Ricoh Group

Environmental Report 2024

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Editorial policy

The Ricoh Group Environmental Report 2024 integrates information on nature-related issues required by the TNFD Framework, in addition to content previously published in the TCFD and Circular Economy Reports.

It summarizes the Ricoh Group's basic approach to sustainability, risks and opportunities for the Group with respect to climate change, resource circulation, and biodiversity, as well as its policies, strategies, examples of initiatives, and achievements in each area. We issue this report to get the message to our stakeholders and further improve our efforts at promoting an understanding of the Ricoh Group's initiatives in the environmental field. We will continue to make improvements to the report's content with reference to any feedback.

Date of publishing

October 2024 (published as an annual report)

Reporting period

FY2023 (April 1, 2023 - March 31, 2024)
*In some cases, information at the time of publication is included

Scope of Coverage

Ricoh Co., Ltd. and its 240 consolidated subsidiaries (the Ricoh Group (Global)) Organizations covered by the data are specified in tables or graph.

Related links

Ricoh Group Integrated Report

ESG Data Book 2024

Richo Group Sustainability Website

Table of correspondence with the TCFD / TNFD framework

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Front cover photo:
Mangrove afforestation site in Silay City, Negros, Philippines

Ricoh Group carries out tree-planting activities to help conserve biodiversity, prevent global warming, and develop local communities

For comments and inquiries concerning this report, please contact us at the address below.

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1. Message from the CEO

Representative Director,
President and CEO

Akira Oyama

The Ricoh Group remains unchanged in its esteem for the Spirit of Three Loves. We make our founding principles of "Love your neighbor, love your country, love your work" the starting points for our corporate activities, and put these principles into practice. The "love your country" in the Spirit of Three Loves reflects the desire of our founder, Kiyoshi Ichimura, to love his native country and develop the society to which he belonged. Reworking this for present times, "country" becomes the earth as a whole, and the thought can be interpreted as "love the earth." To hand down the earth to the next generation and onward, we see our Mission Statement as putting into practice the things that should be done now. The preservation of a sound global environment is a requirement for achieving the advancement of companies and society.

Based on this concept, the Ricoh Group expresses our vision for a sustainable future world as the "Three Ps Balance," a state in which the economy (Prosperity), society (People), and the environment (Planet) remain in balance. To realize this, we have focused on 7 material issues as key social issues, and positioned 16 ESG targets as management objectives, in order to progress specific initiatives. In 1998, we were pioneers in "environment management" in the field of the global environment, which aims to realize environmental conservation and profit creation simultaneously, and we have pursued a variety of activities over the last 30 years. For example, we are working to develop designs that reduce our environmental impact throughout the entire life cycle, and to launch multifunctional printers (MFPs) with industry-leading environmental performance. Furthermore, in 2017, we became the first Japanese company to participate in the RE100 program, which promotes the use of renewable energy, and we have continued to lead the industry in efforts to realize a zero-carbon society.

Looking around the world, there have been increasing international demands in recent years to disclose information on the risks and opportunities that global environmental issues present to management. In light of this trend, the Ricoh Group was quick to conduct scenario analysis based on TCFD recommendations and reveal the risks and opportunities posed by climate change and resource consumption to the Ricoh Group. In fiscal 2024, we endorsed TNFD* recommendations, revised our biodiversity policy, and conducted another evaluation of our natural capital and Ricoh Group dependencies and impacts. Moreover, we are reviewing our business activities in terms of their risks and opportunities as a digital services company.

Through the initiatives summarized in Ricoh Group Environmental Report 2024, we are deepening engagement with shareholders and investors, and all our stakeholders, to enhance initiatives and disclosure of information about environmental issues and fulfill our commitment to realizing a sustainable society.

*1 TCFD (Task Force on Climate-related Financial Disclosures): A task force created by the Financial Stability Board (FSB) to promote disclosures by companies of climate-related information on risks and opportunities, to maintain financial markets' stability while smoothly transitioning to a low-carbon society.

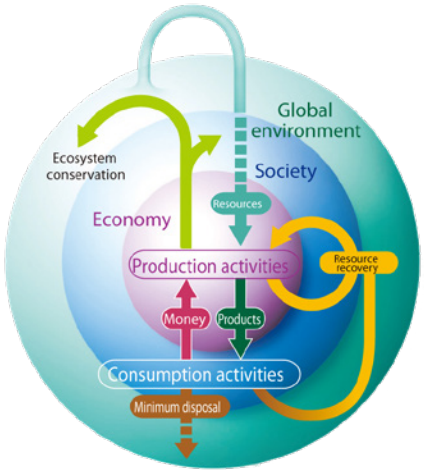
*2 TNFD (Taskforce on Nature-related Financial Disclosures): a taskforce established in June 2021 to provide a framework for nature-related risk management and disclosure

2. The Ricoh Group's sustainability policy

2-1. Basic approach to sustainability

Based on the Founding Principles of "Love your neighbor", "Love your country", "Love your work" (the Spirit of Three Loves), Ricoh Group states in its "Fulfillment through work" mission and vision that we "empower individuals to find "Fulfillment through Work" by understanding and transforming how people work so we can unleash their potential and creativity to realize a sustainable future." Moreover, we express our vision for a sustainable society as "Three Ps Balance," where the Prosperity (economy), People (society), and Planet (environment) are harmoniously balanced.

All companies need to proactively fulfil their roles in order to realize this continuously evolving society where the 3 Ps remain in balance. Ricoh Group believes that corporate growth and a sustainable society can be aligned, and we intend to lead in their realization.



In terms of the planet's sustainability, a society with the Three Ps Balance is one which restricts its environmental burden within the global environment's regenerative capacity.

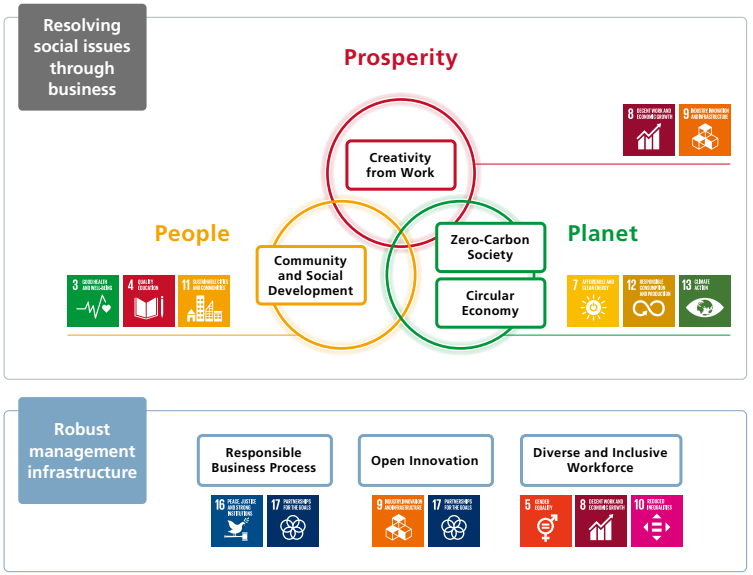
Refer to our website for details about Three Ps Balance
https://www.ricoh.com/sustainability/environment/management/policy/3ps

2-2. Materiality and ESG targets

At the Ricoh Group, we are integrating ESGs into our management strategy and system, not as a non-financial measure, but as a "future finance" leading to financial results in a few years hence. We review and set ESG targets as material issues (important social issues) and their evaluation indicators, which reflect our management philosophy, mid-term management strategy, and stakeholder expectations, every three years in line with our mid-term management strategy.

Materiality in the 21st Mid-term Management Strategy

Our 21st mid-term management strategy (hereinafter, 21st MTS) adopts a policy of "Align ESG with business growth", and identifies four social issues to be resolved through our business activities and three material issues for robust management infrastructure that support for them.



2-3. Strategic intent of materiality and ESG targets

After clarifying the strategic intent of seven material issues, we have set 16 (future financial) ESG targets as evaluation indicators. Specifically, we have set targets related to common global issues of climate change and human rights. Our other set targets are digital service-related patents, data security, and online personnel training necessary for our transformation into a digital service company.
The results of ESG targets for fiscal 2023 are as follows. Despite some lags in reaching our fiscal 2025 targets, we are generally on track.

Resolving social issues through business

Materiality	Strategic intent	2030 targets	Focus domains	21st MTS ESG targets (for FY2025-end)		FY2023 achievements	Progress and actions towards achieving FY2025 targets
Creativity from Work	To provide digital services that transform the way customers work, and help them improve productivity improvement and value creative	Contribute to "Creativity from Work" for all customers to whom we deliver value	·Office Services ·Smart Vision, and others	(1) Customer survey scores*1	29%	Japan: 26% North America: 39% Latin America: 65%*2 Europe: 25% APAC*3 17%	Sharing and deploying best practices across regions
Community and Social Development	To contribute to the maintenance, development, and efficiency of community and social systems. We leverage our technical expertise and customer connections to expand the areas where we provide value	Contribute to the enhancement of social infrastructure for 30 million people	·GEMBA*4 ·Municipal solutions ·Educational solutions, and others	(2) Number of people to whom we have contributed by improving social infrastructure	20 million people	17.94 million people	Progressing as planned
Zero-Carbon Society	To decarbonize the entire value chain and create business opportunities by contributing to carbon neutrality	·Reduce GHG emissions by 63% for Scope 1 and 2 and 40% for Scope 3 ·Switch to 50% renewable electricity	·Eco-friendly MFPs ·Commercial Printing ·Silicone-top linerless labels ·Label-less thermal, and others	(3) GHG Scope 1 and 2 reduction rate (vs. FY2015) (4) GHG Scope 3 reduction rate vs. FY2015 (5) Renewable energy usage ratio (6) Avoided emissions	50% 35% 40% 1.4 million metric tons	50.6% 38.5% 33.6% 1.059 million metric tons	
Circular Economy	To create business opportunities by building a circular economy business model for ourselves and our customers	Use resources efficiently across the value chain and reduce the virgin material consumption rate to 60% or less		(7) Virgin material usage ratio	80% or less	78.9%	

Robust management infrastructure

Materiality	Strategic intent	21st MTS ESG targets (for FY2025-end)		FY2023 results	Progress and actions towards achieving FY2025 targets
Responsible Business Process	To earn stakeholder trust by taking a holistic view of our supply chain and minimizing ESG risks in our business processes	(8) Corporate Human Rights Benchmark score*5	Information and communication technology sector leader	Self-assessments completed	Improvement initiatives advanced for identified priority issues
		(9) Compliance with NIST SPS 800 -171 Coverage of Ricoh's core business environment	80% or more	Continued to identify and assess information needing protection	Swiftly identified and assessed information to be protected
		(10) Low-compliance risk group companies	80% or more	Completed pulse survey for high-risk organizations	
Open Innovation	To shift from a self-sufficient approach to a new value creation process that creates business to quickly resolve social issues	(11) Contracted Joint R&D ratio (12) Digital service patent application ratio*6	25% 60%	23% 54.7%	
Diverse and Inclusive Workforce	To foster a corporate culture where diverse employees can demonstrate their potential and transform themselves and the company into one that is resilient to change	(13) Ricoh Digital Skills Level 2 or above rated employees (Japan) (14) Process DX Silver Stage-certified employee ratio*7 (15) Engagement score*8	4,000 people 40% Global: 3.91 Japan: 3.69 North America: 4.18 Latin America: 4.14 Europe: 4.01 APAC: 4.15	2,855 people 21% Global: 3.79 Japan: 3.57 North America: 4.00 Latin America: 3.90 Europe: 3.92 APAC: 4.03	Progressing as planned
		(16) Female-held managerial position ratio	Global: 20% (Japan: 10%)	Global: 16.5% (Japan: 7.7%)	

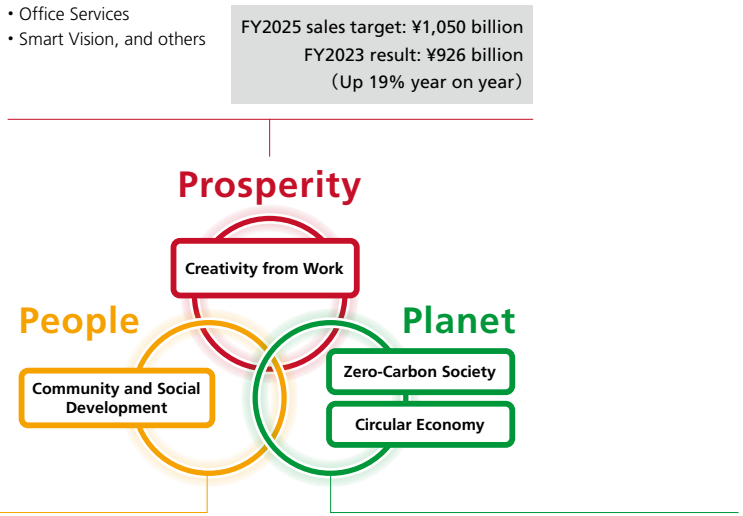
*1 The percentage of customers who evaluated us as a digital services company
*2 A survey targeting solution customers in Latin America
*3 APAC: Asia-Pacific
*4 GEMBA: Maintenance and services business targeting other than offices (e.g., stores and warehouses)
*5 Corporate Human Rights Benchmark (CHRB) Score: Institutional investors and nongovernment organizations established this initiative, which evaluates around 250 global companies across five sectors: food and agricultural products, apparel, extractives, ICT manufacturing, and automotive manufacturing.
*6 Ratio of patent applications related to digital services business to total patent applications
*7 Training rate of personnel with process improvement experience based on a Process DX model (the denominator is the total number of personnel in the training target organization of each business unit)
*8 Uses Gallup's Q12 Mean score

2-4. Resolving social issues through Business

To better demonstrate to all stakeholders our progress in aligning ESG with business growth, we clarified the businesses and the sums they contribute to resolving social issues, and set a sales target for fiscal 2025.

The figure below shows the results for fiscal 2023. The "Creativity from work" category increased 19% to 926 billion yen, the "Community and Social Development" category increased 54% to 20 billion yen, and the "Zero-carbon society" and "Circular Economy" categories increased 102% to 315 billion yen compared with the previous year.

Social issue–resolving businesses and sales targets and FY2023 results



FY2025 sales target: ¥50 billion
FY2023 result: ¥20 billion
(Up 54% year on year)

- GEMBA*
- Municipal solutions
- Educational solution, and others

*Maintenance and services, and other non-office sites

FY2025 sales target: ¥450 billion
FY2023 result: ¥315 billion
(Up 102% year on year)

- Eco-friendly MFPs
- Commercial Printing
- Silicone-top linerless labels
- Label-less thermal, and others

Refer to our website for details of resolving social issues through business cases
https://www.ricoh.com/sustainability/solve-social-issues

Materiality identification process

The identification and revision of materiality are made every three years, in line with the Mid-Term Management Strategy, through a four-step process (Step 1 to Step 4), referencing social trends, business strategy, stakeholder perspectives and various guidelines. The ESG Committee, chaired by the CEO, deliberates on the revision of materiality, which is then approved by the Board of Directors along with the Mid-Term Management Strategy and subsequently set.

Step 1 Identifying Issues → Step 2 Prioritizing Issues → Step 3 Management Decision → Step 4 Performance Disclosure

STEP 1: Identifying Issues
In considering our mid-term management strategy, we evaluate the impact of changes in environmental and social trends, such as climate change and human rights, on our business activities, as well as the impact of our business activities on the environment and society, in terms of risks and business opportunities, and we identify issues that need to be addressed.

STEP 2: Prioritizing Issues
Prioritize the identified issues based on international guidelines such as the SDG Compass, GRI standards, and the concept of double materiality, as well as management philosophy, management and business strategies, opinions from external stakeholders, and priority management risks in line with the risk management system. The drafts of materiality and ESG targets are then prepared.

Step 3: Management Decision
The materiality and ESG goals are deliberated and decided upon by the ESG Committee, which consists of the CEO as the Chairman, all Internal Directors, and Executive Officers. These decisions are made in conjunction with the financial goals of the mid-term management strategy and are approved by the Board of Directors before disclosure.

STEP 4: Performance Disclosure
Annual performance against ESG targets is disclosed annually by the ESG Committee, after confirmation with management.

Referenced Opinions from Stakeholders
- ·Individual meetings with shareholders/investors/ analysts
- ·Feedback from large IR meetings
- ·ESG requests from customers during negotiations
- ·Request in ESG evaluation systems
- ·Opinions from internal stakeholders
- ·Dialogues with external organizations such as JCLP and JCI

Referenced Guidelines
- ·SDGs Compass*1
- ·GRI standard*2
- ·European Non-Financial Reporting Directive*3
- ·Ministry of the Environment's Environmental Reporting Guidelines
- ·TCFD*4
- ·UN Global Compact's 10 Principles
- ·ISO26000*5

*1 SDGs Compass: Guidelines for companies to align management strategies with SDGs and measure and manage contributions to SDGs.
*2 GRI Standards: Standards reflecting international best practices regarding various impacts that organizations have on the economy, environment, and society.
*3 European Non-Financial Reporting Directive: Directive requiring organizations to disclose information in management reports related to the environment, society, employment, respect for human rights, and prevention of corruption and bribery.
*4 TCFD (Task Force on Climate-related Financial Disclosures): Established by the Financial Stability Board (FSB) to promote the disclosure of climate-related risks and opportunities for companies and to stabilize financial markets through a smooth transition to a low-carbon society.
*5 ISO26000: International standard and guidance on the social responsibility of organizations.

2-5 Governance

ESG promotion structure within the governance system

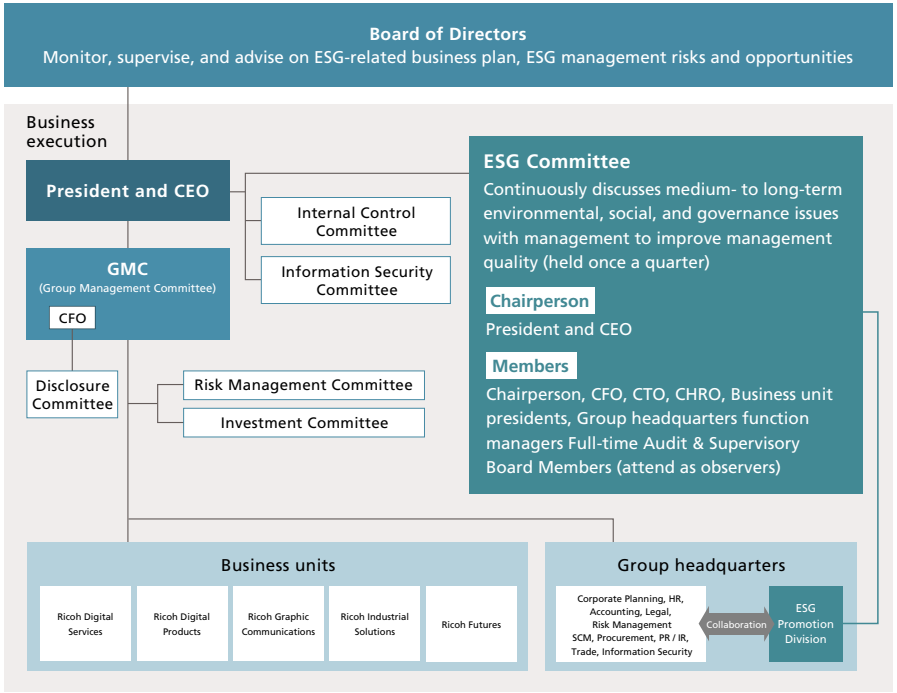
We have established the ESG Committee for the purpose of continuously discussing environmental, social, and governance issues faced by Ricoh at a management-level and leading the discussions to the quality enhancement of the entire Group. The committee is a decision-making organization that meets quarterly chaired by the CEO and consists of Group Management Committee* members including Internal Executive Director and business unit presidents.

The ESG Committee deliberates on future risks and opportunities for the business in the area of sustainability, identification of material social issues (materiality), and setting of ESG targets. Important matters are decided on with the approval of the Board of Directors.

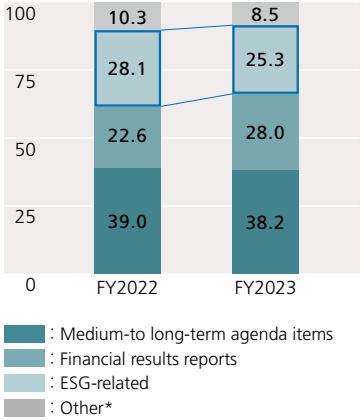
In recent years, the Board of Directors has spent a lot of time discussing how to enhance corporate value. ESG-related topics make up about 25% of items on the agenda each year, with a specific ESG framework constructed through the ESG committee under the oversight of the Board of Directors.

*1 The Group Management Committee (GMC), chaired by the President and Chief Executive Officer and consisting of executive officers who meet defined conditions, has been established as a decision-making body authorized by the Board of Directors.
*2 Full-time Audit & Supervisory Board Members participate as observers.

Sustainability promotion structure



Board of Directors—
Time allocation by agenda item (%)



*Resolutions in accordance with the provisions of the Companies Act, personnel matters, other individual proposals, and other factors

Main agenda of ESG committee in FY2023

FY2023		Agenda
First Meeting	May	· Deliberations on disclosure content for the convocation notice of general meeting of shareholders and the annual securities report · Report on the results of fiscal 2022 material ESG items
Second Meeting	August	· Approval of disclosure of sales in businesses resolving social issues · Approval of revision to the Ricoh Group Code of Conduct · Report in response to CSRD*1
Third Meeting	November	· Deliberations on revision to decarbonization goals · Approval of 2024 renewable energy implementation plan · Report on RBA*2 audit results · Report on natural symbiosis site certification based on 30by30*3
Fourth Meeting	February	· Approval of new decarbonization goals · Report on future human rights risk reduction measures based on human rights due diligence · Report on fiscal 2023 ESG external evaluation results and improvement activities

*1 CSRD (Corporate Sustainability Reporting Directive): Directive for corporate sustainability reporting in the EU
*2 RBA (Responsible Business Alliance): A global business alliance aimed at ensuring corporate social responsibility in global supply chains
*3 30by30: An objective of effectively conserving at least 30% of land and sea as healthy ecosystems by 2030 aimed at achieving the goal of halting and reversing biodiversity loss by 2030 (Nature Positive)

Executive compensation

We integrate ESG indicators into the remuneration of our directors and executive officers to clearly define management's responsibility for ESG initiatives and goal attainment.

Links with executive bonuses

We have incorporated the DJSI annual rating tool to assess ESG initiatives in the performance-linked bonus calculation formula for directors and executive officers to incentivize ESG efforts. We tie executive officers' compensation to ESG goals in their areas of responsibility, reinforcing their commitment to achieving ESG targets across business units and Group headquarters.

*Dow Jones Sustainability Indices: A share index jointly developed by Dow Jones in the US and S&P Global, a company specializing in research on sustainable investment, the Dow Jones Sustainability Index measures the sustainability of major companies around the world from the three perspectives of economy, environment and society.

Linkage with directors' stock compensation

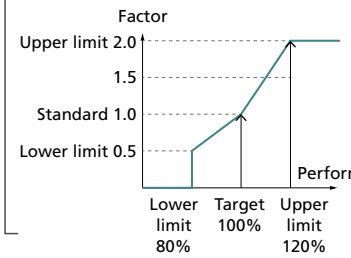
From fiscal 2023, when we launched the 21st Mid-Term Management Strategy, we introduced a performance-linked stock compensation program for directors that incorporates ESG goals. The payout rate directly reflects the number of company-wide ESG targets achieved. In fiscal 2024, we extended this program to executive officers.

