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Ricoh Group Circular Economy Report 2022

Editorial Policy

In the Ricoh Group Circular Economy Report 2022, we report on our efforts toward a circular economy referring to the "Disclosure and Engagement Guidance to accelerate Sustainable Finance for a Circular Economy" issued by METI(Ministry of Economy, Trade and Industry of Japan) and MOE(Ministry of the Environment), based on information disclosure from such sources as our website and the Ricoh Group Integrated Report. This report summarizes the Ricoh Group's basic approach to sustainability, its policy for realizing circular economy, and the risks and opportunities for us, and it gives examples of our countermeasures and initiatives.This report is published with the aim of providing a better understanding of the Group's initiatives for all our stakeholders to enable them to offer suggestions for further improving these initiatives. Going forward, we will continue to improve this report to make it even more comprehensive by referring to your opinions.

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September 2022

Reporting period

FY2021 (April 1, 2021 - March 31, 2022)

*In some cases, information at the time of publication is included.

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1. Introduction

1-1 Basic Approach to Sustainability Management

Based on the Founding Principles of "Love your neighbor", "Love your country", "Love your work" (The Spirit of Three Loves), the Ricoh Group's mission is "We are committed to providing excellence to improve the quality of living and to drive sustainability."

The Ricoh Group pursues such sustainability through a Three Ps Balance: Prosperity (economic activities), People (society), and Planet (environment). We accordingly endeavor to resolve social issues through business, reinforce our operational underpinnings, and contribute to society, and will help to reach Sustainable Development Goals (SDGs) agreed to by the international community.

Three Ps Balance

1-2 Sustainability Activities (Resource conservation area)

The Ricoh Group has been promoting climate change and resource conservation-related initiatives through years of environmental management.

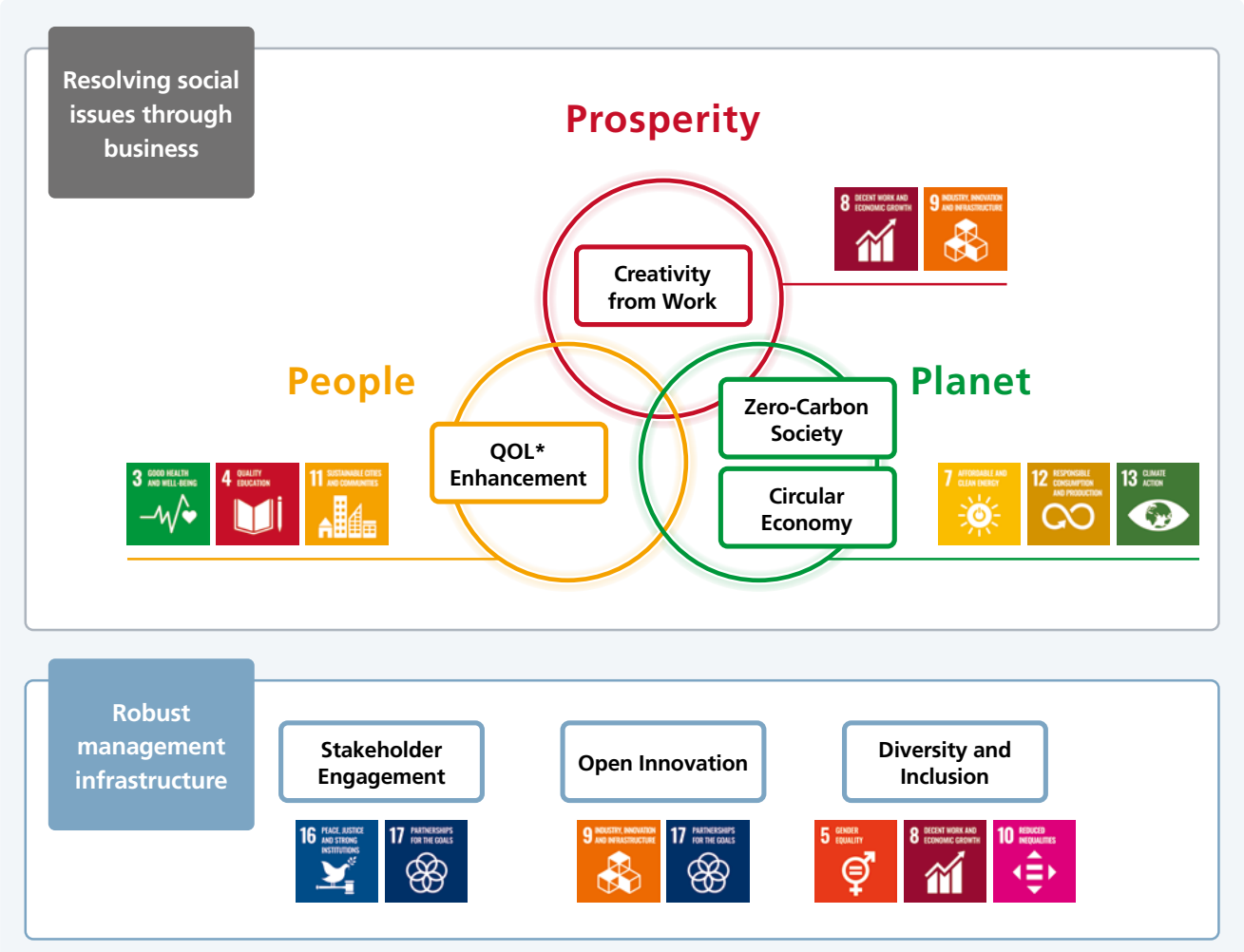
1976	• Establishes the Environmental Promotion Section
1992	• Establishes "Ricoh Group Environmental Principles"
1993	• Formulates "Recycling Design Policy"
1994	• Establishes "Comet Circle", the concept of a circular economy
1997	• Launches remanufactured products for the first time
1998	• Advocates a concept of "Environmental Sustainability Management" • Establishes the Environmental Action Plan • Development of returnable eco-packaging
2001	• Achieves zero waste factory at Ricoh Group global main production sites
2002	• Establishes "3Ps Balance" as a concept of a sustainable society • Signs the United Nations Global Compact
2006	• Sets the long-term environmental vision for 2050 • Starts of on-site confirmation program for waste disposal contractors
2009	• Sets medium-term environmental impact reduction goals • Releases Ricoh's first remanufactured digital full-color MFPs
2012	• Adoption of electric furnace steel plate made from 100% recycled steel scraps
2014	• Launches Silicone-Top Liner-less Label
2015	• Signs a contract to become an official partner of COP21
2016	• Opens Ricoh Eco Business Development Center
2017	• Sets Ricoh Group Environmental Goals for 2030/2050 • Becomes the first Japanese company to join the RE100 • Ricoh's Zero-Carbon Goals obtains "2.0 degree" approval by the Science Based Targets Initiative (SBTi)
2018	• Establishes the ESG Committee • Commits to recommendations of TCFD
2019	• Establishes the Risk Management Committee • Implementation of 100% renewable energy at A3 Multifunction Printer production sites worldwide • Discloses information in accordance with the TCFD Framework

2020	• Establishes a Plastic Policy for products and packaging materials • Revises Environmental Goals for 2030 and obtains "1.5 degrees" approval by the Science Based Targets Initiative (SBTi) • Revises medium- to long-term environmental impact reduction targets (sets target of virgin material usage rate)
2021	• Revises 2030 target to 40% reduction in Scope3 (compared to 15 years) and 50% renewable energy ratio • Introduces of a comprehensive evaluation system for renewable energy
2022	• Publishes Japan's first* Circular Economy Report based on guidance published by the Japanese Government to promote disclosures and engagement concerning sustainable finance models. • Based on our own research

1-3 Materiality for the Ricoh Group (Material Issues)

We will work to solve social issues through business based on the material issues identified by reflecting Ricoh's Mission Statement, Mid-Term Management Plan (MTP) and expectations of our stakeholders.

Since FY2020, we have identified seven materialities in two areas: "Resolving social issues through business," and "Robust management infrastructure," and we are developing sustainability activities. One of the seven materialities is the realization of Circular Economy.



*QOL: Quality Of Life

1-4 ESG Targets

Ricoh has set 17 ESG targets in linkage with seven materialities. In realizing the "Circular Economy", we have set the virgin material usage rate as a mid-to long-term target. In order to clarify management responsibilities for ESG initiatives and achievement of targets, Ricoh has incorporated ESG indicators into executive compensation since fiscal 2020 to enhance the effectiveness of these initiatives.

Ricoh's approach to seven material issues and ESG targets

Resolving social issues through business

Materiality (Material issues)	2030 targets	Resolution of social issues and business strategies
Creativity from Work	Contribute to Creativity from Work of all customers to whom we deliver value	**Social issues** For sustainable development, companies need to reform employees' work styles, boost productivity using IT, and increase employee work satisfaction. **Business strategies** We will help customers achieve Creativity from Work by providing them with digital technologies and services.
QOL Enhancement	Contribute to the enhancement of social infrastructure for 30 million people	**Social issues** It is necessary to eliminate disparities in medical, educational, and regional services between developed and developing countries, and between urban and rural areas. **Business strategies** We will help improve medical, educational, and regional services by utilizing the digital technologies and know-how that we have accumulated for office solutions.
Zero-Carbon Society	Reduce GHG emissions by 63% for Scope 1 and 2, and 40% for Scope 3 Switch to 50% renewable electricity	**Social issues** As the impact of climate change is becoming more severe, it is necessary to enhance and speed up countermeasures. **Business strategies** Upholding the SBT*5 of 1.5°C, we will work to reduce GHG emissions substantially and supply products and solutions that contribute to the decarbonization of society as a whole.
Circular Economy	Ensure efficient use of resources throughout the entire value chain and achieve 60% or less of virgin material usage rate	**Social issues** For sustainable use of natural resources, it is necessary to foster recycling and reduce the use of new resources. **Business strategies** We will further enhance our 3Rs (reduce, reuse, and recycle) measures, reduce the use and foster the substitution of plastic materials, and provide on-demand printing services, helping customers make efficient use of resources.

