SHIONOGI

Shionogi & Co.,Ltd.



Building Innovation Platforms to Shape the **Future** of Healthcare

SHIONOGI ENVIRONMENT REPORT 2024

March 2025

SHIONOGI Environment Report 2024

SHIONOGI Group's Environmental Initiatives

The SHIONOGI Group has identified "Protect the environment" as one of its material issues that support the realization of a sustainable society and the growth of the SHIONOGI Group. We have also formulated the SHIONOGI Group EHS Policy and the SHIONOGI Group EHS Code of Conduct to ensure the protection of the global environment and the health and safety of all employees at SHIONOGI and local communities.

Furthermore, among the environmental issues recognized by the SHIONOGI Group, we have specifically identified five areas of focus as "environmental materiality": AMR (antimicrobial resistance), climate change, resource conservation and circulation, water, and environmental management and governance. For each of these environmental materiality areas, we have developed "SHIONOGI Group EHS action goals" as targets to be achieved in the medium to long term. We plan and implement specific activities, including those within the supply chain, to work towards these goals. By doing so, we aim to contribute to the realization of a sustainable society through SHIONOGI's overall business activities.

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The URLs listed in this report are as of October 2023.
The linked information may be updated in the future.

Management Commitment



Representative Director,
President and CEO
Isao Teshirogi, Ph.D.

– SHIONOGI's commitment to realizing a sustainable society

"Contributing to a sustainable society" is an important theme that we must fulfill with responsibility as a company, along with "sustainable corporate growth." Regarding the environment in particular, we are keenly aware of the need to minimize the negative impacts (resource depletion, environmental pollution, etc.) caused by the group's business activities as a corporate group that employs natural capital to operate its business. The SHIONOGI Group ("SHIONOGI") has identified "Protect the environment" as one of its material issues (materiality). Based on this, we are sincerely facing various environmental issues and taking responsible measures to address them, including tackling climate change, which is an urgent global issue, reducing the release of chemical substances into the environment during the pharmaceutical manufacturing process, which is a unique issue for pharmaceutical companies, and promoting resource conservation/recycling and biodiversity conservation, including the reduction of marine plastic pollution.

SHIONOGI has also continued to make group-wide efforts to address various environmental issues, such as controlling the release of antimicrobials into the environment from manufacturing facilities for antimicrobials handled by SHIONOGI, including suppliers, and implementing measures to achieve our greenhouse gas emissions reduction targets. In recognition of these efforts, in FY2023, we received the highest rating of A from CDP[*1] in both the fields of "Climate Change" and "Water Security" for the second consecutive year. We are extremely honored that the group's initiatives have been so highly evaluated.

Moreover, in FY2023, we were able to welcome Qpex Biopharma, Inc., a U.S. company with strengths in the field of infectious diseases, into SHIONOGI. As our business grows, our overseas manufacturing and research sites will become more important than ever before. We therefore need to strengthen our environmental initiatives globally. In addition, when introducing new technologies to reduce our environmental impact, which increases with the expansion of business activities, we need to appropriately determine the timing and effectiveness of such initiatives and manage them across the entire group. In FY2023, to address some of these issues, we reviewed our environmental strategy and added "environmental management and governance" to our Environmental Materiality. We believe that this has strengthened the foundation for SHIONOGI to tackle various environmental issues with a stronger sense of unity.

SHIONOGI will work as a group to reduce its environmental impact, which tends to increase with the expansion of business activities. Moreover, by appropriately disclosing the details of our efforts, we will strengthen engagement with our stakeholders. Thus, we will fulfill our social responsibilities in order to become a company that will be needed in the future.

*1: A non-profit organization whose main activities involve requesting companies and local governments to disclose information on their actions for climate change control, water resources protection, forest conservation, and other environmental issues based on the request of institutional investors and major corporate clients around the world with a strong interest in environmental issues, thereby promoting actions to tackle environmental issues.



Senior Executive Officer,
Corporate Officer in
Charge of EHS

Ryuichi Kiyama, Ph.D.

– SHIONOGI's EHS activities toward realizing a sustainable society

SHIONOGI has identified "Protect the environment" as one of its material issues (materiality) to reduce negative impacts on customers and society. Furthermore, through the analysis of SHIONOGI's business characteristics and changes in the external environment, as well as dialogue with external stakeholders and related parties within the group, we have identified as our Environmental Materiality the four items of "AMR,"[*2] "climate change," "resource conservation and circulation," and "water," which should be given higher priority among environmental issues, and we have promoted activities to resolve these issues.

In FY2023, we reviewed our Environmental Materiality and added a new item, "environmental management and governance," clearly demonstrating SHIONOGI's intention to further strengthen its environmental activities. This is because in the situation where our operating sites are increasing globally with the growth of our business, we believe that it is necessary to further strengthen our environmental management and governance structure and to strategically respond across the group to global environmental issues, such as climate change, environmental pollution, and the depletion of natural capital.

With the review of our Environmental Materiality, we have also revised the SHIONOGI Group EHS[*3] Action Targets, which have been set in five-year increments, into medium- and long-term plans up to 2035/2050, and have set specific numerical targets for each plan, focusing on each item of Environmental Materiality. Until now, we have worked to improve each item identified as Environmental Materiality by enhancing initiatives at the operating site level in five-year increments. However, in order for SHIONOGI to contribute to the achievement of international environmental targets such as the Paris Agreement targets, we have determined that it is necessary to strengthen management involvement and to set and implement longer-term targets in conjunction with our future business and investment plans. That's why we have revised our EHS Action Targets. By setting targets to be achieved by 2035, we will be able to make investment decisions and implement measures more strategically, working backwards from our Vision of what we want to be. Moreover, for items of water and waste materials, performance figures had previously increased in line with the expansion of our manufacturing activities, making it difficult to see the efforts made on the ground. However, we have reviewed the indicators and targets we set for these items to make it possible to visualize the contribution made to reducing the environmental impact at each operating site. For specific targets for each item and efforts to achieve them, please see the detailed explanation for each item in the Environment section.

We will continue to promote environmental initiatives in all of SHIONOGI's activities, including the supply chain, to reduce the negative impacts of our business and contribute to the realization of a sustainable society. At the same time, we will work to enhance information disclosure in order to strengthen engagement with stakeholders and ensure that we remain relevant in the future. We appreciate your continued support.

*2 AMR: Antimicrobial Resistance
*3 EHS: Environment, Health and Safety

Environmental Governance

Environmental Governance Structure | Environmental / Occupational Health and Safety Management Systems | Audits | Emergency Preparedness | Education

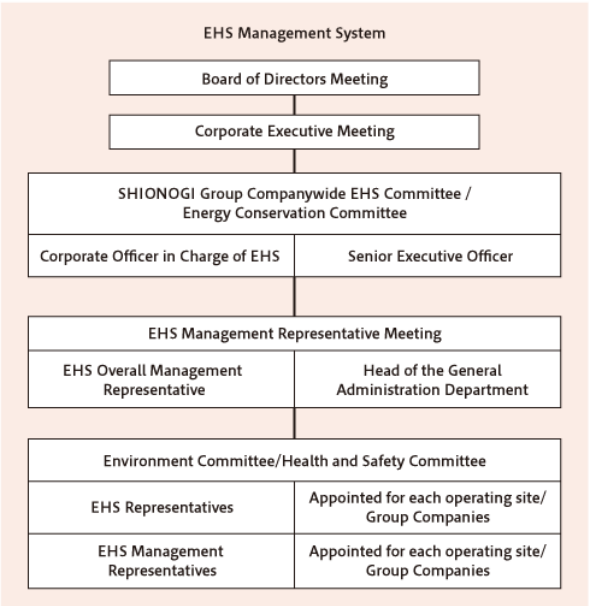
Environmental Governance Structure

To ensure business execution based on appropriate management judgment, the SHIONOGI Group (“SHIONOGI”) has opted to establish a company with a Board of Corporate Auditors. This is because it will enhance the auditing function of the corporate auditors and the monitoring function of the Internal Control Department, which has an internal auditing function, and promote the smooth functioning of the management monitoring system through cooperation between them.

See the section “Corporate Governance” for details.

SHIONOGI’s initiatives for the environment, health, and safety (“EHS”) are promoted in an integrated manner by each oparating site and Group companies under the leadership of the Corporate Officer in charge of EHS. The Senior Executive Officer in charge of EHS has been appointed as the Corporate Officer in charge of EHS.

Chaired by the Corporate Officer in charge of EHS, the SHIONOGI Group Companywide EHS Committee comprises representatives from the group’s oparating site and presidents from Group companies, who are appointed as personnel in charge of EHS. The committee discusses Environmental Materiality, sets annual targets (EHS Action Targets) centered on each item of Environmental Materiality, and considers and checks the progress of plans and specific activities through management reviews, thereby promoting EHG activities. In addition, the Energy Conservation Committee, chaired by the Corporate Officer in charge of EHS and placed under the SHIONOGI Group Companywide EHS Committee, considers proposals for targets for energy conservation and global warming control, discusses specific measures to achieve climate change targets, manages their progress, and assesses compliance with laws and regulations.



The operation of these two committees and the practical implementation of EHS activities in cooperation with the group’s operating sites are overseen by the EHS Group of the General Administration Department of SHIONOGI.

Among the matters discussed by the SHIONOGI Group Companywide EHS Committee and the Energy Conservation Committee, matters that have a particularly large impact on management are deliberated by the Corporate Executive Meeting and then decided by the Board of Directors. The committees also seek advice from the Board of Directors as necessary.

Environmental / Occupational Health and Safety Management Systems

The Shionogi Group believes that proper daily management and operation of all EHS activities is crucial for the protection of the global environment and the health and safety of all people working within the Shionogi Group and local communities. In terms of operational and management systems, our energy-intensive factories which manufacture our products have obtained certifications for ISO 14001 and ISO 45001, which are international standards for environmental and occupational safety and health management systems. In our other business sites, we also operate our own management systems that comply with ISO 14001 and ISO 45001, ensuring that the management level in each business site and group company is maintained at a certain level or above.

ISO14001, ISO45001 certified business entities and initial registration

	Settsu Plant	Kanegasaki Plant	Tokushima Plant	Itami Plant
ISO 14001	Mar. 2021	Oct. 2022	Nov.2001	Apr. 2006
ISO 45001	Mar. 2018	Jul. 2015	Feb.2022	FY2025 Certification planned

Certification acquisition rate for factories (based on energy consumption)

	Japan	Global
ISO 14001	97.8%	91.8%
ISO 45001	89.9%	84.5%

Audits

SHIONOGI conducts audits of each operating site of the group and its suppliers using multiple approaches to check their EHS promotion status, as shown in the table below.

ISO External audits	Conducted by external accreditation organizations to verify that the group's ISO 14001- and ISO 45001-certified management systems are operated in conformity with the standards
Internal Group audits	A self-inspection within a company to verify the suitability and compliance of the system according to ISO 14001, ISO 45001, or our own management systems.
EHS audits	Conducted by the division that supervises SHIONOGI's EHS initiatives, as directed by the management team. This is conducted separately from the internal group audits to ensure that EHS activities within the SHIONOGI Group are being properly implemented and maintained based on the management system, and that continuous improvements are being made.
EHS audits of suppliers	Audits of SHIONOGI's suppliers of raw materials, intermediates, APIs, products, etc. conducted in compliance with the PSCI Principles
AMR audits	Audits of the status of controlling and managing the release of antimicrobials into the environment from antimicrobial manufacturing facilities inside and outside SHIONOGI Conducted based on the Antibiotic Manufacturing Standard established by the AMR Industry Alliance See the section "AMR" for details.

In addition to the above, for significant suppliers to SHIONOGI, we use EcoVadis, a rating platform for a fairer and more objective assessment of corporate social responsibility and sustainable procurement, to assess their fulfillment.

See the section "Supply Chain Management" for details.

Emergency Preparedness

The SHIONOGI Group Risk Management Policy stipulates that in the event of a crisis, SHIONOGI should place top priority on protecting human life and ensuring safety, promptly take measures to minimize damage and prevent recurrence, and continue business operations as principles of action. To respond to emergencies, such as earthquakes, pandemics, and corporate scandals, we have established emergency response guidelines and manuals with a focus on respect for human life, consideration for and contribution to the local communities, and business continuity. In anticipation of emergencies, we have established communication and reporting systems. We regularly carry out emergency responsiveness training and review response procedures. In FY2023, disaster drills were conducted at each operating site, assuming emergency situations based on the circumstances at each operating site, such as an earthquake-triggered tsunami or fire.



Comprehensive disaster drill (Shionogi Pharma Kanegasaki Plant)

Education

In order to promote EHS activities, we believe it is essential that individual employees be fully aware of environmental, health, and safety issues in connection with their own work, and actively address them. We provide environmental education and preliminary education related to operations with high environmental impact, such as waste management and the handling of chemical substances, at operating sites such as plants and research laboratories with a relatively large environmental impact. We also clearly inform employees of the targets and actual figures of CO_2 emissions and waste generated in order to promote efforts to reduce the environmental impact.

Risk Management

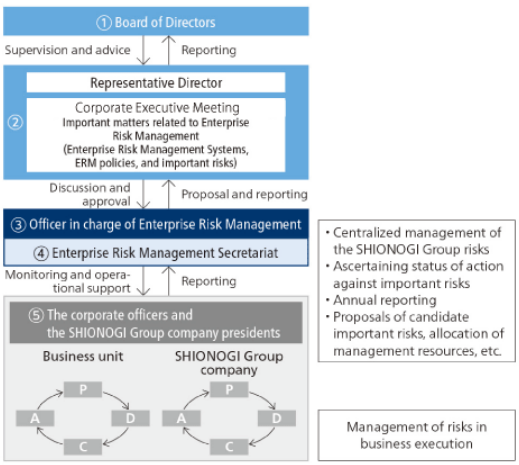
SHIONOGI appropriately manages business risks, including creating new business opportunities and taking risk avoidance and reduction measures. We have built and promoted an Enterprise Risk Management (ERM) system, which manages the risks of the entire group, including crisis management for pandemics, natural disasters, terrorism, and cyberattacks, as an important system for our management strategy and management foundation.

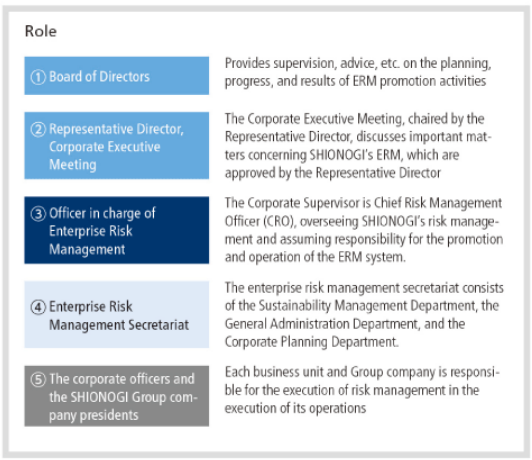
Environment-related risks are discussed at the SHIONOGI Group Companywide EHS Committee and the Energy Conservation Committee, a subsidiary committee. These committees assess the timing and probability of risks materializing as well as the financial impact. For high-priority risks, we develop countermeasures against them and check the implementation of these countermeasures. In particular, significant risks that could have a major impact on management are reported through the Enterprise Risk Management Secretariat to the Corporate Executive Meeting and the Board of Directors, which deliberate and make decisions on how to respond to them.

See the section “Risk Management” for more information on risk management.

Enterprise Risk Management (ERM) System

Risk management structure





Environmental risk management process

Identification	Extract environmental issues from global frameworks such as the SDGs and the World Economic Forum in Davos, principal items of external assessment, and external environmental changes as reflected in the policies of trade organizations.
Assessment	Identify the impact of each issue on business and determine its importance in consideration of the scale of impact and the frequency of occurrence.
Response	Study possible measures in response to each issue.
Assessment of efficacy	Review by the SHIONOGI Group Companywide EHS Committee Deliberation and decision by the Board of Directors and the Corporate Executive Management Meeting

Identification, assessment results, and responses

Materiality (risks and opportunities)	Impact	Frequency of occurrence		Assessment	Measures
	On the Company	Actual	Predicted		
AMR ・Damaged reputation due to pollution caused by wastewaterr	Large	Small	Large	◎	・Reduction of environmental emissions during manufacturing at SHIONOGI and suppliers ・Publication of AMR actions and measures
Climate change (GHG) ・Discontinued operation due to extreme meteorological phenomena ・Increased capital investment in response to regulatory reinforcement ・Change in the market for tropical-infectious-disease-related products	Large	Small	Medium	○	・Information gathering from governmental agencies, trade organizations, etc. ・Setting of CO_2 emission reduction plans by the Energy Conservation Committee ・Setting of measures for stable supply
Water ・Discontinued operation due to droughts, floods, and deterioration in water quality	Large	Small	Medium	○	・Information gathering from governmental agencies, trade organizations, etc. ・Monitoring of wastewater ・Water consumption control
Resource conservation and circulation ・Damaged reputation due to increased plastic waste ・Enhanced reputation due to resource conservation initiatives	Medium	Small	Medium	△	・Promotion of 3R initiatives ・Restricted use for products ・Changing to packaging with less plastic
Environmental management and governance ・Damaged reputation due to incidents caused by poor management governance	Large	Small	Medium	○	・Establishment of an environmental management and governance structure for SHIONOGI's operating sites, Group companies, and supply chain on a global scale and strengthening of its operation (including compliance with the laws and regulations of each region)

Assessment criteria

Assessment criteria are provided in the table below. Assessment is finalized after detailed discussions by the SHIONOGI Group Companywide EHS Committee.

Level	Impact	Frequency of occurrence
Large	Discontinued operation	Frequent in the area/industry
Medium	Capital investment	Past incidents
Small	—	No past incidents

Environmental Materiality

In updating its medium-term business plan STS2030 to STS2030 Revision, the SHIONOGI Group (“SHIONOGI”) analyzed and assessed the risks and opportunities and their time frame based on changes in the internal and external environment, and reviewed the material issues (materiality) that must be addressed. As a result, we have continued to identify “Protect the environment” as one of SHIONOGI’s material issues (materiality).

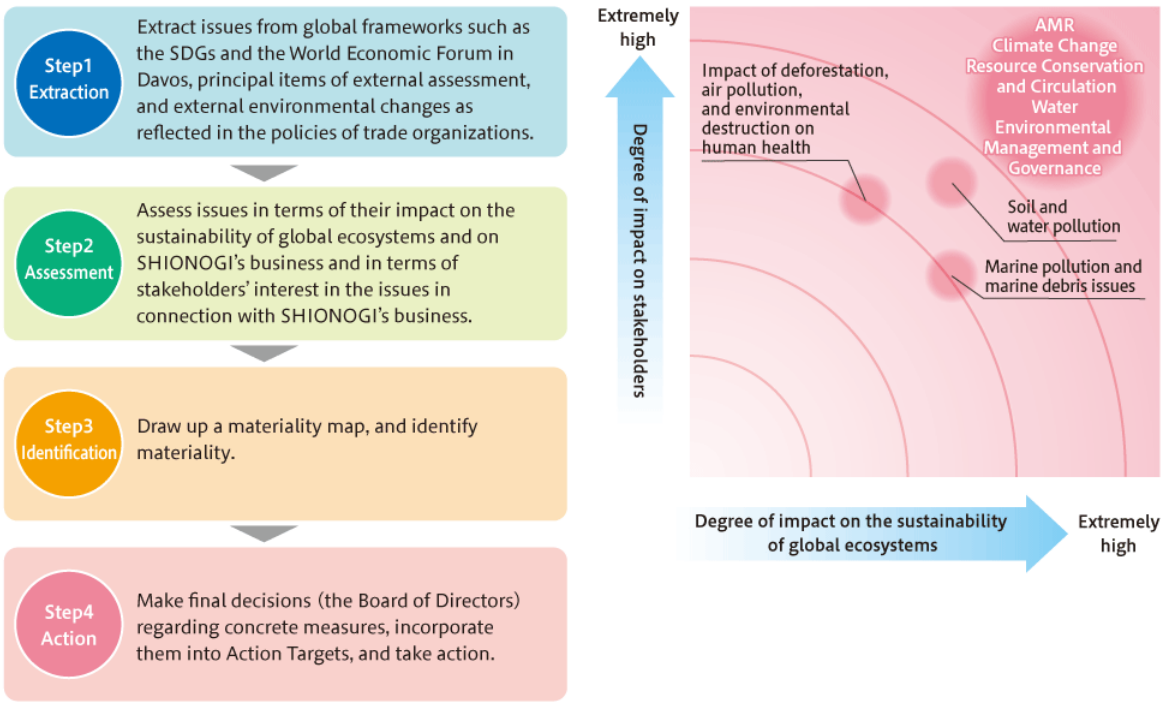
Material issues

In addition, we have listed environmental issues to be addressed through deeper exploration of relevant changes in the external business environment and dialogue with external stakeholders, such as ESG investment institutions and external experts, and related organizations within the company. By assessing the impact of these issues on the sustainability of global ecosystems and on stakeholders based on the Environmental Reporting Guidelines published by the Ministry of the Environment, Japan, we have identified Environmental Materiality as priority environmental issues that SHIONOGI should address. For the identified Environmental Materiality, we have formulated specific medium- and long-term targets for resolving the issues as the SHIONOGI Group EHS Action Targets. We also create a single-year EHS Action Plan each year and continue to implement and review it, while reflecting its results in the following year’s targets, in order to ensure effective responses.

