



EHS Report 2025

www.astellas.com/en/sustainability/environment



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Abbreviation list

Abbreviation	Explanation
EHS	Abbreviation for "Environment, Health & Safety"
GHG	Greenhouse gases. There are seven categories of greenhouse gases: carbon dioxide, methane, nitrous oxide, hydro fluorocarbons, per fluorocarbons, sulfur hexafluoride and nitrogen trifluoride. Non-energy related GHG emissions are not included. In this report, the term GHG is used for all types of gas.
CO ₂	Abbreviation for carbon dioxide.
Scope 1	GHGs emitted directly from Company premises as a result of the burning of fuels (city gas, kerosene, diesel oil, gasoline, LPG, LNG)
Scope 2	GHGs emitted indirectly in the use of electric power or heat supplied to the Company from outside
Scope 3	GHGs emitted indirectly at some point on the Company's value chain (production, transportation, business trips, commuting, etc.)
SBT	Science Based Targets
SO _x	Sulfur oxides, emitted by the burning of fossil fuels containing sulfur
NO _x	Nitrogen oxides-formed through the combination of nitrogen and oxygen in the atmosphere during the combustion of substances
BOD	Biochemical oxygen demand is used as a benchmark for indicating the extent of water pollution by organic matter in rivers.
COD	Chemical oxygen demand-indicates the amount of water pollution due to the presence of organic compounds in seas or lakes
VOC	Volatile organic compounds, are organic chemical compounds that are volatile in the atmosphere at standard ambient temperatures and pressures
Frequency rate	This rate shows the number of employee deaths or injuries resulting from work-related accidents causing leave of absence per million hours of work. The larger the number, the more frequently work-related injuries occur.
Severity rate	This rate shows the number of lost workdays due to work-related injuries per thousand hours worked. The higher the number, the more serious the injury.

Corporate Data, Editorial Policy

■ Corporate Data

Company Name	Astellas Pharma Inc.
Headquarters	2-5-1, Nihonbashi-Honcho, Chuo-ku, Tokyo 103-8411, Japan
Capital	¥103,001million (As of March 31, 2025)
Representative Director	Naoki Okamura (President and CEO)
Foundation	1923
Revenue	¥103,001 million (consolidated basis, as of March 31, 2025)
Employees	13,643 (consolidated basis, as of March 31, 2025)
Professional institution affiliation	<ul style="list-style-type: none"> • Japan Business Federation • The Federation of Pharmaceutical Manufacturers' Association of Japan • Japan Pharmaceutical Manufacturers association, etc.

■ Reporting Period

As a general rule, this Report covers the activities of business sites in Japan from April 1, 2024, to March 31, 2025, and the activities of overseas business sites from January 1, 2024, to December 31, 2024. (Certain sections of this Report contain details of activities and initiatives both prior to and after these identified reporting periods.)

■ Reporting Coverage

This report covers the following companies, including head office functions, plants, research functions, and sales affiliates. Moreover, the report also covers the activities of Astellas subsidiaries that are included in these companies.

Japan

- Astellas Pharma Inc.

United States

- Astellas US Holding, Inc.
- Astellas US LLC
- Astellas Pharma Global Development, Inc.
- Astellas US Technologies, Inc.
- Astellas Research Institute of America LLC
- Astellas Institute for Regenerative Medicine
- Astellas Innovation Management LLC
- Astellas Rx + Business Accelerator LLC
- Astellas Venture Management LLC
- Astellas Engineered Small Molecules US, Incorporated
- Universal Cells Inc.
- Xyphos Biosciences Inc.
- Astellas Gene Therapies, Inc.
- Iota Biosciences, Inc.
- Iveric Bio Inc.
- Sales affiliate

Established Markets

- Astellas B.V.
- Astellas Pharma Europe Ltd.
- Astellas Pharma Europe B.V.
- Astellas Ireland Co., Limited
- Astellas Engineered Small Molecules U.K. Limited
- Various sales affiliates

■ Editorial Policy

In publishing this "EHS Report", Astellas has worked to provide a more detailed account of its activities in an easy-to-understand manner to all those who are affected by its environmental initiatives and the various stakeholders.

Among the Astellas' sustainability, the report specifically introduces issues, goals, and activities that Astellas actively implements in the environment and employee initiatives and explains them using figures and tables.

China

- Astellas China Investment Co., Ltd.
- Astellas Pharma China, Inc.
- Various sales affiliates

International Markets

- Astellas Pharma Singapore Pte. Ltd.
- Various sales affiliates

The Environmental Action Plan (Climate Change) report covers business locations in Japan and outside Japan as of the last day of the reporting period.

■ Important Changes in Organization during the Reporting Period

The Meppel Plant was transferred in April 2024 and is not included in the GHG data. (Past years' data has also been retroactively excluded.)

■ Guidelines

The Environmental Reporting Guidelines (2018 edition) issued by Japan's Ministry of the Environment.

■ Presentation of various quantitative data

Quantitative EHS performance data has been rounded to the figures shown. Accordingly, the data may not match with total amounts or ratios calculated using the figures shown.

■ Information regarding Publication

Date of issue: July 2025

Next scheduled issue: July 2026

There is no printed version of the EHS report.

Cover page photo: Kerry Plant PV panel
(English version edited: August 8th, 2025)

In Search of EHS EXCELLENCE

Astellas has embraced the sustainable enhancement of enterprise value as its corporate mission. To fulfill this mission, Astellas seeks to be a chosen and trusted enterprise by all stakeholders, including customers, shareholders, employees, and the global community. The Astellas Charter of Corporate Conduct contains the following principles on Environment, Health and Safety (EHS): "We shall respect our employees' human rights, individuality, and differences, promote diversity in the workplace, and provide a safe and rewarding work environment," and "Recognizing that harmony between the global environment and our business activities is a prerequisite to our corporate existence, we shall take proactive measures to conserve the global environment." These principles require employees to conduct themselves based on high ethical standards in EHS fields, among other areas. In the environment and employees (occupational health and safety), Astellas will disclose information on its measures to sustainably enhance enterprise value through EHS.

Top Message

Astellas contributes to the sustainability of society through its business activities. One of the strategic goals of the Corporate Strategic Plan 2021 (CSP2021) is to "Deepen our engagement in sustainability," and as one of the challenges, we are strengthening our environmental initiatives, including those regarding climate change.

As part of our climate change initiatives, Astellas announced a 2030 target for the reduction of greenhouse gas Scope 1+2 emissions (direct and indirect emissions associated with its own operations) in line with the Paris Agreement's 1.5°C goal in 2023, as well as a policy to aim for Net Zero by 2050. In fiscal 2024, we introduced solar power generation equipment at both the Kerry and Shenyang Plants and started using off-site solar power at the Yaizu Technology Center. We set greenhouse gas emission targets annually in line with our 2030 targets approved by the Science Based Targets initiative (SBTi) and our Scope 1+2 emission reductions in fiscal 2024 were on track for achieving our targets. Individual initiatives have also been recognized externally. In 2024, amongst many accolades that they received, Astellas Kerry Plant was awarded the "Sustainability Team of the Year" at the Irish Climate Change Leadership awards.

On the other hand, we acknowledge the challenges we face with regard to Scope 3, which is the largest source of greenhouse gas emissions for Astellas. In fiscal 2024, we held a business partner summit and I urged our partners to work together to achieve high transparency on environmental impact. As a result, we were able to confirm that most of the companies that participated in the summit recognized Astellas' environmental initiatives. Going forward, we will promote efforts to obtain primary data.

The sustainability disclosure, including environmental performance data, is in a transition period from voluntary disclosure to statutory disclosure. Astellas will continue to commit to a high level of transparency.



Chief Strategy Officer,
Adam Pearson

EHS Management

Astellas' fundamental approach to the environment and the health and safety of its employees is detailed in the Astellas EHS Policy. Furthermore, Astellas is committed to organizational and ongoing efforts to uphold this approach, as outlined in the Astellas EHS Guidelines. Additionally, Astellas has established medium-term targets for its key priorities within its EHS Action Plan and is actively working to achieve those targets.

Promotion of Environmental Sustainability Risk Management and Governance

Fundamental policies and action plans relating to the environment are positioned as an important issue in sustainability in which Astellas is engaged. Responses to various environmental issues, including climate change, and the formulation of action plans are discussed by the Sustainability Committee. Committee members are at the level of the head of functional units^{*1} across departments, and the details of discussions are reported to the Chief Strategy Officer (CStO) who oversees matters concerning sustainability. Climate change initiatives and more transparent disclosure are a regular agenda item for the Board of Directors as a strategic target, and the Committee reports to the Board of Directors on disclosure in line with TCFD recommendations, including assessments of climate change risks and opportunities, as one aspect of its sustainability activities.

The system works by having the management of risks related to the environment monitored in terms of sustainability by functional units and reports periodically made to CStO who issues instructions as necessary. The Executive Committee^{*2} chaired by the President and Chief Executive Officer or the Board of Directors discusses and determines how identified risks are to be addressed in accordance with the importance of the issue in question.

*1 Organizational units that are constituted to execute business and that directly report to top management

*2 The organization discusses material matters concerning business strategies, product strategies, corporate management, and personnel of the Company and Astellas Group companies

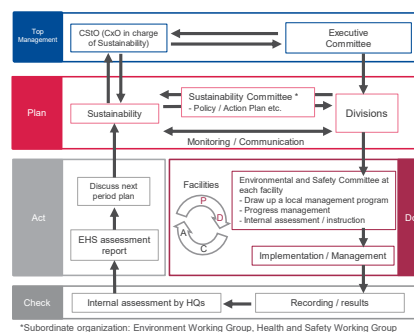
Astellas EHS Guidelines

The Astellas EHS Guidelines set forth unified standards that identify Astellas' aspirations in its EHS activities.

The guidelines qualitatively describe our aims, and concrete numerical targets, including their deadlines, will be stipulated through short- and medium-term action plans that will be updated every fiscal year. We ask outsourced manufacturers to cooperate in implementing the guidelines through assessments and other actions.

EHS Assessments

Astellas conducts a companywide EHS assessment every fiscal year, in line with the Astellas EHS Guidelines, in order to evaluate the progress of EHS activities throughout the Astellas Group. In fiscal 2024, EHS assessments were conducted at 12 facilities of production and research sites. The status of actions taken to resolve the issues identified in the assessments are confirmed through follow-up assessments in writing and the assessments in the following fiscal year. Societal demands and problem awareness at each site are shared through an exchange of opinions between the EHS Management Department and each site. In this manner, one objective of assessments is to ensure that Astellas' aspirations are aligned in the same direction. In addition, Astellas conducts assessments of Contracted Manufacturing Organizations (CMOs) in the value chain based on the same guidelines. In fiscal 2024, Astellas conducted on-site assessments of three suppliers, and carried out risk assessments related to such matters as the operational status of wastewater treatment plants and waste storage facilities, employees' working environments



(See page 6 for large version)

and initiatives to prevent employees from being exposed to chemical substances. In cases where items were pointed out, Astellas indicated an improvement proposal, requested a plan for corrective measures to be drawn up, and is currently following up on progress of the improvements based on the corrective measures plan. Astellas continues risk management in the value chain through assessments to maintain an environment that ensures the stable supply of pharmaceuticals.

Product Assessment System

The total environmental load resulting from the production, sale, distribution and disposal of products is determined almost entirely at the research and development stages. With regard to the production and sales of pharmaceutical products, it is necessary to obtain government approval for each product. Since government approval also covers production methods and packaging specifications, when there are changes in either approved production methods or packaging, new approval must be obtained even if the changes are related to work safety or reducing the environmental impact. Therefore, these changes are very time-consuming and costly. Astellas has introduced a product assessment system as a tool that requires efforts to minimize the environmental load at every stage, particularly research and development, production, distribution, and disposal.

Under this assessment system, we examine issues such as the reduction of air pollutant emissions and the excessive use of packaging, safety measures at production sites, and the prevention of exposure of employees to hazardous substances prior to the commencement of mass production, including development based on green chemistry, and response to law and regulation requirements.

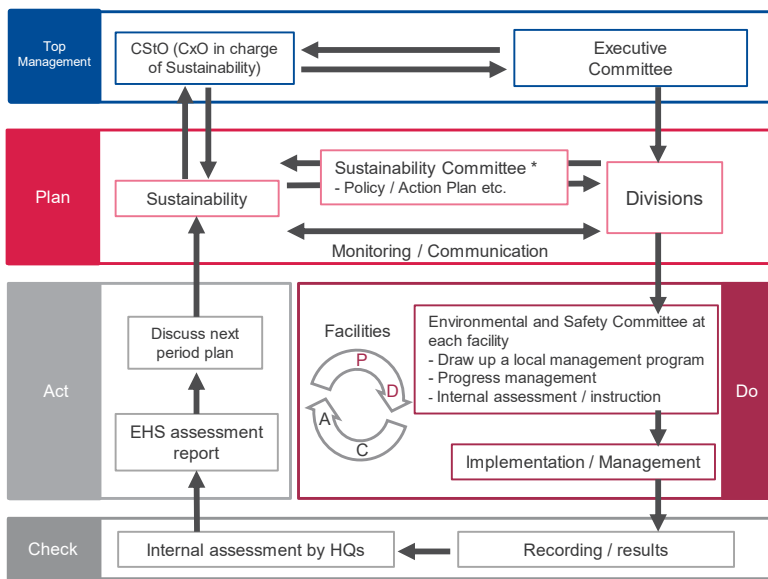
When conducting product assessments, an assessment team conducts EHS assessments in stages for the development of products. The results determine whether the development of the product can move on to the next stage. Specifically, the assessment must identify raw materials or processes that might have a negative impact on the environment and/or employee health and safety. The progress on remedial measures must be assessed, and action plans evaluated. Countermeasures being considered are evaluated in the subsequent stages of the assessment.

