



# EHS Report 2022

[www.astellas.com/en/sustainability/environment](http://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 <sub>2</sub>	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 <sub>x</sub>	Sulfur oxides-emitted by the burning of fossil fuels containing sulfur
NO <sub>x</sub>	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, 2022)
Representative Director	Kenji Yasukawa (President and CEO)
Foundation	1923
Revenue	¥1,296,163 million (consolidated basis, as of March 31, 2022)
Employees	14,522 (consolidated basis, as of March 31, 2022)
Professional institution affiliation	<ul style="list-style-type: none"> <li>• Japan Business Federation</li> <li>• The Federation of Pharmaceutical Manufacturers' Association of Japan</li> <li>• Japan Pharmaceutical Manufacturers association, etc.</li> </ul>

### ■ Reporting Period

As a general rule, this Report covers the activities of business sites in Japan from April 1, 2021 to March 31, 2022, and the activities of overseas business sites from January 1, 2021 to December 31, 2021. (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 2022

Next scheduled issue: June 2023

There is no printed version of the EHS report.

(English version edited: June 29<sup>th</sup>, Japanese original version issued on June 7<sup>th</sup>, 2022)

## 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. Strengthening efforts to improve sustainability is one of Astellas’ strategic goals in the newly established Corporate Strategic Plan 2021 (CSP2021). The environment is one of Astellas’ priority themes within sustainability. To achieve this strategic goal, Astellas will improve environmental sustainability by meeting its commitment to reduce greenhouse gas (GHG) emissions and disclose information more transparently.

The adoption of press through packaging (PTP) using biomass plastic is a topical initiative to raise from fiscal 2021. This PTP packaging is biomass plastic, environmentally friendly packaging using as a raw material 50% polyethylene derived from sugarcane. We have started adopting it for use in products for the Japanese domestic market. Using outstanding packaging materials from the standpoint of sustainability will continue to be considered going forward.

Astellas gave an update on the progress of efforts on climate change measures during the Sustainability Meeting held on February 2022. In addition to outlining progress toward achieving GHG emission targets set under the Environmental Action Plan, we announced that we are considering a declaration of Net Zero by 2050. We have also started to disclose information based on the proposals of the Task Force on Climate-related Financial Disclosures (TCFD)\*1 We have analyzed the risks and opportunities brought about by climate change and disclosed the results on the corporate website. As initiatives for the future, we recognize as priority issues the need to include further introduction of electricity derived from renewable energy sources, mainly for domestic production sites, and to further improve the ratio of hybrid and electric vehicles in the Company’s sales fleet. We will continue our efforts to improve environmental sustainability.



Chief Administrative Officer  
& Chief Ethics & Compliance Officer  
Fumiaki Sakurai

**\*1 Task Force on Climate-related Financial Disclosures (TCFD):** A task force on disclosing climate-related financial information established by the Financial Stability Board (FSB)

## 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 Chief Administrative Officer (CAO) and Chief Ethics & Compliance Officer (CECO). 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 that a specialist department monitors risk management related to the environment and periodically reports to CAO/CECO 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.

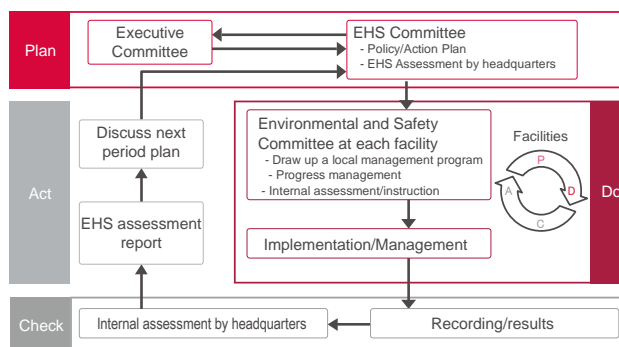
### ■ Astellas EHS Guidelines

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 2021, 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 2021, Astellas conducted on-site assessments of one company as the impact of COVID-19 resulted in restrictions on movement, and carried out risk assessments related to such matters as the operational status of wastewater treatment plants, 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. Circumstances make it difficult to conduct on-site assessments due to the impact of COVID-19, but paper-based evaluations of risk assessments will continue wherever possible.