The SHIONOGI Group EHS Action Targets are determined through deliberation by the Corporate Executive Meeting and the Board of Directors after discussion by the SHIONOGI Group Companywide EHS Committee. Meanwhile, the EHS Action Plan is determined under the responsibility of the Senior Executive Officer and Senior Vice President of the Administration Division, who serves as the Corporate Officer in charge of EHS, after deliberation by the SHIONOGI Group Companywide EHS Committee.

Regarding environmental issues, there has been increased activity in society looking beyond 2030, as the IPCC[*1] Sixth Assessment Report (released in March 2023) indicated that it is necessary to reduce GHG emissions by 60% by 2035 compared to the 2019 level. Moreover, as SHIONOGI’s business activities expand, its new operating sites are increasing both in Japan and overseas, leading to a growing need to appropriately respond on a global scale to global environmental issues such as climate change, environmental pollution, and the depletion of natural capital. In FY2023, in light of these changes in the situation both inside and outside the company, we reassessed the environmental issues that SHIONOGI should address. As a result, SHIONOGI has identified “advancing our response to the environment more strategically and with a sense of unity on a global scale” as a material issue that we should address. Accordingly, it was resolved by the Board of Directors that “environmental management and governance” should be identified as a new Environmental Materiality in addition to the four previously identified items (AMR, climate change, water and water risks, and resource conservation and circulation).

*1 IPCC: Intergovernmental Panel on Climate Change



Summary of identification of Environmental Materiality

Material issues	Summary of identification
AMR	This is a global issue that a pharmaceutical company manufacturing antimicrobials cannot ignore. The emergence of AMR impacts global ecosystems enormously.
Climate change	Responding to climate change is essential for the sustainability of global ecosystems. Meanwhile, stakeholders' demand for action in this regard is growing increasingly strong.
Resources conservation and circulation	Reducing waste and circulating resources mean effectively utilizing limited resources and are essential for the sustainability of global ecosystems. This is a part of the problem of marine plastic, and stakeholders' interest in this international issue has been growing in recent years.
Water	With the growing probability of occurrence of torrential rainfalls and floods, water risks (particularly physical risks) must be closely watched from the perspective of BCP. Water is an indispensable factor for the business continuity of pharmaceutical companies and essential for the sustainability of global ecosystems.
Environmental management and governance	As SHIONOGI's business activities expand, its operating sites are increasing globally. In this situation, SHIONOGI needs to respond appropriately to global environmental issues such as climate change, environmental pollution, and the depletion of natural capital, and demonstrate the results of its efforts to stakeholders.

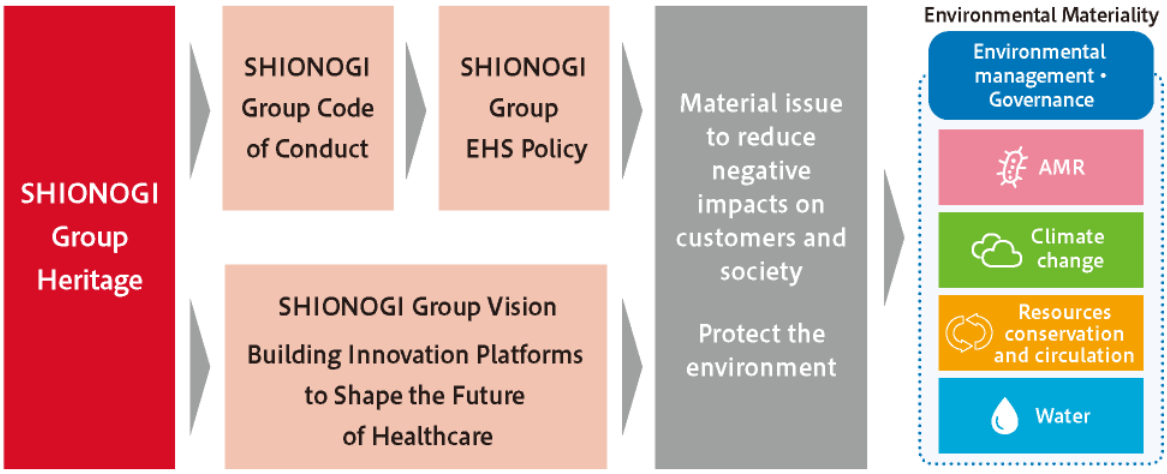
We apply the identified Environmental Materiality to the value chain and consider what countermeasures are required for each material issue in each process. The countermeasures are reflected in the SHIONOGI Group EHS Action Targets.

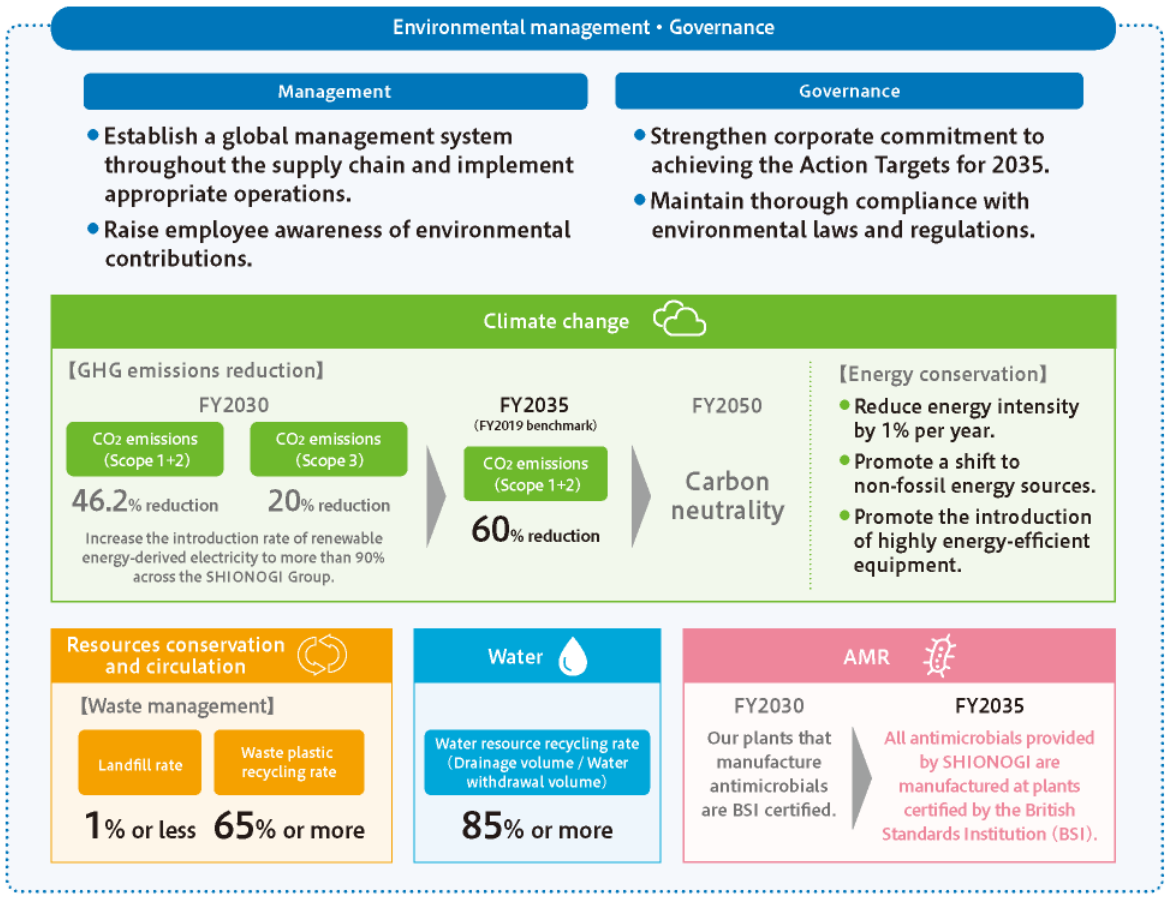
To offer value to society and meet our stakeholders' expectations, the SHIONOGI Group hopes to further deepen its activities by clarifying concrete steps toward handling material issues in the future and key performance indicators (KPIs).

Environmental Materiality and the value chain

	Purchase	R&D	Manufacturing	Distribution and sales	Use and disposal
AMR	Antimicrobial release management		Antimicrobial release management		Promotion of responsible antimicrobial use
Climate change	Introduction of energy-saving equipment Introduction of renewable energy	Introduction of energy-saving equipment Introduction of renewable energy	Introduction of energy-saving equipment Introduction of renewable energy	Introduction of hybrid vehicles Improvement of transportation efficiency	Change in or recycling of containers and packaging materials
Resource conservation and circulation	Green purchasing	Design of environmentally responsible products	3Rs of waste materials		Reuse and recycling of containers and packaging materials Responsible disposal
Water	Water risk assessment	Water risk assessment, water conservation, wastewater management	Water risk assessment, water conservation, wastewater management		
Environmental management and governance	Establishment and strengthening of an environmental management and governance structure at each business site and organization of SHIONOGI				

Environmental Materiality and the SHIONOGI Group EHS Action Targets (Environment)





See the sections“Action Targets” and each theme after “AMR” for more information on the targets and activities.

Action Targets

SHIONOGI Group EHS Action Targets (Environment)

In FY2023, we reviewed our Environmental Materiality and added a new item, “Environmental management and governance,” to the four previously identified items of AMR, Climate change, Water, and Resource conservation and circulation. In response, we updated our medium-term targets, “SHIONOGI Group EHS Action Targets.” Until now, the SHIONOGI Group EHS Action Targets have been updated every five years. However, to make investment decisions and implement measures strategically from a longer-term perspective, medium- and long-term goals have been set for each item, with FY2035 set as the final year (see the table below). Counting backwards from FY2035, which is the final year of the SHIONOGI Group EHS Action Targets, we will formulate a single-year action target, which includes measures to be taken each year and numerical targets for each indicator, and work to achieve these targets.

In FY2024, we will be formulating a roadmap through to FY2035 and considering disclosing specific indicators for each item of Environmental Materiality in the first year.

Scope: SHIONOGI Group (including Global Group companies)

SHIONOGI Group EHS Action Goals (2024–2035)

Item	Medium- and long-term targets (2035)	Remarks
Climate change	**[Reduction of greenhouse gas (CO_2) emissions]** ・2035: Reduce CO_2 emissions by 60% (FY2019 benchmark)	<2030: SBT target> ・Reduce Scope 1+2 emissions by 46.2% and Scope 3 Category 1 emissions by 20% ・Increase the introduction rate of renewable energy to more than 90% across the SHIONOGI Group <2050> ・Achieve zero emission
	[Energy conservation] ・ Reduce energy intensity by 1% per year ・Promote the introduction of highly energy-efficient equipment ・Promote a shift to non-fossil energy	—
Resource conservation and circulation	**[Waste management]** ・Reuse/recycle at least 65% of waste plastics ・Landfill rate: 1% or less	<2030> ・By FY2030, reuse/recycle 65% of waste plastics
Water	**[Water resources]** ・Water resource return rate (Total water discharge volume / Total water withdrawal volume): 85% or more	<Secondary monitoring item> ・Total water withdrawal
AMR	**[AMR management]** ・All antimicrobials provided by SHIONOGI are manufactured at plants certified by the British Standards Institution (BSI)	<2030> ・By FY2030, antimicrobial manufacturing plants in SHIONOGI are BSI certified.

Item	Medium- and long-term targets (2035)	Remarks
Environmental management and governance	**[Strengthening of the EHS management system]** <Management> ・Establish a global management system throughout the supply chain and implement appropriate operations ・Raise employee awareness of environmental contributions <Governance> ・Strengthen corporate commitment to achieving the Action Goals for 2035 ・Maintain thorough compliance with environmental laws and regulations	—

SHIONOGI Group EHS Action Targets (2020–2024/2030/2050) and FY2023 Results

Scope: SHIONOGI Group companies in Japan (Global SHIONOGI Group for [GHG (CO_2) emissions reduction] and [Water risk mitigation])
[GHG (CO) emissions reduction]
Targets of [GHG (CO) emissions reduction] and [Water withdrawal reduction], [Water risk mitigation], [Waste and plastics] are for global, while the rest are targets and results of domestic Group companies

Item	Medium- and long-term targets (FY2020-FY2024 / FY2030 / FY2050)	FY2023 targets	FY2023 results	Achievement
AMR	[AMR control] ・Maintain the management system at the Kanegasaki Plant	[AMR control] ・Maintain the management system at the Kanegasaki Plant and the Tokushima Plant	[AMR control] ・The management system was maintained	○
	・ Complete initial audits of 100% of relevant suppliers **・By FY2030, establish a responsible AMR management system, including the supply chain (complete post-audit follow-up)**	・Complete initial audits of 100% of relevant suppliers	・Initial audits of 100% of relevant suppliers were completed	○

Item	Medium- and long-term targets (FY2020-FY2024 / FY2030 / FY2050)	FY2023 targets	FY2023 results	Achievement
Climate change	[GHG (CO_2) emissions reduction] (FY2019 benchmark)[*1] ・Reduce Scope 1+2 emissions by 10% ・Reduce Scope 3 Category 1 emissions by 10% **・By FY2030, reduce Scope 1+2 emissions by 46.2% and Scope 3 Category 1 emissions by 20%[*1]** **・By FY2050, achieve zero emissions**	[GHG (CO_2) emissions reduction] (FY2019 benchmark) ・Reduce CO_2 emissions (Scope 1, Scope 2) by 15%	[GHG (CO_2) emissions reduction] (FY2019 benchmark) ・CO_2 emissions (Scope 1, Scope 2) were reduced by 12.4% (CO_2 emissions increased due to worsening emission factors)	×
		・Reduce CO_2 emissions (Scope 3 Category 1) by 9%	・CO_2 emissions (Scope 3 Category 1) were reduced by 21.5%	○
	・Improve energy intensity by an annual average of 1%	・Improve energy intensity by an annual average of 1%	・Compared to the previous fiscal year: 0.2% improvement (18.1% worse than FY2019: Increase in manufacturing volume)	×
	・Promote the introduction of highly energy-efficient equipment and the electrification of equipment	・Promote the introduction of highly energy-efficient equipment and the electrification of equipment	・Highly energy-efficient equipment was installed at CRIC, SPRC, SPH (Settsu Plant, Kanegasaki Plant, Tokushima Plant, Itami Plant), and UMN Yokohama Research Center	○
Resource conservation and circulation	[Waste and plastics] ・Reduce the amount of waste generated by 25%. (FY2018 benchmark)	[Waste and plastics] ・Reduce the amount of waste generated to the FY2022 level (5,169 tons) or less	[Waste and plastics] ・Waste generated: 6,111 tons (increased by 59.8% from the FY 2018 level) (due to an increase in manufacturing volume)	×
		<Global> ・Reduce the amount of waste disposal to the FY2022 level (4,793 tons) or less ・Reduce the amount of hazardous waste disposal to the FY2022 level (1,434 tons) or less	<Global> ・Waste disposed of: 4,283 tons (including hazardous waste) ・Hazardous waste disposed of: 1,351 tons	○
	・Reuse/recycle 80% of waste generated	・Reuse/recycle at least 80% of waste generated	・Reuse/recycle of waste generated: 89%	○
	・Reuse/recycle 30% of waste plastics **・By FY2030, reuse/recycle 65% of waste plastics**	・Reuse/recycle 30% of waste plastics	・Reuse/recycle of waste plastics: 34%	○
	・Restrict plastic use in products	・Restrict plastic use in products	・The adoption of biomass plastic for PTP sheets and thinner sheets was examined at Shionogi Pharma	○

Item	Medium- and long-term targets (FY2020-FY2024 / FY2030 / FY2050)	FY2023 targets	FY2023 results	Achievement
Water	[Water risk mitigation] ・Complete a thorough assessment of water risks at research laboratories, plants, and other major operating sites	[Water risk mitigation] ・Conduct water risk assessment using WRI Aqueduct and in-house assessment at major operating sites in Japan	[Water risk mitigation] ・Water risk assessment using WRI Aqueduct and in-house assessment was conducted at all major operating sites in Japan	○
	[Water withdrawal reduction] ・Keep water withdrawal at or less than 1,340 thousand m^3 (around the FY2018 level)	[Water withdrawal reduction] Keep water withdrawal at the FY2022 level (1,366 thousand m^3) or less	[Water withdrawal reduction] ・Water withdrawal: 1,343 thousand m^3	○
		<Global> Keep water withdrawal at the FY2022 level (1,517 thousand m^3) or less	<Global> ・Water withdrawal: 1,465 thousand m^3	
Chemical substances	[Appropriate management of chemical substances] ・There are no medium-term targets because issues identified in FY2020 should be addressed	[Appropriate management of chemical substances] ・Recheck the handling of chemical substances (risk assessment, legal compliance status) (UMN only), regarding ・their storage (including temporary storage and storage before disposal), transfer, and use	[Appropriate management of chemical substances] ・Risk assessment and inspection were conducted at UMN (Akita Plant and Yokohama Research Center)	○
	[Responsible management of fluorocarbons] ・Fluorocarbons: Manage equipment using fluorocarbons responsibly, and promote the introduction of fluorocarbon-free or low-GWP*2 equipment	[Responsible management of fluorocarbons] ・Fluorocarbons: Manage equipment using fluorocarbons responsibly, and promote the introduction of fluorocarbon-free or low-GWP equipment	[Responsible management of fluorocarbons] ・Although no fluorocarbon-free or low-GWP equipment was introduced this fiscal year, equipment using fluorocarbons was properly managed	○

The underlined targets are long-term targets for FY2030 and FY2050.

*1 Since we obtained SBTi certification in June 2021, the FY2024 and FY2030 targets were modified to aim for science-based targets.

*2 GWP: Global Warming Potential

Recognized by CDP as an “A List Company,” the highest rating, in both the fields of “Climate Change” and “Water Security,” and selected for inclusion on the “Supplier Engagement Leaderboard,” the highest rating in the “Supplier Engagement Rating”

In FY2023, the efforts of the SHIONOGI Group (”SHIONOGI”) to address climate change and water-related issues continued to be praised by CDP,[*1] an international NPO promoting environmental information disclosure, and we received the highest rating of “A” in both categories of “Climate Change” and “Water Security” for the second consecutive year. In addition, we were selected for the fourth consecutive year for inclusion on the “Supplier Engagement Leaderboard,” which is the highest rating in the CDP’s Supplier Engagement Rating, in the category of “Climate Change.”

Under the Company Policy of SHIONOGI (SHIONOGI Group Heritage) and the SHIONOGI Group Code of Conduct, SHIONOGI has identified “Protect the environment” as one of its material issues (materiality) to be addressed, working to reduce greenhouse gas emissions, protect water resources, decrease flooding risks, and properly manage wastewater to reduce the release of antimicrobials into the environment. We believe that these continuous efforts were highly evaluated, as in the previous fiscal year.





*1 CDP
CDP is a non-profit organization whose main activities involve requesting companies and local governments to disclose information on their actions for climate change control, water resource protection, forest conservation, and other environmental issues based on the request of institutional investors and major corporate clients around the world with a strong interest in environmental issues, thereby promoting actions to tackle environmental issues. CDP is now one of the world’s most useful information disclosure platforms on environmental issues.
See this website for details. (External website)

Horizontal recycling technology for label mounts wins four awards

Horizontal recycling technology for label mounts was created through the Resource Recycling Project, a joint resource recycling alliance run by six companies: Shionogi Pharma Co., Ltd., NEION Film Coatings Corporation, TOYOBO Co., Ltd., Toppan Infomedia Co., Ltd., Mitsui Bussan Chemicals Co., Ltd., and Yamato Box Charter Co., Ltd. This technology has won four awards: “Appropriate Packaging Award” at the Japan Packaging Contest 2023, “Outstanding Performance Award” at the 6th EcoPro Awards, “AsiaStar 2023 Award (Eco-Package category),” and “Excellent Award” at the 51st Minister of the Environment Awards.

Horizontal recycling technology for label mounts involves switching label mounts used in product packaging to PET-based synthetic paper, which is recyclable, and collecting used mounts after the packaging process to reuse them as label mounts, thereby reducing the amount of mounts discarded to zero. The companies participating in the Resource Recycling Project worked together to tackle horizontal recycling of label mounts—something that had not previously been achieved by individual companies—to accelerate innovation, and completed the entire process of the recycling scheme, from the artery (the side that produces products) to the vein (the side that collects and reuses waste materials), within the project. This was recognized and led to the award.

Shionogi Pharma applies this technology to labels for ampoule injections and packaging boxes, thereby contributing to the continuous reduction of industrial waste materials and CO_2 emissions.