Robust management infrastructure

Materiality (Material issues)	Resolution of social issues and business strategies
Stakeholder Engagement	**Requests from society** For the sustainable development of society, companies are required to enhance the sustainability of their entire global value chains. **Management strategies** We will strengthen collaboration with our business partners and build a Win-Win-Win relationship between our company, business partners, and society.
Open Innovation	**Requests from society** For sustainable development, innovation needs to be promoted across a range of industrial sectors. **Management strategies** We will attribute importance to open innovation with universities, research institutes, other companies, and business partners and foster collaboration with these partners to resolve social issues through efficient research and technological development and to create new value.
Diversity and Inclusion	**Requests from society** For sustainable development and innovation, it is necessary to promote decent work, which gives satisfaction and is humane, and respect diversity in society. **Management strategies** We will respect the diversity of employees, uphold the empowerment of self-motivated employees in our management policy, and strive to create workplaces where employees can work with vigor.

*1 Top score rate: Highest score selecting rate
*2 Scrum package customers rate in Japan
*3 Target revised from 20% owing to shortages of information and communication technology (ICT) products
*4 IPA: Information-technology Promotion Agency, Japan. ITSS is the IT skill standard that this agency defines. There are seven levels, from 0 to 6.
*5 SBT: Science-Based Targets

Linkage Between Executive Compensation and ESG Targets

For board of directors' remuneration, we have set the annual DJSI* Rating as an ESG indicator for bonus calculation formulas. For the executive officers' compensation, the degree of achievement of ESG targets set in connection with materiality as well as the degree of achievement of business performance targets and priority measures, is incorporated into the evaluation indicators. Based on this evaluation result, the annual remuneration is determined.

* Dow Jones Sustainability Indices: Dow Jones & Company of the United States and sustainability investment research firm S&P Global jointly developed these indices, analyzing corporate sustainability from economic, environmental, and social perspectives

	ESG targets		FY2021 results	Efforts/topics
	KPIs	FY2022 targets (Mid-Term Management Plan)		
	Top score rate[*1] in customer surveys	30% or more	Japan: 33% Europe: 28% APAC: 36% Americas: 82%	Customer surveys were used to calculate overall satisfaction of major customers in each region. The scopes and survey methods varied by region, so these scores are not inter-regional comparative scores. In the U.S., we earned high satisfaction rate by performing detailed follow-up through monthly meetings with all customers surveyed (approximately 650 companies).
	Fulfilling value proposition for customers[*2]	15%[*3]	13%	In FY2021, we sold 76,000 Scrum packages, and cumulative sales surpassed 210,000 packages since their launch in 2017.
	Digital specialist development	IPA ITSS L3[*4] 1.5 times	1.28 times	We are visualizing the skills of digital experts to raise the level of expertise through Groupwide deployment of online courses and other programs as part of the improvement of a training platform that allows employees to continue learning to become digital experts proactively.
	Number of people to whom we have contributed by improving social infrastructure	10 million people	10.82 million people	We have received orders for Road Surface Inspection System in several prefectures and major cities, contributing to the improvement of infrastructure through more efficient road inspections. In February 2022, we also began slope inspection verification testing. We plan to gradually expand the inspection range to include roads, tunnels, slopes, and more, helping to create safe and secure cities.
	GHG Scope 1 and 2 reduction rate (vs. FY2015)	30%	42.6%	Through the active use of renewable energy, such as the introduction of onsite PPA in Japan and overseas, we have reduced our GHG Scope 1 and 2 emissions by 26.4kt year-on-year. For Scope 3, we are reducing emissions through the use of shipping company eco-delivery services and the promotion of ENERGY STAR compliant imaging products.
	GHG Scope 3 reduction rate (vs. FY2015)	20%	28.5%	
	Renewable energy usage ratio	30%	25.8%	
	Virgin material usage ratio	85% or less	88.5%	We significantly increased the percentage of post-consumer recycled plastics used in six of our main models of MFPs and printers.

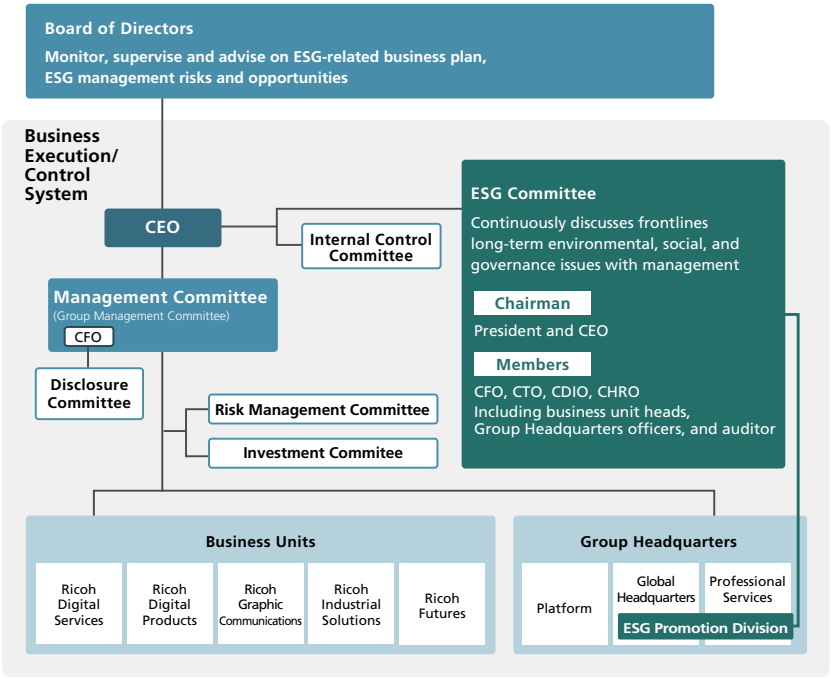
	ESG targets		FY2021 results	Efforts/topics
	KPIs	FY2022 targets (Mid-Term Management Plan)		
	Production sites with RBA[*5] certification	6 sites	3 sites in total	At the sites for which we plan to obtain certification in FY2022, we established systems, held explanatory meetings, formulated plans, conducted internal audits, and carried out other measures, progressing according to our Mid-Term Management Plan.
	Suppliers signing on RICOH Group Supplier Code of Conduct	100% signed	86% signed	We established a new purchasing management organization and promoted the signing of codes of conduct by major suppliers of each business unit.
	International security standard	Bolstered security based on ISO/IEC[*7], NIST[*8]	Undisclosed	
	Evaluation scores given by each partner[*9] (suppliers, distributors/dealers, development partners)		Undisclosed	
	Attain top levels for primary ESG external evaluations	DJSI, CDP[*10], etc.	DJSI: World CDP: A-List	We were selected by the DJSI World Index for the second consecutive year. We claimed the top score in our sector and, in the S&P Global Sustainability Awards, were selected for the Gold Class, the highest level of distinction.
	Selected as Digital Transformation stock by Ministry of Economy, Trade and Industry (METI)	Selected	Not selected	Digital Strategy Meetings were held every other month and attended by the CEO and other senior management. At these meetings, participants discussed how to deal with DX-specific management issues. Every other week, meetings regarding strategies, measures, and implementation were conducted with the DXOs of individual business units and the implementation of strategies was accelerated.
	Increase rate of patent ETR[*11] score (vs. FY2020)	20%	7%	We were selected for Clarivate Top 100 Global Innovators 2022.
	Ricoh Family Group engagement score	50th percentile or above in each region	Japan: 51st percentile Americas: 42nd percentile Europe: 29th percentile APAC: 33rd percentile	We held online classes for managers in all group companies in Japan. At offices worldwide, we held training and took actions to improve employee engagement. (Note: Percentile data is based on different benchmark scopes in different regions, and therefore these scores are not inter-regional comparative scores.)
	Woman-held managerial position rate	Global: 16.5% or more (Japan: 7.0% or more)	Global: 15.6% (Japan: 6.3%)	In October 2021, we formulated our Global D&I Policy, and top management made announcements on the occasion of the policy's formulation. We also reinforced our talent management for women and young employees.

*6 RBA: Responsible Business Alliance
*7 ISO/IEC: International Organization for Standardization/International Electrotechnical Commission
*8 NIST: National Institute of Standards and Technology
*9 Evaluation score: These are results of partner assessments of Ricoh.
*10 CDP: Evaluations from international non-government organizations working on climate change and other environmental fields.
*11 ETR: External Technology Relevance. Scores show the number of patents cited by other companies.

