



EHS Report 2023

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. Used as a benchmark for indicating 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-organic chemical compounds that are volatile in the atmosphere at standard ambient temperatures and pressures
Frequency rate of work-related injuries	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 of work-related injuries	This rate shows the number of lost work days 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, 2023)
Representative Director	Naoki Okamura (President and CEO)
Foundation	1923
Revenue	¥1,518,619 million (consolidated basis, as of March 31, 2023)
Employees	14,484 (consolidated basis, as of March 31, 2023)
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, 2022 to March 31, 2023, and the activities of overseas business sites from January 1, 2022 to December 31, 2022. (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 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 Venture Management LLC
- Mitobridge Inc.
- Universal Cells Inc.
- Xyphos Biosciences Inc.
- Astellas Gene Therapies
- Iota Biosciences, Inc.
- Sales affiliate

Established Markets

- Astellas Pharma Europe Ltd.
- Astellas Pharma Europe B.V.
- Astellas Ireland Co., Limited
- Nanna Therapeutics Limited
- Various sales affiliates

Greater China

- Astellas China Investment Co.,Ltd

■ 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.

- Astellas Pharma China, Inc.
- Various sales affiliates

International Markets

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

Certain EHS data includes the results of activities of contractors because the environment and society are affected not only by the Company's own activities but also via the value chain.

In the Environmental Action Plan (Climate Change) report, the scope of aggregation covers all business sites as of the final day of the reporting periods in and outside Japan.

■ Important Changes in Organization during the Reporting Period

N/A

■ 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: June 2023

Next scheduled issue: June 2024

There is no printed version of the EHS report.

(English version edited: July 5th, revised on September 11th, Japanese original version issued on June 20th, 2023)

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 development of society’s sustainability through its business activities and related initiatives. Since the strengthening of efforts to improve sustainability was one of Astellas’ strategic goals newly established in Corporate Strategic Plan 2021 (CSP2021), each department has begun a cycle of thinking about and implementing environmental themes in cooperation with other departments.

Since fiscal 2021 for some products in Japan, Astellas has been using blister sheets, which are a tablet packaging container made of biomass plastic made from plant-derived raw materials. This was the first use of biomass plastic in blister sheets in the world, and in February 2023, Astellas received the Minister of Environment Award of the 5th Japan Open Innovation Prize (sponsored by the Cabinet Office) in recognition of the open innovation that led to its realization.

Regarding progress of efforts on climate change measures, Astellas reviewed greenhouse gas (GHG) emission targets set under the Environmental Action Plan and in January 2023 underwent a validity assessment by the Science Based Targets initiative (SBTi). Target reviews are required every five years, but Astellas conducted the review one year ahead of schedule and changed the reduction targets that were set based on the 2°C target (Paris Climate Agreement). The new targets are science-based targets and have been approved towards achieving the targets of 1.5°C (Scope 1 and 2) and well-below the 2°C targets (Scope 3) of the Paris Agreement. In February 2023, Astellas also announced its commitment to achieve Net Zero GHG emissions in business activities by 2050.

As a responsible member of society, Astellas will continue to improve environmental sustainability and disclose information transparently, as well as act to reduce GHG emissions to realize a sustainable society.



Representative Director,
President and Chief Executive Officer
Naoki Okamura

EHS Management

Astellas' basic stance toward the environment as well as the health and safety of its employees is outlined under the Astellas EHS Policy. Moreover, Astellas is working organizationally and continuously toward achieving this stance as described in the Astellas EHS Guidelines. In addition, Astellas has set medium-term targets for its key priorities in its EHS Action Plan and is 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 formulation of action plans are discussed by the EHS Committee. Committee members are appointed on a cross-functional basis and details of discussions are reported to CEO who oversees the Sustainability Division. 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 is the Sustainability Division monitors risk management related to the environment and periodically reports to CEO who issues instructions as necessary. The Executive Committee* or Board of Directors discuss and decide on important issues, such as items related to risks to the environment other than climate change.

*) An advisory body that discusses important matters related to management of the entire Astellas Group and makes decisions.

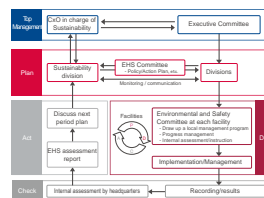
■ Astellas EHS Guidelines

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 2022, EHS assessments were conducted at 18 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 2022, Astellas conducted on-site assessments of 18 suppliers as the impact of COVID-19 eased, and carried out risk assessments related to such matters as the operational status of wastewater treatment plants and waste storage facilities, employees' working environments 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



See page 24 for larger version

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 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.

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

INPUT		
Energy ^{*1}	Electricity	227,496 MWh
	(Renewable sourced)	95,008 MWh
	City gas	19,331 thousand m ³
	LPG	1,002 tons
	LNG	748 tons
	Kerosene	22 kiloliters
	Diesel oil	1,561 kiloliters
	Gasoline	3,776 kiloliters
	Purchased heat (hot/cold water)	4,330 GJ
	Purchased heat (steam)	21,802 GJ
Other renewable energy		45,447 GJ
Resources	Water ^{*2}	6,868 thousand m ³
	Raw materials and consumables (by weight) ^{*3}	4,169 tons
	Raw materials and consumables (by volume) ^{*3}	354,100 kiloliters

Scope3 Indirect GHG

Upstream GHG emissions		
1	Purchased goods and services	219,559 tons
2	Capital goods	168,011 tons
3	Fuel and energy related activities (not included in Scope1 and Scope2)	30,096 tons
4	Transportation and distribution (upstream)	16,528 tons
5	Waste generated in operation	1,281 tons
6	Business travel (by airplane)	6,940 tons
7	Employee commuting	2,119 tons
8	Leased assets (upstream)	Not relevant
Downstream Scope3 emissions		
9	Transportation and distribution (downstream)	Not relevant
10	Processing of sold products	Not relevant
11	Use of sold products	Not applicable
12	End-of-life treatment of sold products	424 tons
13	Leased assets ^{*1}	48 tons
14	Franchises	Not relevant
15	Investments (downstream)	Not relevant

*1 Part of Astellas facilities are leased to another company.

Scope 3 Category 2 data was re-calculated because the former calculation method had been applied partially. Please find 'Scope 3 (3 years)' on page 24 for the detail.

OUTPUT		
GHGs ^{*1}	Scope 1 ^{*4}	61,171 tons
	(Sales fleets)	12,378 tons
Scope 2		56,473 tons
Pollutants (atmosphere)	NOx ^{*5}	18 tons
	VOC ^{*5}	23 tons
Pollutants (water bodies) ^{*5}	BOD	9 tons
	COD	19 tons
Discharge ^{*2}	Water discharge	6,498 thousand m ³
Waste material	Waste generated ^{*2}	13,566 tons
	Landfill volume ^{*3}	55 tons

*1 All Astellas business facilities

*2 All Japanese facilities excluding sales offices, and all production facilities and R&D sites outside of Japan. Volume of water discharge from non-Japanese sites was equivalent to that of withdrawal.