Formula for calculating Director's bonuses

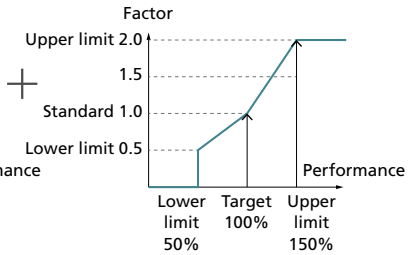
individual bonus amount = Calculation basis × [Operating profit factor + Return on capital factor] × ESG factor

Calculation basis: Certain percentage of annual basic compensation (set by job grade)

Operating profit factor: Achievement of target consolidated operating profit



Return on capital factor: Achievement of target ROE



ESG factor: DJSI Rating

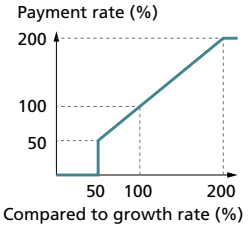
Rating	Factor
World	1.05
Asia/ Pacific	1.00
Not included	0.95

*Weighted averages for the operating profit factor and the return on capital factor in evaluation indicators are calculated using prescribed weights.

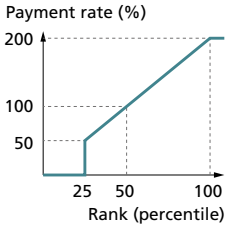
Formula for performance-linked stock-based compensation for Internal Directors

Base amount of stock compensation by job grade/base stock price × [Total shareholder returns versus TOPIX + Total shareholder returns versus peer group + ESG target (the Company's target)]

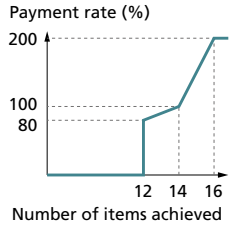
Total shareholder returns versus TOPIX



Total shareholder returns versus peer group



ESG target (the Company's target)



*Weighted averages for the payment rate in evaluation indicators are calculated using prescribed weights.

2-6. Risk management

Risk Management Committee

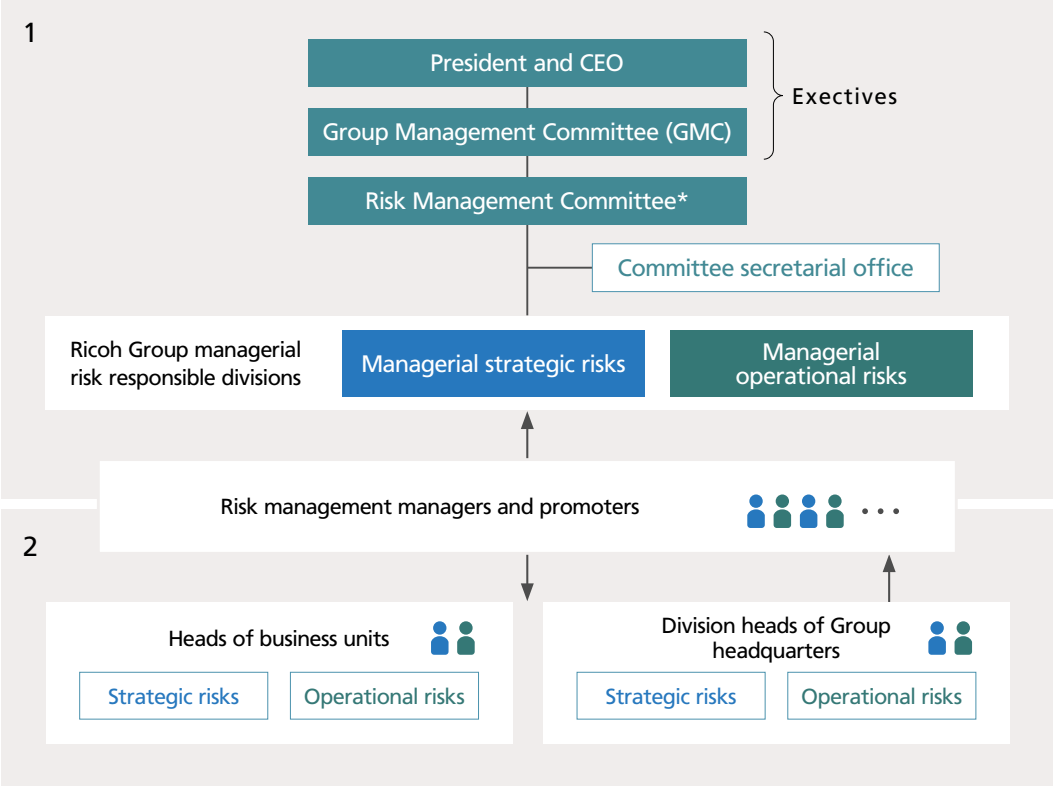
As the environment surrounding the company becomes more complex and diversified, the Ricoh Group positions risk management as an essential initiative in appropriately controlling the various internal and external uncertainties that surround the group's business and in implementing management strategies and achieving business objectives. All group employees strive to improve risk management. The Board of Directors assumes the role and responsibility of overseeing and monitoring whether the execution of risk management by executives is effective and efficient.

The Ricoh Group's risk management systems can be divided into two primary levels, as shown in the figure on the right.

1. Managerial risks, which are selected and managed autonomously by the GMC as managed items to be of high importance within the management of the Ricoh Group
2. Important risks managed under responsibilities of heads of Group headquarters and business units (Group headquarters risks and business unit risks)

These two levels clarify the bodies responsible for risk management enabling agile decision-making and swift action in response to each level of risk, and together form an integrated risk management system. The management of some risks may be transferred from one level to the other, due to changes in the level of impact caused by environmental changes.

The Ricoh Group's risk management structure



*Chaired by Executive Officer, Fellow, or a person in a similar role.

Overview of roles

Executives

- Determine the risk management activity policy for the entire the Ricoh Group.
- Regularly assess and modify the development and operation of the Group-wide risk management activities.

Risk Management Committee

- Systematically and comprehensively extract and evaluate new risks and make recommendations to the GMC
- Create a highly effective system by reviewing the risk management system
- Enhance risk management activities of the entire Group through cooperation with Group headquarters and business units. (ie; Hold the "Group Risk Management Collaboration Reinforcement Conference")

Process of determining managerial risks

Managerial risks are classified and managed as "strategic risks" and "operational risks" based on their characteristics.
The following items are managed at the management level as risks related to climate change.

Class	Item	Description		Urgency	Impact	Risk management level
Managerial strategic risks	Responding to ESG and SDGs	Risk of significant damage to the company, such as loss of business opportunities, loss of social credibility, and damage to brand value due to delayed response to issues related to ESG and SDGs such as human rights, decarbonization, resource circulation, and biodiversity	Response to human rights	5	2	C
			Decarbonization efforts	4	1	C
			Resource circulation / Biodiversity	4	3	C
Managerial operational risks	Long-term delay and suspension in supply of products	Risk of losing business opportunities due to unpredictable circumstances such as large-scale earthquakes, tsunamis, floods, pandemics, suspension of supply, and geopolitical risk resulting in: • Delay or suspension in the supply of parts • Delay or suspension of manufacturing by factories • Delay or suspension of transportation • Delay or suspension of goods to sales companies	Infectious diseases	2	2	C
			Earthquakes, volcanic eruptions, typhoons	3	2	B
	Large-scale disasters / incidents or accidents	Risks of significant impact on business due to large-scale natural disasters, incidents, or accidents, such as human and property damage	Japan: earthquakes, volcanic eruptions	1	3	C
			Japan: wind, flood or snow damage	5	1	C
			Outside Japan: major natural disasters, accidents or incidents	3	1	C

Risk levels and risk management levels

Risk levels

Level of urgency Degree of severity, greater than 50% probability of occurrence	
1	Within 30 years
2	Within 10 years
3	Within 5 years
4	Within 3 years
5	Within 1 year

×

Degree of impact*1	
1	Impact on profit: ¥1.0 billion or less
2	Impact on profit: Up to ¥20.0 billion
3	Impact on profit: Up to ¥50.0 billion
4	Impact on profit: Up to ¥100 billion
5	Impact on profit: Over ¥100 billion

— Risk response

Risk response

	Strategic risks	Operational risks
A	Risks are quantified and controlled to the satisfaction of the decision maker.	Response measures have reduced the risk and the residual risk*2 is within an acceptable range.
B	The overall risk picture is identified, tied to countermeasures, and risk can be controlled/risk response measures are taken.	
C	Key elements to control/mitigate risk are identified and addressed.	
D	The potential events have been identified and at least one countermeasure has been taken for each measure element.	
E	Possible events are not understood, and responses are ad hoc. Response processes and regulations are not in place.	

*1 Consideration of reputational damage and impact on business transactions

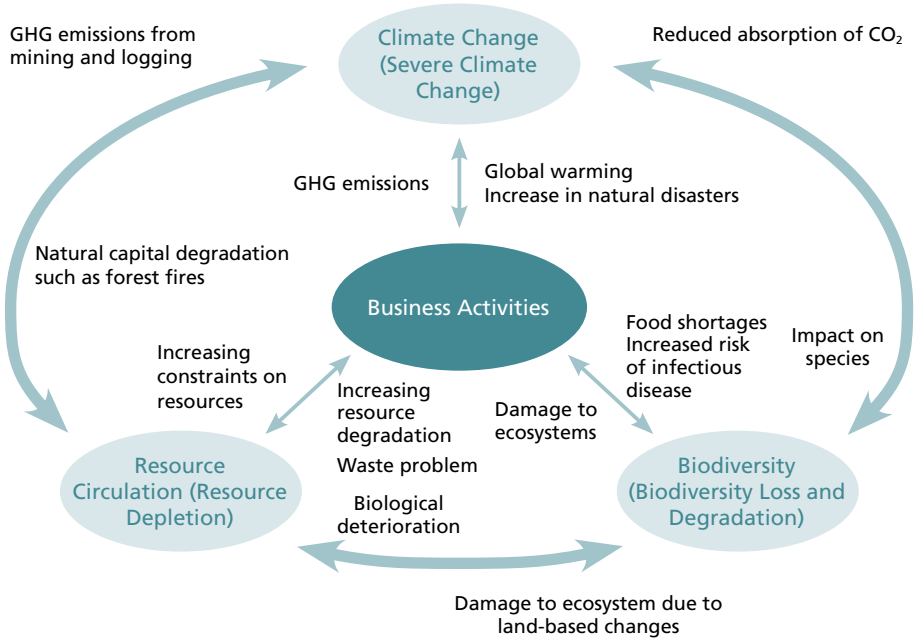
*2 Residual risks: Risk remaining after risk management (residual risk can contain unidentified risk. Source: ISO31000

3. Scenario analysis and Risks & Opportunities

Correlations in climate change, resource circulation, and biodiversity

Although peoples' daily lives and business activities affect the natural environment in various ways, the resulting impacts on climate change, resource depletion and biodiversity are not separate issues but are intricately related. For example, rising temperatures, increases in torrential rain and droughts caused by climate change are linked to biodiversity loss. Conversely, tree-planting, with the aim of conserving biodiversity, increases the amount of CO_2 captured from the atmosphere, and can help to contain climate change.

Hence, it's important to consider the correlations between climate change, resource circulation and biodiversity when we conduct scenario analysis, and risk and opportunity studies.

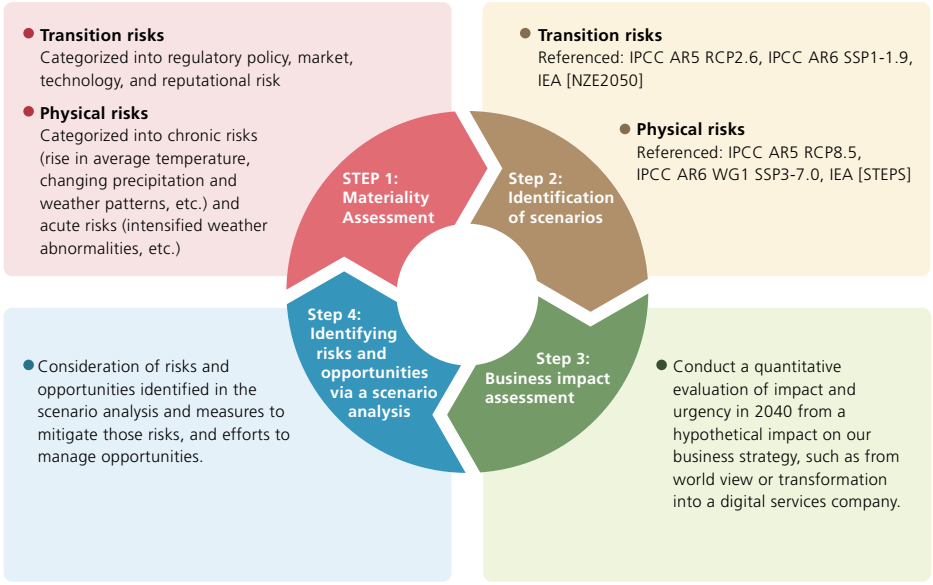


Concept of Scenario Analysis

In August 2018, the Ricoh Group expressed its acceptance of the TCFD recommendations. Since then, we have conducted scenario analysis and climate change risk/opportunity assessments in accordance with the TCFD framework, and disclosed the details of discussions with management at ESG committee meetings on an annual basis.

In addition to the risks and opportunities of climate change in the TCFD recommendations, there is a growing need for complex analysis and assessment leading to the identification of risks and opportunities in the environmental field, such as "transition to a circular economy" and "natural capital-related dependencies and impacts" in the TNFD framework.

Since 2024, the Ricoh Group has taken a bird's-eye view of these environmental fields and used the TCFD, which we have worked on for a long time, and the TNFD framework to conduct a scenario analysis and identify risks and opportunities.



3-1. Scenario analysis steps

Conducting a new scenario analysis by adding the TNFD-recommended LEAP approach to the TCFD scenario analysis

Adding a Natural Capital Aspect

We followed the Locate and Evaluate phases of the TNFD-provided LEAP approach in identifying risks and opportunities for climate change, resource recycling and biodiversity, and conducting a scenario analysis. (Evaluation reference: P.14, 15)

As part of the Locate Phase, we selected dependencies and impacts in the manufacturing of imaging equipment, thermal paper, as well as in the manufacturing of paper upstream of these in the value chain, and identified priority locations in terms of water resource and biodiversity. (Process reference: P.14)

STEP 1: Materiality assessment

In selecting dependencies and impacts by this method, we evaluated the importance of high-priority locations to biodiversity and the severity of the impact throughout the value chain. (Process reference: P.15)

We have listed a wide range of risks and opportunities in the environmental field based on our projections of social and regulatory trends in the 2040 cross-sectional period. Based on TCFD recommendations, risks are generally classified into two categories. One is the transition to a zero-carbon society. The other is the physical change associated with climate change. Transition risk is divided into policy regulations, markets, technologies, reputations (changes in customer reputation, changes in investor reputation), etc. Physical risk is divided into chronic risks (e.g., rise in average temperature, changes in precipitation and weather patterns, rise in sea level) and acute risks (e.g., extreme weather events). We also identified possible risks and opportunities in the process of transitioning to a digital services company.

Step 2: Identification of scenarios

To address an uncertain future, we referenced and analyzed multiple temperature change scenarios, including a 1.5˚C scenario, in light of continuing our existing main printing business and our business strategy of transformation to a digital services company. We worked to reduce the number of unforeseen events by dividing the scenarios into two extreme cases, with the minimum and maximum average temperature rises.

In the transition risk study, we have referred to IPCC AR6 SSP1-1.9, IEA NZE (International Energy Agency Net-zero Scenario: the energy sector achieves net-zero CO_2 by 2050, which would give a 50% probability of limiting the temperature rise to 1.5˚C without overshoot), in addition to the IPCC AR5 RCP2.6 scenario of a 2˚C rise, and in keeping with growing public demand to achieve the 1.5˚C target. For the Shared Socioeconomic Pathways (SSP) socio-economic scenarios, we anticipated a world of growth and equality emphasizing sustainability (SSP1: Sustainability) as a prerequisite for a social and economic environment below 1.5˚C.

The physical risk study requires predictions about the scale and frequency of natural disasters, such as typhoons, torrential rain and floods, etc., and about changes in procurement of forest and paper resources affecting our supply chain, including Ricoh Group production sites, due to future climate change through 2050. we have referenced IPCC AR6 SSP3-7.0, IEA STEPS (a scenario assuming no new policies based on current policy conditions), in addition to the IPCC AR5 RCP8.5 scenario of 4˚C.

With recent years seeing increased geopolitical risks, we assumed the SSP3: a world of regional rivalry in which all countries' policies to prevent global warming make insufficient progress, corporations' voluntary activities to address global warming issues are limited, the transition to a zero-carbon society does not progress, temperature rises are not mitigated, and more severe weather abnormalities occur frequently.

Moreover, as there is currently almost no data on agreed scenarios for natural capital, we have tried to identify risks and opportunities with a scenario analysis following TNFD's LEAP approach. (Reference: P.13-16)

Step 3: Business impact assessment

Regarding the risks and opportunities listed in Step 1, we evaluated and considered possible business impacts while discussing with internal stakeholders based on our business model.

Specifically, ESG Promotion Division held a workshop to identify the impact factors of events that lead to transition risks, physical risks, and opportunities. On top of that, ESG Promotion Division consulted with related departments such as the Corporate Planning Department, Material Procurement Department, Risk Management Department, and General Affairs Department to organize and consolidate business impacts qualitatively, and to estimate the economic impact assuming future scenarios as of 2040.

The risks and opportunities associated with combined climate change, resource recycling, and biodiversity are finalized by the ESG Committee who consider them from a management perspective.

Step 4: Identifying risks and opportunities via a scenario analysis

We plan and execute specific measures, such as management and action plans, for the priority management risks determined by the ESG committee.

*LEAP Approach: An integrated approach to assessing and managing nature-related issues, developed by the TNFD Taskforce. It consists of the phases: locating the interface with nature, evaluating dependencies and impacts on nature, assessing risks and opportunities , and preparing to respond and report.

Evaluating nature-related dependencies and impacts in line with the LEAP approach

We followed the Locate and Evaluate phases of the TNFD-provided LEAP approach when identifying risks and opportunities for climate change, resource circulation and biodiversity, and conducting a scenario analysis.

1. Identifying dependencies and impacts (Reference: P.14)

ENCORE* evaluation of the following operations estimated to have significant dependencies and impacts

- Upstream of the value chain / Paper manufacturing
- Direct operation: Manufacture of imaging equipment and its consumables
  Manufacture of thermal paper

→ **Identify water resources, soil pollution, GHG emissions, etc.**

* A tool for identifying nature-related risks developed mainly by the UN Environment Program World Conservation Monitoring Center, etc.

Identified dependencies and impacts

	Value chain	
	Upstream	Direct operations
Dependencies (provisioning services only)	Water resources	Water resources
	Forest resources	
Impacts	Water use	Water use
	Water pollution	Water pollution
	Land / air pollution	Land / air pollution
		GHG emissions
		Waste
		Noise / light disturbances

2. Identification of priority locations for direct operations (Reference: P.14)

We evaluated water, which presumed a high level of impact in the dependencies and impacts selection phase, and biodiversity, which is the entity that produces and restores natural capital.

Priority locations identified for water and biodiversity

Object	Evaluation item	Method of identification	Countries and regions which have priority locations
Water	Water stress	Aqueduct	China and Thailand
	Volume of use	Internal company data	Japan, Thailand, North America, and China
	Sensitivity to pollution	Aqueduct	China, Thailand, and Vietnam
Biodiversity	Conservation / Restoration Potential	IBAT	Japan, China, and Thailand
	Ecological integrity	Field survey	Ena and Gotemba (Certified as a conserved area by Ministry of the Environment, Japan)

3. Evaluation of the importance of dependencies and impacts (Reference: P.15)

We assessed materiality in LCA usage in the value chain as a case study using A3 color MFPs and thermal media paper (adhesive label) in Japan.

- **There are major dependencies and impacts originating from paper.**
- The effect of both dependencies and impacts **upstream of the value chain is also significant.**
- The impact of **forest resource consumption and GHG emissions** relative to biodiversity (decline in species) is significant.
- Although we can't assess the quantitative effect of water resource use on biodiversity, we can predict that paper and cardboard use has a significant impact.

Inputs for step1: materiality assessment on risks and opportunities (Reference: P.16)

Process of evaluating nature-related dependencies and impacts in line with the LEAP approach

1. Selection of dependencies and impacts (Locate)

Using the ENCORE method, we selected an ENCORE sub-industry from the operation details to be evaluated. The evaluation results are shown in Table 1.

2. Identification of priority locations for direct operations (Locate)

We evaluated the status of direct operation sites for water, which presumed a high level of impact in the dependencies and impacts selection phase, and for biodiversity, which is the entity that produces and restores natural capital, to identify priority locations based on the following aspects. The evaluation results are shown in Table 2.

- Sensitive location for water resources: "Water stress", "Water Depletion", and "Untreated connected Wastewater" labels for Aqueduct*1 are "HIGH" or higher.
- Material location for water resources: Sites' water usage volumes are relatively high.
- Sensitive location for biodiversity: (1) STAR metrics showing conservation/restoration potential for IBAT*2 are "HIGH" or higher. (2) Zones of high ecological integrity according to field studies are located within the business site.

Japan, China, Southeast Asia, and North America were selected as countries or regions which have priority locations. We plan to conduct more detailed evaluations of operation bases in these countries and regions. We are also conducting conservation activities in Gotemba and Ena, which are places in Japan with high ecological integrity (Reference: P.57).

In addition, we plan to conduct sequential evaluations for other natural capital. The same process will be used to conduct evaluations at paper manufacturing and log production sites in the future.

*1 A tool for evaluating water risks developed by the World Resources Institute
*2 A tool for evaluating biodiversity risks developed mainly by the UN Environment Programme World Conservation Monitoring Center, etc.

Table 1. Results of selecting dependencies and impacts for targeted operations

Operations	Dependencies					Impact factors						
	Subterranean water	Surface water	Biomass	Water cycle	Protecting from floods and rainstorms by replanting	Water usage	Water pollution	Soil contamination	Waste materials	Air pollution	GHG emissions	Noise and light pollution
Manufacture of imaging equipment	M	M					H	H	M			M
Manufacture of imaging equipment consumables					M		H	H		M	H	
Manufacture of thermal paper						VH	H	H		M		
Manufacture of thermal base paper for printing (Upstream of the value chain)	VH	VH	M	M		VH	H	H		M		

Low Impact High
M H VH

Table 2. Results of identifying priority locations for direct operations (production sites)

Object	Evaluation item	Method of identification	Countries and regions which have priority locations
Water	Water stress	Aqueduct	China (2) and Thailand (2)
	Water withdrawal	Internal company data	Japan (5) and Thailand (2) and North America (1) and China (1)
	Sensitivity to pollution	Aqueduct	China (5) and Thailand (2) and Vietnam (1)
Biodiversity	Conservation/ Restoration Potential	IBAT	Japan (12) and China (5) and Thailand (1)
	Ecological integrity	Field study	Ena and Gotemba*

( ) are the number of sites identified within priority locations
*Certified as Nationally Sustainably Managed Natural Site by Ministry of the Environment, Japan

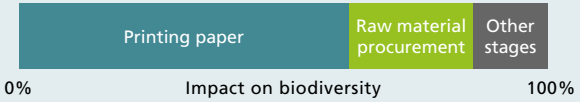
3. Examination of dependencies and impacts (Evaluate)

In order to identify key areas of biodiversity, and to understand the scale of impact throughout the value chain, we evaluated flagship Japanese products using the Life Cycle Impact assessment Method based on Endpoint modeling*[1].

This showed that over 60% (Figure 1) of the environmental load from imaging equipment arises from printing paper, and reaffirmed the importance of procuring sustainable paper (Reference: P.55).

*1 LIME2 and LIME3 were used in this evaluation.