List of winning entries for the JAPAN PACKAGING CONTEST 2023 (jpi.or.jp) (External website)
EcoPro / EcoPro Award | Sustainable Management Promotion Organization (SuMPO) (External website)
AWARDS WINNER – ASIAN PACKAGING FEDERATION (External website)
Minister of the Environment Award | Awards are given to environmental surveys, research, technology, product development, and activities, etc. (nikkan.co.jp) (External website)

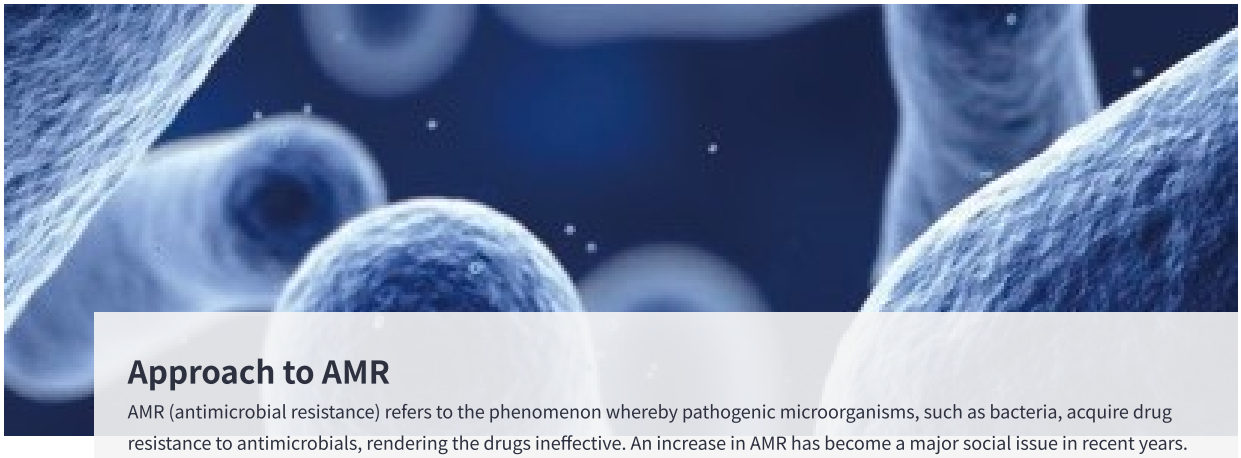
Supplier briefing and the first study session held

In October 2023, we held a briefing session for suppliers related to SHIONOGI's business, such as raw material manufacturers and contract manufacturing companies, to explain SHIONOGI's approach to the environment, CO_2 emissions reduction targets, and efforts to reduce CO_2 emissions. Moreover, in March 2024, we held our first study session for environmental managers of suppliers to share SHIONOGI's information and expertise on understanding CO_2 emissions (including Scope 3 emissions) in order to encourage the suppliers to set and strengthen CO_2 emission reduction targets and promote reduction measures. This study session was attended by 23 people from nine suppliers, and many of the participants made positive comments, such as, "We would like to start calculating Scope 3 emissions." We plan to continue this initiative as a way to strengthen environmental management and governance, including among suppliers.



AMR

Approach to AMR | Targets and Results | AMR Initiatives



Approach to AMR

AMR (antimicrobial resistance) refers to the phenomenon whereby pathogenic microorganisms, such as bacteria, acquire drug resistance to antimicrobials, rendering the drugs ineffective. An increase in AMR has become a major social issue in recent years. The main reason for the increase in AMR is the inappropriate use of antimicrobials, including excessive administration and the discontinuation of medication at the discretion of patients taking the antimicrobials. Meanwhile, it is also attributed to releases into the environment from antimicrobial-manufacturing plants. Therefore, approaches from various aspects are essential for effective AMR control.

As the responsibility of a company that has provided antimicrobials to society for more than half a century, the SHIONOGI Group (“SHIONOGI”) strictly controls the release of antimicrobials into the environment from the antimicrobial manufacturing process. Since AMR is considered to be a global threat, SHIONOGI will expand its management of the release of antimicrobials into the environment not only within our group but throughout the supply chain, and will regularly check the compliance status.

Targets and Results

Medium- and long-term targets and results

In order to minimize the environmental impact of antimicrobial manufacturing process, SHIONOGI has set a goal to achieve proper management of antimicrobial release into the environment throughout the supply chain by 2030. This will be accomplished through the implementation of audits (AMR audits) of our plants and suppliers (Table 1) that manufacture antimicrobials and their drug substances/intermediates, and through audit feedback.

Table 1: Discharge limits in the receiving environment for active pharmaceutical ingredients (APIs) of antimicrobials handled by the SHIONOGI Group and audited items (those in color were subject to audit until FY2023)

APIs of antimicrobials handled by SHIONOGI	Discharge limits in the receiving environment (μg/L)	SHIONOGI Group		Suppliers		
		Drug products	APIs	Drug products	APIs	
Flomoxef	0.05	○	○	Company A		
Cefcapene pivoxil hydrochloride	0.05	○	○			
Latamoxef	0.05	○	○			
Doripenem	0.13	○	○	Company B		
Cefiderocol	0.05	○	○			
Sulfamethoxazole/trimethoprim	6.6/0.50			Company C	Company F	Company G
Metronidazole	0.13			Company D	Company H	

Companies F, G, and H: Suppliers outside Japan

Although we had set a goal to maintain and improve the antimicrobial release management system at our plants and complete the initial AMR audit of all related suppliers by FY2024, we were able to complete the initial AMR audit of all suppliers in FY2023, achieving the goal one year ahead of schedule (Table 2).

All AMR audits at SHIONOGI, as mentioned above, are conducted based on the Antibiotic Manufacturing Standard*1 (“Standard”) stipulated by the AMR Industry Alliance (“AMRIA”),*2 ensuring that we have a system for controlling and managing the release of antimicrobials into the environment based on a global standard.

*1 Antibiotic Manufacturing Standard (External website)
*2 AMR Industry Alliance (External website)

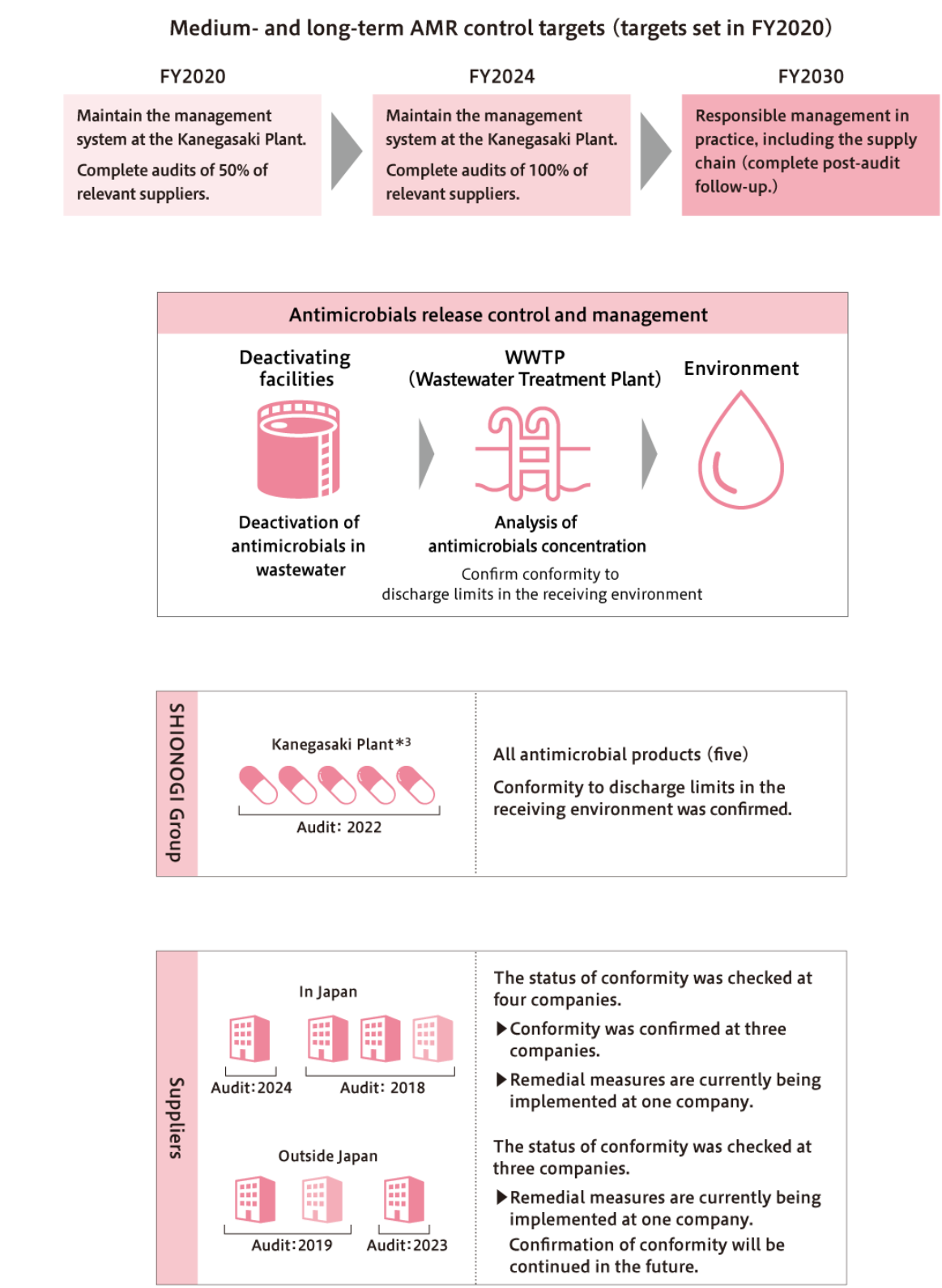
We signed the AMR Industry Roadmap with 12 other leading companies and organizations at the World Economic Forum in Davos held in September 2016, thereby taking the lead in fighting with AMR. The signatory companies and organizations commit themselves to the strict management of antimicrobial release both by themselves and throughout their supply chains, through such measures as specifying their release management techniques in the form of a roadmap to be offered to all antimicrobial manufacturers so that they will also join in this worldwide effort to combat AMR. This movement has now developed into a major campaign called the “AMR Industry Alliance,” involving an increasing number of companies handling antimicrobials.

Table 2: Supplier audit results (by FY2023)

Supplier	Country of location	Management system	Wastewater management	Solid waste material management	Conformity to discharge limits
Company A	Japan	○	○	○	○
Company B	Japan	○	○	○	○
Company C	Japan	○	○	○	○
Company D	Japan	△	○	○	△
Company F	India	○	○	△	○
Company G	India	○	△	○	△
Company H	Italy	○	○	○	○

○: Conforming to the “Standard”
△: Conforming to the “Standard,” except in a small number of aspects; remedial measures being implemented
×: Not fully conforming to the “Standard”; remedial measures being implemented

Figure: Summary of antimicrobials release control and management



*3 The Kanegasaki Plant is the only site that manufactures antimicrobials within SHIONOGI.

AMR Initiatives

Establishment of new medium- and long-term targets

The British Standards Institution (BSI) has announced a new international certification system called the "BSI Kitemark™ for Minimized Risk of Antimicrobial Resistance" in order to objectively evaluate and guarantee the minimization of antimicrobial resistance (AMR) risks in antibiotic manufacturing, based on the AMRIA Standard, in 2023. SHIONOGI conducts AMR audits based on the AMRIA Standard, but we also consider it important to obtain assurance that we are manufacturing antibiotics with responsibility and consideration for the occurrence of AMR, and to disclose this to our stakeholders. Therefore, as a specific response to our previous medium- to long-term goal of "achieving proper management of antibiotic environmental emissions throughout the supply chain," we have established a new goal for SHIONOGI in relation to AMR which is to have all antimicrobials provided by SHIONOGI are manufactured at plants certified by BSI, by the fiscal year 2035. In the fiscal year 2024, we have initiated planning and evaluating the feasibility of obtaining BSI certification for Cefiderocol, a multidrug-resistant gram-negative bacterial infection treatment.

Efforts to control and manage the release of antimicrobials

At Shionogi's flagship antimicrobial manufacturing plant, the Kanegasaki Plant, efforts to control and manage the discharge of antimicrobials include treating the wastewater produced during the manufacturing process with antimicrobial inactivation before being discharged through the on-site wastewater treatment facilities. Additionally, concentration analysis of antibiotics in the plant wastewater is conducted in accordance with the standards set by AMRIA. Currently, it has been confirmed that the concentration of antimicrobials in the wastewater from all five antimicrobial products manufactured at the Kanegasaki Plant is below the environmentally acceptable discharge criteria level[*4], which means it has no impact when released into the natural environment. Furthermore, all solid waste discharged from the antimicrobial manufacturing process at the Kanegasaki Plant is collected and incinerated by an external contractor, ensuring that antimicrobials are not released into the environment as solid waste.

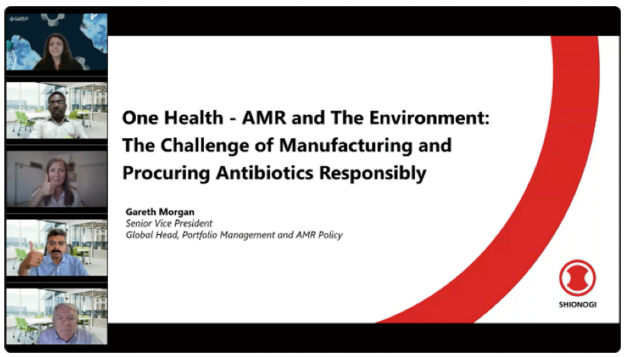
With regard to suppliers, we have confirmed that of the four antimicrobial products that we outsource the production of to domestic contractors, three products outsourced to three companies comply with environmental emission standards. We are currently implementing corrective measures for the remaining one product for which compliance has not been confirmed. Additionally, among the three antimicrobial products outsourced to three overseas suppliers, we have confirmed compliance with the environmental emission standards for two products outsourced to two companies. For the remaining one product where compliance could not be confirmed with overseas suppliers, corrective measures are currently being implemented. Moving forward, we plan to continue verifying the compliance status of the environmental emission standards for approximately 2-3 domestic suppliers and 1-2 overseas suppliers annually.

*4 SHIONOGI sets the environmental emission limit for antimicrobials in plant wastewater based on either the Predicted No-Effect Concentrations (PNECs) published by AMRIA or the recommended upper limit of 0.05 μg/L for antimicrobials not listed.
See this website for details. (External website)

Participation in “One Health – AMR and the environment”

In June 2024, Mr. Gareth Morgan (Global Head, Portfolio Management and AMR Policy) of Shionogi Inc. participated as a panelist in the BSI-sponsored webinar event “One Health – AMR and the environment.” There, he explained to the audience, including antimicrobial manufacturers and suppliers, SHIONOGI’s efforts to control and manage the release of antimicrobials from its antimicrobial-manufacturing plants and the status of AMR audits of related suppliers.

“One Health – AMR and the environment” (External website)



Climate Change

Approach to Climate Change | Climate Change Countermeasure Targets | Climate Change Initiatives



Approach to Climate Change

In October 2020, the Japanese government declared its goal of achieving carbon neutrality by 2050. With this as a starting point, the transition to a decarbonized society is accelerating in Japan. Companies are required to incorporate environmental factors, such as climate change, into their business strategies, aiming for decarbonization. This is essential for companies to contribute to the achievement of the SDGs and continue to grow together with society. Based on the TCFD[*1] recommendations, the SHIONOGI Group (“SHIONOGI”) has built a company-wide governance structure, considering climate change countermeasures as part of its management strategy. After identifying and assessing risks and opportunities in the medium- to long-term business environment, we promote efforts to reduce risks and create business opportunities.

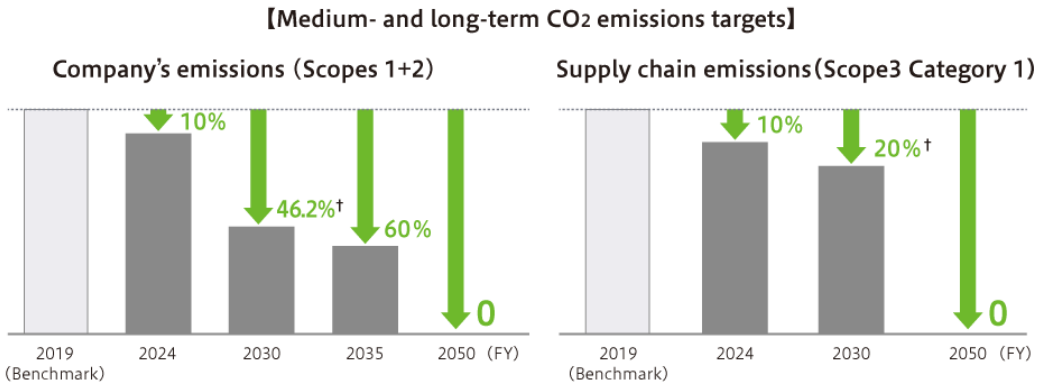
*1 Task Force on Climate-related Financial Disclosures: An organization established by the Financial Stability Board (FSB) in response to a request from the G20 to discuss how climate-related information should be disclosed and how financial institutions should respond.

Climate Change Countermeasure Targets

We conducted a detailed assessment of the impact of climate change on SHIONOGI’s business, using the TCFD framework as a reference, and considered strategies and specific countermeasures. Consequently, we have set “GHG (CO_2) emissions reduction” as a metric for reducing risks related to climate change. In response to this, we have also set targets in our medium- and long-term action targets “SHIONOGI Group EHS[*2] Action Targets.” In addition, to respond to the Japanese government’s declaration of “Carbon Neutrality by 2050” and the worldwide movement toward reducing CO_2 emissions, SHIONOGI has established SBTs[*3] as the FY2030 GHG emissions reduction targets, aiming to achieve carbon neutrality by 2050. These targets were approved by the SBT Initiative in June 2021 (see this page for details). Moreover, against the backdrop of growing social interest in realizing a decarbonized society, we reviewed our medium- and long-term targets in FY2023 and set new targets for FY2035.

*2 EHS: Environment, Health and Safety
*3 SBTs (Science Based Targets): CO_2 emissions reduction targets based on scientific data

Medium- and long-term targets



† Targets approved by the Science Based Targets initiative

Climate Change Initiatives

Establishment of new medium- and long-term targets

In response to growing interest in realizing a decarbonized society, SHIONOGI has set new medium- and long-term targets (targets for FY2035) as milestones toward achieving carbon neutrality by 2050. In these medium- and long-term targets, we have set a new target of "reducing CO_2 emissions by 60% by FY2035 compared to FY2019" based on the recommendations in the Sixth Assessment Report of the IPCC (UN's Intergovernmental Panel on Climate Change). The IPCC Sixth Assessment Report states that there is no doubt that human influence has caused warming of the atmosphere, oceans, and land," and SHIONOGI will strengthen its efforts to further reduce CO_2 emissions in order to realize a decarbonized society.

Reducing our Scopes 1 and 2 emissions

To achieve our FY2030 target, we promote various energy-saving and low-carbon measures, such as introducing and updating highly energy-efficient equipment. We also work to reduce CO_2 emissions by gradually introducing renewable energy-derived electricity to SHIONOGI's major sites, such as plants and research laboratories. Although the FY2023 target was a 15% reduction in Scopes 1+2 CO_2 emissions compared to FY2019, the actual reduction was only 12.4%. The main reason for not achieving the target was an unexpected deterioration in the emission factor (electricity) at major operating sites. Meanwhile, SHIONOGI's overall energy consumption before multiplying by the emission factor was at a level that would allow us to achieve the target, partly due to the introduction of renewable energy-derived electricity.

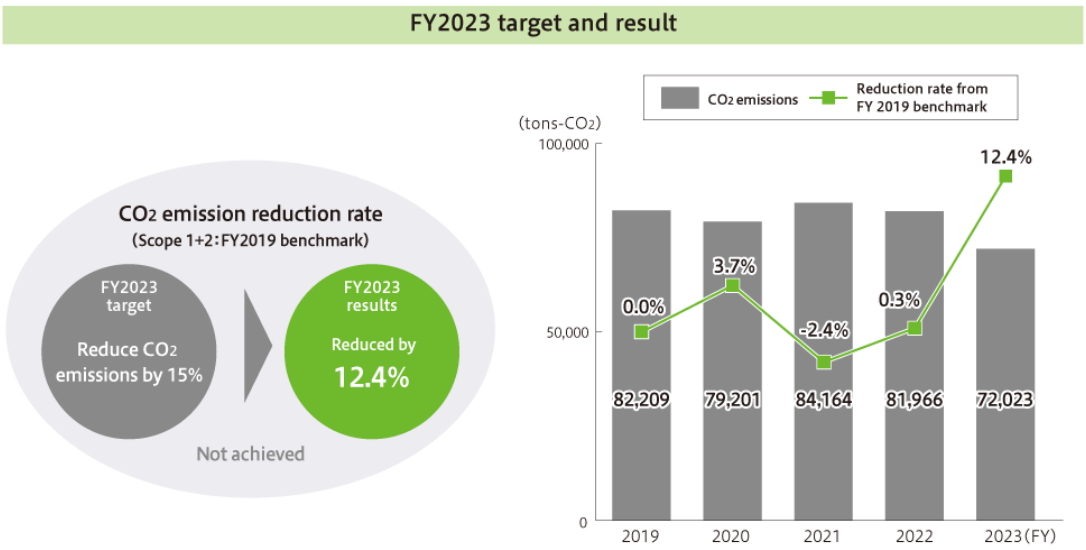
Although we have not achieved our FY2023 target (annual target), by bringing forward the introduction of renewable energy-derived electricity to the Shionogi Pharmaceutical Research Center (SPRC), we have achieved our FY2024 target set in the SHIONOGI Group EHS Action Targets in FY2023, ahead of schedule.

As for our efforts to reduce Scope 2 CO_2 emissions through the use of renewable energy-derived electricity, in FY 2023, we introduced renewable energy-derived electricity to the Shionogi CMC Research Innovation Center (CRIC) in addition to the SPRC mentioned above, in accordance with the introduction plan for SHIONOGI's major sites. With this, we have completed the introduction of renewable energy-derived electricity to the major sites of Shionogi & Co., Ltd., including the head office building and the Aburahi Research Center, which have already completed its introduction, significantly increasing SHIONOGI's overall introduction rate to 40.8%. Going forward, we will promote the introduction of renewable energy-derived electricity to the plants of Shionogi Pharma Co., Ltd., which is responsible for SHIONOGI's manufacturing functions. We plan to complete its introduction to all major sites by 2030.