### ■ 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.

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 <sup>*1</sup>	Electricity	225,744 MWh
	(Renewable sourced)	97,531 MWh
	City gas	19,860 thousand m <sup>3</sup>
	LPG	1,046 tons
	LNG	991 tons
	Kerosene	1 kiloliters
	Diesel oil	1,775 kiloliters
	Gasoline	3,797 kiloliters
	Purchased heat (hot/cold water)	7,487 GJ
	Purchased heat (steam)	23,234 GJ
Other renewable energy		41,365 GJ
Resources	Water <sup>*2</sup>	7,398 thousand m <sup>3</sup>
	Raw materials and consumables (by weight) <sup>*3</sup>	4,316 tons
	Raw materials and consumables (by volume) <sup>*3</sup>	387,868 kiloliters

OUTPUT		
GHGs <sup>*1</sup>	Scope 1 <sup>*4</sup>	63,691 tons
	(Sales fleets)	12,697 tons
Scope 2		54,988 tons
Pollutants (atmosphere)	NOx <sup>*5</sup>	17 tons
	VOC <sup>*6</sup>	21 tons
Pollutants (water bodies) <sup>*6</sup>	BOD	9 tons
	COD	24 tons
Discharge <sup>*2</sup>	Water discharge	7,009 thousand m <sup>3</sup>
Waste material	Waste generated <sup>*2</sup>	13,919 tons
	Landfill volume <sup>*5</sup>	95 tons

<sup>\*1</sup> all Astellas business facilities  
<sup>\*2</sup> 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.  
<sup>\*3</sup> all Japanese business facilities  
<sup>\*4</sup> Non-energy related GHG emissions are not included. The CO<sub>2</sub> equivalent of fluorinated gases from production sites (global) and R&D sites (Japan) was 1,316 tons.  
<sup>\*5</sup> all Japanese facilities excluding sales offices  
<sup>\*6</sup> all production facilities and R&D sites in Japan

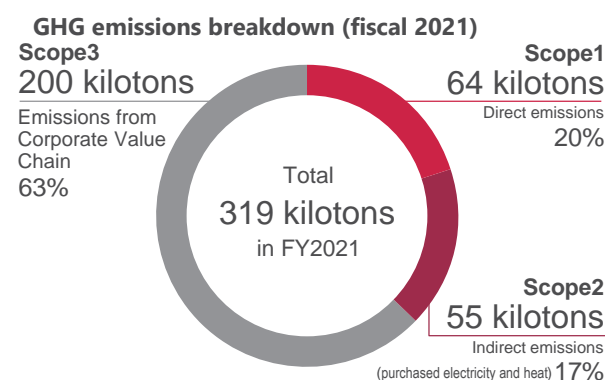
### Scope3 Indirect GHG

Upstream GHG emissions		
1	Purchased goods and services	76,267 tons
2	Capital goods	85,361 tons
3	Fuel and energy related activities (not included in Scope1 and Scope2)	30,589 tons
4	Transportation and distribution (upstream)	2,192 tons
	Truck transportation of raw materials	(168 tons)
	Plant → warehouse	(102 tons)
	Warehouse	(921 tons)
	Warehouse → wholesalers	(1,001 tons)
5	Waste generated in operation	1,496 tons
6	Business travel (by airplane)	2,006 tons
7	Employee commuting	1,639 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	466 tons
13	Leased assets	Not relevant
14	Franchises	Not relevant
15	Investments (downstream)	Not relevant

Remark: The calculation method for Scope3 emissions is mentioned on page 20

### GHG Emissions Throughout the Value Chain

GHG emissions associated with Astellas' business activities amounted to 319 kilotons globally. Astellas is monitoring the greenhouse gas emissions associated with the use of almost all its facilities and sales fleets.



In addition to Scope 1 and Scope 2 emissions, Astellas continues working to monitor Scope 3 emissions. In fiscal 2021 Astellas began consolidating GHG emissions from transport for products, and other items for which it was the shipper. GHG emissions from air, ground, and sea freights were 16,782, 652, and 95 t-CO<sub>2</sub>, respectively, which is complementary to Category 4 Transportation and Distribution (upstream). Going forward, Astellas is preparing to disclose this information for Scope 3 GHG emissions.