Figure 1. Impact ratio of imaging equipment on biodiversity through the value chain



*Printing paper usage is estimated based on the standard lifetime usage of the products evaluated, taking into account double-sided printing and multiple pages printed on a single sheet of paper.

Excluding the impact of paper, we found that climate change, and the procurement of raw materials had a significant impact (Table 3). These are mainly due to steel plates and resin.

A similar evaluation conducted for thermal paper (Table 4) found that there was a significant impact from climate change, and consumption of forest resources at the raw materials procurement stage. These are mainly due to raw materials for base and release paper.

LIME does not allow comparisons with other impact categories for water resource. While the ENCORE evaluation indicates a high degree of importance, we can consider the impact of water intake from direct operations to be relatively small, whereas our assessment found a significant impact from paper and cardboard throughout the value chain. We plan to evaluate the severity of water and soil contamination in the future.

As part of policy to help reduce its impact, Ricoh Group is expanding use of recycled materials, selling recycled players (Reference: P.26), and offering silicone-top linerless labels without release paper, and label-less thermal technology that displayed directly on the object to be printed (Reference: P.28, 44-48).

Table 3. Environmental impact of imaging equipment (excluding printing paper) on each stage of the value chain.

	LIME impact category									
	Climate change	Land use	Fossil fuels consumption	Mineral resource consumption	Forest resource consumption	Waste	Biological toxicity (marine)	Biological toxicity (terrestrial areas)	Air pollution	Noise
Relevant natural capital in ENCORE*2	GHG emissions	—	—	—	Biomass	Waste	Water pollution	Soil pollution	Air pollution	Noise and light disturbances
Raw material procurement	VH	M	L	L	M	L	Future evaluation plans		The impact on biodiversity is considered small enough for LIME.	
Production	M	L	L	L	L	L				
Distribution	H	L	L	L	L	L				
Use and maintenance	H	L	L	L	L	L				
End-of-Life	M	L	L	L	L	L				

Table 4. Environmental impact of thermal paper on each stage of the value chain.

	LIME impact category									
	Climate change	Land use	Fossil fuels consumption	Mineral resource consumption	Forest resource consumption	Waste	Biological toxicity (marine)	Biological toxicity (terrestrial areas)	Air pollution	Noise
Relevant natural capital in ENCORE*2	GHG emissions	—	—	—	Biomass	Waste	Water pollution	Soil pollution	Air pollution	Noise and light disturbances
Raw material procurement	VH	H	L	L	VH	L	Future evaluation plans		The impact on biodiversity is considered small enough for LIME.	
Production	H	L	L	L	L	L				
Distribution	M	L	L	L	L	L				
Use and maintenance	M	L	L	L	L	L				
End-of-Life	H	L	L	L	L	L				

1	M	H	VH
<1%	≧1%	≧5%	≧30%

Values are calculated by LIME as percentage contributions to biodiversity.

*2 Items not selected as dependencies or impacts in the ENCORE evaluation, or items with low dependence or impact are indicated with: [-]
AIST-IDEA Ver.3.4 is used as the inventory database.

3-2. Scenario analysis summary and results

In our scenario analysis, we undertook the following steps to identify risks and opportunities, with an added natural capital aspect, before the conventional TCFD framework process.

Adding a Natural Capital Aspect

We conducted the evaluation according to the LEAP approach. The following insights were gained from evaluating the value chain by means of a Life Cycle Assessment of our main business (MFPs and thermal media).

- Large impact caused by paper
- High impact upstream in the value chain
- Large impact due to climate change and resource consumption (forests/water)

STEP 1: Materiality Assessment

Transition risks
Categorized into regulatory policy, market, technology, and reputational risk

Physical risks
Categorized into chronic risks (rise in average temperature, changing precipitation and weather patterns, etc.) and acute risks (intensified weather abnormalities, etc.)

Step 2: Identification of scenarios

Transition risks
Referenced: IPCC AR5 RCP2.6, IPCC AR6 SSP1-1.9, IEA [NZE2050]

Scenario 1: 1.5˚C scenario

A scenario where the global average temperature increase is below 1.5˚C by 2100

- Ambitious policies and technological innovations advance, including the shift to renewable energy and the introduction of carbon taxes
- Society in which changes associated with the transition to a zero-carbon society are highly likely to affect businesses

Physical risks
Referenced: IPCC AR5 RCP8.5, IPCC AR6 WG1 SSP3-7.0, IEA [STEPS]

Scenario 2: 4˚C scenario

A world with an average temperature rise of 4˚C through 2100

- Abnormal weather intensifies under climate change and risks of wind and flood damage, depletion of raw materials, and infectious disease outbreaks increases beyond expectations
- Society in which physical damage caused by climate change is highly likely to affect businesses

Step 3: Major impact assessment

Conduct a quantitative evaluation of impact and urgency in 2040 from a hypothetical impact on our business strategy, such as from world view or transformation into a digital service company.

Results of Scenario Analysis (identifying risks and opportunities)

As a result of the scenario analysis, which included not only climate change but also biodiversity and resource recycling, we found that Ricoh Group faces various risks. In particular, we realized that failure to comply with environmental regulatory standards could significantly impact revenue, and that there is a pressing need to plan for natural disasters. On the other hand, we reaffirmed that taking proactive measures to mitigate and adapt to environmental problems holds great potential for generating future financial benefits.

3-3. Risks and Opportunities

Integrated steps for risks

Integration of previous data → **Reflecting opinion from relevant company departments** → **Evaluation of degree of impact and urgency** → **Consultation, deliberation**

- For climate change, we identified risks according to the TCFD framework; for resource circulation, risks were identified in line with "disclosure/ communication guidelines for promotion of sustainable finance related to the circular economy" published by the Ministry of Economy, Trade and Industry (METI) and the Ministry of the Environment. We also drew up a list of risks identified by the LEAP approach in relation to biodiversity.
- Integration of transition risks (policies and regulations, technologies, markets, public opinion) with physical risks (acute, chronic), from a base list of climate change risks.

Transition risks	Physical risk
Policies / Regulations	Acute
Technology	Chronic
Markets	
Reputations	

- Integrated risk data reflects input from relevant company departments on environmental policies, social trends of increasing customer demands, and business strategies for the transformation to a digital services company.

Workshop

- The degrees of impact and urgency in Ricoh Group's "Risk factors" section are cited without change.
- ESG Promotion Division conducts a computational evaluation of items not on the "Risk factors" list.

Risk levels

Level of urgency Degree of severity, greater than 50% probability of occurrence	
1	Within 30 years
2	Within 10 years
3	Within 5 years
4	Within 3 years
5	Within 1 year

×

Degree of impact*	
1	Impact on profit: ¥1 billion or less
2	Impact on profit: Up to ¥20 billion
3	Impact on profit: Up to ¥50 billion
4	Impact on profit: Up to ¥100 billion
5	Impact on profit: Over ¥100 billion

*Consideration of reputational damage and impact on business transactions

- Consultation with relevant departments, such as Corporate Planning, Material Procurement, etc. on appropriateness of the integrated risks, and degrees of impact and urgency.
- Consultation with upper management on business impacts.
- ESG committee deliberates on the integrated risks, and degrees of impact and urgency.

Degrees of risk impact and urgency (transition and physical risks)

Based on scenario analysis, we have identified major risks that can impact Ricoh Group finances. We investigated each respective climate change, resource circulation and biodiversity risk, combining those that overlapped, and classified them into transition and physical risks, before estimating the degree of impact (financial) and urgency (likelihood of occurring) in line with the concept of a company-wide risk management system. We will increase our resilience to environmental impacts by firmly implementing responses based on these levels of impact.

Risk Category	Risk Type	Field	Item	Risk Scenario (Impact on Ricoh Group)	Impact	Urgency	The Ricoh Group's response	Related page
Transition risks (1.5˚C scenario*1)	Policy and legal	Climate change Resource circulation	1. Rising procurement costs from stronger policies	• The introduction of carbon pricing measures, such as carbon taxes and emissions trading, along with circular economy policies that encourage the use of recycled materials and taxing plastic packaging have increased procurement costs as suppliers pass on higher raw material prices	¥1 billion~ ¥20 billion	Within 5 years	• Supporting supplier decarbonizing activities • Reducing virgin material usage ratio through downsizing, weight-saving and recycled materials	P.21
	Policy and legal	Climate change Resource circulation	2. Stricter regulations and delays in responding to customer demands	• Strengthening environmental regulations for products and companies and tightening stricter customer requirements to reach the 1.5˚C target and build a circular economy. Losing business opportunities and earnings declining from delayed responses	¥20 billion~ ¥50 billion	Within 3 years	• Actively implement measures on energy-saving and renewable energy that contribute to the 1.5˚C SBTi • Disclose data on CFP, SuMPO EPD, content rates of recycled material used in products, etc. • Fundraising by using sustainability initiatives	P.22
	Market	Climate change Resource circulation	3. Business performance impacts of changing consumer behavior	• Decreased revenues from the rise of teleworking and a shift toward paperless processes to reduce wasteful printing	¥1 billion~ ¥20 billion	Within 3 years	• Maintain and expand the customer base for our existing office printing business • Expand into the office services field of business	P.23
	Reputation	Climate change Resource circulation Biodiversity	4. Lost social trust and damage to brand value	• Violations of environmental laws, such as illegal dumping, involvement in deforestation, or lost social trust owing to greenwashing, and other factors	¥1 billion~ ¥20 billion	Within 1 year	• Enforce our environment management system • Strengthen our industrial waste management system • Promote procurement of sustainable raw materials • Give employees awareness training on greenwashing	P.23
Physical risks (4˚C scenario*2)	Acute	Climate change	1. Rapid increases in natural disasters	• Climate change is driving more extreme weather events, causing unexpected wind and water damage at Group production sites suppliers. This can disrupt supply chains, leading to production stoppages and lost sales opportunities. The costs of tackling climate change are rising, including disaster countermeasures, office relocations, and electricity expenses.	¥1 billion~ ¥20 billion	Within 5 years	• Assess and analyze flood damage risk to our supply chain, and take countermeasures • Reinforce flood measures at sites in Japan	P.24
	Acute	Climate change	2. Regional infectious disease epidemics	Unforeseen circumstances from the spread of infectious diseases may result in: • Delays or stoppages in parts supplies, product manufacturing, or transportation • Delays or stoppages in supplies to sales companies	¥1 billion~ ¥20 billion	Within 10 years	• Implement BCP that can plan for emergencies • Select multiple suppliers of important parts, or select substitute parts • Practice a BCP that predicts new work styles such as teleworking	P.25
	Acute	Climate change Resource circulation Biodiversity	3. Declining forest resources	• Global warming is causing more forest fires, insect infestations, and other forest destruction, leading to stricter regulations and higher paper procurement costs	Up to ¥1 billion	Within 10 years	• Reduce base paper use with silicone-top linerless labels, which do not use any release coated paper • Strengthen forestry conservation activities (One Million Trees Project)	P.25

*1 1.5˚C scenario: A scenario where the global average temperature increase is below 1.5˚C by 2100
*2 4˚C scenario: A scenario where the global average temperature increase is 4˚C by 2100

Financial contribution of Opportunity (axis of activities / businesses)

We recognize that the environmental impact from climate change, resource circulation and biodiversity pose not only a business risk, but is also an opportunity to enhance our products and services, and overall corporate value.

Nevertheless, future opportunities are difficult to disclose in terms of their financial contribution, and Ricoh Group has traditionally disclosed the financial contribution of environment management activity (axis of activity) for that fiscal year, with respect to opportunities in environment-related fields.

Since fiscal 2023, we have clarified the contribution of business to resolving social issues, set sales targets for each materiality until fiscal 2025, and begun disclosing future opportunities (their financial contribution) for business in relation to "Realizing a Zero-carbon Society" and "Realizing a Circular Economy".

Activity-based Opportunities

The provision of products and solutions that help customers reduce their environmental burden by taking advantage of our energy-saving, resource circulation, and energy-creation services; expanded sales of solutions that help combat infectious diseases, and new business creation have brought us various opportunities. Currently, eco-friendly office equipment, solutions to combat infectious disease, and the environmental and energy businesses have contributed to sales on the scale of ¥1 trillion.

	Field	Overview of FY2023 results	FY2023 Financial Contribution Amount	Related page
Contribution to mitigation	Climate change Resource circulation Biodiversity	1. Sales of eco-friendly products Strengthening energy-saving, use of recycling, and control of chemicals	Approx. ¥1,230 billion	P.26
	Climate change Resource circulation	2. Reuse and recycling businesses Recycle design, sales of recycled equipment	Approx. ¥30 billion	P.26
	Climate change Resource circulation	3. Sales from business deal negotiations involving ESG compliance Bidding, sales negotiations	Approx. ¥40 billion	P.27
	Climate change Resource circulation	4. Energy-saving, resource-saving, and energy-creation related businesses Smart MES, EV Solar power generation operation and maintenance (O&M) Utilization of storage batteries	Approx. ¥30 billion	P.27
	Climate change Resource circulation	5. Contribution through new businesses Silicone-top linerless labels Label-less thermal Portable Plastic Identification Sensor	—	P.28
Contribution to adaptation	Climate change Resource circulation	Solutions supporting digital transformation Support for scrum packages, and others	Approx. ¥170 billion	P.28

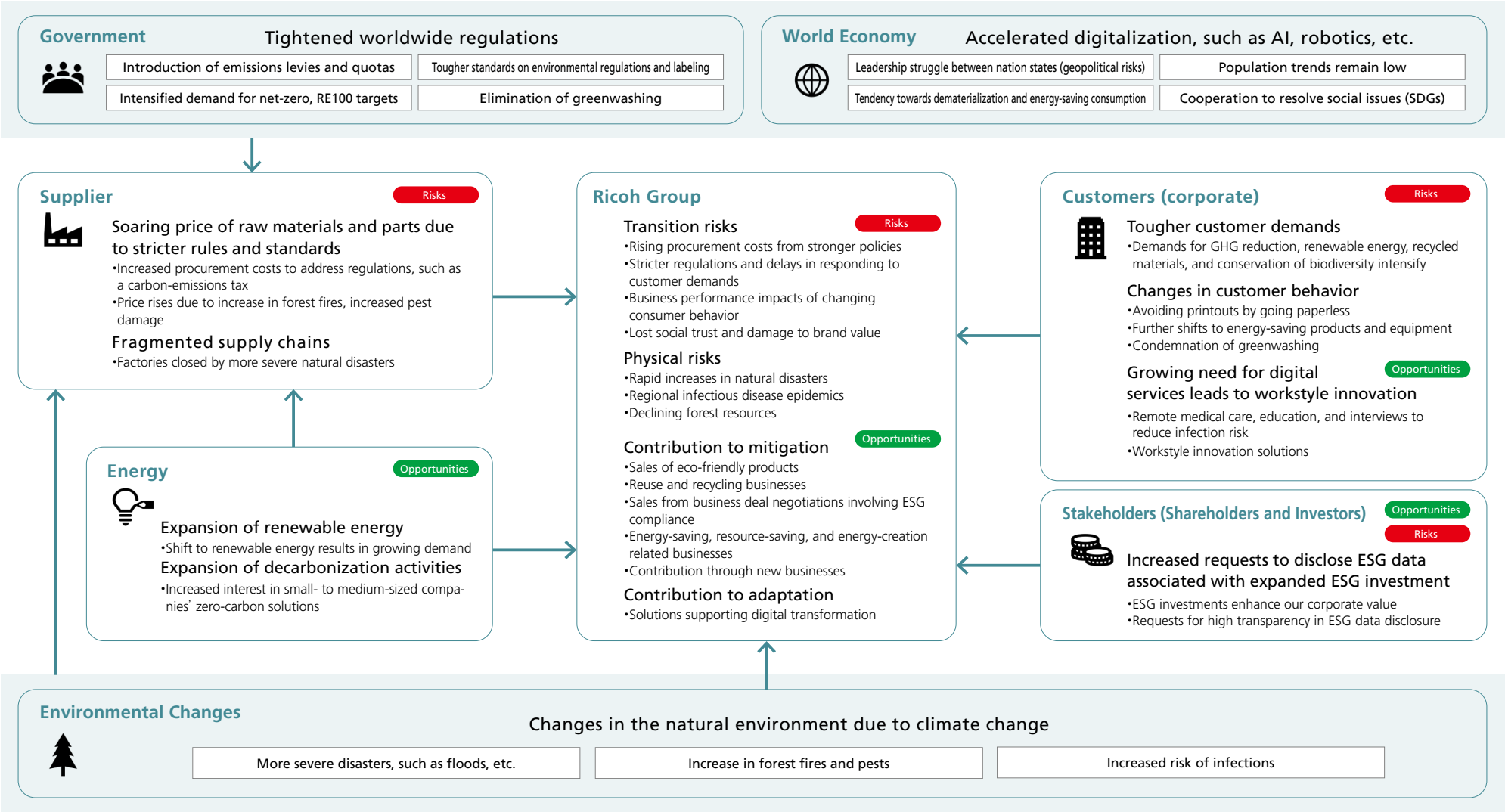
Business-based Opportunities

To better demonstrate to all stakeholders our progress in aligning ESG with business growth, we clarified the businesses and the sums they contribute to resolving social issues, and set sales targets for fiscal 2025. The results for fiscal 2023 are shown below.

Materiality	Social issue–resolving businesses	FY2025 targets	FY2023 sales
Zero-Carbon Society Circular Economy	Eco-friendly MFPs Commercial printing Silicone-top linerless labels Label-less thermal, and others	¥450 billion	¥315 billion
Creativity from Work	Office services Smart Vision, and others	¥1,050 billion	¥926 billion
Community and Social Development	GEMBA (Maintenance and services for non-office sites) Municipal solutions Educational solutions, and others	¥50 billion	¥20 billion

Global Vision 2040 and Risks and Opportunities for Ricoh Group

Transition risks (1.5˚C scenario)



Physical risks (4˚C scenario)

3-4. Addressing risks and opportunity initiatives

Measures to mitigate transition risks

Transition risk 1 (1.5˚C scenario): Rising procurement costs from stronger policies

Risk scenario

The introduction of carbon pricing measures, such as carbon taxes and emissions trading, along with circular economy policies that encourage the use of recycled materials and taxing plastic packaging have increased procurement costs as suppliers pass on higher raw material prices

Impact
¥1 billion~ 20 billion

Urgency
Within 5 years

Ricoh Group's Response

Dealing with key suppliers

The Ricoh Group has set annual internal targets for 292 key suppliers until fiscal 2025 for the "ratio signing the Ricoh Group Supplier and Partner Code of Conduct," the "ESG risk assessment low-risk ratio," and the "ratio setting decarbonization targets", and is promoting measures to achieve these targets. We ask our key suppliers to sign an agreement to put the Ricoh Group Supplier and Partner Code of Conduct into practice, and the percentage who signed in fiscal 2023 was 97% compared to the target of 90%.

To monitor compliance with the Ricoh Group Supplier and Partner Code of Conduct, we ask key suppliers who have signed the agreement to complete an ESG risk self-assessment. In order to increase the low-risk supplier ratio, we have been encouraging suppliers who were identified for improvement to make improvements, and in fiscal 2023, we achieved a low-risk supplier ratio of 76% compared to the target of 70%.

In addition, we are surveying the setting of decarbonization targets for some of our key suppliers in order to promote not only the Group's own CO_2 reduction efforts aimed at decarbonizing, but also to progress them in cooperation with all our suppliers.

We achieved an actual ratio of approximately 53% for fiscal 2023 decarbonization targets.

Supporting supplier decarbonizing activities

The Ricoh Group actively supports decarbonizing efforts at its suppliers and is addressing the risk of higher procurement costs due to the impact of a carbon-emissions tax, and other factors that are expected to increase prices in the future.

For example, we have been working to share environment-related social trends with senior management, and raise awareness of CO_2 reduction. We also hold ESG briefing sessions for suppliers to share the Ricoh Group initiatives on policies and targets, in addition to social issues such as global environmental problems.

In March 2022, we held informational sessions on decarbonization for suppliers, and requested that these set Scope 1 and 2 reduction targets that meet the SBTi 2˚C standard. To achieve this goal, we offer support that includes one-on-one consultation drawing on examples of the Ricoh Group practice and know-how concerning the assessment of Scope 1 and 2 emissions and the switch to low-GHG-emissions-factor electrical power.

To date, 10 suppliers have carried out GHG emission reduction activities in collaboration with the Ricoh Group, resulting in a total reduction of 986t-CO_2eq.

Reducing virgin material usage ratio through downsizing, weight-saving and recycled materials

The Ricoh Group makes efforts to improve resource efficiency through promotion of the 3Rs* in our products. To reduce the use of new resources at the manufacturing stage, we are also making efforts to reduce the size and weight of products, expand the use of recycled materials, and design products for ease of recycling. We are further developing non-petroleum-based materials in preparation for risks including resource shortages, environmental impacts, and wastes. We are globally expanding our businesses for the collection, recycling, and sales of used products. In Japan, we offer reconditioned equipment with a reuse rate of 80% and guaranteed to meet prescribed quality standards; overseas, we offer refurbished equipment with a reuse rate of approximately 90% or more, selected and restored according to regional standards. Our reconditioned equipment released in June 2021 has reduced CO_2 emissions by about 62% in the manufacturing process and about 19% throughout the life cycle, compared to new equipment. In addition, we released an A3 MFP in 2023 that uses recycled plastic for approximately 50% of the main unit's total plastic weight and 73% of the toner bottle's total weight. (Reference: P.36, 44)

*3Rs: Reduce, reuse, and recycle

Transition Risk 2 (1.5˚C scenario): Stricter regulations and delays in responding to customer demands

Risk scenario

Strengthening environmental regulations for products and companies and tightening stricter customer requirements to reach the 1.5˚C target and build a circular economy. Losing business opportunities and earnings declining from delayed responses

Impact: ¥20 billion~ ¥50 billion

Urgency: Within 3 years

Ricoh Group's Response

●Actively implement measures on energy-saving and renewable energy that contribute to the 1.5˚C SBTi

The Ricoh Group became the first Japanese company to join "RE100" in April 2017.

In addition, we obtained certification under the SBTi standard "1.5˚C target" whose environmental goal is a 63% reduction in Scopes 1 and 2 greenhouse gas ("GHG") emissions by 2030 (compared to 2015) and net zero GHG emissions for Scopes 1, 2, and 3 by 2050.

In March 2024, we set a new 2040 target to achieve net zero GHG emissions for Scopes 1 and 2, and transition to 100% renewable energy for electricity used in our business activities (RE100 initiative), brought forward 10 years from our previous target of 2050. In order to achieve our goals, we will actively promote the use of renewable energy, including the purchase of renewable electricity and the strategic use of renewable energy certificates.

*RE100: An international initiative that aims to supply 100% of the electricity used in businesses from renewable energy sources.

●Reducing our products' CFP (Carbon Footprint) and Information Disclosure

Today, the world is required to comply with regulations that mandate various initiatives and disclosures to reduce greenhouse gas emissions. One of these, CFP*1, is a system that converts greenhouse gases emitted throughout a product's life cycle, from procurement of raw materials to disposal and recycling, into CO_2 and discloses the amounts in an easy-to-understand manner.

If the CFP value remains high or the percentage of recycled material used is low, there is an increased risk that customers will avoid selecting us as an option.

As part of its efforts to reduce CFP, the Ricoh Group is striving to reduce greenhouse gas emissions throughout its supply chain by incorporating renewable energy at its production sites and reducing Scope 3 emissions through environmentally conscious and sustainable procurement activities.

Furthermore, in accordance with the SUMPO EPD*2 standard, we calculate and disclose information on CO_2 emissions over throughout the life cycle of each product.

By transparently disclosing the results of our product CFP reduction activities, we will not only comply with regulations, but also meet the high demands of our customers.

