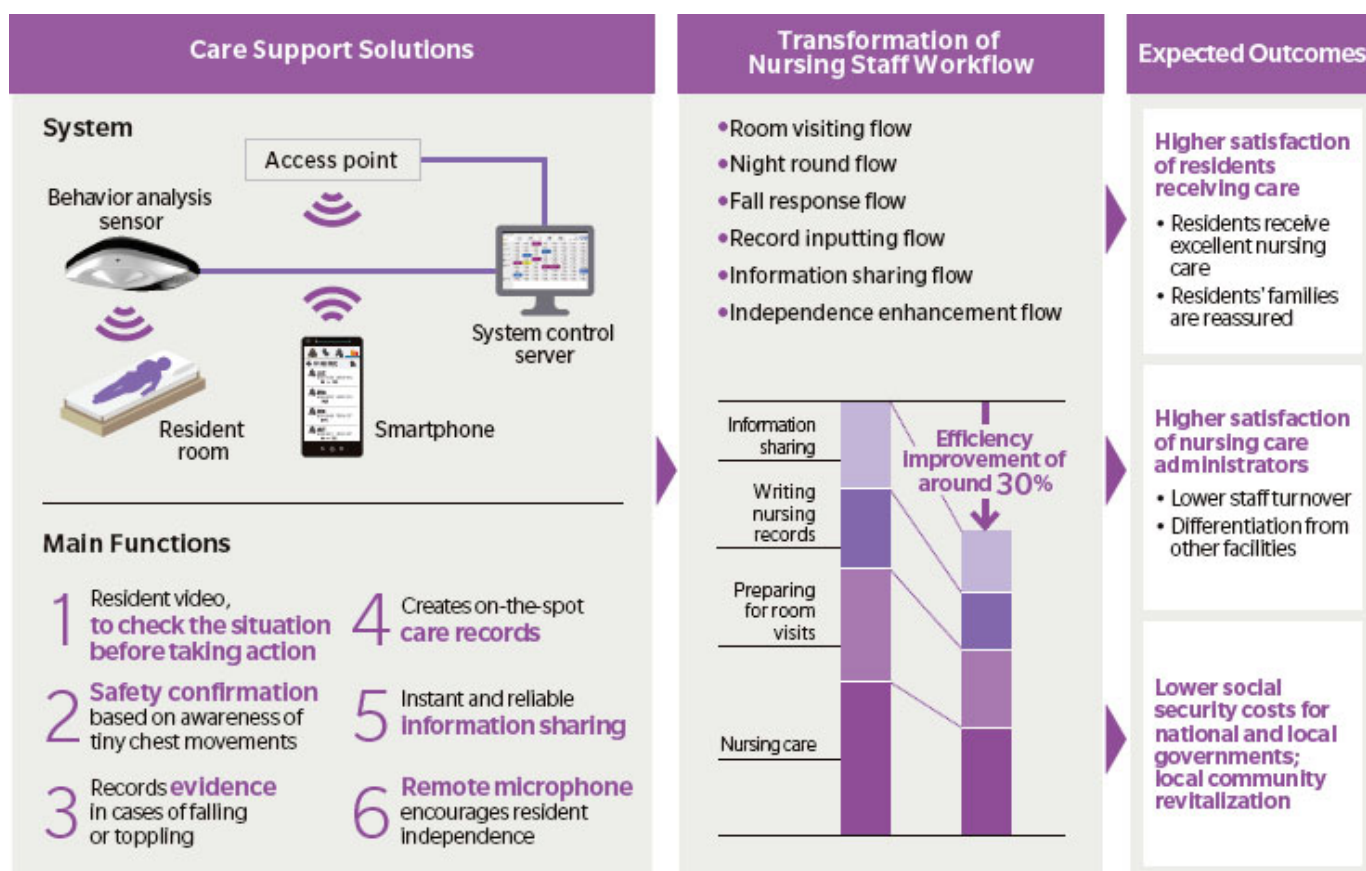


Transforming Nursing Care Staff Workflow and Helping to Eliminate Chronic Nursing Care Staff Shortages

With the number of people needing nursing care in Japan increasing in recent years, the shortage of care workers has become a social issue. To address the situation, Konica Minolta developed and offers HitomeQ Care Support, a service that transforms nursing care workflows. This service detects certain resident behaviors using near-infrared cameras installed on the ceiling along with sensors that detect movement, and then notifies nursing care staff through their smartphones. It helps the staff to determine the best response after grasping the situation and enables information sharing among staff in real time, greatly improving the efficiency of work.