■ **Education and Training**

In order to promote further improvements in its EHS activities, the Company acknowledges the critical need to ensure that all employees have a correct understanding of their own roles and responsibilities. To this end, we are working to develop employees professionally qualified in EHS matters and improve our skill base through a wide variety of training programs, including specialized education for employees engaged in roles requiring specialist knowledge and skills in areas such as environmental conservation or hazardous operations.

We also explain our policies and site rules to construction workers at our business sites, raw materials suppliers and waste transport and disposal contractors, and request cooperation with our EHS activities

■ **EHS Management (page 5, enlarged version)**



*Subordinate organization: Environment Working Group, Health and Safety Working Group

Environment Initiatives

Astellas believes that maintaining a healthy global environment is an essential theme for building a sustainable society, and it is also an important element in ensuring the continuation of business activities. In order for Astellas to achieve sustainable growth, Astellas must fulfill its corporate social responsibilities regarding issues that impact on the local environment, including climate change problems, environmental pollution, and waste disposal. Astellas will strive to develop its aspirations for the company based on a long-term timeframe and global perspective. At the same time, we will continue efforts to address regional social issues and pursue corporate activities in harmony with the global environment.

Interaction between Astellas and the Environment (Results for Fiscal 2024)

INPUT		
Energy *1	Purchased Electricity	205,273 MWh
	(Renewable energy derived)	77,628 MWh)
	Gaseous fuel	210,279 MWh
	Liquid Fuel	55,942 MWh
	Purchased heat	7,790 MWh
	Other renewable energy	15,455 MWh
	(Self-generated electricity)	2,431 MWh)
Resources	Water *2	6,883 thousand m ³
	Raw materials and consumables (by volume) *3	4,457 tons

OUTPUT		
GHGs *1 *4	Scope 1	52,212 tons
	Scope 2	55,621 tons
Pollutants *5 (atmosphere)	NOx	16 tons
	VOC	22 tons
Pollutants *5 (water bodies)	BOD	8 tons
	COD	20 tons
Discharge	Water discharge *2	6,690 thousand m ³
Waste material	Waste generated *6	11,447 tons
	Landfill Volume *5	81 tons

*1 All Astellas business facilities

*2 All production sites and R&D sites. The volume of water discharge from non-Japanese sites was equivalent to that of withdrawal.

*3 Items that are used at commercial production sites in Japan that can be ascertained on a weight or volume basis. Consumable supplies are those used in commercial production process.

*4 Non-energy related GHG emissions are not included. The CO2 equivalent of fluorinated gases from production sites (global) and R&D sites (Japan) was 724 tons-CO2.

*5 Japanese production sites and R&D sites.

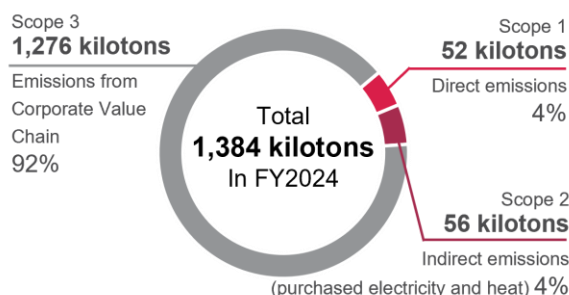
*6 All Japanese business facilities and, production and R&D sites outside of Japan

GHG emissions from an indirect involvement (Scope 3)

Upstream Scope 3 emissions	
1	Purchased goods and services 1,082,536 tons
2	Capital goods 90,582 tons
3	Fuel and energy related activities (not included in Scope1 and Scope2) 27,410 tons
4	Transportation and distribution (upstream) 19,987 tons
5	Waste generated in operation 1,151 tons
6	Business travel (by airplane) 34,056 tons
7	Employee commuting 2,004 tons
8	Leased assets (upstream) Not relevant
Downstream Scope 3 emissions	
9	Transportation and distribution (downstream) 15,048 tons
10	Processing of sold products Not relevant
11	Use of sold products Not applicable
12	End-of-life treatment of sold products 246 tons
13	Leased assets 3,301 tons
14	Franchises Not relevant
15	Investments (downstream) Not relevant

GHG emissions throughout the entire value chain

GHG emissions associated with Astellas' business activities amounted to 1,384 kilotons globally.



Action Plan and Compliance

■ Environmental Action Plan

Our Environmental Action Plan sets out short-term and medium-term targets for our activities regarding the key points of the Astellas Environment, Health & Safety Guidelines. We renew our action plans on a rolling basis, by reviewing progress and conditions during the previous year and incorporating our findings into our action plan for the following year.

In November 2018, the Environmental Action Plan involving Climate-Related Measures obtained Science Based Target (SBT) certification from the SBT Initiative, which recommends that private companies set reduction targets aligned with the Paris Agreement, which entered

into force in 2016, and Astellas operated under that, but reviewed GHG emission targets towards achieving the targets of 1.5°C (Scope 1 and 2) and well-below 2°C (Scope 3). In January 2023, the SBT Initiative approved the targets as a science-based initiative, and Astellas has moved forward on a new Environmental Action Plan (Climate Change Mitigation Measures). Our environmental action plans for natural resource conservation measures and waste management have been consistently managed well, and even higher targets have been set from fiscal 2021. We are continuously implementing measures eyeing the target fiscal years of each plan. Results for fiscal 2024 are as follows:

■ Results of fiscal 2024 (summary)

Goal of Environmental Action Plan	Fiscal 2024 Results
1. Measures to Address Climate Change [Base year: fiscal 2015] - Reduce GHG emissions (Scope 1 + 2) by 63% by fiscal 2030 [1.5°C target] (Emissions in the base year: 201 kilotons) - Reduce GHG emissions (Scope 3) by 20% per unit of revenue by fiscal 2030 [well-below 2°C target]	Ratio to base year 46% decrease (Emissions: 108 kilotons) 7% decrease (Emissions: 1,276 kilotons)
2. Measures for the Conservation of Natural Resources [Base year: fiscal 2016] - Enhance approx. 20% water resource productivity based on fiscal 2016 by the end of fiscal 2025 (For research and production sites in Japan and overseas) Indicator: Revenue (billions of yen)/Water resources withdrawn (1,000 m ³)	Ratio to base year 86% improvement
3. Waste management [Base year: fiscal 2016] - Improve approx. 10% waste generated per unit of revenue based on fiscal 2016 by the end of fiscal 2025 (For research and production sites in Japan and overseas) Indicator: Volume of waste generated (tons)/Revenue (billions of yen)	Ratio to base year 45% improvement
4. Biodiversity [Base year: fiscal 2005] - Quadruple the biodiversity index by fiscal 2025 from the fiscal 2005 level	Ratio to base year 6.7 times

Data related to Scope 3 GHG emissions is scheduled to be disclosed in late August.

■ Response to Accidents and Emergencies

Being prepared for emergency situations caused by an accident or natural disaster can help to prevent an environmental catastrophe and minimize damage. Accordingly, we have developed specific measures and procedures. Moreover, we conduct regular education sessions and training drills, and reconfirm and test the validity of our procedures, communication networks and the division of roles focusing on risks that are recognized as a high priority. In this manner, we continue to work diligently to reduce environmental risk.

In particular, the discharge of harmful substances could lead to the pollution of rivers as well as cause problems at public sewage treatment plants. This in turn could have a grave impact on regional communities. In preparation for accidents and emergency situations, we are therefore systematically implementing measures for the prevention of environmental pollution, including the installation of backup equipment, while working to reduce the risk of pollution. In addition, in order to avoid accidents and other problems, we are bolstering efforts to optimize the operation and management of wastewater treatment systems, and to monitor and measure the quality of water draining out of our plants to confirm compliance with relevant effluent standards.

■ Compliance with Environmental Laws and Regulations

There was no incident in which Astellas exceeded the upper limit of agreed values specified in a pollution prevention agreement with the local government. Over

the past five years, there were two incidents as below. Astellas reported these incidents to the local government and implemented response measures based on its instructions.

- Takahagi Technology Center: Water (fiscal 2023)
- Tsukuba Research Center: Water (fiscal 2022)

■ Environment-Related Accidents and Complaints

Astellas had no environment-related accident over the past five years.

Regarding leakage and emissions of fluorocarbons, the CO₂ equivalent amount is disclosed on the "Environmental Initiatives" page.

The occurrence of environment-related fines and complaints over the past five years is as follows. In all cases, we responded appropriately and took measures to prevent recurrence.

	Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024
Fines	0	0	0	0	1 ^{*1}
Complaints	0	0	0	1	1 ^{*2}

*1 It turned out that an outsourced vendor did not test one of parameters on discharged wastewater in one of periodic tests and Astellas paid 145 USD.

*2 There was a complaint about the sound of the emergency fire alarm during its periodic test.

■ Soil Contamination Assessments

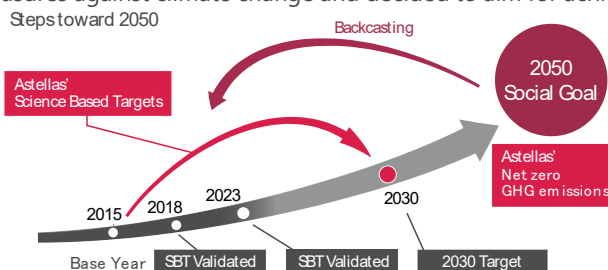
the results of soil contamination assessments completed over the past five years, there have been no sites where contamination has been found.

Climate Change measures

Mitigating and adapting to the threat posed by climate change requires active involvement by national governments, local governments, corporations, citizens, and others. Astellas recognizes that climate change will become a constraint on conducting sustained corporate activity and considers it an important management issue to address.

Astellas has made a long-term commitment to taking measures against climate change and decided to aim for achieving a 90% reduction in GHG emissions and a 10% neutralization of residual emissions to achieve Net Zero by 2050, based on 2015, for Scope 1 and 2 and Scope 3, respectively. In addition, the Science Based Targets (SBT) initiative approved Astellas' GHG emissions reduction targets through 2030.

To address climate change as a management issue, we have adopted as targets, the 1.5°C (Scope 1 and 2) and well-below 2°C (Scope 3) targets of the Paris Climate Agreement.

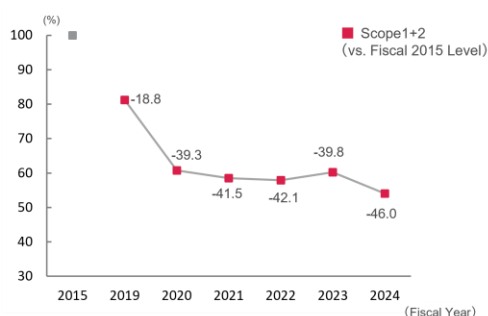


Environmental Action Plan (Climate Change Mitigation Measures) (SBT re-certified in January 2023)

- Reduce GHG emissions (Scope 1 + Scope 2) by 63% by fiscal 2030 (1.5°C target) (Base year: fiscal 2015)
- Reduce GHG emissions (Scope 3) by 37.5% by fiscal 2030 (well-below 2°C target) (Base year: fiscal 2015)

Progress on Action Plan (SBT)

Our results calculated based on the GHG Protocol are as follows:



Progress on Environmental Action Plan (Scope 3)

	Fiscal 2015	Fiscal 2022	Fiscal 2023	Fiscal 2024
GHG emissions (Scope 3) (tons)	1,378,972	893,617	1,121,350	1,276,323
Ratio to Base-year (%)	-	-35	-19	-7

FY2015, 2021, 2022 data was re-calculated due to some reasons. Please refer to footnote of "Scope 3 emissions (past 3 years)" for details on re-calculation.

Changes in GHG Emissions Volume

The volume of GHG emissions in fiscal 2024 was 122 kilotons (Scope 1: 59 kilotons, Scope 2: 63 kilotons).

Changes in GHG Emissions Volume by Area

	Fiscal 2015	(%)	Fiscal 2022	(%)	Fiscal 2023	(%)	Fiscal 2024	(Tons)	(%)
Japan	154,447	77	89,709	76	92,325	75	82,224	76	
Scope 1	56,674		44,253		40,601		35,558		
Scope 2	97,774		45,456		51,724		46,666		
US	23,863	12	12,673	11	14,826	11	13,111	12	
Scope 1	13,419		6,418		8,245		8,036		
Scope 2	10,443		6,256		6,580		5,074		
Established Markets	14,666	7	6,797	8	6,314	7	6,212	6	
Scope 1	11,014		6,204		5,840		5,836		
Scope 2	3,652		593		473		376		
China	3,349	2	3,697	3	3,535	3	2,802	3	
Scope 1	14		29		6		84		
Scope 2	3,335		3,668		3,529		2,719		
International Markets	4,628	2	2,647	2	3,172	2	3,485	3	
Scope 1	3,635		2,147		2,431		2,698		
Scope 2	994		499		741		786		
Total	200,953		115,524		120,171		107,833		
Scope 1	84,756		59,051	-	57,124	-	52,212	-	
Scope 2	116,197		56,473		63,047		55,621		

Non-energy GHG emissions are less than 5% of total emissions and therefore not included in the disclosed data.