*1 CFP: Carbon Footprint of Products

*2 SUMPO EPD: Environmental Product Declaration(EPD) program operated and managed by the Sustainable Management Promotion Organization (commonly known as SUMPO) in compliance with the international standard ISO 14025.

Information on products' CFP (Carbon Footprint)
https://jp.ricoh.com/sustainability/environment/product/cfp

●Fundraising by using sustainability initiatives

Ricoh actively engages in financing that makes use of our sustainability initiatives. In 2020, we signed our first Sustainability Linked Loan with MUFG Bank and since then, we have continued raising funds in various ways to further reinforce our decarbonization and resource recycling activities.

Mizuho Eco Finance loan agreement signed with Mizuho Bank (May 2024)

This is a financial service that utilizes the Japanese Bank's "Refinancing operations in support of actions to address climate change". It is the fourth consecutive year that the Ricoh Group has been awarded this contract in recognition of its efforts toward decarbonization.

Positive Impact Finance agreement signed with Sumitomo Mitsui Trust Bank (June 2024)

We entered into a Positive Impact Finance agreement (PIF; investment-type for businesses with no restrictions on the use of funds), in line with the financial principles advocated by the United Nations Environment - Finance Initiative. This year is the third consecutive year of the agreement. The PIF analyzes and evaluates the environmental, social, and economic impacts of our corporate activities with the aim of contributing to our SDGs through those activities. The Ricoh Group has been evaluated in, and accepted for ESG targets in 5 areas.

Transition Risk 3 (1.5˚C scenario): Business performance impacts of changing consumer behavior

Risk scenario

Decreased revenues from the rise of teleworking and a shift toward paperless processes to reduce wasteful printing

Impact: ¥1 billion~ ¥20 billion

Urgency: Within 3 years

Ricoh Group's Response

● Expand our office services and maintain/expand the customer base for our existing office printing business

We are currently transforming into a digital services company, and working to transform our earnings structure and enhance profitability. We are reinforcing our investment in resources for high-value-added areas of commercial printing and inkjet technologies and products, where market growth is expected, and transforming our business structure through the implementation of business portfolio management. We are also working to maintain and expand our existing office printing customer base, and further increase profitability by driving forward SCM efficiencies and operational excellence. At the same time, we have designated business process automation and communication services as growth areas, and are working to hedge the risk in the field of office printing by accelerating our accumulation of recurring revenue business earnings.

We also provide competitive products and hedge risks by collaborating with other companies to build an optimal production and development system for the supply of edge devices, including MFPs, thus improving profit margins.

Transition Risk 4 (1.5˚C scenario): Lost social trust and damage to brand value

Risk scenario

Violations of environmental laws, such as illegal dumping, involvement in deforestation, or lost social trust owing to greenwashing, and other factors

Impact: ¥1 billion~ ¥20 billion

Urgency: Within 1 years

Ricoh Group's Response

● Enforce our environment management system

At the Ricoh Group, we promote environmental management with a management system that integrates operational and environmental decision-making. Environmental goals and strategies formulated by senior management are incorporated into each organization's targets, and we administer and monitor environmental risks and opportunities while building a system to provide feedback on outcomes to senior management, with a PDCA (Plan-Do-Check-Act) cycle implemented for the whole Group and each individual organization. We also monitor our entire business's environmental impact and compliance, and use the results to set targets and devise strategies, make decisions on environmental management, promote eco-friendly design, work on improving departments, train employees, conduct internal audits and disclose information to our stakeholders.

● Procurement of sustainable raw materials

In fiscal 2010, we established "Regulations for Ricoh Group products made of wood" to prevent deforestation and to procure raw materials in a socially responsible way, i.e. labor, etc. Based on these regulations, we are committed to sustainable use of forest resources, with responsible procurement of raw materials.

● Give employees awareness training on greenwashing

As social demands for corporate sustainability initiatives increase, and the concepts of sustainability and SDGs become more widespread, the gaze of our stakeholders regarding environmental claims and unsubstantiated disclosures on sustainability has intensified like never before.

Therefore, the Ricoh Group regularly holds greenwashing awareness training to avoid making claims that are not backed by data, or exaggerated statements that may mislead stakeholders when making environmental claims about the products and services we have developed in-house. Our Corporate Communications Department and ESG Promotion Division also carefully examine the content of any claims we make at exhibitions or in pamphlets before disclosing them.

Measures to mitigate physical risks

Physical risk 1 (4°C scenario): Rapid increases in natural disasters

Risk scenario

Climate change is driving more extreme weather events, causing unexpected wind and water damage at Group production sites suppliers. This can disrupt supply chains, leading to production stoppages and lost sales opportunities. The costs of tackling climate change are rising, including disaster countermeasures, office relocations, and electricity expenses.

Impact: ¥1 billion~ ¥20 billion

Urgency: Within 5 years

Ricoh Group's Response

● Assessment of flood damage risks

For our business sites in Japan, we assessed risks of flood damage with reference to information including national and local government hazard maps and recent precipitation volumes. For overseas business sites, we used the Aqueduct Water Risk Atlas of the international environmental non-governmental organization World Resources Institute (WRI), and in fiscal 2021 assessed flooding risks at 14 major business sites with the cooperation of Sompo Japan Insurance Inc. Based on the countries' hazard maps, we evaluated floods occurring when water volume on land cannot be fully drained, such as during heavy rains, typhoons, and increase in river level, as well as the storm surge phenomenon by which the sea level rises due to storms and changes in atmospheric pressure, causing seawater to flow inland.

Doing so, we confirmed the frequency of these two risks and the zones at risk.

As a result, we confirmed the following as production and R&D sites in the Ricoh Group for which risks are a concern:

Major production and R&D sites of risk concern
· Japan: 9 out of 14 sites
· Overseas: 5 out of 14 sites

● Addressing supply chain risks

The Ricoh Group departments that manage global production operations have established a Business Continuity Plan (BCP) for the entire supply chain, from parts procurement to production and sales. Specifically, in preparation for delays and suspension of parts supply, suspension of manufacturing at production plants, suspension of activities by transport firms, and so on, our production facilities in Thailand, Japan, China, and other locations secure surplus inventory of products and components and select multiple suppliers for key components.

● Strengthening measures to address risks at Japanese sites

Major production and R&D sites

The Ricoh Group has established criteria for determining which sites are at risk of flooding, based on hazard maps from national and local governments and on up-to-date precipitation data from the Japan Meteorological Agency. Since fiscal 2021, we have been strengthening initiatives to address the risk of flooding, and continued with necessary construction work at sites deemed to be at high risk based on detailed findings of flood risk surveys conducted at our Group sites. In fiscal 2023, we took necessary measures such as installing water bars and waterproof barriers at our main R&D site, Ricoh Technology Center, and our main production site, Ricoh Industry Tohoku Office.

We have also formulated a recovery action plan to respond to large-scale floods, and use the plan to conduct ongoing drills.

Ricoh Industry Tohoku Office
Emergency generator waterproof barrier

Ricoh Technology Center
Watertight shutter (B1F)

● Building a data infrastructure for flood risk

Based on our flood risk criteria, we have built an in-house system to visualize the risk status from hazard maps and precipitation data, and update it every six months. In 2023, there were no sites that required new hardware measures. This system was also expanded to sales sites as well as production sites, and registration was completed at all Ricoh Group sites in Japan (about 460 sites) by June 2024. Using this tool, we review and strengthen action plans for offices and employees, and update the content to be more useful in a contingency.

All employees, including management, have access to this information, which is used to reinforce sites' defenses against floods, assess risks, strengthen BCPs and for management to discuss strategy, ensure the safety of employees, etc.

Physical risk 2 (4°C scenario): Regional infectious disease epidemics

Risk scenario

Unforeseen circumstances from the spread of infectious diseases may result in:

- Delays or stoppages in parts supplies, product manufacturing, or transportation
- Delays or stoppages in supplies to sales companies

Impact
¥1 billion~ ¥20 billion

Urgency
Within 10 years

Ricoh Group's Response

Implement BCP that can plan for emergencies

As risks have become more diverse in recent years, making it difficult to respond quickly with individually-tailored risk responses to unforeseen events, we have adopted an "All-hazard Response" approach that is not restricted to specific crises. We are taking common measures against geopolitical risks, such as pandemics and the Taiwan contingency, by securing inventory of critical parts at production plants and putting new ways of working into practice, such as teleworking.

Select multiple suppliers of important parts, or select substitute parts

We reduce the risk of depending on a particular supplier by selecting multiple suppliers. In addition, selecting substitute parts means that substitute parts can promptly be made available in the event that a particular part becomes difficult to supply. This ensures that product lines can continue without disruption. Furthermore, we can react more quickly at the beginning to contingencies by shortening the timeframe for the process of surveying the impact of a disaster on suppliers. This allows us to promptly understand a situation and take appropriate measures.

Put new ways of working into practice, such as teleworking

We are implementing new ways of working, such as teleworking, to counter any risk of business stagnating due to a pandemic. Teleworking has created an environment in which employees can work from home or other locations. In addition, the use of IT tools has contributed to improved operational efficiency by helping to maintain smooth communication between employees. Furthermore, we promote a direct-to-home work style, which reduces travel time and enables flexible work arrangements. These initiatives aim to address the risk of viruses spreading while improving employee comfort and operational efficiency.

Physical Risk 3 (4°C scenario): Declining forest resources

Risk scenario

Global warming is causing more forest fires, insect infestations, and other forest destruction, leading to stricter regulations and higher paper procurement costs

Impact
Up to ¥1 billion

Urgency
Within 10 years

Ricoh Group's Response

Reduce base paper use through silicone-top linerless labels and label-less thermal media technology

The Ricoh Group now sells silicone-top linerless labels that do not use any release coated paper. We have also developed label-less thermal media technology in which the thermal layer is applied directly to packages, etc., rather than to the base material, i.e., paper. These technologies are expected not only to reduce our paper use, which is a forest resource, and GHG emissions, but also to improve productivity by removing the release and pasting processes.

(Reference: P.28)

Ricoh Group's forest conservation activities: the One Million Trees Project

While reducing GHG emissions, the Ricoh Group also undertakes activities worldwide to conserve forests, which are increasingly important as sources of CO_2 sequestration. With both preservation and increase as goals, we are advancing the One Million Trees Project that seeks to plant one million trees between fiscal 2020 and fiscal 2030. During the four years from fiscal 2020 to fiscal 2023, we planted a total of 453,000 trees. We also engage in forest conservation in cooperation with local governments and other bodies. We have joined the 30by30 Alliance for Biodiversity, which works to halt the loss of biodiversity by 2030 and to preserve over 30% of land and sea as natural environment areas.

(Reference: P.56, 57)

Opportunity initiatives related to activity axes (contributing to mitigation/adaptation)

As we contribute to mitigating the effects of climate change, depleted resources, and lost of biodiversity, we will strive to provide products and services that circumvent their impact.

Mitigation 1 : Sales of eco-friendly products

We actively obtain environmental labels globally so that we can provide eco-friendly products to our customers. Under the International Energy Star Program that promotes energy conservation in office equipment, 97% of our imaging equipment, including products launched in fiscal 2023, have obtained Energy Star certification and are contributing to decarbonization. In advancing manufacturing that contributes to the environment, we also operate the Ricoh Sustainable Products Program that evaluates products under our own strict standards for energy and resource conservation, pollution prevention, comfort, and ease of use.

●QSU (Quick Start-Up) energy-saving mode

In conserving energy in MFPs, an important issue is how to reduce power consumption during the standby period (said to be about 90% of the day) when the product is not operating.*1 In response to this, we created an energy-saving mode that automatically switches to a reduced power consumption state when the product has been in standby for a certain length of time. QSU (Quick Start-Up) is a technology that allows the quick use of MFPs from energy-saving mode (sleep state). What determines the time required for start-up is the speed at which the cooled fixed roller can be heated to the required temperature.

The Ricoh Group has engaged in full-scale development of QSU technology for 25 years to enable stress-free use of energy-saving mode by customers in offices. We have greatly reduced the time for return from sleep mode, and in terms of energy conservation have achieved industry-leading typical energy consumption (TEC) values*2

*1 Assumes operation of a 40 sheets/minute MFP running for 20 days in an office that outputs 50,000 sheets per month

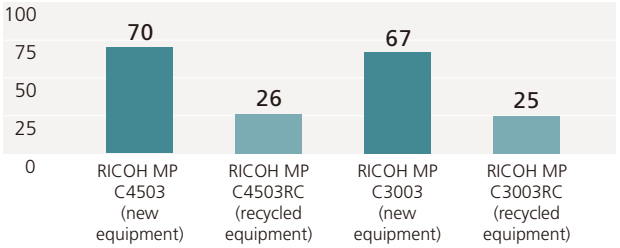
*2 Typical energy consumption (TEC) value: A numerical value measured as stipulated by the International Energy Star Program

Mitigation 2: Reuse and recycling business

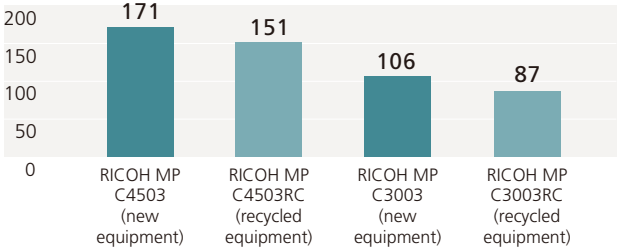
We have actively engaged in the reuse and recycling business, utilizing the 3Rs-related technology and global collection structure that we have built up since 1994. Based on our unique "The Comet Circle™" concept for realizing a circular economy, we promote the 3Rs and maintain a high 80-90% level of reuse of parts from recycled products. By enhancing our product lineup to align with recent trends toward a circular economy, we will address the needs of customers and contribute while also contributing to the realization of a zero-carbon society and a circular economy.

(Reference: P.47)

Environmental impact ratio in the manufacturing process (comparison of CO_2 emissions) (kg/year)



Results of life cycle assessment (LCA) (comparison of CO_2 emissions) (kg/year)



●Selling remanufactured machine

Since 1997, when the Ricoh Group launched its first remanufactured machines, we have been selling remanufactured machines while responding to the needs of markets in each region of the world.

We have multiple types of remanufactured machines to meet the needs of our customers and the market.

- High quality remanufactured machines with a like-new warranty
- Refurbished machines with replaced consumable parts and inspection
- Cleaned and Checked refurbished machines

As high-quality remanufactured machines guaranteed to be as good as new, we sell them in Japan as RC machines (reconditioning machines), and in Europe, the Americas, and Asia as the GreenLine series.

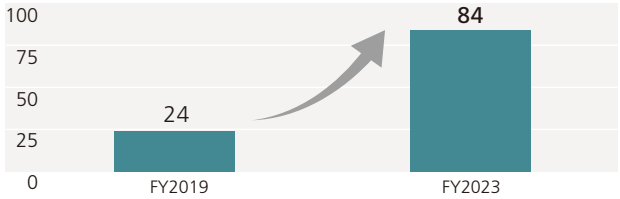
In February 2022, the Ricoh Group's GreenLine series 9 models (the Americas) became the first in the world to acquire certification in the "remanufactured imaging equipment" category of the International Energy Star Program Ver. 3.1.

Mitigation 3: Sales from business deal negotiations involving ESG compliance

In recent years, ESG-related laws and regulations have been progressing around the world. In turn, particularly among international corporations, there has been an increase in cases where ESG-related requirements are included in contracts; requests are made to check the status of ESG initiatives; and submit questionnaires. For example, we are asked about products' eco-labels, recycled material usage rates, percentage of toner bottles recycled, consideration for human rights and diversity initiatives.

In addition, there are increasing cases where we are required to submit external ESG evaluation scores and ratings as a prerequisite for participating in business negotiations. For example, the number of customers who request disclosure of our EcoVadis* score has risen from 24 cases in fiscal 2019 to 84 cases in fiscal 2023.

Trend in Number of EcoVadis Score Disclosure Requests



Addressing ESG is becoming an essential part of our business, and we are working to strengthen our ESG initiatives to meet the expectations of our customers and the world.

*EcoVadis: A French sustainable supply-chain evaluation company

Mitigation 4: Energy-saving, resource-saving, and energy-creation related businesses

Amid the accelerating current of decarbonization, in Japan we provide customers with decarbonization solutions from the perspectives of "reducing," "choosing," "creating," and "accommodating" energy.
Utilizing the monitoring services that we have developed in the field of IT and network equipment, we engage in energy saving- and energy creation-related businesses including operation and maintenance (O&M) of customers' solar power generation facilities, maintenance of EV charging equipment, and lighting and air conditioning control systems

●"Reducing Energy Usage": RICOH Smart MES (Lighting and Air Conditioning Control System)

By utilizing proprietary sensing technology and cloud management, we achieve both energy savings and a comfortable workplace. Through precise control of lighting and air conditioning, automated from the cloud, we reduce operational burdens while efficiently using lighting and air conditioning based on time and location needs.

●"Choosing the Energy Usage": EV Charger Installation and Maintenance

At Ricoh Japan, we provide comprehensive support for our customers in selecting the energy they use and reducing CO_2 emissions by facilitating the switch from gasoline vehicles to EVs and improving EV charging infrastructure.

●"Sharing Energy Usage": Utilizing Storage Batteries

We support the creation of systems to store and effectively utilize energy through the use of EV batteries, stationary batteries, and portable storage batteries. This not only contributes to decarbonization but also ensures the continued operation of critical equipment and tasks during power outages, making it an effective measure for BCP (Business Continuity Planning) during disasters.

●"Create new energy": Solar power generation operation and maintenance (O&M)

Ricoh Japan performs monitoring of customers' solar power generation facilities 24 hours a day, 365 days a year. We are able to quickly detect and resolve equipment problems and power generation outages and drops due to natural disasters and other causes. In the event of a failure, we quickly go to the site from a nearby service base to provide support for stable operation and to limit the decline in electricity sales revenue.

●"Utilizing New Energy": VPP and Commercialization of Digital Power Services

In 2023, Ricoh established a joint venture, "NRPower Lab," with NGK Insulators, Ltd., aiming to promote renewable energy. By combining NGK's battery control technology with Ricoh's digital expertise, we provide a renewable energy distribution record platform. Through Virtual Power Plant (VPP) services and digital power services, we promote the stable use of renewable energy.

Mitigation 5: Contribution through new businesses

●Silicone-top linerless labels (SSL) technology

In general, adhesive labels are mainly in the form of products affixed to release paper. Release paper, which requires the same amount of paper resources as thermal paper, is disposed of as waste after the label is attached to the product, so reducing the amount of release paper has been an issue. In 2014, the Ricoh Group launched a Silicone-top linerless labels (SSL) as a thermal label that does not use release paper, based on thermal paper technology cultivated over many years. SLL has begun to be used not only in food POS labels for retailers, but also in the convenience store industry. While reducing the amount of paper resources used and reducing waste at the same time, GHG emissions per printable area can be reduced by approximately 30% compared to labels with release paper.

*Ricoh research. The National Institute of Advanced Industrial Science and Technology IDEA Ver3.2 is used to calculate GHG emissions

●Label-less thermal technology that enables direct printing on substrates

Label-less thermal is a method in which a reactive ink developed by Ricoh is partially coated on package films, and printed directly by applying heat to the coated area with thermal head printer or laser marker. Information such as the product name and raw materials can be printed directly on the package, eliminating the need for thermal paper labels that were previously attached. Compared to thermal paper labels, GHG emissions per printable area can be reduced by 80% or more*

*Ricoh research The National Institute of Advanced Industrial Science and Technology IDEA Ver3.2 is used to calculate GHG emissions

●Portable plastic identification sensor

In March 2023, we launched the RICOH HANDY PLASTIC SENSOR B150, a compact and lightweight portable sensor that can easily identify resin (plastic) materials. The sensor irradiates the resin with near-infrared rays and measures the spectrum of reflected light to identify the resin. It can also work with smartphones to distinguish 13 types of resin*.

Sorting is an indispensable process for recycling and circulating plastics. This sensor makes it easier to identify waste plastics without special knowledge. It contributes to the promotion of efficient recycling of resources such as end materials and waste materials from manufacturing plants that were disposed without knowing the type of resin.

The film manufacturer (Meiwa Pax Co., Ltd. Hyogo Factory) using this sensor is now able to sort waste plastics by type. Of the 7t/month processed, the polypropylene recycling rate has improved by 80%, and GHG emissions have been reduced by approximately 170t of CO_2/year. In addition to the manufacturing industry, which has problems in waste disposal, this sensor is also used by students to experience social issues in educational settings.

*As of March 2023

Portable plastic identification sensor
RICOH HANDY PLASTIC SENSOR B150

*Received the 2022 Good Design Award (sponsored by the Japan Institute of Design Promotion) and selected as one of the Good Design Best 100

Scenery at the "Ocean and Japan Project" in Obama City, Fukui Prefecture

Contribution to Adaptation: Solutions supporting digital transformation

The Ricoh Group's Scrum Package combines our own and partner companies' edge devices, software, and cloud services to support customers in digitizing their new work styles and operations. By offering services aligned with the new normal era, we contribute to reducing GHG emissions through increased productivity.

In recent years, as labor force declines due to the aging population and workstyle reforms expand, enhancing productivity and revitalizing local communities through the latest digital technologies has become one of the key social challenges. However, small and medium-sized enterprises (SMEs), which account for more than 75% of Japan's GDP, face barriers in effectively utilizing ICT due to lack of information, human resources, and budget constraints. Since 2020, the spread of COVID-19 has further accelerated the demand for companies to adapt to telework and remote work environments, driving changes in how work is structured.

Telework All-in Package

4. Ricoh Group's environmental management

Approach to environmental management

Conserving the environment while generating a profit

In 1998, the Ricoh Group proposed the concept of "Sustainable Environmental Management", which aimed to conserve the environment while generating a profit at the same time. This approach is not a trade-off between environmental conservation and economic growth, but rather it is about linking them to business growth, profit generation and enhanced corporate value, by taking a long-term perspective and responsibility for our own ongoing efforts. At the Ricoh Group, we are committed to this basic concept of ongoing sustainable environmental management, as part of our overall management strategy.

Ricoh Group Environmental Declaration

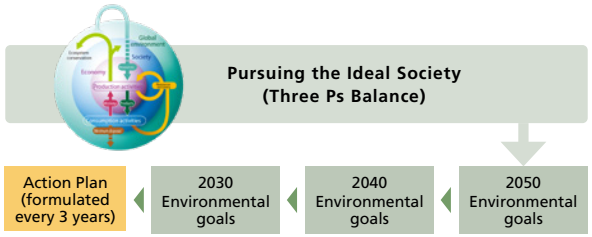
We proactively reduce environmental impact and strive to improve the Earth's self-recovery capabilities to achieve a zero-carbon society and a circular economy through business.

Setting environmental goals

Ricoh Group uses the backcasting method to set goals

The Ricoh Group uses the backcasting method to set goals. In this approach, we first set final goals and then determine target values as milestones on the journey to these goals. As milestones towards achieving the final goal of "Three Ps Balance," we have set decarbonization targets for 2030, 2040, and 2050, as well as resource conservation targets for 2030 and 2050.

We have incorporated these goals into three-year targets and specific measures in line with the Mid-term Management Strategy, and we are developing highly effective activities in each area to achieve the 2030 targets.



The Ricoh Group Environmental Principles

The Ricoh Group established its Environmental Principles in 1992, based on its management philosophy. The environmental principles explain what the Ricoh Group should do in terms of implementing a basic policy and action guidelines for environmental conservation. They are a statement of the Ricoh Group's commitment to "sustainable environmental management", where both efforts to conserve the environment and create economic value are realized at the same time.

Environmental Principles

Basic Policy
As a global citizen, the Ricoh Group is obligation-conscious of environmental conservation. In addition, we strive to honor our environmental responsibilities and concentrate group-wide efforts in environmental conservation activities, implementation of which we believe to be as significant as our business operations.

