RICOH Group

Sustainability Report 2025

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imagine. change.

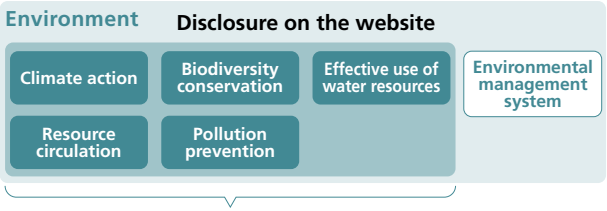
Editorial policy

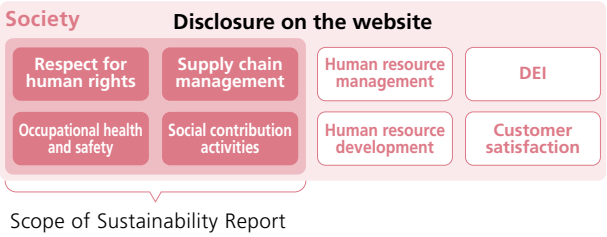
This report is designed to present Ricoh Group's initiatives for sustainable enhancement of corporate value to all stakeholders in a clear and accessible manner by organizing and disclosing information related to ESG strategy, the environment, and human rights.

In addition to the environmental information based on TCFD, TNFD, and Circular Economy guidance in the Ricoh Group Environmental Report 2024, which was issued in fiscal 2024, this report newly includes content reflecting disclosure guidance on human rights. In the environmental field, we have expanded coverage to include pollution prevention alongside the existing focus on climate change, resource circulation, and biodiversity conservation, while organizing both risks and opportunities.

Furthermore, in preparing this report, we have referred to the requirements set forth by the International Sustainability Standards Board (ISSB), under the International Financial Reporting Standards (IFRS) Foundation, and enhanced the scope of information disclosed.

Through this report, we aim to deepen dialogue with our stakeholders and continue making further improvements.





Related links

Ricoh Group Integrated Report 2025

Ricoh Group ESG Data Book 2025

Richo Group Sustainability Website

Date of publishing

October 2025 (published as an annual report)

Reporting period

FY2024 (April 1, 2024 - March 31, 2025)

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

Third-party verification

The environmental and social data in the Ricoh Group Sustainability Report 2025 has been verified by a third-party organization.
Third-party verified data are marked with ☑ .

Scope of coverage

Ricoh Co., Ltd. and its 254 consolidated subsidiaries (the Ricoh Group (Global))
Organizations covered by the data are specified in tables or graph.

Guidelines referenced

- IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information
- IFRS S2 Climate-related Disclosures
- GRI Sustainability Reporting Standards
- Ten Principles of the United Nations Global Compact
- SASB Standards
- ISO26000
- Environmental Reporting Guidelines 2018, Ministry of the Environment
- Recommendations of the Task Force on Climate-related Financial Disclosures(TCFD)
- Recommendations of the Task Force on Nature-related Financial Disclosures (TNFD)
- UN Guiding Principles Reporting Framework
- Guidance for Disclosure and Engagement for Promoting Sustainable Finance toward a Circular Economy

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1. Message from the CEO

Global Societies are undergoing rapid transformation, presenting opportunities to build resilience in the face of climate-related challenges, demographic shifts, market disruptions, and evolving social dynamics. These challenges are placing growing pressure on corporate management, making stronger responses essential. By embracing innovation and inclusive policies and practices, we can turn these changes into catalysts for a more balanced and sustainable future.

Representative Director, President and CEO
Akira Oyama

Internationally, we are witnessing shifts, such as a revision to ESG (Environment, Social, and Governance) -related policies in the U.S. and moves to simplify sustainability regulations in the EU. At the same time, customer expectations for ESG remains high worldwide. In more and more business negotiations, factors such as environmental performance and respect for human rights in the value chain are valued on par with traditional criteria such as price, product specifications, and functionality. The Ricoh Group will respond quickly and flexibly to these global trends, while advancing ESG-driven management with a medium- to long-term perspective to further enhance corporate value.

The Ricoh Group continues to cherish the Spirit of Three Loves, our founding principles. Guided by this spirit—"Love your neighbor, Love your country, Love your work"—we have long sought to enrich the lives of all stakeholders, from ourselves and our families to customers, business partners, and society as a whole. This spirit remains the foundation of our corporate activities today. In 1998, we advocated the concept of environmental management, aiming to achieve both environmental conservation and business growth simultaneously. Since then, we have consistently worked to position the creation of a sustainable society and the growth of our business as inseparable goals.

The 21st Mid-Term Management Strategy (21st MTS), which began in April 2023, recognizes ESG initiatives as essential for generating future financial value and sets forth a policy of aligning ESG with business growth. We have placed ESG at the core of our management approach, identifying seven materialities as priority social issues and setting 16 ESG targets with corresponding KPIs to address them. By incorporating these ESG targets into our overall management objectives, we are advancing concrete initiatives to achieve them. As a result of these efforts, in fiscal 2024 we earned strong recognition from multiple external evaluations, including the highest rating, Platinum, in the EcoVadis* sustainability survey.

Fiscal 2025 marks the final year of the 21st MTS. We will steadily pursue efforts to achieve our ESG targets, while continuing to focus on addressing social issues through our business. Alongside business growth, we want each of our employees—the driving force behind this growth—to take initiative in their work, gain a sense of fulfillment and accomplishment, and in doing so, enhance their own work satisfaction.

In response to growing international demand for sustainability disclosures, this report further strengthens our disclosures based on the TCFD/TNFD frameworks. It also provides an overview of our initiatives to address human rights issues.

Through this report, we aim to help stakeholders better understand Ricoh Group initiatives in the areas of the environment and human rights. We will also work to further raise the quality of our activities and disclosures through active dialogue with stakeholders. Striving to become a global leader in ESG, we remain committed to fulfilling our responsibility to enhance corporate value and contribute to realizing a sustainable society.

*EcoVadis: An international rating agency that evaluates companies on their environmental, social, and governance aspects, with many global companies using its evaluation results for supplier selection

2. The Ricoh Group's sustainability policy

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.

Three Ps Balance

ESG Strategy

Under the policy of aligning ESG with business growth, we have been advancing the integration of ESG and SDGs into our core management strategies and systems. In the 21st MTS, ESG initiatives are positioned as vital for generating future financial results. With the aim of becoming a global ESG leader, we undertake activities covering the entire value chain. We are also implementing measures to foster employee awareness and engagement so that ESG initiatives contribute to employee fulfillment.

Corporate Officer,
General Manager of ESG Strategy Division
Mikako Suzuki

Strategy for global leadership

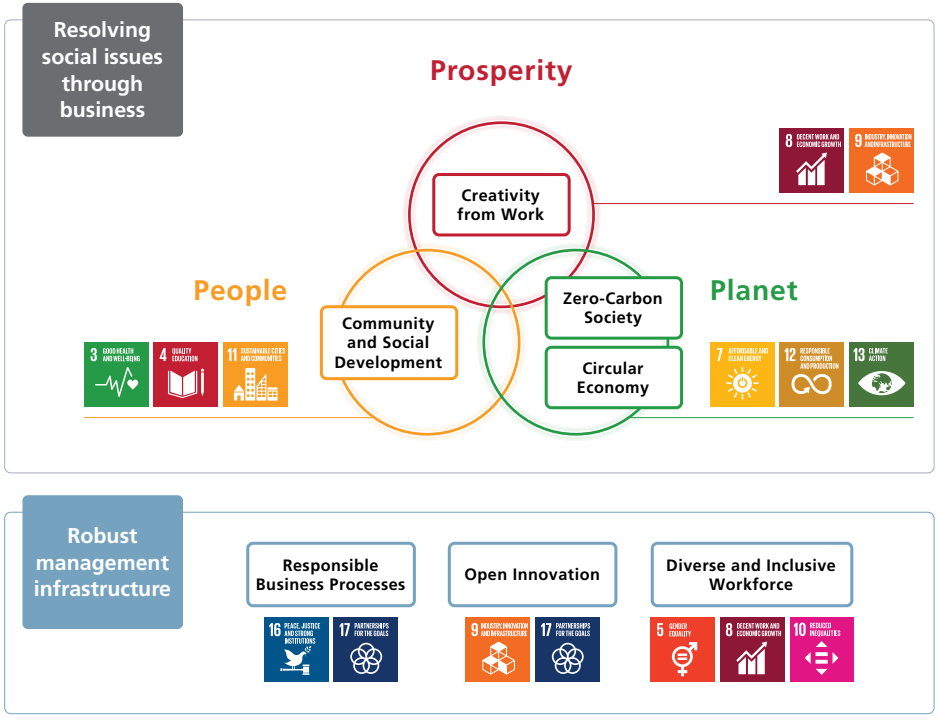
- Set seven material issues and 16 ESG targets in response to global ESG trends and to support our transformation into a digital services company
- Strengthen integration with management systems, including by linking ESG targets to executive compensation
- Resolve social issues through business and strengthen proposals to customers
- Reinforce advocacy activities and enhance global communications
- Promote proactive disclosure and continuous two-way communication with stakeholders

Materiality and ESG targets

To achieve a sustainable society through the Three Ps Balance—prosperity, people, and the planet—we identify material issues (materialities) for each mid-term strategy cycle and link them to ESG targets (future financial targets).

Materiality in the 21st MTS

In the 21st MTS, we identified four social issues under "Resolving Social Issues through Business" and three key components under "Robust Management Infrastructure" as our materiality (see figure below).



Strategic intent of materiality and ESG targets

For seven material issues, we have defined their strategic Intent. Specifically, we have set 16 ESG targets as evaluation indicators, including those related to global issues such as climate change and human rights, as well as to digital service-related areas such as patents, information security, and the development of digital talent—essential for our transformation into a digital services company.

The progress of ESG targets under the 21st MTS is as follows. While overall, things are proceeding smoothly towards achieving targets by fiscal 2025, there are some delays in (1) customer survey scores, (15) engagement score, and (16) female-held managerial position ratio and we continue to address issues.

Resolving social issues through business

Materiality (Material issues)	Strategic intent	2030 targets	Focus domains	ESG targets in 21st MTS (End of FY2025)		FY2023 achievements	FY2024 achievements
Creativity from Work	To provide digital services that transform how customers work, and help them with productivity improvement and value creation	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: 26.3% North America: 39.3% Latin America: 64.8% *2 Europe: 24.5% APAC*3: 17.4%	Japan: 26.8% North America: 38.6% Latin America: 45.5% *2 Europe: 28.2% APAC*3: 30.8%
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*5	23.50 million people	17.94 million people	22.35 million people
Zero-Carbon Society	To decarbonize the entire value chain and create business opportunities by contributing to carbon neutrality	Reduce GHG*6 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 •On-demand Direct Printing (ODP) Thermal media, and others	(3) GHG Scope 1 and 2 reduction rate (vs. FY2015)	50%	47.4%*7	59.1%
				(4) GHG Scope 3 reduction rate (vs. FY2015)	35%	38.1%*7	46.8%
				(5) Renewable energy usage ratio	40%	31.0%*7	43.2%
				(6) Avoided emissions	1,400 thousand tons	1,059 thousand tons	1,448 thousand 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 usage ratio of products to 60% or less		(7) Virgin material usage ratio of products	80% or less	78.9%	78.3%

Robust management infrastructure

Materiality (Material issues)	Strategic intent	ESG targets in 21st MTS (End of FY2025)		FY2023 achievements	FY2024 achievements
Responsible Business Processes	To earn stakeholder trust by taking a holistic view of our supply chain and minimizing ESG risks in our business processes	(8) CHRB score*8	Information and communication technology sector leader	Self-assessment completed. 55% progress toward target.	Self-assessment re-performed. 90% progress toward target.
		(9) Compliance with NIST SPS 800 -171 coverage in Ricoh's core business environment	80% or more	Continued identification and assessment of information to be protected	Identification of information to be protected and formulation of a plan completed. Countermeasures partially completed.
		(10) Low-compliance risk group companies	80% or more	Completed a pulse survey for high-risk organizations	Improvement measures developed in the high-risk organization. Implementation partially completed.
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	25%	23.0%	22.7%
		(12) Digital service patent application ratio*9	60%	54.7%	64.6%
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)	4,000 people	2,855 people	4,658 people
		(14) Process DX Silver Stage-certified employee ratio*10	40%	21.1%	34.2%
		(15) Engagement score*11	Global: 3.91 Japan: 3.69 North America: 4.18 Latin America: 4.14 Europe: 4.01 APAC: 4.15	Global: 3.79 Japan: 3.57 North America: 4.00 Latin America: 3.90 Europe: 3.92 APAC：4.03	Global: 3.84 Japan: 3.57 North America: 4.00 Latin America: 3.95 Europe: 3.90 APAC：4. 20
		(16) Female-held managerial position ratio	Global: 20% Japan: 10%	Global:16.5% Japan:7.7%	Global: 17.2% Japan: 8.4%

*1 Percentage of customers rating us as a digital services partner that provides ongoing value by resolving issues and enhancing corporate value

*2 A survey targeting solution customers in LA

*3 APAC: Asia-Pacific

*4 GEMBA: Maintenance and services for stores, warehouses, and other non-office sites

*5 Number of residents and users benefiting from education, healthcare, and municipal and other services contributing to community development

*6 GHG: Greenhouse Gas

*7 Past figures have been revised to reflect organizational changes and improved regional data accuracy.

*8 Corporate Human Rights Benchmark Score: An international human rights initiative established by institutional investors and NGOs. It evaluates global companies from five sectors: food and agricultural products, apparel, extractives, ICT manufacturing, and automotive manufacturing. (Approximately 250 companies evaluated as the latest benchmark)

*9 Ratio of patent applications related to the digital services business to total patent applications

*10 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)

*11 Uses Gallup's Q12 Mean score (evaluation scores for 12 factors to predict high organizational performance)

Align ESG with business growth

Businesses resolving social issues

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 target amount for fiscal 2025 and the achieved amounts for fiscal 2023 and fiscal 2024 are shown in the table below.

Materiality (Material issues)	Businesses resolving social issues	21st MTS ESG targets (End of FY2025)	results	
			FY2023	FY2024
Creativity from Work	Office services Smart Vision, and others	¥1,017 billion	¥926 billion	¥1,006 billion
Community and Social Development	GEMBA Educational solutions, and others	¥32 billion	¥20 billion	¥28 billion
Zero-Carbon Society Circular Economy	Eco-friendly MFPs Commercial printing Silicone-top linerless labels On-demand Direct Printing (ODP) Thermal media, and others	¥428 billion	¥315 billion	¥410 billion

Case Study of Resolving social issues through business

Helping transform their workplace through Scrum series, business-specific solutions

Increasing productivity is a pressing issue in Japan, where the labor force continues to shrink. DX must be accelerated by promoting the use of ICT. On the other hand, the shortage of digital human resources to promote DX has become a problem, and that is one of the reasons why ICT utilization is still insufficient, especially for SMBs. Ricoh leverages its identifying on-site issues faced by customers, identify business needs, and develop products, mid-tier and small and medium-sized customer base accumulated in the office business, nationwide sales and service network and ability to accompany customers from implementation to operation to offer the Scrum series of solution packages that address industry- and business-specific challenges. By helping customers boost productivity and create more time, we simultaneously drive recurring revenue growth in the growth area of digital services.

Contribution to social Issues resolution

Supporting SMEs' DX with digital capabilities and contributing to Creativity from Work

- 90,548 installations in FY2024, contributing to the creation of a total of 90,548 installations in FY2024, contributing to the creation of a total of 65.40 million work hours*
- Contributed to reduction of CO_2 emissions due to reduced travel

Business growth

As a result of the continued growth of the Scrum package, the accumulation of high-margin recurring revenue has been accelerated, resulting in an increase in annual sales to 75.1 billion yen (FY 2024).

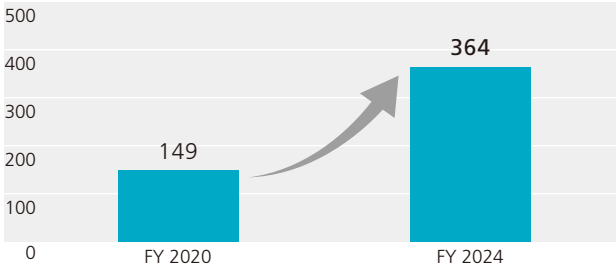
*Including time creation through DX solutions other than SME packages.

Resolving social issues through business

Growing ESG requests from customers

There is a growing trend, particularly among global company customers, that includes ESG-related contract requirements and requests to confirm Ricoh's ESG efforts through questionnaires and surveys. For example, they ask about environmental labeling on products, the rate of recycled material usage, and our human rights initiatives. More customers now require ESG external evaluation scores or ratings as a prerequisite for negotiating deals. For example, the cumulative number of EcoVadis score disclosure requests increased from 149 in fiscal 2020 to 364 in fiscal 2024. We are committed to enhancing our ESG efforts to meet customer and societal expectations.

The cumulative number of EcoVadis Score disclosure requests (Number of companies)



Examples of ESG evaluation in business negotiations

United Kingdom

Won a deal for more than 230 multifunction printers with a public institution

- Reasons for selection: In addition to price and quality, high marks were given for environmental and social initiatives.
- ESG requirements: Product CO_2 emissions and reduction efforts; community contribution activities in the customer's local area, etc.

Netherlands

Won a deal for 120 multifunction printers plus solutions with a private organization

- Reasons for selection: In addition to quality, reliability, and price, high marks were given for sustainability initiatives.
- ESG requirements: Resource reuse, energy-saving functions, support for employment of socially disadvantaged people, etc.

Supporting customer SDG and ESG initiatives

At Ricoh Japan, our sales company in Japan, supports customers who want to strengthen their SDGs and ESG initiatives by sharing practical examples from the Ricoh Group. By supporting our customers in addressing their management challenges, Ricoh Japan strengthens mutual trust, creates new business opportunities, and builds long-term partnerships.

Case: COSEL Co., Ltd.

COSEL deepened its ESG management and SDGs initiatives with support from Ricoh Japan

The challenge was to instill ESG awareness among every employee

Support provided by Ricoh Japan

- Provided information through SDGs seminars
- Introduced practical examples of linking business site initiatives with the SDGs and promoting internal awareness through tours of ViCreA*

COSEL's initiatives and results

- Decided to promote SDGs companywide and held a company-wide briefing session
- Added SDGs topics to employee environmental education
- Linked the improvement activities of QC circles (small-group improvement activities) in which all employees participate with SDG goals, and disseminated them to employees
- Included SDG goals in investor reports and strengthened ESG-related information disclosure

Through the SDGs, our recognition of Ricoh Japan as a partner that provides consultation on ESG, decarbonization, and environmental issues, and supports our company's sustainable growth through DX, has grown stronger.

COSEL Co., Ltd.
Director and Senior Corporate Executive Officer
Mr. Satoshi Kiyosawa

* ViCreA (Value innovation Creative Area): A "Live Office" space where customers can experience Ricoh's challenges in workstyle transformation

Employee engagement initiatives to drive ESG-business alignment

Promoting the alignment of ESG with business growth depends on each and every employee. By recognizing the connection between their own work and the SDGs/ESG and accelerating their actions, Ricoh aims to turn these efforts into greater job satisfaction for employees.

Ricoh Global SDGs Action

Every June, we hold Ricoh Global SDGs Action, an initiative in which employees come together to think and act on solutions to various social issues. In June 2025, under the theme "Take action for Fulfillment through Work," we conducted internal seminars and shared case examples.

SDGs Connection Survey

Each year, we confirm whether employees are engaged in SDGs/ESG initiatives and whether these efforts are contributing to their sense of job satisfaction.

Employee-participation social contribution activities

We set priority areas for social contribution activities in line with our management strategy and promote initiatives together with employees and stakeholders. For participating employees, these activities not only deepen understanding of social issues but also contribute to enhancing engagement.

Three priority areas

1. Inclusion in the workplace
2. Community and social development (Education, healthcare, and community building)
3. Response to the climate crisis and biodiversity

Fiscal 2024 results

Total expenditure	Number of employee participants	Positive impact on business activities
¥725,566,000	68,408	68%
(combined amount of donations, activity expenses, employee participation, and in-kind contributions)	(aggregate number of participants)	(e.g., contribution to business opportunities, building relationships with customers)

Digital Support Program for Young People (Japan)

Since fiscal 2021, Ricoh and Ricoh Japan have been partnering with the NPO Sodateage Net to support young people facing challenges in employment. In fiscal 2024, in collaboration with customers, we provided a skills support program themed on AI to 50 young participants, helping them take steps toward employment.

In addition to online work experience, the program included visits to Ricoh Japan offices in collaboration with eight branch offices nationwide.

Voices of participating youth

Since I often lose my way and give up partway through, being able to complete the process all the way to submitting and presenting deliverables gave me confidence.

Voices of participating employees

It gave me the opportunity to reflect anew on my own work and what it means to work.

Governance

ESG promotion structure within the governance system

To ensure continuous management-level discussions on ESG issues, we have established an oversight structure through the Board of Directors and an execution framework centered on the ESG Committee as a decision-making body (right figure A).