Our efforts to reduce GHG emissions

In order to reduce GHG emissions, Astellas must implement management practices that involve the entire Astellas organization from a medium-term perspective. Astellas' manufacturing plants, research centers, sales and marketing divisions, and offices are implementing a variety of initiatives with the aim of mitigating climate change.

Regarding tangible elements, efforts to improve facilities, which include the introduction of high-efficiency equipment and the conversion to alternative fuels, are expected to make a significant contribution to reducing the level of GHG emissions generated by energy sources. Regarding intangible aspects, employees' participation in energy saving through improvements of daily work is also important. To this end, each facility adopts a two-pronged approach, comprising measures related to both tangible and intangible elements.

■ Investment Plan for Climate Change Mitigation Measures

In fiscal 2024, Astellas completed approximately 2,200 million yen in investments with a focus on the promotion of renewable energy use at each facility (including the installation of solar panels) and energy-saving measures (such as upgrading to air conditioning-related energy-saving equipment and the introducing LED lighting, resulting in a reduction of GHG emissions of 2,905 tons.

Astellas will keep on conducting continuous reviews of investment plans related to matters such as introducing renewable energy.

■ Understanding GHG Emissions in the Supply Chain

In addition to emissions directly generated by business activities (Scope 1 and Scope 2) in the Environmental Action Plan concerning climate change, Astellas is also striving to assess emissions produced throughout the entire supply chain (Scope 3). We have also set SBTs for GHG emissions from major categories within Scope 3 and are striving to reduce them. In addition, we encourage support and cooperation with our measures to reduce GHG emissions, including transactions among our production contractors.

■ Priority Use of Gaseous Fuel

At Astellas' research and production sites, we use boilers fueled by city gas, LPG and LNG (liquefied natural gas), all of which generate low GHG emissions during combustion. These boilers not only contribute to reducing GHG emissions but also to reducing SOx emissions, another air pollutant.

■ Introduction of Energy Monitoring Systems

Knowing exactly how much energy we use is useful for the formulation of new strategies. We have introduced energy monitoring systems that can visually monitor energy usage at our facilities.

■ Reduction of GHG Emissions Generated by Sales Activities

Since fiscal 2008, Astellas has been striving to reduce GHG emissions associated with the use of sales fleets. In each region, we are continuously switching over to vehicles with low environmental impact (e.g., hybrid cars, electric vehicles). In Japan and the US, where the rate of introducing hybrid vehicles is high, the volume of GHG emissions relative to the number of vehicles has been reduced more than in other regions.

GHG emissions associated with the use of sales fleets are (t-CO₂)

	Fiscal 2022	Fiscal 2023	Fiscal 2024
Total emissions of sales fleets	12,378	13,380	13,323

When it cannot be directly measured CO₂ emissions are estimated based on fuel purchase costs, annual average fuel usage by company vehicles or private vehicles (if used in sales activities) and other factors. Figures do not include data from the Asia/Oceania region (with partial exception).

reported under Scope 1 (fuel usage) and Scope 2 (electricity usage by electric vehicles).

■ Incorporating Sustainability Indicators into Executive's incentive-based Remuneration

Starting from the 19th term business year (fiscal 2023), Astellas has incorporated a new key performance indicator by setting sustainability performance targets for bonus (short-term incentive remuneration) for Directors who are not the Audit & Supervisory Committee Members (and excluding Outside Directors). By linking management strategies with incentive compensation, Astellas aims to steadily promote environmental initiatives.

For details of remuneration for Directors, please refer to page 80 of the Notice of Convocation of the 20th Term Annual Shareholders Meeting.

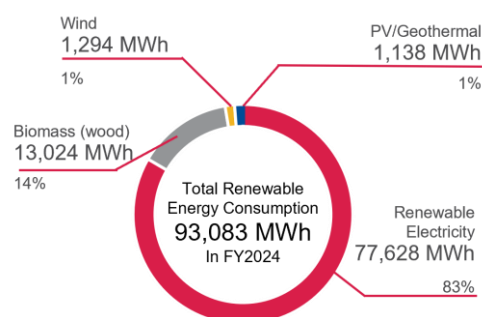
■ Using Renewable Energy

The use of renewable energy is one of the most effective climate change countermeasures. Astellas is introducing photovoltaic panels and wind power generation, and such equipment as biomass boilers, and purchases electricity derived from renewable energy sources to reduce GHG emissions. We will continue to strive expanding the use of renewable energies to help achieve Net Zero.

Starting in April 2020, Astellas switched all electricity purchased by its three business sites in Ibaraki Prefecture (Tsukuba business site, Tsukuba Tokodai business site, and Takahagi business site) to an electricity rate plan deemed to be 100% hydroelectric (*). (This enabled a reduction of emissions equivalent to about 26,000 tons of GHG emissions in fiscal 2024.) Moreover, we are also moving ahead on switching to electricity generated by renewable energy sources in areas outside of Japan.

Looking ahead, Astellas will continue to explore opportunities for using renewable energy, and it will also consider formulating targets for the use of renewable energy. (* The Aqua Premium plan provided by TEPCO Energy Partner, Inc.

Usage of renewable energy (fiscal 2024)



Our efforts to reduce GHG emissions

Changes in use of renewable energy

	Fiscal 2015	Fiscal 2022	Fiscal 2023	Fiscal 2024
Total energy used (GWh)	1,091	570	558	495
Energy derived from renewable energy sources (GWh)	58	108	104	93
Renewable energy rate (%)	5	19	19	19
Total electricity (GWh)	279	227	229	208
Electricity derived from renewable energy sources (GWh)	48	95	91	80
Renewable energy rate (%)	17	42	40	39

■ Breakdown of Energy Consumption

Global energy usage in fiscal 2024 by the Astellas Group amounted to 496 GWh for a decrease of 11% (62 GWh) over the previous year. The percentage of total energy consumption accounted for by electricity is high because in each region a large amount of electricity is consumed

by the operation of air conditioning equipment.

Astellas strives to reduce its energy consumption, including through the continued implementation of energy-saving measures and the introduction of highly efficient equipment.

(Unit: MWh)

Global	Fiscal 2021	(%)	Fiscal 2022	(%)	Fiscal 2023	(%)	Fiscal 2024	(%)
Liquid fuel	55,755	10	53,894	9	56,069	10	55,942	11
Gaseous fuel	278,044	48	267,124	47	252,061	45	210,279	43
Heat purchased	10,379	2	8,722	2	8,244	1	7,790	2
Electricity purchased	224,095	39	225,526	40	226,691	41	205,273	41
Renewable energy sourced	95,882		93,048		88,530		77,628	
Renewable energy	13,140	2	14,584	3	14,974	3	15,455	3
Total	581,432	100	569,850	100	558,039	100	494,739	100

Japan	Fiscal 2021	(%)	Fiscal 2022	(%)	Fiscal 2023	(%)	Fiscal 2024	(%)
Liquid fuel	12,139	3	12,903	3	10,970	3	9,795	3
Gaseous fuel	241,391	57	226,994	56	209,395	54	177,842	51
Heat purchased	349	0.1	82	0	60	0	4	0
Electricity purchased	167,760	40	167,420	41	167,043	43	160,083	46
Renewable energy sourced	66,992		64,049		60,576		59,476	
Renewable energy	52	0	48	0	174	0	858	0.2
Total	421,691	-	407,447	-	387,641	-	349,301	-

US	Fiscal 2021	(%)	Fiscal 2022	(%)	Fiscal 2023	(%)	Fiscal 2024	(%)
Liquid fuel	14,321	29	14,058	25	18,955	29	18,541	31
Gaseous fuel	12,439	25	16,869	30	20,479	31	18,722	31
Heat purchased	-	-	-	-	-	-	-	-
Electricity purchased	22,676	46	24,489	44	26,847	41	22,223	37
Renewable energy sourced	945		1031		1182		1386	
Natural energy	1	0	1	0	1	0	1	0
Total	49,437	-	55,417	-	66,282	-	59,487	-

Our efforts to reduce GHG emissions

(Unit: TJ)

Established Markets	Fiscal 2021	(%)	Fiscal 2022	(%)	Fiscal 2023	(%)	Fiscal 2024	(%)
Liquid fuel	19,477	22	16,965	20	16,075	20	16,131	26
Gaseous fuel	24,170	27	23,219	27	22,174	27	13,715	22
Heat purchased	1,080	1	455	1	222	0.3	176	0.3
Electricity purchased	30,078	34	29,792	35	28,591	35	18,135	29
	27,944		27,968		26,771		16,767	
Natural energy	13,087	15	14,536	17	14,799	18	14,420	23
Total	87,893	-	84,967	-	81,861	-	62,577	-

China	Fiscal 2021	(%)	Fiscal 2022	(%)	Fiscal 2023	(%)	Fiscal 2024	(%)
Liquid fuel	154	1	82	1	15	0.1	337	3
Gaseous fuel	43	0.4	42	0.4	13	0.1	0	0
Heat purchased	8,566	75	8,101	75	7,901	77	7,567	74
Electricity purchased	2,656	23	2,522	23	2,394	23	2,090	21
Natural energy	-	-	-	-	-	-	176	2
Total	11,420	-	10,746	-	10,323	-	10,170	-

International Markets	Fiscal 2021	(%)	Fiscal 2022	(%)	Fiscal 2023	(%)	Fiscal 2024	(%)
Liquid fuel	9,684	88	9,886	88	10,055	84	11,137	84
Gaseous fuel	0	0	0	0	0	0	0	0
Heat purchased	385	4	83	1	62	1	44	0.3
Electricity purchased	924	8	1,304	12	1,816	15	2,022	15
Natural energy	-	-	-	-	-	-	-	-
Total	10,992	-	11,273	-	11,932	-	13,203	-

■ Participation in the Federation of Economic Organizations' Commitment to a Low-Carbon Society

Astellas is participating in the Carbon Neutrality Action Plan* formulated by the Federation of Pharmaceutical Manufacturers' Associations of Japan, which is based on requests from the Federation of Economic Organizations. In February 2023, Astellas committed to a policy of reducing GHG emissions from operations to Net Zero by 2050.

* With a long-term vision of Net Zero CO2 emissions by 2050, the Phase II target (2030 target) is to reduce CO2 emissions in fiscal 2030 by 46% (from laboratories, plants, offices and vehicles used in sales) from the fiscal 2013 level.

Disclosure Based on TCFD Recommendations

■ Governance

Supervisory structure

The Board of Directors views climate change countermeasures as a key sustainability issue and reviews the progress of initiatives on a quarterly basis. Astellas Sustainability submits annual reports to the Board each fiscal year to facilitate the monitoring of these initiatives, including efforts to address climate change. Through this monitoring process, the Board oversees the effectiveness of management.

Executive structure

Sustainability issues are recognized as top priorities for Astellas, with key performance indicators (KPIs) established and monitored. For climate change, progress is assessed through greenhouse gas emission reduction targets and KPIs, which are aimed to be met by 2030. The adoption of renewable energy is also a crucial metric for measuring progress. The Sustainability Committee, chaired by the Head of the Sustainability Department and reporting to the Chief Strategy Officer (CSO), manages the Environmental Action Plan. The Committee reviews Astellas' Environmental Action Plan every five years to ensure its continued relevance and to suggest improvements as needed. Additionally, the Committee evaluates long-term plans for greenhouse gas reduction initiatives and the content of the Company's TCFD disclosures.

Please refer to the integrated report for details on how sustainability performance targets are integrated into the performance evaluation indicators for Executive compensation.

■ Strategy

To identify and prioritize the issues that are most important to society and our business, Astellas carries out a materiality assessment and uses it to guide our sustainability efforts. Under the Astellas Materiality Matrix, reviewed in the fiscal year ended March 2022, climate change and energy are recognized as "very important" in their significance for both society and Astellas.

Astellas' Environmental Action Plan sets out short-term and medium-term targets for our activities regarding the key points of the Company's Environment, Health & Safety Guidelines. Astellas renews action plans on a rolling basis, by reviewing progress and conditions during the previous year and incorporating findings into the action plan for the following year. The plans outline efforts put in place to reduce the environmental burden and ensure the Company acts with integrity in reducing potential risks in order to protect enterprise value.

An in-house cross-functional team for disclosures was established to conduct a scenario analysis. The team analyzed Astellas' business and climate-related risks and opportunities, on the assumption that transition risks would materialize under a 1.5°C scenario for climate change and physical risks would materialize under a 4°C scenario. The time horizons examined were short-term (3 years), medium-term (10 years), and long-term (20-30 years). Since FY2021, we carried out climate risks and opportunities analysis on an annual basis. In FY2024, the team conducted a physical risk analysis of key locations for Astellas and its value chain. The results of the analysis were reviewed by the Sustainability Committee.