Action Guideline

1. Achieve superior targets
Complying with laws and regulations as a matter of course, we dutifully fulfill our environmental responsibilities, setting targets that go ahead of those that society currently requires, and by achieving these, create economic value.

2. Develop innovative environmental technologies
We will take steps to develop and promote innovative environmental technologies that will give increased value to our customers and can be utilized by various people.

3. Encourage all employees to participate in environmental activities
In all our business activities, we strive for awareness of environmental impact, thereby involving all Ricoh employees in implementing continuous improvements to prevent pollution, and use energy and natural resources more efficiently.

4. Be attentive to product lifecycle
To provide our products and services, we spare no effort to reduce environmental effects in all stages of the product lifecycle, from procurement, manufacturing, sale, and logistics, to usage, recycling, and disposal.

5. Improve employees' environmental awareness
We at Ricoh wish each employee to be attentive to a broader range of social issues and mindful of enhancing environmental awareness through proactive learning processes, designed to commit the employee to environmental conservation activities according to his or her responsibility.

6. Contribute to society
By participating in and supporting environmental conservation activities, we will contribute to creating a sustainable society.

7. Optimize communication with stakeholders
The Ricoh Group will expand its environmental conservation activities with stakeholders. In addition, we will fully communicate and proactively cooperate with our stakeholders to reassure communities of our dependability and commitment to the environment.

(Established in February 1992,
Revised in April 2023)

5. Realizing a zero-carbon society

Policy and targets

The Ricoh Group has set a goal of achieving net zero greenhouse gas ("GHG") emissions throughout its entire value chain by 2050, based on the Paris Agreement, the IPCC, and other scientific findings. In line with our decarbonization policy, we have formulated mid- and long-term environmental goals and a decarbonization roadmap, and are developing specific measures throughout the company.

Decarbonization Policy

1. Conserve energy and switch to alternative fuels
2. Harness renewable energy
3. Identify and reduce GHG emissions in the supply chain

Environmental vision and goal setting

The Ricoh Group has set 2030 Scope 1, 2 (63%), and Scope 3 (40%) reduction targets, and was certified for the SBTi 1.5°C in 2020.

In March 2024, we set new goals for 2040. We have driven forward Scopes 1 and 2 to achieve net zero greenhouse gas (GHG) emissions*1 and to transition to 100% renewable electricity usage in our business activities (achieving RE100*2) to 10 years ahead of the previous target of 2050.

Through our own efforts, we will reduce emissions by 90% from the base year, and offset the remaining emissions by internationally recognized methods*3 to achieve net zero.

We have expanded the existing Scope 3 category 1 (purchased goods and services), category 4 (upstream transportation and distribution), and category 11 (use of sold products) to all categories, and set a new reduction ratio of 65% from the base year to reinforce our approach. In addition, we have set an additional quantitative goal to reduce emissions ourselves by 90% compared to the base year (fiscal 2015) for Scopes 1, 2, and 3 net zero targets set currently for 2050.

*1 Reduction ratio 90% + Residual emissions offset
*2 RE100: An international initiative where participating companies aim to procure 100% of the electricity needed for their business from renewable energy sources.
*3 In accordance with ISO 14068-1:2023, published November 2023

Ricoh Group environment goals (zero-carbon)

Goals for 2050

- GHG Scope 1*1, 2*2, 3*3 : Net zero GHG emissions

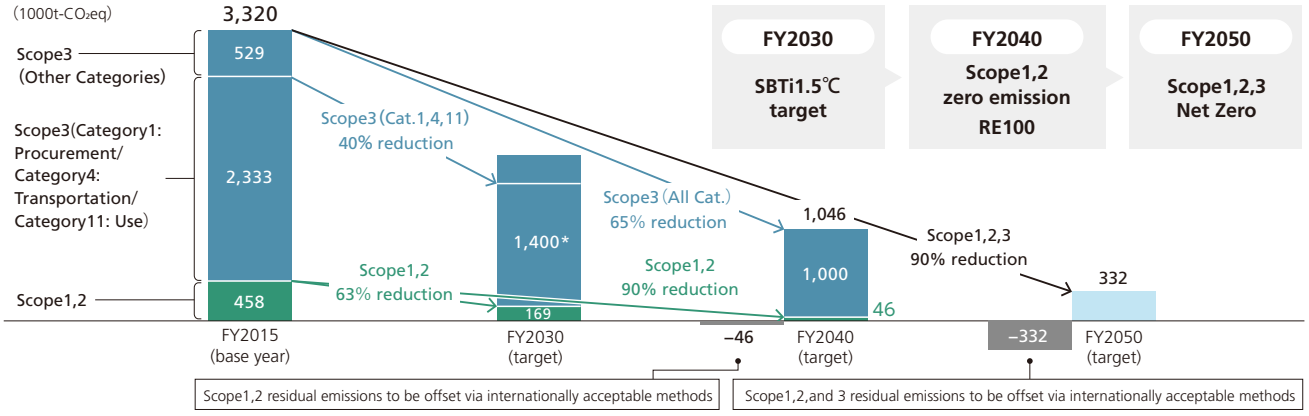
Goals for 2040

- GHG Scope1,2 : Zero emission
- GHG Scope3 : (65% reduction compared to 2015 level, all categories)
- Renewable energy usage ratio: 100%

Goals for 2030

- GHG Scope1 and 2: 63% reduction (compared to 2015 level)
- GHG Scope3 : 40% reduction (compared to 2015 level)
- Renewable energy usage ratio: 50%

*1 GHG Scope 1: All direct GHG emissions from Ricoh Group factories, offices, vehicles, etc.
*2 GHG Scope 2: Indirect GHG emissions from the consumption of electricity and heat purchased by Ricoh Group
*3 GHG Scope 3: Emissions in the supply chain of business activities (excluding GHG Scope 1 and 2)



Main reduction measures

S1 Scope1
S2 Scope2
S3 Scope3

Conserve energy and switch to alternative fuels

- S1 S2 Innovation of production and business processes
- S1 S2 Installation of highly efficient and energy saving equipment
- S1 Electrification of production process and fuel conversion
- S1 S2 Promotion of Net Zero Energy Buildings
- S1 Operational innovation of corporate fleet vehicles and electrification

Harness renewable energy

- S2 Purchase of renewable energy
- S2 In-house renewable energy power generation
- S2 Introduction of PPA contracts
- S2 Strategic utilization of renewable energy certificates

Identify and reduce GHG emissions in the supply chain

- S3 Zero-emission material procurement
- S3 Development of energy-saving equipment, introduction of renewable energy by customers
- S3 Use of non-fossil fuel-based transportation
- S3 Use of non-fossil fuel-based services

Strategy

Approach to achieving net zero

As a transition plan to achieve our GHG emission reduction target, for Scope 1 and 2 and for the three categories of Scope 3, we formulated a GHG reduction roadmap to be achieved by 2030. We are aiming to convert all our electricity usage into 100% renewable energy, because active utilization of renewable energy is essential to achieve our targets in Scopes 1 and 2.

Our decarbonization roadmap to achieve our 2030 targets

In terms of scale and effects, we formulate individual measures to enable achievement of our 2030 targets by taking into account changes in the business scale and business structure of the Ricoh Group and the outlook for changes in the emission coefficients of energy and materials, based on our current policies and measures.

- **Measures and plans aimed at 63% reduction for Scope 1 and 2 in 2030**

Harness renewable energy

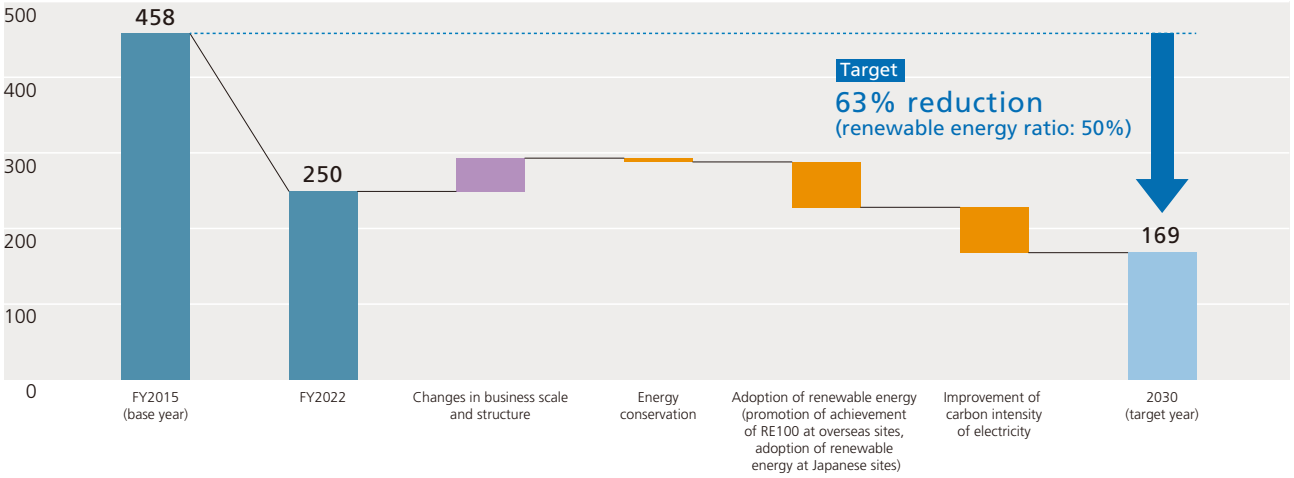
We will promote the purchase of renewable energy power certificates and the deployment of on-site PPA, with the aim of completing the achievement of RE100 overseas by 2030. Acting in concert with like-minded companies, in Japan we will encourage the government to reduce the cost of electricity from renewable energy sources and to diversify its procurement methods, as we work to accelerate the introduction of renewable energy.

Thorough energy conservation and CO_2 reduction activities

At our production sites, we are advancing improvements to manufacturing processes and the adoption of high-efficiency, energy-saving equipment. At non-production sites, we will expand ZEB office buildings in Japan and promote relocation to energy-saving offices overseas. We will also ensure environmentally conscious driving for company vehicles.

With regard to the issue of Scope 1 reductions for which transition to electricity is difficult at present, as measures from 2030 onward, we expect to carry out equipment electrification, make use of steam from boilers and waste heat loss from heat pumps, undertake full-scale adoption of future technologies such as hydrogen, and convert to electric vehicles (EVs) and fuel cell vehicles for our company-owned vehicles.

Scope 1 and 2 (1,000t-CO_2eq)

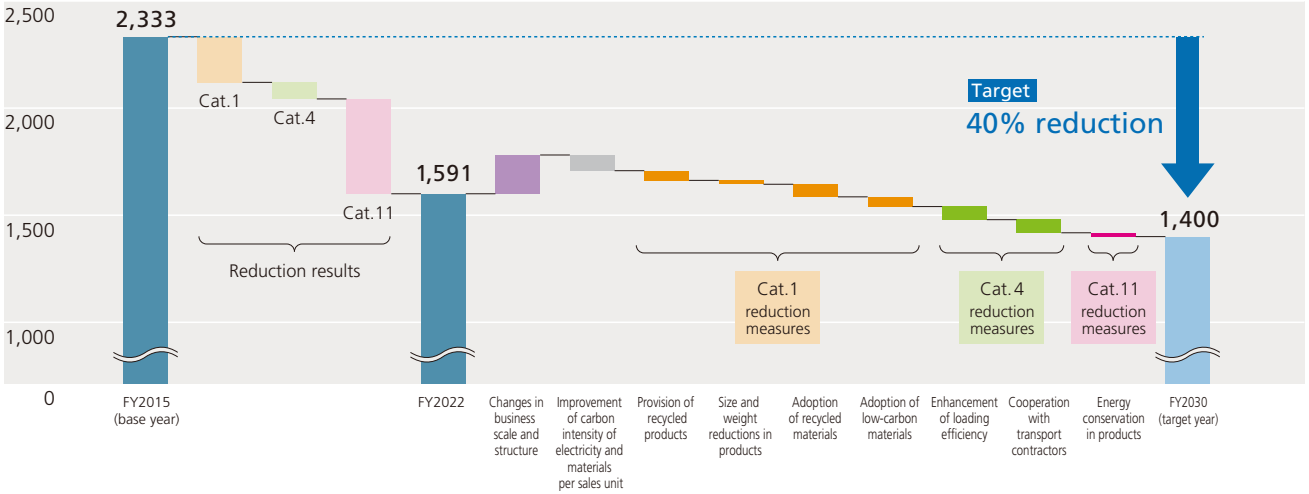


●Measures and plans aimed at 40% reduction in the three major categories of Scope 3 by 2030

In Scope 3, category 1 (purchased goods and services) , category 4 (upstream transportation and distribution) , and category 11 (use of sold products)　account for more than two-thirds of the total, so we will focus on measures to reduce our emissions in these 3 categories to 40% of base year levels by 2030.

Our major measures for reduction to date have consisted of energy conservation as well as size and weight reductions for both MFPs and printers, measures that we will continue. We will also expand measures related to the sale of reused/remanufactured machines and the use of recycled materials. With regard to the expanded adoption of low-carbon materials and the transportation related decarbonization activities that we are currently undertaking, we will undertake efforts to increase the efficacy of these from 2025 onward.

Scope 3 major categories (categories 1, 4, and 11) (1,000t-CO_2eq)



Scale of initiative and reduction effect　Small　Large

Category	Measure		2015 to present	Present to 2025	2025 to 2030	Potential measures through 2050
Cat. 1	Provision of recycled products					Biomass-derived new resources (2050 target: ≦12%)
	Size and weight reductions in products	Imaging equipment				
		Resource conservation in heat-sensitive labels				
	Adoption of recycled materials					
	Adoption of low-carbon materials					
Cat. 4	Enhancement of loading efficiency					Promotion of renewable energy usage by stakeholders (logistics companies and customers)
	Cooperation with transport contractors					
Cat. 11	Energy conservation in products					

Initiatives

Initiatives for Scope 1 and 2 emissions reduction

The Ricoh Group has advanced thorough energy-saving activities and the active utilization of renewable energy.
As of March 2023, we had converted 181 sites at 37 companies in 25 countries to electricity usage from renewable sources, which increased the Group's renewable electricity ratio to 33.6% in fiscal 2023, up 3.5 percentage points from the previous fiscal year.

The means of installing renewable electricity also vary widely, such as on-site power generation, long-term PPA contracts, retail supply contracts with electricity suppliers, and renewable energy certificates, tailored to each region and site.

To date, we have converted five A3 MFP assembly plants in China, Thailand, and Japan, as well as the Ricoh UK Products Ltd. manufacturing and business development site in the central UK, to renewable electricity in 2019. In July 2020, the new Ricoh Manufacturing (China) Ltd. production site began operating as an RE100-initiative plant (reducing electricity consumption by more than 70% compared to the two former plants in Shenzhen, and providing 10% of all electricity by on-site power generation). In fiscal 2021, Ricoh switched the electricity used at its head office in Japan, its thermal media production site, Ricoh Thermal Media (Wuxi) Co., Ltd. in China, and its production site, Yamanashi Electronics (Thailand) Co., Ltd. in Thailand to 100% renewable energy sources. In 2022, our Group signed its first VPPA*1 in Japan.

In addition, as of June 2024, 16 sites of our Japanese domestic sales company, Ricoh Japan, and Ricoh Eco Business Development Center acquired the aforementioned ZEB*2 Ready Certification due to the installation of energy-saving solar power and electricity storage equipment.

*1 VPPA: Virtual Power Purchase Agreement
*2 ZEB: Net Zero Energy Building, a building in which annual energy consumption has been significantly reduced. Energy conservation standards include the levels "ZEB" (reduction of 100% or more), "Nearly ZEB" (reduction of 75% or more), "ZEB Ready" (reduction of 50% or more), and "ZEB Oriented" (enacting of measures to achieve further energy conservation in addition to high building envelope performance and high-efficiency energy-saving equipment, in anticipation of acquiring ZEB Ready certification).

Initiative 1: Adoption of waste heat recovery type heat pumps in factories

Contribution to Scope 1

- In February 2022, the South Plant of the Numazu Plant introduced a waste heat recovery type heat pump.
- By using waste heat released into the atmosphere from the cooling tower of the chiller refrigerator on the rooftop of the No. 8 Factory, the system generates the 65℃ hot water used in the desolvation process. This reduces the amount of steam used by approximately 60% (expected value), achieving reductions in both cost and CO_2 emissions (up to 540 tons/year; 363 tons in fiscal 2022). The ROI is approximately 5 years.
- While engaging in Scope 2 reductions through a switch to electricity from renewable energy sources, we have also begun to tackle Scope 1 issues that involve reduction difficulties, such as the use of steam.

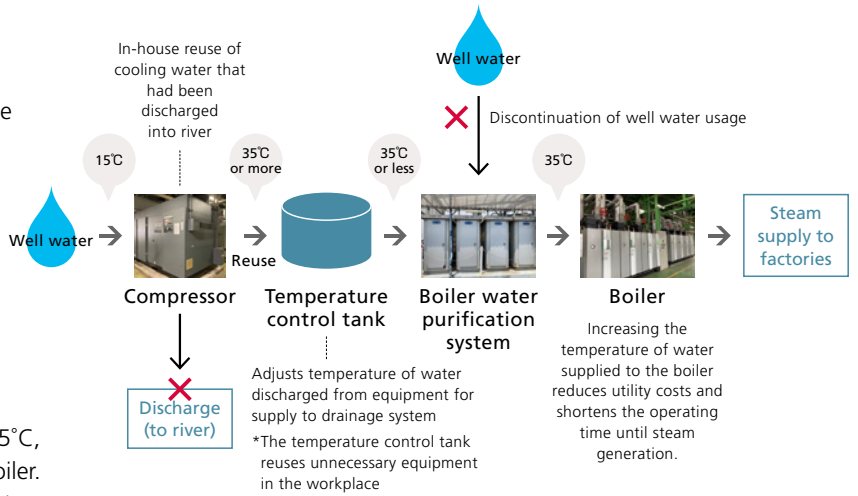
Initiative 2: Reduction of groundwater consumption and CO_2 emissions through the reuse of water discharge

Contribution to Scope 1

- In September 2022, the South Plant of the Numazu Plant installed a water discharge reuse system
- Prior to installation, cooling water (groundwater at 15°C) supplied to the compressor was released into a river. The system was modified to instead reuse this as raw water for the water purification equipment that supplies the boiler. This enables a reduction in groundwater consumption of 35,963 m^3 per year and cost savings of about ¥360,000.

In addition, the temperature of the groundwater that is reused rises to 35°C, reducing the use of gas fuel in the boiler. Installation of the system is expected to reduce the annual gas cost by about ¥2 million and reduce CO_2 emissions by 43.2 tons. The ROI is approximately 4 years.

Overview of reduced water consumption through reuse of water discharge



Initiative 3: Signing of VPPA contract and strengthening of adoption of renewable electricity, with focus on additionality

Contribution to Scope 2

- In 2022, the first VPPA (Virtual Power Purchase Agreement) was signed with KAMISATO KENSETSU, Inc. which is a means for customers to procure only the environmental value of renewable electricity generated at a dedicated power plant built outside the customer's premises, which is a new form of renewable electricity that began in Japan in 2022. Operations went live in August 2023. Amount of renewable electricity: approx. 2.24 GWh/year, CO_2 reduction effect: approx. 992 tons/year.

Initiative 4: Holding energy-saving consultations

Contribution to Scope 1 | Contribution to Scope 2

- Ricoh Creative Services, a subsidiary of the Ricoh Group, which is entrusted with the management of our business facilities in Japan, systematically selects target business offices and implements measures sequentially. In fiscal 2023, 100 energy-saving measures (estimated reduction effect of 574 t-CO_2/year) were identified at 6 sites as part of opportunities for improvement.
  - Proposals from energy-saving consultations at production sites to optimize equipment operation tailored to the production environment, such as compressor pressure settings and process temperature/humidity control.
  - Proposals to use the latest energy-saving equipment and technologies, as well as proposals to improve the installation environment so that existing equipment can demonstrate its full capacity, thereby reducing the amount of electricity used by facilities.
- Expand energy-saving consultations at Ricoh Japan to customers to support their decarbonization management. We visit the client's business facilities and conduct a walk-through survey of the premises to identify energy losses and areas of inefficiency. The results of the survey are compiled into a report with energy-saving and cost-cutting tips, which are used to propose Ricoh Japan's own decarbonization solutions.

Main Services Menu

Reduce Energy Use	• EMS (Energy Management System) • Support for LED for illumination, energy-saving industrial air conditioners • Cubicles
Choose Energy Type	• Renewable electricity menu • EV battery chargers total support
Create New Energy	• Solar power generation system • Solar Power Generation O&M* Service
Flexible Energy Use	• Portable storage batteries • Stationary storage batteries • Support for installing V2H technology

*Operation & Maintenance

Initiative 5: Expansion of ZEB office buildings and utilization of these in customer proposals

Contribution to Scope 1 | Contribution to Scope 2

- As of June 2024, 17 of the Ricoh Group sites in Japan have acquired ZEB Ready certification or higher.
- Ricoh Japan has designated its new office buildings* as "ZEB Ready" or better, and each building will serve as a showcase for customers, introducing visitors to decarbonization practices.

*Company-owned/wholly rented buildings only

Definitions of ZEB and adopting offices in Japan (as of June 2024)

ZEB: Buildings that have achieved a 100% or greater reduction in primary energy consumption through energy conservation (50% or greater) + energy creation

Wakayama Office, Obihiro Office, Miyazaki Office

Nearly ZEB: Buildings that have achieved a 75% or greater reduction in primary energy consumption through energy conservation (50% or greater) + energy creation

Gifu Office, Kumamoto Office, Ueda Office, Tsukuba Office, Tono Office, Koriyama Office, Tokorozawa Office

ZEB Ready: Buildings that have achieved a 50% or greater reduction in primary energy consumption through energy conservation.

Akashi Office, Kakegawa Office, Odate Office, Matsumoto Office, Fukui Office, Matsue Office, Ricoh Eco Business Development Center

ZEB LEADING OWNER
ZEB2019L-00015-P

Initiatives to reduce Scope 3 emissions and yield avoided emissions

The Ricoh Group is carrying out focused initiatives to reduce emissions in category 1 (purchased goods and services), category 4 (upstream transportation and distribution), and category 11 (use of sold products), which account for over two-thirds of total Scope 3 emissions. In order to realize "Zero-Carbon Society," one of our identified material issues, the Ricoh Group believes that decarbonization not only in our value chain but throughout society will be vital. For example, we are actively expanding the replacement of old products with new products with improved energy-saving performance and the use of digital printing for high-mix, low-volume lots, as these are products and solutions that can contribute to an entirely zero-carbon society. The amount of GHG emission reductions resulting from these initiatives is calculated as an "avoided emissions contribution".
(Reference: P.39)

Strengthening of activities to promote the use of life cycle assessments (LCAs)

The Ricoh Group assesses the environmental impacts that result from every process in our corporate activities and undertakes activities to reduce total impact. In order to understand our environmental impact, we calculate an "eco-balance" for each fiscal year. Eco-balance means "creating a list of input/output data of environmental impacts as a means to quantitatively measure, understand, and report the environmental burden generated by the company, or the list itself," and this method facilitates the implementation of an LCA for all corporate activity.

The decarbonization of products forms the foundation for decarbonization of the value chain and of the society. The need for disclosure of products' GHG emissions, based on environmental impact assessments taking the LCA approach, is growing year by year. The Ricoh Group began using LCA in the 1990s, primarily for imaging equipment. Since the start of the EcoLeaf (currently SuMPO EPD) Type III environmental labeling program in 2002, we have also undertaken quantitative information disclosure on our products. Amid this current, we have placed staff in charge of promoting the use of LCAs in every business unit to strengthen the disclosure and appeal of our quantitative information.