*3 All Japanese business facilities

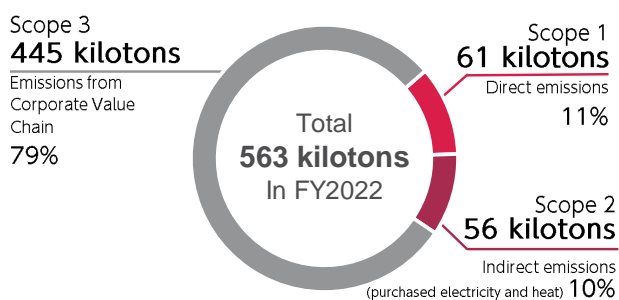
*4 Non-energy related GHG emissions are not included. The CO₂ equivalent of fluorinated gases from production sites (global) and R&D sites (Japan) was 2,304 tons.

*5 All production facilities and R&D sites in Japan

GHG Emissions Throughout the Value Chain

GHG emissions associated with Astellas' business activities amounted to 563 kilotons globally. Astellas is monitoring the greenhouse gas emissions associated with the use of almost all its facilities and sales fleets.

GHG emissions breakdown (fiscal 2022)



Scope 3 Category 2 data was re-calculated because the former calculation method had been applied partially. Please find 'Scope 3 (3 years)' on page 24 for the detail.

In addition to Scope 1 and Scope 2 emissions, Astellas continues working to monitor Scope 3 emissions. In fiscal 2022 Astellas began disclosing GHG emissions from purchased goods and services (Category 1), including those from overseas production facilities, and GHG emissions from the transportation of products and other goods for which Astellas is the consignor (Category 4).

Environment Initiatives

■ 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 December 2022, 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 2022 are as follows:

■ Results of fiscal 2022 (summary)

Goal of Environmental Action Plan	Fiscal 2022 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: 202 kilotons) - Reduce GHG emissions (Scope 3) by 20% per unit of revenue by fiscal 2030 [well-below 2°C target]	Ratio to base year 42% decrease (Emissions: 118 kilotons) 2% decrease (Emissions: 445 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 48% 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 16% deterioration
4. Biodiversity [Base year: fiscal 2005] - Quadruple the biodiversity index by fiscal 2025 from the fiscal 2005 level	Ratio to base year 4.6 times

Scope 3 Category 2 data was re-calculated because the former calculation method had been applied partially. Please find 'Scope 3 (3 years)' on page 24 for the detail.

■ 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

Over the past five years, there have been no infractions of laws or regulations, and no lawsuits, related to environmental issues that were identified at Astellas' business sites. Over the past five years, there was an

incident in which Astellas exceeded the upper limit of agreed values specified in a pollution prevention agreement with a local government. Astellas reported the incident to the local government and is implementing response measures based on its instructions.

- Tsukuba Research Center: Water (fiscal 2022)

■ Environment-Related Accidents and Complaints

Astellas had no environment-related accident over the past five years, including fiscal 2022.

Regarding environment-related complaints, a resident adjacent to the Yaizu Technology Center consulted with Astellas about noise from our air-conditioning equipment. An appropriate measure was later with the equipment.

■ Soil Contamination Assessments

In fiscal 2019, a limited part of the Toyama Technology Center was designated as a contaminated area on the basis of the Soil Contamination Countermeasures Act. In the construction of new facilities, Astellas has taken appropriate action to prevent the spread of pollution in consultation with the governmental authorities.

The substances that were discovered to be present in levels that exceeded the standards are as follows:

- Lead and its compounds
- Arsenic and its compounds
- Fluorine and its compounds

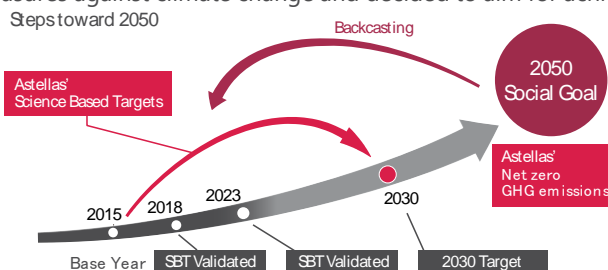
Drawing on the results of soil contamination assessments completed over the past five years, there have been no sites where contamination has been found.

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.



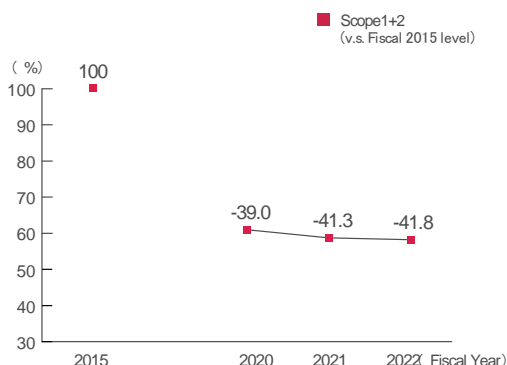
Environmental Action Plan (Climate Change Mitigation Measures) (SBT re-certified in January 2023)

- 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 (Scope1+2)



Progress on Environmental Action Plan (Scope 3)

	Fiscal 2015	Fiscal 2020	Fiscal 2021	Fiscal 2022
GHG emissions (Scope 3) (tons)	453,181	268,118	313,005	445,007
Ratio to Base-year (%)	-	-40.8	-30.9	-1.8

Scope 3 Category 2 data was re-calculated because the former calculation method had been applied partially. Please find 'Scope 3 (3 years)' on page 24 for the detail.

■ Changes in Actual GHG Emissions Volume

The actual volume of GHG emissions in fiscal 2022 was 118 kilotons (Scope 1: 61 kilotons, Scope 2: 56 kilotons).

Changes in Actual GHG Emissions Volume by Area

	Fiscal 2015	(%)	Fiscal 2020	(%)	Fiscal 2021	(%)	Fiscal 2022	(Tons)	(%)
Japan	166,857	75	94,522	77	89,725	76	89,709	76	
Scope 1	61,036		46,217		46,662		44,253		
Scope 2	105,821		48,305		43,063		45,456		
US	31,185	14	13,880	11	12,448	10	12,673	11	
Scope 1	20,742		7,139		5,686		6,418		
Scope 2	10,443		6,741		6,762		6,256		
Established Markets	16,725	8	8,601	7	9,913	8	8,917	8	
Scope 1	13,073		7,799		9,115		8,324		
Scope 2	3,652		802		798		593		
Greater China	3,349	2	3,623	3	3,956	3	3,697	3	
Scope 1	14		29		47		29		
Scope 2	3,335		3,594		3,909		3,668		
International Markets	4,628	2	2,695	2	2,636	2	2,647	2	
Scope 1	3,635		2,092		2,181		2,147		
Scope 2	994		603		455		499		
Total	222,744		123,320		118,679		117,644		
Scope 1	98,500		63,276		63,691		61,171		
Scope 2	124,244		60,444		54,988		56,473		

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 Group 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 2022, Astellas planned to invest approximately ¥900 million in mainly energy-saving measures at each business facility, the renewal of air conditioning equipment, and the introduction of LED lighting. An investment of ¥600 million was actually completed, resulting in reduction of 5,236 tons of GHG.

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

Although the Environmental Action Plan concerning climate change is targeting emissions directly generated by business activities (Scope 1 and Scope 2), 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

Changes in GHG Emissions Volume	(Tons)		
	Fiscal 2020	Fiscal 2021	Fiscal 2022
Total	12,980	12,697	12,378

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 70 of the Notice of Convocation of the 18th Term Annual Shareholders Meeting.