Climate-Related Risks	Potential Impacts	Financial Impacts	Affected period	Astellas' Resilience
Transition Risks (risk materializing at 1.5°C increase)				
Policy and Legal				
Increased pricing of GHG emissions (costs if paying a carbon tax)	Business sites that have not introduced renewable energy may have to include carbon tax payments to their costs.	1.1 billion yen in FY2030 assuming a carbon tax of \$100 per ton	Medium to long-term	Some of the electricity consumed at the business site is generated internally by using renewable energy sources such as wind power and solar power. Switch to purchasing energy derived from renewable sources at business sites is being promoted. The purchase of carbon credits to reduce Scope 1 emissions and measures to control costs associated with the purchase will be issues for consideration.
	Purchased goods and services (Scope 3 Category 1) may be subject to carbon tax, which increases the burden when added to the procurement price.	10 billion yen in FY2030 assuming a carbon tax of \$100 per ton	Medium to long-term	Scope 3 Category 1: We will work on optimizing the use of raw materials. By formulating a supply chain sustainability roadmap, CO2 emission data of purchased products will be analyzed and emission reduction will be prioritized.
Obsolescence and impairment loss on existing facilities accompanying GHG emission regulations	Possibility of being asked to discard facilities due to strengthening of environmental regulations. Refrigeration equipment using freon gas. Vehicles that use fossil fuel may no longer be available in some countries after 2035.	No significant impact	Medium to long-term	There are no existing facilities or assets that we are required to dispose of at this moment. Regarding freon gas, we will take appropriate measures that comply with laws and regulations. From 2030 onwards, we need to respond to a required change in automotive vehicles (shift from internal combustion engines to electric motors / EVs and fuel cells). Shift to EVs for sales fleets and trucks and modal shift of transportation will have an impact on business operations.
Technology				
Costs to transition to lower emissions technology	Costs rise when investing in low emission equipment.	1.2 billion yen based on past climate-change investment plan	Near to long-term	Select and invest in efficient projects to reduce the carbon tax burden. Explore non-investment alternatives, such as power purchase agreement, for significant projects like solar panel electricity generation.

Climate-Related Risks	Potential Impacts	Financial Impacts	Affected period	Astellas' Resilience
Market				
Increased cost of energy and raw materials	Rising energy and raw material prices lead to higher costs exacerbated by inflation	An increase of 10 yen per 1 kWh unit of electricity will increase the cost burden by 2. billion yen.	Near to long-term	Increase of electricity and energy costs consumed at business sites due to regulatory changes would be an issue in the future. However, we do not envisage a significant increase in the cost of raw materials for drug production due to climate change. We will reduce the impact of rising fossil fuel prices by using renewable energy-derived power.
Physical Risks (risk materializing at 4°C increase)				
Acute				
Increased severity of extreme weather events such as floods	Operations halt at our business sites due to floods or other factors. Raw material and product supply is delayed due to damage in the supply chain caused by floods or other factors.	500 million yen Referred to the flood countermeasures of the Toyama Technical Center.	Near to long-term	The planned investment for the Toyama Technology Center's flood response was estimated to be 500 million yen and comprises the following - Install a 3m waterproof wall around the power receiving building - Construction of substation equipment with a structure of 3m or more - Purchase of generators If similar measures are required, a similar amount of investment will be considered.
Chronic				
Changes in precipitation patterns Rising mean temperatures, and sea level	Droughts will affect the operations of our plants and supply chain, resulting in delays in product shipments. Rising average temperatures will have an impact on energy costs accompanying operation of air conditioners at business sites.	No significant impact	Near to long-term	According to IPCC AR6 SPM SSP3-7.0 scenario, global sea level change in 2050 relative to 1900 is less than 0.5m. This level of change has no significant business impact. Changes in precipitation patterns do not have a material impact on Astellas' operations.

Climate-Related opportunities	Potential financial Impacts	Affected period	Astellas' response	
Resource efficiency	Use of more efficient production and distribution processes Use of recycling	Reduced operating costs	Near to long-term	In order to maintain a stable supply of pharmaceuticals even during pandemic of infectious disease or natural disasters such as earthquakes, storms, and flooding, three logistics centers are operated in Japan. In European countries and the United States, warehouses shared by multiple pharmaceutical manufacturers are being used to streamline the distribution process. We collect exhaust heat from air conditioning units at Japanese manufacturing plants and research sites and use it to pre-heat the air supply to improve heat efficiency.
Energy source	Use of lower-emission sources of energy	Reduced exposure to GHG emissions and therefore less sensitivity to changes in cost of carbon	Near to long-term	Shifted boiler fuel from liquid fuel to gaseous fuels. We are moving ahead on introducing hybrid and electric vehicles in our sales fleet. We are working on using wind power generation and biomass boiler system at Kerry Plant in Ireland.
Products and markets	Development and/or expansion of low emission goods new products and services Access to new markets	Increased revenues through access to new and emerging markets	Near to long-term	For the spread of infectious disease in endemic areas due to temperature change and the need for new drugs for infectious disease treatment assumed by the problem of antimicrobial resistance, collaboration with the phage biologics researches course at a university to create engineered bacteriophages, could be viable solution. Climate change can change the geography of the morbidity associated with and severity of epidemics. Heart disease, respiratory disease, etc. may also increase.

1.5°C scenario: Refer to IPCC 6th Assessment Report (AR6) Summary for Policymakers, "Global Warming of 1.5°C" (IPCC special report), "Net Zero by 2050" (IEA). To achieve significant reduction of greenhouse gas emissions, implementation of several measures such as carbon prices and the spread of EVs are assumed.

4 °C Scenario: Refer to SSP3-7.0 of IPCC 6th Assessment Report, Working Group I, Summary for Policymakers (SPM), released in August 2021. As extreme weather, we assumed an increase in the frequency of high temperatures, heavy rains, and droughts.

The climate change physical risk geographical analysis

IPCC reports [1] have pointed out that extreme weather events due to climate change are on the rise. However, there is a high degree of uncertainty as to how the transition to a decarbonized society will proceed, and it is difficult to predict the impact this will have on Astellas' business in the future. We conducted a scenario analysis on the impact of physical risks (flood, wind, wildfire, heat) on the value chain, including our own business locations, manufacturing contractor locations and logistics center locations.

The Company's offices, manufacturing facilities, and research centers, as well as value chain locations, were appraised. Most sites included in scope are in East Asia, North America and Europe. The definitions of short-term, medium-term and long-term are the same as those in the risk opportunity analysis, with the long-term corresponding to Astellas' Net Zero target year (2050). The climate scenarios referenced were three: a scenario in which the global average temperature rise since the Industrial Revolution is limited to below 2°C (SSP1-RCP2.6), a scenario in which it increases by 2-3°C (SSP2-RCP4.5), and a scenario in which it exceeds 4°C (SSP5-RCP8.5).

Results of the risk matrix analysis

In the risk matrix analysis, the Astellas facility with the highest risk was the Shenyang Plant. In the 4°C scenario, increased risks of flood, heat, and precipitation in 2050 were detected as potential issues.

Note: The impact of the physical risks were analyzed based on where each site locates at a 90-meter grid resolution and thus currently-installed risk mitigations were not taken into considerations; therefore, actual impact could be different from the estimated loss herein.

Key hazards that have the potential to impact to Astellas

Precipitation

An increase in instances of heavy downpours across all sites is included in this analysis. At the location of Yaizu Technology Center, heavy rainfall of a once-in-50-year level was estimated at 357 mm per day in the 2020 model and 398 mm in the 2050 model using the 4°C scenario.

Flood

The location of Toyama Technology Center is particularly concerning due to the potential for floods reaching up to 8.5 meters, which could occur once in a hundred years. Astellas should assess the flood risk measures at high-risk sites to consider they are reasonably prepared to address potential flood risks by 2050.

Heat waves

Heat is not currently a major risk to Astellas, on a scale of 1-100, the average current risk is 29. However, it has been suggested that heat risk may become apparent in the 4°C scenario by 2050. At the location of Astellas Gene Therapies Sanford, it was estimated that in 2050, the number of days per year with maximum temperatures exceeding 35°C will be 41. Worker productivity can be significantly impacted by heatwaves if buildings are not sufficiently cooled.

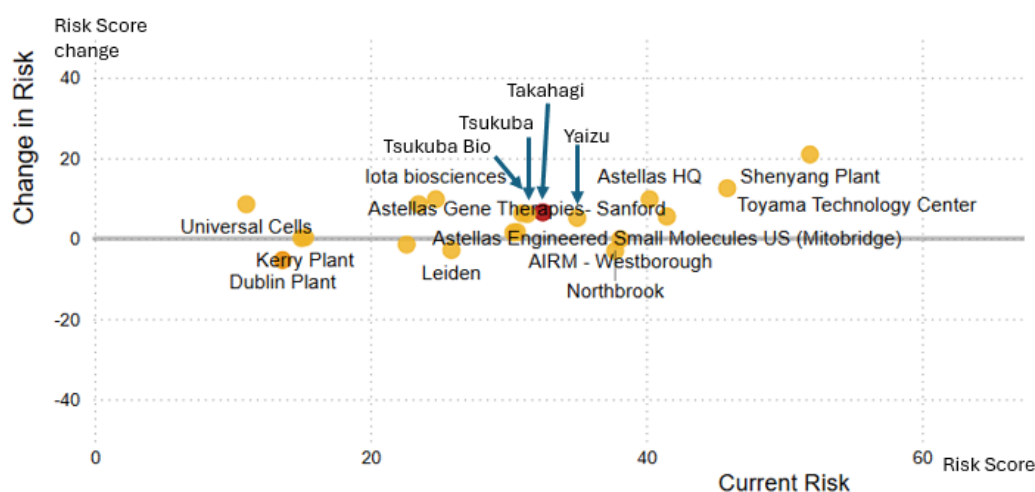
High winds

Strong winds can cause extensive damage to buildings if they are not designed to withstand these storms. However, Japan has stringent building regulations which ensure that structures are designed to withstand wind speed loads that are determined based on their location, height and intended use.

Others

Cold has the highest current risk score, however the risk becomes much lower for all sites by 2050. Wildfire is of concern at one 3PL site and Hail/Thunderstorms do not pose a high risk to any locations.

Current risk vs change of risk in present day vs future (2050)



The Risk Score is a normalized estimate of the average risk posed by each hazard. It is calculated using the one to three hazard metrics depending on the hazard under a 4°C scenario. For example, precipitation risk refers to 1-day maximum precipitation in a 1 in 100-year event, and wildfire risk refers to the annual wildfire probability.

Changes in maximum precipitation per day with the highest risk

Site Name	Country	Max precipitation in one day >4°C scenario (mm)					
		10-year return			50-year return		
		Modelled 2020 baseline	2050	% change	Modelled 2020 baseline	2050	% change
Yaizu Technology Center	Japan	252	279	10	357	398	12

Astellas sites for days above 35°C in 2050 under a >4°C scenario

Site Name	Country	Days above 35° per year	% Change from Baseline
Astellas Gene Therapies- Sanford	USA	41	78

Sites with wind gusts over 200 km/h in 1 in 100-year events in 2050

Site Name	Country	Wind Gusts
Yaizu Technology Center	Japan	232

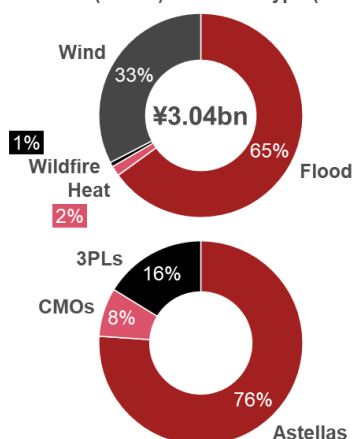
Financial impacts

An assessment of the financial impact on Astellas was conducted for four hazards (flood, wind, wildfire and heat). For flood, wind and wildfire the results are in the form of Average Annual Loss, which is the aggregated, probability-weighted, impact across all the return periods. For heat the results are in the form of Productivity Losses which are based on the days that maximum temperatures exceed >35°C.

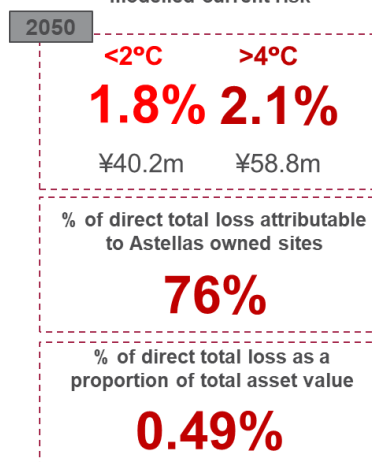
Estimated total financial loss from flood, wind, heat and wildfire is ¥3bn in 2050 under a >4°C scenario. Flooding accounts for almost two thirds of total direct loss (¥1.97bn) and 67% of this is from one site, Toyama Technology Centre. The potential loss from flooding at Toyama accounts for 44% of direct total loss from all hazards combined. High wind speeds account for just over one

third of the total direct loss (¥0.99bn). Loss from building damage accounts for 66% of the total losses. The sites associated with the highest financial impact are located in areas frequently hit by typhoons. Despite heat being one of the most significant climate hazards to Astellas under a >4°C in 2050, the financial impact from the risk is limited (compared to other hazards). This is due to the fact that all of Astellas’ sites have been fitted with adequate HVAC systems that are updated and maintained regularly. Toyama Technology Centre is expected to incur over ¥1.5 billion in losses primarily due to flooding in 2050 under a >4°C scenario. The bar charts below illustrate the top ten sites for total loss across Astellas-owned sites excluding Toyama, indicating that acute wind and flood events significantly impact Astellas-owned sites.