Plan for introducing electricity derived from renewable energy

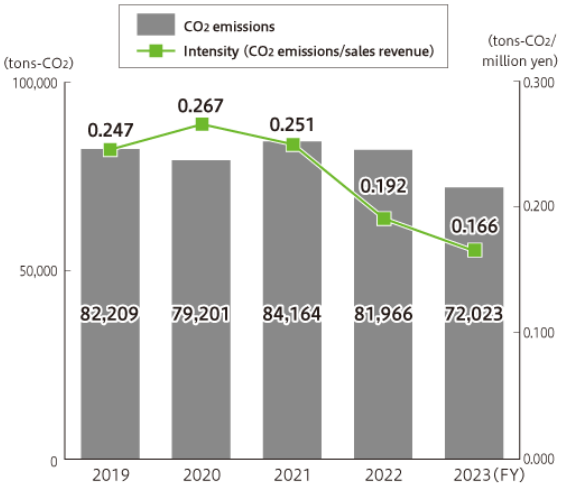
Fiscal year of introduction	Site	Company name	Status
FY2021	Head Office	Shionogi & Co., Ltd.	Completed
FY2022	Aburahi Research Center	Shionogi & Co., Ltd.	Completed
FY2023	Shionogi CMC Research Innovation Center Shionogi Pharmaceutical Research Center (SPRC)	Shionogi & Co., Ltd.	Completed
	Amagasaki Office	Shionogi Pharma Co., Ltd.	Completed
FY2024	Settsu Plant	Shionogi Pharma Co., Ltd.	Scheduled
FY2025	—	—	—
FY2026	Tokushima Plant	Shionogi Pharma Co., Ltd.	Scheduled
FY2027	Kanegasaki Plant	Shionogi Pharma Co., Ltd.	Scheduled
FY2028	Yokohama Research Center, Akita Plant	UMN Pharma Inc.	Scheduled
FY2029	Itami Plant	Shionogi Pharma Co., Ltd.	Scheduled
FY2030	Nanjing Plant	Nanjing Chang'ao Pharmaceutical Co., Ltd.	Scheduled

Moreover, to improve energy efficiency, we have set targets for improving energy intensity by 1% per year and introducing equipment with high energy consumption efficiency. In addition to promoting the introduction of highly energy-efficient equipment, we promote initiatives to reduce energy consumption, such as continuously reviewing equipment operation modes. In FY2023, both total energy consumption and intensity were reduced compared to FY2022. However, due to an increase in business activities toward achieving the STS2030 Revision, including those related to COVID-19, our energy consumption remained high, preventing us from achieving our annual target.

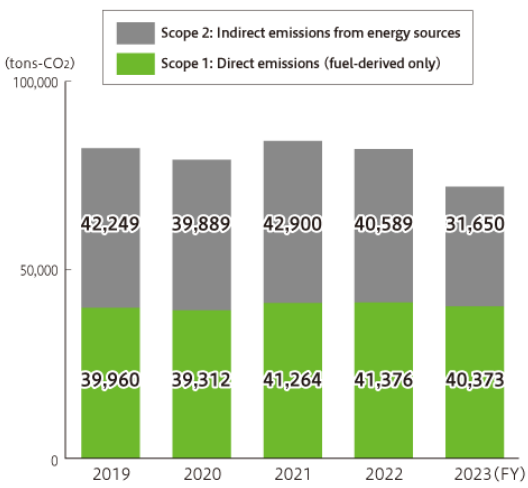


Since UMN Pharma Inc. and Nagase Medicals Co., Ltd. (currently Shionogi Pharma Co., Ltd. Itami Plant) were part of the SHIONOGI Group at the time of SBT certification (FY2021), the CO_2 emissions of these two companies were retroactively added to our CO_2 emissions for FY2019 and FY2020 to manage the CO_2 emission reductions targets.

CO_2 emissions and intensity



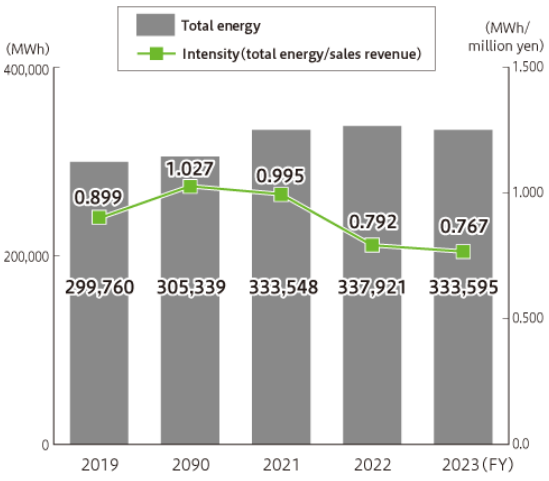
CO_2 emissions by Scope



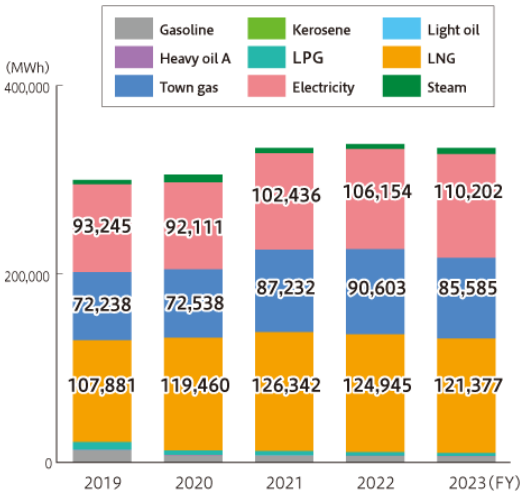
Calculated based on the International Financial Reporting Standards (IFRS) from FY2018

Since UMN Pharma Inc. and Nagase Medicals Co., Ltd. (currently Shionogi Pharma Co., Ltd. Itami Plant) were part of the SHIONOGI Group at the time of SBT certification (FY2021), the CO_2 emissions of these two companies were retroactively added to our CO_2 emissions for FY2019 and FY2020 to manage the CO_2 emission reductions targets.

Total energy and intensity

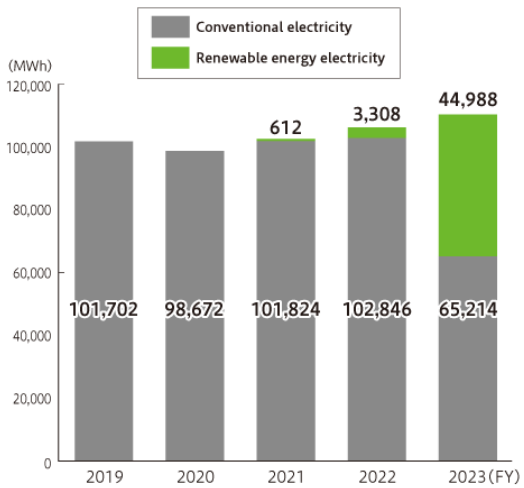


Consumption by energy



Calculated based on the International Financial Reporting Standards (IFRS) from FY2018

Changes in electricity consumption

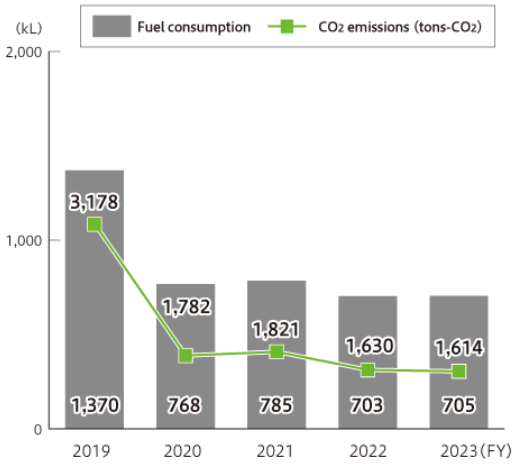


Vehicles for sales activities

Due to the spread of the COVID-19 pandemic and the promotion of DX in medical information provision activities, the proportion of medical representatives (MRs) working remotely is increasing. Consequently, fuel consumption by vehicles for sales activities remained lower in FY2023 than in FY2019, before the spread of COVID-19.

As for the reduction of CO_2 and exhaust gas emissions by converting vehicles loaned to MRs to hybrid vehicles, we have completed the conversion of all vehicles for sales activities to hybrid vehicles by FY2022.

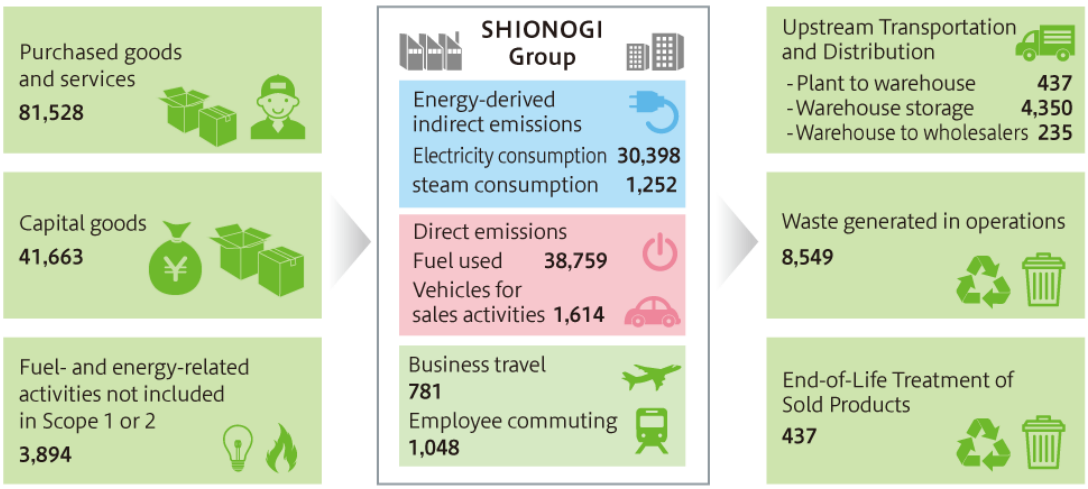
Fuel consumption by and CO_2 emissions from vehicles for sales activities



Reducing our Scope 3 emissions

SHIONOGI's Scope 3 emissions account for about 60% of our total greenhouse gas (CO_2) emissions. It is essential to work with suppliers to reduce CO_2 emissions throughout the supply chain in order to achieve our SBTs. Among SHIONOGI's Scope 3 emissions, Category 1 (purchased goods and services) emissions account for more than 50%. To reduce CO_2 emissions in this category, we have set a medium-term target on a priority basis to consider and implement countermeasures.

(Unit: tons-CO_2)



Scope1 : Direct emissions from the company's fuel use and industrial processes
Scope2 : Indirect emissions accompanying the consumption of electricity and thermal energy purchased by the company
Scope3 : Indirect emissions from the supply chain other than those under Scope 1 or 2

(Unit: tons-CO_2)

	Category	Emissions subject to accounting	FY2021 results	FY2022results	FY2023 results	Calculation methods (based on the Guidelines)
Scope1	Direct emissions: Fuel used	Direct emissions from the use of fuel and industrial processes by the reporting company	39,443	39,746	38,759	Amount of fuel used as defined under the Energy Conservation Act
	Vehicles for sales activities		1,821	1,630	1,614	Amount of fuel used for vehicles for sales activities
Scope2	Energy-derived indirect emissions	Indirect emissions from the use of electricity and heat purchased by the reporting company	42,900	40,598	31,650	Amount of electricity purchased as defined under the Energy Conservation Act
Scope3	Purchased goods and services	Emissions from activities up to manufacturing of raw materials, parts, purchased goods, sales-related materials, etc.	71,462	80,608	81,528	Purchase price of raw materials and merchandise purchased
	Capital goods	Emissions from construction and manufacturing of the reporting company's capital goods	53,847	41,742	41,663	Acquisition price of fixed assets newly acquired in the year
	Fuel- and energy-related activities not included in Scope 1 or 2	Emissions from procurement of fuel used in power generation, etc., for electricity and heat procured from other entities	6,424	6,468	3,894	Amount of electricity purchased
	Upstream Transportation and Distribution -Plant to warehouse	Emissions from distribution services (transport, cargo handling, and storage) purchased by the reporting company	81	89	280	・Upstream Transportation and Distribution of raw materials not included ・Downstream transportation and delivery of products (weight and distance) -Plant to warehouse
	-Warehouse storage		545	1,200	4,350	-Warehouse storage
	-Warehouse to wholesalers		322	235	389	-Warehouse to wholesalers
	Waste generated in operations	Emissions from transportation and processing of waste generated by the reporting company	6,962	8,020	8,549	Weight of waste materials classified by type
	Business travel	Emissions from business travel by employees	823	862	781	Number of employees
	Employee commuting	Emissions from transportation of employees when commuting to and from the place of business	1,177	1,442	1,048	Travel expenses calculated for each means of transportation
	End-of-Life Treatment of Sold Products	Emissions from transportation and processing of products upon disposal by users (consumers and companies)	556	446	437	Amount used by type as classified under the Containers and Packaging Recycling Act

The emissions for each category of Scope 3 are calculated using the “Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain (Ver.2.6)” of the Ministry of the Environment and the Ministry of Economy, Trade and Industry of Japan. Since FY2022, CO_2 emissions in Categories 1 and 2 of Scope 3 have been calculated using the emission intensity based on prices including consumption tax. In line with this, GHG emissions in FY2021 have been recalculated using the emission intensity based on prices including consumption tax.

In FY2021, SHIONOGI participated in the Model Project for Supporting Achievement of the Decarbonization Targets of the Entire Supply Chain, a project of the Ministry of the Environment aimed at helping companies achieve their GHG emissions reduction targets for the entire supply chain. Based on the CO_2 emissions reduction measures for the entire supply chain formulated in the project, we are building a collaborative system, including Group companies, to promote supplier engagement, and implementing a supply chain engagement process.*4

In FY2023, we conducted supplier engagement activities for our top 15 suppliers by purchase amount, including holding briefing sessions to promote their understanding of SHIONOGI’s policy on climate change, checking the status of their efforts to reduce CO_2 emissions (questionnaire), and holding study sessions on calculating Scope 3 emissions to support them. In the future, we will select more significant suppliers for CO_2 emissions reduction to ask them to reduce their CO_2 emissions, and support their efforts on a priority basis.

Supplier engagement implementation process

STEP1-1
Gain an understanding of suppliers’ CO_2 emissions and the current status of their reduction efforts (the setting of reduction targets, implementation of reduction activities, etc.) through interviews, etc.

STEP1-2
Hold briefing sessions to share SHIONOGI’s policies and useful information for CO_2 reduction.

STEP2
Conduct individual negotiations with significant suppliers (CO_2 emissions reduction request, individual support).

*4 See the Guidebook for Formulating a GHG Emissions Reduction Plan to Achieve the SBTs for more information on the supplier engagement process created under this project. (Japanese version only) (External website)

External activities for addressing climate change

Selected as an A List Company for the Second Consecutive Year in CDP Climate Change 2023

In the Climate Change Report 2023 published by CDP,[*5] an international non-profit organization that addresses environmental information disclosure, we received the highest rating of A.

Isao Teshirogi, Representative Director, President and CEO of SHIONOGI, delivered a speech at the CDP Awards Japan 2024 on SHIONOGI's initiatives as a double-A company in "Climate Change 2023" and "Water Security 2023." In the speech, he expressed SHIONOGI's intention to promote business transformation to create new healthcare solutions and deliver them globally, and at the same time to grow as a company needed by society while realizing a sustainable society through efforts to preserve the global environment.

Speech video (CDP Awards Japan 2024) (External website)
Speech video (Message from the executives of A List Companies) (External website)

*5 CDP
CDP is a non-profit organization whose main activities involve requesting companies and local governments to disclose information on their actions for climate change control, water resource protection, forest conservation, and other environmental issues based on the request of institutional investors and major corporate clients around the world with a strong interest in environmental issues, thereby promoting actions to tackle environmental issues. CDP is now one of the world's most useful information disclosure platforms on environmental issues.

Support for the messages from the Japan Climate Initiative (JCI)

The Japan Climate Initiative (JCI) is a network aimed at realizing a decarbonized society by enhancing information dissemination from and exchange of views between companies, local governments, and NGOs that are actively involved in climate change initiatives in Japan. SHIONOGI participated in the JCI in April 2021. As a member company, SHIONOGI expresses its support for all five messages/proposals published by the JCI to the Japanese government.

"JCI's Message: JCI calls on the Japanese government to set an ambitious 2035 target that is consistent with the 1.5-degree goal" (External website)

With medium- and long-term targets, including its SBTs, SHIONOGI is working daily to reduce its CO_2 emissions. We strongly support the JCI message since it is consistent with SHIONOGI's decarbonization policy, which aims to be carbon neutral by 2050.

Our efforts to combat AMR, which could spread further due to climate change

SHIONOGI's efforts against AMR (antimicrobial resistance) are presented on the website "Climate Change Adaptation Information Platform (A-PLAT)" operated by the National Institute for Environmental Studies, Japan.

See the section "AMR" for more information on SHIONOGI's AMR initiatives.

Shionogi & Co., Ltd. | Examples of adaptation business | Adaptation for Private Sector | Climate Change Adaptation Information Platform (A-PLAT) (nies.go.jp) (External website)

Water

Approach to Water | Targets and Results | Water Initiatives



Approach to Water

Water is the source of life, which nurtures diverse ecosystems while circulating and interacting with the atmosphere, soil, oceans, and rivers on the earth. It is also an important resource indispensable for people's lives and economic activities. Water shortages and increased flood risks due to global population growth, economic development, water pollution, and climate change have become important social issues, raising concerns about the serious impact on ecosystems, people's lives, and economic activities.

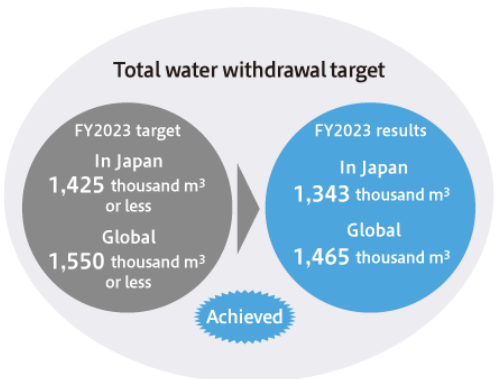
For the SHIONOGI Group ("SHIONOGI"), water is an essential resource for business continuity, and needs to be appropriately conserved and managed. SHIONOGI has identified "water" as Environmental Materiality. We assess the impact of water risks, such as water stress*1 and flooding, on our business, as well as the impact of our business activities on the water environment, and promote efforts to appropriately manage them.

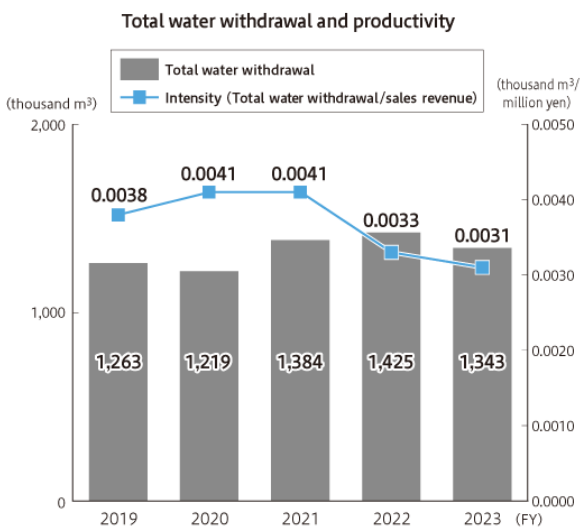
*1 Condition of strained water supply and demand

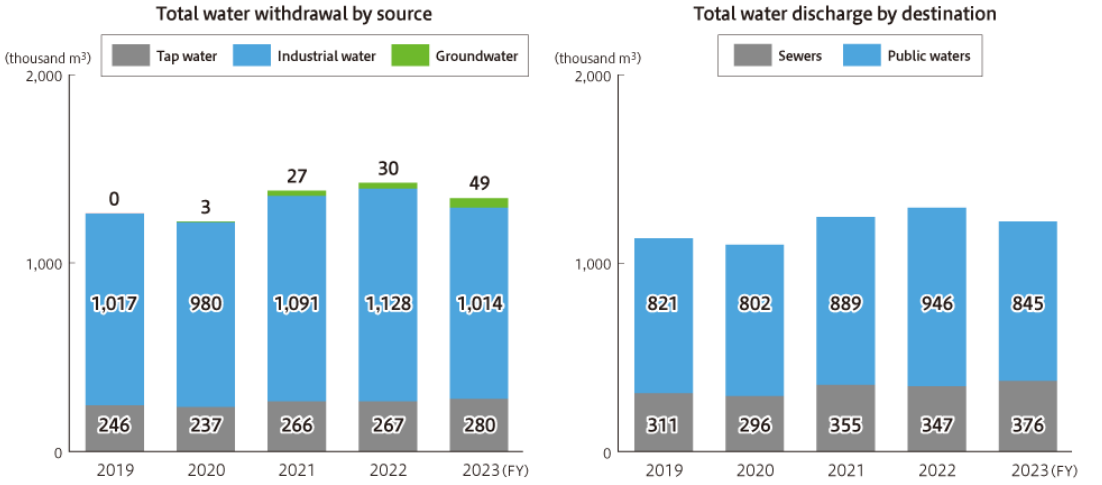
Targets and Results

Medium- and long-term targets

FY2023 target and result







Calculated based on the International Financial Reporting Standards (IFRS) from FY2018

Water Initiatives

Establishment of new medium- and long-term targets

SHIONOGI has set “Keep total water withdrawal at or less than 1,340 thousand m^3 (around the FY2018 level) in FY2024” as the medium-term target for water, and has promoted water-saving measures at each operating site. However, in recent years, increased activity at research laboratories and plants has inevitably led to an increase in water withdrawal, heightening the need for SHIONOGI to align its business growth with its water-related target setting. Therefore, when reviewing the SHIONOGI Group EHS Action Targets in FY2023, we set a new target that is not dependent on an increase in water withdrawal due to business expansion: “a water resource return rate of 85% or more in FY2035.”*2 The water resource return rate (total water discharge volume divided by total water withdrawal volume multiplied by 100) is an indicator of the extent to which valuable water resources in the catchment area of each operating site have been returned to the said area. By establishing indicators that will easily reflect improvements made through on-site efforts, such as reducing the amount of wastewater discharged as waste and the use of steam in manufacturing processes, we will strengthen our efforts to conserve water resources.