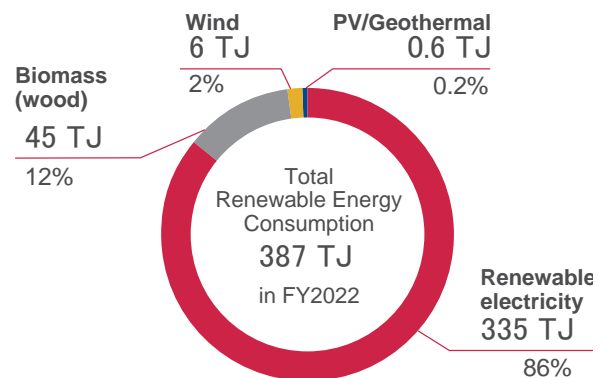
■ Using Renewable Energy

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 consumed by its three research and production sites in Japan (Tsukuba Research Center, Tsukuba Biotechnology Research Center and Takahagi Chemistry & Technology Development Center) to hydroelectric power, which is free of GHG emissions. This enabled a reduction of emissions of 37,133 tons. 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.

Usage of renewable energy (fiscal 2022)



Our efforts to reduce GHG emissions

Changes in use of renewable energy

	Fiscal 2015	Fiscal 2020	Fiscal 2021	Fiscal 2022
Total energy used (TJ)	3,010	2,087	2,089	2,048
Energy derived from renewable energy sources (TJ)	342	397	392	387
Renewable energy rate (%)	11	19	19	19
Total electricity (GWh)	279	228	226	227
Electricity derived from renewable energy sources (GWh)	48	97	98	95
Renewable energy rate (%)	17	43	43	42

* From the disclosure of fiscal 2022 results, the amount of energy consumed by the use of purchased electricity and electricity generated internally using renewable energy sources (solar power, wind power, etc.) is converted at 3.6 MJ per kWh.

■ Breakdown of Energy Consumption

Global energy usage in fiscal 2022 by the Astellas Group amounted to 2,048 terajoules (TJ), for a decrease of 2.0% (41 TJ) 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.

The coefficient for converting electric energy use into calorific value has been changed from 9.97 GJ/MWh based on Japan's Act on Rationalizing Energy Use to a physical equivalent of 3.6 GJ/MWh. Figures from fiscal 2019 onward are retroactively adjusted.

(Unit: TJ)

Global	Fiscal 2019	(%)	Fiscal 2020	(%)	Fiscal 2021	(%)	Fiscal 2022	(%)
Liquid fuel	312	14	201	10	201	10	194	9
Gaseous fuel	1,000	45	992	48	1,001	48	962	47
Heat purchased	26	1	27	1	33	2	28	1
Electricity purchased	818	37	812	39	807	39	812	40
Renewable energy sourced	102		343		345		335	
Natural energy	54	2	54	3	47	2	53	3
Wind	6		7		5		6	
Wood chip biomass	46		45		41		45	
Geothermal heat	2		2		1		0	
Photovoltaics	0.6		0.6		0.6		0.6	
Total	2,210		2,087		2,089		2,048	

Japan	Fiscal 2019	(%)	Fiscal 2020	(%)	Fiscal 2021	(%)	Fiscal 2022	(%)
Liquid fuel	49	3	39	3	44	3	46	3
Gaseous fuel	905	57	866	57	869	57	817	56
Heat purchased	1	0	2	0	1	0	0	0
Electricity purchased	637	40	618	41	604	40	603	41
Renewable energy sourced	-		242		241		231	
Natural energy	0.2	0	0.2	0	0.2	0	0.2	0
Photovoltaic	0.2		0.2		0.2		0.2	
Total	1,592		1,524		1,518		1,467	

US	Fiscal 2019	(%)	Fiscal 2020	(%)	Fiscal 2021	(%)	Fiscal 2022	(%)
Liquid fuel	110	65	68	35	52	29	51	25
Renewable energy sourced	0.1		0.0		-		-	
Gaseous fuel	11	6	52	27	45	25	61	30
Heat purchased	-	-	-	-	-	-	-	-
Electricity purchased	49	29	74	38	82	46	88	44
Renewable energy sourced	2		3		3		4	
Natural energy	0.0	0	0.0	0	0.0	0	0.0	0
Geothermal heat	0.0		0.0		0.0		0.0	
Total	169		194		178		200	

Our efforts to reduce GHG emissions

(Unit: TJ)

Established Markets	Fiscal 2019	(%)	Fiscal 2020	(%)	Fiscal 2021	(%)	Fiscal 2022	(%)
Liquid fuel	96	27	61	21	70	22	61	20
Gaseous fuel	84	24	73	25	87	27.84	84	27
Heat purchased	1	0	1	0	4	1	2	1
Electricity purchased	115	33	106	36	108	34	107	35
Renewable energy sourced	100		98		101		101	
Natural energy	54	8	54	10	47	11	52	17
Wind	6		7		5		6	
Wood chip biomass	46		45		41		45	
Geothermal heat	2		2		1		-	
Photovoltaics	0.4		0.4		0.4		0.4	
Total	351		296		316		306	

Greater China	Fiscal 2019	(%)	Fiscal 2020	(%)	Fiscal 2021	(%)	Fiscal 2022	(%)
Liquid fuel	0.1	0	0.3	1	0.6	1	0.3	1
Gaseous fuel	0.1	0	0.2	0	0.2	0	0.1	0
Heat purchased	24	69	25	72	27	72	25	73
Electricity purchased	10	30	9	27	10	26	9	26
Natural energy	-	-	-	-	-	-	-	-
Total	34		34		37		35	

International Markets	Fiscal 2019	(%)	Fiscal 2020	(%)	Fiscal 2021	(%)	Fiscal 2022	(%)
Liquid fuel	57	89	33	85	35	88	36	88
Renewable energy sourced	7		2		2		4	
Gaseous fuel	0.5	1	0.6	1	-	-	-	-
Heat purchased	-	-	-	-	1	3	0	1
Electricity purchased	7	10	5	14	3	8	5	12
Natural energy	-	-	-	-	-	-	-	-
Total	64		39		40		41	

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

Astellas is participating in the commitment to a low-carbon society 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.

Former Environmental Action Plan

Former Environmental Action Plan (Climate Change Mitigation Measures) (SBT certified)

■ Reduce GHG emissions (Scope 1 + Scope 2) by 30% by fiscal 2030 (Base year: fiscal 2015)

■ Reduce GHG emissions (Scope 3) by 20% per unit of revenue by fiscal 2030 (Base year: fiscal 2015)

■ Progress on Action Plan (SBT) (Scope 1 + 2)

Progress on New Action Plan (SBT) (Scope 1 + 2)

■ Progress on Environmental Action Plan (Scope 3 / revenue)

	Fiscal 2015 (base year)	Fiscal 2020	Fiscal 2021	Fiscal 2022
GHG emissions (Scope 3) (tons)	458,181	268,118	313,005	445,007
Revenue (billion Yen)	1,373	1,250	1,296	1,519
Emission per unit of revenue (tons / billion Yen)	330	215	241	293
Ratio to Base-year (%)	-	-35.0	-26.9	-11.2

* Scope 3 category data for fiscal 2020 has been revised due to revisions in the amount of electricity purchased at some sites in fiscal 2020.

Scope 3 Category 2 data was re-calculated because the former calculation method had been applied partially. Please find 'Scope 3 (3 years)' on page 24 for the detail.

Disclosure Based on TCFD Recommendations

■ Governance

For an overview of the overall corporate governance structure, please refer to the corporate website.