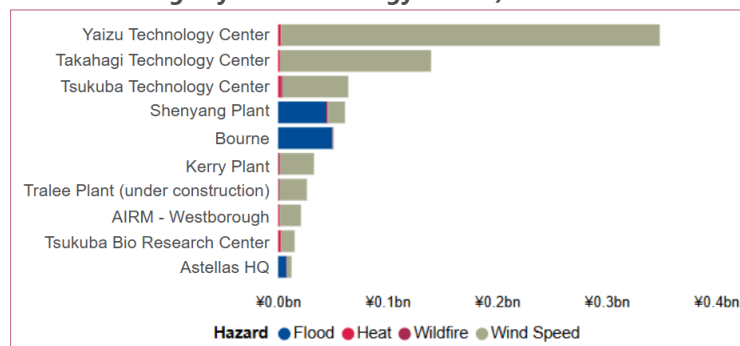
Total Loss in 2050 under a >4°C scenario, split by hazard (above) and asset type (below)



Average annual loss increase compared to modelled current risk



Top ten sites for potential loss (Astellas owned, excluding Toyama Technology Center)



Risk Management

Processes for identifying and assessing climate-related risks

Risks within divisions, such as transition risk, physical risk, and reputational/legal risk related to climate change, are analyzed by Sustainability Committee, which is comprised of members from Commercial, Technology & Manufacturing, Research, HR, Procurement and Sustainability. Risks are regularly monitored once a year. Once risks have been identified, their impact and probability of occurrence are analyzed.

Risks that affect the entire company, such as emerging regulatory risks, are analyzed by the TCFD cross-functional team (“E (Environment) Working Group”), which is comprised of members from Finance, Technology & Manufacturing, Research, Procurement, Supply Chain Management, Corporate Strategy and Sustainability. The cross-functional team conducts climate-change scenario analyses by utilizing scenarios provided by institutions such as the IPCC. The physical risk geographical analysis described in the Strategy section was also performed by this team. The impacts of the transition to a low-carbon society, such as burden of carbon taxes are also analyzed. In addition to identifying risks based on organizational and scenario analysis as described above, identifying risks on a business operation and business partner basis makes it possible to pick up risks that would otherwise be overlooked in the analysis. We conduct EHS assessments as risk analysis for business operations, and Third Party Lifecycle Management (TPLM) as risk analysis for business partners. As an internal expert of EHS, Sustainability regularly conducts EHS assessments of manufacturing sites and research facilities. The EHS assessment evaluates the environment, health and safety in general, and if risks are found, a plan for corrective and preventive action (CAPA) is requested. EHS assessments are also conducted for major suppliers as well as internal department. TPLM is the risk mitigation framework covering all stages of the business partner relationship, which includes planning, due diligence, contracting, ongoing maintenance and transition. A global approach was established by Legal,

Ethics & Compliance and Procurement to proactively address and mitigate supplier risk for multiple domains such as: EHS, which verifies that the practical aspects of environmental protection and safety have been implemented in the work environment.

Processes for managing climate-related risks

Escalation procedures and other measures have been put in place for emergency risks, including but not limited to climate change risks. Regarding physical risks, typhoons, hurricanes, etc. may affect operations at business sites. The effects of past typhoons and hurricanes have been minor, and there have been no instances of any disruption to the product supply chain. In the manufacturing department, adequate product stock is maintained to ensure product supply is not affected. Regarding transition risks, although there is no need to dispose of any equipment due to climate change countermeasures, promoting energy efficiency improvements during future equipment upgrades may be a factor in increasing costs.

Reputational risk may arise if targets for reducing greenhouse gas emissions as a measure against climate change are not achieved. Astellas’ Sustainability team monitors the Company’s performance in reducing greenhouse gas emissions.

If a risk is detected during an EHS assessment, Astellas Sustainability presents proposals for improvement and requests the development of a corrective action plan. The Sustainability team follows up on the status of the corrective action plan.

Integration into the overall risk management

Climate-related risks are deliberated by the Sustainability Committee as part of sustainability impacts, risks, and opportunities. They will subsequently be shared with the Global Risk and Resilience Committee.

Continuous effective supply chain management is subject to ongoing monitoring and is overseen by the Global Risk & Resilience Committee.

The reputational risk of not achieving ESG goals is also monitored by the Enterprise Risk Management team.

■ Metrics and Targets

Metrics to assess climate-related risks and opportunities

We use GHG emissions (Scope 1, 2, 3), water resource productivity, waste generation amounts to measure the potential financial impact of climate-related risks and opportunities. GHG emissions are positioned as an important indicator because they are related to transition risks and failure to achieve GHG emission reduction targets will lead to increased carbon tax burdens and worsening reputational risks. On the other hand, reducing GHG emissions due to improvements in energy efficiency can be seen as an opportunity. Increasing water resource productivity is a countermeasure to increasing water stress due to climate change and is related to physical risks. Promoting waste management is also a measure against reputational risk.

Scope 1, 2, 3 emissions performance data

In FY2024, GHG emissions (Scope1+2) associated with Astellas' business activities amounted to 108 kilotons globally. Scope 3 emissions were 1.28 million tons.

Targets to manage climate-related risks

GHG emissions (Scope 1+2, Scope 3)

- Reduce GHG emissions (Scope 1 + Scope 2) by 63% by fiscal 2030 (Base Year: 2015, Emissions in the Base Year: 201 kilotons) [1.5°C target]
- Reduce GHG emissions (Scope 3) by 37.5% by fiscal 2030 (Base Year: fiscal 2015) [well-below 2°C target]

Astellas' GHG emission reduction action plan was approved by Science Based Targets Initiative (SBTi) in 2018 based on the 2°C targets of the Paris Agreement. The SBTi target, which must be re-calculated every five years, was updated one year ahead of schedule and the new reduction targets were set to achieve the Paris Agreement's 1.5°C target (Scope 1+2) and well-below 2°C target (Scope 3). The new target was approved by the SBTi as a science-based target. In February 2023, we announced a new policy aiming to reduce greenhouse gas emissions through our business to achieve Net Zero by 2050.

Water resource productivity, waste generated per unit of revenue

We calculate and publish our water resource productivity and waste generated per unit of revenue every year and publish an analysis of our progress towards our goals. For both indicators, trends are shown for the Base Year and the past three years.

Reference

[1] Intergovernmental Panel on Climate Change Sixth Assessment Report (IPCC AR6) Synthesis Report – Summary for Policymakers
https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

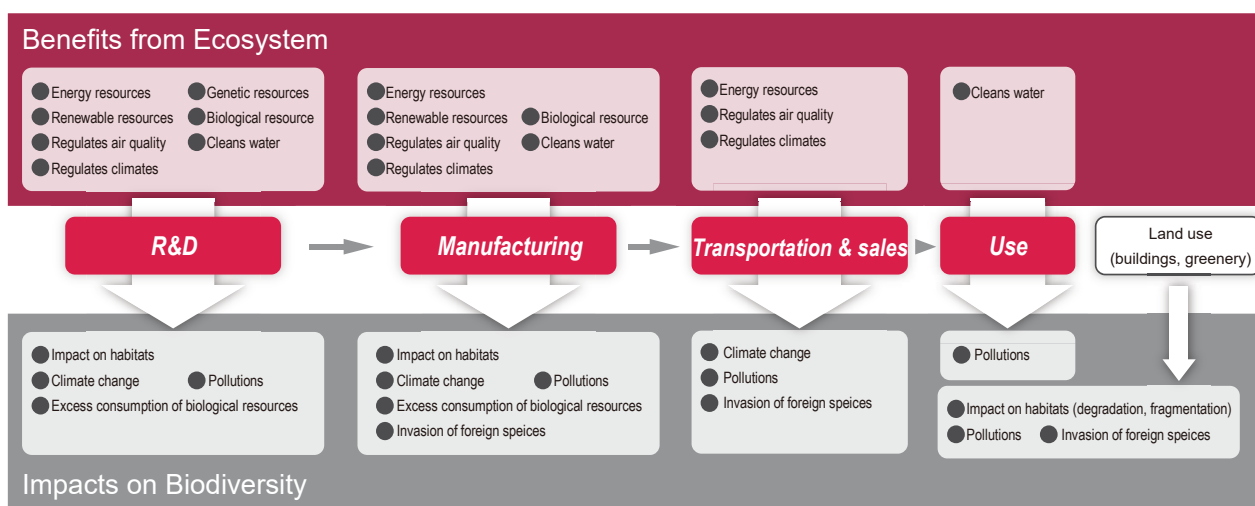
Sustainable biodiversity initiatives

Astellas is thankful for the benefits brought about by biological diversity and understands its business activities in all fields have an impact on ecosystems. We will make a positive contribution to the preservation of biodiversity by working to lessen that impact. Furthermore, we will actively contribute to the creation of a society that coexists with the natural world, enabling the preservation of biodiversity and the sustainable use of the benefits of healthy ecosystems. Astellas has endorsed the Declaration of Biodiversity by Keidanren (Japan Business Federation) and makes donations to the Keidanren Nature Conservation Fund.

Basic Policy on Biodiversity

- We will endeavor to lessen our overall environmental impact on biodiversity by working to implement Climate Change Mitigation Measures, minimize environmental pollution, and promote resource recycling.
- We will endeavor to develop technologies that lessen the impact on ecosystems by lowering the burden we place on the environment and using as few natural resources as possible.
- We will endeavor to handle genetic resources in accordance with international standards and the regulations of producing nations.
- We will endeavor to broaden our efforts to preserve biodiversity with the aim of creating a sustainable society that coexists in harmony with nature. To this end, we will promote discussion within society and among affected parties, while reaching across national and geographical borders.
- We will endeavor to foster a corporate culture that will always act with respect for biodiversity and in a manner that is harmonious with our business activities, grateful for the benefits obtained from healthy

■ Biodiversity and Astellas



■ Biodiversity Index

Astellas assesses the three main factors that are causing the deterioration of biodiversity as being environmental pollution, resource consumption, and climate change, and has created a Biodiversity Index to evaluate the impact of its business activities on biodiversity.

The environmental burden for each sub-category in the assessment fiscal year is divided by the corresponding burden in the base-year and then multiplied by the weight to derive the "Biodiversity Burden Index." The "Biodiversity Index" is calculated by dividing Astellas' consolidated revenue in the assessment fiscal year by the total of all the Biodiversity Burden Index figures. Improvement can be determined by comparing this index to the base year.

$$\text{Biodiversity Index} = \frac{\text{Consolidated revenue in assessment fiscal year}}{\sum \left(\frac{\text{Burden in assessment fiscal year}}{\text{Burden in the base year}} \times \text{Weight} \right)}$$

Category	Sub-Categories	Weight (%)
Environmental pollution	NOx, SOx emissions	10
	Chemical substances emissions	10
	BOD load, COD load (subtotal)	(30)
Resource consumption	Water withdrawal (Global)	20
	Biological raw material usage	10
	Landfill waste volume (subtotal)	(40)
Climate change	GHG emissions (global)	30
	(subtotal)	(30)
Total		100

Environmental Action Plan (Biodiversity)

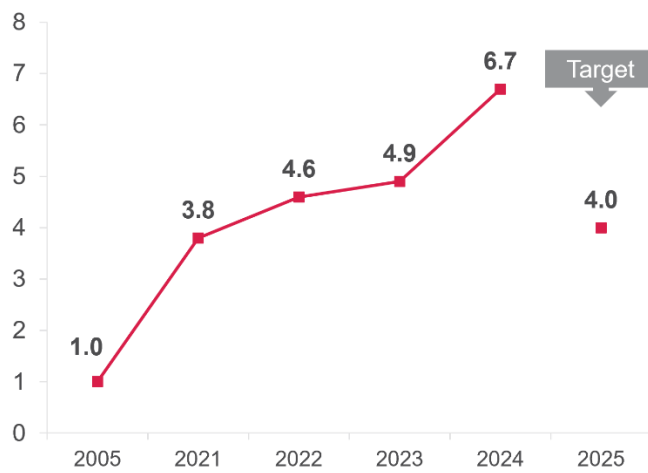
■ Raise the Biodiversity Index to quadruple the fiscal 2005 level by fiscal 2025. (Global)

■ Progress of Action Plan (Biodiversity)

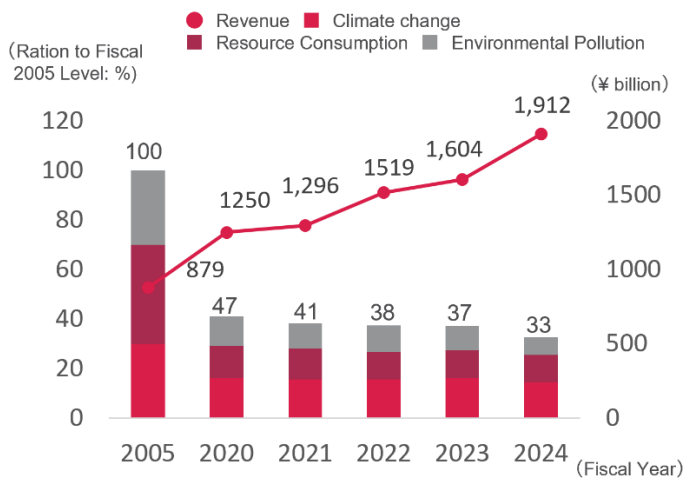
The Biodiversity Index for fiscal 2024 came in at 6.7 times the figure recorded in fiscal 2005.