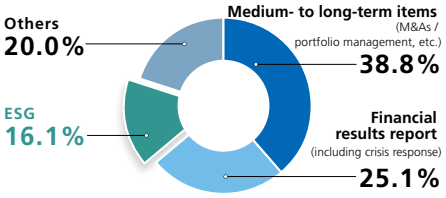
1-5 ESG Promotion System

In May 2018, the Ricoh Group established the ESG Committee to ensure that the group's medium- to long-term issues in environmental, social and governance-related areas are discussed at the management level on an on-going basis in order to raise the quality of management of the entire group. Meetings are held on a quarterly basis to facilitate cross-divisional discussion on sustainability issues, and the heads of business divisions related to topics selected for each session also participate. (Figure 1)

In addition, the Board of Directors allocates about 15% to 20% of its agenda to deliberations on ESG issues, and continuously promotes discussions on ESG-related issues as important management themes.(Figure 2)



(Figure1) ESG Promotion System



(Figure2) Time allocation by agenda item at the Board of Directors in fiscal 2021

ESG Committee

The ESG Committee has the following specific responsibilities:

- Formulate the Ricoh Group Sustainability Strategy to resolve social issues through business, such as initiatives toward introducing SDGs into the foundation of the Company's management
- Identify medium- to long-term sustainability risks and opportunities as well as material issues faced by the entire Group (including those regarding investment decisions on risks and opportunities related to climate change and resource conservation)
- Supervise and advise on sustainability strategies, material issues, and progress on KPIs for each business division throughout the entire Group
- Identify sustainability issues to be submitted for discussion at the Board of Directors meetings

The committee is chaired by the CEO and consists of members of the group management committee (GMC), corporate auditors and an Executive Officer in charge of ESG. In fiscal 2021, ESG Committee met four times and held discussions as shown on the right.

FY2021	Month	Agenda
First Meeting	May	● Report on the results of company-wide ESG targets for FY2020 ● Approval of the Human Rights Due Diligence Development Plan ● Pollution prevention measures ● Status of response to ESG evaluation / improvement ● The FY2021 integrated report
Second Meeting	July	● Climate change risks and opportunities (comply with TCFD) ● Harmonization of GHG (greenhouse gas) reduction scenarios for decarbonization activities ● Report on the progress of Human Rights Due Diligence Development Plan
Third Meeting	December	● ESG external evaluation results report ● Progress of decarbonization activities ● Progress of human rights initiatives
Fourth Meeting	March	● Strengthen supply chain ESG initiatives ● Report on the progress of Human Rights Due Diligence Development Plan ● Issues and responses to ESG evaluation ● Planning of the integrated report for FY2022

2. Policies and Strategies to Materialize a Circular Economy

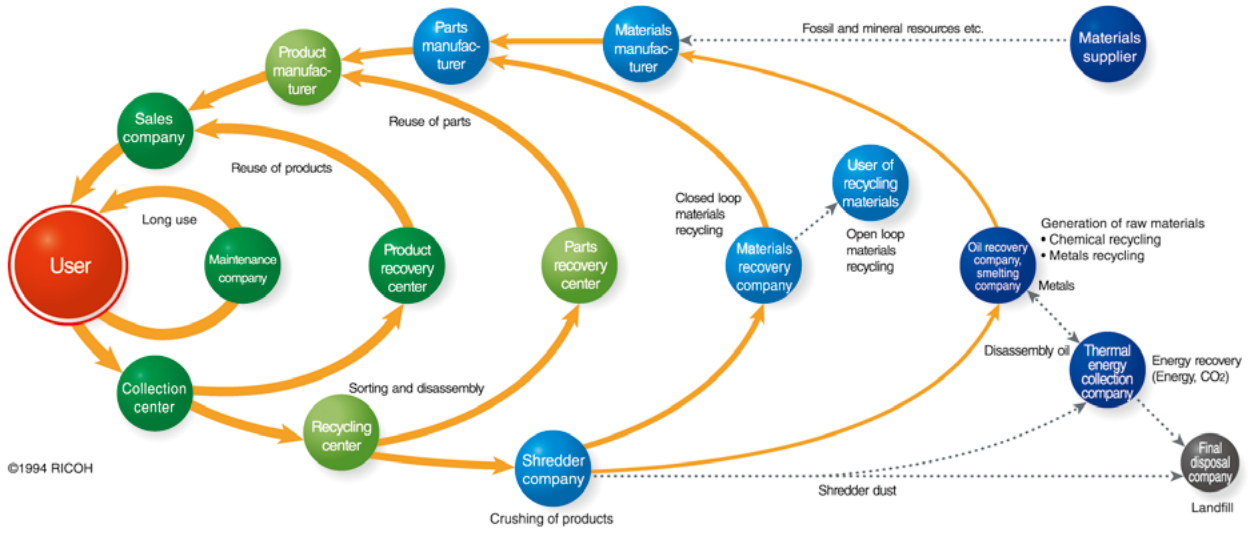
2-1 Circular Economy Concept

Ricoh Group Environmental Declaration

We proactively reduce environmental impact and strive to improve the Earth's self-recovery capabilities to achieve a zero-carbon society and a circular economy through business.

For the Ricoh Group to become the organization we envision, not only does the Group need to realize change towards the creation of a circular economy but society as a whole also needs to realize such change. In 1994, we established the Comet Circle as the basis to encourage such change. The Comet Circle expresses the greater picture of our environmental impact reduction scheme, which includes the scope of the Ricoh Group as a manufacturer and sales company, as well as the entire lifecycle of our products, such as upstream and downstream of our business activities. Being well aware that product manufacturers like Ricoh, because of our involvement in the early phases of a product's lifecycle, can make the greatest contribution to reducing environmental impact, we engage in all business taking into account the Comet Circle.

The Comet Circle™ Concept for Realizing a Circular Economy



Understanding the Comet Circle Chart

Each sphere in the figure shows a partner to realize a sound circular economy. New resources that materials suppliers in the upper right of the chart harvest from nature traverse the right through left of the upper route to become products that reach customer users. In a linear economy with mass production and mass consumption, used products flow from left to right across the bottom route, reaching landfill after energy recovery. Under our circular economy approach, collection and recycling centers process used products and return them to the upper route. Products not sorted as products and parts return to the upper route as materials. The orange arrows in the chart are product reuse, materials recycling, and other loops.

Four Action Guidelines Based on Comet Circle Concept

1. Identify and Reduce Environmental Impact from Lifecycle Perspectives

Efforts across the entire product lifecycles are pivotal to reducing environmental impacts. It is therefore necessary to understand not only our environmental impact, but also that of all business process participants. They include suppliers, customers, carriers, and recycling companies.

Therefore, we strive to reduce the total amount of environmental load by grasping the environmental impact of the entire life cycle, and promoting the development of environmental technology, 3Rs (Reduce, Reuse and Recycle) design of products, reduction of emissions in factories and offices, and procurement of PP&E* in consideration of resource recycling.

*PP&E: Plant, Property and Equipment

2. Deploy Reuse and Recycle Practices with Lower Environmental Impacts

The greatest economic value of a resource is "The state in which the product is used by the customer." Within the innermost Comet Circle loops, maintenance and other efforts at customer sites can preserve high value with minimal environmental impacts and costs.

When a product is no longer usable, it is important to restore high economic value with minimal environmental impact. We prioritize product and parts reuse loops to engineer as much reusage as we can. When usage becomes impossible, we recycle materials and then chemicals.

The Comet Circle loops

Long use	• Long-term use through maintenance and parts replacement
Reuse of products	• Marketing as remanufactured products
Reuse of parts	• Removing and reusing parts from equipment that cannot be remanufactured
Materials recycling	• Plastics, metals, and other materials recovery • Closed: Materials from Ricoh products used in other Ricoh products • Open: Materials from Ricoh products used in products of other brands
Chemical recycling	• Using waste plastics as raw materials for chemicals, including blast furnace reductants, for chemicals decomposition, or creating gas, petrochemicals, or monomers
Energy recovery	• Using materials that cannot be recycled as thermal energy

3. Establish a Circular Business Model

Resource recycling must be economically viable to progress. Instead of treating used products as waste, it is important to make them valuable again through innovation. Manufacturers must endeavor to provide recycled products and materials at minimal costs. Purchasers need to pay fair prices.

In keeping with Comet Circle loops, the Ricoh Group pursues and enhances 3Rs design from manufacturing stages to develop reusable products and parts, enabling long-term use. We have partnered with recycling companies to establish a financially sound business model with a low environmental impact across life cycles, improving recycled resources and minimizing energy and costs associated with reuse and recycling.

4. Partner with Stakeholders

Exchanging information and working closely with partners are vital to lowering environmental impact effectively. For example, by collaborating with material and parts manufacturers Ricoh can procure materials and parts whose CO_2 emissions and new resources consumption are low, with minimal environmental hazards from the chemicals in them. It is important for shippers and carriers to jointly create eco-friendly and cost-efficient transportation modes.

Customers are our chief partners for product and services usage. Low environmental impact is a top priority for them. We therefore need to convey product information in an easy-to-understand manner and work with customers to assess and lower the environmental impact of our operations. We also need to collaborate with trade associations and other entities to formulate standards and create social frameworks with a view to reducing environmental impacts. Such stakeholder partnerships can shrink the eco footprints of offices, workplaces, and the economy.

2-2 Pursuing Resource Conservation Targets and Goals

Targeting

The Ricoh Group adopted backcasting method to set environmental targets. This entails setting goals and working backward to determine milestones toward them. We set environmental targets for 2030 and 2050 in decarbonization and resource conservation as milestones to materialize our Three Ps Balance goal.

Environmental Targets (Resource Conservation)

In the resource-conservation area, as in the zero-carbon area, we have set medium- to long-term goals and aim to achieve the goals by "Thorough efficient use and circulation of natural resources," and " Promote further use of conversion to sustainable resources with low environmental impact."

In 2020, we established and started cross-functional team that include ESG departments in addition to procurement, design, production, and sales department. As a result, we have built a process to integrate indicators and measures in line with resource conservation goals into business strategies and product strategies. Through these activities, we will actively work on the goals of the resource conservation area, such as reducing the virgin material usage rate of products and the usage of single-use plastics and expanding the usage of recycled plastics.