(1)Oversight structure

The Board of Directors monitors, oversees, and advises on ESG-related policies, the formulation and implementation of business plans — including the determination of material social issues (materiality) — as well as on managerial risks and opportunities (right graph B).

(2)Management structure

①ESG Committee

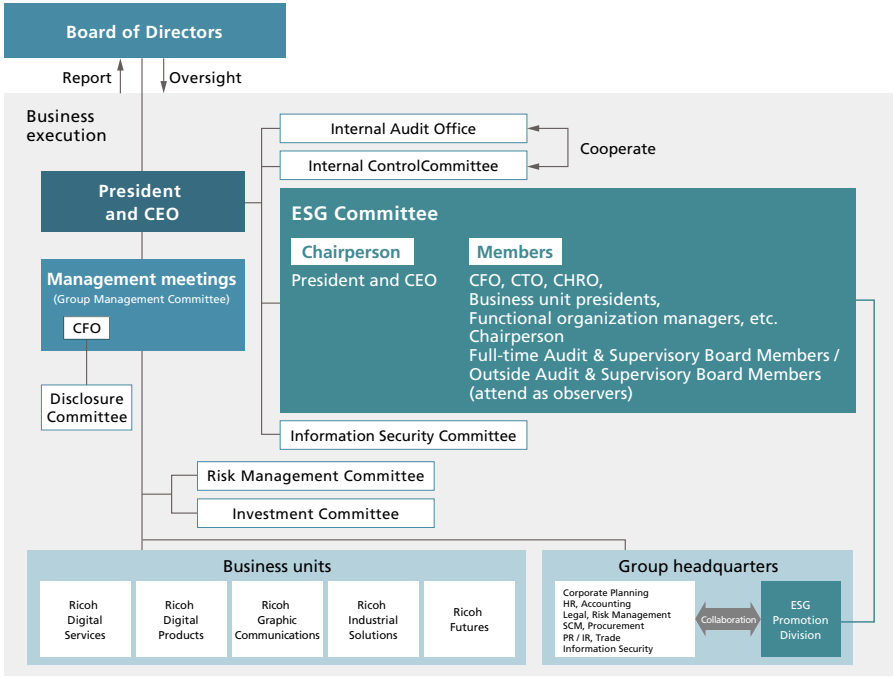
The committee is a decision-making organization that meets quarterly chaired by the CEO and consists of Group Management Committee* members, including the Internal Executive Director and business unit presidents. Audit & Supervisory Board Members, both internal and outside, attend the ESG Committee as observers. 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 (right table C).

② Implementation structure

We have established the ESG Strategy Division, and Corporate Executive Officers promote ESG activities as officers in charge. Key ESG themes, including decisions made by the ESG Committee, are incorporated into specific targets and measures for each functional organization and business unit, and the ESG Committee regularly reviews the progress of these targets and measures.

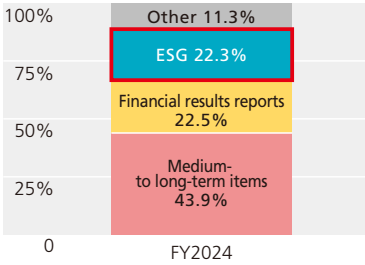
*Group Management Committee: The Board of Directors delegates authority to the Group Management Committee, which comprises executive officers who meet specific qualification requirements.

ESG governance structure(A)



Time allocated by item category at Board of Directors (B)

Approximately 20% of the total time was allocated to deliberate ESG agenda items during fiscal 2024.



< Contents of the recent sustainability-related reports at the Board of Directors >

- ESG-related disclosure in fiscal 2024
- Results of external evaluations in fiscal 2024
- Global trends of ESG disclosure regulations

Main agenda at the ESG Committee in fiscal 2024

Fiscal 2024		Agenda
First Meeting	May	• ESG targets and results for fiscal 2023 and disclosure on TCFD*1 risks and opportunities • Integration of risks and opportunities in three environmental areas (climate change, resource circulation, and biodiversity)
Second Meeting	August	• Revision to Ricoh Group Biodiversity Policy • Publication of the Environmental Report considering TCFD/TNFD • Change in the "salient human rights issues" in the Ricoh Group • Visualization of financial contribution of ESG initiatives
Third Meeting	November	• Introduction of fiscal 2024-2025 renewable energy implementation plan to achieve RE100* • Establishment of a grievance mechanism for external stakeholders
Fourth Meeting	February	• Latest trends in materiality analysis and the consideration process for the next Mid-Term Management Strategy • Clarification of the role of ESG information disclosure media and publication of a sustainability report integrating environment and human rights • Issues for fiscal 2025 regarding ESG external evaluations

*RE100: An international initiative comprising companies committed to procuring 100% of the electricity needed for their business operations from renewable energy sources

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 targets attainment.

Linkage with executive bonuses

By incorporating the "DJSI* Annual Rating," which we use as a tool to assess our ESG initiatives, into the performance-based bonus formula for internal directors and executive officers, we provide incentives for advancing ESG initiatives. 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: Share indices 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 targets. The payout rate directly reflects the number of ESG targets achieved. In fiscal 2024, we extended this program to executive officers.

(Reference) Formula for calculating Director's bonuses

individual bonus amount

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Calculation basis

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

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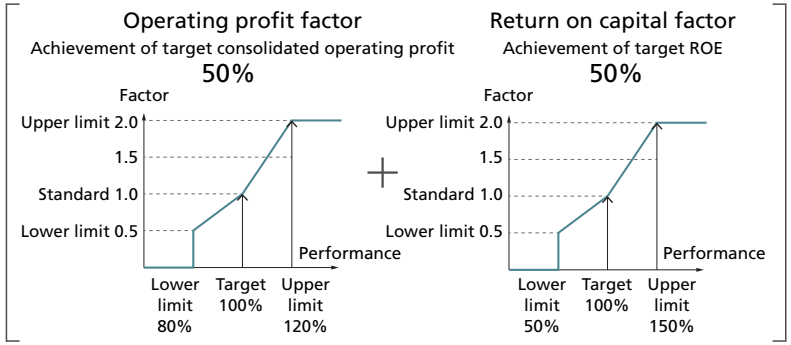

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ESG factor

DJSI Rating

Rating	Factor
World	1.05
Asia/ Pacific	1.00
Not included	0.95

(Reference) Formula for performance-linked stock-based compensation for Internal Directors

Base amount of stock compensation by job grade/base stock price

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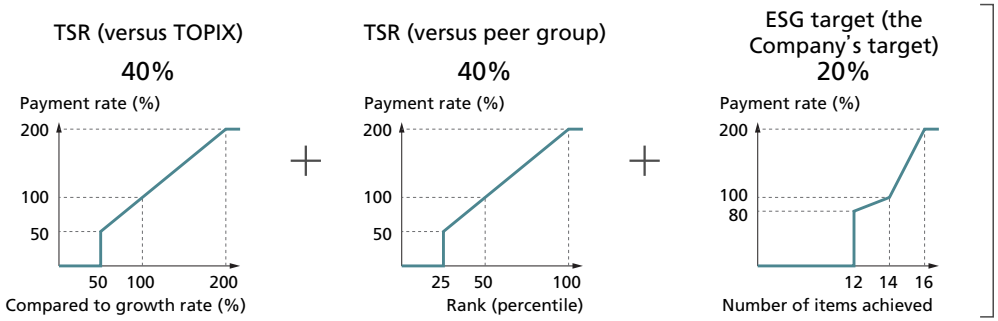


Risk management

Management of sustainability-related risks and opportunities

Risks and opportunities related to sustainability are assessed in the process of identifying materialities and are reflected in our strategies (see figure on the right). In addition, with respect to environmental risks and opportunities—covering climate change, resource circulation, pollution, and biodiversity—we identify, assess, and review them in accordance with the TCFD and TNFD frameworks (see pp. 11–15).

Position in company-wide risk management

Ricoh positions risks that may significantly impact the performance of the company as managerial risks, and risk management is divided into strategic risks and operational risks, depending on the characteristics of the risk. Risks are identified and classified considering changes in the external and internal environment as well as management view of the risk, and assessed according to the level of urgency, degree of impact, and risk management levels.

Given that sustainability-related risks significantly impact a company's medium- to long-term growth, we have positioned "Advancement of ESG and SDGs responses" as one of our strategic risks. We manage risks related to human rights, environmental conservation and information disclosure at the company level.

Managerial strategic risks
Risk item：Advancement of ESG and SDGs responses

	Urgency	Impact	Risk management level
Human rights	5	2	C
Environmental conservation	4	2	C
ESG information disclosure	4	2	C

Description：

Responding to ESG/SDGs poses medium- to long-term risks to the Ricoh's business activities. We consider human rights, decarbonization, a compliance with environmental regulations and standards that are becoming increasingly stringent to be particularly significant risks. In addition, ESG information disclosure, which was previously optional, is now becoming mandatory globally and the statutory disclosure is progressing.

If the Ricoh Group does not take these measures to keep up with competitors, it may not only have a negative impact to business such as the loss of business opportunities but also cause a significant damage to the Company such as loss of social credibility and damage to brand value.

Risk management

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.

Step1 Identifying Issues → Step2 Prioritizing Issues → Step3 Management Decision → Step4 Performance Disclosure

STEP 1: Identifying Issues
In considering our mid-term management strategy, we assess risks and business opportunities arising from changes in environmental and social trends, such as increasing demands to address climate change and human rights. At the same time, we evaluate the impact of our business activities on the environment and a society and identify key issues that require action.

STEP 2: Prioritizing Issues
We 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 targets 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 targets 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 after confirmation by management at the ESG Committee.

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
- SDG Compass*1
- GRI standard*2
- European Guidelines on non-financial Reporting directive*3
- Ministry of the Environment's Environmental Reporting Guidelines
- TCFD Recommendations
- Ten Principles of the United Nations Global Compact
- ISO26000*4

*1 SDG Compass: Guidelines for companies to align management strategies with SDGs and measure and manage contributions to SDGs.
*2 GRI Standards: Global sustainability reporting standards that help organizations report on their economic, environmental, and social impacts.
*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 ISO26000: International standard and guidance on the social responsibility of organizations.

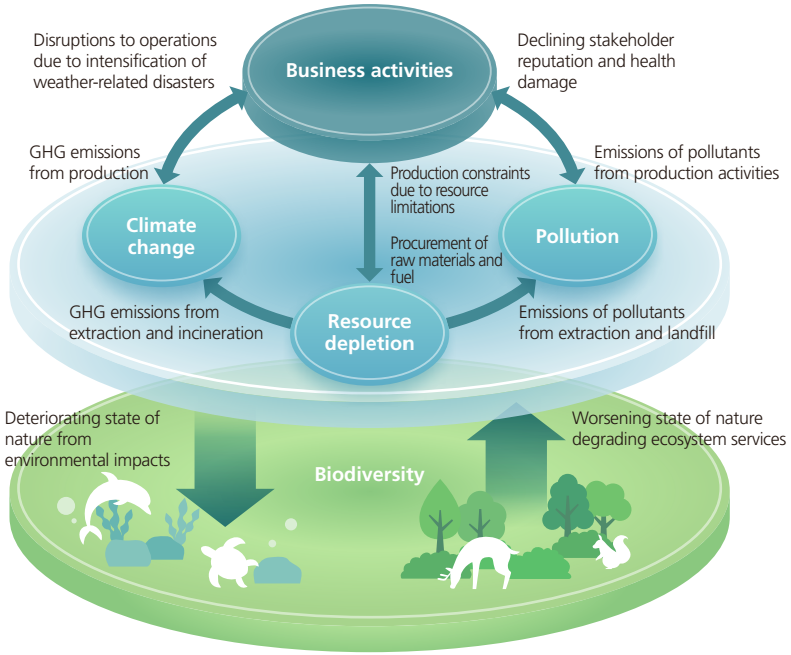
3. Scenario analysis and risks and opportunities

Business and the environment

Business activities cause environmental impacts such as climate change, resource depletion, and pollution, which in turn negatively affect those business activities.

In manufacturing industries, in which the Ricoh Group operates, the mutual influence between business activities and the environment can be understood through the relationships illustrated in the graphic on the right. We thus consider it important to conduct integrated scenario analysis and risk/opportunity assessments from the perspectives of climate change, resource depletion, pollution, and biodiversity.

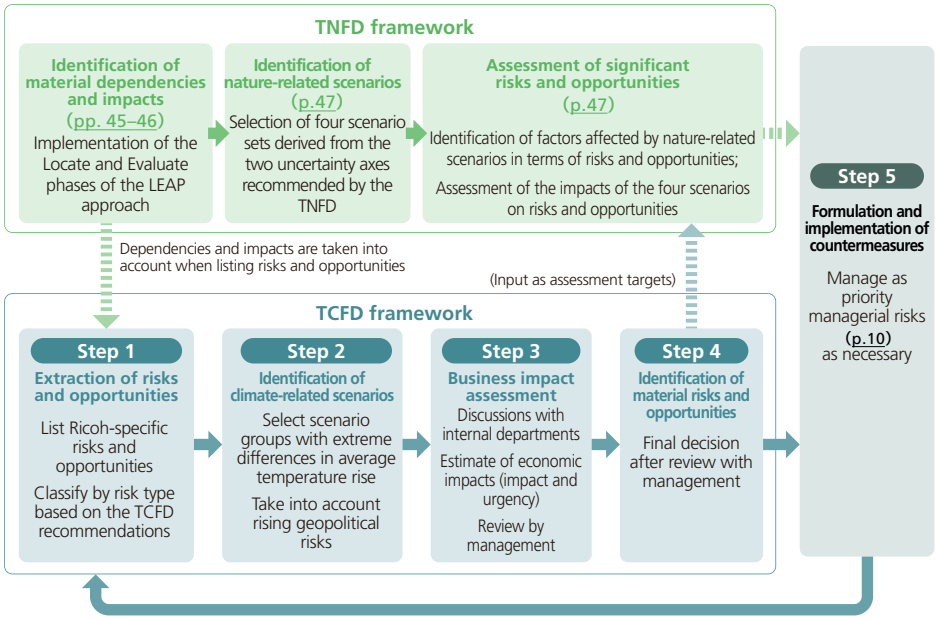
Relationship between business activities and the environment



Concept of scenario analysis

Since announcing our support for the TCFD recommendations in August 2018, we have conducted annual scenario analyses and assessments of climate-related risks and opportunities based on the recommendations, while reviewing the content in light of changes in the business environment and scientific knowledge to ensure continuous improvement. In recent years, there has been a growing need to identify risks and opportunities from a perspective that takes into account interrelationships across multiple environmental areas (climate change, resource depletion, biodiversity, and pollution). Against this backdrop, In 2024, we endorsed the recommendations of the TNFD, augmenting our efforts to analyze scenarios based on recommendations from the TCFD. We use TNFD's LEAP (for locate, evaluate, assess, and prepare) approach to map pathways for dependencies and impacts on natural capital and ecosystem services and comprehensively assess risks and opportunities across environmental domains. (for details on the TNFD assessment, see pp. 44–48).

Scenario analysis process based on the TCFD/TNFD frameworks



Scenario analysis process

In conducting scenario analysis, we added a perspective on natural capital to the conventional TCFD framework process and identified risks and opportunities through the following steps.

TNFD: Identification of material dependencies and impacts

For our main businesses (Office Printing, Commercial Printing, and Thermal), we conducted an assessment in line with the LEAP approach and identified the following material dependencies and impacts:

- Dependency on and impact to forest resources through the use and sale of paper
- Impact from water consumption in toner manufacturing
- Dependency on and impact from the production of resins and steel procured as components

Step 1: Extraction of risks and opportunities

Assuming the year 2040, Ricoh Group-specific risks and opportunities were listed from the following perspectives:

- Environmental fields (climate change, resource depletion, biodiversity, pollution)
- Transition to a digital services company

The items listed were then classified into the following risk types based on TCFD recommendations:

Transition risks
Regulatory policy, market, technology, and reputational risks

Physical risks
Chronic risks (rise in average temperature, changing precipitation and weather patterns, etc.) and acute risks (increasingly severe extreme weather events, etc.)

Step 2: Identification of climate-related scenarios

Selection of public scenarios

Transition risk assessment

Public scenarios selected: IPCC AR5 RCP2.6, IPCC AR6 SSP1-1.9, IEA [NZE2050]

A world in which the average temperature rise through 2100 is kept below 1.5° C

- Environmental policies strengthened and accelerated through international cooperation
- Bold policies and technological innovations such as a shift to renewable energy and introduction of carbon taxes advance
- A society in which changes accompanying the transition to a decarbonized society are highly likely to affect business

Physical risk assessment

Public scenarios selected: IPCC AR5 RCP8.5, IPCC AR6 SSP3-7.0, IEA [STEPS]

A world in which the average temperature rises by 4° C by 2100

- National security is prioritized, resulting in fragmentation of international environmental policy advancement
- Climate change intensifies extreme weather events, raising risks of greater-than-expected damage from wind and flood disasters, resource depletion, and outbreaks of infectious diseases
- A society in which physical damage from climate change is highly likely to affect business

Introduction of internal carbon pricing
Referring to the carbon price for developed countries in the IEA NZE scenario (2030), we set an internal carbon price of ¥18,900 per t-CO_2. Based on the calculation results for Scope 3 (Category 1), this is used as a shadow price to estimate the impact of future carbon cost realization. The aim is to support decision-making in areas such as resource-saving design and the use of recycled materials, with a view to simultaneously achieving a decarbonized society and a circular economy.

Steps 3–5: Business impact assessment / Identification of significant risks / Formulation and implementation of countermeasures

Based on two assumed scenarios for 2040, we forecasted stakeholder actions and needs in response to changes in policies and nature and identified potential environmental risks and opportunities should those changes materialize (see p.13). In this process, newly identified risks and opportunities were also added, and their impact and urgency were quantitatively assessed.

Incorporation of input from internal departments
Starting with workshops organized by the ESG Promotion Division, we collaborated with divisions including Corporate Planning, Procurement, General Affairs, and Risk Management to organize business impacts and conduct risk assessments based on the 2040 scenarios.

We also reflected input from internal departments in the integrated risk information, taking into account social trends such as strengthening environmental policies and rising customer demands, as well as business strategies for the transition to a digital services company.

Deliberation and decision-making by management at the ESG Committee
At the ESG Committee, management discussed and evaluated the urgency and impact of environmental risks and opportunities. Based on these discussions, we are formulating and implementing concrete countermeasures, such as the development of companywide action plans (see Risks, p.14; Opportunities, p.15).

Causal relationships of risks and opportunities based on scenarios

Based on two extreme scenarios assumed for 2040, we forecasted stakeholder actions and needs arising from changes in policies and nature.

We then identified the risks and opportunities expected to have a significant financial impact if those actions and needs materialize. The diagram below shows the causal relationships among scenarios, actions and needs, and risks and opportunities.

→ Related to risks
→ Related to opportunities

Assumed scenario Changes in policies, nature, etc.

1.5°C scenario (sustainable)

Nature	Impacts of climate achange are suppressed and limited
Policies	Strengthening and acceleration of decarbonization and circular economy policies through international cooperation • Introduction of carbon taxes and emissions trading; gradual expansion of scope and burden levels • Promotion and mandatory use of recycled materials, with preferential treatment for resource recovery • Tougher standards on environmental regulations and labeling • Intensified demand for net-zero, RE100 targets • Elimination of greenwashing etc.
Society / Economy	Shift towards dematerialization and energy-saving • Population trends remain low • Cooperation to resolve social issues (SDGs) • Growing demand for renewable energy and energy-saving products • Wider acceptance of circular business models (product recovery and reuse)
Digital transformation (DX)	Utilization for value creation and as a means of solving social issues

4°C scenario (regional rivalry / fossil fuel dependence)

Nature	Impacts of climate change intensify • More severe disasters, such as floods, etc. • Increase in forest fires and pests • Increased risk of infections
Policies	National security is prioritized, leading to fragmentation in the advancement of decarbonization and circular economy policies
Society / Economy	Shift toward resource-intensive consumption and increased dependence on fossil fuels • Population trends remain high • International cooperation becomes difficult, and technological progress remains limited
Digital transformation (DX)	Utilized for risk avoidance and strengthening resilience

Stakeholder actions and needs in response to changes in policies and the nature

Supplier
Soaring price of raw materials and parts due to stricter rules and standards
- Increased procurement costs to address regulations, such as a carbon-emissions tax

Customers (corporate)
Tougher customer demands
- Demands for GHG reduction, renewable energy, recycled materials, and conservation of biodiversity intensify

Changes in customer behavior
- Further shifts to energy-saving products and equipment
- Avoiding printouts by going paperless
- Condemnation of greenwashing
- Increased interest in small- to medium-sized companies' zero-carbon solutions
- Growing need for digital services leads to workstyle innovation

Shareholders / Investors
Increased requests to disclose ESG data associated with expanded ESG investment
- ESG investments enhance our corporate value
- Requests for high transparency in ESG data disclosure

Supplier
Fragmented supply chains / Rising raw material costs
- Factories closed by more severe natural disasters
- Rising paper raw material prices due to increase in forest fires and pest damage

Customers (corporate)
Growing need for digital services leads to workstyle innovation
- Remote medical care, education, and interviews to reduce infection risk

Risks and opportunities for the Ricoh Group

Transition risks
- (1) Rising procurement costs from stronger policies
- (2) Stricter regulations and delays in responding to customer demands
- (3) Business performance impacts of changing consumer behavior
- (4) Lost social trust and damage to brand value

Opportunities (contribution to mitigation)
- (1) Increased sales of eco-friendly products
- (2) Expansion of reuse and recycling businesses
- (3) More business opportunities gained through ESG initiatives
- (4) Expansion of energy-saving, resource-saving, and energy-creation related businesses
- (5) Increased sales through solutions that support DX

Physical risks
- (1) Expansion of production stoppages and loss of sales opportunities
- (2) Decline in sales due to regional infectious disease epidemics
- (3) Stricter regulations and rising paper procurement costs caused by declining forest resources

Opportunities (contribution to adaptation)
- (5) Increased sales through solutions that support DX

Risks and opportunities

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 integrated risks across the four environmental areas and, in line with our company-wide risk management approach, estimated their degree of impact (financial) and urgency (likelihood of occurring). Insufficient response to environmental regulations and risks from natural disasters could have a major impact on revenue and business operations, while proactive measures for mitigation and adaptation may generate future financial benefits. By implementing responses based on these impact levels, we aim to strengthen our resilience against environmental impacts on business operations.