*2 Actual results for the new targets will be published from FY2025 based on the results of the FY2024 survey.

Visualization of water consumption

To protect water resources, SHIONOGI has strived to control water consumption at each operating site by raising employee awareness of water conservation, thoroughly managing the withdrawal of tap water and industrial water, and reviewing manufacturing equipment operation and cleaning plans to promote water conservation. To further improve the accuracy of water use management, we believe that it is necessary to visualize the details of water consumption, water use purposes, and water discharge balance at SHIONOGI’s operating sites. In FY2023, we created the Water Balance Sheet for all plants with large water consumption in Japan and began considering measures to control water consumption based on it. In the future, we plan to roll out similar measures to our research facilities and overseas Group companies.

Pharmaceuticals in the Environment

Pharmaceuticals released into the environment are drawing an increasing amount of attention, as attested to by the report on Pharmaceuticals in the Environment (PiE)*3 published by the Organization for Economic Cooperation and Development (OECD). To responsibly utilize water during the pharmaceutical manufacturing process and appropriately control the inclusion of pharmaceuticals in industrial wastewater, when starting new product manufacturing processes, SHIONOGI confirms that drug concentration in wastewater is designed to be at a level that does not have any impact on the natural environment.

In particular, as the responsibility of a company that deals in infectious disease drugs, SHIONOGI inactivates antimicrobials in the wastewater from the manufacturing buildings at antimicrobial drug plants, and confirms that their content is at a level that does not affect the natural environment before discharging the wastewater outside via in-house treatment facilities. By taking these thorough measures, we are striving to control the release of antimicrobials from the plants and prevent the emergence of new antimicrobial resistance (AMR) caused by SHIONOGI’s manufacturing facilities.

See the section “AMR” for more information on the environmental release management of antimicrobials.

*3 OECD “Pharmaceutical Residues in Freshwater” (External website)

Water risk assessment

Quality water is essential for pharmaceutical research and development as well as manufacturing at plants. Water depletion or flooding in the areas where our manufacturing plants are located can seriously impact our business continuity. Therefore, SHIONOGI assesses water risks, such as water stress and the probability of flooding, in the areas where our operating sites involved in manufacturing and research are located, using Aqueduct,*4 an internationally recognized assessment tool provided by the World Resources Institute (WRI), to consider measures to reduce the impact of and prevent water risks.

In-house deliberations based on the water risk assessment results and past experience and knowledge have led us to conclude that physical water risks at SHIONOGI's operating sites are low. Meanwhile, in recent years, the impact of climate change and other factors has led to record-breaking heavy rains and floods in various parts of the world, and we recognize the need to assess water risks from more diverse perspectives in the future. Through discussions with experts, we will prepare for future water risks by gaining a better understanding of the flood risks specific to the catchment area where each operating site is located and identifying water issues, including assessing water risks in consideration of the intensification of disasters.

We have also incorporated risk assessment based on Aqueduct into the selection of our suppliers to clarify their latent risks and minimize the impact of such risks.

*4 Water risk assessment tool developed and published by the World Resources Institute (WRI) Aqueduct | World Resources Institute (wri.org) (External website)

WRI Aqueduct assessment (water stress)

Country (operating site location)	No. of operating sites	Risk level / No. of operating sites					Future water stress change
		High	High to medium	Medium	Medium to low	Low	
Japan (Iwate, Shiga, Osaka, Hyogo, Tokushima, Akita, and Kanagawa)	9	—	2	—	7	0	Change to low to high levels by 2050
China (Jiangsu)	1	—	—	—	—	1	No major change until 2050

WRI Aqueduct assessment (water depletion)

Country (operating site location)	No. of operating sites	Risk level / No. of operating sites				
		High	High to medium	Medium	Medium to low	Low
Japan (Iwate, Shiga, Osaka, Hyogo, Tokushima, Akita, and Kanagawa)	9	—	—	—	7	2
China (Jiangsu)	1	—	—	—	—	1

Selected as an A List Company for the Second Consecutive Year in CDP Water Security 2023

In the Water Security Report 2023 published by CDP*5, an international non-profit organization that works on environmental information disclosure, we received the highest rating of A for the second consecutive year.

Isao Teshirogi, Representative Director, President and CEO of SHIONOGI, delivered a speech at the CDP Awards Japan 2024 on SHIONOGI's initiatives as a double-A company in "Water Security 2023" and "Climate Change 2023."

In the speech, he expressed SHIONOGI's intention to promote business transformation to create new healthcare solutions and deliver them globally, and at the same time to grow as a company needed by society while realizing a sustainable society through efforts to preserve the global environment.

Speech video (CDP Awards Japan 2024) (External website)
Speech video (Message from the executives of A List Companies) (External website)

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Resource Conservation and Circulation

Approach to Resource Conservation and Circulation | Targets and Results | Resource Conservation and Circulation Initiatives



Approach to Resource Conservation and Circulation

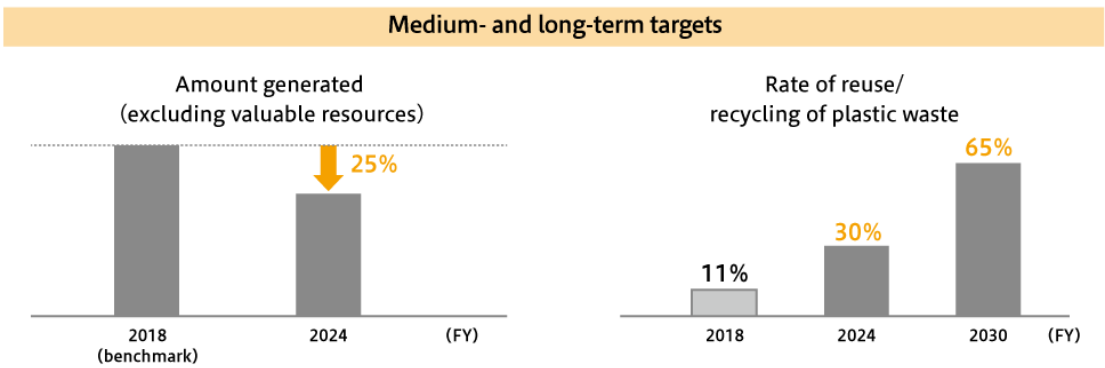
The SHIONOGI Group (“SHIONOGI”) believes that resource conservation and circulation are an important approach to addressing environmental issues, including resource depletion, and we work to reduce environmental impact by conserving and effectively using resources. Specifically, we promote the minimization of resource use and the reduction, reuse, and recycling of waste materials in corporate activities. From the clinical development stage of pharmaceuticals, we develop optimal manufacturing and packaging methods that focus on resource conservation and circulation during product manufacturing.

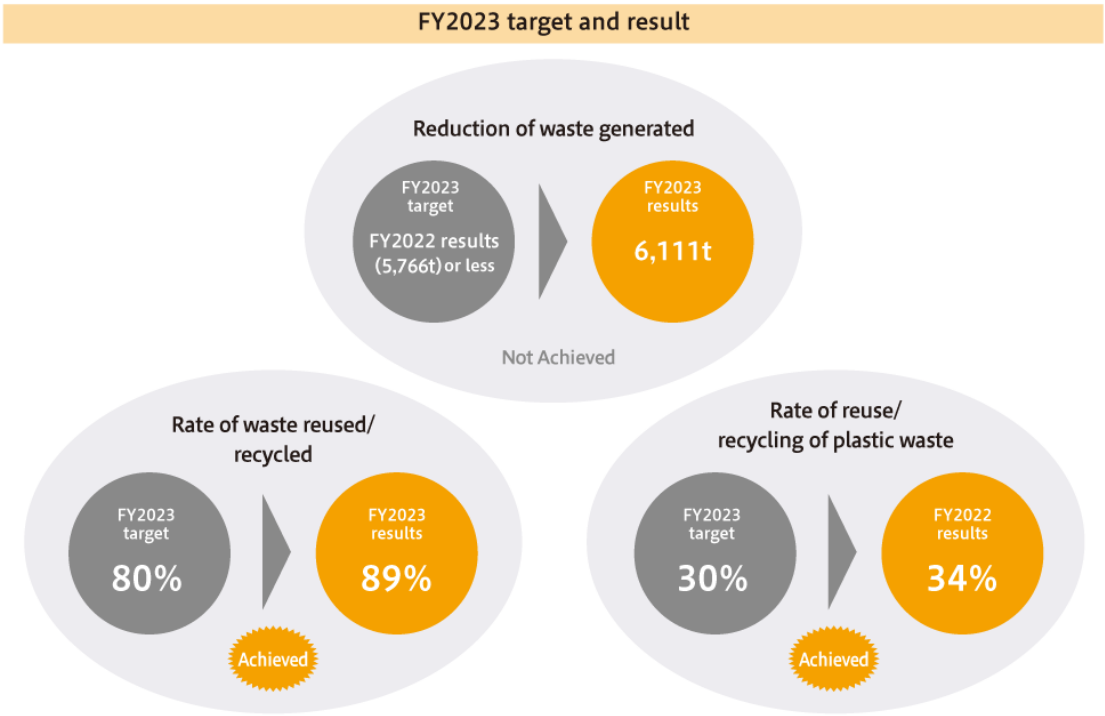
Shionogi Pharma Co., Ltd., which is responsible for SHIONOGI’s manufacturing functions, is thoroughly committed to the responsible disposal of plastics generated during the product manufacturing and packaging processes. It also works to reduce the amount of plastics used by changing the materials and specifications of packaging containers after confirming that this does not affect product quality or stable supply. It is also working to switch to biomass plastics with less environmental impact, adopt high-quality recycled plastics, and actively implement new technologies such as horizontal recycling technology for label mounts, which was jointly developed through the Resource Recycling Project,[*1] which involves multiple industries.

*1 Resource Recycling Project (shigenjunkan.com)

Targets and Results

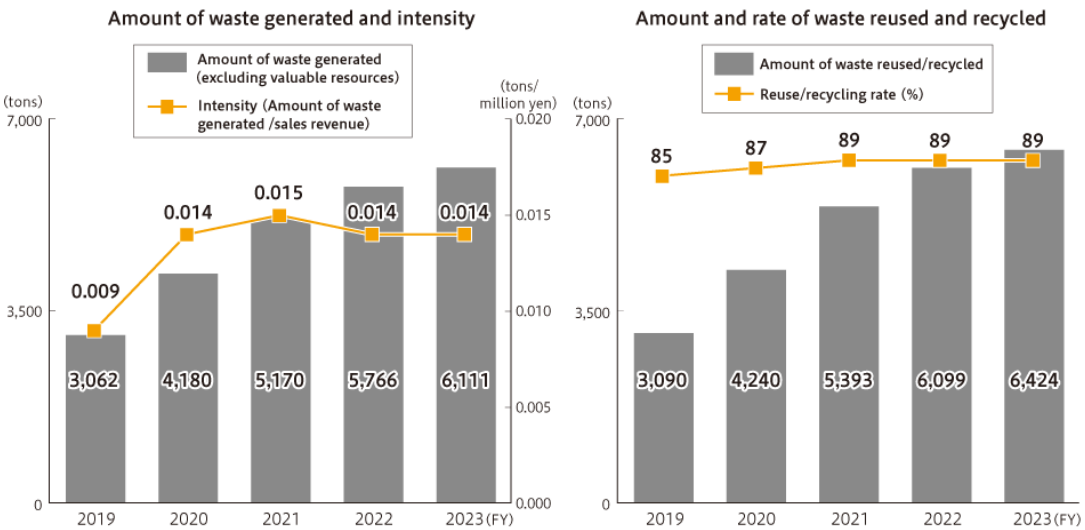
Medium- and long-term targets

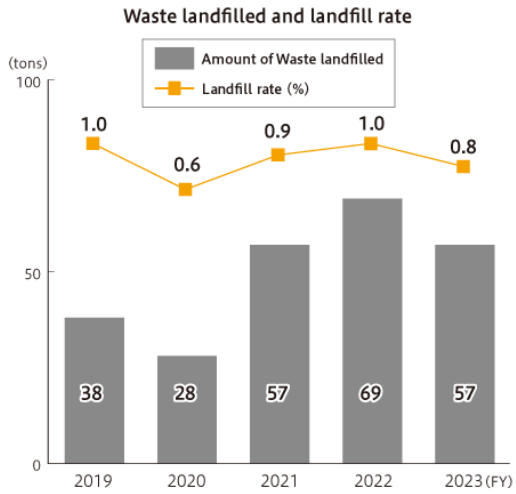


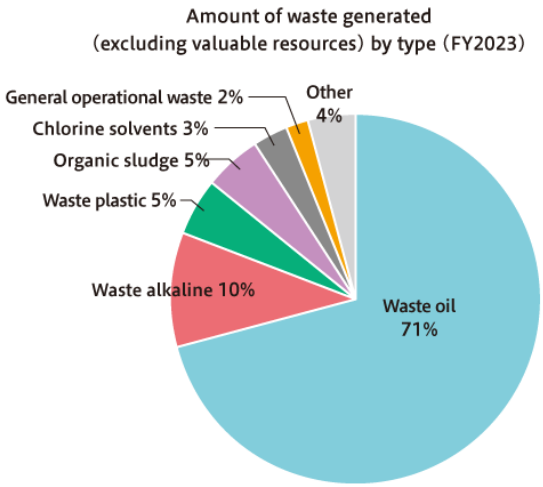


Containers and packaging materials used and amount consigned for reuse/recycling (FY2023 results) (tons)

	Containers and packaging materials used	Amount consigned for reuse/recycling
Plastic	510	171
Paper	105	3
Glass (transparent)	35	7
Glass (brown)	18	5







Resource Conservation and Circulation Initiatives

Establishment of new medium- and long-term targets

SHIONOGI has set medium-term targets for resource conservation and circulation as “a waste reduction rate of 25% or more (FY2018 benchmark), a waste recycling rate of 80% or more, and a waste plastic recycling rate of 30% or more in FY2024,” and “restrict plastic use in products,” and has promoted measures that lead to resource conservation and circulation at each operating site. Of these four targets, the target for “waste reduction rate” had not been achieved in recent years due to an increase in manufacturing volume resulting from business expansion. In light of the above, when reviewing the SHIONOGI EHS Action Targets in FY 2023, we set two new medium- and long-term targets that would not be affected by an increase in manufacturing volume due to business expansion: “a waste plastic recycling rate of 65% or more and a landfill rate of 1% or less in FY2035.”[*2]

With the two new medium- and long-term targets, SHIONOGI will work harder than ever to conserve and recycle resources.

*2 Actual results for the new targets will be published from FY2025 based on the results of the FY2024 survey.

Strategies for controlling plastic waste

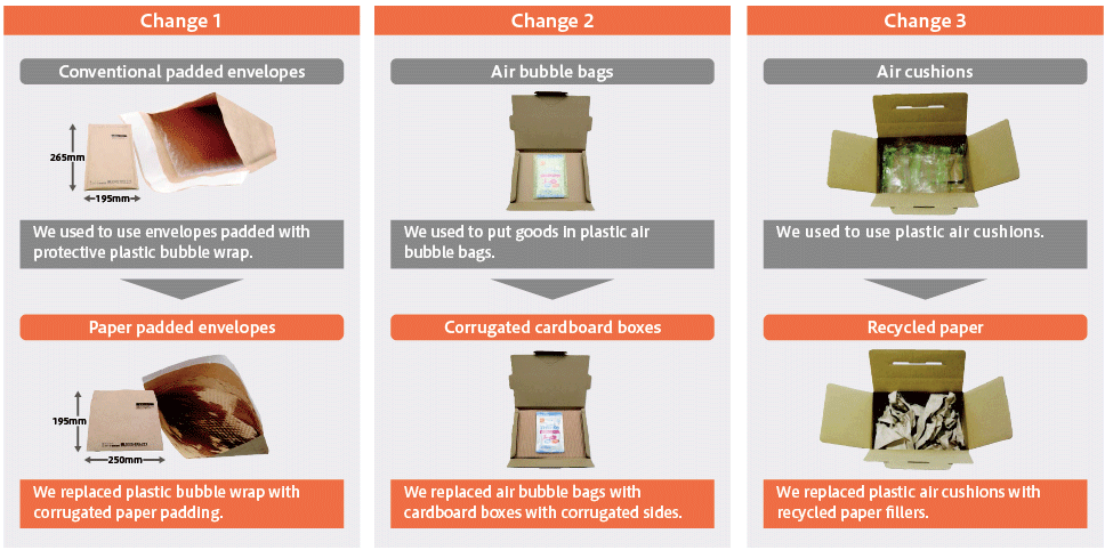
■3R (Reduce, Reuse, and Recycle) + Renewable initiative concerning containers and packaging materials

As a result of the following efforts in FY2023, we reduced the amount of plastic used by 2.4 tons compared to the conventional methods.

Measures	Item	Products concerned
Reduce	Change of packaging materials used for the delivery of products by mail order (from plastic to paper)	All healthcare goods through Shionogi Healthcare mail order service
	Change of material for trays (from plastic to paper)	All drugs provided in ampoules, vials, and tubes
	Change of thickness of eye drop containers (made thinner)	All eye drops
	Change of thickness of PTP packaging materials (made thinner)	*Flomox Tablets,* etc.
	Discontinuation of use of plastic cushioning materials for bottles	*Irbetan Tablets*, *Baktar Combination Tablets*, *Fluitran Tablets*
Reuse Recycle	Inscription of plastic container/packaging material identification marks	All products
	Adoption of mechanically recycled PET film	*Symproic Tablets*
	Horizontal recycling of label mounts “Resource Recycling Project”	Ampoule injection products, packaging boxes
Renewable	Adoption of biomass bottles (plant-derived polyethylene bottles)	*Cymbalta Capsules*, *Irbetan Tablets*, *Pirespa Tablets*, *Baktar* Combination Tablets, *Baktar* mini Combination Tablets, *Baktar* Combination Granules, *Cinal EX Pro* Chewable Tablets, *Almeta Ointment, Fulmeta Ointment, Rinderon-V, etc.*
	Adoption of biomass ink	Labels and individual packaging boxes for some products

■ Initiatives by Shionogi Healthcare Co., Ltd.

For its mail order service “Shionogi Healthcare ONLINE,” Shionogi Healthcare Co., Ltd. has changed all of the plastic materials used for product delivery to paper-based packaging since FY2019. Through this initiative, we have realized packaging that is not only environmentally friendly but also helps eliminate the need for customers to separate waste.



We also work to reduce the amount of plastic used by eliminating shrink packaging for individual packaging boxes, eliminating cap seal packaging, using biomass containers and ink, and using pulp molded containers.

Elimination of shrink packaging for individual packaging boxes



Elimination of cap seal packaging



Use of biomass containers

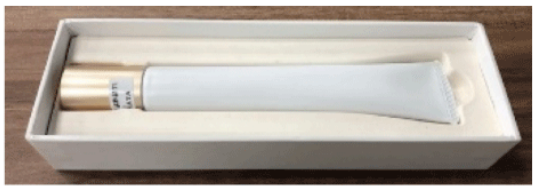


Use of biomass ink





Use of pulp molded containers



■ Mechanically recycled PET film

SHIONOGI uses mechanically recycled PET (polyethylene terephthalate) film in the packaging (aluminum bags) of *Symproic*.

Mechanically recycled PET film derives from used PET bottles that undergo several steps: selection, crushing, cleansing, and high-temperature decompression.

The replacement of virgin PET film in the outermost layer of the aluminum bags with mechanically recycled PET film results in reduced CO_2 emissions and fossil fuel conservation while maintaining the quality of the packaged products. This contributed to reducing CO_2 emissions by 0.25 tons compared to conventional film in FY2023. We are currently conducting a technical study to gradually expand the use of mechanically recycled PET film to other product packaging materials.



■ Biomass bottles

SHIONOGI uses biomass bottles for *Cinal EX Pro* chewable tablets, *Cymbalta*, *Irbetan*, *Pirespa*, *Baktar* combination granules, *Baktar* combination tablets, *Baktar* mini combination tablets, *Almeta*, *Fulmeta*, *Rinderon-DP, Rinderon-VG*, and *Rinderon-V*. Biomass bottles (plant-derived polyethylene bottles) are packaging containers made of polyethylene derived from materials left over from sugarcane processing. Renewable polyethylene derived from sugarcane accounts for more than 90% of the raw material of our biomass bottles, which conform to the standards established by the Japan BioPlastics Association for biomass plastic identification labeling (The biomass plastic symbol mark is displayed on the product containers).*3 By switching from conventional petroleum-derived polyethylene bottles to biomass bottles, we can reduce CO_2 emissions and conserve fossil fuel resources. This contributed to reducing CO_2 emissions by 42.3 tons compared to conventional bottles in FY2023. We are currently conducting a technical study to gradually expand the use of biomass polyethylene to other product packaging.