Ricoh Group environmental goals (resource conservation)

Goals for 2030

- Virgin material usage ratio for products : **60% or less**

Goals for 2050

- Virgin material usage ratio for products: **12% or less**

*1 Virgin material usage rate is the usage rate of new resource inputs to total resource inputs of products.
*2 Quoted from the National Institute for Materials Science (NIMS) publication
The resource conservation target is set based on the idea that "In order to use sustainable resources, it is necessary to reduce the total amount of resources used to 1/8 compared to 2000 level".

Ricoh Group Plastic Policy for products

Ricoh group has set targets and goals for plastic usage of our products and packaging under consideration of social issues such as "Shifting to a circular economy" and "Tackling ocean micro-plastic pollution"

1. Breakaway from dependence on virgin plastic derived from fossil resources
2. Material recyclable design

Specific targets and goals for plastic

- Use of post-consumer recycled plastics for imaging products Goals for 2030: Post-consumer recycled plastic content rate of 50% or more
- Reduction in packaging materials for virgin plastic derived from fossil resources Goals for 2030: 50% or more reduction compared to 2020 level.
- Display resin identification code and single material use Goals for 2025: Clearly indicated on all parts and all packaging materials

3. Contributions to a Circular Economy (Risks and Opportunities)

We factor in the prospective impacts of our decisions on environmental issues and associated social changes. As the global community accelerates its transition to a circular economy, our greatest risk is failing to match changing market needs and our operations becoming unviable. Identifying and tackling risks will help us become more competitive and capitalize on market opportunities. Economies will need to maximize the benefits of minimal resources and energy to become circular and sustainable, and we have positioned this as a material issue. Inadequate resource recycling could erode corporate value. Reinforcing such efforts can make our operations not only more sustainable, but also will become a source for business opportunities and competitiveness over the medium and long terms.

Ricoh Group Risks

	Impacts	Responses
Risk 1 **Resource Depletion Increases Prices and Volatilit**	● Higher procurement costs and financial impact from higher market prices of raw materials needed for production ● Impact on production of lower or disrupted supplies of water and other resources at plants	**Use Resources Effectively** **1–1** Factor 3Rs and long-term usage into designing products **1–2** Reduce product sizes and weights **1–3** New returnable eco packaging for MFPs (Japan) **1–4** Expand recycled materials usage (electric furnace steel plates) **1–5** Use closed-loop solvent recycling in PxP toner (polymerized and incorporating polyester) production processes **1–6** Use water resources effectively
Risk 2 **Confidential Information Leaks and Pollution from Illegal Dumping after Product Use**	● Trust in brand and products eroding from confidential information leaks or pollution from improper disposal of used products	**Globally Collect, Reuse, and Recycle Used Products** **2–1** Reuse and recycling program **2–2** Reuse and recycling network **2–3** Check waste disposal contractors
Risk 3 **Responding Late to Circular Economy Trends**	● Fewer deal negotiations and financial impact from insufficiently supplying recycled products and offerings employing recycled materials that customers want ● Continuing to use fossil resource-derived virgin and single-use plastics will shrink product market values relative to competitors and hamper financial position	**Establish and Deploy Product Resource Conservation Targets** **3–1** Providing recycled products and products using recycled plastics **3–2** Reduce single-use plastics

Ricoh Group Opportunities

Opportunity 1 **Product Refurbishment and Reuse and Recycling Businesses**	● Generate profits from reuse and recycle business ● Enhance corporate brand value by using resources effectively
Opportunity 2 **New Business Creation**	● Generate profits by providing products and services that contribute to customer resource-saving strategies ● Enhance corporate brand value by providing products and services that contribute to a circular economy

Risk 1 Resource Depletion Increases Prices and Volatility

Risk Scenario

- The depletion of natural resources that are vital for manufacturing would cause resource prices to soar, increasing procurement costs and hampering our financial position. Supply disruptions in certain regions could significantly impede production activities in toner and other production processes that consume a lot of water.

Ricoh Group's Response: Use Resources Effectively

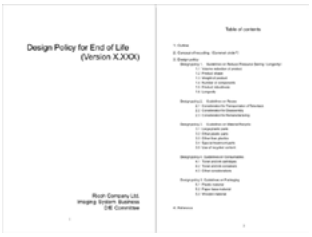
- We address these risks by using resources effectively and employing alternative method. We consume fewer new resources by devoting a lot of effort to designing smaller and lighter products, using more recycled materials, and making our products easier to reuse and recycle after use. We also employ solvents, water, and other resources effectively in production processes.

Key Initiatives to Use Resources Effectively

Case 1-1 Design for Environment, 3Rs and Long-Term Usage

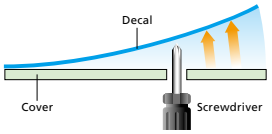
We formulated our Recycling Design Policy (renamed the Design Policy for End of Life) based on our Comet Circle™ concept to foster 3Rs and long-term-usage. For example, we have developed technologies and accumulated expertise in various areas. These have included employing strength design to accommodate reusage and reduce packaging materials, improving disassembly and sorting, and extending the serviceable lifetime of replacement and key parts.

We periodically review and update the Design Policy for End of Life in keeping with social and market trends and internal activities. Designers assess the environmental impacts of their work at each stage, and have embedded the 3Rs in their processes. Examples of eco-friendly design include grade labeling on plastic molded parts, using compatible labels, showing locations of hidden screws and nails, and improving disassembly and sorting.



The spot on the cover where the product name decal (sticker) is attached

By making a hole on the front cover at the spot where the product name label is attached, the label can be easily removed by inserting a screwdriver through the hole.



Recycling Design Policy

Case 1-2 Reduce Product Sizes and Weights (MFPs and Printers)

To reach resource conservation targets, we reduced the sizes and weights of MFPs by setting specific weight targets not just for new models but for successor models to current products.

For RICOH MP C6003, C5503, C4503, C3503, and C3003 series full-color digital MFPs that we launched in June 2013, we conducted extensive strength and impact simulations and developed lightweight frames to reduce plastic and sheet metal thicknesses while reinforcing faces and corners to lower deformation. The new models thus weighed just 102 kilograms, which was more than 65% lighter than previous model. We reviewed paper transport paths and other areas to downsize duplexers and house them within the main units, thus shrinking footprints by 37%. These technologies are also utilized in the latest products*, and we are making effective use of resources and reducing the environmental impact by further reducing the size and weight.

*RICOH IM C6000/C5500/C4500/C3500/C3000/C2500 (Launched in Jan. 2019)

Case 1-3 New Returnable Eco Packaging for MFPs (Japan)

We introduced eco-packaging in 1994 to conserve cardboard and reduce packaging materials. In 2001, we developed the returnable eco packaging made of resin introducing the market for the first time. In 2018, we brought out new returnable eco packaging for MFPs to further enhance the durability and recycling efficiency.

By improving the stackability when collecting packaging, the volume of the entire package has been reduced to a minimum to achieve low cost and high efficiency takeback. By using highly durable cardboard for the body of the packaging, it has become possible to ensure durability and reduce weight during repeated use. While maintaining the strength of conventional eco-packaging, we have achieved a weight reduction of around 45% compared to previous one, reducing the work load and improving work efficiency.

We use the new returnable eco packaging for MFPs with remanufactured products shipped in Japan. Radio frequency identification tags on components has enabled us to streamline logistics through computer management of everything from shipments from plants through collections.

*RFID: Radio Frequency Identification

New returnable eco packaging for MFPs

Case 1-4 Expand Recycled Materials Usage (Electric Furnace Steel Plates)

We jointly developed electric furnace steel plates with Tokyo Steel Manufacturing Co., Ltd., that offer the same quality as plates from blast furnaces. In 2012, we were the first in our industry to use these materials in office equipment.

Until then, plates from electric furnaces were mostly for construction material because of their strength. Ricoh specified the materials requirements for office equipment, with Tokyo Steel developing materials for plates that are just 2mm thick or less, improving electrical conductivity, and enhancing pressing and forming. Tokyo Steel employed its advanced impurity removal and rolling technologies to develop and produce high-performance steel plates for office equipment.

Ricoh high-speed MFPs and production printers incorporate these plates. We are also expanding the range of parts employing them. We will further reduce new resource inputs as we broaden the range of products in which we use these plates.

High-performance steel plates for office equipment

Case 1-5 Use Closed-Loop Solvent Recycling in Polymerized Toner Production Processes

Ricoh's Numazu Plant and the Tohoku Plant of Ricoh Industry use closed-loop recycling for solvents for PxP toner. They used to outsource solvent recycling from such production processes to contractors. They improved toner materials design and production techniques with a view to reclaiming and reusing solvents through internal processes.

Conventional mixed solvents incorporating multiple chemicals are hard to recycle. Ricoh's research resulted in a production technique that uses a single solvent. It is thus possible to reuse solvents from production except for cleaning agents from model switchovers. This advance not only lowered emissions but also slashed new solvent inputs by around 90%, generating significant cost reductions.

We established a technique to recover and recycle solvents from emissions, and recycle almost all solvents for regular production.

Facilities that conduct closed-loop recycling of solvents (distillation facilities)

Case 1-6 Use Water Resources more Efficiently

Water resources are essential, particularly in toner production processes. While water depletion impacts may vary by operation and location environments, they are nonetheless business continuity risks. We established a policy on water resources to make effective use of water resources at the global level, taking into consideration the business and local environment.