Policies and action plans relating to Environment, Health & Safety (EHS) matters are important for sustainability, in which Astellas is engaged. Measures for implementing relevant decisions, as they relate to these policies, are examined by the EHS Committee. Please refer to “Promotion of Environmental Sustainability Risk Management and Governance” under EHS Management for the structure related to climate change.

■ Strategy

As a company, Astellas is committed to protecting our environment and will take proactive measures to conserve it by tackling issues such as climate change, environmental pollution, and waste disposal. 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 will outline efforts put in place to reduce the environmental burden and ensure the company acts with integrity in reducing potential risks 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. A qualitative risk/opportunity analysis was conducted in the FY2021 review. In FY2022, the team conducted a quantitative analysis on some items. As the GHG emission reduction action plan changed from a 2°C target to a 1.5°C target in terms of temperature increase the transition risk scenario was also changed to a scenario that assumes global temperatures rise by 1.5°C. The results of the analysis were reviewed by the EHS 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 billion yen in FY2030 assuming a carbon tax of \$100 per ton	Medium to long-term	<ul style="list-style-type: none"> 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 (part of manufacturing and research sites and sales offices in Europe and the United States. Some manufacturing and research sites in Japan started purchasing electricity derived from hydroelectric power in fiscal year 2020.) Promote the purchase of renewable energy-derived electricity at other business sites in the future. Purchase credits (CO2 emission rights) 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.	500 million – 2.3 billion yen in FY2030 assuming a carbon tax of \$100 per ton	Medium to long-term	<ul style="list-style-type: none"> Scope 3 Category 1: We will work on optimizing the use of raw materials. Scope 3 Category 3: We expect consumption to decrease due to proper use of energy and uptake of energy efficient equipment. Scope 3 Category 6: The reduction of business travel, company-wide, as a measure against COVID-19, contributed to the reduction of Scope 3 in 2020 and 2021. We will continue this effort.
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	<ul style="list-style-type: none"> There are no existing facilities 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 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.	600 million yen Based on past climate-change investment plan	Near to long-term	<ul style="list-style-type: none"> Select and invest in efficient investment projects to reduce the carbon tax burden. Consider non-investment options such as energy supply contracts for relatively large-scale investments such as solar panel installation.
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 of electricity charges will	Near to long-term	<ul style="list-style-type: none"> 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.

Climate-Related Risks	Potential Impacts	Financial Impacts	Affected period	Astellas' Resilience
		increase the cost burden by 2.2 billion yen.		<ul style="list-style-type: none"> Reduce the impact of rising fossil fuel prices through the use of 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	<p>The following investment was planned for the Toyama Technical Center flood response and the investment amount was estimated at 500 million yen.</p> <ul style="list-style-type: none"> Install a 3m waterproof wall around the power receiving building Construction of substation equipment with a structure of 3m or more Purchase of generators <p>If similar measures are required, a similar amount of investment will be considered.</p>
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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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.

■ Risk Management

Sustainability Division monitors risk management related to EHS and periodically reports to CEO who issues instructions as necessary. Please refer to "Promotion of Environmental Sustainability Risk Management and Governance" under EHS Management for risk management related to climate change.

■ Metrics and Targets

Astellas' GHG emission reduction action plan was approved by SBTi in 2018 based on the 2°C targets of the Paris Agreement. The SBT target, which is required to re-calculate 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 SBT initiative as a science-based target. In February 2023, we have announced a new policy aiming to reduce greenhouse gas emissions through our business to achieve net zero by 2050.

The scenario analysis released in March 2022 was based on a 2°C scenario. Please refer to "Climate Change Measures" for Astellas' indicators and targets related to climate change.

[Note]

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.

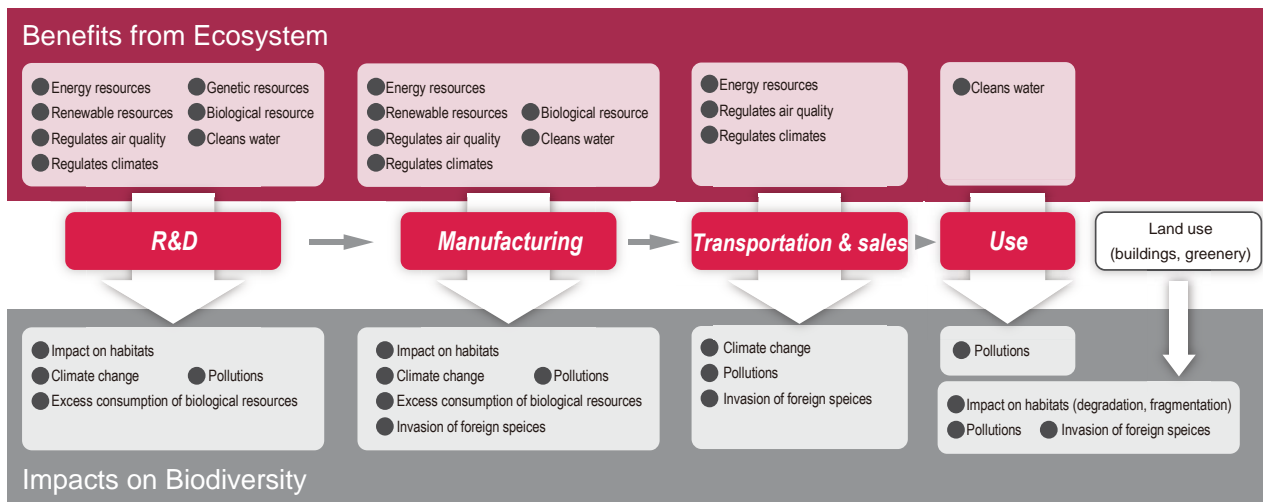
Sustainable biodiversity initiatives

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	10
	(subtotal)	(30)
Resource consumption	Water withdrawal (Global)	20
	Biological raw material usage	10
	Landfill waste volume	10
	(subtotal)	(40)
Climate change	GHG emissions (global)	30
	(subtotal)	(30)
Total		100

Environmental Action Plan (Biodiversity)

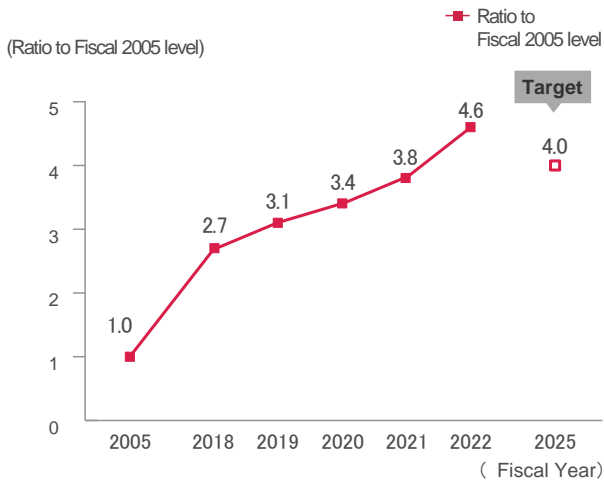
■ Raise the Biodiversity Index to quadruple the fiscal 2005 level by fiscal 2025. (Global)