*3 Biomass plastic identification labeling: Biomass plastic products (biomass plastics) are those that contain organic (such as plant-derived) materials in excess of a specified percentage as their plastic component. The Japan BioPlastics Association certifies products that meet its criteria and permits the use of its symbol mark so that consumers can easily identify biomass plastics.

In-house reuse/recycling of resources

■ Reuse of organic solvents

We collect organic solvents used during the manufacturing process of active pharmaceutical ingredients (APIs) at the Kanegasaki Plant, such as dichloromethane, ethyl acetate, and methanol, for reuse in-house, thereby effectively using resources and controlling waste generation.

■ Horizontal recycling of label mounts under the “Resource Recycling Project”

Shionogi Pharma Co., Ltd. collects and recycles label mounts under the Resource Recycling Project, which promotes horizontal recycling*4 of label mounts*5 that were previously discarded in the manufacturing process.
This initiative has been gradually applied to SHIONOGI’s prescription drugs (shipping labels for the packaging boxes of nine types of ampoule injections), contributing to a reduction in industrial waste generated (approx. 0.7 tons/year), an improvement in the waste plastic recycling rate, and a reduction in CO_2 emissions (approx. 0.6 tons/year).

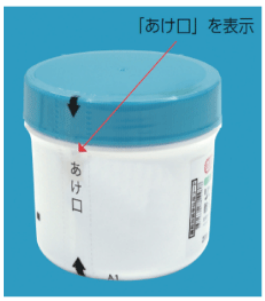
*4 Recycling that processes used products into raw materials to recreate the same type of products
*5 Label mounts (release paper, separator) to protect the adhesive side of the label. It is generally difficult to recycle label mounts because they are coated with a resin material to prevent them from adhering to the label glue.

Reduction of paper resources

SHIONOGI’s administrative offices, Shionogi Business Partner Co., Ltd., and the labor union of Shionogi & Co., Ltd. are working to conserve paper resources.

For products, in line with the revision of the Pharmaceuticals and Medical Devices Act*6 (for digitization of package inserts), we have abolished paper package inserts enclosed with products (all products are now compliant). Furthermore, for *Linderon* (three types of products), by changing from individual packaging boxes to shrink packaging,*7 we contributed to a reduction of 6.0 tons of paper resources in FY2023 (a reduction in CO_2 emissions of 0.48 tons) compared to conventional products.

*6 Act on Securing Quality, Efficacy and Safety of Products Including Pharmaceuticals and Medical Devices
*7 Packaging that uses the property of film that shrinks when heated to conform to the shape of the container



Individual packaging boxes abolished and changed to shrink packaging

Clean-up activities

Environmental pollution caused by marine plastic waste has become a major global issue. Marine plastic waste can partly be traced back to plastic waste generated overland and carried into the sea by rain and wind via rivers. Employees at SHIONOGI’s respective operating sites participate in clean-ups along the surrounding roads and other such initiatives organized in the local communities. Thus, we are working to contribute to the beautification of local areas and raise employee awareness of the environment and resource circulation.



Cleanup activities around the plant

Chemical Substances

Approach to Chemical Substances | Chemical Substance Management Initiatives | Environmental and safety consideration of chemical processes



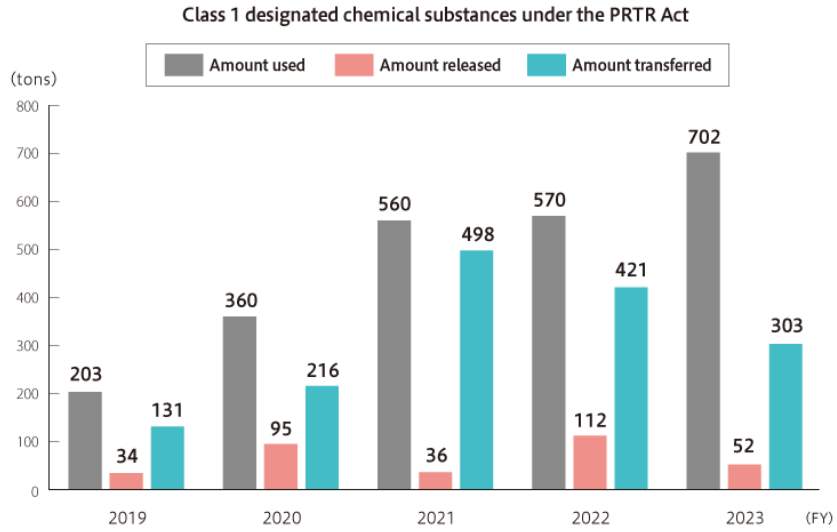
Approach to Chemical Substances

The process of pharmaceutical research, development, and manufacturing involves the use of numerous types of chemical substances. Some of them can adversely impact human health, ecosystems, and the global environment. There are various laws and regulations related to chemical substances, including the Pollutant Release and Transfer Register (PRTR) Act, which require strict management. We recognize that as a company that handles chemical substances, it is our responsibility to properly manage chemical substances and control their release into the atmosphere, sewers, and public waters. In addition to complying with the relevant laws and regulations, the SHIONOGI Group (“SHIONOGI”) strives to control the release of chemical substances into the environment by setting its own voluntary control criteria, which are stricter than those imposed by these laws and regulations.

Chemical Substance Management Initiatives

PRTR

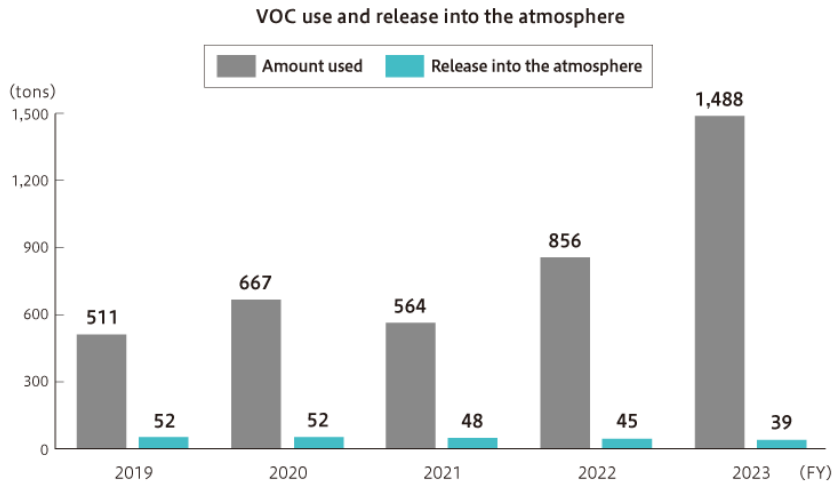
SHIONOGI manages designated chemical substances in accordance with the PRTR Act, under which it is mandatory to record, calculate, and publish the status of the release of chemical substances into the environment. We keep track of the amount of designated chemical substances that are released into the atmosphere and rivers, disposed of, and recycled in our operations, and submit the necessary reports. We also control the amount of volatile organic compounds (VOCs) we use, release, and transfer. Since designated chemical substances are properly treated and disposed of as waste materials, there is no release from our operating sites via sewage. (Designated chemical substances treated as waste materials are included in the amount transferred.)



Substances to be registered under the PRTR Act (Unit: kg)

Substance name*1	Amount used	Amount released			Amount transferred	
		Atmosphere	Drainage (public waters)	Soil	Outside operating sites	Sewers
N-Methyl-2-pyrrolidone	59,061	11	0	0	59,049	0
Chloroform	7,070	228	0	0	6,843	0
Dichloromethane (methylene chloride)	172,288	47,955	3	0	75,880	0
Tetrahydrofuran	233,608	3,383	0	0	107,177	0
Toluene	2,033	10	0	0	2,023	0
Hexane	6,682	516	0	0	6,166	0
Heptane (n-heptane)	1,103	11	0	0	1,092	0
Carbon disulfide	5,045	25	0	0	5,020	0
N,N-Dimethylformamide	33,337	54	0	0	2,091	0
Pyridine	6,175	0	0	0	4,949	0
4-Methyl-2-pentanone (methyl isobutyl ketone)	168,443	190	0	0	27,805	0
N,N-Dimethylacetamide	3,061	0	0	0	3,061	0
Tributylamine	2,995	0	0	0	3,061	0
Cyclohexane	1,590	16	0	0	1,574	0
G. total	702,491	52,400	3	0	302,730	0

*1 Name under the PRTR-SDS Law



Although the amount of VOCs used by us this fiscal year increased due to an increase in plant manufacturing, the amount released into the atmosphere was below the FY2022 level due to appropriate management. We will continue our responsible management of the use, release, and transfer of chemical substances, controlling their release into the atmosphere, sewers, and public waters, to reduce the impact that our operations may have on the environment.

PCB

Polychlorinated biphenyls (PCBs) are synthetic, mainly oily chemical substances. It has been reported that when they accumulate in the bodies of living organisms, they cause various symptoms. PCBs released into the environment are a cause of great concern in terms of global-scale contamination because they are resistant to decomposition in the environment but soluble in fat, resulting in their tendency to accumulate in the bodies of living organisms through the food chain. PCBs were previously used in numerous items, such as condensers, transformers, and fluorescent light ballasts, and waste materials and equipment in use that contain PCBs must be strictly managed.

SHIONOGI appoints a manager to properly manage PCB-containing equipment for each organization or business site. Moreover, in accordance with the Act on Special Measures concerning Promotion of Proper Treatment of PCB Wastes (PCB Special Measures Act), we gradually proceeded with the proper disposal of PCB-containing equipment, and completed the disposal of all equipment containing high concentrations of PCBs installed in the buildings and premises we own by FY2022. We continue to take steps to complete the disposal of equipment containing low concentrations of PCBs by March 31, 2027, the deadline set forth in the PCB Special Measures Act.

Fluorocarbons

In compliance with the Act on Rational Use and Proper Management of Fluorocarbons, SHIONOGI identifies the relevant refrigeration and freezing, air-conditioning, and other types of applicable equipment that it possesses and operates, carries out simplified and periodic inspections, keeps related records, and calculates the amount of leakage. In FY2023, SHIONOGI's calculated fluorocarbons leakage was 727 tons-CO_2. In compliance with the Kigali Amendment to the Montreal Protocol,[*2] we are promoting a switch to fluorocarbon-free or low-GWP[*3] equipment at the time of renewal.

*2 The Montreal Protocol on Substances that Deplete the Ozone Layer, based on the Vienna Convention for the Protection of the Ozone Layer, restricts substances likely to destroy the ozone layer, namely chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs). The Kigali Amendment to the Montreal Protocol includes restrictions on the production and consumption of hydrofluorocarbons (HFCs), a non-ozone-depleting fluorocarbon alternative with a high greenhouse effect.

*3 GWP: Global Warming Potential

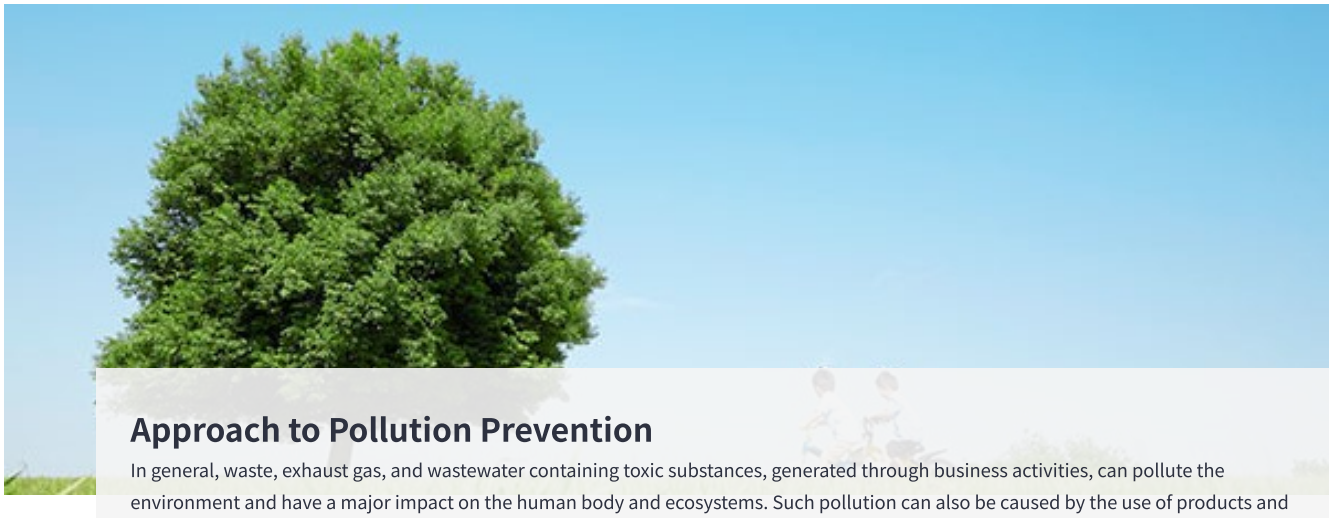
Environmental and safety consideration of chemical processes

SHIONOGI performs preliminary assessments of the safety of chemical substances and the danger of reactions and incompatibilities in the development stage of manufacturing and testing methods for pharmaceutical compounds and candidate compounds, and in the design stage of related equipment. We also examine manufacturing processes so as to enhance efficiency in terms of waste reduction, energy conservation, and the like in the manufacturing stage.

See the section "AMR" for more information on the environmental release management of antimicrobials.

Pollution Prevention

Approach to Pollution Prevention | Pollution Prevention Initiatives



Approach to Pollution Prevention

In general, waste, exhaust gas, and wastewater containing toxic substances, generated through business activities, can pollute the environment and have a major impact on the human body and ecosystems. Such pollution can also be caused by the use of products and by the disposal of products that are no longer needed. In Japan, the discharge of waste and toxic substances increased during its high economic growth period due to the country's industrialization and economic development. This led to contamination of the atmosphere, water, soil, and groundwater, resulting in various problems that impaired the health of the people. Environmental pollution, once it occurs, has a serious impact on local communities and biodiversity, which can only be restored to their original state–if at all–by spending a great deal of time and money. We recognize that preventing pollution is an important issue for a company to protect the health and living environment of the people.

The SHIONOGI Group ("SHIONOGI") stipulates in the SHIONOGI Group EHS Policy and the SHIONOGI Group EHS Code of Conduct that it will comply with laws and regulations related to the environment and occupational health and safety, and strive to maintain and improve EHS standards. We have established an EHS management system, in which we thoroughly comply with laws and regulations related to air, water, and soil pollution and assess the status of compliance, and thereby work to prevent pollution throughout the group.

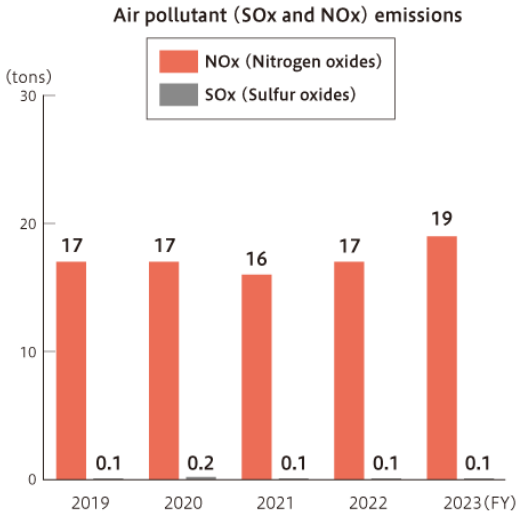
Pollution Prevention Initiatives

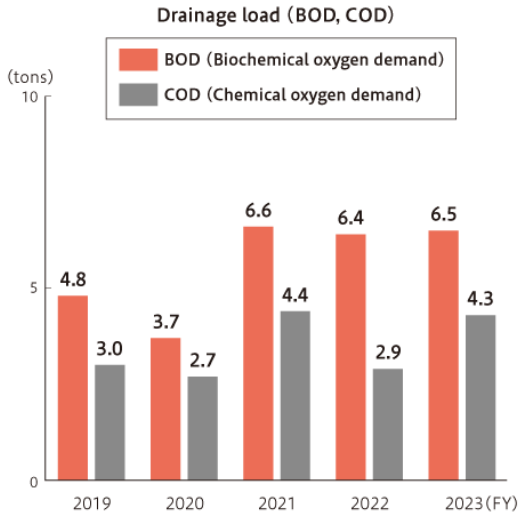
Prevention of air, water, and soil pollution

To prevent air pollution, SHIONOGI strictly observes the regulatory values for NOx, SOx, and particulate matter. In FY2014, we completed a fuel conversion from heavy oil, which contains many impurities, to liquefied natural gas at the Kanegasaki Plant, thus achieving a significant reduction in SOx emissions. Moreover, to prevent contamination in sewers and public waters by wastewater, we set voluntary criteria for pollutants, which are stricter than those imposed by related laws and regulations, and carry out round-the-clock monitoring of wastewater with the use of TOC[*1] meters and oil content monitoring devices. In particular, at the Kanegasaki Plant, the Tokushima Plant, and the Aburahi Research Center, where wastewater is released into rivers—which are public waters—from operating sites, wastewater is treated and purified at the facilities before it is released into nearby rivers.

The Kanegasaki Plant, which uses large quantities of chemical substances, sets voluntary criteria for soil pollution and takes periodic measurements. It has been confirmed that the measurements are consistently below the applicable environmental standard values.

*1 TOC: Total Organic Carbon





Compliance with related laws and regulations

Environment-related laws and regulations cover a wide range of issues, including waste and energy management, the prevention of air and water pollution, and the management of chemical substances. To ensure thorough compliance, we share information on legal and regulatory revisions with each operating site, organize educational programs, and compile relevant information and knowledge in manuals. We also conduct a periodic assessment of the status of legal and regulatory compliance. As with environmental matters, we also ensure legal and regulatory compliance and assessment with regard to health and safety.

As a result of promoting these initiatives SHIONOGI has not been subject to any litigation or penalties for EHS-related violations to date.

Number of incidents of excess emissions (exceeding legal restrictions) (cases)

FY	2019	2020	2021	2022	2023
Shionogi & Co., Ltd.	0	0	0	0	0
Group companies	0	1	0	0	0

Number of complaints relating to the environment (cases)

FY	2019	2020	2021	2022	2023
Shionogi & Co., Ltd.	0	0	2	1	0
Group companies	0	0	1	0	0

Biodiversity

Approach to Biodiversity | Biodiversity Initiatives



Approach to Biodiversity

Based on the SHIONOGI Group EHS Policy and the SHIONOGI Group EHS Code of Conduct, the SHIONOGI Group (“SHIONOGI”) will work together with business partners to promote initiatives aimed at preserving natural capital. We appreciate the benefits from abundant nature and diverse living things in all our value chain activities, including research, development, manufacturing, distribution, and marketing, to create pharmaceuticals and other healthcare solutions and deliver them to society. We also work to reduce the negative impacts these activities have on biodiversity. Specifically, we aim to conserve biodiversity over the medium to long term by working with our suppliers to reduce the negative impacts of our business activities, while taking into account the four material issues of ”AMR,”[*1] “climate change,” “resource conservation and circulation,” and “water,” which have been identified as Environmental Materiality.

*1 AMR: Antimicrobial Resistance

Biodiversity Initiatives

Governance

SHIONOGI recognizes that initiatives for biodiversity issues are as important as those for climate change issues and promotes measures to address these issues under a common governance structure. We have established an integrated EHS management function that unifies and manages various activities related to the environment, health, and, safety (“EHS”). The progress of specific measures against biodiversity risks is managed by this EHS function.

See the section “SHIONOGI’s Climate Change Strategies” for information on the relationship with the integrated EHS management function and the Enterprise Risk Management system.

Participation in Initiatives

SHIONOGI has endorsed the Declaration of Biodiversity by Keidanren and Action Policy (Revised Edition) and has announced its environmental policy for the future and specific examples of environmental initiatives through the Keidanren Initiative for Biodiversity Conservation.

Keidanren Initiative for Biodiversity Conservation (External website)

Moreover, in September 2023, we joined the 30by30 Alliance for Biodiversity, a platform that consists of volunteer companies, local governments, and organizations, supporting its founding purpose of “promoting efforts to achieve the 30by30 target, an international target of protecting or conserving at least 30% of land and sea areas by 2030.” We will continue to strengthen our activities to conserve biodiversity, aiming for the international goal of Nature Positive to halt and reverse biodiversity loss by 2030.

Ministry of the Environment: 30by30 Alliance for Biodiversity (External website)

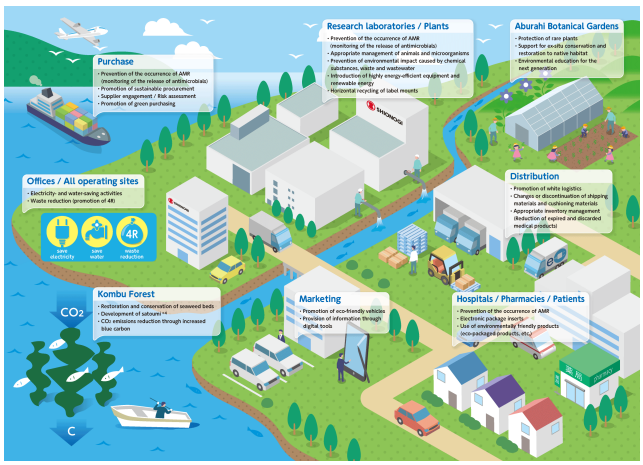
Relationship between Business Activities and Nature

As a social movement regarding biodiversity, the Kunming-Montreal Biodiversity Framework*2 was adopted at the 15th Conference of the Parties to the Convention on Biological Diversity (COP15) in December 2022, and the Task Force on Nature-Related Financial Disclosures (TNFD)*3 framework was published in September 2023. In both frameworks, companies are required to identify and assess their dependence and impact on biodiversity and biodiversity risks and opportunities in business, and take the necessary measures for sustainable consumption (based on the LEAP approach).