Water Policy

1. We base our actions on the recognition that all people have the right to safe and secure water resources.
2. We understand our business impact on water resources, factoring in regional characteristics and setting activity targets.
3. We manage water resources in compliance with laws and regulations, international standards and initiatives, and public policies.
4. We innovate technologies to help resolve internal and external water resource issues.
5. We endeavor to raise awareness among all employees, with each of them engaging with stakeholders to help resolve community water resource issues.
6. We consider resource conservation, climate change, and pollution prevention when procuring raw materials, products and services, and equipment.

We are undertaking the following specific initiatives to use water resources more effectively.

Use of Gray Water in Collaboration with Local Companies

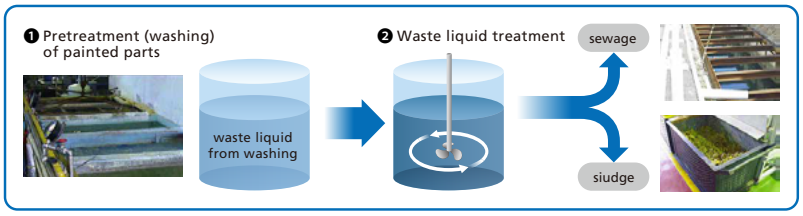
Shanghai Ricoh Digital Equipment Co., Ltd., an imaging products manufacturing subsidiary, uses gray water from a neighboring beverage company plant under a Shanghai Municipal People's Government policy to conserve and protect water resources.

Shanghai Ricoh Digital Equipment uses this water in toilets, for watering and cleaning, refilling cooling towers, and for firefighting. This setup cuts water consumption and costs and complies with Shanghai's water usage limits.

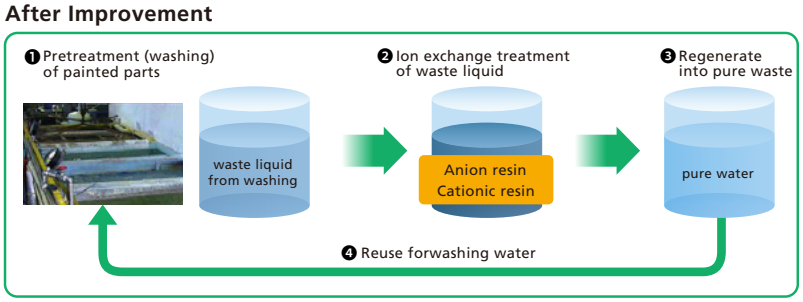
Closed System for Surface Treatment Washing Water

Ricoh designs and manufactures precision press parts and dies and recycles waste liquids from washing processes. We traditionally disposed all water from washing painted and precision press parts. In 1998, we adopted a closed system for all of these liquids, purifying wastewater through ion exchange treatment for reuse in washing. This setup has reduced our annual tap water consumption by around 60,000 cubic meters, cutting water bills and wastewater treatment costs.

Before Improvement



After Improvement



* Wasterwater treatment is carried out when ion-exchange resin is saturated.

Risk 2 Confidential Information Leaks and Pollution from Illegal Dumping after Product Use

Risk Scenario

- Ricoh could become subject to penalties under law as well as its contractors if they improperly treat or illegally dispose its manufacturing wastes or used products. Leaks of customer information from data on disposed equipment could damage our brand reputation. It is thus important to build an appropriate process management structure.

Ricoh Group's Response: Globally Collect, Reuse, and Recycle Used Products

- We reuse materials in production stages to lower wastes. We also maintain programs to collect and reuse and recycle products.

Key Initiatives for Globally Collecting, Reusing, and Recycling Used Products

Case 2-1 Reuse and Recycling Program

Conserving and recycling resources have been applied to our environmental conservation activities since the early 1990s. We have undertaken global regional and product category reuse and recycling initiatives for MFPs, printers, supplies, consumable parts, and other products.

Regional program Click here for link

- Americas
- Europe/Middle East/Africa
- Asia Pacific
- Japan

Programs by product Click here for link

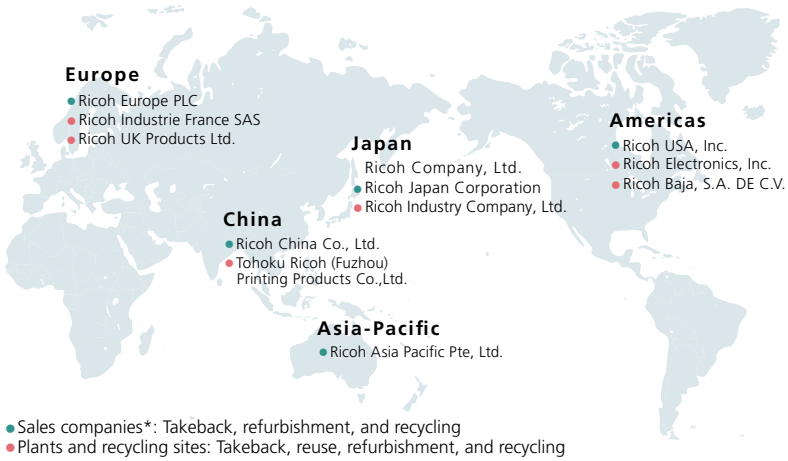
- Japan: Used Product and Cartridge Collection
- United States: Product Stewardship and Recycling
- United States: Take-Back Program
- Europe: Resource Smart Return Program

In Japan, we apply a lease-based business model for MFPs. We maintain a framework to track each unit, with our collection system tapping it to ensure effective resource usage. We leverage the accumulated expertise from this setup in countries with varying business models. There are more than 100,000 Ricoh products collected annually in Japan as used products, and most of them are currently reused and recycled as remanufactured products, recycled parts or recycled materials. Since 2010, our product design and technology divisions have helped us reuse functional components in periodically replaced units for imaging products. We will continue progressing with initiatives internally and with suppliers and other business partners to broaden the scope of reuse and recycling.

Case 2-2 Reuse and Recycling Network

Global Takeback Programs, Reuse, and Recycling

We deploy takeback programs, reuse, and recycling efforts through our own facilities in Europe, Japan, Americas, Asia, and China business regions. Each Group company maintains standards for selecting trustworthy industrial waste contractors. These standards include such internationally recognized endorsements as ISO 14001, ISO 9001, R2, and e-Stewards.



*Operations in Europe, Japan, Americas, and Asia under controlling sales companies; in China, takebacks only

Takeback, Reuse and Recycling (in Japan)

The Products collected from customers are reused and recycled to the maximum extent possible, centered on our own facilities, based on our Comet Circle concept.

Collection centers

The used products, supplies and parts are collected at Collection center and then sent to Remanufacturing center or Recycling center according to the sorting standard.

Remanufacturing centers

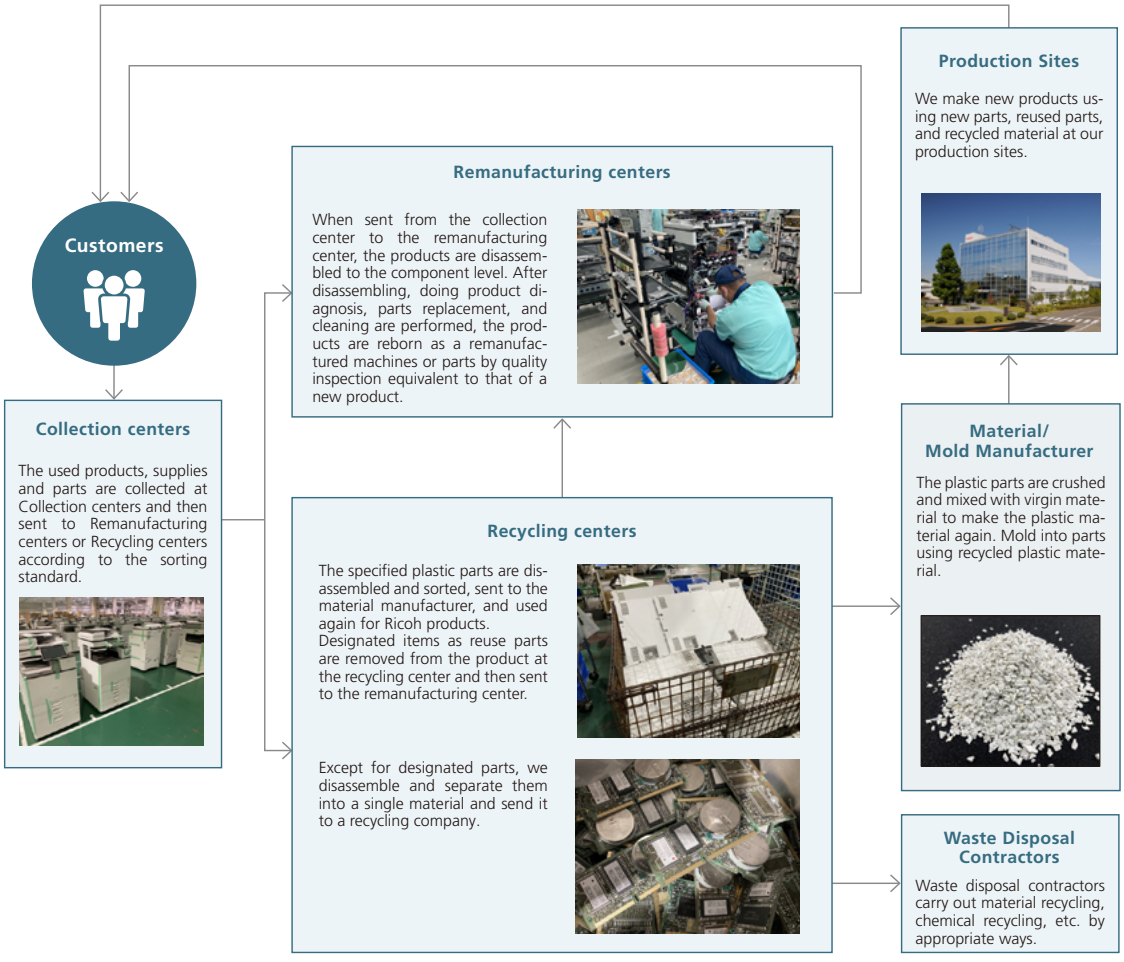
After disassembling and cleaning products, supplies, and parts, and replacing parts, we check according to the same standards as new products, and then reship them as remanufactured products or parts.