## 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. 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 2021 are as follows:

### ■ Results of fiscal 2021 (summary)

Goal of Environmental Action Plan	Fiscal 2021 Results
1. Measures to Address Climate Change [Base year: fiscal 2015] - Reduce GHG emissions (Scope 1 + 2) by 30% by fiscal 2030 (Emissions in the base year: 202 kilotons) - Reduce GHG emissions (Scope 3) by 20% per unit of revenue by fiscal 2030	Ratio to base year 41% decrease (Emissions: 119 kilotons) 22% decrease
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: <b>Revenue (¥ billion)/Water resources withdrawn (1,000 m<sup>3</sup>)</b>	Ratio to base year 17% 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: <b>Volume of waste generated (tons)/Revenue (¥ billion)</b>	Ratio to base year 1% deterioration
4. Biodiversity [Base year: fiscal 2005] - Quadruple the biodiversity index by fiscal 2025 from the fiscal 2005 level	Ratio to base year 3.8 times

### ■ 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

In fiscal 2021, there was a case in which some of the laboratory equipment contracted for disposal by a waste disposal company at the Takahagi Technology Center was found to contain non-friable asbestos. At the Tsukuba Biotechnology Research Center, a liquid waste leak occurred due to expansion upon freezing of contents inside the transfer pipeline. Apart from this matter, 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 Biotechnology Research Center: Noise (fiscal 2017)
- Tsukuba Research Center: Noise (fiscal 2017)

### ■ Environment-Related Accidents and Complaints

Astellas had no environment-related accident over the past five years, including fiscal 2021.

Regarding environment-related complaints, a company neighboring the Toyama Technology Center consulted with Astellas in terms of sunlight reflection from our equipment. Appropriate measure was later taken to avoid the reflection.

### ■ 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

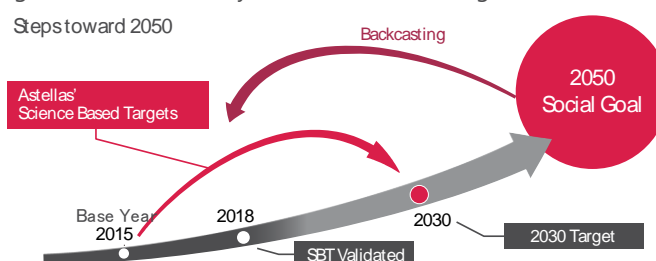
Drawing on the results of soil contamination assessments completed over the past five years, there have been no sites where contamination has been found.

## 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 one of management's most important problems to address.

Astellas has adopted the method for setting reduction targets recommended by the Science Based Targets (SBT) Initiative. This method is designed to achieve the 2°C target of the Paris Agreement, which entered into force in 2016. In November 2018, the SBT Initiative certified the targets laid out in Astellas' Environmental Action Plan.

To address climate change as a management issue, we have adopted as an indicator the 2°C Scenario of the International Energy Agency (IEA 2DS). We are currently moving forward toward setting a long-term target of Net Zero by 2050.



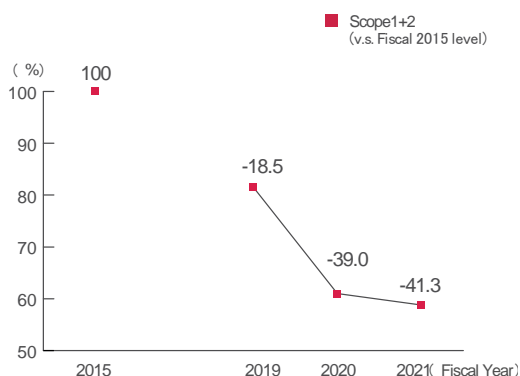
### Environmental Action Plan (Climate Change Mitigation Measures) (SBT certified)

- 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)

Our progress toward SBT targets calculated based on the GHG Protocol is as follows:

Progress on Environmental Action Plan (Scope1+2)



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

	Fiscal 2015	Fiscal 2019	Fiscal 2020	Fiscal 2021
<b>GHG emissions (Scope 3) (tons)</b>	<b>271,010</b>	<b>229,953</b>	<b>194,534</b>	<b>200,019</b>
<b>Revenue (¥ billion)</b>	<b>1,373</b>	<b>1,301</b>	<b>1,250</b>	<b>1,296</b>
<b>Emissions per unit of revenue (tons /¥ billion)</b>	<b>197</b>	<b>177</b>	<b>156</b>	<b>154</b>
<b>Ratio to Base-year (%)</b>	-	<b>-10.5</b>	<b>-21.1</b>	<b>-21.8</b>

Data for fiscal 2020 has been revised due to revision in the amount of electricity purchased at some sites in fiscal 2020.

### Changes in Actual GHG Emissions Volume

The actual volume of GHG emissions in fiscal 2021 was 119 kilotons (Scope 1: 64 kilotons, Scope 2: 55 kilotons).