■ **Progress of Action Plan (Biodiversity)**

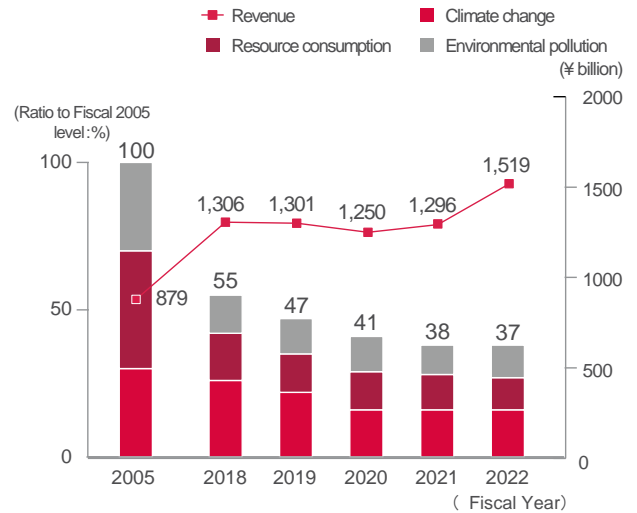
The Biodiversity Index for fiscal 2022 came in at 4.6 times the figure recorded in fiscal 2005. As the scope of the Environmental Action Plan has expanded regarding climate change, so has the scope of each index used to calculate the Biodiversity Index. The following graph has been recalculated from past indices. We will continue our current activities.

Beyond the region, Astellas believes that by minimizing the impact of its business activities on the environment, the Company will help suppress the deterioration of biodiversity and realize an environment in which sustainable business activities may be continued.

Biodiversity Index



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 : $\frac{\text{Revenue (billions of yen)}}{\text{Water resource productivity (billions of yen/thousand m}^3\text{)}}$

■ 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 a water resource productivity index, and has been striving to improve this index. Water resource productivity for fiscal 2022 improved significantly by 48% compared with the base year of fiscal 2016.

Changes in Water Resources Withdrawn and Revenue

	Fiscal 2016	Fiscal 2020	Fiscal 2021	Fiscal 2022
Water resource withdrawn (thousand m³)	8,774	7,564	7,394	6,864
Japan				
Surface water	7,705	6,932	6,737	6,231
Ground water	758	436	458	434
Others	-	-	-	-
US				
Surface water	146	24	53	55
Ground water	-	-	-	-
Others	-	-	-	-
Established Markets				
Surface water	145	151	128	129
Ground water	-	-	-	-
Others	-	-	-	-
Greater China				
Surface water	21	21	19	15
Ground water	-	-	-	-
Others	-	-	-	-
International Markets				
Surface water	-	-	-	-
Ground water	-	-	-	-
Others	-	-	-	-
Revenue (billions of yen)	1,312	1,250	1,296	1,519
Water resource productivity (billions of yen/thousand m³)	0.15	0.17	0.18	0.22
Ratio to Base-year	-	11%	17%	48%

■ Recycling of Water

Astellas' operations use only water drawn from surface water and groundwater. Water used in work operations is treated in accordance with wastewater discharging standards and returned to an aquatic environment. The amount of water recycled is almost equivalent to the entire amount of water intake.

■ 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 discharging standards. In fiscal 2022, there were no cases of non-compliance with regulations at each business site. 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 the proactive recycling and reuse of waste materials. Moreover, Astellas also evaluates the relationship between the 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 2022, the waste generated per unit improved 16% over the base year (fiscal 2016).

Changes in Waste Generation Volume and Revenue

	Fiscal 2016	Fiscal 2020	Fiscal 2021	Fiscal 2022
Waste generated (tons)	13,899	14,352	13,882	13,544
Japan	11,836	10,714	10,158	9,787
US	54	361	576	783
Established Markets	1,956	3,228	3,043	2,866
Greater China	54	50	105	109
International Markets	-	-	-	-
Revenue (billions of yen)	1,312	1,250	1,296	1,519
Waste generated per unit (tons/billions of yen)	10.6	11.5	10.7	8.9
Ratio to Base-year (%)	-	-8%	-1%	16%

■ Waste management in the value chain

In waste management, it is also important to prevent environmental pollution being 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 assessment that waste treatment contractors are using appropriate waste treatment methods.

■ State 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. Load-figure registrations for all items stored at each of our business facilities have been completed, and the waste storage situation at the end of March 2023 was as follows. We plan to treat the entire amount by the end of fiscal 2023.

State of high-concentrate PCB-contaminated Waste Storage

Load-figure	Weight (kg)
Drum	9,912

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 2022 amounted to 6 tons.

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

Substance	Fiscal 2018	Fiscal 2019	Fiscal 2020	Fiscal 2021	Fiscal 2022
VOC	44	28	22	21	23
NOx	21	16	21	17	18

VOC: Plants and research facilities in Japan

NOx: All business facilities in Japan (excluding sales offices)

■ 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 2022. Our total amount of designated chemical substances released into the environment in fiscal 2022 was 1 tons. Astellas has kept low quantity emission since 2019.

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

Releases and transfers of PRTR chemical substances in fiscal 2022 (tons)

Substance name	Volume handled	Volume released			Volume transferred	
		Air	Water	Soil	Waste	Sewerage
Acetonitrile	18.831	0.178	0.000	0.000	17.252	0.000
Chloroform	10.047	0.502	0.000	0.000	9.545	0.000
n-Hexane	2.583	0.129	0.000	0.000	2.454	0.000
N, N-dimethylformamide	1.906	0.000	0.000	0.000	1.879	0.000

Target: Plants and research facilities 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 in fiscal 2022 was 9 tons, the same as the previous fiscal year. Outside Japan, the COD in fiscal 2022 was 31 tons, an increase of 7% from the previous year.

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.

Substance	Fiscal 2018	Fiscal 2019	Fiscal 2020	Fiscal 2021	Fiscal 2022
BOD	10	8	9	9	9
Drainage into rivers	8	7	8	8	6
Drainage into sewer system	2	1	1	1	3

Target: All Japanese production facilities and R&D centers

Changes in Drainage Volume (thousand m³)

Destination	Fiscal 2018	Fiscal 2019	Fiscal 2020	Fiscal 2021	Fiscal 2022
Drainage Volume	8,058	7,061	7,038	6,810	6,298
Drainage into rivers	7,820	6,836	6,835	6,610	6,108
Drainage into sewer system	238	225	203	200	190

Target: All business facilities in Japan (excluding sales offices)

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.