Recycling centers

Products, supplies and parts are disassembled or separated into those for reuse and those for recycling, and the parts that are subject to reuse are sent to the remanufacturing center. Items to be recycled are sent to material manufacturers and recyclers for use in recycled materials or energy recovery. In order to prevent the leakage of customer information of the data remaining in the device, the non-reused hard disk is drilled to make it impossible to restore the data.

In addition, the Ricoh Group has obtained certification from the Ministry of the Environment of Japan for the "Wide Area Certification System" (certification number 240). The wide area certification system is a special system in the Waste Management Law for manufacturers to collect used our products over a wide area and recycle and treat them. By acquiring the certification, it is possible for customers to directly collect Ricoh products that are no longer needed and reuse and recycle them responsibly, and we are promoting efforts toward the realization of a more recycling-oriented society.

Flow Chart of Collection / Reuse / Recycling

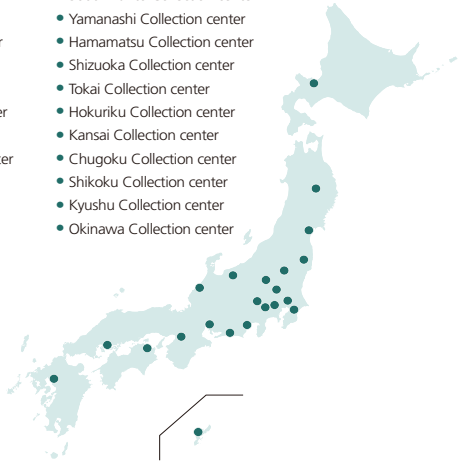


In Japan, we are promoting the 3Rs (Reduce, Reuse and Recycle) by locating collection center, remanufacturing centers and recycling center.

Collection Centers

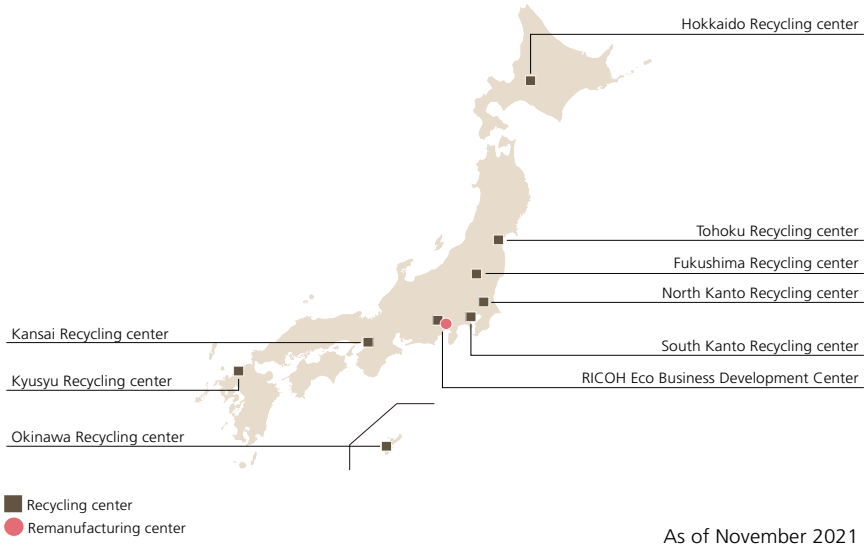
22Centers

- Sapporo Collection center
- Miyagi Collection center
- Fukushima Collection center
- Iwate Collection center
- Tokyo Collection center
- West Tokyo Collection center
- Atsugi Collection center
- North Kanto Collection center
- Gunma Collection center
- Tochigi Collection center
- Chiba Collection center
- South Kanto Collection center
- Yamanashi Collection center
- Hamamatsu Collection center
- Shizuoka Collection center
- Tokai Collection center
- Hokuriku Collection center
- Kansai Collection center
- Chugoku Collection center
- Shikoku Collection center
- Kyushu Collection center
- Okinawa Collection center



As of November 2021

Recycling Centers and Remanufacturing Centers



As of November 2021

Case 2-3 Check Waste Disposal Contractors (in Japan)

From 2006, we implemented a system to audit waste contractor disposals and operations to fulfill our responsibilities as a waste producer. The annual audit encompasses waste management perspectives and everything from fire and disaster prevention to health and safety, workplace environments, recycling situations, in addition to perspectives related to waste management. We use laptop PCs in site visits, storing findings in real time on the cloud. Checks require wide-ranging expertise, so we set up a team of experienced auditors at Ricoh global headquarters. The system centrally manages audit findings and basic contractor information, which the team can access as needed.

The system also manages expiration dates of contractor waste disposal permits. It emails relevant contractor officials before those dates to remind them to stay current.

Checking waste disposal contractors

Risk 3 Delays in Responding to Circular Economy Trends

Risk Scenario

- In recent years, there have been increasing demands from customers to tackle circular economy challenges. In Europe in particular, reused products and offerings incorporating recycled materials are becoming requirements for procurement, alongside energy-saving products. The issue of marine plastic litter has swiftly triggered requirements to reduce and substitute single-use plastics in packaging and other materials. Policy implementation is progressing rapidly, and consumer behavior is also changing, such as considering the plastic waste issues. Failure to rapidly recycle resources and reduce or substitute plastics could reduce the market values of products and services, with customers shunning them.

Ricoh Group's Response: Establish and Deploy Product Resource Conservation Targets

- Since 2007, the Ricoh Group has set medium- to long-term environmental targets to reduce the use of new resources, and has focused on the 3Rs (reduce, reuse and recycle) and long-term use of products. In addition, in light of the circular economy trend, we have established Ricoh Group Plastic Policy for products and targets in 2020, expanding the use of recycled plastics and accelerating the reduction of fossil resource-derived virgin plastics. In order to achieve our medium- to long-term environmental goals, we have been creating a roadmap for weight reduction and recycled plastic equipped products to be developed in the future, as well as a launch plan for remanufactured products. We will continue to provide products that meet the market needs.

Key Initiatives to Establish and Deploy Product Resource Conservation Targets

Case 3-1 Providing Recycled Products and Products Using Recycled Plastic

Supplying Recycled Products

Collecting used products is essential to supply remanufactured products. In view of rising demand for recycled products in European public procurement programs, Ricoh Europe set up a scheme in 2012 to increase used supply collections. Ricoh Europe purchases used Ricoh supplies from third-party collectors. They have tied with 15 collection contractors in nine countries as of October 2021, and plans to expand the network. In France, Ricoh France S.A. and 16 other office equipment manufacturers jointly established the CONIBI consortium to collect, reuse, and recycle of toner cartridges and consumables.

Recycled toner cartridges

Ricoh USA maintains a program to collect used supplies. The program provides prepaid shipping labels to make it easier for customers to return toner cartridges and consumables and reuse product packaging. This saves time and money, and also eliminates the need to procure returnable packaging, thus helping conserve resources. We will endeavor through these and other approaches to collect more supplies and provide recycled ones.

Using Recycled Plastic

The Ricoh Group has traditionally marked all parts with materials and grades during manufacturing process. After collecting used products, it recycles them by grade to maintain materials quality. This enables horizontal recycling, through which we recycle recovered materials for equipment exterior and interiors and maintain their advanced flame retardance, durability, strength, and other characteristics.

In 2016, we developed a recycled material for equipment interiors that incorporates commercially available recovered materials. We began using this in MFPs with recycled exterior materials that we also developed. Our toner bottles use 100% recycled plastic from commercially recovered materials. They account for more than 95% of Group-manufactured polyethylene terephthalate office toner bottles*.

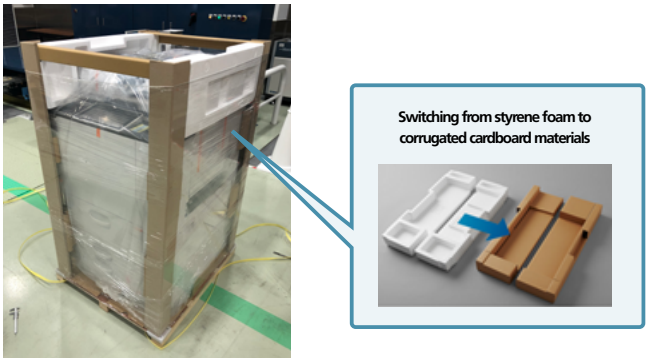
*Toner bottle using PET material

Exterior cover containing recycled plastic

Toner bottles using recycled PET

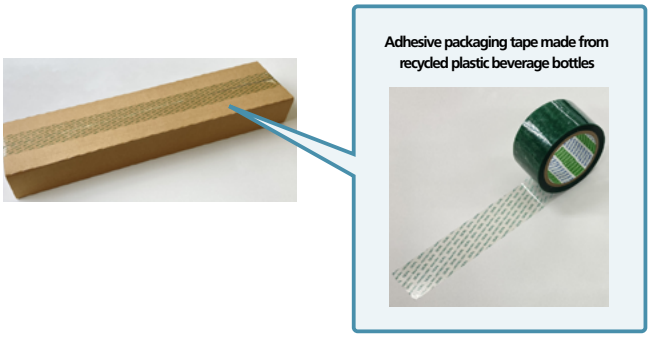
Case 3-2 Reduce Single-Use Plastics

The packaging of RICOH IM 9000, 8000, and 7000 digital monochrome MFPs that we launched in January 2021 incorporated 36% less plastics by weight than previous model as a result of switching from styrene foam to corrugated cardboard materials.