#### Changes in Actual GHG Emissions Volume by Area

	Fiscal 2015	Ratio (%)	Fiscal 2019	Ratio (%)	Fiscal 2020	Ratio (%)	Fiscal 2021	Ratio (%)
<b>Japan</b>	<b>166,857</b>	75	<b>132,888</b>	80	<b>94,522</b>	77	<b>89,725</b>	76
Scope 1	61,036		48,842		46,217		46,662	
Scope 2	105,821		84,046		48,305		43,063	
<b>US</b>	<b>31,185</b>	14	<b>13,022</b>	8	<b>13,880</b>	11	<b>12,448</b>	11
Scope 1	20,742		7,878		7,139		5,686	
Scope 2	10,443		5,143		6,741		6,762	
<b>Established Markets</b>	<b>16,725</b>	8	<b>12,131</b>	7	<b>8,601</b>	7	<b>9,906</b>	8
Scope 1	13,073		10,743		7,799		9,108	
Scope 2	3,652		1,389		802		798	
<b>Greater China</b>	<b>3,349</b>	2	<b>3,941</b>	2	<b>3,623</b>	3	<b>3,956</b>	3
Scope 1	14		18		29		47	
Scope 2	3,335		3,923		3,594		3,909	
<b>International Markets</b>	<b>4,628</b>	2	<b>4,155</b>	3	<b>2,695</b>	2	<b>2,636</b>	2
Scope 1	3,635		3,417		2,092		2,181	
Scope 2	994		738		603		455	
<b>Total</b>	<b>222,744</b>		<b>166,138</b>		<b>123,320</b>		<b>118,672</b>	
Scope 1	98,500		70,898		63,276		63,684	
Scope 2	124,244		95,239		60,044		54,988	

Non-emission 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.

### ■ Promotion Framework and Initiatives for Climate Change Measures

Astellas has established the EHS Committee as a special task force under the CSR Committee to discuss measures to deal with various environmental issues, including climate change mitigation measures. Members from regional bases participate in discussions on methods to save energy and reduce GHG emissions throughout the Group based on an analysis of the risks and opportunities that climate change presents to our business, and so forth. Matters are discussed and decided in the EHS Committee and are referred to the Executive Committee and the Board of Directors for discussion depending on their importance. Through this process, Astellas decides on these matters.

### ■ Investment Plan for Climate Change Mitigation Measures

In fiscal 2021, Astellas planned to invest approximately ¥1.1 billion in mainly energy-saving measures at each business facility, the renewal of air conditioning equipment, and the introduction of LED lighting. An investment of ¥900 million was actually completed, resulting in reduction of 1,933 tons of GHG.

Going forward, 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 our production contractors to support and cooperate with our measures to reduce GHG emissions.

### ■ 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

### Changes in GHG Emissions Volume

	(Tons)		
	Fiscal 2019	Fiscal 2020	Fiscal 2021
<b>Total</b>	<b>20,333</b>	<b>12,980</b>	<b>12,697</b>

When it cannot be directly measured CO<sub>2</sub> 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).

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 reported under Scope 1.

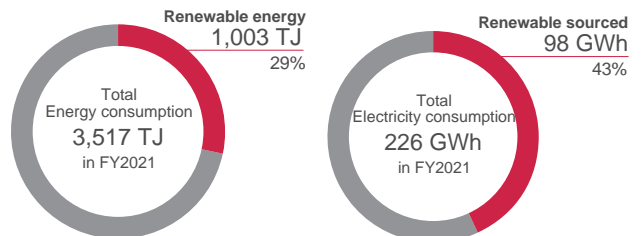
### ■ Impact of COVID-19

In fiscal 2021, continuing on from fiscal 2020, COVID-19 had an impact on our business activities. Activities continued for pharmaceutical development and supply at research and production sites, but significant restrictions were placed on sales activities and employees' business trips. By fiscal 2021, the new style of working environment had taken root and sales activities and R&D were conducted in ways not involving travel. Compared to activities before COVID-19, the change in sales activities resulted in reduced use of vehicles for sales activities resulting in a reduction of about 7,600 tons in emissions and restrictions on aircraft use for business trips resulting in a reduction of about 32,000 tons of emissions (compared to fiscal 2019).

### ■ 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 in the future.

### Usage of renewable energy



### Usage of renewable energy (Breakdown data)

Type of renewable energy	Energy Consumed
Purchase of electricity generated by renewable energy sources	95,882 MWh
Wind turbine generation	1,486 MWh
Photovoltaics	163 MWh
Use of biomass boilers	40,761 GJ
Use of geothermal heat	604 GJ

## Our efforts to reduce GHG emissions

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 29,700 tons. Moreover, we are also moving ahead on switching to electricity generated by renewable

energy sources in areas outside of Japan as well as it becomes possible to do so.

Looking ahead, Astellas will continue to explore opportunities for using renewable energy, and it will also consider formulating targets for the use of renewable energy.