Risk Category	Risk Type	Field	Item	Risk Scenario (Impact on Ricoh Group)	Impact	Urgency	The Ricoh Group's response
Transition risks (1.5°C scenario*1)	Policy and legal	Climate change Resource depletion	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 (pp.29-30)
	Policy and legal	Climate change Resource depletion Pollution	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	¥1 billion~ ¥20 billion	Within 3 years	• Actively implement measures on energy-saving and renewable energy that contribute to the 1.5°C SBTi (pp.19-20) • Disclose data on CFP, SuMPO EPD, content rates of recycled material used in products, etc. (p.22) • Fundraising by using sustainability initiatives
	Market	Climate change Resource depletion	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
	Reputation	Climate change Resource depletion Biodiversity Pollution	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 years	• Enforce our environment management system (pp.40-41) • Strengthen our industrial waste management system (p.36) • Promote procurement of sustainable raw materials (p.49) • Give employees awareness training on greenwashing
Physical risks (4°C scenario*3)	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
	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
	Acute	Climate change Resource depletion 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 (p.34) • Strengthen forestry conservation activities (One Million Trees Project) (p.50)

*1 1.5° C scenario: A scenario where the global average temperature increase is below 1.5° C by 2100
*2 SBTi (Science Based Targets initiative): An international initiative that certifies that a company's GHG (greenhouse gas) reduction targets are consistent with scientific evidence
*3 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 depletion 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 energycreation 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 FY2024 results	FY2024 Financial Contribution Amount
Contribution to mitigation	Climate change Resource depletion Biodiversity Pollution	1. Sales of eco-friendly products Strengthening energy-saving (p.22), use of recycling (pp.29-30), control of chemicals, silicone-top linerless labels (p.34), On-demand Direct Printing (ODP) Thermal media (p.34), portable plastic identification sensor (p.34)	Approx. ¥1,317 billion
	Climate change Resource depletion	2. Reuse and recycling businesses Recycle design (p.29), sales of recycled equipment (p.33)	Approx. ¥31 billion
	Climate change Resource depletion	3. Sales from business deal negotiations involving ESG compliance Bidding, sales negotiations	Approx. ¥37 billion
	Climate change Resource depletion	4. Energy-saving, resource-saving, and energy-creation related businesses Smart MES, EV, utilization of storage batteries, solar power generation operation and maintenance (O&M)	Approx. ¥25 billion
Contribution to adaptation	Climate change Resource depletion	Solutions supporting digital transformation Support for scrum packages, and others (p.6)	Approx. ¥262 billion

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 2024 are shown below.

Materiality	Social issue–resolving businesses	21st MTS ESG targets (End of FY2025)	FY2024 sales
Creativity from Work	Office services Smart Vision, and others	¥1,017 billion	¥1,006 billion
Community and Social Development	GEMBA Municipal solutions Educational solutions, and others	¥32 billion	¥28 billion
Zero-Carbon Society Circular Economy	Eco-friendly MFPs Commercial printing Silicone-top linerless labels On-demand Direct Printing (ODP) Thermal media, and others	¥428 billion	¥410 billion

4. Ricoh Group's environmental management

Approach to environmental management

In 1998, we 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.

Setting environmental goals using backcasting

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.

Under the declaration of realizing a decarbonized and circular society, we set environmental targets and practice environmental management.

In setting these targets, we first define the final goal, and then establish interim milestones: 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.

Pursuing the Ideal Society (Three Ps Balance)

Action Plan (formulated every 3 years) ◀ 2030 Environmental goals ◀ 2040 Environmental goals ◀ 2050 Environmental goals

The Ricoh Group Environmental Principles

Based on its management philosophy, Ricoh established its Environmental Principles in 1992. The principles clearly show the basic policy and action guidelines that the Group should follow for environmental conservation and represent the Group's commitment to sustainable environmental management, which makes environmental conservation and the creation of economic value compatible.

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. Climate action

Basic Concept

We position climate change as one of the most critical social issues facing the global community. Its adverse effects of climate change are becoming increasingly evident worldwide, and as a company we recognize that initiatives toward decarbonization are unavoidable from both a business risk and opportunity perspective.

Respecting scientific findings such as those of the IPCC and international agreements such as the Paris Agreement, we adopt a backcasting approach to target setting. We emphasize initiatives across the entire value chain, as well as fostering momentum throughout society by participating in initiatives and engaging in advocacy activities.

Policy and targets

Using backcasting, we set mid- to long-term decarbonization targets, formulate a decarbonization roadmap based on our decarbonization policy, and develop specific measures companywide.

Decarbonization Policy

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

We have 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 a new 2040 target to achieve net zero GHG emissions[*1] 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.

Through our own efforts, we will reduce emissions by 90% from the base year, and offset the remaining emissions by internationally accptable methods[*2] 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 In accordance with ISO 14068-1:2023, published in November 2023

Ricoh Group environmental goals (zero-carbon)

Goals for 2050

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

Goals for 2040

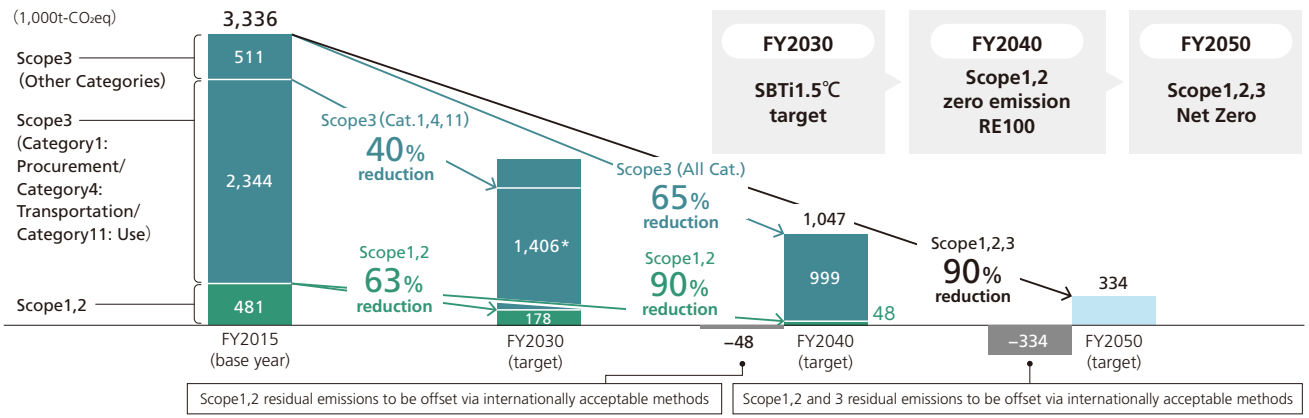
- GHG Scope1,2 : Zero emission[*1]
- GHG Scope3 : (65% reduction compared to 2015 level, all categories)[*2]
- Renewable energy usage ratio: 100%

*1 Net target (net quantitative target including offsets such as carbon credits)
*2 Gross target (gross quantitative target excluding offsets such as carbon credits)

Goals for 2030

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

Note: GHG Scope 1: Direct GHG emissions from our manufacturing plants, offices, and vehicles, etc.
GHG Scope 2: Indirect GHG emissions from the consumption of heat and electricity that we purchase
GHG Scope 3: Emissions in the supply chain from business activities (excluding GHG Scope 1 and 2)
Note: Includes 6 greenhouse gases (CO_2, CH_4, N_2O, HFCs, PFCs, SF_6)
Note: The sectoral decarbonization approach is not used in the calculation of each GHG reduction target.



Strategy

Approach to achieving net zero

As a transition plan to achieve our GHG emissions reduction targets, we have formulated a decarbonization roadmap through 2030 covering three categories: Scope 1, Scope 2, and Scope 3, and we manage progress accordingly.

For achieving the 2030 targets for Scope 1 and Scope 2, we are focusing primarily on converting high-volume electricity use to renewable energy. We have formulated a renewable energy introduction roadmap that sets the amount of renewable energy to be introduced at each site. This roadmap is reviewed annually based on actual electricity use, and adoption is promoted by having the ESG Committee approve the amount of renewable energy to be introduced for the fiscal year.

For Scope 1, we have also prepared a roadmap for electrification and fuel conversion of fuel-based facilities at each site, with full-scale implementation expected to begin after 2030. This roadmap will be periodically reviewed in light of technological trends and the state of adoption.

The scale of each initiative and its effects have been formulated with consideration of changes in the size and business portfolio of the Ricoh Group, as well as projected changes in energy and material emission factors based on current policies and measures, in order to ensure achievement of the 2030 targets.

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

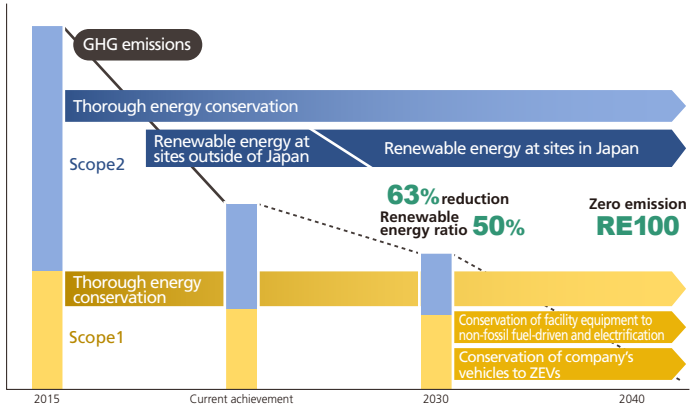
Harness renewable energy

We will promote purchasing renewable electricity certificates and introducing on-site PPAs, and aim to complete the transformation to RE100 by 2030 in overseas countries. 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.

Decarbonization roadmap for Scope 1 and 2

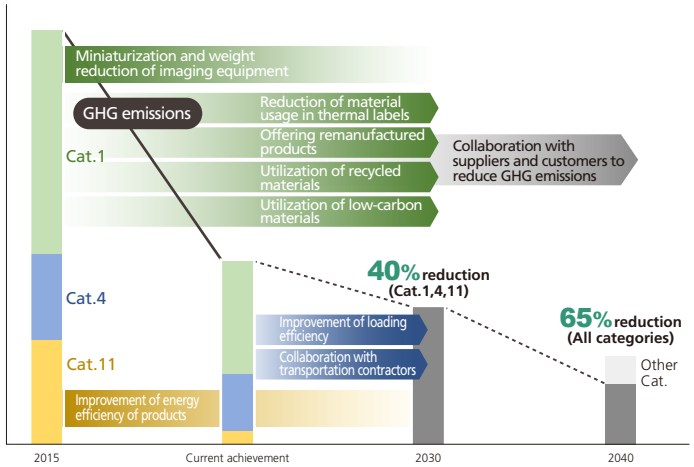


●Measures and plans aimed at 40% reduction in the three major categories of Scope 3 by 2030

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.

Decarbonization roadmap for Scope 3



Initiatives

Initiatives for Scope 1 and 2 emissions reduction

We have advanced thorough energy-saving activities and the active utilization of renewable energy. As of March 2025, we had converted 205 sites at 37 companies in 25 countries to electricity usage from renewable sources, which increased the Group's renewable electricity ratio to 43.2% in fiscal 2024, up 12.2 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 2024, we achieved effectively 100% renewable electricity at Tohoku Plant of Ricoh Industry Company, Ltd. and ETRIA Tohoku Plant through the use of renewable energy certificates.

In addition, as of July 2025, 18 sites of our Japanese domestic sales company, Ricoh Japan, and ETRIA Gotemba Plant acquired the 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).

●Installation of waste heat recovery heat pumps at production sites

Contribution to Scope 1

Since February 2022, waste heat recovery heat pumps has been introduced at the South Plant of the Ricoh Numazu Plant.

The waste heat being released into the atmosphere from the chiller/refrigerator cooling tower will be used to generate hot water at 65° C, which is used in the dissolving process. By reducing the amount of steam consumption by approximately 60%, both cost and CO_2 emissions reduction (up to 540 tons/year) can be achieved.

While promoting Scope 2 reductions by switching to renewable electricity, we are also tackling Scope 1 issues such as the use of steam, on which reductions are difficult to achieve.

The waste heat recovery heat pumps at the South Plant of the Numazu Plant

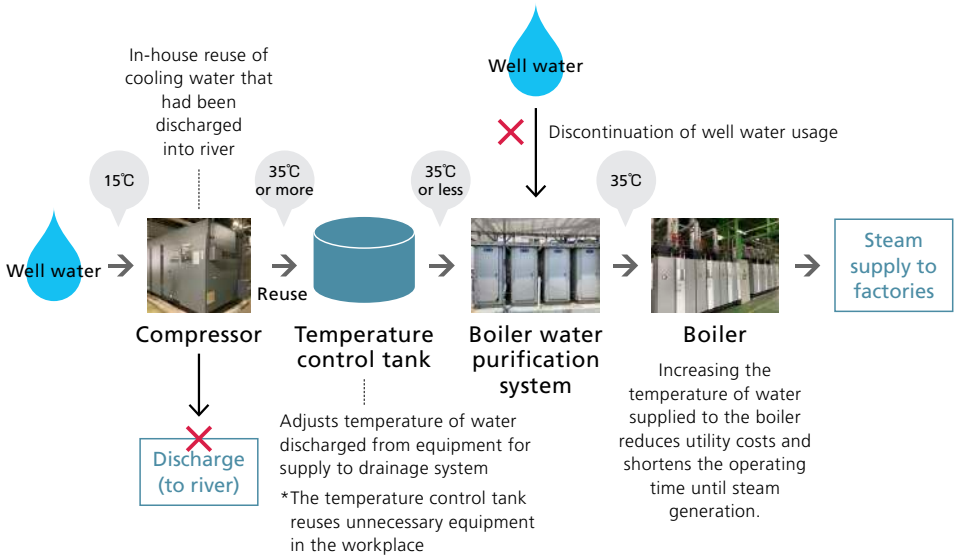
●Reduction of groundwater consumption and CO_2 emissions through the reuse of water discharge

Contribution to Scope 1

Since September 2022, a water discharge reuse system has been installed at the South Plant of the Numazu Plant.

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. As a result, groundwater consumption has been reduced by 35,963 m3 per year with 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.

Overview of reduced water consumption through reuse of water discharge



Strengthening renewable energy introduction with focus on additionality

Contribution to Scope 2

We signed its first virtual power purchase agreement (VPPA) with KAMISATO KENSETSU, Inc. to promote the adoption of renewable energy. A VPPA provides a means for a user to virtually procure only the environmental value of renewable electricity generated from exclusive power plants built off-premise from the user. In Japan, it is a new form of renewable energy adoption that began in 2022.

Operations began in August 2023, providing approximately 2.15 GWh of renewable electricity per year and reducing CO_2 emissions by about 926 tons annually.

At Tohoku Plant of Ricoh Industry Company, Ltd. and Tohoku Plant of ETRIA Co.,Ltd, in addition to an on-site carport-type PPA, we began the Group's first off-site physical PPA in 2024, and further achieved 100% renewable electricity by procuring Non-fossil certificate for all remaining purchased electricity.

Solar power plant under an off-site physical PPA

Energy saving diagnosis

Contribution to Scope 1 | Contribution to Scope 2

Ricoh Creative Services Co., Ltd., a subsidiary entrusted with the management of Ricoh business sites in Japan, systematically selects target business sites and conducts an Energy-saving diagnosis at each designated site in the order they are selected. In 2024, the diagnoses were conducted at two sites, creating sixteen energy saving measures (estimated reduction of 25 t-CO_2/year). At other sites, diagnoses on individual equipment were conducted, identifying 170 opportunities for improvements (estimated reduction of 278 t-CO_2/year).

Energy saving diagnosis for production facilities proposes optimal operation of equipment according to the production environment, such as compressor setting pressure, and temperature and humidity control of processes.

In addition to proposing the latest energy-saving equipment and technology, Ricoh Creative Services proposes improvements to the installation environment to fully utilize the capabilities of existing equipment, thereby reducing the amount of power consumed by the equipment.

Expansion of ZEB office buildings and application to business proposals for customers

Contribution to Scope 1 | Contribution to Scope 2

As of the end of July 2025, 19 Ricoh Group sites in Japan have acquired ZEB Ready certification or higher.

Ricoh Japan intends to have all new office buildings* be at least "ZEB Ready." Each building will be a showcase for customers, introducing visitors to the company's decarbonization practices.

*Owned by the company/Rented a whole building

ZEB LEADING OWNER
ZEB2019L-00015-P

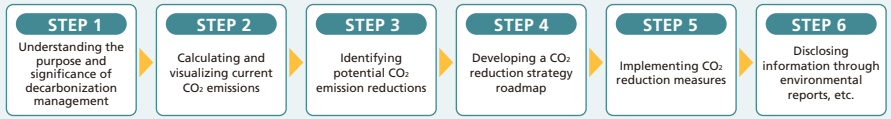
Definitions of ZEB and adopting offices in Japan (as of July 2025)

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, Akita Office, ETRIA Gotemba Plant, Nasu Office

Customer decarbonization support

Contribution to customer decarbonization

Ricoh Japan leverages the knowledge and expertise it has gained through its own practices to provide one-stop support for decarbonization management tailored to each customer. Support is provided through six steps, ranging from understanding the purpose and significance of decarbonization management to visualizing CO_2 emissions, introducing reduction measures, and disclosing information to stakeholders.



Ricoh Japan Sustainability Report (Only available in Japanese)

Initiatives to reduce Scope 3 emissions and yield avoided emissions

We are 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.26)

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.

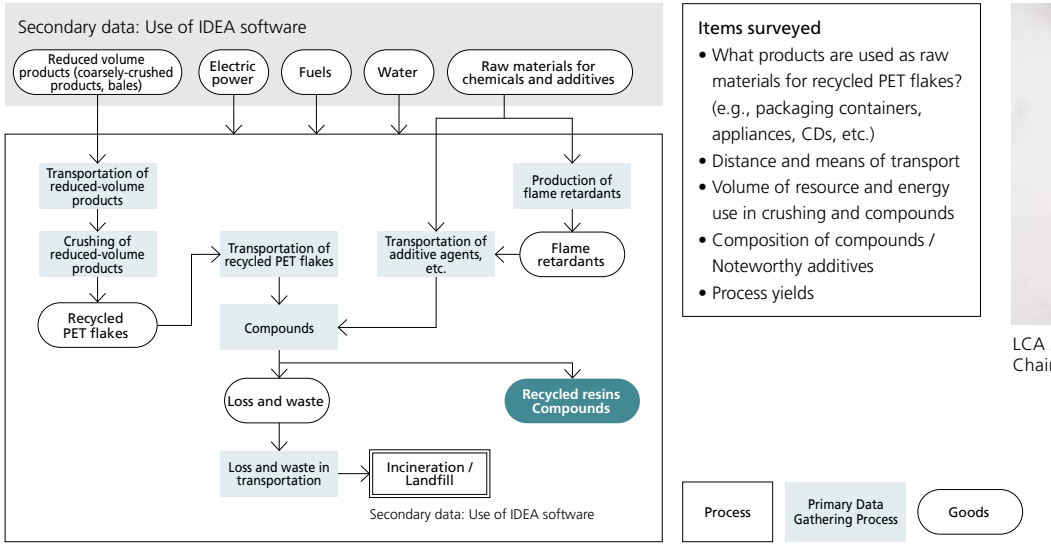
Amid this current, we have placed staff in charge of promoting the use of LCAs in every business unit to strengthen the disclosure and appeal of our quantitative information.

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

LCA Japan Forum Chairman's Award trophy

Reduction measures in marine transport

Cat. 4 reduction

Adoption of eco-shipping using biofuels

Since fiscal 2022, we have been contracting with Maersk's Eco Delivery service. For the period January–December 2024, we used 248.43 tons of low-GHG-emission biofuel for maritime transport equivalent to 434.5 forty-foot containers. As a result, lifecycle emissions amounted to 146.55 tons of CO_2, representing a reduction of 709.31 tons of CO_2 compared with fossil fuels.