MFPs packed in corrugated cardboard materials.

Since July 2021, we have used Nitto Denko CS System Corporation-developed adhesive packaging tape made from recycled plastic beverage bottles to pack some consumables and maintenance parts. We will keep striving to gradually use less single-use plastic.



Adhesive packaging tape using recycled PET

3-2 Opportunities

The transition to a circular economy has become a common recognition as a global issue next to climate change countermeasures. With countries everywhere deploying policies for such a transition, we believe that that developing products and services worldwide that incorporate these policies and market trends will create opportunities for us by enabling us to differentiate ourselves competitively and create new markets.

Opportunity 1 Reuse and Recycling Businesses

Opportunity Assessment

- We have done much since the 1990s to cultivate our product refurbishment and reuse and recycling businesses, necessitating a range of efforts to make them viable. We have acquired many technologies and expertise over the years to commercialize product and parts remanufacturing. Sales of that business reached around ¥30 billion in the fiscal year ended March 31, 2022.

Key Commercialization Initiatives

1. Manufacturing Based on Design Policy for End of Life

The most important thing for product remanufacturing is to incorporate the perspectives of reuse, recycling, and long-term use into the product design concept in advance. We established what we now call the Design Policy for End of Life in 1993. The policy encompasses design standards for common parts and materials to streamline the reuse and recycling of recovered products and parts and to reduce degradability. For more than 20 years, we have made prospective reuse and recycling central to product design.

Comet circle™ exhibition
in RICOH Eco Business Development Center

2. Optimized Takeback, Remanufacturing and Recycling Sites

We reuse and recycle products, supplies, and parts that in our facilities in Europe, Japan, the Americas, Asia, and China regions collect from customers. The first step in remanufacturing products is to efficiently and reliably collect used products from markets. We set up 22 collection sites across Japan to streamline collections. We centralized remanufacturing at the Ricoh Eco Business Development Center in Gotemba to enhance efficiency. We have endeavored over the years to optimally locate sites and establish our current structure. One strength of our remanufacturing business is that this center engages in both remanufacturing and recycling. Necessary parts that we remove from used products that are impossible to remanufacture can become service or replacement parts for remanufactured products. We maintain a system to sell non-reusable parts as valuable recycling materials, minimizing costs by eliminating expenses and labor by shipping them to recyclers.

3. Reuse and Recycling Technologies to Optimize Quality, Cost, and Delivery

We established evaluation, diagnostics, disassembly, cleaning, washing, restoration, erasure, and recycling technologies to optimize quality, cost, and delivery in our remanufacturing business. Evaluation and diagnostics technologies are pivotal for generating earnings. Evaluation technology determines the reusability of used products based on assessments of their residual usability and other factors. It enables us to cut transportation costs by shipping only products that can be remanufactured from collection sites across Japan to the Ricoh Eco Business Development Center. Diagnostic technology assesses the conditions of prospectively reusable products. We categorize products in different conditions, putting them on reclamation lines by level to streamline production.

4. Collected Machine Management System Ensures Reliable Production and Sales Planning (Japan)

Product commercialization is an outcome of production and sales planning. Early in the product remanufacturing business, we found production planning challenging because we knew nothing of the timing and number of used products to be collected. We resolved that issue in 2005 by deploying a technique to forecast takeback volumes and establishing a recovered machine management system. We can now predict when and how many units of specific models that we will collect around Japan, enhancing production and sales planning precision.

5. Ensuring Quality and Data Security

Remanufactured products undergo the same quality assurance steps as new models and also need data security and other processes. With remanufactured products, for example, we need to fully erase hard disk drives through traceability management. The British Standards Institution, a global business standards body, has certified remanufacturing processes at Ricoh Industrie France and Ricoh UK Products since 2012.

6. Building a Global Structure

We have rolled out our Japanese domestic expertise and technologies at recycling sites overseas. In recent years, we have shared reuse and recycling technologies among recycling sites, including sales offices. We meet growing demand for used products by supplying recovered and remanufactured products from developed nations, where such volumes are high, to emerging markets in Asia and China* to balance global supply and demand.

*In 2015, Ricoh became the first Japanese manufacturer to obtain approval from the General Administration of Quality Supervision, Inspection, and Quarantine of China to import used products into that country for locally manufacturing recycled MFPs.

7. Selling Remanufactured Products

We have sold remanufactured products since 1997, tailoring our operations to regional market needs.

We offer several types of remanufactured product types to cater to customer and market requirements.

- High-quality remanufactured products with as-new warranties
- Refurbished products that we have inspected and replaced with consumable parts
- Cleaned and Checked refurbished products

We guarantee high-quality remanufactured products to be as good as new. We market them as reconditioned machines in Japan and as the GreenLine series in Europe, the Americas, and elsewhere in Asia.

In February 2022, nine models of the GreenLine series models in the Americas became the world's first remanufactured MFPs to achieve ENERGY STAR certification under specification version 3.1.

The latest reconditioned machine

RICOH MP C4504RC (Launched in June 2021)

- Reuse rate 81%
- About 19% less CO_2 emissions than previous model

Remanufactured Product Flow from Collection through Shipment

Collection

Two-tiered stacking used during transportation to collection center

Sorting

Only candidates for manufacturing go to collection center.

Diagnosis

Checking and diagnosing appearance, imaging, and functions to determine if the product can remanufactured.

Disassembly

Disassembling machine, removing outer covers, and cleaning interior

Cleaning

Washing large reusable parts with complex shapes in water

Drying

Drying cleaned parts and ensuring that no traces of water remain

Assembly

Assemble new parts to frame with reused parts after cleaning and washing

Adjustments

Adjusting image positions and colors

Inspection

Using same image and noise inspection and other quality standards as with new machines

Completion

Arranging the included items and securing movable parts with tape.

Packaging

Using eco-friendly, recycling-oriented minimalist packaging.

Shipping

Carefully shipping packed equipment to customers

Opportunity 2 New Business Creation

Opportunity Assessment

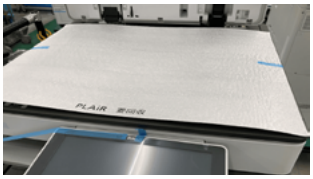
- We believe that we can continue to create new value by adding advanced digital technology to years of expertise in optical, imaging, materials, manufacturing, and controls and systems technologies, combining these capabilities with unique ideas. We will provide new products and services that help materialize a circular economy.

Key Commercialization Initiatives

1. Developing and Launching of Foamed PLA Sheets "PLAiR" Made from Plants and Air

In 2020, we began shipping samples of proprietary foamed sheets made from plant-derived polylactic acid that decomposes into water and CO_2 under certain environmental conditions, such as in soil or compost. It is used as part of the packaging material for multifunction devices released in June 2021, and we aim to expand sales by selling materials to a wide range of industries, providing manufacturing solutions, and licensed production.

Plastic packaging container using PLAiR

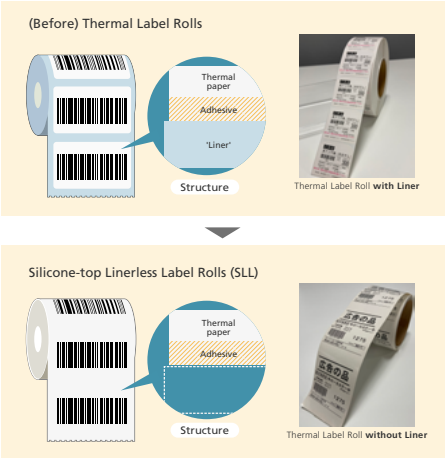


The packaging material for MFPs using PLAiR

2. Reducing Paper Consumption with Eco-Friendly Silicone-Top Linerless Label

We launched our Silicone-Top Linerless Label in 2014. Adhesive labels with release paper are mainstream but in response to a growing desire to waste reduction and CO_2 emissions. This paper liner less thermal label draws on the thermal paper technology that we have accumulated over many years.

This innovative label conserves resources by reducing paper consumption (resource conservation) helps reduce environmental impact (reducing CO_2 emissions).



3. Developing Label-Less Bottle Printing Using Transparent Resin Laser Marking Technology

Asahi Soft Drinks Co., Ltd. started the test-marketing, with our technology, for "Asahi Jurokucha PET630ml Direct Marking Bottle" from December 2021.

The shrink label wrapped around the beverage PET bottle is not materials of PET, we need to peel it off and separate, when needed to recycle. Some products are in the market without the labels, however it is necessary to describe the product information, etc. In the case, it is necessary to take measures such as selling by case or attaching a tack sticker.

By directly printing the product name, raw material, etc. on the PET bottle with a laser, the information display specified by the Food Labeling Law etc. can be realized completely without any labels.