(\*) The Aqua Premium plan provided by TEPCO Energy Partner, Inc.

### ■ Breakdown of Energy Consumption

Global energy usage in fiscal 2021 by the Astellas Group amounted to 3,517 terajoules (TJ), for a decrease of 0.2% (8 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.

		(Unit: TJ)							
Japan		Fiscal 2018 (%)		Fiscal 2019 (%)		Fiscal 2020 (%)		Fiscal 2021 (%)	
<b>Liquide fuel</b>		<b>62</b>	2	<b>49</b>	2	<b>39</b>	1	<b>44</b>	2
<b>Gaseous fuel</b>		<b>1,036</b>	34	<b>905</b>	33	<b>866</b>	33	<b>869</b>	34
<b>Heat purchased</b>		<b>5</b>	0	<b>1</b>	0	<b>2</b>	0	<b>1</b>	0
<b>Electricity purchased</b>		<b>1,964</b>	64	<b>1,764</b>	65	<b>1,710</b>	65	<b>1,673</b>	65
Renewable energy sourced		0		0		669		668	
<b>Natural energy</b>		<b>0.2</b>	0	<b>0.2</b>	0	<b>0.2</b>	0	<b>0.2</b>	0
Photovoltaic		0.2		0.2		0.2		0.2	
<b>Total</b>		<b>3,068</b>		<b>2,720</b>		<b>2,617</b>		<b>2,587</b>	

US		Fiscal 2018 (%)		Fiscal 2019 (%)		Fiscal 2020 (%)		Fiscal 2021 (%)	
<b>Liquide fuel</b>		<b>129</b>	41	<b>110</b>	43	<b>68</b>	21	<b>52</b>	16
Renewable energy sourced		0.6		0.1		0.0		-	
<b>Gaseous fuel</b>		<b>21</b>	7	<b>11</b>	4	<b>52</b>	16	<b>45</b>	14
<b>Heat purchased</b>		-	-	-	-	-	-	-	-
<b>Electricity purchased</b>		<b>166</b>	53	<b>135</b>	51	<b>206</b>	63	<b>226</b>	60
Renewable energy sourced		-		7		8		9	
<b>Natural energy</b>		<b>0.0</b>	0	<b>0.0</b>	0	<b>0.0</b>	0	<b>0.0</b>	0
Geothermal heat		0.0		0.0		0.0		0.0	
<b>Total</b>		<b>316</b>		<b>255</b>		<b>325</b>		<b>322</b>	

Established Markets		Fiscal 2018 (%)		Fiscal 2019 (%)		Fiscal 2020 (%)		Fiscal 2021 (%)	
<b>Liquide fuel</b>		<b>114</b>	19	<b>96</b>	17	<b>61</b>	13	<b>70</b>	14
<b>Gaseous fuel</b>		<b>96</b>	16	<b>84</b>	15	<b>73</b>	15	<b>87</b>	17
Renewable energy sourced		-		1		1		4	
<b>Heat purchased</b>		-	-	<b>1</b>	-	<b>1</b>	0	<b>4</b>	1
<b>Electricity purchased</b>		<b>336</b>	57	<b>319</b>	58	<b>294</b>	61	<b>300</b>	59
Renewable energy sourced		278		276		272		279	
<b>Natural energy</b>		<b>47</b>	8	<b>54</b>	10	<b>54</b>	11	<b>47</b>	9
Wind		6		6		7		5	
Wood chip biomass		39		46		45		41	
Geothermal heat		2		2		2		0.6	
Photovoltaics		-		0.4		0.4		0.4	
<b>Total</b>		<b>592</b>		<b>554</b>		<b>483</b>		<b>508</b>	

Greater China		Fiscal 2018 (%)		Fiscal 2019 (%)		Fiscal 2020 (%)		Fiscal 2021 (%)	
<b>Liquide fuel</b>		<b>0.6</b>	1	<b>0.1</b>	0	<b>0.3</b>	1	<b>0.6</b>	1
<b>Gaseous fuel</b>		<b>0.2</b>	0	<b>0.1</b>	0	<b>0.2</b>	0	<b>0.2</b>	0
<b>Heat purchased</b>		<b>22</b>	45	<b>24</b>	45	<b>25</b>	49	<b>27</b>	50
<b>Electricity purchased</b>		<b>26</b>	54	<b>29</b>	54	<b>25</b>	50	<b>26</b>	49
<b>Natural energy</b>		-	-	-	-	-	-	-	-
<b>Total</b>		<b>49</b>		<b>52</b>		<b>50</b>		<b>54</b>	