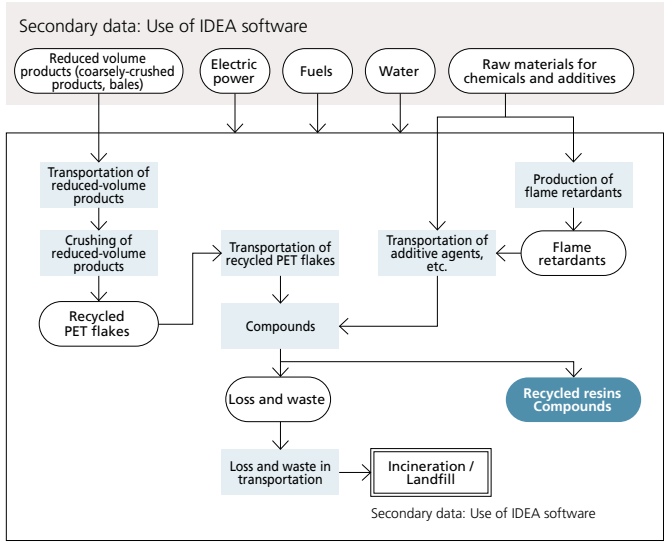
Initiative 1: Toward reducing our materials carbon footprint through supplier engagement.

Cat. 1 reduction

- Eco-balancing analysis identifies thermoplastic resin as one of the major sources of Cat. 1 emissions.
- Ricoh interviews suppliers for data on raw materials, manufacturing, and transportation of recycled resins, and prepares inventory data* for each brand.
- The calculated inventory data is included in AIST-IDEA with the cooperation of the National Institute of Advanced Industrial Science and Technology (AIST).
- Interviews about suppliers' decarbonization plans for virgin resin, in addition to carbon footprints.
- The calculated and obtained CFP values are used not only to calculate carbon footprints and Scope 3 values under the SuMPO environmental labeling program, but also to simulate the impact of measures on recycled resin in achieving the CFP and Scope 3 targets for new models, thus helping to improve the effectiveness of transition plans.
- Received the "LCA Japan Forum Chairman's Prize" at the 20th LCA Japan Forum Awards in fiscal 2023 for its efforts in recycled resin.

*Data that calculates the extent to which substances of concern, such as carbon dioxide and various chemical substances, are emitted throughout the life cycle.

Flow diagram created for compiling an inventory of recycled resin



Items surveyed

- What products are used as raw materials for recycled PET flakes? (e.g., packaging containers, appliances, CDs, etc.)
- Distance and means of transport
- Volume of resource and energy use in crushing and compounds
- Composition of compounds / Noteworthy additives
- Process yields

Process | Primary Data Gathering Process | Goods

LCA Japan Forum Chairman's Award trophy

Initiative 2: Reduction measures in marine transport

Cat. 4 reduction

Adoption of eco-shipping using biofuels

Since fiscal year 2022, we have initiated a contract with Maersk's Eco Delivery service. From January 2023 to December 2023, we utilized biofuel for the shipment of 396.5 forty-foot containers by sea. This resulted in a reduction of 3.51 tons of CO_2 from fuel extraction, refining, and transportation, and 831.9 tons from fuel combustion during shipping, achieving a total CO_2 reduction of 835.41 tons.

Improvement of container loading rate

As a measure to control soaring marine freight fares caused by lack of space amid global turmoil in logistics, in fiscal 2022 we undertook activities to improve container loading efficiency. By making changes to packaging design and to mixes of parts, supplies, and products, and by eliminating containers with a loading rate of under 70% (primarily in marine transport bound for Europe and the United States), we reduced the number of containers by over 100, reduced CO_2 emissions by about 2,000 tons, and achieved further cost reductions of about ¥200 million.

*Maersk ECO Delivery CO_2 Emissions Reduction Certificate (from January to September 2023)

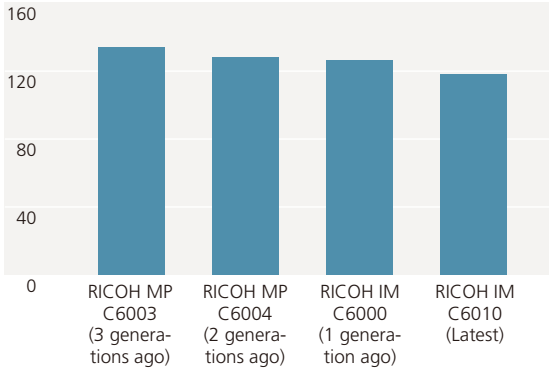
Initiative 3: Development of energy-saving technologies for imaging products

Cat. 11 reduction

- QSU (Quick Start-Up, reference: P.27) energy-saving mode "QSU (Quick Start-Up)" shortens wake-up time from sleep mode and enables stress-free use of energy-saving mode.
- The latest Ricoh IM C7010 product line*1 and flagship color MFP model, uses "Color PxPEQ Advanced toner" with a fusing temperature 12°C lower than that of its predecessor.
- Through these technologies, etc., we are continuously improving energy efficiency, with the RICOH IM C7010 product line achieving the industry's top level*2 of energy efficiency.

Improvement of energy-saving performance in A3 color MFPs

Energy consumption efficiency (ECE) (kWh / year)

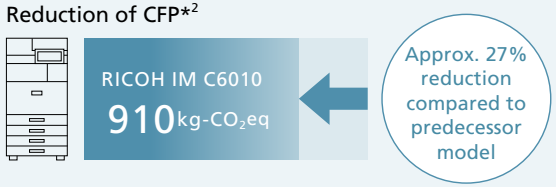


*1 RICOH IM C7010/C6010/C5510/C4510/C3510/C3010/C2510/ C 2010
*2 Comparison of TEC values for products using the International Energy Star Program (color MFPs with copy/fax/scanner functions in the 25-70 sheet class), published on the website of the Energy Conservation Center, Japan. As of July 10, 2024. Research by Ricoh

Carbon footprint (CFP) reduction in a mainstay color MFP model

For the RICOH IM C7010 product line launched sequentially from February 2023 onward, we have applied the use of recycled plastic of over 50% of the total amount of plastic with LCA (Initiative 1) and energy-saving technologies (Initiative 3). As a result, the RICOH IM C6010 has significantly reduced its carbon footprint compared to its predecessor, the RICOH IM C6000*1 (Details of the technologies and measures applied can be found on page 44).

Reduction of CFP*2



Life cycle

CFP comparison of RICOH IM C6010 and predecessor model

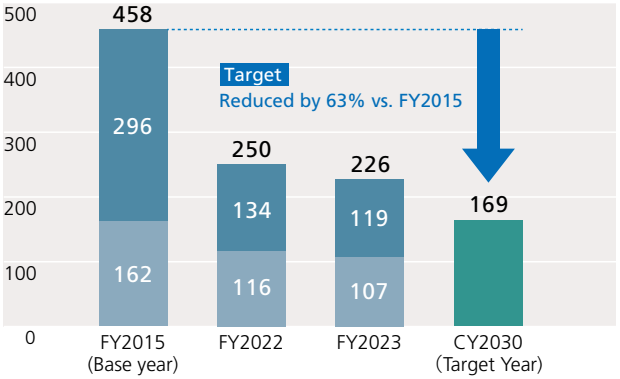
*1 Product main unit only (excluding paper feed table). Comparison with predecessor model (RICOH IM C6000) performed by Ricoh. CFPs for the RICOH IM C7010 product line are released under the Japan EPD Program by SuMPO (currently SuMPO EPD).
*2 CFP is the value of the amount of greenhouse gases emitted throughout the above life cycle (from raw material procurement to disposal and recycling), converted to equivalent amount of CO_2.

Performance

Scopes 1,2,3 emissions

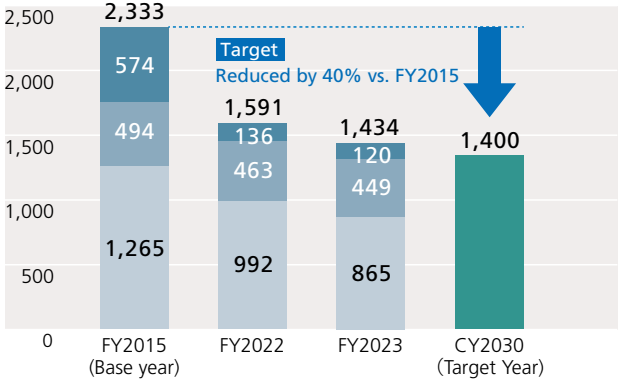
In fiscal 2023, the recovery of our business activity led to sales increasing 10.1% compared to the previous year, while GHG Scopes 1 and 2 emission rates decreased approximately 9.4% compared to fiscal 2022, due to the introduction of renewable electricity, and proactive energy-saving initiatives. This is a significant decrease of 50.6% relative to emissions in fiscal 2015, which is the base year. GHG Scope 3 emissions have been decreasing since fiscal 2022, a decrease of 38.5% relative to the base year, indicating that we are on track to achieve our goals through future reduction measures. We will continue our efforts to reduce GHGs in line with our decarbonization roadmap through 2030, and aim to achieve net-zero by 2050.

GHG emissions (Scope 1 and 2) (1,000t-CO_2eq)



Figures for FY2022 have been revised due to a review of some regional data.

GHG emissions (Scope 3 [Cat.1, 4, 11])*(1,000t-CO_2eq)



*Within Scope 3 emissions, categories 1, 4, and 11 have significant emissions, and therefore, we have set these as important environmental targets for reduction.

Figures for FY2022 have been revised due to a review of some totaling

GHG emissions (Scope 1 and 2)

	Unit	FY2015 (Base Year)	FY2021	FY2022	FY2023
Emissions	1,000t-CO_2eq	458	263	250	226
Reduction rate (Compared to the 2015 level)	%	—	42.7	45.4	50.6

GHG emissions (Scope 3 [Cat.1, 4, 11])

	Unit	FY2015 (Base Year)	FY2021	FY2022	FY2023
Emissions	1,000t-CO_2eq	2,333	1,522	1,591	1,434
Reduction rate (Compared to the 2015 level)	%	—	34.8	31.8	38.5

GHG emissions (Scope 3) (FY2023)

Scope 3 Category		Unit	GHG emissions	Calculation Methodology
Cat.1	Purchased goods and services	1,000 t-CO_2eq	865	Calculate by multiplying the total amount of purchased resources by the emission factor for each of the materials
Cat.2	Capital goods		186	Calculate by multiplying the annual amount of capital investment by the emission factor
Cat.3	Fuel- and energy-related activities not included in Scope 1 or Scope 2		42	Calculate by multiplying annual energy consumption at each base by the emission factors for resource extraction, production and transportation
Cat.4	Upstream transportation and distribution		449	Calculate for the transportation of cargo shipped by suppliers to the manufacturing site and that shipped by the Ricoh Group from the manufacturing sites to customers, by multiplying the actual transportation distance and weight, etc. by the emission factor (excluding emissions included in Scope 1 and 2 totals)
Cat.5	Waste generated in operations		3	Calculate by multiplying by the emission factor the disposal weight of waste from the facilities for each type classified in terms of disposal method
Cat.6	Business travel		20	Calculate by multiplying by the emission factor the amount paid for travel expenses by transportation mode
Cat.7	Employee commuting		65	Calculate by multiplying by the emission factor the amount paid for travel expenses by transportation mode
Cat.8	Upstream leased assets		—	Not applicable (Emissions from upstream leased buildings and vehicles are included in Scope 1 and Scope 2)
Cat.9	Downstream transportation and distribution		0.1	Calculate emissions from the transportation of products that are not shipped by the Ricoh Group, by multiplying the average transportation distance and weight by the emission factor
Cat.10	Processing of sold products		10	Calculate by multiplying the amount of products that are not final products by the emission factor
Cat.11	Use of sold products		120	Calculate based on the assumed usage and life of the sold products
Cat.12	End-of-life treatment of sold products		27	Calculate based on the weight of the sold products and LCA data on emissions from the disposal of Ricoh products
Cat.13	Downstream leased assets		—	Not applicable (The Ricoh Group has no emissions from this category due to non-consolidated lease business.)
Cat.14	Franchises		—	Not applicable (The Ricoh Group has no emissions from this category.)
Cat.15	Investments		3	Calculate based on emissions from the companies of which Ricoh Co., Ltd. owns shares as well as based on the shareholding ratio
Total (Cat. 1,4,11)			1,434	
Total (excludes Cat. 1,4,11)			356	
Total (Scope 3)			1,790	

The Ricoh Group calculates GHG emissions (Scopes 1, 2, and 3) from its business activities, and sets the reduction of these emissions as an environmental target. Nonetheless, GHG emissions are likely to increase as business grows, and as we enter into new ventures.

Conversely, if we can reduce electricity consumption by increasing new, energy-saving MFPs and replacing older models, then we can reduce society's GHG emissions.

In addition, with digitalization at commercial printing plants, we can reduce the printing sector's GHG emissions and meet the market's expanding need for high-mix, low-volume production by reducing printing plates, controlling stock, and consuming less electricity relative to conventional offset printing.

In this way, we can think of GHGs that have been reduced in society through the Ricoh Group products and solutions as a "avoided emissions ", and have set a target of 1,400 thousand tons by the end of fiscal 2025. Our avoided emissions in fiscal 2023 was 1,059 thousand tons in terms of CO_2. (For other examples of avoided emissions, reference: P.28 " Mitigation 5: Contribution through new businesses".)

Avoided emissions

The means of contributing to the reduction of environmental impact	Calculation breakdown	Unit	FY2020	FY2021	FY2022	FY2023
Provision of digital services	Amount (CO_2 equivalent) reduced through the introduction of energy efficient solutions/services to customers' sites, including conversion from offset printing to digital printing and duplex and with suppliers.	1,000 t-CO_2eq	124	762	752	754
Provision of energy saving products	Amount (CO_2 equivalent) reduced through the introduction of models to customers' sites with enhanced energy-saving functions for MFPs, printers and other equipment as well as lighting and air-conditioning control systems.		244	197	226	240
Resource saving of products	Amount (CO_2 equivalent) reduced associated with procurement of raw materials and parts by lowering the input of new resources as a result of promoting reuse of recovered equipment, use of recycled materials, production of more compact, lightweight models, and use of ecological silicone-top linerless labels.		64	74	67	65
Total			432	1,033	1,045	1,059

Representative example: Expansion of digitalization in commercial printing

- Since digital printing does not require printing plates used in analog printing, the carbon footprint (CFP) of short-run commercial printing tends to be smaller than that of analog printing.
- Development and provision of a tool to support data input for calculating digital printed materials' CFP by inputting equipment configuration, print specifications, and printing conditions in the customer digital printing company.
- Visualize the environmental impact of digital printing to support the selection of an optimal printing method based on printing and environmental costs, with the aim of expanding digital printing, especially in short-run printed materials.
- Based on this solution, implement carbon offsets for the production printer's Japanese catalog, which was created by digital printing.

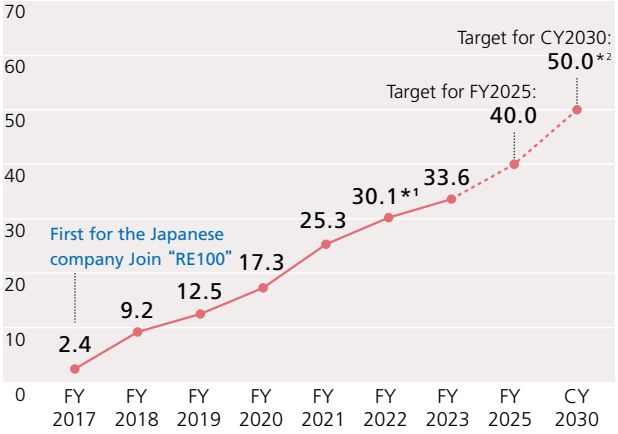
RICOH Pro C5310S / C5300S catalog, with carbon offsetting for printed materials

Renewable energy

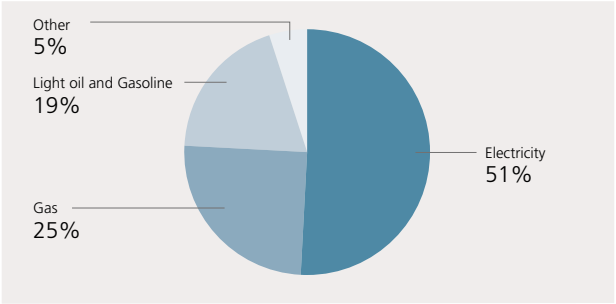
In 2017, the Ricoh Group became the first Japanese company to join the RE100. The Ricoh Group's overall renewable electricity ratio in fiscal 2023 was 33.6%, an increase of 3.5 percentage points from the previous year.

In fiscal 2023, 51% of the Ricoh Group's Scopes 1 and 2 CO_2 emissions by energy source were attributable to electricity, highlighting the importance of renewable electricity. Japan accounts for about 60% of electricity use by region, followed by the Americas, Europe, China, and Asia-Pacific.

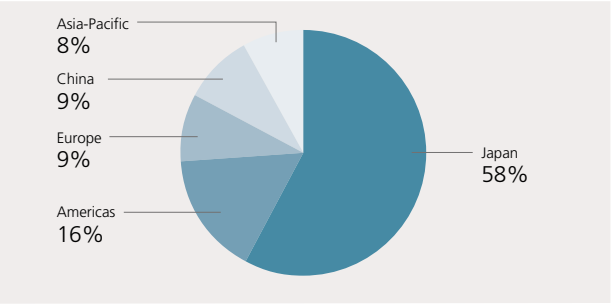
Renewable energy ratio (%)



GHG emissions by energy (FY2023)



Power consumption by region (FY2023)



*1 Figures for FY2022 were revised in light of amendments to some regional data.
*2 Target for renewable electricity with additionality 35% or more

In fiscal 2023, due to our switch to renewable electricity contract with electricity suppliers mainly at overseas production sites and R&D sites in Japan, and by purchasing renewable energy certificates, etc., the ratio of renewable electricity to total electricity usage exceeded 98% in China and 66% in Asia-Pacific, while in Japan, the ratio of renewable electricity increased from about 2% in fiscal 2017 to approximately 17%.

In 2022, the Ricoh Group signed its first VPPA (Virtual Power Purchase Agreement) and began generating electricity in August 2023. We have also begun self-consignment from a new power plant since March 2024. As well as working to procure additional renewable electricity, we will engage with the government and volunteer companies to accelerate and encourage companies to lower renewable energy costs, and diversify procurement methods, so that we can realize the introduction of cutting-edge renewable energy.

Renewable energy ratio by region in FY2023

	Unit	Japan	Americas	Europe	China	Asia-Pacific
Renewable energy ratio	%	16.9	26.9	60.7	98.7	66.6

6. Realizing a circular economy

Policy and targets

The Comet Circle™ concept for realizing a circular economy

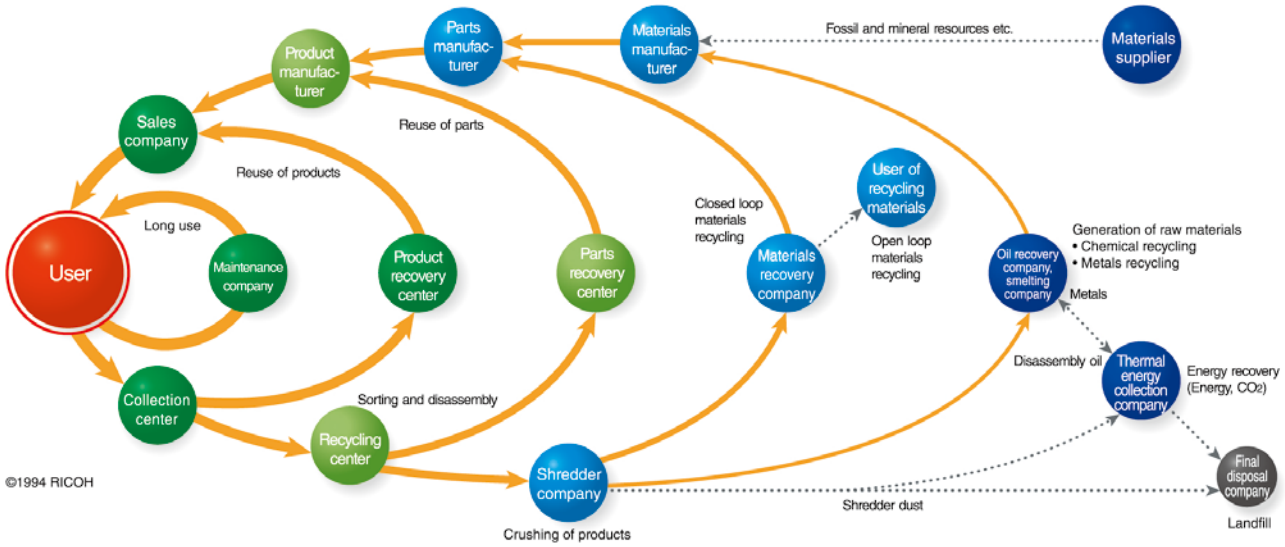
For the Ricoh Group to become the organization we envision, not only does the Group need to realize change towards the creation of a circular economy but society as a whole also needs to realize such change. In 1994, we established the Comet Circle as the basis to encourage such change. The Comet Circle 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 life cycle 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 life cycle, can make the greatest contribution to reducing environmental impact, we engage in all business taking into account the Comet Circle.

Four action guidelines based on comet circle concept

1. Identify and reduce environmental impact from life cycle perspectives
2. Deploy reuse and recycle practices with lower environmental impacts
3. Establish a circular business model
4. Partner with stakeholders

Details of the comet circle
https://www.ricoh.com/sustainability/environment/management/policy/comet

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.

Policy and targeting (resource conservation)

Under the Ricoh Group Environmental Declaration, we have positioned the realization of a circular economy as one of our materiality (material social issues) and have established corresponding policies and targets.

Resource conservation policy

1. Promote the efficient use and circulation of natural resources.
2. Offer reused products and promote proactive use of sustainable resources with low environmental impact.

The Ricoh Group plastic policy for products

The 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. Break away from dependence on virgin plastic derived from fossil resources
2. Material recyclable design

The Ricoh Group adopted backcasting method to set environmental targets. This entails setting goals and working backward to determine milestones toward them. We have set targets in the "resource conservation area" for realizing a "Three Ps Balance" ideal society from the following three perspectives.

1. Reduction of virgin material used in product development
2. Resource circulation of end-of-life products
3. Waste reduction and efficient resource utilization in business activities

1. Reduction of virgin material used in product development

Reducing the use of virgin material used in our products is crucial, and we prioritize the principles of reduce, reuse, and material recycling to the fullest extent possible. To achieve this, we engage in activities such as downsizing and lightweighting, extending product lifespans, promoting product and component reuse, incorporating recycled and renewable materials. By integrating these efforts, we are working towards reducing the usage of virgin materials.

The Ricoh Group environmental goals (resource conservation)

Goals for 2050

- Virgin material usage ratio for products*1: 12% or less*2

Goals for 2030

- Virgin material usage ratio for products*1 : 60% or less

※Scope : MFPs, Printers and Digital Duplicators

*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".

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

2. Resource circulation of end-of-life products

We are implementing initiatives to maximize material recycling of products that cannot be reused from the collected used products, thereby reducing incineration and landfill disposal.

Resource circulation targets for the End-of-Life Products

- Reuse and Recycling Rate by 2030: 87.5% or more
- Reuse and Recycling Rate by 2050: 93.5% or more
- Simple Incineration and Landfill Rate by 2030: Less than 0.5%
- Simple Incineration and Landfill Rate by 2050: 0%

3. Waste reduction and efficient resource utilization in business activities

In our business activities, we work to develop production processes and formulations that minimize resource loss. Our goal is to simultaneously improve production efficiency and reduce emissions. We also strive to reduce water consumption by reusing and recycling water. As a result, we achieved the targets for both the total amount of waste and water use for fiscal 2023.