Biodiversity Index

(Ratio to Fiscal 2005 level)



Biodiversity Burden Index and Revenue



Initiatives for Resource Recycling

Astellas recognizes that since the use of sustainable resources is essential for continuing its business activities, it must play an active role in the creation of a recycling-oriented society. We have established an Environmental Action Plan and are moving forward with steps to effectively use water resources and recycle waste materials (reuse, recycling, and use of all thermal energy) as initiatives contributing to a recycling-oriented society.

Environmental Action Plan (Measures for the Conservation of Resources)

- **Improve water resource productivity by around 20% of the fiscal 2016 result by the end of fiscal 2025.**

Applicable area: Research and production site

Indicator : $\frac{\text{Revenue (billions of yen)}}{\text{Water resources withdrawn (thousand m}^3\text{)}}$

■ Effective Use of Water Resource

The effective use of water resources serves as a useful indicator for gauging society's impact on biodiversity. Astellas assesses the relationship between water resources and economic activity using water resource productivity index and has been striving to improve this index. Water resource productivity for fiscal 2024 improved significantly by 86% compared with the base year of fiscal 2016.

Changes in Water Resources Withdrawn and Revenue

	Fiscal 2016	Fiscal 2022	Fiscal 2023	Fiscal 2024
Water resource withdrawn (thousand m³)	8,774	6,834	6,497	6,883
Japan Ser/Ind*	7,705	6,231	5,952	6,286
Ground water	758	434	346	399
US Ser/Ind*	146	55	61	68
Ground water	-	-	-	-
Established Markets Ser/Ind*	145	129	124	111
Ground water	-	-	-	-
China Ser/Ind*	21	15	14	18
Ground water	-	-	-	-
International Ser/Ind*	-	-	-	-
Ground water	-	-	-	-
Revenue (billions of yen)	1,312	1,519	1,604	1,912
Water resource productivity (billions of yen/thousand m³)	0.15	0.22	0.25	0.28
Improvement Rate (compared to 2016)	-	48%	65%	86%

*Service water and industrial water

No water was withdrawn from a source other than service water, industrial water, or groundwater.

Target: Production facilities and R&D sites in Japan and overseas

■ Recycling of water and reducing water consumption

Astellas' operations use only water drawn from service water, industrial water and groundwater. Water used in work operations is treated in accordance with wastewater discharging standards and returned to an aquatic environment. Astellas is continuously working to reduce water consumption while minimizing process wastewater.

■ Risk Assessments

Water is indispensable for Astellas' research and production activities. Each business site obtains necessary government approval to use water, and wastewater is discharged after being treated to satisfy wastewater discharge standards. Moreover, Astellas uses Aqueduct provided by World Resources Institute to analyze water risks specific to the operating regions where its plants and other facilities are located.

The Astellas Group on a global basis does not currently withdraw water from water bodies in areas concerned with water resource depletion. As water risks may emerge in the future as a result of climate change, we are conducting risk analyses and taking steps to minimize our dependence on such resources and also regard this as an effective means of ensuring business continuity.

Environmental Action Plan (Waste Management)

- **Improve waste generated per unit of revenue by around 10% of fiscal 2016 result by the end of fiscal 2025**

Applicable area: Research and Production site

Indicator: $\frac{\text{Waste generated (tons)}}{\text{Revenue (billions of yen)}}$

■ Waste Management

Astellas is promoting efforts to reduce the waste landfill volume to as close to zero as possible through proactive recycling and reuse of waste materials. Moreover, Astellas also evaluates the relationship between waste generation volume and economic activities with the index known as the Waste generated per unit, and the Company is making efforts to improve it.

In fiscal 2024, the waste generated per unit improved 45% over the base year (fiscal 2016).

Changes in Waste Generation Volume and Revenue

	Fiscal 2016	Fiscal 2022	Fiscal 2023	Fiscal 2024
Waste generated (tons)	14,266	13,541	13,010	11,421
Japan	11,726	9,787	9,354	8,736
US	54	780	921	720
Established Markets	2,432	2,866	2,655	1,860
China	54	109	81	104
International Markets	-	-	-	-
Revenue (billions of yen)	1,312	1,519	1,604	1,912
Waste generated per unit (tons/billions of yen)	10.9	8.9	8.1	6.0
Improvement Rate (compared to 2016)	-	18%	25%	45%

Target: Production facilities and R&D sites in Japan and overseas (Note: The amount of Waste generation volume as indicated in the Environmental Initiatives section includes the amount of waste generation volume our head office.)

■ Waste management in the value chain

In waste management, it is also important to prevent environmental pollution caused by hazardous waste generated by research centers and manufacturing plants and the illegal disposal of that waste. As a means of prevention, we first examine appropriate methods of waste disposal and then conduct regular on-site assessments that waste treatment contractors are using appropriate waste treatment methods.

■ Handling status of High-concentrate PCB-contaminated waste storage

We have been systematically conducting detoxification of any high-concentrate PCB-contaminated equipment that is stored by Astellas. All PCB waste was treated during fiscal 2023.

Initiatives for Preventing Pollution

Astellas promotes activities to prevent global environmental pollution. For major environmental management indicators for air and water quality, we have set and managed stricter voluntary control values than the values stipulated by laws and regulations and agreed values. In addition, we are promoting voluntary activities to reduce atmospheric emissions of chemical substances.

■ Air Pollution—Reduction of VOC emissions

Astellas sets voluntary numerical targets for reducing the amount of volatile organic compounds (VOCs) that are emitted accompanying the use of solvents in production and research activities and makes efforts to reduce emissions. Moreover, as a measure to prevent environmental pollution by chemical substances as well as occupational illnesses, we are taking steps to minimize the impact of our business operations on our employees, local communities, and the environment, such as development of new manufacturing processes that do not use highly hazardous chemical substances.

■ Air Pollution—Reduction of NOx emissions

To reduce the emission of NOx into the atmosphere, Astellas has installed boilers that use gaseous fuels (city gas, LNG, and LPG). The NOx emissions from all business facilities in Japan are as shown in the table below. The NOx emissions from non-Japanese production facilities in fiscal 2024 amounted to 3 tons.

Astellas does not use equipment that runs on fuel oil, which is a major source of SOx (sulfur oxide) emissions.

Substance	Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024
NOx	21	17	18	15	16
VOC	22	21	23	22	22

Target: All production sites and R&D sites in Japan

■ Water Pollution

Astellas measures the extent of its impact on aquatic environments using the biochemical oxygen demand (BOD) load as an index in Japan and the chemical oxygen demand (COD) load as an index in other countries and makes the data available to the public. In Japan, the BOD load was 8 tons, a 11% increase from the previous fiscal year. Outside Japan, the COD load was 14 tons.

Since the discharge into water of chemical substances used in manufacturing processes can have a negative impact on ecosystems, we are examining ways of reducing such discharges as much as possible at all stages from R&D onward. With respect to future drug candidate substances discovered and developed by Astellas, we are examining the impact pharmaceuticals would have on ecosystems through the evaluation of their biodegradability in the natural environment.

Changes in BOD Load (tons)

Substance	Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024
BOD	9	9	9	7	8
Discharge into rivers	8	8	6	5	7
Discharge into sewer system	1	1	3	2	1

Target: Production sites and R&D sites in Japan

Changes in Discharge Volume (thousand m³)

Destination	Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024
Discharge Volume	7,038	6,810	6,298	6,019	6,492
Discharge into rivers	6,835	6,610	6,108	5,834	6,323
Discharge into sewer system	203	200	190	185	169

Target: All business facilities in Japan

■ Further Information on the PRTR System

Japan's PRTR Act designates substances harmful to human beings and recognized to widely exist in the environment. The main aim of the act is to confirm the nature of the releases and transfers of a company and link the results to independent assessments and improvement of voluntary

chemical substance management. The table below shows the release and transfer of PRTR-designated substances that we identified and reported on in fiscal 2024. Our total amount of designated chemical substances released into the environment in fiscal 2024 was 1 tons. Astellas has kept low quantity emission since 2019.

Releases and transfers of PRTR chemical substances in fiscal 2024 (tons)

Substance name	Volume handled	Volume released			Volume transferred	
		Air	Water	Soil	Waste	Sewerage
Chloroform	11.437	0.572	0.000	0.000	10.865	0.000
N, N-dimethylformamide	6.112	0.007	0.001	0.000	6.034	0.000
Hexane	1.893	0.095	0.000	0.000	1.798	0.000
Heptane	16.794	0.176	0.001	0.000	16.618	0.000
Tetrahydrofuran	1.434	0.008	0.000	0.000	1.309	0.000
Toluene	1.207	0.006	0.000	0.000	1.202	0.000

Target: Production sites and R&D sites in Japan

Tabulated based on the target substances list as indicated in the Order for the Enforcement of the PRTR Act, which came into effect on April 1, 2023

PRTR: Refers to chemical substances designated under Japan's Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (Pollutant Release and Transfer Register Law)

Environmental impact of products and countermeasures

■ Greenhouse Gases

Astellas does not handle or sell any product that uses hydrofluorocarbons (HFCs) as a filler agent.

■ Containers and Packaging Recycling

The products manufactured and marketed by the Company are administered to patients through medical institutions. After their use, packaging materials are disposed of by hospitals, pharmacies, and general households. The waste discarded by general households is mainly comprised of blister (plastic) packaging used for tablets and capsules. Hospitals and pharmacies discard blister packaging as well as various types of plastics including bottles and tubes, metals, glass materials used in injectable solutions products, and such paper items as individual packaging and cardboard boxes.

In the case of pharmaceutical packaging, certain functions remain essential to ensure the safe storage of products as well as compliance with the provisions stipulated under the Pharmaceutical and Medical Device Act of Japan and the laws and regulations of respective countries. In addition to these functions and requirements, Astellas selects environmentally friendly materials for use in its packaging while engaging in a variety of initiatives including the labeling of materials to promote recycling at the time of disposal.

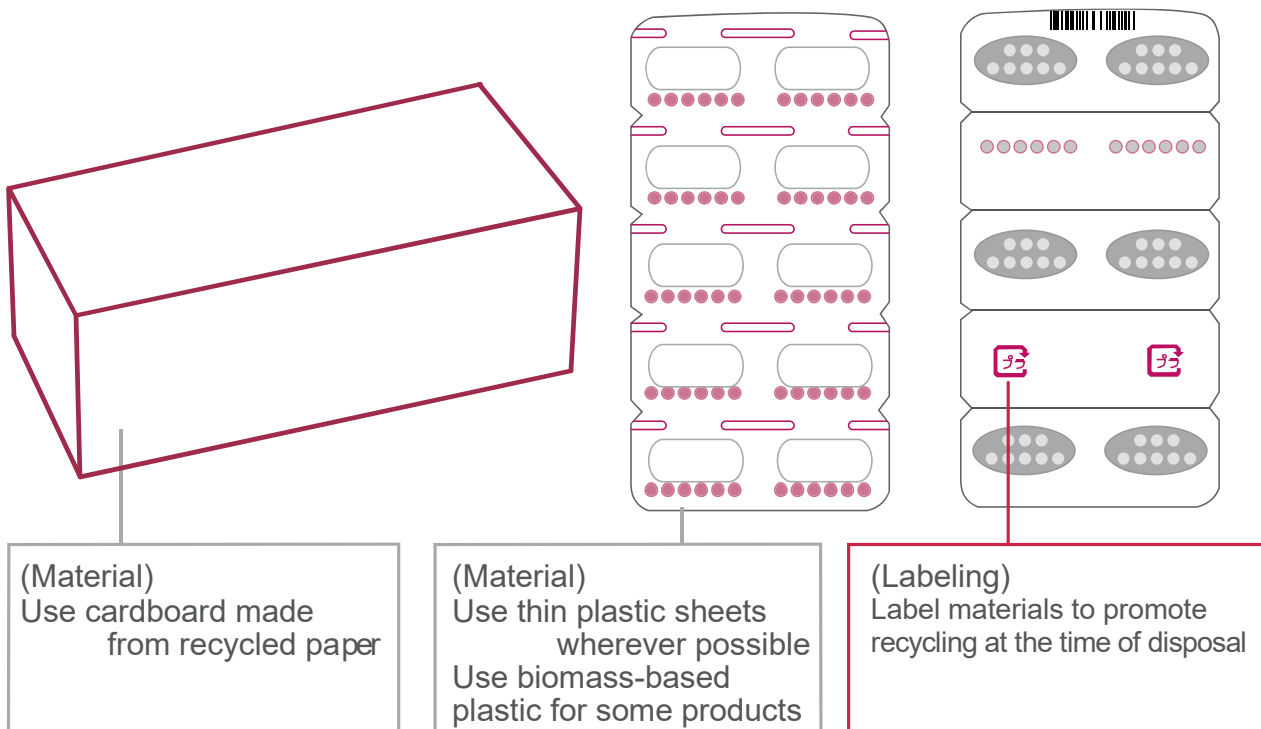
One initiative is to start using blister sheet biomass plastic made from plant-derived raw material. Blister packaging is eco-friendly packaging using 50% of raw materials from sugarcane-derived polyethylene, a biomass plastic. Blister packaging is required to have a high level of tablet protection and usability, and by using packaging

technology developed over many years, it meets these requirements and can be mass-produced. In fiscal 2021 Astellas started using blister packaging made from plant-derived raw materials for some products in Japan.