SHIONOGI analyzes and organizes the connection between its business activities and nature, as well as the impact that its business activities have on the natural environment through this connection and its biodiversity initiatives to reduce this impact, focusing on direct operations in its pharmaceutical business and the upstream of the supply chain. Based on the results, we will continue to strengthen our effective efforts to conserve biodiversity.

*2 Kunming-Montreal Biodiversity Framework: A global goal for biodiversity to be achieved by 2030, following the Aichi Biodiversity Targets, a set of global targets by 2020 adopted at COP 10
*3 TNFD: A framework for companies and financial institutions to assess their dependence on natural capital and impact on ecosystems, and provide information to investors and other stakeholders based on their assessment results

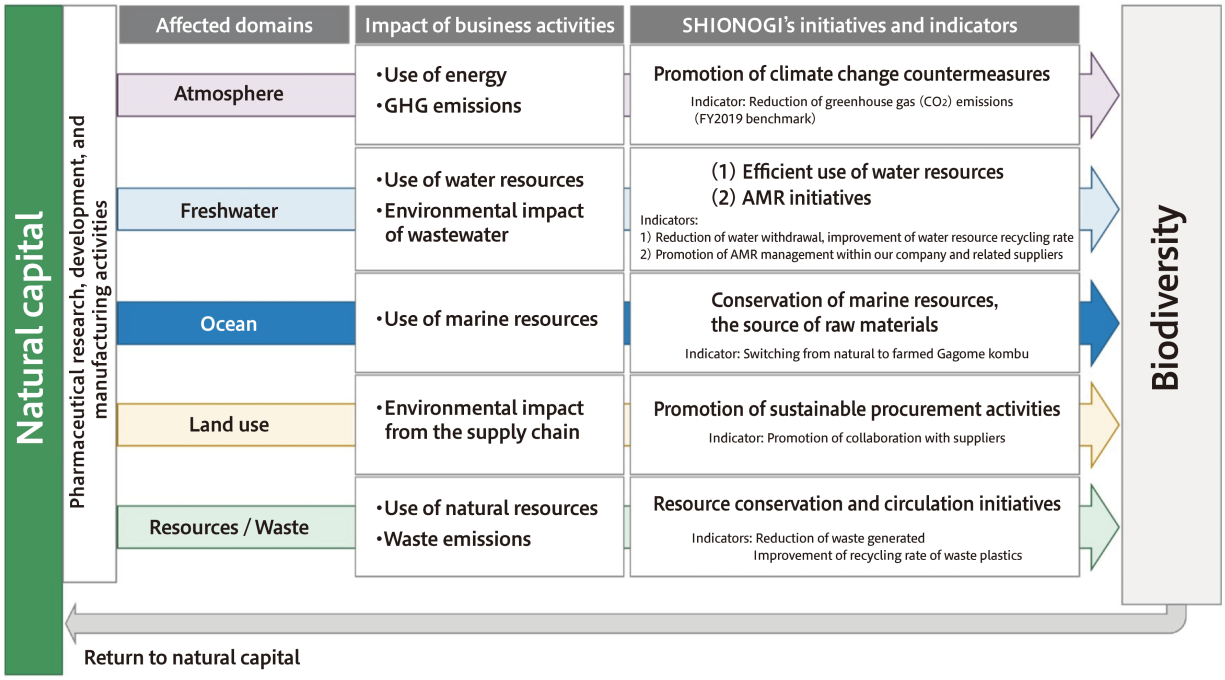
All industries depend on nature, and the pharmaceutical industry is no exception. The diagram on the right shows the relationship between the value chain that constitutes SHIONOGI’s business activities and nature. For example, in research laboratories and plants that are responsible for the research, development, and manufacturing of pharmaceuticals, there are occurrences of handling and disposal of chemical substances as well as the generation of waste and wastewater. If these chemical substances, waste, or wastewater accidentally leak into the environment around our operating sites, this could have a negative impact on nature and biodiversity. In addition, since SHIONOGI’s main medicinal products are antimicrobials, there is a risk of AMR occurring in the surrounding environment across all activities in the antimicrobial value chain. As seen above, SHIONOGI’s business activities are related to nature in many ways.



Click on the image to enlarge

*4 Satoumi：A coastal area where bioproductivity and biodiversity have increased through human interaction

The following diagram summarizes the impact that SHIONOGI's business activities centered on pharmaceutical research, development, and manufacturing have on various natural domains, such as the atmosphere, freshwater, and oceans, as well as our initiatives and indicators for reducing the negative impacts on nature.



SHIONOGI's Initiatives

SHIONOGI recognizes the impact of its business activities on the global environment, such as the consumption of natural resources, emissions into the atmosphere and water, and generation of waste. Believing that reducing environmental impact is an important issue, we are taking the following measures.

Table 1: SHIONOGI Group's biodiversity initiatives

Main item	Overview	Related URL
Reduction of impact on the surrounding environment based on laws and regulations	・Promotion of compliance (Air Pollution Control Act, Water Pollution Control Act, Sewerage Act, Soil Contamination Countermeasures Act, etc.)	・See this page for details
	・Appropriate management of chemical substances	・See this page for details
	・Appropriate management of genetically modified organisms	・See this page for details
Climate change countermeasures aiming for carbon neutrality by 2050	・Promotion of efforts to reduce greenhouse gas emissions ・Introduction of electricity derived from renewable energy	・See this page for details
	・Assessment of business risks and opportunities for SHIONOGI and information disclosure in relation to climate change	・See this page for details

Main item	Overview	Related URL
Efficient use of water resources	・Reduction of water resource usage	・See this page for details
AMR initiatives	・Wastewater management at antimicrobial-manufacturing plants	・See this page for details
	・Awareness-raising activities and information provision for the proper use of antimicrobials	・See this page for details
Resource conservation and circulation initiatives	・Promotion of waste reduction, reuse, and recycling	・See this page for details
Promotion of sustainable procurement	・Promotion of sustainable procurement activities based on the Procurement Policy	・See this page for details
Marine resource conservation activities	・Promotion of the Reforesting Kombu Project	・See this page for details
Nature conservation activities and social contribution around our operating sites	・Initiatives for conserving rare bird species ・Initiatives at the Aburahi Botanical Gardens ・Activities at our operating sites	・See this page for details.

Appropriate Management of Genetically Modified Organisms

Genetically modified organisms used in research and manufacturing activities are appropriately managed in accordance with the Act on the Conservation and Sustainable Use of Biological Diversity through Regulations on the Use of Living Modified Organisms (Cartagena Protocol), and the committee in charge has established internal regulations that conform to laws and regulations. We also educate our employees to prevent the spread or leakage of genetically modified organisms into the environment.

Marine Resource Conservation Activities: Reforesting Kombu Project

Shionogi Healthcare Co, Ltd., our Group company that handles OTC drugs, manufactures and markets health foods that use fucoidan, a component extracted from Gagome kombu (kelp). However, due to a combination of reasons, such as an imbalance of supply and demand in the sea caused by the recent increase in sea urchins and abalones, which feed on seaweed, and overfishing caused by the Gagome kombu boom, natural Gagome kombu, which mainly inhabits the waters near Hakodate, Hokkaido Prefecture, is facing the crisis of possible extinction in the area.

As a company that handles products using Gagome kombu, Shionogi Healthcare has started the Reforesting Kombu Project to restore natural Gagome kombu to its former state in which it grew thickly like a forest. The purpose of the project is to switch our use from natural to farmed kombu, and to reduce the use of natural Gagome kombu to zero by the end of FY2024. Under the “Project for Promoting the Launch of Business Based on Local Community-Company Partnership” subsidized by the Ministry of Economy, Trade and Industry, we are collaborating with Hakodate City and local universities and companies to improve the quality of farmed Gagome kombu and promote the spread of farmed kombu by establishing a stable supply system. Thus, we are working to conserve and restore natural Gagome kombu. Starting in FY2019, we have begun using farmed Gagome kombu as a raw material for our products, and the rate of switching to farmed Gagome kombu reached over 50% in FY2023. In FY2024, we completed the switch to farmed Gagome kombu for our flagship product, the Fucoidan PROTECT series.

Going forward, we not only expect benefits for biodiversity conservation, but also consider initiatives aimed at contributing to blue carbon[*5] through farmed kelp. By increasing farmed kelp, which serves as a carbon sink, we will contribute to the realization of a carbon-neutral society and advance multifaceted efforts to preserve the global environment.

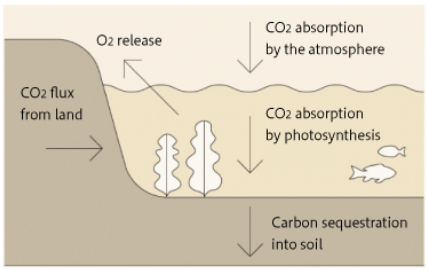


Gagome kombu being farmed



Click the image to view the project website.
(in Japanese) (External website)

*5 Blue carbon
Blue carbon refers to the carbon that is taken from the atmosphere into the ocean by marine ecosystems such as seaweed beds and shallow reefs. Blue carbon sinks include seagrass beds, seaweed beds, tidal flats, and mangrove forests, which are called “blue carbon ecosystems.” Carbon dioxide absorbed through photosynthesis in blue carbon ecosystems passes through the bodies of living organisms as organic carbon and is stored on the ocean floor for a long period of time.



Nature conservation activities and social contribution around our operating sites

Initiatives for conserving rare bird species

In recent years, highly pathogenic avian influenza (HPAI) has been rampant, and there have been reports of mass deaths not only of poultry raised for human use such as chickens and ducks, but also of wild birds and mammals. HPAI also poses a major threat to rare bird species that are at risk of extinction.

In 2023, SHIONOGI launched a project to protect rare bird species from HPAI through the proper use of influenza drugs. In collaboration with the Hokkaido University One Health Research Center, the Institute for Raptor Biomedicine Japan, and the NPO Animal Hospital Okinawa, we work every day to achieve the goal of “establishing a system for the proper use of therapeutic drugs against infectious diseases that threaten biodiversity.” Based on the concept of “One Health,” which considers the health of the entire planet, including the health of not only humans but also animals and ecosystems and the environmental issues that affect them, we hope to contribute to halting the decline of biodiversity.



Birds released as part of the operations of the Ministry of the Environment’s Kushiroshitsugen Wildlife Center



Photo provided by: NPO Animal Hospital Okinawa

> Researchers on One Health and the Proper Use of Medications: Behind the Scenes of Rare Species Conservation and Infectious Disease Control | Shionogi & Co., Ltd. (shionogi.com)

Initiatives at the Aburahi Botanical Gardens

There are many pharmaceuticals of plant origin. Even today, plants are important specimens for pharmaceutical research and are used as raw materials for pharmaceuticals. The Aburahi Botanical Gardens was established in 1947 within the Aburahi Research Center located in Koka City, Shiga Prefecture. Initially, plant cultivation was carried out for the purpose of cultivating origin plants for pharmaceuticals and searching for drug discovery seeds from natural plants. However, it has now been refurbished as a facility for promoting environmental initiatives and conducting community and social contribution activities. At the Gardens, more than 1,000 species of plants, including threatened and rare species, are managed and maintained.

Contribution to the conservation of threatened species

At the Aburahi Botanical Gardens, we are involved in conserving threatened species and rare plants. We are also conducting ex-situ conservation of plants that are in danger of extinction in the area, breeding them at the Gardens, and then returning them to their own habitat.



Dracocephalum argunense (Endangered Class II)



Nymphoides indica (Near Threatened Class)

Conservation status of threatened species by category

Categories specified by the Ministry of the Environment (Endangered Class IA, Endangered Class IB, Endangered Class II, Near Threatened Class)	73 species
Categories specified by Shiga Prefecture (Endangered species, vulnerable species, rare species, species requiring attention, important species in terms of distribution, other important species)	71 species
Categories specified by Koka City (Extinct species, endangered species, vulnerable species, species requiring attention, local species)	46 species

Environmental education for stakeholders

As part of our social contribution activities for the local community through the Aburahi Botanical Gardens, we invite experts from Kyoto Pharmaceutical University to provide educational support to local elementary school students, who will lead the next generation. We also provide opportunities to learn about the environment by holding garden tours, targeting high school and university students, those enrolled in a university for seniors, and new employees of SHIONOGI.

Results

		FY2021	FY2022	FY2023
Aburahi Botanical Gardens tour	Number of times	4	13	20
	Total number of participants	84	153	335
	Total number of participating employees	13	64	64
Visiting class	Number of times	4	4	4
	Total number of participating employees	12	20	18



Educational support for local school children

– Aburahi Botanical Gardens receives three stars in the Shiga Prefecture Certificate of Biodiversity Initiatives

The Aburahi Botanical Gardens received three stars, the highest rank, in the 2021 Shiga Prefecture Certificate of Biodiversity Initiatives because its community and social contribution activities, stated above, were evaluated as effective initiatives for the conservation of biodiversity and the sustainable use of natural resources.



Community clean-up activities

Clean-up activities are conducted around our operating sites: Shionogi Pharmaceutical Research Center, Shionogi CMC Research Innovation Center, Shionogi Smile Heart, Shionogi Pharma's Kanegasaki Plant, Settsu Plant, Tokushima Plant, Itami Plant, and Amagasaki Office, and UMN Pharma's Akita Plant. At Shionogi Pharma's Kanegasaki Plant, employees volunteer to help with snow removal during the winter. This activity also serves the role of watching over elderly people living alone to make sure they are staying healthy.

We also participate in various programs such as the Adopt Road Program run by Osaka Prefecture and the SpoGomi program run by the Social Sports Initiative, contributing to environmental conservation in the local community.

	FY2021	FY2022	FY2023
Number of times	21	75	94
Total number of participating employees	381	721	882



Clean-up activities

Other activities

Shionogi Smile Heart Co., Ltd., our Group company, is working on the Green Smile Initiative to green our operating sites across the country. This initiative recruits collaborators and supporters from among SHIONOGI's employees nationwide to have them grow office plants while communicating with each other. This not only has a greening effect on our operating sites but also helps to raise employees' environmental awareness. Shionogi Smile Heart is a special subsidiary company that employs people with disabilities, and through this initiative, it has helped to raise awareness of the employment of people with disabilities among Group employees and to promote DE&I.



Moreover, as part of the efforts to contribute to environmental protection activities and biodiversity conservation, Shionogi Pharma and Shionogi Techno Advance Research Co., Ltd., which are our Group companies, collaborate with Suntory Beverage Solution Ltd. to install original vending machines in all their locations. By visualizing the SHIONOGI Group's Aburahi Botanical Gardens' initiative "Conservation and Management of Endangered Species and Medicinal Plants" and Shionogi Healthcare's "Reforesting Kombu Project" on the vending machines, they provide the opportunity for employees to think about environmental conservation at random moments in their daily life, aiming to raise their environmental awareness. They also donate a portion of the vending machines sales to outside environmental protection organizations to contribute to resolving social issues.



SHIONOGI Group's Climate Change Strategies

Climate Change Countermeasures as Part of Management Strategy | SHIONOGI's Governance Structure and Risk Management | Consideration of SHIONOGI's Climate Change Strategies | Metrics and Targets for SHIONOGI's Climate Change Countermeasures

Climate Change Countermeasures as Part of Management Strategy

In 2022, the SHIONOGI Group ("SHIONOGI") announced its support for the TCFD[*1] recommendations and participated in the TCFD Consortium, in which companies and financial institutions in Japan that support the TCFD recommendations work together to promote initiatives. We then established a project that involved organizations related to management strategy and procurement, and conducted a scenario analysis using two levels of temperature increase, 1.5°C and 4°C, based on social trends toward decarbonization with reference to the TCFD framework. We also formulated climate change strategies, which included assessing and identifying risks and opportunities, evaluating the financial impact, and drafting policies on how to respond to the risks. The strategies have been disclosed on our website since April 2023.

*1 Task Force on Climate-related Financial Disclosures: An organization established by the Financial Stability Board (FSB) in response to a request from the G20 to discuss how climate-related information should be disclosed and how financial institutions should respond

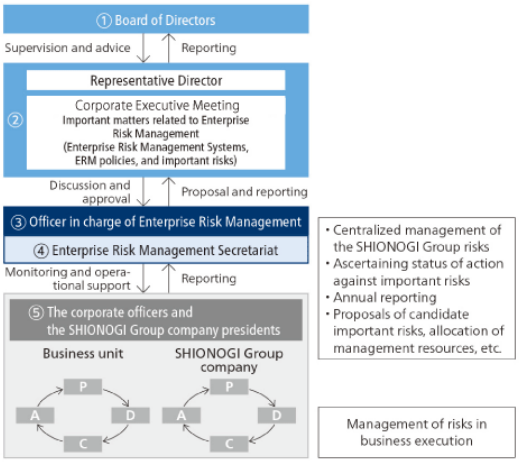
SHIONOGI promotes appropriate information disclosure in line with the TCFD recommendations, and the number of disclosure items recommended by the TCFD is listed at the end of each item for reference.

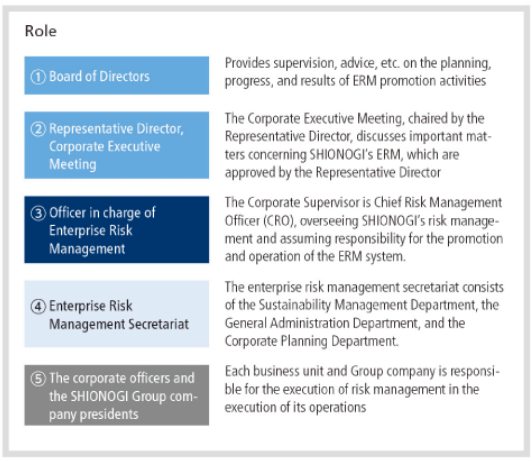
Recommendations | Task Force on Climate-related Financial Disclosures (fsb-tcfd.org) (External website)

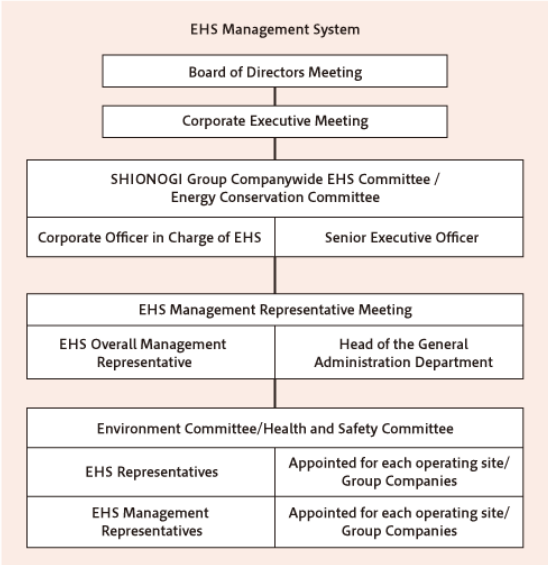
SHIONOGI's Governance Structure and Risk Management

At SHIONOGI, the progress of specific measures against climate change risks is managed by an integrated EHS management function. We have appointed the Senior Executive Officer and Senior Vice President of the Administration Division, who is the risk owner for this theme in the Enterprise Risk Management (ERM) system, as the Corporate Officer in charge of EHS, who also heads the SHIONOGI Group Companywide EHS Committee[*2] and the Energy Conservation Committee.[*3] Thus, we have established a system to promote responses to climate change risks as part of our enterprise risk management. Decisions made by the SHIONOGI Group Companywide EHS Committee and the Energy Conservation Committee, each of which meets at least twice a year, are reported to the CEO. Matters requiring deliberation at an upper-level meeting are presented at the Corporate Executive Meeting and subject to approval by the Board of Directors or other relevant bodies. We have a system in place that allows for more in-depth discussions depending on the level of importance.

Risk management structure







See the sections "Risk Management" and "Governance" for more information on the ERM system.

(Governance: Recommended disclosures a and b)
(Risk management: Recommended disclosure c)

*2 SHIONOGI Group Companywide EHS Committee: An organization that deliberates on and approves important EHS matters across the whole group, including environmental policies, medium- and long-term targets, performance reviews, identification of environmental issues, and environmental risk assessment.
*3 Energy Conservation Committee: An organization that is placed under the SHIONOGI Group Companywide EHS Committee and deliberates on matters concerning climate change and energy conservation

Consideration of SHIONOGI's Climate Change Strategies

Process to identify and assess risks and opportunities and to develop countermeasures

In our climate change scenario analysis, we thoroughly identify transition risks, physical risks, and opportunities that climate change may bring to our business activities. After evaluating the financial impact and business resilience regarding each identified item in the 1.5°C and 4°C scenarios, we assess the priority of responses to such risks and opportunities and develop response policies and countermeasures. The process from identifying these risks and opportunities to formulating countermeasures as well as other important matters are reported to and approved by the Corporate Executive Meeting and the Board of Directors.

(Risk management: Recommended disclosures a and b)

Details on how to proceed with scenario analysis

We conducted a scenario analysis to understand the risks and opportunities for SHIONOGI's future business. We have assessed the impact on our business as of the year 2030 with reference to the following reference sources.

・1.5°C scenario: The average temperature increase is kept below 1.5°C in 2100 compared to the pre-industrial level.
- Reference climate scenarios: IEA*4-NZE, IPCC*5-1.5, and IPCC AR6 SSP*61-1.9, and the like
- More rigorous measures (including a carbon tax and environmental regulations) are introduced, and society as a whole proactively works on measures to tackle climate change.