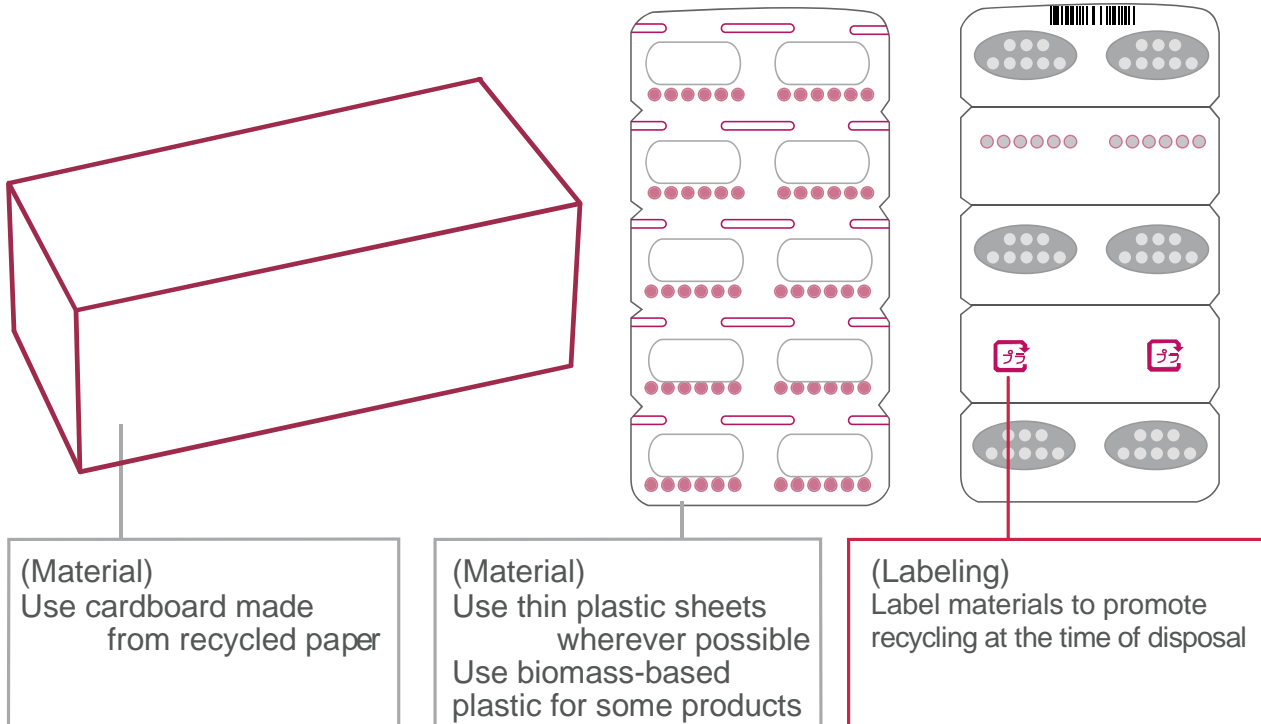
One initiative is to start using blister sheet biomass plastic made from plant-derived raw material. Blister packaging is eco-friendly packaging using 50% of raw materials from sugarcane-derived polyethylene, a biomass plastic. Blister packaging is required to have a high level of tablet protection and usability, and by using a 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 2022 is 350 tons, and the Company was requested to pay ¥13.07 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 2022 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 2022 comprised ¥773 million in investments and ¥2,236 million in expenses (including depreciation costs). The main investments for preventing pollution were in the maintenance of wastewater treatment plants and the repair of underground water-supply pipelines. The

economic benefits generated through environmental protection activities amounted to ¥14 million, which includes lower costs owing to energy savings, the sale of waste organic solvents and waste metals, lower costs of treating waste materials and the purchase of regenerated organic solvents. In fiscal 2016, we completed all the load-figure registrations of high-concentration PCBs and calculated the cost based on the weight, including the containers. The allowance for the current high-concentrate PCB treatment amounts to ¥251 million.

■ Total environmental conservation costs in fiscal 2022 (¥ million)

Category		Environmental Conservation Costs				
		Investments	Costs			
Business Area Cost			Total	Expense	Depreciation	
		764	1,720	1,042	679	
Breakdown	Pollution Prevention	Prevention of atmospheric pollution	230	232	148	85
		Prevention of water pollution	137	343	157	186
		Prevention of soil contamination	0	77	74	3
		Prevention of noise, bad odor and vibrations	0	12	11	1
		Other	0	9	9	0
	Subtotal		367	672	398	275
	Global Environmental Conservation	Mitigation of climate change	47	194	61	133
		Prevention of ozone layer depletion	334	456	208	248
		Management of chemical substances	0	54	52	1
		Other	0	10	0	10
	Subtotal		380	714	321	393
	Resource circulation	Efficient use of wastes	0	204	204	0
		Conservation of water	0	0	0	0
		Treatment of wastes	17	109	98	11
		Other	0	12	12	0
Subtotal		17	334	323	11	
Upstream/Downstream costs		0	12	12	0	
Administration costs		0	207	207	0	
R&D costs		9	41	25	16	
Social activity costs		0	2	2	0	
Environmental remediation costs		0	253	253	0	
Total		773	2,236	1,541	695	
Total environmental conservation costs, excluding environmental remediation costs		773	1,984	1,289	695	

■ 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	44 million
Sludge drying, reduction in amount of waste liquid disposal contracted out (through increased disposal in-house)	0 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	5 million
Total	49 million

■ Changes in Environment-related Investment and Expensed (¥ million)

Categories	Fiscal 2018		Fiscal 2019		Fiscal 2020		Fiscal 2021		Fiscal 2022	
	Investments	Expenses	Investments	Expenses	Investments	Expenses	Investments	Expenses	Investments	Expenses
Pollution Prevention	172	502	98	401	519	362	261	449	367	398
Global Environmental Conservation	1,354	302	375	237	246	237	353	256	380	321
Resource Circulation	0	350	0	278	0	293	0	300	17	323
Upstream/downstream costs	0	45	0	11	0	12	0	12	0	12
Administration costs	0	261	0	193	0	226	0	223	0	207
R&D costs	52	23	32	41	18	19	10	17	9	25
Social activity costs	0	1	0	4	0	3	0	3	0	2
Environmental remediation costs	0	256	0	256	0	251	0	251	0	253
Total	1,587	1,740	505	1,420	782	1,401	624	1,511	773	1,541

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).

■ 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 2022, there were no work-related fatalities, while there were 17 cases of injuries requiring leaves of absence. The longest number of work days lost was 161 days due to an injury from a fall at lodging facilities during a business trip. As the impact of COVID-19 lessened and sales activities normalized, the number of work-related accidents accompanying fleet use increased. 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.

		2020	2021	2022
Global	Number of work-related injuries (leave of absence)	6	10	17
	Frequency rate of work-related injuries *	0.18	0.33	0.57
	Severity rate of work-related injuries *	0.005	0.008	0.016
Japan	Number of work-related injuries (leave of absence)	1	1	2
	Frequency rate of work-related injuries *	0.09	0.10	0.20
	Severity rate of work-related injuries *	0.000	0.002	0.001
US	Number of work-related injuries (leave of absence)	1	3	4
	Frequency rate of work-related injuries *	0.15	0.42	0.54
	Severity rate of work-related injuries *	0.000	0.012	0.002
Established Markets	Number of work-related injuries (leave of absence)	3	4	4
	Frequency rate of work-related injuries *	0.40	0.57	0.59
	Severity rate of work-related injuries *	0.014	0.008	0.058
Greater China	Number of work-related injuries (leave of absence)	1	2	0
	Frequency rate of work-related injuries *	0.30	0.82	0
	Severity rate of work-related injuries *	0.015	0.036	0
International Markets	Number of work-related injuries (leave of absence)	0	0	7
	Frequency rate of work-related injuries *	0	0	2.35
	Severity rate of work-related injuries *	0	0	0.023

* Please refer to the abbreviation table for details.