To encourage the recycling of containers and packaging for household use in Japan, in accordance with the Containers and Packaging Recycling Law (which mandates the sorted collection of containers and packaging and promotes their reuse in commercial products) sellers of products are responsible for defraying the costs of recycling of such waste products. The estimated total amount of plastic and paper containers and packaging used in Astellas products in fiscal 2024 is 219 tons, and the Company was requested to pay ¥8.60 million in recycling costs.

■ Disclosing Information on Plastic Recycling Volume

Astellas uses plastics in various products, recognizes that handling plastic waste generated in its business activities is an environmental issue, and endeavors to recycle plastic resources. In Japan, a law was enforced in April 2022 to promote the recycling of resources related to plastic. The amount of plastic waste generated in Japan in fiscal 2024 was 244 tons. Astellas is working to limit the amount of plastic waste it generates within Japan to under 250 tons in such ways as by limiting the use of plastic resources and improving recycling rates.



Environmental Accounting

Astellas calculates the costs of investment and expenses related to environmental conservation for its facilities in Japan and their outcomes based on the Ministry of the Environment's "Environmental Accounting Guidelines."

Environmental conservation costs in fiscal 2024 comprised ¥256 million in investments and ¥2,443 million in expenses (including depreciation costs). The main investments for preventing pollution included the maintenance of wastewater treatment plants. Investments

in global environmental conservation included updating the air conditioning equipment at our research center. The economic benefits generated through environmental protection activities amounted to ¥2.5 million, which includes the sale of waste organic solvents and waste metals and lower costs of treating waste materials. All high-concentration PCBs have been processed.

■ Total environmental conservation costs in fiscal 2024

(¥ million)

Category		Environmental Conservation Costs				
		Investments	Total	Expense	Depreciation	
Business Area Cost		221	2,108	1,103	1,005	
Breakdown	Pollution Prevention	Prevention of atmospheric pollution	37	360	305	54
		Prevention of water pollution	33	380	232	148
		Prevention of soil contamination	0	68	6	62
		Prevention of noise, bad odor and vibrations	0	8	6	2
		Other	0	9	9	0
		Subtotal	70	824	558	266
	Global Environmental Conservation	Mitigation of climate change	45	243	44	198
		Prevention of ozone layer depletion	101	655	128	527
		Management of chemical substances	0	14	13	1
		Other	0	6	1	5
		Subtotal	146	918	186	732
	Resource circulation	Efficient use of wastes	0	237	237	0
		Conservation of water	0	0	0	0
		Treatment of wastes	5	97	93	4
		Other	0	32	29	3
	Subtotal	5	366	359	7	
Upstream/Downstream costs		0	6	6	0	
Administration costs		0	237	237	0	
R&D costs		35	84	57	27	
Social activity costs		0	7	7	0	
Environmental remediation costs		0	2	2	0	
Total		256	2,443	1,412	1,032	
Total environmental conservation costs, excluding environmental remediation costs		256	2,441	1,409	1,032	

■ Economic Benefit Related to Environmental Conservation (Quantifiable items only included in calculation)

Measures taken	Economic Benefit Related to Environmental Conservation
Cost reductions through energy conservation	0.4 million
Sludge drying, reduction in amount of waste liquid disposal contracted out (through increased disposal in-house)	0.1 million
Conservation of resources through reuse of solvents, and reduction in fuel purchases through conversion of solvents to fuel	0 million
Sale of waste solvents	2 million
Total	2.5 million

■ Changes in Environment-related Investment and Expensed

(¥ million)

Categories	Fiscal 2020		Fiscal 2021		Fiscal 2022		Fiscal 2023		Fiscal 2024	
	Investments	Expenses	Investments	Expenses	Investments	Expenses	Investments	Expenses	Investments	Expenses
Pollution Prevention	519	362	261	449	367	398	689	542	70	558
Global Environmental Conservation	246	237	353	256	380	321	2,449	187	146	186
Resource Circulation	0	293	0	300	17	323	16	276	5	359
Upstream/downstream costs	0	12	0	12	0	12	0	13	0	6
Administration costs	0	226	0	223	0	207	0	201	0	237
R&D costs	18	19	10	17	9	25	50	36	35	57
Social activity costs	0	3	0	3	0	2	0	2	0	7
Environmental remediation costs	0	251	0	251	0	253	0	253	0	2
Total	782	1,401	624	1,511	773	1,541	3,203	1,500	256	1,412

Occupational Health & Safety

Ensuring employee safety in the workplace is a crucial component of Astellas' management philosophy. Along with providing a pleasant workplace for its employees, who are key Company stakeholders, Astellas believes that one of its major responsibilities is to ensure employee safety.

Since its inception in 2005, Astellas has not experienced any accidents leading to the loss of life among employees (including contract employees and business contractors).

However, there have been more than a few incidents with the potential to cause a major accident. In order to prevent such work-related accidents and minimize the impact when such accidents occur, Astellas is promoting initiatives to ensure the safety of its working environments. These initiatives include activities based on knowledge obtained from past experience and consideration of measures to identify and address work-related risks.

Occupational Health & Safety Action Plan

Astellas has drawn up an Occupational Health & Safety Action Plan for the purpose of maintaining and securing a safe work environment, preventing work-related accidents, and minimizing accidents caused by workplace mishaps. The Astellas Environment, Health & Safety (EHS) Policy and Guidelines set forth unified standards that identify Astellas' aspirations in its EHS activities. Based on this policy and guidelines, Astellas is building an EHS management system at each business site and promoting related activities.

Incidence of Work-Related Injuries

To prevent work-related accidents, we share information on work-related accidents and near-misses that have

occurred at business sites in Japan and overseas, without identifying any individuals involved. We are striving from more diverse perspectives to ensure a safe work environment.

From January to December 2024, there were no work-related fatalities and 9 cases of injuries requiring leaves of absence. The largest number of work days lost was 96 days because of an injury from a fall sustained in transit. We will strive for risk reduction activities on a global scale through safety awareness-raising activities to maintain a work-related accident severity rate of 0.005 or less.

		2022	2023	2024
Global	Number of work-related injuries (leave of absence)	17	20	9
	Frequency rate *	0.57	0.66	0.32
	Severity rate *	0.016	0.005	0.008
Japan	Number of work-related injuries (leave of absence)	1	2	1
	Frequency rate *	0.10	0.20	0.11
	Severity rate *	0.002	0.001	0.000
US	Number of work-related injuries (leave of absence)	4	8	1
	Frequency rate *	0.54	1.00	0.13
	Severity rate *	0.002	0.007	0.000
Established Markets	Number of work-related injuries (leave of absence)	4	7	4
	Frequency rate *	0.59	1.01	0.62
	Severity rate *	0.058	0.007	0.025
China	Number of work-related injuries (leave of absence)	0	0	0
	Frequency rate *	0.00	0.00	0.00
	Severity rate *	0.000	0.000	0.000
International Markets	Number of work-related injuries (leave of absence)	7	3	3
	Frequency rate *	2.35	1.01	0.86
	Severity rate *	0.023	0.006	0.000

* Please refer to the abbreviation table (page.2) for details.

Severity Rate
Prevent the incidence of major occupational accidents while maintaining a severity rate at or below 0.005 at all business sites

Risk Assessment
Assess all business operations to identify risks in all areas as well as establish self-regulations to reduce such risk

Safety Initiatives

Astellas is building management systems related to occupational health and safety, security, accident prevention and other priorities, and is making well-organized and systematic efforts to implement occupational health and safety management activities. Astellas employees are required to give top priority to safety in all business operations, as confirmed by both management and labor. Moreover, Astellas strives to ensure the safety of all of its employees. With regard to safety management of business contractors, regular safety education is regulated under the Astellas EHS Policy and Guidance and Astellas requires business contractors to obtain permission to perform certain tasks, as necessary. Furthermore, Astellas has built a system to prevent accidents and other troubles in such ways as providing information on hazards and harmfulness related to outsourced operations to companies commissioned to

conduct operations in Astellas business sites.

In addition, it will be crucial to continuously develop occupational health and safety managers with specialized skills, and provide the training needed to integrate the approved procedures into day-to-day activities. Accordingly, Astellas has been improving skills by fostering collaboration between business sites and divisions, along with enhancing various safety education initiatives.

At business sites that must be established under laws and regulations, Astellas has set up occupational health and safety committees led by the business site manager and attended by representatives of labor and management. These committees meet on a regular basis to hold discussions on maintaining occupational health and safety, and safe workplace environments. The committees conduct activities such as identifying hazards, performing risk assessments and sharing information on occupational health and safety.

Methods for Calculating Performance Data

■ Methods for Calculating Performance Data

Disclosure indicators	Methods for calculating etc.
Energy Consumption	<p>Based on: Law on the Rationalization of Energy Use and Conversion to Non-Fossil Energy, etc. Calculation method and standards: Energy usage of each energy source (※1) x Conversion factor (※2) (※1) Amount purchased from each energy supply company and amount of electricity generated by self-generation (※2) Conversion factor: Ministry of the Environment "List of calculation methods and emission factors in the calculation, reporting, and disclosure system"</p> <p><Definition of liquid fuel, gaseous fuel, purchased heat, and natural energy></p> <ul style="list-style-type: none"> · Liquid fuel: kerosene, diesel, gasoline, bioethanol · Gaseous fuel: LPG, LNG, city gas · Purchased heat: steam, hot water, cold water · Renewable energy: wind, wood chips, geothermal, solar power <p>Beginning with the disclosure of results for fiscal 2023, the amount of power associated with the use of electricity generated by the Company using purchased electricity and renewable energy sources (such as solar and wind) has been converted at a rate of 3.6 MJ per kWh.</p>
Quantity of water withdrawal Water Resource Productivity	<p>Based on: Environmental Reporting Guidelines</p> <p>Calculation method and standards:</p> <ul style="list-style-type: none"> - Municipal water: quantity written in invoices issued by the municipal utility organizations - Industrial water: quantity written in invoices issued by municipal utility organizations etc. - Ground water: calculated from the flow meter <p>- Water Resource Productivity: Revenue (billion JPY) / water usage (thousand m3)</p>
Quantity of raw materials purchased	<p>Based on: Environmental Reporting Guidelines</p> <p>Calculation method and standards: Items measured in weight units (kg, etc.) at the time of purchase, and items measured in volume units (liters, etc.)</p> <p>Source of weight conversion factors: material property documents published by the suppliers etc.</p>
GHG Emissions Scope 1	<p>Based on: Act on Promotion of Global Warming Countermeasures, Act on the Rational Use of Energy and Conversion to Non-Fossil Energy Sources, etc. Calculation method and standards: GHG emissions = Energy usage of each energy (※1) x Emission factor (※2)</p> <p>(※1) Amount purchased from each energy supply company and amount of electricity generated by self-generation (※2) Emission factor: Ministry of the Environment "List of calculation methods and emission factors in the calculation, reporting, and disclosure system"</p>
GHG Emissions Scope 2	<p>When calculating CO2 emissions from electricity usage in areas outside Japan, we use the CO2 emission factor provided by the power company that supplies each business (market-based method). If the individual factor of the power company cannot be obtained, we use the country-specific factor of "IEA Emission factors 2024" issued by the International Energy Agency (IEA).</p>
NOx emission	<p>Based on: Environmental Reporting Guidelines</p> <p>Calculation Method and Standards</p> <ul style="list-style-type: none"> ● In case of the "Exhaust Gas Flow Rate per Hour (m³N/h)" is known: NOx emissions (tons) = Measured concentration*1 (ppm) x Exhaust gas flow rate per hour*2 (m³N/h) x Annual operating hours of the facility (h) x 10⁻⁹ x 2.054*3

	<ul style="list-style-type: none"> In case of the using the "Unit Dry Exhaust Gas Factor"****: $\text{NOx emissions (tons)} = \text{Measured concentration (ppm)} \times 21 / (21 - \text{Oxygen concentration (\%)}) \times \text{Fuel consumption (L/h, kg/h, m}^3\text{N/h)} \times \text{Unit dry exhaust gas factor (m}^3\text{N/L, m}^3\text{N/kg, m}^3\text{N/m}^3\text{N)} \times 10^{-9} \times 2.054^{*3}$ <p>*¹ Use the measured concentration (actual reading), not the oxygen-corrected value. If the measured concentration is below the quantification limit, use zero. *² The exhaust gas flow rate per hour refers to the dry gas volume. *³ $2.054 = 46 / 22.4 \text{ g/L} = \text{Molecular weight of NO}_2 / \text{volume of gas under standard conditions.}$ *⁴ Source: "Guidelines for Preparing the Total NOx Emissions Control Plan" (Osaka Prefectural Government, Environmental Management Division, April 2024)</p>
VOC emissions	<p>Based on: Environmental Reporting Guidelines, Air Pollution Control Law</p> <p>Calculation method:</p> <p>Substances: "Enforcement of the Law Partially Amending the Air Pollution Control Act (Notification)" (June 17, 2005, Environmental Management University Notice No. 050617001) Appendix 1</p> <p>Threshold (based on annual total volume handled): 100 kg or more*.</p> <p>*10 kg or more for "Specific Class I Designated Chemical Substances" stipulated in the PRTR Law.</p>
Emissions of chemical substances subject to the PRTR system	<p>Based on: Environmental Reporting Guidelines, Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (Law concerning Pollutant Release and Transfer Register / "PRTR Law")</p> <p>Calculation method:</p> <p>Substances: Class I Designated Chemical Substances including Specific Class I Designated Chemical Substances, as defined by the PRTR Law.</p> <p>Threshold:</p> <p>The threshold based on annual total volume handled by all Japan sites is set to 0.5 t for Specific Class I Designated Chemical Substances and 1 t for others.</p>
BOD load	<p>Based on: Environmental Reporting Guidelines</p> <p>Calculation method and standards: $\text{Annual BOD load (tons)} = \text{BOD concentration* (mg/L)} \times \text{annual discharge volume (1,000 m}^3) \times 1/1000$</p> <p>*Annual average of values recorded in outsourced measurements</p>
Discharge volume	<p>Based on: Environmental Reporting Guidelines</p> <p>Calculation method and standards: Japan: Calculated from flow meter data. Overseas: The same value as water withdrawal.</p>
Waste generation volume Waste Generation Intensity	<p>Environmental Reporting Guidelines, Waste Management and Public Cleansing Act (Japan), and waste management regulations in each respective country (overseas)</p> <p>Scope of Aggregation: Waste and valuable materials</p> <p>Calculation Methods / Standards:</p> <ul style="list-style-type: none"> Waste Generation Volume: Based on the Waste Management and Public Cleansing Act (Japan) and relevant waste management regulations in each country (overseas) Waste Generation Intensity = Waste Generation Volume (tons) / Revenue (billion yen)