Waste generation reduction targets:

Objective: To reduce the volume of waste generation below the previous year's performance.

*Scope: Ricoh (production and non-production sites), Japanese and international production-related subsidiaries.

Water usage targets in business activities:

Objective: To reduce water usage below the previous year's performance.

*Scope: Ricoh (production and non-production sites), Japanese and international affiliated companies.

Strategy

Pursuing resource conservation targets and goals

We are working on the following to achieve our resource conservation area goals for a circular economy.

Downsizing, lightweighting and long-term usage of products

- To minimize the extraction of new resources from the Earth, we are committed to the ongoing efforts of downsizing, lightweighting, and promoting long-term usage of MFPs and Printers.

Provision of reused products

- Expanding the lineup of reused machines and increasing the variety of reused supplies and parts.

Adoption of Recycled Materials

- Expanding the use of recycled plastic materials, initially developed for A3 color MFPs, to other models.
- Continual development of recycled plastic materials.
- Exploration and adoption of recycled metal materials, including steel.

Reduction in use of packaging materials for virgin plastic derived from fossil resources

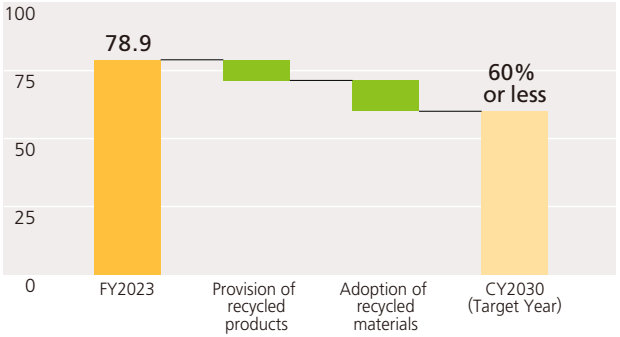
- Adoption of paper-based materials (pulp mold, cardboard, etc.) for cushion packaging (conventionally made of EPS foam)

Resource circulation of end-of-life products

- Those end-of-life products that cannot be reused are sent, for material recycling, thereby reducing incineration and landfill disposal.

Measures and plans towards achieving a new resource usage rate of less than 60% by 2030

Virgin material usage ratio (%)



Initiatives

Reduction of virgin material used in product development

Establishment of a Circular Economy Working Group

We have established a Circular Economy Working Group for the purpose of discussing, planning, and promoting cross-organizational measures to realize a circular economy. The Working Group's main functions are as follows.

- To plan environmental strategies, outcome indicators, and targets
- To plan measures and a product development roadmap for achieving environmental goals
- To plan working items for each business and related departments, role assignments, and support schedule
- Expanding the amount of reuse and material recycling, downsizing and lightweighting products, energy-saving products, reduction of CFP, etc.

Design for environment, 3Rs and long-term usage

Based on the Comet Circle™ concept, we have formulated and promoted the "Recycling Design Policy" (current Design Policy for End of Life) for product design that considers reduce, reuse, recycle, and long-term use. For example, we have established various kinds of technological developments and know-how, such as strength design that assumes reuse, the improvement of dismantling and sortability, strength design to reduce packaging materials, and the extension of service life of replacement parts and key parts. We review our Environmentally Friendly Design Policy from time to time, and make repeated revisions in line with social trends, markets, and internal activities. Designers conduct a self-assessment of environmentally friendly design at each design stage, and consideration of reduce, reuse, and recycle is established as one of the design procedures. Examples of environmentally friendly design include "material indication on plastic molded parts", "use of compatible labels", "indication of hidden screw/hidden claw positions", and "improvement in dismantling and sortability."

Expanding material recycling

Usage of recycled plastic

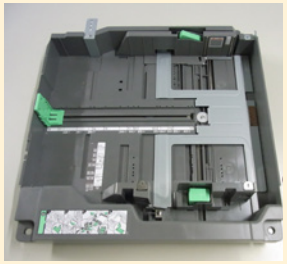
The Ricoh Group conventionally labels each part with its materials and grade during manufacture, and has maintained the quality of recycled plastic by recycling each grade after product collection. This has enabled horizontal recycling, whereby we recycle recovered exterior and interior materials that require the same high quality properties (flame resistance, durability, strength, etc.). In 2016, we developed a recycled plastic made from commercially available recovered plastic materials for interior applications and started to install it in MFPs together with a similarly developed recycled plastic for exterior applications. We also use recycled plastic made from commercially available recovered plastic materials in toner bottles. The percentage of recycled plastic used per toner bottle for "RICOH IM C6010 / C5510 / C4510 / C3510 / C3010 / C2510 / C2010" is approximately 73% by weight.

Exterior cover with recycled plastic from horizontal recycling

Toner containers made from commercially available recycled plastic materials (PET materials)

Fish boxes used in the markets and plastic containers

Waste plastic from home appliances



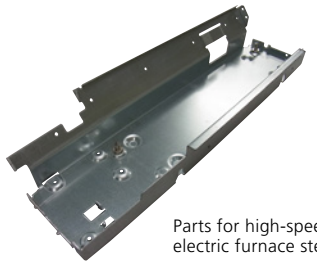
Used for paper feed trays of MFPs, etc.

We used over 50% of the total volume of plastic in MFPs from post-consumer recycled plastic for "RICOH IM C7010 / C6010 / C5510 / C4510 / C3510 / C3010 / C2510 / C2010", which was the highest industry-level standard. We worked with material manufacturers and developed new materials to achieve a high target of 50%, compared to the 6.3%* use of recovered plastic materials by their preceding devices. We also simultaneously progressed with product development while working on material development. We achieved our goal by setting usage rates for post-consumer recycled plastic in each component and designing parts tailored to the new materials. As a result, this product alone can utilize approximately 5,600 tons of post-consumer recycled plastic annually.

* Post-consumer recycled plastic usage ratio: Ratio of wasted plastic collected from the market to the total weight of the main body plastic

Use of recycled steel (electric furnace steel plates)

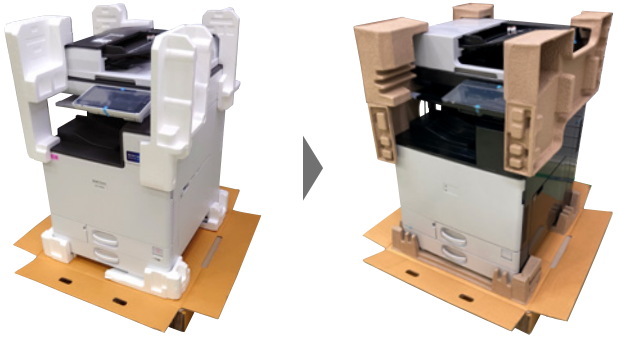
The Ricoh Group has jointly developed electric furnace steel plates with the same quality characteristics as blast furnace steel plates in collaboration with Tokyo Steel Co., Ltd. (Tokyo Steel hereinafter). In 2012, we began incorporating the electric furnace steel plates for the first time in the industry. Electric furnace steel plates were mostly used for construction until then, where strength characteristics were emphasized. However, through the joint development of Ricoh and Tokyo Steel, we have secured quality performance in terms of properties such as thinness (thickness of 2mm or less), electrical conductivity, and workability required for MFPs, making it possible to adapt these plates for MFPs. Specifically, the Ricoh Group mainly identified the material properties required for MFPs, and Tokyo Steel developed materials, specializing in thinning plates, thinning plating, improving electrical conductivity, and improving press workability. In addition, Tokyo Steel's advanced impurity removal technology and rolling technology have enabled the development and production of high-performance steel plates for MFPs. The developed electric furnace steel plates are currently installed in high-speed MFPs and production printers. We are also expanding the number of parts that use electric furnace steel plates, and we will work to further reduce the amount of newly input resources as we expand the number of products that use them.



Parts for high-speed MFPs which use electric furnace steel plates

Reducing single-use plastic usage

Packaging material for product transportation has generally used polystyrene foam (EPS) until now, which is derived from fossil resources, but the Ricoh Group is working to switch this to recyclable paper packaging. In order to overcome the problem of shock absorption, we use shock simulation technology to achieve the same high shock absorption performance as EPS, even with paper packaging materials that are harder than EPS. The "RICOH IM C6010 / C5510 / C4510 / C3510 / C3010 / C2510 / C2010" has switched to a pulp mold, that uses waste paper as raw material reducing plastic packaging by approximately 54% compared to its predecessor. In addition, the above has been expanded to other models, and reduced by approximately 54% for the RICOH IM C7010 and 50% for the RICOH IP C8500/C8510. Consequently, it is now possible to reduce plastic waste by 261 tons per year. The packaging materials for RICOH IM C7010 / C6010 / C5510 / C4510 / C3510 / C3010 / C2510 / C2010 have won the World Start Contest 2024 Electronics category award.



Paper packaging material image

Resource circulation of end-of-life products

Reuse and recycling program

The Ricoh Group has established resource conservation and recycling as one of the pillars of its environmental conservation activities since the early 1990s, and has been developing global reuse and recycling initiatives for MFPs, printers, supplies, and consumable parts collected from customers by region and by product.

Regional programs Click here for a link

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

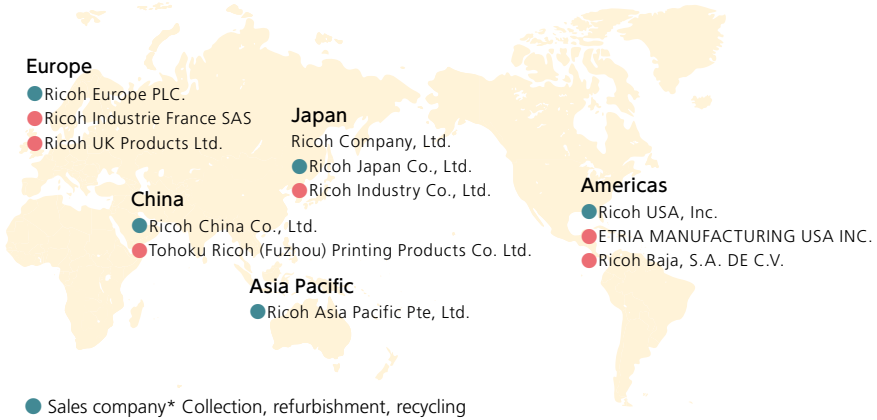
Product programs Click here for a link

- Japan Used product/cartridge collection
- United States Product stewardship and recycling
- United States Takeback program
- Europe Resource smart return program

As the business model for MFPs in Japan is mainly lease-based, enabling identification of individual products, we are establishing a collection system to ensure effective use of resources. We also use the know-how we have built up in Japan in regions with different business models, to recover more than 300,000 units/year of our used products worldwide, and to sell approximately 50,000 units/year of these as reused or recycled products. We reuse and recycle items that cannot be turned into recycled products as recycled parts or materials. We have also collaborated with the Product Design & Technology department to reuse functional parts for imaging units, which are included in periodic replacement units, since 2010.

Reuse and recycling network

The Ricoh Group's collection, reuse, and recycle initiatives are being promoted globally through our own bases in Europe, Japan, the Americas, Asia, and China. In addition, in order to ensure that our own waste is properly and reliably disposed of by reliable partners, each Group company selects an industrial waste disposal company based on the conditions of each country (ISO14001, 9001, R2, e-Stewards certification acquisition, etc.)



*Europe, Japan, Americas, and Asia bases conduct reuse and recycling initiatives under the umbrella of a sales company. Only collection in China

Takeback, reuse, recycling (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

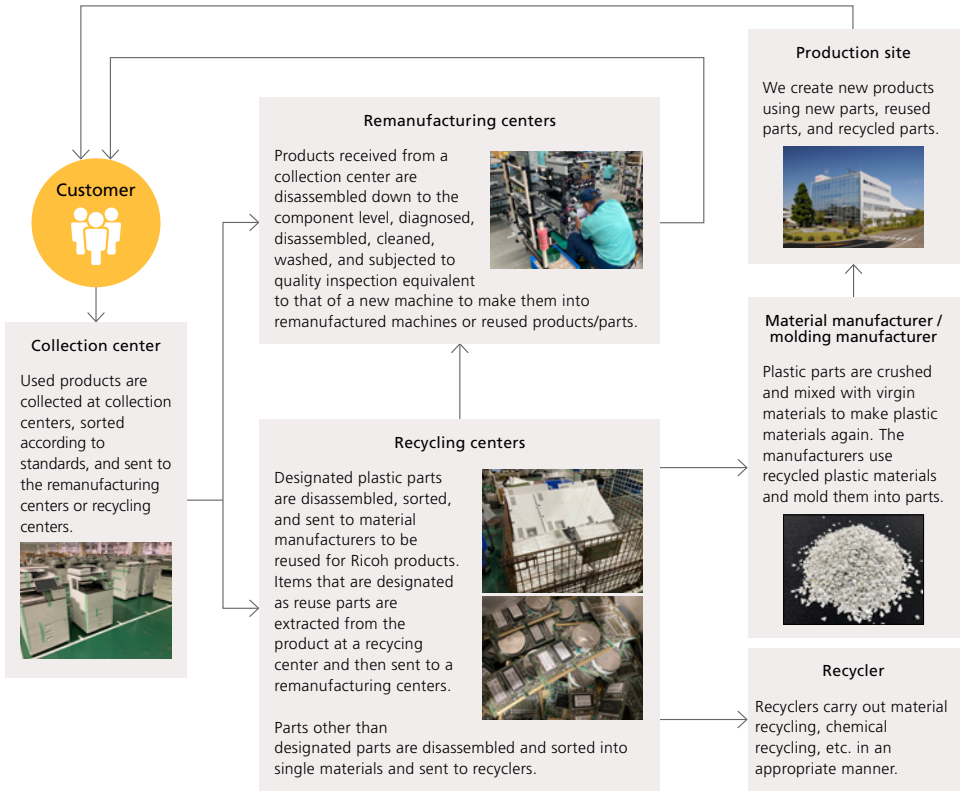
After disassembling and cleaning products, supplies, and parts, and replacing parts, we check according to the same standards as new products, and then reship them as remanufactured products or parts.

·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 nonreused 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 our used 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 Circular Economy.

Collection, reuse, recycle flow



Reuse and recycling businesses

The Ricoh Group has established the product design policy which incorporates reuse, recycling, and long-term use into the design concept of its products ahead of their launch.

This policy incorporates uniform parts and materials to facilitate reuse and recycling of recovered products and parts, and design standards to increase efficiency for disassembly; thereby reducing excess man-hours and costs incurred during reuse and recycling.

We also promote the reuse and recycling of end-of-life products, supplies, and parts collected from customers at our sites in Europe, Japan, the Americas, Asia, and China. Efficient collection is needed to recycle products, and we have established 22 collection sites throughout Japan. We have concentrated our recycling efforts in one location, Ricoh Eco Business Development Center, to streamline and improve efficiency. Of the end-of-life products that are collected, we remove necessary components from non-reusable products, and utilize them as service parts, replacement parts for reused devices, and parts for new machines. A mechanism is in place to disassemble and separate non-reusable parts by material as much as possible, and send them for material recycling.

In order to optimize QCD* in the reuse and recycling business, the Ricoh Group has established eight types of technologies: "evaluation technology", "diagnosis technology", "disassembly technology", "cleaning technology", "washing technology", "restoration technology", "erasure technology", and "recycling technology." Technologies that are especially important for generating profit are those that determine the recyclability of end-of-life products from an evaluation of the remaining lifetime in their components, and those that diagnose the condition of end-of-life products selected for reuse.

We have made it possible to streamline recycling through the establishment of these technologies. Moreover, we have expanded to overseas recycling sites and used our Japanese know-how and technologies to make effective use of end-of-life products on a global scale.

* QCD: Quality, Cost, Delivery abbreviation

Remanufactured product flow from collection through shipment

Collection

Machines are transported in double stacking, and used products are collected at collection centers.

Sorting

Only candidates for remanufacturing go to a remanufacturing center.

Diagnosis

The appearance, images, and functions are checked and diagnosed to see if the machines can be used as a remanufactured machine.

Disassembly

Disassemble the machine, remove items such as the exterior cover, and clean the dirt that adheres to the inside.

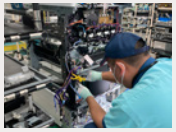
Washing

Reused parts with complex shapes and large sizes are washed with water.

Drying

The cleaned parts are dried. This is devised so as not to leave water marks in the drying process.

Assembly



The reused parts after washing and cleaning and new parts are assembled into the frame.

Adjustment

Adjust the position and color of the image.

Inspection

We perform inspections with the same quality standards as for new machines, by carrying out inspections such as image inspections and noise inspections in accordance with standards.

Finishing

Arrange the included items, fix the moving parts with tape, and finish.

Packing

Using eco-friendly, recycling-oriented minimalist packaging to reduce packaging materials.

Shipping

The packaged product is carefully shipped to the customer.

Provision of reused products and products using recycled materials

The Ricoh Group provides various types of remanufactured machines globally, and is also actively involved in remanufactured toner cartridges, toner containers, and other supply products.

Collecting used products is essential for reused product supply. Demand for reused products is increasing in areas such as European public procurement, and since 2012, Ricoh Europe has added a new collection scheme to increase the collection of used supply products. Ricoh Europe will purchase Ricoh supply products collected by a third-party collection company. Currently (as of June 2023), we have partnered with 17 collection companies in ten countries throughout Europe, and we plan to expand this network further. In France, 17 office equipment manufacturers, including Ricoh France S.A.S, jointly established CONIBI S.A.S to outsource collection operations. CONIBI S.A.S has formed its own free collection system to promote the reuse and recycling of supply products. Ricoh US also offers a program to encourage the return of used supplies. In order to facilitate customer returns of supply products, by including a prepaid delivery label and reusing the box of a purchased product, not only does this save time and money, but it also eliminates the need to procure return boxes, contributing to resource conservation. Through these efforts, we are expanding the collection volume of supply products and promoting the provision of reused supply products.

Remanufactured toner cartridge

For the toner containers of "RICOH IM C6010/C5510/ C4510/ C3510/C3010/C2510/C2010", we are remanufacturing them in Europe and Japan, including toner containers of predecessor models. In most cases, toner containers that did not have expensive functional parts could not be refurbished due to economic reasons and have been subjected to energy recovery processing. In this series, we have succeeded in reducing costs by optimizing the collection method and remanufacturing technology, reducing waste by approximately 80t/year by 2023, by approximately 290t/ year after 2024, and reducing CO_2 emissions by approximately 260t of CO_2/year by 2023, and 1800t of CO_2/year from 2024 onwards (estimates of both categories for Japan.)

Toner containers for RICOH IM C8000/C6500 and RICOH Pro C5310S/C5300S are remanufactured without disassembly. We have launched a global initiative to remanufacture color toner containers, in which we collect some of the used toner containers returned by customers, clean them, fill them with new toner, and deliver them to customers again. In order to realize toner container remanufacturing, we have developed a technology for diagnosing the life of specific parts and a technology for cleaning the inside of the toner container without disassembling it. The annual reduction of new resources by remanufacturing toner containers is about 36t/year, and CO_2 reduction is about 210t of CO_2/year.

Waste reduction and efficient resource utilization in business activities

Initiative: Effective use of water resources

Starting with the toner production process, water resources are particularly important and essential for us. Although the impact varies depending on the business characteristics and the local environment, we recognize that the depletion of water resources will lead to business continuity risks. In addition, reducing the amount of water used by reusing water leads to cost reduction and contributes to the creation of profits. The Ricoh Group has established a policy on water resources and is globally expanding the effective use of water resources in consideration of regional characteristics.

Water policy

1. We recognize that the safe and secure use of water resources is the right of everyone, and we will act accordingly.
2. We will understand the impact of our business activities on water resources, take local characteristics into consideration, and set goals for our activities.
3. In addition to complying with laws and regulations, we will manage water resources in consideration of international standards, initiatives, and public policies.
4. We will contribute to solving water resource issues not only in our company, but also in the world through technological innovation.
5. We will strive to raise the awareness of all employees, and each employee will act as a starting point to communicate with stakeholders and work to solve water resource issues in the local community.
6. When procuring raw materials, products/services, equipment, etc., we will consider not only resource conservation, but also climate change and pollution prevention.

Usage of gray water in cooperation with local companies

Shanghai Ricoh Digital Equipment Co., Ltd. (SRD), which manufactures imaging equipments, utilizes the policies of the Shanghai Municipal Government for the purpose of water resource conservation and protection activities, and is using gray water discharged from the adjacent beverage company's factory. By using this gray water for flushing toilets, sprinkling and cleaning water, make-up water for various cooling towers, and water for firefighting, we are able to reduce the amount of tap water used and the cost. We are also now able to comply with the limits set by the city of Shanghai on the amount of tap water used. This was made possible through concerted efforts of the government, local businesses, and SRD.

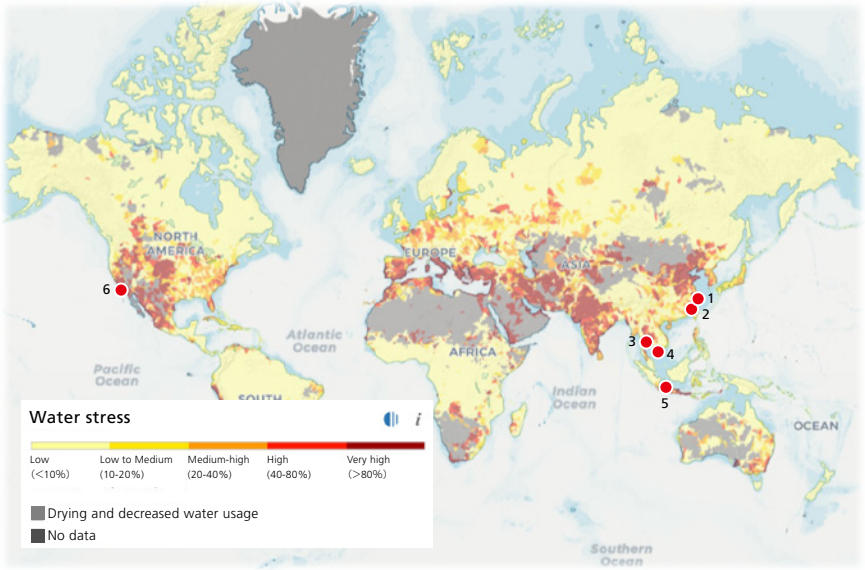
Risk assessment of water resources and measures in water stress regions

We have used the international environmental NGO, World Resources Institute (WRI)'s Aqueduct Water Risk Atlas, to check production sites' water stress and drought risk and assess water risk.

Indicators set in the Aqueduct Water Risk Atlas 4.0 place those business sites with "High" or higher "Baseline Water Stress" or "Baseline Water Depletion" as "Water-stressed Areas". The result of the assessment confirmed that less than 10% of the Ricoh Group's total water withdrawal is from water-stressed areas, and that less than 10% of all Ricoh Group business sites are located in water-stressed areas.

The water-stressed areas are 6 sites operating in China, Thailand, Indonesia and the United States, with a water withdrawal of 263,692m^3 in fiscal 2023. We are actively holding discussions with stakeholders, such as governments and local residents, to address water-stressed areas. One example is at a site in China, where we created and achieved a voluntary water withdrawal target that was well below the state government's water withdrawal limit.

Ricoh Group sites located in water stress regions



1, 2: China (2 sites)
3, 4: Thailand (2 sites)
5: Indonesia (1 site)
6: USA (1 site)

Reducing Waste Generation

Reuse of resources through closed solvent reusing in the PxP toner (polymerized toner) production process

Ricoh's Numazu Plant and the Tohoku Plant of Ricoh industry conduct closed recycling of solvents used in the production of PxP toner. Solvents used in part of the production process have been materialrecycled by subcontractors, but with the aim of recycling and reusing this solvent in our own processes, we have been working on improving material design of toner and production technology.