One facility where this service was introduced reported an average efficiency improvement of 30% for nursing care staff. The extra time saved can now be used to enhance resident self-sufficiency, such as through rehabilitation assistance, and for education and training for nursing staff. This, in turn, enables provision of higher quality care, which has improved the satisfaction of residents and their families as well as nursing staff and facility administrators.

In 2019, Konica Minolta enhanced its system solution offerings by introducing a new comprehensive service. The new service includes an operation diagnosis function to identify issues, implementation training, a care support system to support frontline transformation using image technology, and a Care Director Service for human resource development and procedure creation consulting.



Launch of a New Service Brand: HitomeQ

Konica Minolta has been offering Care Support Solutions, a service that provides not only IT devices but also a system that uses them. Under that name, however, it has been difficult to fully convey the benefits of the service to customers. The company addressed this by rebranding the service in October 2019. The new brand is designed to convey the philosophy of Konica Minolta's quality of life business to customers and partners, and evokes a commitment to supporting daily activities that are in the best interests of stakeholders.

Since this service provides value for people, the new brand concept is based on "heart, technology and good physical condition." The brand name, "HitomeQ," embodies the idea of "working with customers to create a world where all stakeholders beam with anticipation." The "Q" in "HitomeQ" stands for "quality of life."

Moving toward Greater Use of IT in Nursing Care Settings



Pioneering the Future of Nursing Care in Japan through Diverse Partnerships

Masanori Miura

President and Representative Director
Konica Minolta QOL Solutions, Inc.

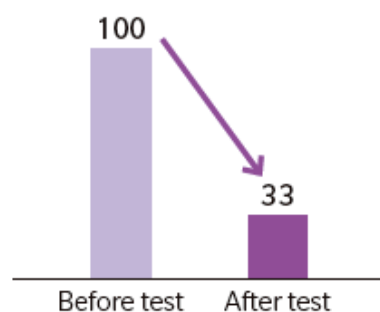
Developing Care Directors at Nursing Care Facilities and Achieving Workflow Innovation

Care workers often need further training to master the use of IT devices on the job. This is the key to transforming the frontlines of nursing care using IoT, and also the reason Konica Minolta developed HitomeQ Care Support. With HitomeQ, human resources in nursing care facilities are trained as "Care Directors" capable of using IT in the care setting. We also offer a Care Director Service that provides consulting for organizational transformation. As part of this service, the data accumulated by IT system is used to help plan a drastic revision of facility procedures and other measures, together with the staff. For instance, our data analysis showed that night rounds actually disturb residents' sleep. So, we tested what would happen if night rounds were stopped. The number of times residents got out of bed decreased and they got better sleep as a result. Fewer times getting out of bed also lowers the risk of falls. Moreover, the nursing staff's workload was also decreased by reducing the number of times they visit rooms at night.

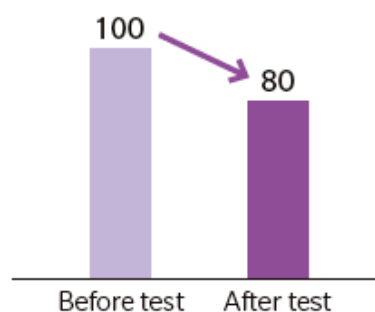
Making use of data in this way should also allow the care needed by individual residents to be predicted in the future, changing the way the nursing staff works and increasing the quality of care.