Introduction of the transportation GHG calculation platform "BigMile"

We have introduced BigMile, a platform for calculating, analyzing, and reporting transportation-related GHG emissions, and began full-scale operation using FY2024 data. The platform calculates GHG emissions from transportation subject to reduction target management, including shipments from production countries to destinations, as well as within each region. BigMile complies with international calculation standards ISO 14083 and the GLEC Framework.

With the introduction of BigMile, we can accurately track global transportation emissions and assess the impact of reduction initiatives on calculation results, as well as compare data. This greatly expands the scope for identifying issues and examining reduction measures, thereby ensuring steady reductions in transportation-related GHG emissions.

Maersk ECO Delivery CO_2 Emissions Reduction Certificate (2024 Contract)

Development of energy-saving technologies for imaging products

Cat. 11 reduction

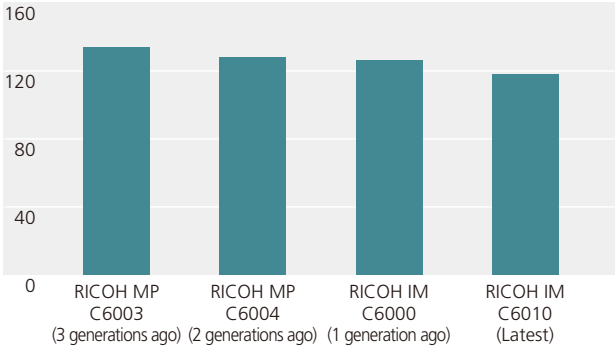
With Quick Start-Up (QSU), we have shortened wake-up time from sleep mode, enabling the use of an energy-saving mode without stress.

The latest Ricoh IM C7010 product line[*1] and flagship color MFP model uses "Color PxP- EQ Advanced toner" with a fusing temperature 12° C lower than that of its predecessor. Through these technologies, etc., we have continuously improved energy efficiency, with the RICOH IM C7010 product line achieving the industry's top level[*2] of energy efficiency.

Color QSU Technology by Direct Heating System

Improvement of energy-saving performance in A3 color MFPs

Energy consumption efficiency (ECE) (kWh / year)

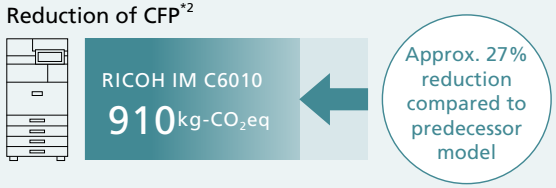


*1 RICOH IM C7010/C6010/C5510/C4510/C3510/C3010/C2510/ C 2010
*2 Comparison of TEC values for products using the International Energy Star Program (color MFPs with copy/fax/scanner functions in the 25-70 sheet class), published on the website of the Energy Conservation Center, Japan. As of July 10, 2024. 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 (Reference: P.21) and energy-saving technologies (left column). 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 29).

Reduction of CFP[*2]



Life cycle

CFP comparison of RICOH IM C6010 and predecessor model

In fiscal 2024, we also expanded the number of product lines equipped with recycled plastics, including production printers.

*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 2024, net sales increased by 7.6% compared to the previous year, but GHG Scopes 1 and 2 emission decreased by 22.2% year on year due to the introduction of renewable electricity, and proactive energy-saving initiatives. This is a significant decrease of 59.1% relative to emissions in fiscal 2015, which is the base year. GHG Scope 3 emissions have been decreasing since the previous fiscal year, a decrease of 46.8% 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.

In calculating and disclosing GHG emissions, we apply the following conditions:

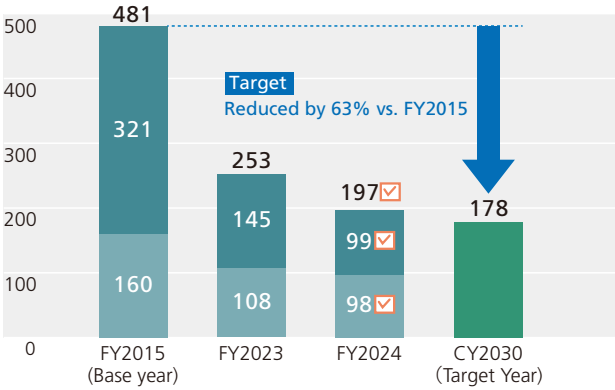
- **Scope of greenhouse gas emissions: Adoption of operational control approach**

We use the operational control approach to comprehensively manage the environmental impacts of its operations and facilities with the authority to introduce and implement business policies.

- **Method of measuring greenhouse gas emissions: Measured using estimation**

We use an estimation-based method to promptly and efficiently measure the greenhouse gas emissions of its global sites.

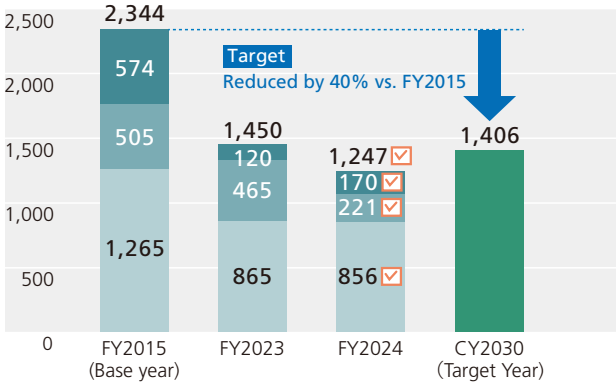
GHG emissions (Scope 1 and 2) (1,000t-CO_2eq)



: Scope2
: Scope1

Past figures have been revised to reflect organizational changes and improved regional data accuracy.

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



: Cat.1 Procurement
: Cat.4 Transportation
: Cat.11 Use

Past figures have been revised to reflect organizational changes and improved regional data accuracy.

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

GHG emissions (Scope 1 and 2)

GHG emissions		Unit	FY2015 (Base Year)	FY2021	FY2022	FY2023	FY2024
Scope1	Energy related CO_2	1,000t-CO_2eq	—	108.5	109.3	104.1	95.5 ☑
	Non-energy related greenhouse gas emissions (CO_2 equivalent) (PFCs)*	1,000t-CO_2eq	—	6.2 (1.4)	4.3 (0.6)	3.8 (0.5)	2.3 (0.5) ☑
	Total (Scope1)	1,000t-CO_2eq		114.7	113.6	107.9	97.8 ☑
Scope2	CO_2 Market-based (Location-based)	1,000t-CO_2eq	—	176.4 (223.8)	160.0 (218.3)	145.0 (205.9)	98.8 (198.7) ☑
Total	Scope1,2 total	1,000t-CO_2eq	481.1	291.1	273.6	252.8	196.6 ☑
Reduction rate (Compared to the 2015 level)		%	—	39.5	43.1	47.4	59.1

*The scope of third-party verification covers 'Ricoh Co., Ltd. and 10 sites of 7 production companies within the Ricoh Group, both Japan and outside Japan.within the Ricoh Group, both Japan and outside Japan

Greenhouse gas emissions (Scope[Cat.1(direct procurement),4,11])

	Unit	FY2015 (Base Year)	FY2022	FY2023	FY2024
Emissions	1,000t-CO_2eq	2,344	1,604	1,450	1,247 ☑
Reduction rate (Compared to the 2015 level)	%	—	31.6	38.1	46.8

GHG emissions (Scope 3) (FY2024)

Scope 3 Category		Unit	GHG emissions	Calculation Methodology
Cat.1	Purchased goods and services	1,000 t-CO_2eq	Direct Procurement 856 ☑	Calculate by multiplying aggregated weight and cost data for purchased products and services by the emission factor (with primary data obtained from some material suppliers, such as for paper and resin)
			Indirect Procurement 221 ☑	Calculation of indirect procurement was newly added starting in fiscal 2024
Cat.2	Capital goods		160	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		221 ☑	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		2	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		18	Calculate by multiplying by the emission factor the amount paid for travel expenses by transportation mode
Cat.7	Employee commuting		64	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		170 ☑	Calculate based on the assumed usage and life of the sold products
Cat.12	End-of-life treatment of sold products		33	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		1	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)			1,247 ☑	
Total (excludes Cat.1,4,11)			551	
Total (Scope 3)			1,798	

Renewable energy

In fiscal 2024, 49% of the Ricoh Group's Scopes 1 and 2 CO_2 emissions by energy source were attributable to electricity(Figure 1), highlighting the importance of renewable electricity. Japan accounts for 49% of electricity use by region, followed by the Americas, Europe, China, and Asia-Pacific(Figure 2).

In 2017, the Ricoh Group became the first Japanese company to join the RE100.

In fiscal 2024, due to our switch to renewable electricity contract with electricity suppliers mainly at domestic production sites and Asia-Pacific sales bases, and by purchasing renewable energy certificates, etc., the ratio of renewable electricity to total electricity usage exceeded 76% in Asia-Pacific, while in Japan, the ratio of renewable electricity increased from about 2% in fiscal 2017 to approximately 38%.

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.

Figure 1 GHG emissions by energy (FY2024)

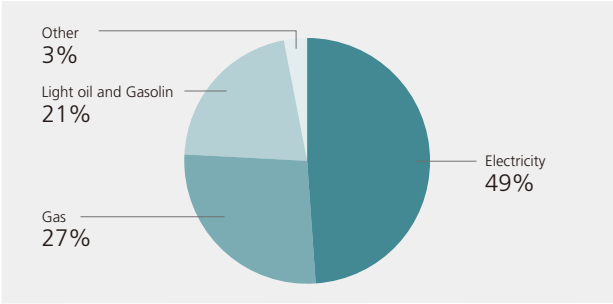


Figure 2 Power consumption by region (FY2024)

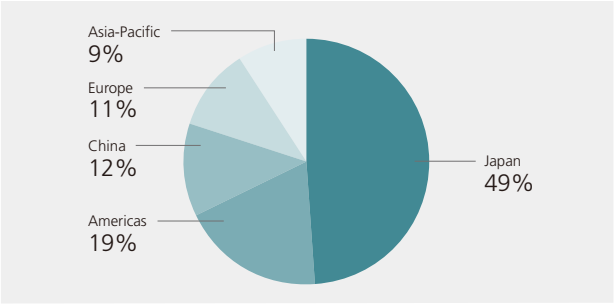
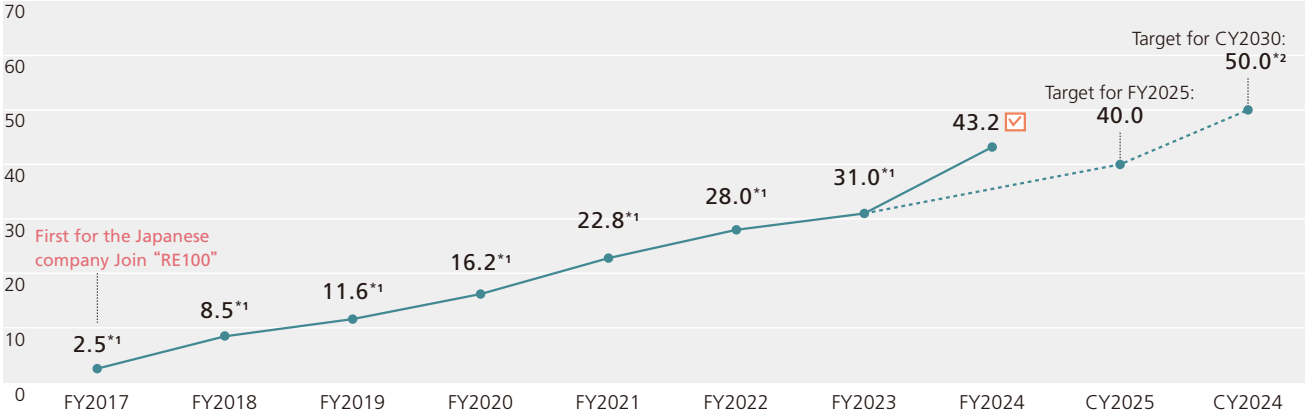


Figure3 Renewable energy ratio (Performance and target) (%)



*1 Past figures have been revised to reflect organizational changes and improved regional data accuracy.
*2 Target of renewable energy's additionality 35% or more

Table 1 Renewable energy ratio by region in FY2024

	Unit	Japan	Americas	Europe	China	Asia-Pacific
Renewable energy ratio	%	38.4	22.5	45.7	70.5	76.5

Avoided emissions performance

We calculate 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 2024 was 1,448 thousand tons in terms of CO_2.

Avoided emissions

The means of contributing to the reduction of environmental impact	Calculation breakdown	Unit	FY2021	FY2022	FY2023	FY2024
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	762	752	754	1,255
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.		197	226	240	114
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.		74	67	65	79
Total			1,033	1,045	1,059	1,448

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

6. Resource circulation

Basic Concept

Resource depletion due to global population growth and marine plastic waste issues have focused people's attention on the circular economy. As such, the importance of transforming into business models that do not depend on resource consumption is increasingly recognized.

In 1994, we established the Comet Circle™ as a concept to achieve a circular economy, and based on this concept, we have been promoting the reduction of environmental impact throughout the entire life cycle of our business.

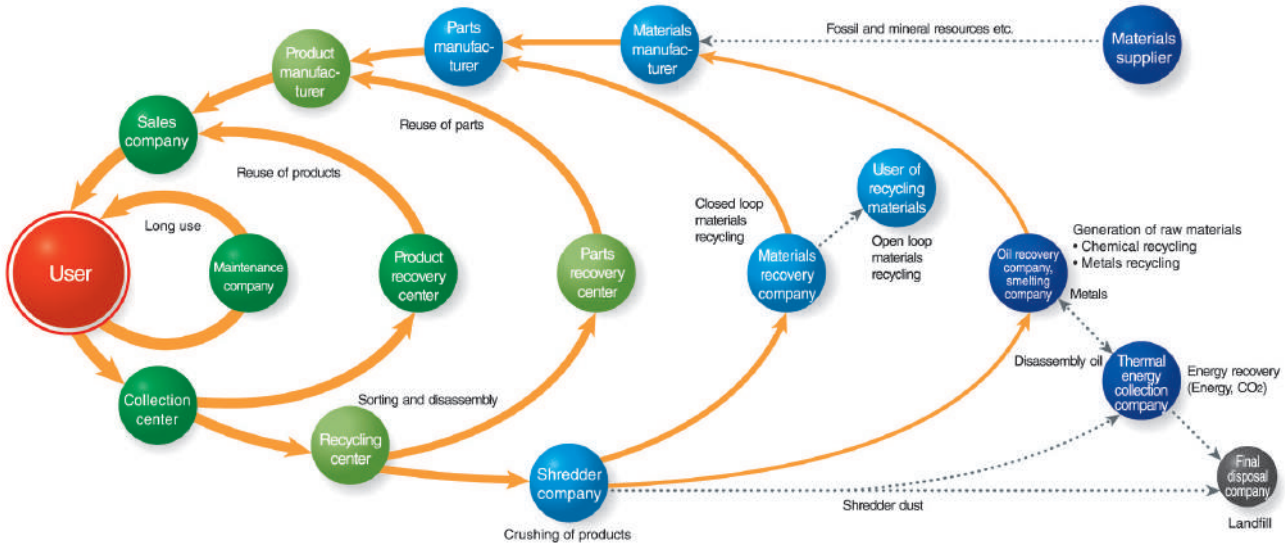
Through collaboration with other companies and organizations, we are further evolving these initiatives and working to create new businesses that contribute to the transition of society as a whole toward a circular economy.

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

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 targets

Based on the Comet Circle concept, we have established policies on resource conservation and plastics.

Resource conservation policy

- Promote the efficient use and circulation of natural resources.
- 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"

- Break away from dependence on virgin plastic derived from fossil resources
- Material recyclable design

Based on the backcasting approach, we set medium- to long-term resource targets.

Targets in resource conservation are established 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 of products[*1]: 12% or less[*2]

Goals for 2030

Virgin material usage ratio of products[*1] : 60% or less

Scope : MFPs, Printers and Digital Duplicators

*1 Virgin material usage ratio 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 2024.

Waste generation reduction targets

- Reduce waste from the previous fiscal year's level

Scope: The Ricoh Group's production facilities inside and outside Japan, non-production facilities of Ricoh Company, Ltd. and ETRIA Co., Ltd.

Water withdrawal reduction target

- Reduce withdrawal to less than in the previous fiscal year's level

Scope: The Ricoh Group's facilities inside and outside Japan

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.

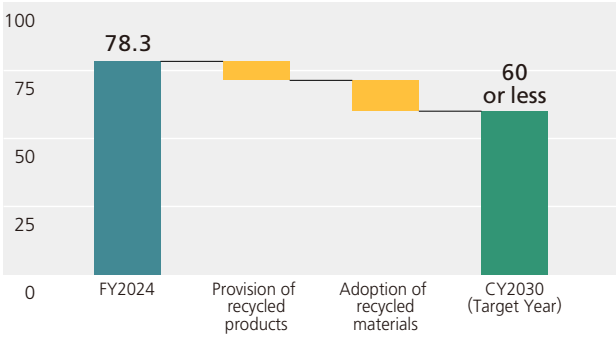
Use of recycled materials
- Continual development of recycled plastic materials
- Exploration and adoption of recycled metal materials, including steel.

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 virgin material usage ratio 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, thereby driving forward our efforts.

● 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, 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 3R is established as one of the design procedures.

● Expanding material recycling

Use of recycled steel (electric furnace steel plates)

In collaboration with Tokyo Steel Co., Ltd., we jointly developed electric furnace steel plates with the same quality characteristics as blast furnace steel plates, and in 2012 became the first in the industry to use them. Until then, electric furnace steel plates were mostly used for construction, where strength characteristics were emphasized. Through the joint development, we have secured quality performance required for multifunction printers (MFPs), such as thinness (thickness of 2mm or less), electrical conductivity, and workability. Currently, the developed electric furnace steel plates are mainly used 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 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

Usage of recycled plastic

We have for a long time labeled individual parts with their material and grade, allowing plastics to be recycled by grade after product collection to maintain the quality of recycled plastics. This has enabled horizontal recycling, in which collected exterior and interior parts are reused as exterior and interior parts that require the same high-quality characteristics (such as flame resistance, durability, and strength). In addition, we have developed recycled plastics made from commercially available recovered plastic materials for use in exterior and interior components of multifunction printers.

Fish boxes and plastic containers used in fish markets

Waste plastics from home appliances

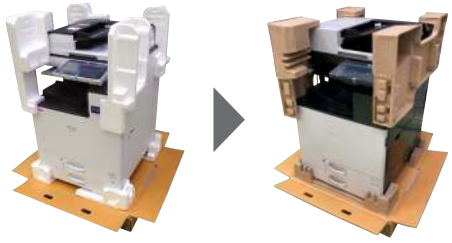
Used in multifunction printer paper trays and other components

For the RICOH IM C7010/C6010/C5510/C4510/C3510/C3010/C2510/C2010 series, more than 50% of the total plastic used in the multifunction printer body was made from recovered plastics. To achieve this ambitious 50% target, we worked with material manufacturers to develop new materials. Product development was advanced in parallel with material development, setting target usage rates of recovered plastics for each part, and designing components in line with the new materials to achieve the target. For toner bottles, recycled plastic made from commercially available recovered plastic (PET) materials is used, achieving an average recycled plastic usage rate of approximately 73% by weight per bottle.

Toner bottles made from commercially recovered PET materials

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 We are 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 50% for the RICOH IP C8500/C8510.



Paper packaging material image

Resource circulation of end-of-life products

Reuse and recycling program

We have 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

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

Ricoh return

Product programs

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

Initiatives for End of Life Products

As the business model for MFPs in Japan, 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

Our 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.)