・4°C scenario: The average temperature rises by 4°C in 2100 compared to the pre-industrial level.
- Reference climate scenarios: IPCC AR6 SSP3-7.0/SSP5-8.5 and the like
- Stricter measures (including a carbon tax and environmental regulations) are not introduced, resulting in more severe and frequent natural disasters (a world of "Take it as it comes")

*4 IEA: International Energy Agency
*5 IPCC: Intergovernmental Panel on Climate Change
*6 SSP: Shared Socioeconomic Pathway

Table 1: Anticipated changes in the external environment under the 1.5°C and 4°C scenarios

External environment surrounding SHIONOGI	1.5°C scenario	4°C scenario
Policies and regulations	Stronger policies to achieve carbon neutrality by 2050 (such as introducing a carbon tax, increasing the renewable energy ratio, and stepping up energy conservation efforts)	More powerful policies to deal with catastrophic disasters (regulations, subsidies, and other policy support)
Investment/lending institutions	Requests more demanding than policies toward carbon neutrality	Although there is pressure to respond to the deteriorating natural environment as climate change advances, the pressure is not strong enough to affect investment and lending decisions
Society	Changes in values (consumption propensity) brought about by a decarbonized society	The same situation as the current one
Natural environment	Gradual changes in the climate	More severe and frequent natural disasters and changes in precipitation patterns

Targets of scenario analysis

Our analysis covers SHIONOGI's plants in Japan and overseas as well as the supply chains related to the group's key products.

Table 2: Overview of the assessment of risks and opportunities related to climate change

Classification		Main risks and opportunities	Details of the anticipated risks and opportunities	Single-year financial impact for FY2030[*7]		
				1.5°C scenario	4°C scenario	Remarks
Transition risks	Policy	Introduction of carbon pricing	New regulations put in place on manufacturing, procurement, and other business activities, such as introducing and expanding carbon taxes, emissions regulations, and emissions trading systems	Medium	Small	Approximately 6.1 billion yen[*8] in the anticipated worst case scenario for Scopes 1-3 of SHIONOGI (in the 1.5°C scenario)
		Tougher energy-saving regulations	Energy-saving regulations for manufacturing facilities becoming tougher than the annual average reduction of 1% or more in energy consumption per unit required by the current Act on Rationalization of Energy Use and Shift to Non-fossil Energy, resulting in additional capital investment	Small	Small	
Physical risks	Acute	Impact on raw material procurement due to locally abnormal weather and rising temperatures	Procurement of biological raw materials becoming difficult because of the adverse effects of rising temperatures on growth and yield, quality, price, and other factors	Large	Large	The identified risk is based on the assumption that lysate reagents used in quality testing are unavailable
		Damage to supply chain facilities due to intensifying storm and flood damage	Disruption or suspension of supply chain operations caused by locally abnormal weather (such as typhoons and sudden downpours) and associated disasters (equipment damage, flooding, power outages, and other damage)	Small	Small	
	Chronic	Rising sea levels	Plants or other operating sites becoming inoperable due to rising sea levels	Large	Large	The identified risk is based on the worst case scenario in which an operating site, such as a plant, must be relocated

Classification		Main risks and opportunities	Details of the anticipated risks and opportunities	Single-year financial impact for FY2030[*7]		
				1.5°C scenario	4°C scenario	Remarks
Opportunities	Market	Cultivation of new markets and regions through research and development of new medicinal products	Application of the technologies and expertise that SHIONOGI has cultivated to the treatment of other diseases	Small	Small	The identified opportunity is based on the assumption that drugs to treat NTDs (Neglected Tropical Diseases) will be developed and launched
		Switching to ecofriendly low-carbon containers and packaging	Cost reduction resulting from replacement with environmentally friendly packaging materials	Small	Small	

*7 Financial impact: Large: 10 billion yen or more; Medium: 1 billion yen to less than 10 billion yen; Small: less than 1 billion yen
*8 The estimated figure is based on a carbon tax internally calculated as 20,575 yen/t-CO_2 with reference to the IPCC Special Report on Global Warming of 1.5°C.

Assessing and identifying risks and opportunities

Table 2 above shows the results of our assessment of the risks and opportunities related to climate change using the 1.5°C and 4°C scenarios.

We have identified three items as risks and opportunities stemming from climate change with a relatively large financial impact: 1) introduction of carbon pricing, 2) impact on raw material procurement due to locally abnormal weather and rising temperatures, and 3) rising sea levels. If all the identified risks and opportunities materialize, the financial impact on the core operating profit targeted for 2030, the final fiscal year of SHIONOGI's medium-term business plan STS2030, was estimated to be limited to around 10%. The STS2030 Revision, which was revised in June 2023, aims to further expand earnings compared to STS2030. Therefore, we judge that the resilience of our business against the climate change scenarios that can be expected in the future is sufficiently secure.

(Strategy: Recommended disclosures a, b, and c)

Table 3 below describes SHIONOGI's response policy regarding the three items that have a relatively large financial impact: 1) introduction of carbon pricing, 2) impact on raw material procurement due to locally abnormal weather and rising temperatures, and 3) rising sea levels.

Table 3: SHIONOGI's policy on how to respond to identified risks

Identified risk	Classification of risk response policy	Remarks on established policies
Introduction of carbon pricing	Risk reduction	The possibility of the identified risks becoming reality in the medium term is relatively high, since carbon pricing has already been introduced in some countries and is under consideration in Japan. Therefore, we will mitigate the risks by implementing medium- to long-term activities to reduce our greenhouse gas (GHG) emissions.
Impact on raw material procurement due to locally abnormal weather and rising temperatures	Risk retention	We have defined the worst case scenario as the situation where quality testing cannot be conducted because lysate reagents made from the blood components of horseshoe crabs cannot be procured due to their decreasing population caused by climate change, leading to the suspension of shipments of some of our main medicinal products. However, reagent manufacturers are engaged in activities to preserve horseshoe crabs. Also, even if procurement of lysate reagents becomes difficult, alternative reagents using genetically modified proteins exist. Therefore, although the long-term possibility cannot be ruled out, we will retain the risk, judging that the probability of the risk manifesting by 2030 is extremely low at this point.
Rising sea levels	Risk retention	There is no doubt about the long-term trend of rising sea levels caused by climate change, and we have set the worst case scenario as the situation where sea level rise may adversely affects operations at some of our key manufacturing sites located in particularly low-lying areas. However, the average sea level rise along the coasts of Japan over the period from 2031 to 2050 is projected to be less than 0.2 m. Therefore, although the long-term possibility cannot be ruled out, we will retain the risk, judging that the probability of the risk manifesting by 2030 is extremely low at this point.

Carbon tax (carbon pricing)

We have internally estimated the carbon tax for 2030 to be 135 USD/t-CO_2 with reference to the IPCC Special Report on Global Warming of 1.5°C. The estimated carbon tax of 20,575 yen/t-CO_2 is based on an exchange rate of 152.41 yen/USD as of the end of March 2024. This value was used to estimate the financial impact associated with a carbon tax.

Metrics and Targets for SHIONOGI's Climate Change Countermeasures

As mentioned above, we conducted a detailed assessment of the impact of climate change on SHIONOGI's business using the TCFD framework as a reference. As a result of considering strategies and specific countermeasures, we have set "reduction of GHG (CO_2) emissions" as a metric for reducing risks related to climate change. In addition, in response to the Japanese government's declaration of "Carbon Neutrality by 2050" and the worldwide movement toward reducing GHG (CO_2) emissions, we believe that SHIONOGI also needs to aim for carbon neutrality by 2050.

In light of the above, SHIONOGI will promote its activities by setting GHG emissions reduction targets that include SBTs[*9] as part of its EHS Action Targets, which are its medium- and long-term targets.

• **Metric:**
- GHG (CO_2) emissions reduction (FY2019 benchmark)

• **Targets:**
- Reduce GHG emissions (Scopes 1 and 2) by 10% by FY2024.
- Reduce GHG emissions (Scopes 1 and 2) by 46.2% by FY2030.
- Reduce GHG emissions (Scopes 1 and 2) by 60% by FY2035.
- Cut down GHG emissions (Scope 3, Category 1: Purchased products and services) by 10% by FY2024.
- Cut down GHG emissions (Scope 3, Category 1: Purchased products and services) by 20% by FY2030.
- Increase the introduction rate of renewable energy-derived electricity to 90% or more by FY2030.

To improve energy efficiency, we also aim to improve energy intensity by 1% per year and to introduce equipment with high energy consumption efficiency.

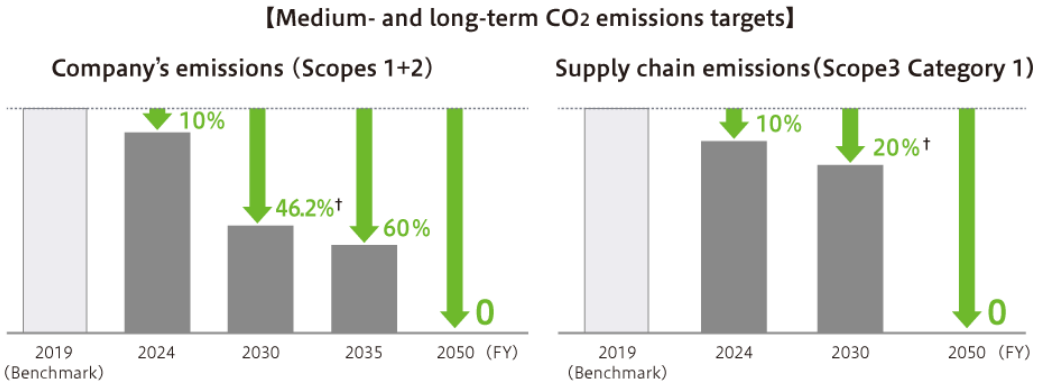
Please see the section "Climate Change" for yearly activity progress.

・Other targets regarding climate change countermeasures:

- Reduce energy consumption and improve energy efficiency.
  - ・Promotion of energy conservation efforts to reduce energy intensity by 1% per year
  - ・Promotion of the introduction of highly energy-efficient equipment
- Reduce GHG emissions.
  - ・Promotion of a shift to non-fossil energy sources
  - ・Promotion of the introduction of highly energy-efficient equipment

(Metrics and Targets: Recommended disclosures a, b, and c)

*9 SBTs (Science Based Targets): CO_2 emissions reduction targets based on scientific data



† Targets approved by the SBT initiative

Related Press Releases

SHIONOGI's Greenhouse Gas Reduction Target Approved by "Science Based Targets (SBT) Initiative" (June 4, 2021)
Shionogi expresses its support for the recommendations of Task Force on Climate-related Financial Disclosures (TCFD) and its participation in the TCFD Consortium (April 11, 2022)

Editorial Policy

Period

The present Environment Report covers results achieved during the period of fiscal year 2023 (April 1, 2023 through March 31, 2024) in Japan and calendar year 2023 (January 1 through December 31, 2023) outside Japan. The report also covers our activities conducted immediately before or after these periods.

Organizations Covered

The report covers the environmental activities of Shionogi & Co., Ltd. and the SHIONOGI Group companies in the table below. Sections of the report that concern a different set of organizations are clearly indicated as such in each instance.

Company	Operating site
Shionogi & Co., Ltd.	Head Office, Tokyo Branch Office (Tokyo) , Pharmaceutical Commercial Division (including its sales offices across Japan), Shionogi CMC Research Innovation Center (Hyogo Prefecture), Shionogi Pharmaceutical Research Center (SPRC) , Aburahi Research Center (Shiga Prefecture)

Group Company	Operating site
Shionogi Healthcare Co., Ltd.	Head Office
Shionogi Pharma Co., Ltd.	Settsu Plant, Kanegasaki Plant (Iwate Prefecture), Tokushima Plant (Tokushima Prefecture), Itami Plant (Hyogo Prefecture)
UMN Pharma Inc.	Yokohama Research Center (Kanagawa Prefecture), Akita Plant (Akita Prefecture)
Shionogi Techno Advance Research Co., Ltd.	on the premises of an operating site of Shionogi & Co., Ltd.
Aburahi AgroResearch Co., Ltd. (Shiga Prefecture)	on the premises of an operating site of Shionogi & Co., Ltd.
Shionogi Smile Heart Co., Ltd.	on the premises of an operating site of Shionogi & Co., Ltd.
Nanjing C&O Pharmaceutical Co., Ltd.	Nanjing Plant (China)

Companies and operating sites with no location indicated are all situated in Osaka Prefecture.

Numerical Data and Graphs

The numerical data provided in the report are rounded off to the nearest whole number. Accordingly, the totals in the graphs and charts do not necessarily correspond to the sum of the individual figures.

Environmental Performance Data

The data is calculated based on the following [boundary of calculation] and [calculation methods].

[Energy/CO_2]

[Boundary of calculation]

Scopes 1 and 2	SHIONOGI Group (excluding overseas Group companies [administrative offices]): SHIONOGI Group companies in Japan and Nanjing Plant (Nanjing C&O Pharmaceutical Co., Ltd.)
Scope 3	
Category 1	Shionogi & Co., Ltd. and Shionogi Pharma Co., Ltd.
Category 2	SHIONOGI Group companies in Japan
Category 3	SHIONOGI Group companies in Japan
Other categories	SHIONOGI Group companies in Japan (UMN Pharma, Inc. is not included in “Category 4” and “Category 12” among “Other categories.”)
Energy consumption	SHIONOGI Group (excluding overseas Group companies [administrative offices]): SHIONOGI Group companies in Japan and Nanjing Plant (Nanjing C&O Pharmaceutical Co., Ltd.)

[Calculation methods]

Indicator	Calculation methods
Scope 1	CO_2 emissions resulting from fuel use [Calculation methods] Based on the “Greenhouse Gas Emissions Accounting and Reporting Manual (Ver. 5.0)” of the Ministry of the Environment and the Ministry of Economy, Trade and Industry of Japan [CO_2 emission factors] Based on the “Greenhouse Gas Emissions Accounting and Reporting Manual (Ver. 5.0)” of the Ministry of the Environment and the Ministry of Economy, Trade and Industry of Japan
Scope 2	CO_2 emissions resulting from purchase of electricity and steam [Calculation methods] Based on the “Greenhouse Gas Emissions Accounting and Reporting Manual (Ver. 5.0)” of the Ministry of the Environment and the Ministry of Economy, Trade and Industry of Japan [CO_2 emission factors] Electricity (Japan) (location-based): National average emission factors from “Emission Factors by Power Suppliers (for the calculation of GHG emissions by specified emitters) (FY2022 results)” published by the Ministry of the Environment and the Ministry of Economy, Trade and Industry of Japan (December 22, 2023) Electricity (Japan) (market-based): Adjusted emission factors from “Emission Factors by Power Suppliers (for the calculation of GHG emissions by specified emitters) (FY 2022 results)” published by the Ministry of the Environment and the Ministry of Economy, Trade and Industry of Japan (December 22, 2023) Electricity (China) (both location-based and market-based): FY2022/FY2023: National Grid Average Emission Factor (2022) in Climate Letter [2023] No. 43 of the Office of the Ministry of Ecology and Environment of China /before FY2021: Emission Factors of the International Energy Agency (IEA) Steam (both location-based and market-based): Emission factors from the “Greenhouse Gas Emissions Accounting and Reporting Manual (Ver. 5.0)” of the Ministry of the Environment and the Ministry of Economy, Trade and Industry of Japan

Indicator	Calculation methods
Scope 3	
Category 1	CO_2 emissions from activities up to the manufacturing of raw materials, parts, purchased goods, and sales-related materials, etc. (hereafter “goods purchased”) [Calculation methods] Based on the “Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain (Ver. 2.6)” of the Ministry of the Environment and the Ministry of Economy, Trade and Industry of Japan, the emissions are calculated by multiplying the purchase price by the emission factor for “Pharmaceuticals” in “[5] Emission Factor Based on the Input-Output Table” in the “Database on Emissions Unit Values for Calculation of Greenhouse Gas Emissions, etc., by Organizations Throughout the Supply Chain (Ver. 3.4)” of the Ministry of the Environment of Japan. The purchase price includes transportation costs associated with the purchase of purchased goods and does not include amounts related to the purchase of services other than the above.
Category 2	CO_2 emissions resulting from the construction and manufacturing of own capital goods [Calculation methods] Based on the “Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain (Ver. 2.6)” of the Ministry of the Environment and the Ministry of Economy, Trade and Industry of Japan, the emissions are calculated by multiplying the acquisition cost of capital goods by the emission factor for “Pharmaceuticals” in “[6] Emission Factor per Unit Price of Capital Goods” in the “Database on Emissions Unit Values for Calculation of Greenhouse Gas Emissions, etc., by Organizations Throughout the Supply Chain (Ver. 3.4)” of the Ministry of the Environment of Japan.
Category 3	CO_2 emissions resulting from the procurement of fuels required for the generation of electricity purchased [Calculation methods] Based on the “Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain (Ver. 2.6)” of the Ministry of the Environment and the Ministry of Economy, Trade and Industry of Japan, the emissions are calculated using “[7] Emission Unit Values per Use of Electricity and Heat” in the “Database on Emissions Unit Values for Calculation of Greenhouse Gas Emissions, etc., by Organizations Throughout the Supply Chain (Ver. 3.4)” of the Ministry of the Environment of Japan.
Other categories	Total of Categories 4, 5, 6, 7 and 12, excluding Categories 8, 9, 10, 11, 13, 14 and 15 that are not included in our own corporate activities or are reported under other categories [Calculation methods] Based on the “Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain (Ver.2.6)” of the Ministry of the Environment and the Ministry of Economy, Trade and Industry of Japan
Energy consumption	
Total energy consumption	Total calorie-converted values for purchased energy (gasoline, other fuel oils, LPG, LNG, town gas, electricity, steam) [Calculation methods] Fuel is expressed as the sum of calories calculated using calorie conversion factors under the “Ordinance for Enforcement of the Act on Rationalization of Energy Use and Shift to Non-fossil Energy” and converted into MWh units at a rate of 3.6GJ per MWh. Note that calorie conversion factors disclosed by providers were used for town gas. Electricity is expressed as the sum of purchase volumes (MWh) without conversion to primary energy.
Gasoline	Amount of gasoline purchased, including fuel for sales force vehicles
Other fuel oils	Amount of kerosene, light oil, and heavy oil A purchased
Liquefied petroleum gas (LPG)	Amount of LPG purchased from gas suppliers
Liquefied natural gas (LNG)	Amount of LNG purchased from gas suppliers
Town gas	Amount of town gas purchased from gas suppliers
Electricity	Amount of electricity purchased from power suppliers
Steam	Amount of steam purchased from steam suppliers

[Total water withdrawal / Total drainage]

[Boundary of calculation]

Total water withdrawal Total drainage	SHIONOGI Group (excluding overseas Group companies [administrative offices]): SHIONOGI Group companies in Japan and Nanjing Plant (Nanjing C&O Pharmaceutical Co., Ltd.)

[Calculation methods]

Total water withdrawal	Amount of water withdrawn from tap water, industrial water, and groundwater
Total drainage	Amount of water discharged into sewers and rivers (for operating sites that do not measure the amount of drainage, the total water withdrawal is considered to be the total drainage.)

[Waste materials]

[Boundary of calculation]

All waste-related data	SHIONOGI Group companies in Japan (excluding small offices such as branches and sales offices)

[Calculation methods]

Total waste generated	Amount of unwanted materials generated at operating sites
Waste generated	Amount of total waste generated (excluding valuable resources)
Waste disposed of as landfill	Amount of waste sent to landfill directly or after intermediate treatment
Waste reused/recycled	Amount of waste reused/recycled out of total waste generated

[Pollution prevention]

[Boundary of calculation]

All data related to air and water pollution	SHIONOGI Group companies in Japan (excluding small offices such as branches and sales offices)

[Calculation methods]

Nitrogen oxide (NOx) emissions	Amount of NOx discharged from specified facilities under the Air Pollution Control Act NOx emissions = NOx concentration in exhaust gas × Exhaust gas volume
Sulfur oxide (SOx) emissions	Amount of SOx discharged from specified facilities under the Air Pollution Control Act SOx emissions = SOx concentration in exhaust gas x Exhaust gas volume
Particulate matter emissions	Amount of particulate matter discharged from specified facilities under the Air Pollution Control Act Particulate matter emissions = Particulate matter concentration in exhaust gas × Exhaust gas volume
BOD pollution load	BOD: The amount of oxygen consumed when organic matter in water is decomposed through the biochemical reaction of aerobic microorganisms Pollution load = Drainage volume x BOD concentration
COD pollution load	COD: The amount of oxygen consumed when organic matter and other substances in water are oxidized with an oxidizing agent such as potassium permanganate Pollution load = Drainage volume x COD concentration
N (nitrogen)	The amount measured according to the Ministry of the Environment Notification No. 77 of December 2001 (Method for measuring the amount of pollution load related to nitrogen content)
P (phosphorus)	The amount measured according to the Ministry of the Environment Notification No. 78 of December 2001 (Method for measuring the amount of pollution load related to phosphorus content).

Reporting Guidelines

The Environmental Reporting Guidelines 2018 of the Ministry of the Environment of Japan are used as a reference.

Overall Reporting View

A copy of this report is made available on SHIONOGI's official website, while excerpts from the report are included in the SHIONOGI Integrated Report.

The environmental data of FY2023 marked in red on page 114 of "SHIONOGI Integrated Report 2024," published separately from the present report, was subjected to third-party assurance by KPMG AZSA Sustainability Co., Ltd.



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