Test Result of Stopping Night Rounds

(1) Reduction in nursing staff's workload at night (index when the number of nighttime room visits before test is 100)



(2) Increase in residents' quality of life (sleep) due to (1) (index when number of times getting out of bed before test is 100)



Gathering Colleagues Who Share Our Philosophy and Strategy and Recommending Use of IT in the Nursing Care Industry

The Japanese Ministry of Health, Labour and Welfare estimates that in 2025, there will be a shortage of 340,000 nursing care staff members. This shortage is a social issue that Japan cannot afford to put off addressing. At this rate, supply and demand will go out of balance, and we could end up with a society where people cannot receive adequate nursing care.

Out of awareness of this problem, Konica Minolta started a social business collaborative effort—the Care Philosophy Partners Conference (CPPC)—with care providers, IT service companies specialized in nursing care, and others. Around 100 companies have joined so far. Among them, Konica Minolta has built especially strong collaborative relationships with Welmo, Inc.,*1 BI Brid Co., Ltd.,*2 and Zenkougai.*3 The thing that each company has in common is a shared philosophy and strategy to “achieve a world of harmonious co-existence that increases quality of life in the form of greater independence for seniors and greater job satisfaction for caregivers.” While they each have a high degree of specialization, the companies do not take an individual-company approach but rather leverage their individual strengths combined, sharing the same philosophy and strategy, in an effort to solve issues faced by the nursing care industry.

Additionally, Konica Minolta carries out demonstration testing in collaboration with universities and business operators to improve frontline efficiency in nursing care. We hope to use the results to make recommendations to the Council on Investments for the Future*4 regarding improvements to staffing standards for nursing care facilities based on use of IT.

*1 Welmo, Inc.: Provides a regional care information platform to professionals. It has also developed an AI system to support the production of care plans requiring medical and nursing knowledge.

*2 BI Brid Co., Ltd.: Operates an IT help desk/support business specializing in the nursing care, welfare, and medical fields, an IT consulting business, and a business supporting product development for the nursing care field.

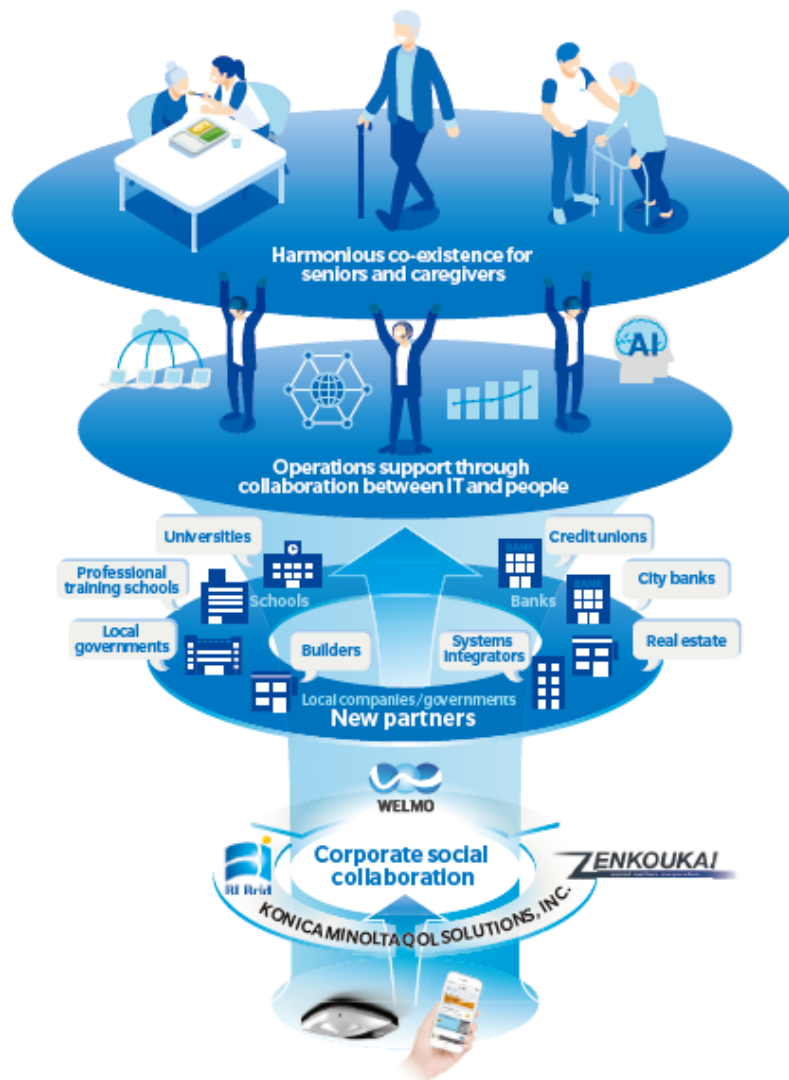
*3 Social Welfare Corporation Zenkougai: Business includes operation of special nursing homes and group homes for people with dementia. Actively adopts various kinds of technology with the aim of visualizing operations and practicing scientific nursing care.