- Sales company* Collection, refurbishment, recycling
- Production factory / remanufacturing site Collection, reuse, refurbishment, recycling

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

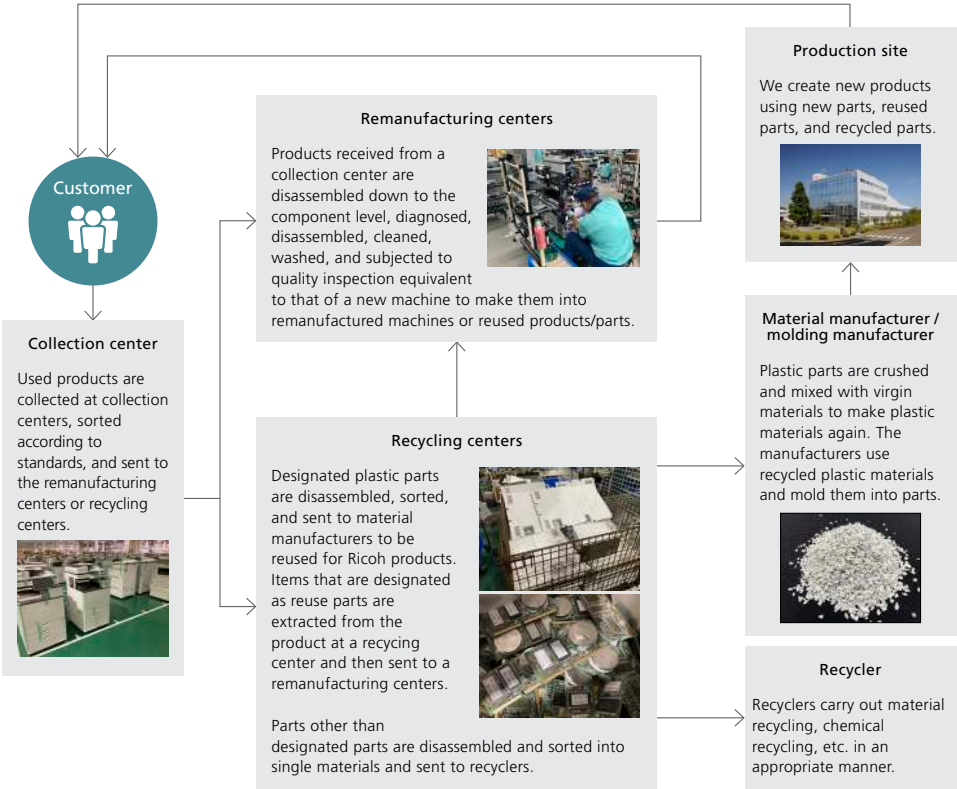
Takeback, reuse, recycling (Japan)

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, We have 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.

Collection, reuse, recycle flow



Reuse and recycling businesses

We promote the reuse and recycling of end-of-life products, supplies, and parts collected from customers at our sites in Japan, the Americas, Europe and Asia. Efficient collection is needed to recycle products, and we have established 20 collection sites throughout Japan （As of February 2025）. We have concentrated our recycling efforts in one location, ETRIA Gotemba Plant, 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 nonreusable parts by material as much as possible, and send them for material recycling.

In order to optimize QCD* in the reuse and recycling business, We have 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

Provision of remanufactured machine

Since 1997, when we 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.

In January 2025, we launched the A3 color remanufactured multifunction printers RICOH IM C4500F CE / C3000F CE. By utilizing technologies that enable efficient sorting, remanufacturing, and inspection of reused parts with AGVs and robots, we have achieved an average parts reuse rate of 86%. In addition, the overall lifecycle environmental impact is reduced by approximately 59% compared with newly manufactured models. Furthermore, for the first time in a remanufactured model, the multifunction printer supports RICOH Always Current Technology, a mechanism that allows new functions to be added to devices via the network through software version upgrades.

RICOH IM C4500F CE

Provision of reused supplies

We are 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.

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 contributes to resource conservation.

Remanufactured toner cartridge

Provision of reused toner containers

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. By remanufacturing toner containers, we plan to reduce the use of new resources by approximately 190 t / year and CO_2 emissions by approximately 1,200 t of CO_2 / year starting in 2024. (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 36 t / year, and CO_2 reduction is about 210 t of CO_2 / year.

Businesses contributing to resource conservation

Silicone-top linerless labels (SSL)

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, we 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 and the fast-food 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

On-demand Direct Printing (ODP) Thermal media technology that enables direct printing on substrates

On-demand Direct Printing (ODP) Thermal media 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*.

Packaging(Lawson, Inc.)

*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 target object with near-infrared rays and measures the spectrum of reflected light to identify the resin. It is portable and can also work with smartphones to distinguish 13 types of resin*. Sorting is essential to recycle and circulate resins. By using this sensor, resin materials can be identified without specialized knowledge, making sorting easier. It also helps to promote efficient recycling of resources by identifying offcuts and waste materials from manufacturing plants that would otherwise be discarded without knowing their composition. In addition to its use by businesses generating plastic waste and recycling companies handling industrial waste, this product is also used in educational settings to provide hands-on experience in addressing social issues related to plastics.

*As of March 2025

Portable plastic identification sensor
RICOH HANDY PLASTIC SENSOR B150
Note:Received the 2022 Good Design Award (sponsored by the Japan Institute of Design Promotion) and selected as one of the Good Design Best 100

Raptor VISION BOTTLE, a bottle color sorting AI engine specialized for sorting bottles

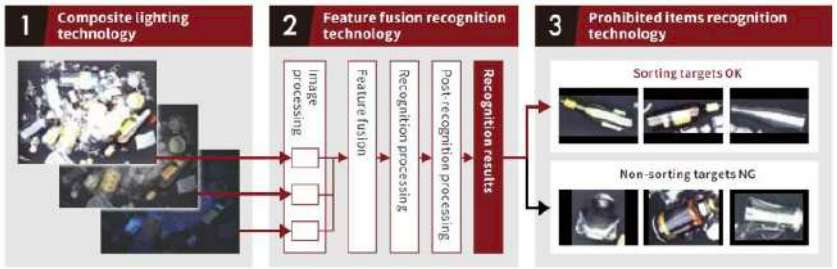
A large amount of waste is thrown away every day around the world, and the issues of manpower insufficiency and complicated sorting of recyclable waste at intermediate processing facilities is becoming more and more apparent. Raptor VISION BOTTLE is an AI engine that PFU has developed and are now offering. This product sorts bottles by color, a task which had been difficult to automate and previously relied solely on human labor. PFU has combined its optical and image recognition technologies with its original algorithms to identify bottles by color and determine whether a bottle can be recycled (the AI engine update service updates the recognition model and provides the latest engine as needed).

A camera takes pictures of bottles being carried on the conveyor belt and precisely identifies brown glass bottles, clear glass bottles, other types of glass bottles, and plastic bottles. The camera is linked to a picking robot that automates the bottle recycling process.

- Recognition accuracy: 99.9% (results at the time of the demonstration experiment in April 2024)
- Return on investment: 20% reduction of man-hours (estimated value of 10-year amortization with 3 less workers)

In the future, PFU plan to expand the application of this AI engine into the automatic detection of lithium-ion batteries (exhibited at the New Environmental Exposition 2024). These batteries cause fires and have been causing concern. PFU also plan to expand the application of the engine into the automatic sorting of industrial waste (including metals, building materials, and clothing).

PFU Environmental Report



A bottle color sorting AI engine

Waste reduction and efficient resource utilization in business activities

Effective use of water resources

Starting with the toner production process, water resources are particularly important and essential for us. Although the degree 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. We have 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 will act based on the recognition that access to safe and secure water resources is the right for all people.
2. We will act by setting targets, considering the impact of our business activities on water resources as well as regional characteristics.
3. We will manage water resources in compliance with laws and regulations as well as international standards, initiatives, and public policies.
4. We will contribute to solving water resource issues not only within our own company but also in society through our technological innovations.
5. We will strive to improve the awareness of all employees, with each taking the initiative in communicating with stakeholders to help solve water resource issues in local communities.
6. We will consider not only resource conservation but also climate change and pollution prevention when procuring raw materials, products and services, and the equipment we use.

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.

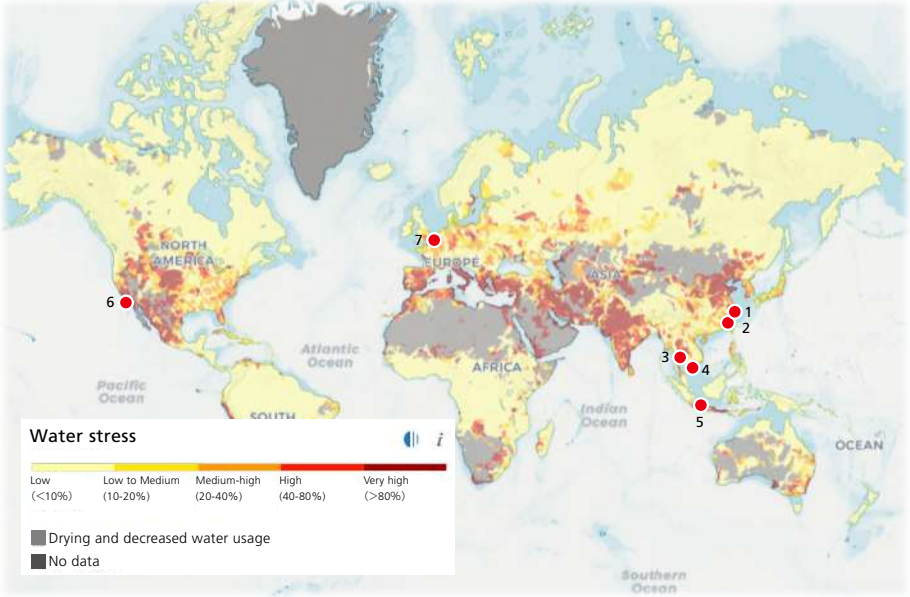
Risk assessment of water resources and measures in water stress regions

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 7 sites operating in China, Thailand, Indonesia, the United States and France, with a water withdrawal of 274,586m3 and water discharge of 37,067m3 in fiscal 2024. 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)
*7:France (1 site)

Reducing waste generation

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

ETRIA Numazu Plant and ETORIA 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 ETRIA Gotemba Plant

ETRIA Gotemba Plant 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	FY2021	FY2022	FY2023	FY2024	Supplementary explanation for actual performance in FY2024
Virgin material usage ratio of products	2030: 60% or less 2050: 12% or less	%	87.9	84.9	78.9	78.3 ☑	Added to the increase in reuse volumes, the use of recycled plastic is having a significant effect.
Amount of virgin materials used in products		1,000t	70.9	79.5	61.6	66.8 ☑	

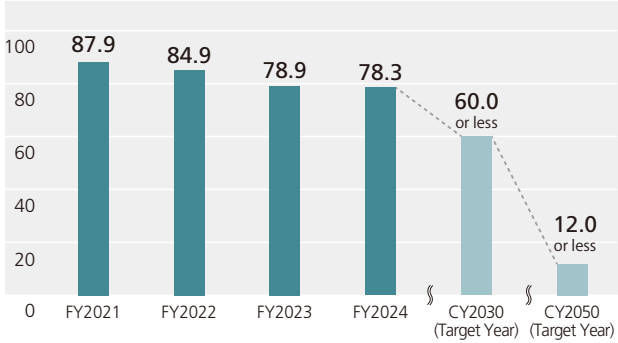
Scope: MFPs, Printers and Digital Duplicators

	Target	Unit	FY2021	FY2022	FY2023	FY2024	Supplementary explanation for actual performance in FY2024
Use of post-consumer recycled plastics for imaging products	2030: 50% or more	%	8.6	16.2	32.1	32.3	We are currently incorporating recycled plastics into our main units and supply products in line with our roadmap.
Reduction in packaging materials for virgin plastic derived from fossil resources	2030: 50% or more (Compared to 2020)	%	+5.1*	+5.3*	−26.6	−20.5	We are systematically reducing the amount of plastic packaging used for imaging equipment, supplies, etc.

Note: 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.

*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).

〈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	FY2021	FY2022	FY2023	FY2024			
						Total	Breakdown		
							Main unit / accessories	Supplies	Parts
Collection amount of end-of-life products	—	t	47,705	51,158	39,407	38,212	26,588	10,028	1,596
Reuse / Recycle / Energy Recovery Volume	—	t	46,221	49,888	38,976	37,750	26,300	9,887	1,563
Reuse/ Recycle rate	2030: 87.5% or more 2050: 93.5% or more	%	84.1	83.9	77.5	80.1	94.5	41.4	82.4
Energy Recovery rate	—	%	12.8	13.6	21.4	18.7	4.4	57.2	15.6
Incineration / Landfill rate	2030: 0.5% or less 2050: 0%	%	3.1	2.5	1.1	1.2	1.1	1.4	2.0

Note: 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

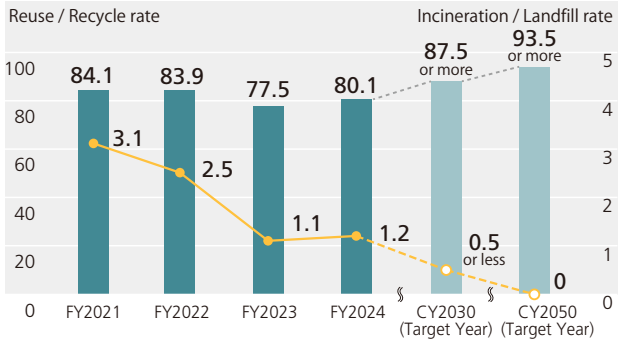
	Target	Unit	FY2021	FY2022	FY2023	FY2024	Supplementary explanation for actual performance in FY2024
Total amount of waste generated	Less than the previous year FY 2024 target : Less than 58,750 t	t	62,401	66,398	58,750	53,835 ☑	Waste decreased as production volume declined due to maintenance work on production processes.

Scope: The Ricoh Group's production facilities inside and outside Japan, non-production facilities of Ricoh Company, Ltd. and ETRIA Co., Ltd.

	Target	Unit	FY2021	FY2022	FY2023	FY2024	Supplementary explanation for actual performance in FY2024
Water withdrawal*	Less than the previous year FY 2024 target : Less than 3,451 t	1,000 m^3	3,473	3,499	3,451	3,273 ☑	Water withdrawal and water discharge decreased due to maintenance work on production processes.
Reused / recycled volume	—	1,000 m^3	231	250	252	206 ☑	

Scope: The Ricoh Group's facilities inside and outside Japan
*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. Pollution prevention

Basic Concept

The proper use of chemical substances is indispensable for maintaining and developing human society. On the other hand, there is global consensus to minimize the adverse impacts of chemical substances on human health and the global environment. Companies are required to understand the chemical substances they use and their impacts, and to manage chemical substances appropriately.

In response, we conduct risk management of chemical substances used in our products and business activities, aiming to minimize risks throughout the entire lifecycle of both products and chemical substances. Taking into consideration not only compliance with current laws and regulations but also future risks, we are working on preventive activities to control risks while making use of the benefits of chemical substances.

Policy and targets

In accordance with SAICM*, we established the Ricoh Group Basic Regulations for Chemicals Management in 2008, setting forth our basic policy on chemical substance management and promoting related activities.

*SAICM (Strategic Approach to International Chemicals Management, 2006–2020) was succeeded in 2023 by the GFC (Global Framework on Chemicals – For a Planet Free of Harm from Chemicals and Waste).

Basic regulations for managing chemical substances

1. Comply with laws and regulations.
2. Strive to manage chemical substances throughout their lifecycle for their impact on human health and the environment.
3. Strive to minimize the risk of chemical substances and prevent risks through preventive measures.
4. Contribute to a sustainably growing society by developing and introducing technologies that reduce environmental impact.
5. Consider the possibility of risk trade-offs between human health and environmental safety in activities to improve quality, cost, productivity, etc., and take the necessary measures to address this.
6. Strive to build relationships with society through risk communication build cooperative and trusting relationships.
7. Each employee in the Group strives to continuously improve his/her own abilities and gain knowledge about chemical substances and to share information on chemical substance management necessary in other relevant processes.

Target for chemicals of environmental concern

• Reduce the volume of consumption and emissions below the previous year's performance

Target Substances: Chemicals under Japan's PRTR Law
Scope: The Ricoh Group's production and development facilities inside and outside Japan

Strategy

Minimizing chemical risks through proactive compliance with chemical substance regulations and proper management

In recent years, strengthening of chemical substance regulations has become a global trend, requiring responses based on the precautionary principle more than ever.

For chemical substances contained in products, we establish the Ricoh Group's Green Procurement Standards based on the latest regulatory developments, revisions, and forecasts of national and regional laws worldwide, as well as major environmental labels. We have built a management system capable of complying with globally advancing chemical substance regulations, such as restricted substances under the EU RoHS Directive, SVHCs[*1] under the EU REACH Regulation, and PFASs[*2] such as PFOS and PFOA. We collect information across the supply chain on chemical substances contained in raw materials, parts, and products through a management system for molded products based on chemSHERPA, the chemical substance information communication scheme operated by JAMP[*3], and a management system covering chemical regulations related to SDS[*4], environmental labels, registration, and volume control in each country, thereby ensuring compliance with various regulations.

For chemical substances handled at business sites, we collect information globally and promote centralized management. This enables us to respond promptly to global regulations while reducing emissions into the environment and mitigating risks.

If soil and groundwater pollution is confirmed, we take risk-minimizing measures to prevent any impact on human health, and in order to prevent new pollution, we principle prohibit the use of chemical substances that pose a risk of pollution. Where substitution is not possible and use is unavoidable, we manage the risk of contamination from environmental releases such as leaks and strive to hedge against future risks. We prevent soil contamination and smooth business transitions by assessing potential environmental risks and taking mitigation measures during M&A and land or buildings transactions.

*1 Substances of very high concern
*2 Generic term for per- and polyfluoroalkyl substances (PFAS)
*3 JAMP: Joint Article Management Promotion-consortium
*4 SDS: Safety Data Sheet

Initiatives

Product initiatives

●Reduction and management of chemical substances in products

Since 1993, We have been managing and reducing "chemicals of environmental concern potentially used in products" based on the Management System for Chemical Substances (MSC)[*1], which is the Ricoh Group's approach to risk management. Chemical substances to be managed and reduced are reviewed regularly, considering the latest regulatory trends and scientific observations. In addition, many of the parts used in Ricoh products are provided by supplier companies that procure raw materials and manufacture parts. To advance the management and reduction of chemicals of environmental concern contained in products under these circumstances, we have established, based on the Chemical substances Management System (CMS)[*2] across the supply chain, a framework for management involving not only the Ricoh Group but also supplier companies, together with a mechanism for accurately collecting and communicating vast amounts of environmental information.

*1 Management of chemical substances in products (MSC: Management System for Chemical)
To manage and reduce the chemicals of environmental concern, all divisions of the Ricoh Group involved in product manufacturing — including design, procurement, and production — are working together to establish a management system for chemicals in products (MSC). This management system eliminates all chemical substances that are prohibited from being in products, and it also establishes a flow for appropriate primary response, prevention of expansion (shipment of parts and products), and prevention of recurrence in the event of contamination. In addition, we have established a system to trace which parts of equipment products contain which chemical substances and how much they contain, and to manage the content individually. This system enables us to respond promptly if a chemical substance that is currently not prohibited becomes prohibited in the future due to stricter regulations.

*2 Chemical substances management system (CMS: Chemical substances Management System)
We have established a chemical substances management system (CMS) on a global basis for supplier companies that deliver parts and materials used in Ricoh's products. We train and certify CMS auditors from supplier company employees. These certified auditors conduct not only their own internal audits, but they also conduct audits of second- and third-tier upstream supplier companies with critical processes that handle banned substances specified in the Ricoh Group Green Procurement Standards, and they assist them in establishing a CMS. By establishing such a chemical substances management system throughout the entire supply chain, we have established a production system that prevents prohibited substances specified in the Ricoh Group Green Procurement Standards from getting into Ricoh products.

●Managing chemical substances in supply products

Various chemical substances are used in our supply products, such as toner and developer. At Ricoh Group, it is our principle that "product safety is a basic requirement for customer satisfaction." To this end, as well as working to ensure the safety of our supplies through appropriate chemical substance management, we have established strict internal standards that are compatible with laws and regulations globally. In addition, to ensure that our customers can use our supplies with safety, we disclose safety information on our supplies in the form of Safety Data Sheets (SDS).

Safety Data Sheets (SDS)

Case 1: Compliance with the EU RoHS Directive

We have been strengthening technical development and process management through collaboration with suppliers and internal management since before the implementation of the EU RoHS Directive* in 2006. Moreover, we have proactively worked on reducing RoHS-restricted substances.

For products sold by the Ricoh Group, we adhere to the requirements of the EU RoHS Directive as a basic principle and reflect it in our Green Procurement Standards.

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

Case 2: Compliance with EU REACH Regulation

We have also established a reliable mechanism to ensure compliance with various requirements of the EU REACH Regulation*. We consider it fundamental that Ricoh Group products do not contain substances restricted under the REACH Regulation and reflect this in our Green Procurement Standards. Additionally, we systematically manage information in response to information disclosure requirements for substances of very high concern (SVHCs) by using the chemSHERPA scheme operated by JAMP, and we ensure compliance with SCIP registration as required under the EU Waste Framework Directive.

*EU REACH Regulation: Regulation on the registration, evaluation, authorization, and restriction of chemicals.

Case 3: Compliance with IEC 62474

The chemical substance management implemented at Ricoh includes substances listed in the Declarable Substance List of the international standard IEC 62474 (IEC : International Electrotechnical Commission). It is noteworthy that among the substances subject to reporting under IEC 62474, some, excluding those used for applications exempted under the EU RoHS Directive or identified as SVHCs under the EU REACH Regulation, are not present in Ricoh Group products.

●Reduction and management of chemical emissions generated during product use

We have established our own standard for chemical emissions* generated during the use of copiers, printers, and other products to ensure that customers can use our products comfortably and that the products conform to the standard.

*Chemical substances emitted from products, such as ozone, dust, and VOCs (Volatile Organic Compounds).

Initiatives to prevent pollution at sites

Activities for pollution prevention

Identification and management of chemicals of environmental concern

While monitoring international trends in chemical substance management, we identify chemical substances that are widely handled by Group companies in Japan—including those subject to Pollutant Release and Transfer Register (PRTR) legislation—as chemicals of environmental concern. Since 1999, we have continued management activities that include reducing the use of such substances in manufacturing, research, and development processes.