4. Developing Solid-State Dye-Sensitized Solar Cells (as Environment Sensor)

In 2021, we launched RICOH EH Environment Sensors D201/D202 which acquire indoor temperature, humidity, illuminance, and air pressure environmental information without the need to replace a battery or rely on a wired connection. These devices can be used in freezing, and hot locations.

They are attached with the advanced RICOH EH DSSC Series solid-state dye-sensitized solar cell module, which power output is 20% increase than that of the previous models.

The D201 and 202 can operate at -30°C through 60°C. They offer real-time monitoring, automatic data storage, and alert settings through PC or smart devices. The sensors contribute to digital environmental management by eliminating the need to manually record temperatures and humidity, replace batteries, or use wiring when measuring environmental information at production sites in the food processing, manufacturing sectors, in retail stores, office environments and other locations.

RICOH EH Environment Sensor D201

4. Targets and Performance

The Ricoh Group is promoting thorough resource conservation activities and active utilization of recycled materials with the aim of reducing the new resource usage rate of products to 12% or less by 2050.

Ricoh Group Environmental Goals (Resource Conservation)

Goals for 2030

● Virgin material usage ratio for products : **60% or less**

Goals for 2050

● Virgin material usage ratio for products: **12% or less**

*1 Virgin material usage rate is the usage rate of new resource inputs to total resource inputs of products.
*2 Quoted from the National Institute for Materials Science (NIMS) publication
The resource conservation target is set based on the idea that "In order to use sustainable resources, it is necessary to reduce the total amount of resources used to 1/8 compared to 2000 level".

Ricoh Group Plastic Policy for Products

Ricoh group has set targets and goals for plastic usage of our products and packaging under consideration of social issues such as "Shifting to a circular economy" and "Tackling ocean micro-plastic pollution"

1. Breakaway from dependence on virgin plastic derived from fossil resources **2. Material recyclable design**

Specific Targets and Goals for Plastic

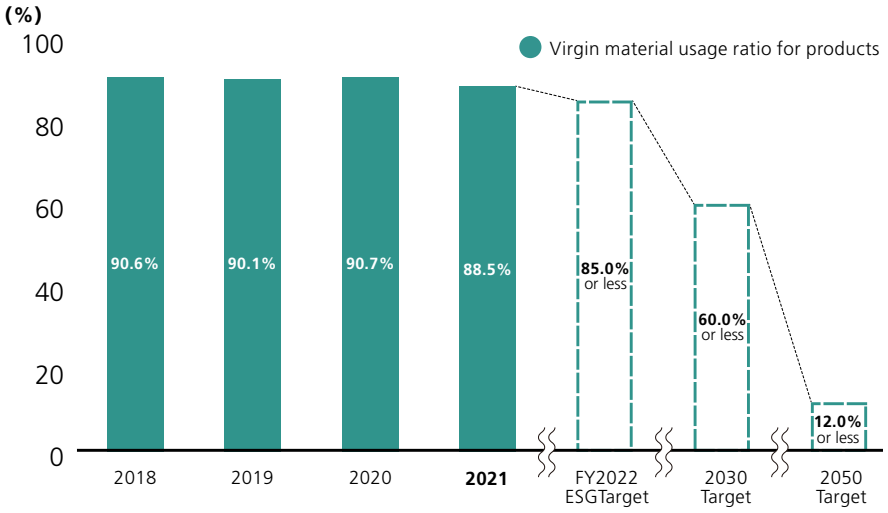
● Use of post-consumer recycled plastics for imaging products Goals for 2030: Post-consumer recycled plastic content rate of 50% or more
● Reduction in packaging materials for virgin plastic derived from fossil resources Goals for 2030: 50% or more reduction compared to 2020 level.
● Display resin identification code and single material use Goals for 2025: Clearly indicated on all parts and all packaging materials

Performance in FY2021

Performance of Environmental Goals (Virgin Material Usage Ratio of Products)

In product development, we have established a cross-organizational working group to work toward achieving our resource conservation goals for 2030 and 2050. By setting individual weight targets not only for newly developed products but also for improved machines of existing products, we have realized the miniaturization and weight reduction of products in the imaging business. Furthermore, by promoting the recycling of products and parts and increasing the number of products and supplies equipped with recycled plastic, the virgin material usage rate has progressed to 88.5%.

Virgin Material Usage Ratio for Products
(The Usage Rate of New Resource Inputs to Total Resource Inputs of Products)



	FY2018	FY2019	FY2020	FY2021
Virgin material usage ratio for products*	90.6%	90.1%	90.7%	88.5%

*MFPs, Printers and Digital Duplicators

Performance of Specific Targets and Goals for Plastic

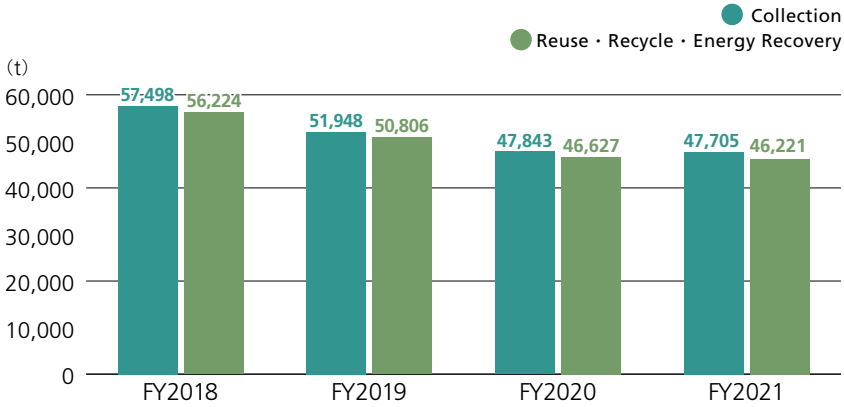
The Ricoh Group has established a plastics policy and targets in 2020 and has been managing progress. The following table shows our performance in fiscal 2021 towards our targets and goals for plastics used in products.

Specific targets and goals for plastic	2021 performanc	Supplementary explanation for actual performance
Reduction in packaging materials for virgin plastic derived from fossil resources -Goals for 2030: 50% or more, compared to the conventional model.	**8.6%**	By increasing the installation on MFPs and printers, our core products, and expanding the use to supplies, we are steadily increasing the usage in line with the plan.
Use of post-consumer recycled plastics for imaging products -Goals for 2030: 50% or more reduction compared to 2020level.	**+5.3%**	Although we have reduced the amount of styrene foam used for product packaging of high-speed MFPs, the total amount has increased due to an increase in shipments of supplies products that heavily use polyethylene bags. We will continue to implement initiatives in line with the plan for both the MFPs and supplies.
Display resin identification code and single material use	—	Completed reflection in the Design for Environment policy document and establishment of rules. Material labeling and use of single material is expected to be completed by 2025, as targeted

Performance of Collection and Processed Amounts of Used Products

In line with the comet circle concept, we are actively collecting used products for reuse and recycling. Incineration / landfill ratio has been maintained at 4% or less globally for more than 20 years since the 2000s. Starting with our fiscal 2021 performance, we have disclosed our product breakdown information.

Collection Amounts of End-of-life Products* and Trend by Year
(*including supplies and parts)



	FY2018	FY2019	FY2020	FY2021			
				Total	Breakdown		
					Main unit/ accessories	Supplies	Parts
Collection (t)	57,498	51,948	47,843	47,705	35,102	10,696	1,907
Reuse/Recycle/Energy Recovery (t)	56,224	50,806	46,627	46,221	34,047	10,301	1,873
Reuse/Recycle ratio	83.9%	84.0%	84.4%	84.1%	94.7%	47.7%	92.8%
Energy Recovery ratio	13.9%	13.8%	13.1%	12.8%	2.3%	48.6%	5.4%
Incineration/Landfill ratio	2.2%	2.2%	2.5%	3.1%	3.0%	3.7%	1.8%

5. Concluding Remarks

Interest in the "Circular Economy" is increasing due to resource depletion caused by global population growth and the issues of marine plastic litter. Business models that do not depend on resource consumption are becoming more important. In a 2019 report issued by the Ellen MacArthur Foundation in the United Kingdom, which promotes the circular economy, renewable energy and energy utilization efficiency only address 55% of all greenhouse gas emissions. The report states that it is necessary to circulate the manufacture and use of products to address the remaining 45% of all greenhouse gas emissions.

In 1994, the Ricoh Group established the "Comet Circle™" as a concept for realizing a circular economy. In line with the concept of the comet circle, we have promoted the effective life cycle use of resources and have been promoting efforts toward the realization of a circular economy for many years. We have realized the commercialization of recycled products and parts, and we have acquired many technologies and much know-how necessary for this. In 2009, we set mid- to long-term goals to reduce the use of virgin material. In 2020, we established the Ricoh Group Plastic policy, with its targets and goals. To achieve the goals, we will provide products and services that meet the demands of society while promoting the 3Rs (reduce, reuse, and recycle) and long-term use of products, expanding the use of recycled plastics, and accelerating the reduction of virgin plastics derived from fossil resources.

In the future, the importance of the circular economy will receive greater recognition, and the flow from ownership to use will accelerate. However, efforts toward the realization of a circular economy are very hard challenges for one company alone, so it is necessary to evolve in collaboration with other companies and organizations. We will continue to create new businesses that not only further expand our reuse and recycling business, but also contribute to the transition to a circular economy in various industries by developing our own technologies in, for example, optics, imaging, materials, manufacturing, and control systems. Based on the comet circle concept, we will continue to provide new services and technologies that contribute to a circular economy that is beneficial for all our stakeholders.

For comments and inquiries concerning this report,
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