*4 Council on Investments for the Future: A council, chaired by Japan’s Prime Minister, that convenes with the purpose of accelerating growth strategies and structural reform aimed at expanding investment in future economic growth fields.

Coverage Including the Home Care/Nursing Field under the Concept of “Connected Care”

We believe that behavioral record data on seniors can be utilized not only in nursing care facilities but also in home care and preventive care. In home care, for example, we think that sensible care plans can be made as much as possible without changing people’s lifestyles by gathering and analyzing data on the behavioral patterns not only of seniors but also their families. Our HitomeQ Care Support is based primarily on acquisition of data in bedrooms, but in the future, we plan to provide new value by sharing, interconnecting, and analyzing data held by companies that have joined CPPC. I call this “connected care.” The goal is to work with various stakeholders to create a mechanism that allows the same level of care to be received at home as in a facility. In preparation for such an era of scientific nursing care, we are developing an educational program using our HitomeQ Care Support in nursing care schools. By creating opportunities for people hoping to go into nursing care to be exposed to IT, we intend to train care workers who have a strong command of IT.

Solving Social Issues with Corporate Social Collaboration



Voice of a Corporate Social Collaborator

Using IT to Co-create a Standard of Nursing Care

Kouhei Takeshita

President, BI Brid Co., Ltd.



The introduction of IT in nursing care facilities is still in the early phases. It is still the common practice to write out care records on paper by hand, and being up to one's neck with such production of records is a burden. In some cases, that is the reason people leave their jobs. The truth of the matter is that care staff members in many frontline care settings do not feel the need to adopt IT and are unfamiliar with computers. The IT system provider, on the other hand, has hardly any products that match the IT skills of users, as it does not know the nursing care industry or frontline needs. This unfortunately results in many cases where IT has been introduced but then goes unused. In other words, just introducing IT is not enough. It is only when IT is used properly that it leads to improved efficiency. Thus, it cannot be achieved without suitable support for users. That is why BI Brid gives advice to system providers about making products that will be useful in nursing care settings and also gives advice and support to care staff so that they can make the most of those products. I hope that Konica Minolta will produce best practices in IT adoption in nursing care settings across the country through HitomeQ Care Support. I hope that it will become the standard for nursing care operation. The issues faced on the frontlines of nursing care are a problem that will impact the future of this country—the future of each of us. I believe this is a matter that can no longer be addressed by individual companies; it must be tackled by lots of companies working together. I hope to take advantage of this corporate social collaboration with Konica Minolta to leverage IT to change the future of nursing care.

Supporting customers to Digital Transformation—Workplace Hub

Related SDGs



Workplace Hub

Supporting customers to Digital Transformation

All business sites nowadays have a rising need to utilize digital innovation to generate greater efficiency and productivity, as well as to enable teleworking. However, many small and medium-size enterprises are still tied to paper documents and conventional workplaces due to issues such as a shortage of IT personnel and administrative burdens. Konica Minolta's Workplace Hub, which is being rolled out globally after its launch in Europe and the US in fiscal 2018, is an all-in-one IT service package that is customizable to corporate clients' business challenges. It combines IT infrastructure/ services, multi-functional peripherals (MFPs), and maintenance/management. Workplace Hub provides an IT environment safeguarded by world-class security and offers "work styles that are a step ahead" based on the IT system maturity. By ensuring safety and security for personnel working remotely, while helping to promote collaboration in and outside the company, Workplace Hub can facilitate the customer's digital transformation (DX).