Management of hazardous chemical substances that pose a risk of pollution

Certain organic solvents such as chlorinated compounds and heavy metals pose high human health and environmental risks. We therefore designate them as "Business Site Use Prohibited Chemical Substance", in principle, prohibit their use.

For prohibited substances with no alternatives available for production performance reasons, we confirm handling practices during use, storage, and disposal, and manage them to prevent environmental releases from leading to pollution by implementing measures such as emission reduction, inspection and maintenance of floors and piping, and prevent leak management.

We have promoted activities to completely eliminate the use of chlorinated organic solvents in Group manufacturing and at outside contract manufacturing companies. We achieved this goal in fiscal 2005. Since then, we have been continuing our activities to eliminate the use of chlorinated organic solvents at all of our domestic and overseas production facilities, including all newly joined production affiliates.

Furthermore, in the event of accidents or leaks, or after the use of fire extinguishers containing chlorinated organic compounds or per- and polyfluoroalkyl substances (PFAS), we will conduct environmental risk assessments and take countermeasures to ensure pollution does not occur.

Activities to minimize risks

Implementing environmental due diligence (environmental DD)

When acquiring land or buildings through M&A, we conduct environmental DD. This includes confirming land use history and compliance with relevant laws and regulations, as well as assessing environmental risks such as soil and groundwater contamination, in order to manage and reduce risks.

Managing environmental risks associated with assets such as real estate transactions

When conducting real estate sales and leasing transactions, the Ricoh Group (consolidated companies) manages soil contamination, PCBs, asbestos, and other environmental risks according to environmental regulatory requirements and Leases" to minimize the impact on our business.

Under the Standard for Environmental Risk Management With Respect To Giving & Receiving/Trade of Land/Building and Leasing Contract/Cancellation, we stipulate the following:

- Evaluate significant environmental risk assessments at the time of acquisition, sale, or lease of real estate, including M&A;
- Prepare management and mitigation plans for the assessed risks, and systematically implement risk reduction measures;
- Disclose material information regarding environmental/ human health risks to stakeholders in connection with asset transactions.

The department in charge and the environmental department will discuss the environmental risks identified and decide whether to execute the transaction or not.

Management of asbestos and PCBs (Japan)

Asbestos used at business sites buildings and facilities is subject to examination at all Ricoh domestic business sites. We have taken measures to prevent dispersion of the substance and have confirmed that it is at a level that has no impact on human health among local residents and employees in the surrounding area.

With respect to PCBs, we have completed the disposal of high-concentration PCB-containing equipment at Ricoh Group domestic business sites. For low-concentration PCBs, including equipment with the potential to contain them, we ensure proper storage and promote systematic disposal. Equipment currently in use is being successively replaced, with completion targeted by 2026.

Managing risks associated with soil and groundwater pollution

We regard soil and groundwater pollution issues as a management challenge from the perspectives of social responsibility, environmental risk, and financial risk. The Ricoh Group's Risk Management Standard for Soil and Groundwater Pollution defines and operates a basic risk management policy for soil and groundwater pollution.

We have been voluntarily addressing soil and groundwater pollution since the early 1990s and have been conducting nvestigation and measures at all our sites globally, not only at Ricoh Group production sites but also at Ricoh Group's non-production sites. For confirmed cases of soil contamination, we are voluntarily promoting risk reduction.

We also systematically conduct site history investigations and, regardless of whether regulations apply, treat land modifications such as rebuilding as opportunities to check for soil pollution and conduct investigation accordingly.

Ricoh Group's Basic Policies on Soil and Underground Water Contamination

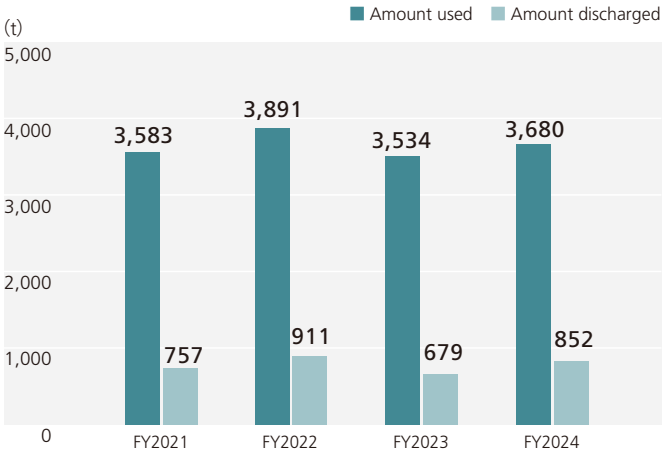
1. Place the highest priority on preventing health hazards to humans.
2. Comply with national and municipal laws, regulations, and ordinances.
3. Address risk assessment, management, and reduction of pollution caused by the Ricoh Group's business operations.
4. Engage in risk communication with local government and community members.
5. Check for possible soil contamination when acquiring, transferring, leasing or returning land.

Performance

Trends of use and emissions of chemicals of environmental concern

	Target	Unit	FY2021	FY2022	FY2023	FY2024	Supplementary explanation for actual performance in FY2024
Amount used	Less than the previous year FY 2024 target : Less than 3,534 t	t	3,583	3,891	3,534	3,680	Some business units experienced an increase in production while others experienced a decrease. As an offsetting result, the amount of chemical substances used increased slightly compared with fiscal 2023.
Amount discharged	Less than the previous year FY 2024 target : Less than 679 t	t	757	911	679	852	Due to a significant increase in production in business units with high chemical substance emissions, emissions of chemical substances rose by approximately 30% compared with fiscal year 2023.

Scope: The Ricoh Group's production and development facilities inside and outside Japan



●Reduction activities for chemicals of environmental concern

We set targets for reducing both the use of chemicals of environmental concern and their emissions into the environment, and we are continuously implementing improvement activities to achieve these targets.

To achieve fundamental reductions, we are systematically implementing medium- to long-term measures such as switching to formulation components with lower environmental impact and installing exhaust gas treatment system.

Exhaust gas treatment system at the Numazu Plant

8. Biodiversity conservation

Basic Concept

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".

Policy and targets

We have established the biodiversity policy in line with recent international trends, such as the adoption of GBF and the start of TNFD.

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.

Target for zero deforestation
- Sustainable procurement of paper 100%(FY2026)

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

Strategy

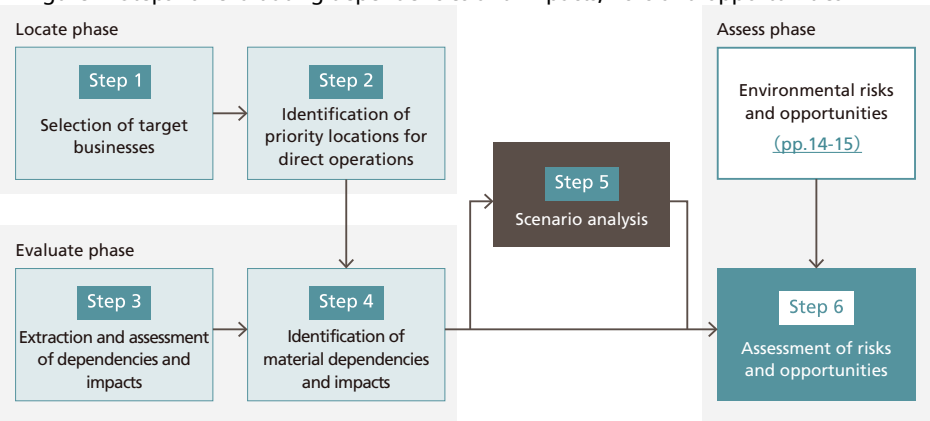
Approach to nature-positive outcomes (Assessment of risks and opportunities based on the TNFD framework)

Toward the realization of nature-positive outcomes, we evaluate our dependencies and impacts on biodiversity and natural capital in relation to our business through the steps of the LEAP approach (Figure 1). Based on this, we identify and assess risks and opportunities, organize their interrelationships, and carry out initiatives accordingly.

Scope of assessment

Target businesses and period:
Office Printing business, Commercial printing business, Thermal media business (present onward);
Office Services business (2030–2050)
Scope: Raw material procurement, manufacturing, transportation and sales, use and maintenance, collection and recycling
Regions covered: Direct operating sites and surrounding areas

Figure 1: Steps for evaluating dependencies and impacts, risks and opportunities



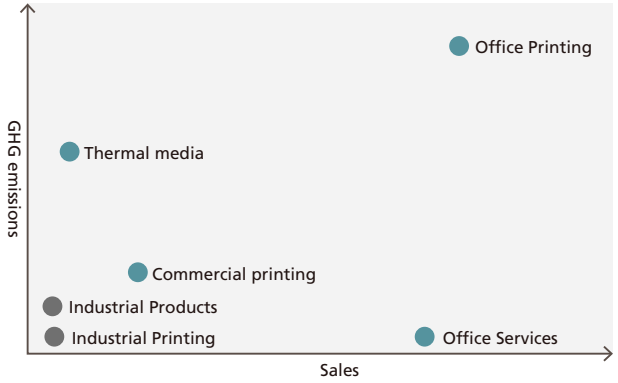
Identifying points of contact with nature (Locate)

●Step 1: Selection of businesses subject to assessment

For Ricoh Group businesses, we organized the relationship between GHG emissions and business scale (sales) as indicators of potential dependencies and impacts on nature, as shown in Figure 2. Based on this, we selected the Office Printing, Commercial printing, and Thermal media businesses, which have high GHG emissions, along with paper manufacturing by suppliers, considered important within their value chains, as subjects of assessment.

In addition, considering the Office Services business, which plays a central role in the transformation into a digital services company and represents a large scale of sales, we also selected this business—together with the operation of data centers, deemed important within its value chain—for assessment of dependencies and impacts from a medium- to long-term perspective (2030–2050), in light of the expected expansion of AI-based services.

Figure 2: Sales and GHG emissions by business



Locate interface with nature

Step 2: Identification of priority locations for direct operations

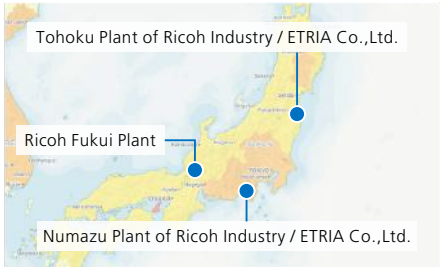
We identified priority locations for water, which presumed a high level of impact in the identification of dependencies and impacts (described later), and for biodiversity, which is the entity that produces and restores natural capital. The results of water-related identification using Aqueduct* are shown in Figure 3. In addition, for paper manufacturing, an important raw material, we plan to conduct evaluations in collaboration with suppliers going forward.

*An assessment tool for water-related risks developed by the World Resources Institute.

Figure 3: Results of identifying priority water-related areas for direct operations (production sites)

High-stress sites: Located in China and Southeast Asia

High-consumption sites: Located in Japan



Water stress

Evaluate dependencies and impacts

Step 3: Extraction and assessment of dependencies and impacts

For identifying dependencies in each business and impacts in the Office Services business, we referred to descriptions of the relevant sectors in ENCORE* and conducted evaluations. For impacts in the Office Printing, Commercial Printing, and Thermal media businesses, we carried out life cycle assessments (LCA) of representative products in Japan (see p. 46).

The evaluation results using ENCORE are shown in Table 1. No significant dependencies or impacts were identified in the development of digital services. In all businesses excluding digital services, however, we found dependencies on disaster risk reduction and the provision of clean water. In particular, for data center operations, we identified a strong dependency on the provision of clean water for cooling purposes. We also identified that water treatment in data center operations has significant impacts, especially those related to land use.

*A tool for identifying nature-related risks, developed primarily by the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC).

Table 1: Extraction of dependencies and impacts

Value chain	Business	Dependencies		Impacts	
		Disaster risk reduction	Provision of clean water	Water use	Others
Upstream	Paper manufacturing	Medium	Medium	Medium	Evaluated separately through LCA, with the following identified (see p. 46) Stage: Procurement of paper, resin, and steel Impact category : Climate change
Direct operations	Manufacture of imaging equipment	Medium	Medium	Medium	
	Thermal product manufacturing	Medium	Medium	Medium	

Value chain	Business	Dependencies		Impacts	
		Disaster risk reduction	Provision of clean water	Environmental load from water treatment	Land use for water treatment
Direct operations	Digital service development	None			
Downstream	Data center operations	Medium	Very high	Medium	High

Step 4: Identification of material dependencies and impacts

Based on the evaluation results to date, we identified material dependencies and impacts as shown in Table 2, and used them as a reference for identifying risks and opportunities.

Table 2: Material dependencies and impacts and their indicators

Dependencies / Impacts	Locations	Indicators	FY2024
Dependency on and impact to forest resources through the use and sale of paper	To be investigated and studied going forward		
Dependency on water withdrawal in water-stressed regions	Sites in China and Thailand	Water withdrawal volume	263,000m³
Impact from water consumption in toner manufacturing	Numazu Plant Ricoh Industry Tohoku Plant	Water consumption volume	635,000m³
Dependency on and impact from the production of procured resins	—	Resin and metal usage volume	53,000 t (resin), 53,000 t (metal)
Dependency on and impact from the production of procured steel		Virgin material usage ratio	78.3%

Impact assessment using LCA

For representative products in Japan from the Office Printing, Commercial Printing, and Thermal media businesses, we evaluated which lifecycle stages and impact categories are significant using the Life cycle Impact assessment Method based on Endpoint modeling (LIME)*.

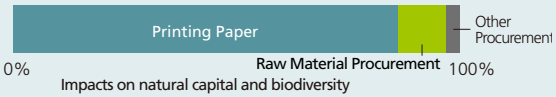
*LIME2 and LIME3 were used in this evaluation.

Office Printing business, Commercial Printing business

When paper for printing was included in the assessment, it was found to account for more than 80% of total impacts (Figure 4), reaffirming the importance of sustainable paper procurement. Table 3 shows the results when the impact of printing paper is excluded. The assessment indicated that the impact of climate change is significant, particularly those attributable to resin and steel as raw materials. It also showed that impacts on forest resource consumption and ecotoxicity caused by the paper materials used for packaging could also be significant.

Focusing on direct operations (manufacturing), we found that climate change impacts from the manufacturing of supplies (toner) could also be significant.

Figure 4: Environmental impacts across the value chain of the Office Printing and Commercial Printing businesses



Note: 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.

Thermal media business

The evaluation results are shown in Table 4. Impacts on forest resource consumption and ecotoxicity attributable to the paper used as the base material for thermal labels and release liner were found to be potentially significant.

Focusing on direct operations (manufacturing), we found that climate change impacts could also be moderately significant.

Water resource consumption in direct operations

For water resources, LIME does not allow comparison with other impact categories; however, evaluations under ENCORE regard them as highly important (see p. 45). When assessing consumption across the value chain (Table 5), we found that the proportion attributable to the manufacturing of supplies was relatively large, and therefore estimated it to be an impact that requires attention.

Table 5: Proportion of water consumption accounted for by the manufacturing stage

Products	Proportion of water consumption accounted for by manufacturing stage (%)
Imaging equipment	2.1
Supplies (toner)	9.2
Thermal products	<0.1

Table 3: Environmental impacts of the Office Printing and Commercial Printing businesses

Stage			Impact categories in LIME: Climate Change	Land use	Resource consumption	Forest resource consumption	Ecotoxicity
Raw Material Procurement	Equipment	Resin	H	M			M
		Steel	H	L			
		Other metals	L	L	L		L
	Supplies (toner)		M				L
	Packaging		L			M	H
Manufacturing	Equipment			L			
	Supplies (toner)		M				
Distribution and transportation			M				
Use			M	L			
Disposal and recycling			L				

Table 4: Environmental impacts of the Thermal media business

Stage	Impact categories in LIME: Climate Change	Land use	Resource consumption	Forest resource consumption	Ecotoxicity
Raw Material Procurement	M	L		VH	VH
Manufacturing	L				
Distribution and transportation					
Use					
Disposal and recycling	M	M			

<1%	L ≧1%	M ≧3%	H ≧10%	VH ≧30%

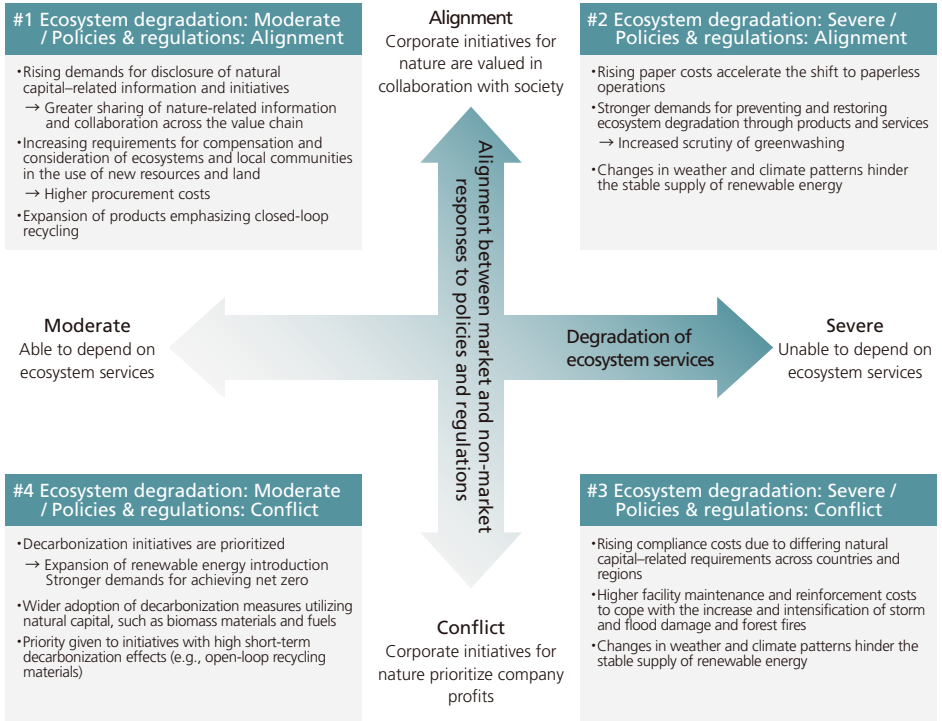
Figures represent the proportion of impacts on biodiversity and natural capital, calculated using the LIME.

Note: Waste, acidification, and photochemical oxidants were also evaluated, but since impacts at all stages were less than 1%, they are not shown here.

Step 5: Scenario analysis

As part of the integrated risks and opportunities in the environmental field (see pp. 11–15), we conducted scenario analysis in accordance with the TNFD framework, with the objectives of extracting elements that should be given particular attention from the perspective of natural capital and biodiversity, and clarifying under what circumstances the identified risks and opportunities are more likely to materialize. Based on the four scenario sets derived from the two axes of uncertainty recommended in the TNFD scenario analysis guidance, we organized items considered relevant to the target businesses (Figure 5).

Figure 5: Scenario sets used for evaluation



Step 6: Evaluation of risks and opportunities (Assess)

For the risks and opportunities identified on pp. 14–15, we added items from the perspective of biodiversity and natural capital that are particularly affected according to our analysis, as well as medium- to long-term risks and opportunities in the Office Services business. Table 6 shows the results of evaluating risks and opportunities based on the four scenario sets.

Going forward, we will consider responses under the scenarios expected to have the greatest impact on each risk and opportunity.

Table 6: Results of risk and opportunity evaluation

Red text indicates medium- to long-term risks and opportunities in the Office Services business ◆Risks ★Opportunities

Risks / Opportunities (see pp. 14–15)	Factors influenced by scenarios	Scenarios with particularly strong influence			
		#1	#2	#3	#4
◆Rising procurement costs from stronger policies	Rising paper costs		◆		
	Compliance costs for regulations differing by country and region				
◆Stricter regulations and delays in responding to customer demands	Shortages and rising costs of recycled materials				
◆Business performance impacts of changing consumer behavior	Decline in printing volume	◆	◆		
◆Loss of social trust	Condemnation of greenwashing	◆	◆		
Damage to brand value	Criticism over damage to water (Thailand, China, supply production sites) and forest resources				
◆Rapid increases in natural disasters	Rising facility reinforcement costs		◆	◆	
◆Regional infectious disease epidemics	Supply chain disruptions				
◆Declining forest resources	Rising paper costs				
◆Disruption of stable renewable energy supply due to changes in weather and climate patterns*	—		◆	◆	◆
◆Tightening of water resource supply due to changes in weather and climate patterns*	—		◆	◆	
◆Shortages in data center and semiconductor-related services due to stricter land-use regulations*	—	◆	◆	◆	
★Reuse and recycling businesses	Expansion of businesses contributing to the circular economy	★	★		★
★Sales from business deal negotiations involving ESG compliance	—				
★Businesses related to energy saving, resource saving, and renewable energy creation	Expansion of renewable energy	★	★		
	Technologies contributing to stable renewable energy supply	★	★	★	
★Solutions such as the Scrum package that support DX	—	★	★		

Note: Newly identified as potential risks related to the Office Services business, but impact and urgency have not been evaluated at this time.