■ Severity Rate of Work-Related Injuries

Prevent the incidence of major occupational accidents while maintaining a severity rate of work-related injuries 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 workers. 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 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 Energy Consumption and GHGs

Type	Conversion Coefficients		
		Calorific value	CO ₂ emissions
Electricity	3.6	GJ/MWh *2	-- *1 tons/MWh
Kerosene	36.7	GJ/kiloliter	2.49 tons/kiloliter
LPG	50.8	GJ/tons	3.00 tons/tons
LNG	54.6	GJ/tons	2.70 tons/tons
City gas	45.0	GJ/thousand m ³ N	2.24 tons/thousand m ³ N
Diesel	37.7	GJ/kiloliter	2.58 tons/kiloliter
Gasoline	34.6	GJ/kiloliter	2.32 tons/kiloliter
Purchased thermal energy	1.36	GJ/GJ	0.057 tons/GJ
Steam	2.8	GJ/tons	0.091 tons/GJ

*1 To calculate the CO₂ emissions resulting from electricity usage, Astellas uses CO₂ emission coefficients provided by the electric power companies that supply each business facility (market-based method). In the case of Japan, we use the most recent adjusted emission coefficient of each electric power company announced by the Ministry of the Environment and the Ministry of Economy, Trade and Industry. In other regions where individual coefficients cannot be obtained, we use the latest country-specific coefficients provided in IEA *Emissions Factors* (2022 edition) published by the International Energy Agency (IEA).

*2 From the disclosure of results for fiscal 2022, the amount of power that we consumed after being generated from purchased electricity and renewable energy sources such as photovoltaics and wind into energy value is converted into Joules at a conversion rate of 3.6 MJ per 1 kWh.

■ Calculation Method for Scope 3 Emissions

Categories	Basis for calculation and calculation method	Emission source unit
1 Purchased goods and services	Based on: Purchase price (millions of yen) Purchase monetary amount of raw material and consumables (excluding consumption tax) x (emission source unit of each raw material and consumable x 1.05) NOTE: VAT was not taken into account in GHG calculation for non-Japan Affiliates.	Target: (Global) production facilities receiving deliveries of raw materials Emission source unit: • Source: The Ministry of the Environment's database*[5]; emission source units based on the industry-related table Emission source unit on monetary basis for each raw material (purchaser price basis) (=t-CO ₂ equivalent / 2005 consumption tax inclusive amount) • Foreign exchange: Foreign currencies are converted to yen using the annual average of monthly TTM rates.
2 Capital goods	Based on: Capital expenditures, software purchases (millions of yen) Facility investment amount (consolidated) x emission source unit per price of capital goods Software purchase amount (consolidated) x emission source unit per price of capital goods Construction in progress aggregation method has changed (amount reclassified from construction in progress to property, plant and equipment is the amount applied as the amount of activity). Acquisition values of land, right-of-use assets, intangible assets excluding software have been excluded. Capital expenditures in Japan has included consumption tax amount.	Target: Global Emission source unit: • Source: The Ministry of the Environment's database*[6]; emission source units per price of capital goods (Secretariat) Pharmaceuticals 2.83 t-CO ₂ equivalent / million yen
3 Fuel and energy related activities (not included in Scope 1 and Scope 2)	Based on: Consumption of each type of energy (GJ) Usage amount of purchased fuel, electricity, heat, etc. x emission source units per usage amount for each energy type	Target: Global Emission source unit: • Source: The Ministry of the Environment's database*[7]; emission source units 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)	Based on: Shipping weight and distance (tons*kilometers), fuel usage (kiloliter), energy consumption (MWh) CO ₂ emissions during transportation: (transported weight x transported distance x emission source during transportation) CO ₂ emissions at distribution warehouses: Electricity usage amount x emission source unit	Target: Global Emission source unit 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) Emission source unit by transport vehicle, payload, and well-to-tank emission source unit Emission source unit 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 CO ₂ emission by fuel consumption per fuel Target: Warehouses for product storage in Japan (outsourced) Electricity emission source unit: The latest adjusted emission factors by power supplier
5 Waste generated in operation	Based on: Shipping weight and distance (tons*kilometers) CO ₂ emissions generated during industrial waste transportation: (transported weight x transported distance x fuel consumption per unit of transportation) CO ₂ emissions generated during industrial waste treatment: Amounts of recycled industrial waste, incineration processing, and direct landfill processing x waster type/emission source unit by processing method	Target: Business facilities and R&D sites in Japan Emission source unit 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 Emission source unit during industrial waste treatment and landfill: • Source: The Ministry of the Environment's database* [8] emission source units by waste type (Secretariat) (excluding waste transportation stage)
6 Business travel (by airplane)	Based on: Distance traveled (1,000 people*kilometer) Number of persons using airplanes x distance between airports for each flight x emission source unit	Target: Results compiled from airplane flights used worldwide Flight distance between airports: Calculated by assuming flight is a straight line connecting two points on the earth's surface Emission source unit: • Source: A calculation sheet made public by Defra (The Department for Environment, Food and Rural Affairs, UK) Emission source unit by flight class and distance and well-to-tank emission source unit Target: Global (Number of working days per year in each country)
7 Employee commuting	Based on: Distance traveled (1,000 people/kilometer) Number of persons commuting to a worksite x emissions intensity x number of work days, taking into account the typical attendance rate x emission source unit	Attendance rate Office-based: calculated based on the attendance rate at the Head Office in Japan; factories and laboratories: calculated at 100%. Emission source unit 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
12 End-of-life treatment of sold products	Based on: 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 source unit	Target: Japan Emission source unit: • Source: The Ministry of the Environment's database*[19]; emission source units by waste type (Secretariat) (including waste transportation stage)
13 Leased assets (downstream)	Based on: Energy consumption by type (GJ) Amount of fuel, electricity, heat, etc. billed to the leasing company x emission source unit per unit of energy consumption by energy type	Target: Company facilities being leased to another company Emission source unit • Source: The Ministry of the Environment's database*[7]; emission source units per usage amount of electricity and heat (Secretariat)

The Ministry of the Environment's database: The Ministry of the Environment's emission source unit database (ver. 3.3) for calculating greenhouse gas emissions through the supply chain (March 2023)

Site data (major facilities)

Takahagi Facilities

INPUT		
Energy	Electricity	18,366 MWh
	Kerosene	- kiloliter
	LPG	- tons
	LNG	748 tons
	City gas	- thousand m ³
	Diesel	1 kiloliter
	Gasoline	- kiloliter
Water	Surface water	2,131 thousand m ³
	Groundwater	- thousand m ³
OUTPUT		
Air	GHG	2 kilotons
	NOx	2 tons
	VOC	0.4 tons
Water bodies	into rivers	2,131 thousand m ³
	Sewerage system	- thousand m ³
	BOD load	3 tons
	COD load	7 tons
Waste	Generated	1,159 tons
	Landfill	23 tons

Yaizu Facilities

INPUT		
Energy	Electricity	47,983 MWh
	Kerosene	- kiloliter
	LPG	0 tons
	LNG	- tons
	City gas	4,843 thousand m ³
	Diesel	1 kiloliter
	Gasoline	2 kiloliter
Water	Surface water	244 thousand m ³
	Groundwater	405 thousand m ³
OUTPUT		
Air	GHG	29 kilotons
	NOx	4 tons
	VOC	3 tons
Water bodies	into rivers	492 thousand m ³
	Sewerage system	- thousand m ³
	BOD load	0.3 tons
	COD load	2 tons
Waste	Generated	1,036 tons
	Landfill	0.6 tons

Toyama Technology Center

INPUT		
Energy	Electricity	40,842 MWh
	Kerosene	- kiloliter
	LPG	0 tons
	LNG	- tons
	City gas	4,555 thousand m ³
	Diesel	28 kiloliter
	Gasoline	1 kiloliter
Water	Surface water	2,181 thousand m ³
	Groundwater	0.5 thousand m ³
OUTPUT		
Air	GHG	30 kilotons
	NOx	3 tons
	VOC	13 tons
Water bodies	into rivers	2,109 thousand m ³
	Sewerage system	- thousand m ³
	BOD load	2 tons
	COD load	5 tons
Waste	Generated	6,117 tons
	Landfill	11 tons