Workplace Hub, a workflow transformer

Supporting Drug Discovery as Well as Accurate and Efficient Cancer Diagnosis—Precision Medicine

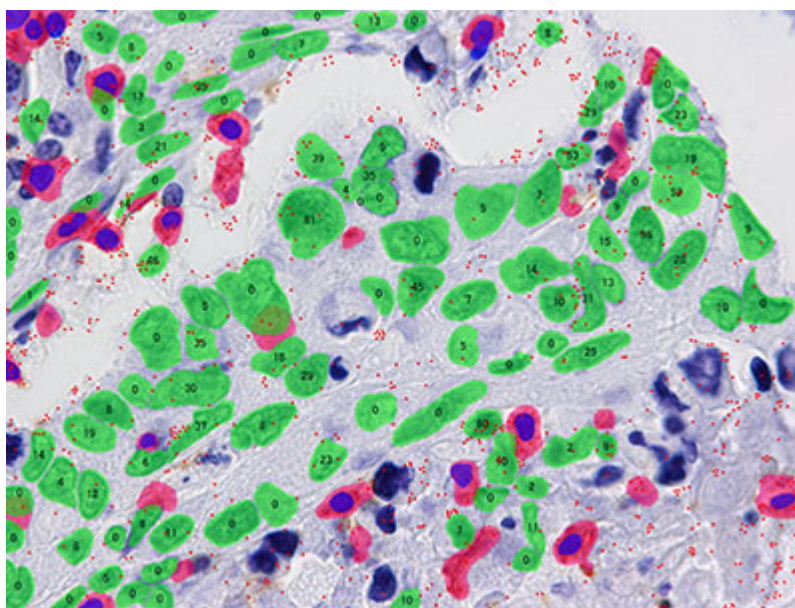
Related SDGs



Precision Medicine

Supporting Drug Discovery as Well as Accurate and Efficient Cancer Diagnosis

The significant side effects and ballooning costs of cancer treatment have become social issues. Precision medicine, in which medications are chosen for patients who have been grouped according to their physiological characteristics as analyzed based on genes and proteins, is gaining attention as a solution. Konica Minolta makes accurate and efficient cancer diagnosis a reality by combining its original technology for making visible specific proteins such as those found in cancer cells with technologies of two Konica Minolta Group companies in the US. In July 2018, Konica Minolta established Konica Minolta Precision Medicine Japan, Inc., a new company that will provide services in the field of precision medicine in Japan. In June 2019, Konica Minolta began joint R&D on next-generation comprehensive cancer gene panel testing with the University of Tokyo and the National Cancer Center Japan Research Institute. This has launched the company's full-scale participation in the effort to promote cancer genomic medicine in Japan. In addition, Group company Ambry Genetics Corporation, a major genetic diagnostic provider in the US, is engaged in intensive preparations to deliver a COVID-19 test (PCR test) to various organizations including the government. Going forward, Konica Minolta will continue to provide comprehensive services to pharmaceutical companies, academia, medical institutions, companies and employers.



Original technology differentiates cancer cells

Contributing to Safety and Security as well as Environment-friendly Operation by Visualizing Gas Leaks --Gas Monitoring Solution

Related SDGs



Gas Monitoring Solution

Contributing to Safety and Security as well as Environment-friendly Operation by Visualizing Gas Leaks