International Markets		Fiscal 2018 (%)		Fiscal 2019 (%)		Fiscal 2020 (%)		Fiscal 2021 (%)	
<b>Liquide fuel</b>		<b>57</b>	77	<b>57</b>	75	<b>33</b>	69	<b>35</b>	77
Renewable energy sourced		6		7		2		2	
<b>Gaseous fuel</b>		<b>0.4</b>	1	<b>0.5</b>	1	<b>0.6</b>	1	-	0
<b>Heat purchased</b>		-	-	-	-	-	-	<b>1</b>	3
<b>Electricity purchased</b>		<b>16</b>	22	<b>18</b>	24	<b>15</b>	30	<b>9</b>	20
<b>Natural energy</b>		-	-	-	-	-	-	-	-
<b>Total</b>		<b>73</b>		<b>75</b>		<b>48</b>		<b>45</b>	

## Disclosure Based on TCFD Recommendations

### ■ Governance

Please refer to the following for an overview of the overall corporate governance structure.

Fundamental policies and action plans relating to Environment, Health & Safety (EHS) matters are positioned as an important issue in sustainability in which Astellas is engaged. Measures for implementing these decisions in specific form are examined by the EHS Committee. Please refer to “EHS Risk Management and Governance” under EHS Management for the structure related to climate change.

### ■ Strategy

Astellas identifies and prioritizes material issues in sustainability and uses these as guidelines for implementing sustainability measures. Under the Astellas Materiality Matrix, reviewed in the fiscal year ended March 2022, climate change and energy are recognized as “very important” from two perspectives of significance for society and Astellas. Astellas' sustainability has two values:

value creation and value protection. Value creation creates value for both society and Astellas by solving social issues through activities such as delivering innovative medicines and medical solutions to unmet medical needs. In value protection, efforts to reduce the environmental burden and ensure compliance contribute to reducing potential risks and improving Astellas' corporate brand, leading to protecting enterprise value. Dealing with climate change has elements of both value creation and value protection and we believe there are various risks and opportunities.

An in-house cross-functional team for disclosure was established and the team conducted a scenario analysis. The team analyzed Astellas' business and climate-related risks and opportunities, on the assumption that transition risks would materialize under a 2 °C scenario for climate change and physical risks would materialize under a 4 °C scenario. In fiscal year 2021, the team undertook a qualitative scenario analysis, and the content of the analysis was discussed including EHS Committee.

Climate-Related Risks	Potential Financial Impacts	Astellas' Resilience
Transition Risks (risk materializing at 2 °C increase)		
Policy and Legal		
Increased pricing of GHG emissions (costs if paying a carbon tax)	Business sites that have not introduced renewable energies may have to add payment of a carbon tax to their costs.	<p>Using renewable energies such as wind and solar power to generate electricity for some power used at business sites.</p> <p>Switched 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.)</p> <p>Promote the purchase of renewable energy-derived electricity at other business sites in the future.</p> <p>Purchase credits (CO<sub>2</sub> emission rights) to reduce Scope 1 emissions and measures to control cost associate with the purchase will be issues for consideration.</p>
Obsolescence and impairment loss on existing facilities accompanying GHG emission regulations	<p>Possibility of being asked to discard facilities due to strengthening of environmental regulations.</p> <p>Refrigeration equipment using freon gas.</p> <p>Vehicles that use fossil fuel may no longer be available in some countries after 2035.</p>	<p>There are no existing facilities we are forced to dispose. Regarding freon gas, we will take appropriate measures that comply with laws and regulations.</p> <p>From 2030 onward we need to respond to a change of automobile (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 impacts on business operation.</p>
Technology		
Costs to transition to lower emissions technology	Costs arise when investing in low emission equipment.	We are already moving forward on shifting to using gaseous and biomass fuels for boilers.
Market		
Increased cost of energy and raw materials	Rising energy and raw material prices lead to higher costs.	Increase of electricity and energy costs consumed at business sites due to regulatory change 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.