Final Disposal Amount of Wastes	<p>Based on: "Guidelines for the Survey on the Actual Status of Industrial Waste Generation and Treatment (Revised Edition)" (April 2010, Industrial Waste Division, Waste and Recycling Department, Minister's Secretariat, Ministry of the Environment)</p> <p>Calculation Methods / Standards:</p> <p>Final Disposal Amount = amount of direct landfill + amount of residues* from internal treatment + amount residues* from outsourced treatment + amount of residues* from outsourced recycling</p> <p>*amount of residues are calculated by multiplying amount of waste generation volume by residue rates indicated in a response manual for follow-up survey of Voluntary Action Plan for Establishing a Sound Material-Cycle Society (Voluntary Action Plan for Establishing a Sound Material-Cycle Society Working Group, Environment Committee, The Federation of Pharmaceutical Manufacturers' Association of Japan)</p>
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Occupational Health & Safety Indicators

Disclosure Indicators	Basis, Calculation Methods/Standards, etc.
Working Days Lost Frequency Rate Severity Rate	Outline of Survey, Survey on Industrial Accidents by the Ministry of Health, Labour and Welfare (MHLW)

Methods for Calculating Performance Data (Scope 3 GHG)

■ Methods for Calculating Performance Data (Scope 3 GHG)

Categories	Calculation method and activity data to apply	Data boundary and Reference for emission factor
1 Purchased goods and services	Activity data: Purchase price (millions of yen) Calculation method: Purchase monetary amount of raw material and manufacturing services (excluding consumption tax) x (emission factor of each raw material and manufacturing service x 1.05)	Target: Raw materials & manufacturing services purchased for commercial production (Global) Source for emission factor: · The Ministry of the Environment's database [5]; emission factors based on the industry-related table Emission factor on monetary basis for each raw material (purchaser price basis) (=t-CO2 equivalent / 2005 consumption tax inclusive amount)
2 Capital goods	Activity data: Capital expenditures, software purchases (millions of yen) Calculation method: · Facility investment amount (consolidated)* x (emission factor per price of capital goods x 1.05) · Software purchase amount (consolidated) x emission per price of capital goods x 1.05 *The amount reclassified to property, plant and equipment is the amount applied as activity data. Acquisitions of land, right-of-use assets and intangible assets are excluded.	Target: Global Emission factor: · Source: The Ministry of the Environment's database [6]; emission factors per price of capital goods (Secretariat) Pharmaceuticals 2.83 t-CO2 equivalent / million yen
3 Fuel & energy related activities (not included in Scope 1 & 2)	Activity data: Consumption of each type of energy Calculation method: Usage amount of purchased fuel, electricity, heat, etc. x emission factor per usage amount for each energy type	Target: Global Emission factor: · Source: The Ministry of the Environment's database [7]; emission factors per usage amount of electricity and heat (Secretariat) · Source: National Institute of Advanced Industrial Science and Technology (AIST), LCI Database IDEA version 2.3
4 Transportation and distribution (upstream)	CO2 emissions during transportation: Activity data: Shipping weight and distance (tons*kilometers), fuel usage (kiloliter), energy consumption (MWh)	Target: Global Emission factor during transportation (transportation of products and other goods at overseas) · Source: Calculation sheet published by Defra (The Department for Environment, Food and Rural Affairs, UK)
	CO2 emissions during transportation: (transported weight x transported distance x emission source during transportation)	Emission factor by transport vehicle, payload, and well-to-tank emission Emission factor during transportation (transportation of products and other goods in Japan) · Source: The Ministry of the Environment's database [2]; Fuel consumption per ton*kilometer transported by loading rate by maximum loading capacity by fuel CO2 emission by fuel consumption per fuel
	CO2 emissions at outsourced warehouses for product storage distribution warehouses: Electricity usage amount x emission factor	Target: Warehouses for product storage in Japan (outsourced) Electricity emission factor · The latest adjusted emission factors by power supplier
5 Waste generated in operation	CO2 emissions generated during industrial waste treatment: Amounts of recycled industrial waste, incineration processing, and direct landfill processing x waster type/emission factor by processing method	Target: Business facilities and R&D sites in Japan Emission factor during industrial waste treatment and landfill: · Source: The Ministry of the Environment's database [8] emission factors by waste type (Secretariat) (excluding waste transportation stage)
	CO2 emissions generated during waste transportation: Activity data: Shipping weight and distance (tons*kilometers) CO2 emissions generated during industrial waste transportation: (transported weight x transported distance x fuel consumption per unit of transportation)	Target: Japan Emission factor during industrial waste transportation: · Source: The Ministry of the Environment's database [2]; Fuel consumption per ton*kilometer transported by loading rate by maximum loading capacity by fuel
6 Business travel (by airplane)	Activity data: Distance traveled (person*kilometer) Number of persons using airplanes x distance between airports for each flight x emission factor	Target: Results compiled from airplane flights (Global)used worldwide Flight distance between airports: Calculated by assuming flight is a straight line connecting two points on the earth's surface Emission factor: · Source: A calculation sheet made public by Defra (The Department for Environment, Food and Rural Affairs, UK) Emission factor by flight class and distance and well-to-tank emission factor
7 Employee commuting	Activity data: Distance traveled (person*kilometer) Number of persons commuting to a worksite x number of workdays, taking into account the typical attendance rate x emission facto	Target: Direct employees (Global, Number of working days per year in each country) Attendance rate Office-based: calculated Activity data the attendance rate at the Head Office in Japan; factories and laboratories: calculated at 100%. Emission factor per employee/per number of working days · Source: The Ministry of the Environment's database [14]; Employed persons by monthly days of work National Institute of Advanced Industrial Science and Technology (AIST), LCI Database IDEA version 2.3

<p>9 Transportation & distribution (downstream)</p>	<p>Activity data Revenue (on local currency basis)</p>	<p>Target: Japan, USA, UK · Emission intensity: calculated & applied wholesalers' emission intensities* per their Cost of Goods Sold *Scope 1+2 GHG emission, on local currency basis</p>
<p>12 End-of-life treatment of sold products</p>	<p>Activity data: Weight of containers and packaging (Tons) Usage volume of sold products when end-of-life treatment is approached in line with the laws on recycling containers and packaging x emission factor</p>	<p>Target: Japan Emission factor: · Source: The Ministry of the Environment's database [9]; emission factors by waste type (Secretariat) (including waste transportation stage)</p>
<p>13 Downstream Leased Assets</p>	<p>Activity data: Energy consumption by type Amount of fuel, electricity, heat, etc. billed to the leasing company x emission factor per unit of energy consumption by energy type</p>	<p>Target: Company facilities being leased to another company Emission factor Source: factors shown in "Methods for Calculating Energy Consumption and GHGs" The Ministry of the Environment's database [7]; emissions per usage amount of electricity and heat (Secretariat)</p>

The Ministry of the Environment's database: The Ministry of the Environment's emission source unit database (ver. 3.4) for calculating greenhouse gas emissions through the supply chain (March 2024)

Site data (major facilities)

Takahagi Facilities

INPUT			
Energy	Purchased Electricity	15,417	MWh
	Solar power	-	MWh
	Gaseous fuel	9,194	MWh
	Liquid fuel	12	MWh
Water	Service water	2,047	thousand m ³
	Groundwater	-	thousand m ³
OUTPUT			
Air	GHG	1,691	tons
	NOx	0.3	tons
	VOC	0.05	tons
Water bodies	into rivers	2,013	thousand m ³
	Sewerage system	-	thousand m ³
	BOD load	3	tons
	COD load	6	tons
Waste	Generated	597	tons
	Landfill	48	tons

Yaizu Facilities

INPUT			
Energy	Purchased Electricity	45,835	MWh
	Solar power	-	MWh
	Gaseous fuel	50,795	MWh
	Liquid fuel	59	MWh
Water	Service water	221	thousand m ³
	Groundwater	309	thousand m ³
OUTPUT			
Air	GHG	27,861	tons
	NOx	3	tons
	VOC	3	tons
Water bodies	into rivers	525	thousand m ³
	Sewerage system	-	thousand m ³
	BOD load	0.3	tons
	COD load	1	tons
Waste	Generated	904	tons
	Landfill	0.4	tons

Toyama Technology Center

INPUT			
Energy	Purchased Electricity	44,968	MWh
	Solar power	4	MWh
	Gaseous fuel	54,541	MWh
	Liquid fuel	167	MWh
Water	Service water	2,535	thousand m ³
	Groundwater	12	thousand m ³
OUTPUT			
Air	GHG	32,408	tons
	NOx	8	tons
	VOC	12	tons
Water bodies	into rivers	2,535	thousand m ³
	Sewerage system	-	thousand m ³
	BOD load	3	tons
	COD load	5	tons
Waste	Generated	5,795	tons
	Landfill	12	tons

Takaoka Plant

INPUT			
Energy	Purchased Electricity	8,371	MWh
	Solar power	-	MWh
	Gaseous fuel	11,906	MWh
	Liquid fuel	25	MWh
Water	Service water	1,277	thousand m ³
	Groundwater	25	thousand m ³
OUTPUT			
Air	GHG	6,713	tons
	NOx	1	tons
	VOC	3	tons
Water bodies	into rivers	1,160	thousand m ³
	Sewerage system	-	thousand m ³
	BOD load	1	tons
	COD load	6	tons
Waste	Generated	59	tons
	Landfill	0	tons

Tsukuba Research Center

INPUT		
Energy	Purchased Electricity	33,918 MWh
	Solar power	854 MWh
	Gaseous fuel	47,312 MWh
	Liquid fuel	74 MWh
Water	Service water	237 thousand m ³
	Groundwater	- thousand m ³
OUTPUT		
Air	GHG	8,798 tons
	NOx	4 tons
	VOC	3 tons
Water bodies	into rivers	- thousand m ³
	Sewerage system	142 thousand m ³
	BOD load	1 tons
	COD load	3 tons
Waste	Generated	563 tons
	Landfill	18 tons

Tsukuba Bio Research Center

INPUT		
Energy	Purchased Electricity	8,309 MWh
	Solar power	- MWh
	Gaseous fuel	3,787 MWh
	Liquid fuel	1 MWh
Water	Service water	29 thousand m ³
	Groundwater	- thousand m ³
OUTPUT		
Air	GHG	699 tons
	NOx	0.3 tons
	VOC	0.3 tons
Water bodies	into rivers	- thousand m ³
	Sewerage system	27 thousand m ³
	BOD load	0.0 tons
	COD load	- tons
Waste	Generated	818 tons
	Landfill	2 tons

Scope3 Emissions (3 years)

■ Scope 3 (3 years)

Upstream Scope3 emissions				
Category	FY2015	FY2022	FY2023	FY2024
1 Purchased goods and services	1,099,263 tons	650,001 tons	857,945 tons	1,082,536 tons
2 Capital goods	144,053 tons	171,163 tons	178,421 tons	90,582 tons
3 Fuel and energy related activities (not included in Scope1 and Scope2)	28,400 tons	30,096 tons	29,755 tons	27,410 tons
4 Transportation and distribution (upstream)	17,837 tons	14,942 tons	14,946 tons	19,987 tons
5 Waste generated in operation	3,600 tons	1,281 tons	1,296 tons	1,151 tons
6 Business travel (by airplane)	53,528 tons	6,940 tons	21,496 tons	34,056 tons
7 Employee commuting	5,092 tons	2,119 tons	2,310 tons	2,004 tons
8 Upstream Leased assets	Not relevant	Not relevant	Not relevant	Not relevant
Downstream Scope3 emissions				
Category	FY2015	FY2022	FY2023	FY2024
9 Transportation and distribution (downstream)	26,392 tons	16,602 tons	14,668 tons	15,048 tons
10 Processing of sold products	Not relevant	Not relevant	Not relevant	Not relevant
11 Use of sold products	Not applicable	Not applicable	Not applicable	Not applicable
12 End-of-life treatment of sold products	807 tons	424 tons	242 tons	246 tons
13 Downstream Leased Assets	Not relevant	48 tons	271 tons	3,301 tons
14 Franchises	Not relevant	Not relevant	Not relevant	Not relevant
15 Investments	Not relevant	Not relevant	Not relevant	Not relevant