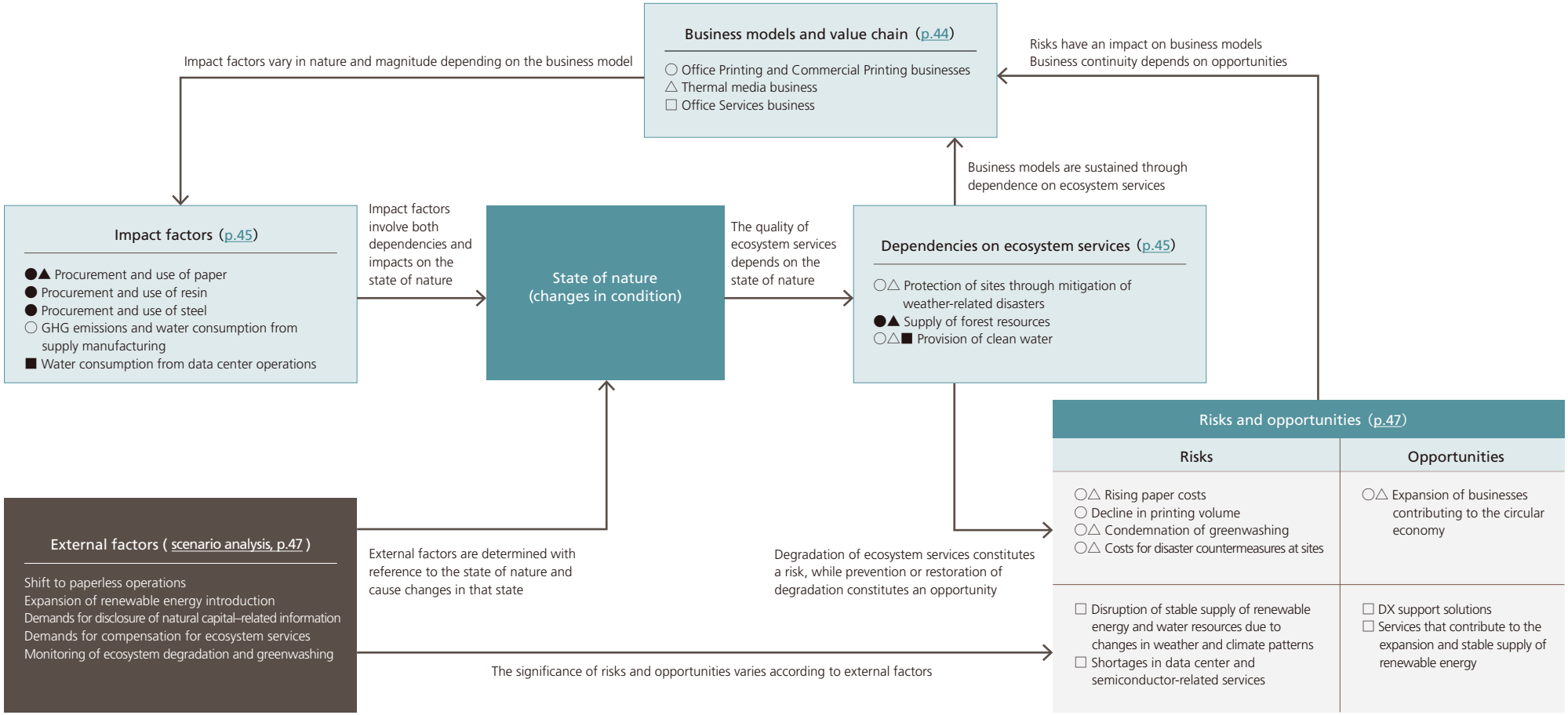
Causal relationships between business activities and risks/opportunities

Based on the evaluations conducted so far, we summarized the causal relationships through which risks and opportunities arise from external factors and from the Office Printing, Commercial Printing, Thermal media, and Office Services businesses, as shown in Figure 6.

Going forward, we will use these causal relationships as a basis for further developing strategies, setting targets, and advancing initiatives from the perspective of natural capital.

Figure 6: Causal relationships between business activities and risks/opportunities

○ : Related to Office Printing and Commercial Printing businesses △ : Related to Thermal media business □ : Related to Office Services business
Black symbols indicate items that are particularly significant for the corresponding business



Initiatives

Activities toward 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.

Main initiatives related to paper procurement	
FY2010	Sets Regulations for Ricoh Group products made of wood
FY2022	Launch of the Global Paper Procurement Project
FY2023	Sets Paper Procurement Policy
FY2024	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

1. Confirmation of legality of wood in the country of origin at the time of production.
2. Wood produced from a forest where sustainable forest management is practiced without adverse environmental or social impact at the time of production.
3. 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

We believe 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

Major initiatives related to forest conservation	
FY1999	Begins Forest Eco-system Conservation Project
FY2013	Begins tree planting activities at the LPGA Ricoh Cup
FY2014	Begins stakeholder forest activities collaboration
FY2020	Begins One Million Trees Project Begins Mangrove planting by Ricoh Japan
FY2021	Conservation project of Yanbaru Forest registered as a World Heritage site
FY2022	Expansion of stakeholder forest activities to seven locations in Japan
FY2023	Certification under Ministry of the Environment's "30by30" Nationally Certified Sustainably Managed Natural Sites (Ricoh Ena Forest, ETRIA Gotemba Plant)

●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 490,000 trees by fiscal 2024. 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

Shanghai Ricoh Digital Equipment Co., Ltd.

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

Ricoh Manufacturing (Thailand) Ltd.

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

YAMANASHI ELECTRONICS (THAILAND) CO.,LTD.

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

Nationally Certified Sustainably Managed Natural Site

Ricoh Ena Forest Projects and ETRIA Gotemba Plant 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

Gifu butterfly

In fiscal 2024, a total of 1,069 people participated in activities, including 347 in forest maintenance activities, 471 in nature observation events, and 151 in community events such as walking.

●ETRIA Gotemba Plant

The approximately 2.2-hectare green space within the ETRIA Gotemba Plant is located in the rich natural environment at the foot of Mt. Fuji and is home to a diverse range of flora and fauna, including planted trees such as hinoki cypress, Chinese cork oak, and cherry, as well as bamboo groves, grasslands, and retention ponds, supporting butterflies, dragonflies, beetles, cicadas, and many other species. Based on surveys conducted by employees, 33 species of butterflies—including the Japanese clouded Apollo, the Mycalesis gotama, and the Neope goschkevitschii—had been identified up to fiscal 2023. In fiscal 2024, an additional nine species were discovered, bringing the total to 42.

Glacial Apollo Butterfly

In addition, we have set up a Nationally Certified Sustainably Managed Natural Site introduction corner that showcases activities to customers and employees, including displays of insect specimens collected by employees.

Nationally Certified Sustainably Managed Natural Site introduction corner

Performance

Activities toward zero deforestation

	Target	Unit	FY2023	FY2024
Sustainable procurement of paper*	Sustainable procurement of paper 100% (FY2026)	%	60	90

*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 2021	FY 2022	FY 2023	FY 2024
Number of trees planted: a year	Planting another one million new trees (FY2020 - 2030)	K trees	149	97	115	78
Number of trees planted: Cumulative total		K trees	241	338	453	531
Progress		%	24.1	33.8	45.3	53.1

TNFD core global disclosure indicators and metrics

Disclosure number	Indicators	Results
C1.0	Land-use footprint	• Land use: 251 ha
C1.1	Changes in terrestrial, freshwater, and marine use	• Area of terrestrial ecosystems conserved or restored: Nationally Certified Sustainably Managed Natural Site (Ena Forest, Gotemba) 32 ha Mangrove planting area 57 ha
C2.0	Total pollutants released to soil	• No intentional releases (strict leak management in place)
C2.1	Volume of wastewater and concentration of major pollutants in effluent	• See ESG Data Book (water discharge, BOD)
C2.2	Generation of hazardous waste	• See ESG Data Book (total amount of discharged matter generated, total amount of landfill waste, volume recycled)
C2.3	Plastic pollution	• See ESG Data Book (amount of plastic contained in products, amount of recycled plastic used in products)
C2.4	Emissions of non-GHG air pollutants	• See ESG Data Book (SOx, NOx emissions)
C3.0	Water withdrawal and consumption in water-stressed areas	• See ESG Data Book (water withdrawal) Total reported this year as water-stressed areas are not yet clearly delineated
C3.1	Volume of high-risk natural commodities	• See ESG Data Book (paper procurement volume) • Certification ratio 90% (Ricoh-defined TLC or forest certification rate)

Disclosure number	Indicators	Results
C7.0	Value of assets, liabilities, revenue and expenses that are assessed as vulnerable to nature-related transition risks	• Financial impact of transition risks (1.5°C scenario): ¥1–20 billion (see p.14)
C7.1	Value of assets, liabilities, revenue and expenses that are assessed as vulnerable to nature-related physical risks	• Financial impact of physical risks (4°C scenario): Up to ¥1 billion (see p.14)
C7.2	Description and value of significant fines/penalties received/litigation action in the year due to negative nature-related impacts	None
C7.3	Amount of capital expenditure, financing or investment deployed towards nature-related opportunities, by type of opportunity, with reference to a government or regulator green investment taxonomy or third-party industry or NGO taxonomy, where relevant	None
C7.4	Increase and proportion of revenue from products and services producing demonstrable positive impacts on nature with a description of impacts	• Mangrove planting linked to product sales is assumed to apply. Financial impact to be examined in the future.

9. Respect for human rights

Basic Concept

Human rights are fundamental rights that all people are entitled to, and the extent of that entitlement should be extremely deep and wide. With the progress in globalization in recent years, the impact of corporate activities on human rights has expanded. Companies are now required to conduct business activities that respect human rights throughout the value chain because those activities affect not only company employees, but also business partners, customers, and the communities in which a company operates.

In Europe and the United States in particular, there has been a strengthening of legal regulations requiring companies to take measures to respect human rights and ban imports made with forced labor.

The origin of Ricoh Group's respect for human rights lies in one of the Founding Principles — "Love your neighbor" — of our corporate philosophy, which is known as "the Spirit of Three Loves". Not only do we meet all the regulatory requirements and social expectations in the countries and regions in which we operate, but we also demonstrate our commitment to human rights by following international standards such as the "International Bill of Human Rights" and the "ILO Declaration on Fundamental Principles and Rights at Work". Furthermore, as a signatory to the United Nations Global Compact, we support "The Ten Principles of the United Nations Global Compact." We firmly believe that we enhance our corporate value by respecting the human rights of all people involved in the Ricoh Group's business activities and by avoiding risks of human rights violations.

Policy and targets

In April 2021, we introduced the Ricoh Group's Human Rights Policy in line with the United Nations Guiding Principles on Business and Human Rights. This policy was formulated based on the opinions of experts inside and outside the company and was deliberated by the ESG Committee. It is a commitment of the Ricoh Group to respect the human rights of all people, which was approved by the CEO of Ricoh. We had been respecting human rights in accordance with the Ricoh Group Code of Conduct, but we strengthened our efforts based on this human rights policy to comply with international standards, taking into consideration the widening range of human rights issues in the international community.

The Policy is positioned at the top of all human rights-related standards and regulations within the Ricoh Group, with its goal as the prevention of human rights violations. The Policy must be followed by all executives and employees of the Ricoh Group. This policy is translated into English and eight other languages and communicated for educational purposes to major group companies in Japan and overseas. Suppliers and all forms of business partners of the Ricoh Group are also requested to support and implement this policy.

In line with our human rights policy, we are working to reduce human rights risks by complying with the Corporate Human Rights Benchmark (CHRB)* methodology in order to strengthen our efforts to respect human rights in accordance with international norms.

*An international human rights initiative established by institutional investors and NGOs

Ricoh Group's Human Rights Policy (Index)

1. Position of the Policy and Scope
2. Conforming to International Principles and Standards
3. Respect for Human Rights of Stakeholders
4. Human Rights Due Diligence
5. Remedy
6. Education and Training
7. Dialogue
8. Transparency

Ricoh Group's Human Rights Policy

Specific targets and goals for respect for human rights

CHRB score: Information and communication technology sector leader(FY2025)

Performance

- Self-assessment re-performed. 90% progress toward target(FY2024)
- Self-assessments completed. 55% progress toward target(FY2023)

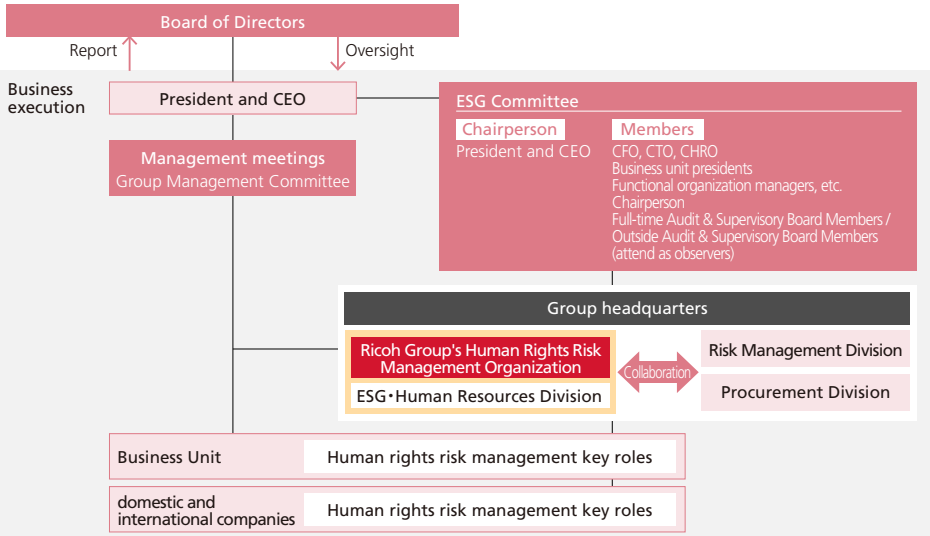
Structures and systems

The Ricoh Group's efforts to respect human rights are promoted mainly by the Human Resource Division and ESG Division, under the responsibility of the executive officer in charge of Human Resources and the executive officer in charge of ESG, in cooperation with the Procurement and Risk Management Divisions. Issues related to the respect for human rights, such as the mitigation and corrective measures to the salient human rights issues identified in the human rights impact assessment, are reported by the ESG Strategy Division, which is the promotion department, to the ESG Committee for discussion. The issues that require discussion by the Board of Directors will be presented to the Board.

Human rights risks are positioned as one of the material management risks and are managed within the Ricoh Group's risk management system. Progress is reported to the Group Management Committee (GMC) once every six months.

In 2021, we established human rights risk management key roles within all Ricoh business units, and in 2024, we set up key roles in major domestic and overseas group companies. Human rights risks related to business promotion are shared among the persons in these key roles, and we have set up a system to manage and respond to these risks in cooperation with the Group headquarters.

Ricoh Group's human rights response structure



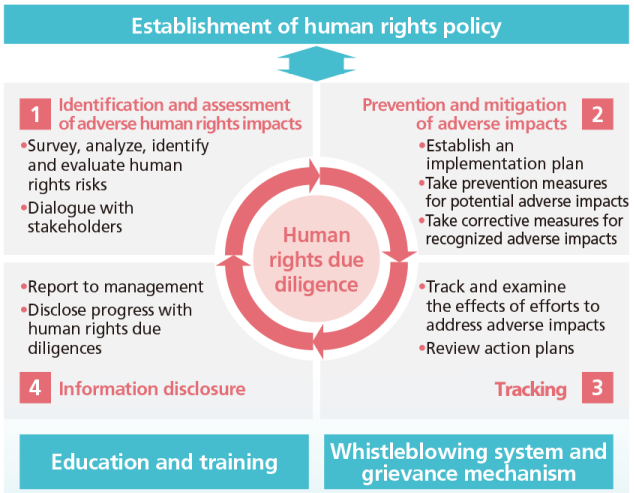
Structure of Sustainability: ESG Committee Risk Management System Managerial risks

Ricoh Group human rights respect promotion framework

We are working on promoting respect for the human rights of all stakeholders in the Ricoh Group's business value chain (all employees, suppliers, business partners, people in the community, including indigenous peoples and customers) based on the framework of the United Nations Guiding Principles on Business and Human Rights.

Through human rights due diligence*, we identify salient human rights issues and prevent and mitigate adverse impacts.

*The processes for recognizing, preventing, and addressing adverse human rights impacts



Strategy

Human rights due diligence

1. Identification and assessment of adverse human rights impacts

Considering the importance of human rights risk management, we have been conducting human rights impact assessments annually since 2022. In 2023, we conducted a human rights impact assessment for 15 representative human rights risks* at Ricoh Group companies in Japan and overseas to reassess salient human rights issues. In 2024, the scope of assessment was expanded to 101 Ricoh Group companies in Japan and overseas.

*Wages and benefits, forced labor, excessive and unreasonable working hours, occupational health and safety, freedom of association, child labor and young workers, discrimination and harassment, freedom of expression, right to access remedies, human rights issues related to AI technology, right of privacy, fair business, human rights issues in the supply chain, impact on local communities and the environment, consumer safety and the right to know

In terms of salient human rights issues, Ricoh's department responsible for human rights will work with the relevant departments to promote efforts to prevent and mitigate adverse impacts.

2. Prevention and mitigation of adverse impacts

We are taking measures to prevent and mitigate identified human rights issues that have a high degree of adverse impact. For particularly salient human rights issues, we use a Self-Assessment Questionnaire (SAQ) to conduct a detailed checks at relevant sites where there are concerns about adverse impacts, and we are working to make improvements on an individual basis (see pp. 56-59 for examples of efforts to address salient human rights issues).

3. Tracking

●Tracking at production sites

From the perspectives of occupational health and safety and diverse types of employment at our production sites, we recognize the importance of tracking human rights risks, and do so on an ongoing basis. We use the RBA self-assessment questionnaire to conduct annual ESG risk evaluations at major production sites to identify and correct adverse impacts. Additionally, five production sites undergo biennial RBA Validated Assessment Program* audits to ensure compliance with international ESG standards, with all of them obtaining recognition to date.

*This program is an onsite compliance verification program for the RBA code of conduct by independent, third party audit firms.

RBA certification status

Facility name	Country of Location	The latest Time for auditing	Score (out of 200 points)	Recognition level	Certification deadline
Ricoh Industry Tohoku Plant	Japan	May 2024	184.5	Silver	May 2026
Shanghai Ricoh Digital Equipment Co., Ltd.	China	October 2024	175.2	Silver	October 2026
Ricoh Manufacturing (Thailand) Ltd.	Thailand	January 2025	193.7	Gold	January 2027
ETRIA Co., Ltd.-Gotemba Plant	Japan	September 2024	184.4	Silver	September 2026
Ricoh Manufacturing (China) Ltd.	China	November 2024	184.5	Silver	November 2026

RBA Validated Assessment Program (VAP)

●Implementation of Assessment for Suppliers

To ascertain human rights risks in the supply chain, we evaluate human rights risks in an ongoing manner through annual ESG risk self-assessments focused on around 300 critical suppliers that account for more than 80% of our purchases. Based on the assessment results, we request corrective action from high-risk suppliers, providing advice for improvement through on-site audits.

Supply chain management

4. Information disclosure

In accordance with the Ricoh Group's Human Rights Policy, we disclose the progress of our efforts to deal with adverse impacts on human rights in a transparent manner through means such as our website and the Integrated Report.

Salient human rights issues identified in the 2023 impact assessment

Salient human rights issues	Examples of possible negative effects
Forced labor	• Labor that is forced without the consent of the worker, falsification and failure to fulfl the labor contract • Involvement in human trafficking, Billing of bonded labor and hiring fees • Violation of the freedom to change residence and movement
Excessive and unreasonable working hours	• Excess of statutory working hours, Consecutive excessive working hours and restrictions on the workers taking time off
Occupational Health and Safety	• Industrial accidents due to inadequate safety and health environment • Adverse physical and mental effects due to lack of consideration for pregnant women and women raising children
Discrimination and harassment	• Discriminatory expression in advertising • Gender pay gap • Insufficient consideration for diversity and minorities (e.g. sexual harassment, Abuse of authority, Pregnancy discrimination, Discrimination and harassment against male workers who have children and workers responsible for persons in need of nursing care, etc.) • Discrimination against foreign employees and job applicants
Human rights issues related to AI technology	• Discriminatory hiring practices through the use of AI • Discriminatory use of company products and services • Lack of consideration for accessibility
Right of privacy	• Acquisition of Personal Information Requiring Care and Provision to Third Parties without Consent Personal information leaked
Human rights issues in the supply chain	• Direct and indirect involvement in human rights violations* in the supply chain

*Serious risks such as forced labor, child labor, and poor working conditions

Initiatives and performance

Salient human rights issues

Responses based on the guide to Respecting Human Rights

In 2024, with the approval of the ESG Committee, we issued the "Ricoh Group's Guide to Respecting Human Rights" for domestic and overseas group companies. The guide sets out standards for each of the 15 representative human rights risks to be followed by the Ricoh Group.