Physical Risks (risk materializing at 4 °C increase)			
<b>Acute</b>			
Increased severity of extreme weather events such as floods	<ul style="list-style-type: none"> <li>• Operations halt at our business sites due to floods or other factors.</li> <li>• Raw material and product supply is delayed due to damage in the supply chain.</li> </ul>		<ul style="list-style-type: none"> <li>• [Toyama Technology Center]: For flood risk assessment, we asked a consultant to create a hazard map and designed the building based on the analysis.</li> <li>• [Yaizu Facilities]: The Yaizu Facilities tsunami hazard map envisages damage being minor.</li> </ul> <p>We are analyzing the supply chain for each business site. We are implementing measures such as inventory control with a margin for continuous stable supply. Environmental risk assessment of supply chain is conducted by using in-house system called "Risk Assessment on Third Party Lifecycle Management".</p>
<b>Chronic</b>			
<ul style="list-style-type: none"> <li>• Changes in precipitation patterns</li> <li>• Rising mean temperatures</li> </ul>	<ul style="list-style-type: none"> <li>• Droughts will affect the operations of our plants and supply chain, resulting in delays in product shipments.</li> <li>• Rising average temperatures will have an impact on energy costs accompanying operation of air conditioners at business sites.</li> </ul>		<p>We analyze water resource risks of manufacturing sites by referring to tools such as the World Resources Institute's Aqueduct. We also confirm risks for each business site in such ways as through close collaboration with local governments.</p> <p>No risk has materialized at this point in time, but we will continue to conduct analyses.</p> <p>The cost of air conditioning will only account for an insignificant portion of the product cost, so impact is minimal.</p>
Climate-related opportunities		Potential Financial Impacts	Astellas' response
Resource efficiency	Use of more efficient production and distribution processes <ul style="list-style-type: none"> <li>• Use of recycling</li> </ul>	Reduced operating costs	<p>Together with other companies in the same industry we established and operate a joint logistics center in Hokkaido. This leads to progress in making the logistics process more efficient.</p> <p>Started operating the Kyushu Logistics Center in Fukuoka Prefecture. As the joint distribution center in Hokkaido achieved an efficient supply of pharmaceuticals and reduction of CO<sub>2</sub> emissions, the same effect is expected for the Kyushu Logistics Center.</p> <p>In European countries and the United States, warehouses shared by multiple pharmaceutical manufacturers are being used to streamline the distribution process.</p> <p>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.</p>
Energy source	Use of lower-emission sources of energy	Reduced exposure to GHG emissions and therefore less sensitivity to changes in cost of carbon	<p>Shifted boiler fuel from liquid fuel to gaseous fuels.</p> <p>We are moving ahead on introducing hybrid and electric vehicles in our sales fleet.</p> <p>We are working on using geothermal energy at US headquarters.</p> <p>We are working on using wind power generation and biomass boiler system at Kerry Plant in Ireland.</p>
Products and markets	<ul style="list-style-type: none"> <li>• Development and/or expansion of low emission goods new products and services</li> <li>• Access to new markets</li> </ul>	Increased revenues through access to new and emerging markets	<p>For the spread of infectious disease endemic areas due to temperature change and the needs for new drugs for infectious disease treatment assumed by the problem of antimicrobial resistance, collaboration with the Phage Biologics Research Course at a university to create engineered bacteriophages, which could be an option for solving them.</p> <p>Climate change can change the area of disease epidemic, morbidity, and severity. Heart disease, respiratory disease, etc. may also increase.</p>

**■ Risk Management**

A specialist department monitors risk management related to EHS and periodically reports to CAO/CECO who issues instructions as necessary. Please refer to "EHS Risk Management and Governance" under EHS Management for risk management related to climate change.

**■ Metrics and Targets**

Astellas has adopted the method for setting reduction

targets recommended by the Science Based Targets (SBT) Initiative. This method is designed to achieve the 2°C target of the Paris Agreement, which entered force in 2016. In November 2018, the SBT Initiative certified the targets laid out in Astellas' Environmental Action Plan. Please refer to "Climate Change Measures" for Astellas' metrics and targets related to climate change.