Takaoka Plant

INPUT		
Energy	Electricity	9,366 MWh
	Kerosene	- kiloliter
	LPG	999 tons
	LNG	- tons
	City gas	- thousand m ³
	Diesel	0.3 kiloliter
	Gasoline	0.8 kiloliter
Water	Surface water	1,385 thousand m ³
	Groundwater	28 thousand m ³
OUTPUT		
Air	GHG	8 kilotons
	NOx	1 tons
	VOC	3 tons
Water bodies	into rivers	1,376 thousand m ³
	Sewerage system	- thousand m ³
	BOD load	1 tons
	COD load	3 tons
Waste	Generated	72 tons
	Landfill	- tons

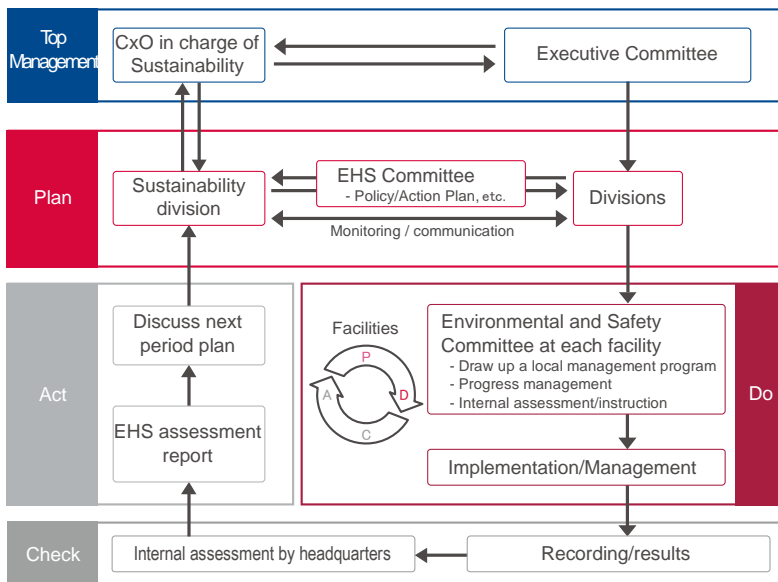
Tsukuba Research Center

INPUT		
Energy	Electricity	37,443 MWh
	Photovoltaics	48 MWh
	Kerosene	22 kiloliter
	LPG	- tons
	LNG	- tons
	City gas	6,291 thousand m ³
	Diesel	2 kiloliter
	Gasoline	1 kiloliter
Water	Surface water	258 thousand m ³
	Groundwater	0 thousand m ³
OUTPUT		
Air	GHG	14 kilotons
	NOx	7 tons
	VOC	3 tons
Water bodies	into rivers	- thousand m ³
	Sewerage system	155 thousand m ³
	BOD load	3 tons
	COD load	3 tons
Waste	Generated	576 tons
	Landfill	17 tons

Tsukuba Bio Research Center

INPUT		
Energy	Electricity	8,240 MWh
	Kerosene	- kiloliter
	LPG	- tons
	LNG	- tons
	City gas	378 thousand m ³
	Diesel	20 kiloliter
	Gasoline	0.2 kiloliter
Water	Surface water	32 thousand m ³
	Groundwater	- thousand m ³
OUTPUT		
Air	GHG	0.9 kilotons
	NOx	0.2 tons
	VOC	0.4 tons
Water bodies	into rivers	- thousand m ³
	Sewerage system	31 thousand m ³
	BOD load	0.1 tons
	COD load	- tons
Waste	Generated	827 tons
	Landfill	2 tons

■ EHS Management (page 5, enlarged version)



Scope 3 (3 years)

Scope 3 (3 years)

		FY2015	FY2020	FY2021	FY2022
Upstream Scope3 emissions					
Category		GHG emissions			
1	Purchased goods and services *1	200,054 tons	116,160 tons	158,316 tons	219,559 tons
2	Capital goods *2	142,271 tons	90,798 tons	100,098 tons	168,011 tons
3	Fuel and energy related activities (not included in Scope1 and Scope2)	28,400 tons	30,601 tons	30,590 tons	30,096 tons
4	Transportation and distribution (upstream) *3	19,423 tons	17,823 tons	17,436 tons	16,528 tons
5	Waste generated in operation	3,600 tons	2,605 tons	1,496 tons	1,281 tons
6	Business travel (by airplane) *4	53,528 tons	7,255 tons	2,410 tons	6,940 tons
7	Employee commuting *5	5,092 tons	2,328 tons	2,187 tons	2,119 tons
8	Leased assets (upstream)	Not relevant	Not relevant	Not relevant	Not relevant
Downstream Scope3 emissions					
Category		GHG emissions			
9	Transportation and distribution (downstream)	Not relevant	Not relevant	Not relevant	Not relevant
10	Processing of sold products	Not relevant	Not relevant	Not relevant	Not relevant
11	Use of sold products	No emissions	No emissions	No emissions	No emissions
12	End-of-life treatment of sold products	807 tons	544 tons	466 tons	424 tons
13	Leased assets (downstream) *6	Not relevant	Not relevant	Not relevant	48 tons
14	Franchises	Not relevant	Not relevant	Not relevant	Not relevant
15	Investments	Not relevant	Not relevant	Not relevant	Not relevant

- Raw materials delivered to all production sites (globally) are included from fiscal 2022. Data for newly added overseas production bases has been retroactively adjusted for previous fiscal years (fiscal 2015, fiscal 2020 and fiscal 2021).
- The method of ascertaining the capital investment amount, which is an activity amount, was revised and has been retroactively adjusted for previous fiscal years (fiscal 2015, fiscal 2020 and fiscal 2021).
 - Software (intangible assets) purchase amounts have been recorded as non-current assets.
 - Acquisition values of land and right-of-use assets have been excluded.
 - Construction in progress aggregation method has changed** (amount reclassified from construction in progress to property, plant and equipment is the amount applied as the amount of activity).
 **Category 2 data was revised as of Sep 11th, 2023 because we had applied the amount of "Construction in progress", not the amount transferred to tangible assets, to calculating GHG from tangible assets.
- GHG emissions from the transportation of products and other goods at overseas production facilities for which Astellas is the shipper are disclosed starting from fiscal 2022 results. This data has been retroactively added for previous fiscal years (fiscal 2015, fiscal 2020 and fiscal 2021).
- Revised the application method for the emissions coefficient (from Tank to Wheel to Well to Wheel), thus data has been retroactively adjusted for previous fiscal years (fiscal 2015, fiscal 2020 and fiscal 2021).
- Based on the number of employees commuting to a workplace and the number of days worked, taking into account the typical attendance rate, and adjusted as follows, data has been retroactively adjusted for previous fiscal years (fiscal 2015, fiscal 2020 and fiscal 2021).
 - Changed to expand the scope of aggregation (from Astellas Pharma Inc. standalone to the entire Astellas Group)
 - Revised the application method for the emissions coefficient (people. number of days worked coefficient used from fiscal 2022)
- Part of Astellas facilities have been leased to another company since fiscal 2022.

Please refer to Calculation Method for Scope 3 Emissions for calculation criteria for each category.