In recent years, growing risk of incidents and/or fires that originate as a gas leak events due to deterioration of plants in Japan has become a social issue needing to be addressed. At the same time, given the advance of an aging society coupled with a low birthrate, the number of skilled maintenance operators is also declining. This has created a need for continuous monitoring that does not rely on labor skills but can secure the operation safety during gas leak repairs. Konica Minolta provides a solution that enables early discovery and handling of abnormalities through continuous plant monitoring. Using Konica Minolta's optical technology and image processing technology to visualize the sourcing point and concentration level of gas leaks enables maintenance operators to conduct appropriate maintenance operation of the plant regardless their maintenance skill levels.. In fiscal 2019, Konica Minolta was awarded a full-scale development project for the next three years after passing a careful stage-gate assessment by Japan's New Energy and Industrial Technology Development Organization (NEDO). Through this project, Konica Minolta will contribute to the realization of sustainable society by vigorously devoting itself to this and other social implementation.



Gas monitoring solution makes gas leaks visible

Addressing Medical Challenges in Emerging Countries with Remote Healthcare—Remote Healthcare Using Portable Medical Devices

Related SDGs



Remote Healthcare Using Portable Medical Devices

Addressing Medical Challenges in Emerging Countries with Remote Healthcare

In Bangladesh, lifestyle-related diseases are skyrocketing, and quickly responding to patient needs is a critical issue in the healthcare field. In rural areas, where 60% and more of the population lives, there is a shortage of medical facilities, equipment, and doctors. In order to receive medical treatment, patients must travel considerable distances to urban areas.

To address this challenge, Konica Minolta devised a remote diagnostic system that allows a rural clinic to take patient X-rays using portable equipment and upload the imaging data to the cloud, allowing doctors in the city to view the X-rays and make the appropriate diagnosis. After conducting a diagnostic pilot in 2017, paid medical examinations have been underway since September 2018 in the capital of Dhaka and the surrounding region, in a project adopted by the Japan International Cooperation Agency (JICA). Going forward, Konica Minolta will increase the number of examination sites outside the Dhaka region and prepare to verify the health checkup model by analyzing collected data.



X-ray exam using mobile imaging equipment

Using Digital Technology to Reduce the Environmental Impact of Commercial Printing-- Digital Inkjet Printer AccurioJet KM-1

Related SDGs



Digital Inkjet Printer AccurioJet KM-1

Using Digital Technology to Reduce the Environmental Impact of Commercial Printing

Rising environmental awareness is driving demands for the field of commercial and industrial printing to break away from conventional methods where large amounts are printed and surplus is discarded. In the world of marketing, meanwhile, labels and packages for each event are being produced in small lots, and product/marketing strategies targeting individual consumers, such as including specific people's names, is gaining ground.

Konica Minolta's digital inkjet printer AccurioJet KM-1 produces high image quality comparable to that of conventional offset printing and can handle a wide range of printing papers. It enables production of printed matter in just the quantity needed, at the time needed, to suit the customer's exact needs. This, in turn, reduces environmental impact by minimizing waste. This solution also helps to reduce the labor-hours needed in the printing process due to its user-friendly operability, even for unskilled workers.



Digital inkjet printer AccurioJet KM-1

Supporting Foreign Language Communication at Worksites with KOTOBAL

Related SDGs



Hybrid Multilingual Interpreting Service KOTOBAL

Supporting Foreign Language Communication at Worksites

Konica Minolta operates Business Innovation Centers (BICs) in the five major regions of the world—Japan, Asia Pacific, China, Europe, and North America—with the goal of generating new thinking and creating innovative businesses. The BICs are carrying out about 100 projects, in which they collaborate with universities and venture firms and employ diverse innovative perspectives.

In 2019, BIC Japan brought to market a new hybrid multilingual interpretation service, KOTOBAL, which was developed in Japan in October. This service mainly supports communication with customers who do not speak Japanese in highly specialized environments such as service windows at financial institutions and administrative agencies. It was developed by adapting MELON, a communication support service for medical institutions commercialized by the BIC Japan in 2016. KOTOBAL supports 30 languages including English, Chinese, Korean and Portuguese. By combining AI-based machine interpretation with video interpretation using a human interpreter, conversations with non-Japanese speakers involving many technical terms can be carried out easily.



A cross-lingual conversation using KOTOBAL