It was difficult to reproduce conventional mixed solvents containing multiple chemicals, but as a result of research, we succeeded in developing production technology using a single solvent instead of mixed solvents. Through this, except for the cleaning solvent generated when switching products, it is possible to reuse the solvent used in production. This not only makes it possible to reduce waste solvants, but we were also able to slash new solvent inputs by about 90%, and we were also able to achieve significant costs reductions.

Furthermore, by establishing a process for resolvating waste solvents that had been outsourced, we are now able to cover most of the solvents used in normal production with reused solvents.

Facilities that conduct reusing of solvents (distillation facilities)

Improving the level of waste recycling

Recycling Standards

We evaluate the level of recycled waste from our business sites to promote waste recycling. We calculate recycling levels based on the ratios of "loss by simple incineration" and "final disposal volume" that are not recycled in terms of our sites' waste "discharge volume", and set standards for recycling levels at each business site according to the nature of the business. We periodically check attainment of the standards, and if they are not met, we strive to attain them by reducing waste that's difficult to recycle, and by revising the selection of disposal company who do not send waste to landfill or for simple incineration.

100% recycling at Ricoh Eco Business Development Center

The Ricoh Group is working to realize a circular economy based on the Comet Circle concept. We also practice reuse and recycling, which has a smaller environmental impact, in the disposal of waste at our business sites.

Ricoh Eco Business Development Center (hereinafter, "the Center") has improved the level of waste recycling from its business sites, and was able to recycle almost all of its waste by fiscal 2021. We also took on the challenge of recycling the residue from incinerated glass, which we sent to landfills only after reducing its volume. We switched to a disposal company capable of recycling, and created a material recycling route whereby glass is used as a raw material by disposers after intermediate processing.

As a result, the Center was able to achieve a 100% recycling rate, with its landfill reduced to zero since September 2022.

Proper Waste Management

Audit system for proper disposal of waste from business sites

Since 2006, to ensure the proper disposal of waste and fulfill our responsibilities as waste generators, we have established a system to verify the actual disposal practices and management status of contractors to whom we outsource waste disposal. This verification is conducted annually and includes a broad range of criteria, including waste management, fire prevention, disaster preparedness, safety and hygiene, workplace environment, and recycling status. During on-site inspections, results are saved in real-time to the cloud using mobile PCs. Given the need for extensive knowledge and experience, Ricoh has a specialized team at its headquarters with auditors possessing the necessary skills and experience. The results of these verifications, along with the basic information of contractors, are managed centrally within the system, ensuring that relevant information can be accessed as needed. Additionally, the system manages the validity of waste disposal permits for contractors, sending alert emails to responsible parties before expiration to ensure that the latest permits are obtained.

Waste disposal contractor confirmation

Control system screen

Performance

Reduction of virgin material used in product development

	Target	Unit	FY2020	FY2021	FY2022	FY2023	Supplementary explanation for actual performance in FY2023
Virgin material usage ratio of products	2030: 60% or less 2050: 12% or less	%	90.7	87.9	84.9	78.9	Added to the increase in reuse volumes, the use of recycled plastic in A3 color MFPs, which went on sale in February 2023, is having a significant effect.
Amount of virgin materials used in products		1,000t	77.7	70.9	79.5	61.6	

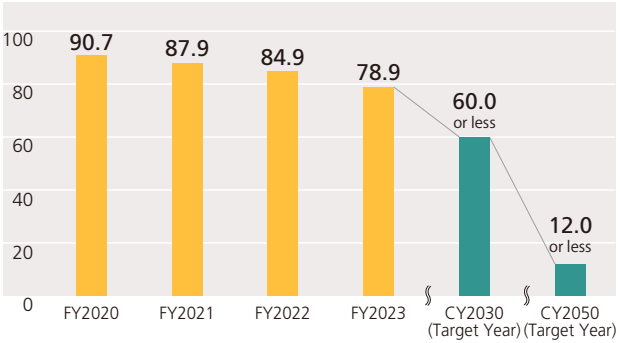
Scope: MFPs, Printers and Digital Duplicators

	Target	Unit	FY2020	FY2021	FY2022	FY2023	Supplementary explanation for actual performance in FY2023
Use of post-consumer recycled plastics for imaging products	2030: 50% or more	%	—	8.6	16.2	32.1	Their use is beginning to have an effect on our flagship MFPs and printers. Their use in our supply products is also increasing steadily. *Including reused plastic components
Reduction in packaging materials for virgin plastic derived from fossil resources	2030: 50% or more (Compared to 2020)	%	—	+5.1*	+5.3*	−26.6	We are working to reduce plastic packaging for our imaging products, and their reduction can be seen by increased sales of A3 color MFPs, which went on sale in February 2023 with significantly reduced plastic packaging.

*The "fossil resource-derived virgin plastic" reduction figures for product packaging in fiscal 2021 and fiscal 2022 have been amended due to expansion of the scope of calculation from fiscal 2023 (June 2024).

*In 2021, material labeling and the use of mono-materials was reflected in the Design Policy for End of Life, and codified rules. We expect to complete material labeling and use of mono-materials in 2025, in line with our target.

〈Reference〉Virgin material usage ratio* Progress toward our target value(%)



*The usage rate of new resource inputs to total resource inputs of products)

Resource circulation of end-of-life products

	Target	Unit	FY2020	FY2021	FY2022	FY2023			
						Total	Breakdown		
							Main unit / accessories	Supplies	Parts
Collection amount of end-of-life products	—	t	47,843	47,705	51,158	39,407	26,791	10,947	1,669
Reuse / Recycle / Energy Recovery Volume	—	t	46,627	46,221	49,888	38,976	26,619	10,699	1,658
Reuse/ Recycle rate	2030: 87.5% or more 2050: 93.5% or more	%	84.4	84.1	83.9	77.5	93.5	37.1	86.0
Energy Recovery rate	—	%	13.1	12.8	13.6	21.4	5.9	60.6	13.4
Incineration / Landfill rate	2030: 0.5% or less 2050: 0%	%	2.5	3.1	2.5	1.1	0.6	2.3	0.6

*Since fiscal 2023, we have partially changed the aggregate method for overseas data, to improve its accuracy.

Waste reduction and efficient resource utilization in business activities

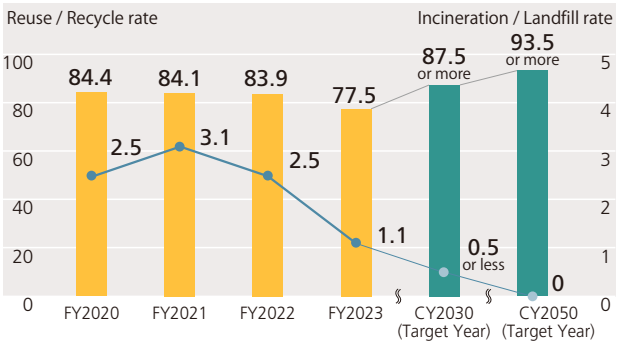
	Target	Unit	FY2020	FY2021	FY2022	FY2023	Supplementary explanation for actual performance in FY2023
Total amount of waste	Less than the previous year	t	58,813	61,752	65,784	56,366	A reduction in production volume due to inventory adjustments of supply products, etc. resulted in decreased emissions.

Scope: Ricoh (production and non-production sites), Japanese and international production-related subsidiaries.

	Target	Unit	FY2020	FY2021	FY2022	FY2023	Supplementary explanation for actual performance in FY2023
Water withdrawal*	Less than the previous year	1,000 m^3	3,266	3,184	3,170	3,124	Although production volume has increased, we have steadily reduced water usage through the complete in-house circulation of water resources, including the reuse of facility wastewater.
Reused / recycled volume	—	1,000 m^3	296	234	252	254	

Scope: Ricoh (production and non-production sites), Japanese and international subsidiaries.
*Amount of water withdrawal represents the aggregate amount for municipal water, industrial water, groundwater, river/pond water and rainwater.

〈Reference〉 Trend of Reuse/Recycle rate and Incineration / Landfill rate



7. Conservation of biodiversity

Policy

Basic concept of biodiversity conservation

Human society heavily depends on the various blessings provided by the Earth's ecosystems, and biodiversity is closely related to these ecosystems. However, loss of biodiversity and ecosystem collapse are increasing in severity, and companies and other diverse sectors are required to halt the destruction and restore what is been lost. Adopted in 2022, the Kunming-Montreal Global Biodiversity Framework (GBF) included a 2050 vision of a "world of living in harmony with nature." Its 2030 mission is to "take urgent action to halt and reverse loss of biodiversity, and put nature back on a path to recovery".

The Ricoh Group agrees with this vision and believes that conserving biodiversity will lead to the creation of a truly affluent and sustainable society. We are working to maintain and enhance the planet's regenerative capacity, while linking with various stakeholders to reduce the environmental impact of our business activities, as we aim for "Nature Positive" and "Zero Deforestation".

Revision of Biodiversity Policy

We have reviewed and revised the content in line with recent international trends, such as the adoption of GBF and the start of TNFD.

(Revised points)

(1) Reflect the GBF aim to Realize a Society in Harmony with Nature, which is a common worldwide goal, and other key items in accordance with GBF.
(2) We explicitly state that the field of biodiversity with climate change and use of resources should be approached while considering how they interact and affect each other.
(3) We explicitly state that we understand the impact of our operations and engage with our stakeholders throughout the value chain.

We are grateful to the following experts for their advice on revisions to our biodiversity policy.
- Conservation Department, World Wide Fund for Nature Japan (WWF Japan)
- Mr. Makoto Haraguchi, TNFD dedicated SVP, MS&AD Insurance Group Holdings, Inc.

Ricoh Group Biodiversity Policy (revised August 2024)

Basic Policy
We recognize that while we enjoy the benefits of biodiversity, our business activities also have an impact on it. As such, we actively work towards realizing a society living in harmony with nature. We also work on the conservation of biodiversity, with the understanding that biodiversity, climate change, and resource use all mutually influence each other.

1. Initiatives to Address This Management Issue
The conservation of biodiversity is an essential management issue for the survival of the Company. Through the Ricoh Group's technologies and businesses, we contribute to the realization of nature-positive outcomes.*

2. Identifying Risks and Opportunities, Improving Outcomes
We identify, assess, and analyze our dependence and impact on biodiversity, region by region, across the entire value chain, while ensuring traceability and identifying risks and opportunities. We set targets and work to improve biodiversity-related outcomes, based on the priorities of avoidance, minimization, restoration and regeneration of impact risks.

3. Collaboration with stakeholders
With the aim of mutual development, we engage in dialogue and collaborate with all of our stakeholders. These include our customers, suppliers, business partners, industry associations, international organizations, experts, government bodies, NGOs/NPOs, indigenous peoples, and local communities. Our initiatives respect the rights of indigenous peoples and local communities with their close ties to the environment and its biodiversity.

4. Raising awareness
We promote awareness and behavioral change among all executives and employees through the proactive initiatives of management and ongoing awareness-raising activities.

5. Communication and disclosure of information
We promote an understanding across society of the importance to take action to conserve biodiversity. We do this through proactive disclosure and communication regarding the Company's targets, corporate activities, and results.

*Nature-positive: Halt and reverse biodiversity loss to put nature on a path to recovery.

Ricoh Group Biodiversity Policy
https://www.ricoh.com/-/Media/Ricoh/Sites/com/sustainability/environment/biodiversity/pdf/ricoh-group-biodiversity-policy-english.pdf

Strategy and targets

Approach to nature positive / zero deforestation

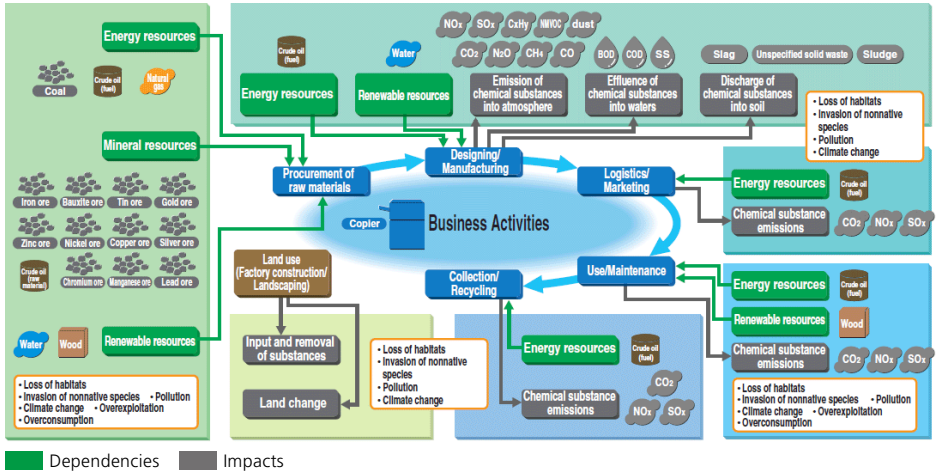
After the Ricoh Group has assessed the relationship between its business and biodiversity and identifies any risks, it plans and executes a strategy to appropriately consider its implications.

1. Assess the relationship between our business and biodiversity

We promote biodiversity-conscious activities by clarifying the relationship between our business activities and ecosystems (environmental impacts and risks). To clarify it, the Ricoh Group has created a "Map of relationships between business and biodiversity" to show the relationship between product life cycles, land use, and other factors and ecosystems.

Target Businesses: Imaging Business, Thermal Business
Scope: Procurement of raw materials, design and manufacturing, transportation and sales, use and maintenance, collection and recycling, from upstream to own operations and downstream
Target data: Energy resources, mineral resources, renewable resources, chemical emissions to air, water, and soil, land use

Map of Relationships between businesses and biodiversity



2. Identify areas of greatest impact and risk

As a result of the evaluation of the relationship between business and biodiversity, paper procurement accounted for the majority of the evaluation results in the supply chain, indicating that the procurement of raw materials such as pulp and paper has a large impact and risk on ecosystems.
Assumed risk: Risk of product supply shortages due to illegal procurement and other impacts. Risk of brand image degradation

3. Risk Management

To reduce environmental impact, we promote the use of recycled paper and recycled materials, and at the same time, we procure raw materials in consideration of biodiversity in cooperation with our business units and stakeholders.

We are also implementing forest conservation programs toward improving the global environment's regenerative capacity, as we believe in their importance from the standpoint of preventing global warming and building sustainable communities.

The Ricoh Group assesses the impact and risks on biodiversity and the results of countermeasures as needed and reviews the countermeasures. Risks are managed through a company-wide risk management system.

Additionally, we have begun assessing dependence on and impacts to natural capital, and conducting risk analysis in accordance with the TNFD-aligned LEAP approach.
(Reference: P.13-15)

In June 2024, we announced our endorsement of TNFD, and registered as a TNFD Adopter

Stakeholders and Roles Related to "Regulations for Ricoh Group products made of wood"

Targets

Target for zero deforestation
Target: Sustainable Procurement of Paper 100%(FY2026)

Target for forest conservation
Target: Planting another one million new trees(FY2020 - 2030)

Initiatives

Target for zero deforestation

Product (paper and timber) procurement

With a belief in the importance of sustainable procurement for building a sustainable society, we brought members together globally from ESG, procurement, production, sales, and other related divisions, and founded the Global Paper Procurement Project in 2022. Through this project, which shares issues and distributes questionnaires to suppliers in each region as part of risk management activities, regional members recognize the importance of reducing the impact of paper procurement on the environment. We ensure our customers can use our paper with peace of mind by working to procure eco-friendly products, such as recycled paper and ECF paper.

In 2010, the Ricoh Group established its "Regulations for Ricoh Group products made of wood". To further clarify its policy on paper, we established a new "Paper Procurement Policy" in 2023 that considers environmental aspects, human rights, and local operations. Based on these policies and regulations, we strive to maintain and enhance the planet's regenerative capacity, while reducing the impact of our business activities on the environment.

FY	Main initiatives related to paper procurement
2010	Sets Regulations for Ricoh Group products made of wood
2022	Launch of the Global Paper Procurement Project
2023	Sets Paper Procurement Policy
2024	Sets target of "100% Sustainable Procurement of Paper"

Regulations for Ricoh Group products made of wood

From the viewpoint of global environmental conservation and biodiversity protection, this provision must be established to confirm that the wood raw materials used in Ricoh brand products and their accessories are legally obtained with consideration for the sustainability of the place of origin in environmental and social aspects prior to the decision of procurement.

Scope of Regulation

It shall apply to the following items that are made from wood procured by the Ricoh Group:

- Paper (PPC paper, thermal paper, etc.)
- Items accompanying with Ricoh Group brand products (stickers, manuals, packaging material, cushion material, etc.).

Requirements for raw materials provided by suppliers

- Confirmation of legality of wood in the country of origin at the time of production.
- Wood produced from a forest where sustainable forest management is practiced without adverse environmental or social impact at the time of production.
- The products delivered to the Ricoh Group do not use wood procured by a "Supplier with Problems."

Paper Procurement Policy

The policy is based on two criteria: "Paper* Standards" and "Supplier Standards."

Paper Standards (Requirements to procure paper)

- Paper must be produced from forests that are managed in a sustainable manner and the legality of which has been verified.
- Paper must not be produced from forests with high conservation value.
- Virgin paper/recycled paper must have traceability.
- Chemical substances used in production process of paper must be confirmed to be safe.
- Environmental and safety management must be under control in the paper manufacturing process (including wastewater and other water management).
- The paper must be ECF chlorine-free bleached paper.

Supplier Standards (Requirements for procurement transactions)

- Suppliers must comply with the laws and regulations of the region and country in which they operate, and they must conduct their operations and supply products with consideration for the environment, including climate change prevention, appropriate use of resources, and biodiversity conservation.
- Human rights of local residents in the area where the company operates are protected and that the company sustains a good relationship with local residents.
- Human rights of workers and employees are protected and there is no relationship with antisocial forces or groups.

*Target: PPC paper, paper rolls

Examples of recommended environmentally friendly paper

- Recycled paper, used pulp paper
- FSC certified paper, PEFC certified paper
- Chlorine-free bleached pulp (ECF)

Forest conservation activities

One Million Trees Project

The Ricoh Group believes in the importance of forest conservation from the standpoints of not only conserving biodiversity, but also preventing global warming and building sustainable communities, and we have been actively working in this field since 1999. Since 2020, we have worked toward the goal of both "protecting" and "increasing" the number of trees with our one million trees project. We conduct forest conservation activities globally in cooperation with various stakeholders, such as environmental NGOs, local governments, and local residents.

FY	Progress of Forest Conservation Activities
1999	Begins Forest Eco-system Conservation Project
2014	Begins Stakeholder Forest Activities collaboration
2020	Begins One Million Trees Project
2023	Ministry of the Environment Nationally Certified Sustainably Managed Natural Site obtained

●Example of Activities

Ricoh Japan

Since 2020, Ricoh Japan has worked with our customers to plant one mangrove tree for every applicable product in Southeast Asia (Philippines and Indonesia) as part of our activities which contribute to SDGs, and had planted 420,000 trees by fiscal 2023. The project aims to develop sustainable communities by increasing income through enlarged fish catches and improving disaster prevention functions, while contributing to the conservation of biodiversity and climate change.

Philippines tree planting site

Indonesia tree planting site

Ricoh El Salvador

We participate in a program to reforest and restore natural resources in partnership with the Environmental Fund.

Ricoh Manufacturing (Thailand) Ltd.

In partnership with local communities, we conduct tree planting activities annually.

Yamanashi Electronics (Thailand) Co., Ltd.

We continue to conduct tree-planting activities in partnership with local companies.

Nationally Certified Sustainably Managed Natural Site

Ricoh Ena Forest Projects and Ricoh Eco Business Development Center are two certified sites since the Ministry of the Environment began its Nationally Certified Sustainably Managed Natural Sites Scheme in fiscal 2023.

Ricoh Ena Forest Projects

Following the Conference of the Parties to the Convention on Biological Diversity (COP10) held in Nagoya, some of our employees started volunteer tree planting activities in the 40-hectare Ricoh Ena Forest in Ena City, Gifu Prefecture. Then, they formed the Tree Management Organization (Ricoh Ena Forest Projects Nakasendo Satoyama Council) with local community associations, companies, and organizations in 2014. We are now expanding the circle of biodiversity conservation activities to include nature observation outings and creature monitoring activities, in addition to forest maintenance activities.

Nature Observation Outing

Scarlet Dwarf Dragonfly

Ricoh Eco Business Development Center

At Ricoh Eco Business Development Center, with its approximately 2.2 hectares of rich natural environment at the foot of Mt. Fuji. There are plantations of cypress, Chinese cork oak and cherry, bamboo groves, grassland and a man-made pond which are home to a wide variety of creatures, such as butterflies, dragonflies, beetles, and cicadas. In particular, 33 species of butterflies have been verified, including the Glacial Apollo Butterfly, the Chinese Bushbrown and the Goschkevitschi's Labyrinth.

Glacial Apollo Butterfly

Ricoh Eco Business Development Center's green space

Performance

Target for Zero deforestation

	Target	Unit	FY2023
Sustainable Procurement of Paper Rate*	Sustainable Procurement of Paper 100%	%	60

*Percentage of paper for which appropriate forest management has been confirmed by Ricoh's own certification (based on weight).

Forest conservation activities

	Target	Unit	FY 2020	FY 2021	FY 2022	FY 2023
Number of trees planted: a year	Planting another one million new trees	K trees	92	149	97	115
Number of trees planted: Cumulative total		K trees	92	241	338	453
Progress		%	9.2	24.1	33.8	45.3

Main biodiversity indicators (TNFD core global metrics)

(Dependencies)
- Costs of raw materials (paper, metal, resin, etc.)
- Water and energy

(Impact)
- Greenhouse gas emissions
- Water withdrawal
- Volume of wastewater
- Total amount of waste
- Chemical substances discharge / transferred

Refer to ESG Databook for detailed data
https://www.ricoh.com/sustainability/report/databook

8. Participating in initiatives and advocacy activities

Participation in Initiatives

Since advocating for environmental management in 1998, the Ricoh Group has actively participated in domestic and international environmental initiatives that go beyond the scope of existing economic and industry associations. To realize its own approaches and strategies in the environment field, the Group has also made proactive policy recommendations through external organizations and initiatives.

If the Ricoh Group's position or approach, or the stance and activities of associated organizations and initiatives are at variance, or if our measures are considered insufficient, we will endeavor to collaborate with other companies to strengthen these measures. We will also regularly verify whether the Ricoh Group's environmental strategies, and activities with organizatios and initiatives are consistent and coherent. If there is a lack of measures or a major discrepancy between them, we will consider withdrawing from such organizations and initiatives.

Advocacy activities

We demonstrate leadership while actively participating in domestic and international initiatives to introduce necessary policies and revitalize corporate measures.

As Co-chair of JCLP (Japan Climate Leaders Partnership), Ricoh chairperson, Yoshinori Yamashita, recommended activating scientific analysis of climate change issues to the Ministry of the Environment, and to the Ministry of Economy, Trade and Industry (METI), he proposed accelerating decarbonization through GX.

In recognition of these activities, the company was selected in September 2023 as one of 27 companies worldwide who exert an influence on climate change policy in "An Influence Map Report", published by Influence Map, an independent UK climate risk think tank.

Initiatives participate

RE100

Science Based Targets initiative (SBTi)

Task Force on Climate-Related Financial Disclosures (TCFD)

Japan Climate Leaders' Partnership (JCLP)

Japan Climate Initiative (JCI)

Japan Partnership for Circular Economy (J4CE)

Taskforce on Nature-related Financial Disclosures (TNFD)

Japan Business Initiative for Biodiversity (JBIB)

30 by 30 alliance for biodiversity