We work to reduce the occurrence of human rights risks by implementing the Guide's contents, with a focus on salient human rights issues. We annually evaluate our compliance with the Guide through human rights impact assessments.

Salient human rights issues	Examples of the Contents of the Human Rights Respect Guide
1. Forced labor	Employment contract terms must be clearly explained in a language understandable to the worker before employment, and both parties must agree to them.
2. Excessive and Unreasonable Working Hours	Do not refuse requests for paid leave or a change of leave dates without valid reasons.
3. Occupational Health and Safety	Ensure the safety and hygiene of dormitories provided to workers.
4. Discrimination and Harassment	Strictly prohibit requiring any medical examinations or the provision of information not required by law as a condition of hiring or employment.
5. Human rights issues related to AI technology	Focused confirmation of potential privacy infringement and implementation of countermeasures when using and providing an indiscriminate face recognition system using AI in public spaces.
6. Right of privacy	Reflecting changes in privacy-related laws in the company's policies, standards, and processes, and ensuring their dissemination.
7. Human rights issues in the supply chain	Conducting assessment and verification of human rights risks during acquisitions.

1. Forced labor

We recognize as issues forced labor without the consent of workers, falsification of labor contracts, non-performance of contracts, and the charging of fees related to employment, and we strive to respect the basic human right to work freely and choose one's own job.

Initiatives to prevent force labor

Not paying workers for their labor constitutes labor exploitation, a form of forced labor. In 2024, we abolished pay reductions as a disciplinary measure in our major Group companies in Japan and overseas in accordance with international standards.

In 2020, for example, a third-party audit (RBA Validated Assessment Program (VAP)) was conducted voluntarily by a production site in China. As a result of the audit, it was revealed that some of the labor agencies contracted by the site had required workers to pay a part of the recruiting fees. As the burden of recruitment fees on workers could lead to debt labor, a corrective measure was taken to refund the fees incurred by the workers. Regarding preventive measures, Ricoh ordered the prohibition of charging workers recruitment fees. Since then, no cases of workers being charged such fees have been confirmed.

2. Excessive and unreasonable working hours

We recognize that overtime work outside legal limits, consecutive working hours, or restrictions on entitled leave are issues that must be addressed, and we use strengthened work hour management systems to prevent excessive and unreasonable labor practices.

Initiatives to prevent excessive and unreasonable working hours

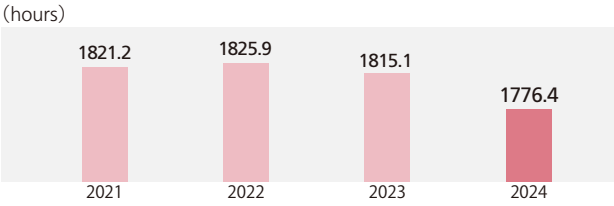
Ricoh thoroughly registers daily work records and uses a system that visualizes matters for each employee such as actual working hours, overtime hours for the day and for the week, and the status of annual paid leave. By using this system, employees, their managers, and the human resources department can track and immediately respond to any issues, thereby ensuring Ricoh complies with labor standards laws.

To reduce overtime hours, we are reviewing and automating work tasks, giving warnings to managers of employees who work a lot of overtime, and conduct labor management training.

Furthermore, annual targets are set for the entire company and each department with regard to overtime hours and the rate at which annual paid leave is taken. Progress is checked monthly and necessary measures are considered and implemented. The company and the work site are working together to continuously reduce total actual working hours.

Diversity, Equity, Inclusion and Work-Life Management

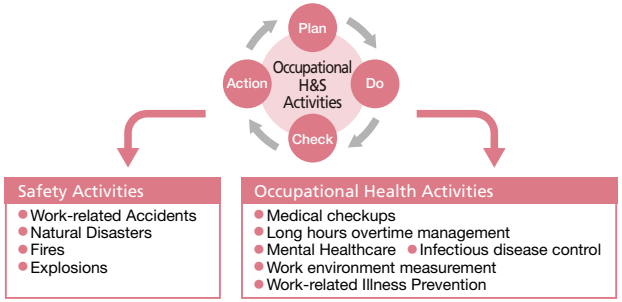
Average annual total actual working hours



3. Occupational health and safety

To help ensure the safety and health of our employees, we recognize that issues such as the occurrence of industrial accidents due to an inadequate safety and health environment and delayed measures in addressing mental and physical health problems are challenges, and we are working to strengthen our internal systems, manage risks, and improve employee literacy in this area.

Basic Health and Safety Policy and Promotion Structure / Basic Concept



Safety activities

Initiatives to strengthen safety management

Since 2000, we have held OSHMS certification from the Japan Industrial Safety & Health Association (JISHA), mainly for our production sites. Since 2011, we have established an internal certification system focused on verifying on-site implementation, based on the "Guidelines on Occupational Safety and Health Management Systems (OSHMS Guidelines)."* In addition to on-site visits by evaluators, we also conduct hybrid evaluations with specialized experts, who participate remotely.

In 2024, we further revised our evaluation system to emphasize process-based assessments, enabling autonomous and continuous implementation of the PDCA cycle for safety and health activities. This enhanced framework is being horizontally deployed, primarily across our domestic production-related companies. In addition, sales, service, and office affiliates are building a safety framework through the development of 5S activities, and research and development affiliates are implementing safety activities tailored to their actual situations, such as identifying and improving hazardous areas through risk assessments and strengthening safety education.

Furthermore, the Group has established Group-wide rules and measures to minimize damage in the event of a disaster requiring urgent action.

*Guidelines of the Ministry of Health, Labour and Welfare in alignment with the ILO guidelines.

Risk assessment and education

Since fiscal 2018, we have been conducting group-wide risk assessments, mainly in production and R&D, to continuously reduce risks (accident prevention) by identifying and improving hazardous areas, including emergency situations.* In parallel with this, we have established risk assessment training tools common to the Ricoh Group, and are working to improve accident prevention activities by updating the tools and training instructors corresponding to changes in the environment.

At production sites, we have established an "experiential" education system to prevent occupational accidents from occurring in the first place. This is based on the idea that "to improve safety sensitivity, it is important to experience hazards through the five senses, not only through classroom education." All employees receive safety education using a simulator that can reproduce hazards unique to the workplace, such as "entanglement," "trapped," and "solvent explosions."

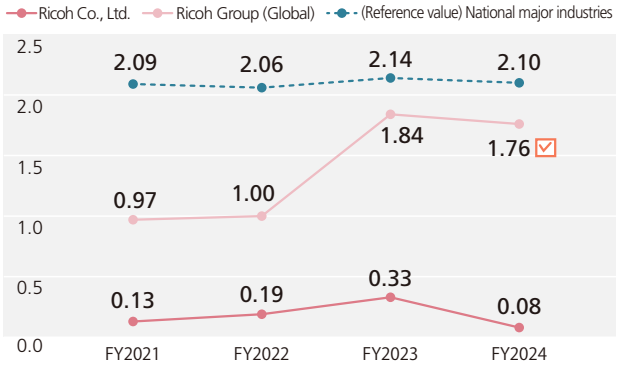
*Fire, explosion, electric shock, contact with hazardous materials, etc.

FY2024 occupational accident frequency ratio

In fiscal year 2024, as a result of measures we introduced to reduce workplace accidents, the "major accidents*" count remained at zero, the occupational accident frequency rate was 1.76 (global) this year, and the occupational accident severity rate was 0.03 (global).

*An accident or disaster involving death, or in which three or more people are injured or fall ill regardless of whether or not there was lost worktime.

Frequency of work-related accidents



Occupational health activities

The CEO issued the Ricoh Group Health Declaration to support health promotion and disease prevention for each and every employee.

Ricoh Group Health Declaration

Building a framework for thorough occupational health activities

Since the 1970s, we have been working with the health insurance association to provide regular health checkups in the form of comprehensive medical examinations for eligible workers aged 35 and over. In fiscal 2012, we introduced a new regular health checkup program aimed at preventing lifestyle-related diseases and detecting cancer at an early stage. We are establishing an industrial health system and standardizing followups after health checkups and mental health care activities across our Group companies in Japan to strengthen management by coordinating both physical and mental health care and cooperation with labor administration.

Physical Health Initiatives

- Prevention of lifestyle-related diseases
- Strengthening of cancer prevention, early detection, and early treatment
- Support measures for women's health and creating an environment that balances treatment and work

Mental Health Initiatives

- Stress checks
- Line care training, strengthened management support
- Self-care training

At a line care training session

Common Initiatives

- Support from occupational health physicians, nurses, and psychologists
- Health management for those working long hours
- Responses to absence from work and return to work / support for return to work
- Measures and considerations in the workplace
- Countermeasures against infectious diseases
- Anti-smoking measures (since 2015, smoking has been banned during working hours and on company premises)

4. Discrimination and harassment

We recognize issues such as insufficient consideration for diversity and minorities and discrimination in recruitment and employment as challenges, and are taking measures to prevent such discrimination and harassment and strengthen preventive measures.

●Initiatives related to preventive measures

Ongoing employee education is carried out.

Period	Training content	Target
Annually	Human rights education	E-learning for newly hired employees within the Ricoh Group in Japan
		Streaming of a lecture by a legal advisor about harassment, for newly appointed managers within the Ricoh Group in Japan
Annually	Ricoh Group compliance education	E-learning for directly employed Ricoh Group employees in Japan and overseas 2024 theme: An organizational culture where employees can speak up
2023	Compliance study session	Study workshops on harassment for Ricoh Japan executives
2024	Harassment prevention training	E-learning for all Ricoh employees in Japan and some employees of Ricoh Group companies in Japan

●Initiatives to prevent discrimination during recruitment/employment

At a production site in Thailand, female workers engaged in standing work had their pregnancy status confirmed prior to employment from the viewpoint of work safety considerations, but this was discontinued in 2023 in accordance with international standards because of the possibility of discrimination.

5. Human rights issues related to AI technology

We recognize human rights issues such as defamation, privacy infringement, and discrimination associated with the use of technology and AI as challenges. We therefore consider in advance the impact of using such technologies and AI, and carry out verification as needed.

●Initiatives related to technology ethics and appropriate AI utilization

In addition to medical research involving human subjects, there has been an increase in human engineering research. To help ensure that research is conducted appropriately from both an ethical and scientific perspective, we introduced an ethics review system in 2017 to protect research subjects.

We established The Ricoh Group's Basic Policy for AI Technology Utilization in 2021. In light of widespread concerns about the rapid evolution of generative AI, in 2023 We established guidelines for the use of generative AI within its Group companies in Japan. That same year, we also established the Ricoh Group Technology Ethics Charter, set up a specialized organization, and launched a cross-organizational promotion committee (Ricoh Technology Ethics Promotion Committee) to begin activities.

We introduced a technology assessment process into our R&D activities in 2024. It is a risk-based management method that aims to protect users from both physical harm and psychological safety risks.

In addition to the above initiatives, we conduct educational activities such as internal training for Ricoh Group employees and invite experts from inside and outside the company for lectures and symposiums on technology ethics.

Ricoh Ethics Review Committee (Only available in Japanese)

Ricoh Group Basic Policy for AI Technology Utilization

Ricoh Group Technology Ethics Charter

Ricoh Group Technology Ethics (Only available in Japanese)

6. Right of privacy

We recognize the issues of inappropriate acquisition, use, and provision of privacy information (including personal information and sensitive personal information) to third parties and the matter of unintentional leaks, as challenges. We therefore work to create policies, strengthen internal systems, and enhance security.

●Privacy protection initiatives

We define the Ricoh Group's Data Privacy Policy to manage personal data, including the personal information of customers, with the aim of complying with all laws and regulations related to the information entrusted to us by our customers.

Furthermore, we comply with all relevant laws, regulations, and other standards to ensure that all personal information handled in the course of our business is utilized appropriately and effectively. Since the enactment of the Act on the Protection of Personal Information in 2005, the Ricoh Group in Japan has formulated, implemented, and manages its own set of regulations for personal information protection that take into account international trends in this field. We ensure thorough awareness of these regulations among all employees and other relevant parties, and continuously work to maintain and improve them.

The Ricoh Group's Data Privacy Policy

Basic Policy for the Protection of Personal Information

Information security at the Ricoh Group

7. Human rights issues in the supply chain

We recognize the issues of direct and indirect involvement in human rights violations* in the supply chain as challenges and promote activities to reduce such risks.

*Includes forced and child labor, poor working conditions, and other serious risks

Ricoh Group Supplier and Partner Code of Conduct

We formulated the Ricoh Group Supplier Code of Conduct in fiscal 2006. Through it, we have worked with suppliers to benefit society and the environment and develop sustainably. In fiscal 2022, we renamed the code the Ricoh Group Supplier and Partner Code of Conduct, which we expect business partners to adhere to. We ask suppliers and partners to sign this code of conduct. In fiscal 2024, 98% of critical suppliers signed the code, falling slightly short of our 100% target.

Submission Rate of the agreement of suppliers for the Ricoh Group Supplier and Partner Code of Conduct

	FY2023	FY2024	FY2025
Target	90%	98%	100%
Achievement	97%	98%	—

Supplier ESG risk assessments

We monitor compliance with the Ricoh Group Supplier and Partner Code of Conduct by asking critical suppliers who have signed the agreement to complete ESG risk self-assessments. We increase the low-risk supplier ratio by supporting and encouraging certain suppliers to make necessary improvements. As a result of these efforts, the ratio among critical suppliers reached 91% in fiscal 2024.

Supplier audits

Based on risk assessments, moderate-risk and high-risk suppliers are asked to prepare improvement action plans. Improvements are confirmed through on-site audits by the responsible buyer. For some high-risk suppliers, further audits are conducted by a third party to confirm improvements.

In fiscal 2024, we took corrective measures with four high-risk suppliers identified in fiscal 2023. Specifically, we explained the purpose of the Self-Assessment Questionnaire (SAQ) and the assessed content to suppliers who did not correctly understand the SAQ questions and provided advice on how to address issues. As a result, there were zero high-risk suppliers in fiscal 2024 and corrective measures were completed.

Addressing ESG procurement

Examples of improvement activities

Employees were required to bear costs related to being hired. Support for improvement: We asked the supplier to document that it would not charge recruitment fees and confirmed that the policy had been established.

Response regarding conflict minerals

Ricoh Group's Responsible Minerals Procurement Policy

The Ricoh Group Responsible Minerals Procurement Policy was established in 2022 in recognition that mineral mining and mineral trading in conflict-affected areas and high-risk areas are a source of funding for armed groups and anti-government organizations, fuel conflict, or are closely related to important social issues such as human rights violations, labor issues, and environmental destruction. We are working with suppliers to ensure transparency and responsible mineral procurement in the supply chain.

Our efforts to eliminate the use of raw materials that may be conflict minerals include calling for the exclusion of problematic smelters from our supply chain and identification of procured parts.

Ricoh Group's Responsible Minerals Procurement Policy

Conflict minerals survey

We recognize that the procurement of some minerals from states in conflict areas and other high-risk areas may become sources of human rights abuses and labor problems, etc. In order to prevent the occurrence of problems, we have been conducting investigations into responsible mineral resource procurement in cooperation with suppliers every year since fiscal 2013. And simultaneously, we have been conducting and continuing due diligence in cooperation with industry groups. We assess conflict mineral content by component and require suppliers to source minerals from RMAP*-conformant smelters to eliminate the use of conflict minerals.

*The Responsible Minerals Assurance Process (RMAP) is a smelter and refinery accreditation program of the Responsible Minerals Initiative, an American entity that supports responsible mineral production and sourcing globally

Conflict Minerals Survey Results

	FY2024	
	3TG (Tin, Tantal, Tungsten, Gold)	Cobalt
Number of smelters & refiners	341	80
Number of RMAP conformant smelters & refiners (Conflict-Free)	210	43
Number of RMAP Active smelters & refiners	6	4
RMAP conformant / Active smelters & refiners rate	63%	59%
Response rate from suppliers	98%	98%

Addressing the conflict minerals issues

Human rights education and awareness-raising activities

Our respect for human rights prioritizes due consideration for all stakeholders associated with corporate activities and requires that each and every employee who is involved in daily operations has a proper understanding of human rights and a deep awareness of human rights issues.

With the establishment of the Ricoh Group Human Rights Policy, we conducted human rights education in an e-learning and webinars from 2021 to 2022 to promote understanding of the relationship between Business and Human Rights and the content of the Ricoh Group's Human Rights Policy.

Education Overview

Title	Fiscal year	Target	Implementation rate
Business and Human Rights Ricoh Group's Human Rights Policy (e-learning, webinar, etc.)	FY2021	Approximately 32,000 executives and employees of Ricoh Group companies in Japan	94%
	FY2022	Approximately 45,000 executives and employees of 80 Ricoh Group companies outside Japan	96%

During Human Rights Week in December 2024, we conducted awareness-raising activities for employees in Japan (including employees of companies on our premises) through short videos, displays and the like. Our aim was to deepen understanding of the reporting systems and foster a culture of healthy reporting.

Going forward, we will continue to provide education and training to ensure that each employee understands the importance of respecting human rights in business.

Reporting systems and remedies

All reporting systems allow anonymous reporting so that human rights concerns can be reported without fear of retaliation. Moreover, the Ricoh Group Code of Conduct stipulates that anyone who makes a report in good faith or cooperates with an investigation will not be subjected to any detrimental treatment. We promptly investigate any allegations and take measures to remedy any adverse impacts on human rights.

Details on reporting systems

For employees (internal whistleblowing) (multilingual)

- **Ricoh Group Hotline**
  Contact point for Ricoh Group companies in Japan.
- **Ricoh Group Global Whistleblowing System**
  Contact point for Ricoh Group companies in Japan and overseas. Direct reporting to Ricoh Full-time Audit and Supervisory Board Members is possible.

For suppliers and partners (Japanese/English supported)

- **Supplier and partner hotline**
  Contact point for suppliers and partners to file complaints against executives and employees of Ricoh Group companies.

For other external stakeholders (multilingual)

- **Japan Center for Engagement and Remedy on Business and Human Rights (JaCER*) "Engagement and Remedy Platform" (External website)**
  Contact point for complaints about human rights issues throughout Ricoh's supply chain.
- **Responsible business conduct hotline (external website)**
  Contact point for complaints about violations of ethical standards and standards to be observed, including for human rights, throughout Ricoh's supply chain.

* JaCER: An organization that acts in a professional capacity to support and promote redress of grievances for member companies.

Stakeholder engagement

Participation in the Stakeholder Engagement Program organized by the Caux Round Table Japan (CRT)

We believe that it is important to understand the adverse impact of business activities on human rights from the perspective of stakeholders. In 2023 and 2024,we participated in a stakeholder engagement program organized by the Caux Round Table Japan. Through dialogue with other companies, NPOs/NGOs, academic experts, etc., we reaffirmed the importance of business activities that take human rights into consideration, and deepened our understanding of the relationship between our business activities and human rights by identifying important human rights issues in our industry (manufacturing (electricity/information)).

Caux Round Table: Final Report, "2024 Human Rights Issues by Sector v.13"

The Business and Human Rights Academy organized by UNDP

We participated in the Business and Human Rights Academy organized by UNDP (United Nations Development Programme) in 2023. We gained a better understanding of the potential human rights impacts of our own operations and practical knowledge on how to identify, prevent, mitigate, and account for these impacts through human rights due diligence.

In the individual guidance sessions, we shared our company's human rights due diligence practices and challenges, and received advice from experts, including international advisory firms, UNDP, and lawyers, on how to conduct effective human rights impact assessments, and efforts for human rights in the value chain (collaboration with suppliers, downstream due diligence), etc. Based on the advice we received, we have included countries considered to be at a high human rights risk level in our 2023 human rights impact assessment.

10. Initiative participation and advocacy activities

Participation in initiatives

Since advocating for environmental management in 1998, we have 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 organizations 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 engage in domestic and international initiatives, leading the way in promoting necessary policy adoption and corporate action. In July 2024, Japan Climate Leaders' Partnership co-chair and Ricoh chairperson Yoshinori Yamashita presented a proposal on Japan's next Greenhouse Gas Reduction Targets and Strategic Energy Plan to the Association for Achieving Carbon Neutrality, a bipartisan parliamentary group. In November 2024, he presented a policy proposal to the Chief Cabinet Secretary on accelerating greenhouse gas emission reductions and increasing the renewable energy usage ratio to halt the climate crisis and propel Japan's economic growth.

Our climate change advocacy activities have received high international recognition. In September 2024, Ricoh was selected as one of eight companies worldwide for outstanding performance in climate policy in An Influence Map Report published by Influence Map, an independent UK-based climate risk think tank.

Initiatives to participate in or support

RE100

Science Based Targets initiative (SBTi)

Task Force on Climate-Related Financial Disclosures (TCFD)

Taskforce on Nature-related Financial Disclosures (TNFD)

Japan Business Initiative for Biodiversity (JBIB)

Japan Climate Leaders' Partnership (JCLP)

Japan Climate Initiative (JCI)

Japan Partnership for Circular Economy (J4CE)

30 by 30 alliance for biodiversity

Responsible Business Alliance (RBA)

Responsible Minerals Initiative (RMI)

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

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