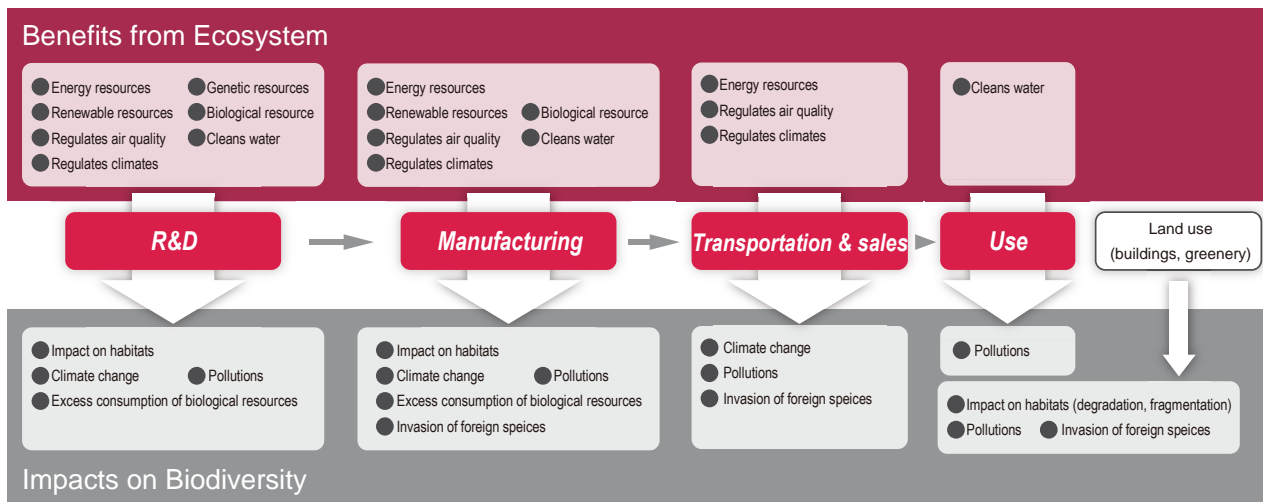
## Sustainable biodiversity initiatives

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)**

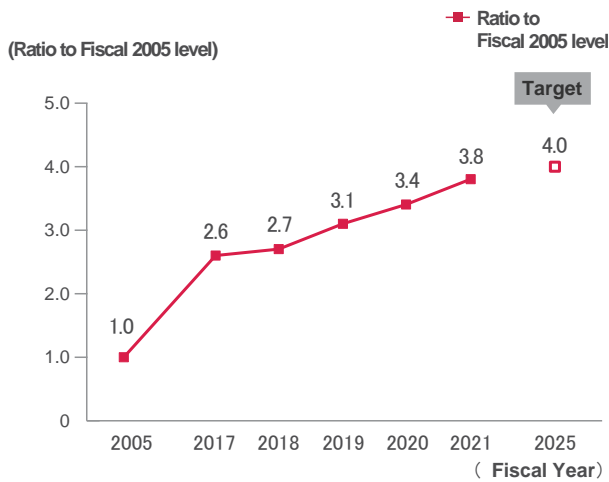
■ Raise the Biodiversity Index to quadruple the fiscal 2005 level by fiscal 2025. (Global)

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

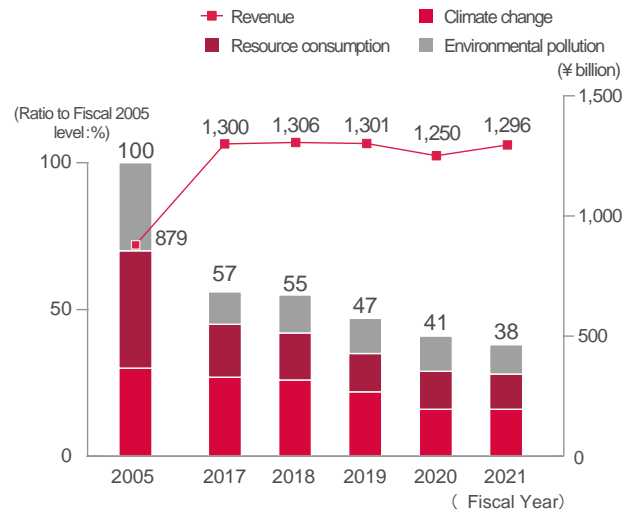
The Biodiversity Index for fiscal 2021 came in at 3.8 times the figure recorded in fiscal 2005. As the scope of the Environmental Action Plan has expanded regarding climate change, so has the scope of each index used to calculate the Biodiversity Index. The following graph has been recalculated from 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**



■ **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.

## 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 :  $\frac{\text{Revenue (¥ billion)}}{\text{Water resources withdrawn (thousand m}^3\text{)}}$

#### ■ Effective Use of Water Resource

The effective use of water resources serves as a useful indicator for gauging society's impact on biodiversity. Astellas assesses the relationship between water resources and economic activity using a water resource productivity index, and has been striving to improve this index. Water resource productivity for fiscal 2021 improved 17% over the base year of fiscal 2016.

#### Changes in Water Resources Withdrawn and Revenue

		Fiscal 2016	Fiscal 2019	Fiscal 2020	Fiscal 2021
<b>Water resource withdrawn (thousand m<sup>3</sup>)</b>		<b>8,774</b>	<b>7,493</b>	<b>7,564</b>	<b>7,394</b>
Japan	Surface water	7,705	6,969	6,932	6,737
	Ground water	758	330	436	458
	Others	-	-	-	-
US	Surface water	146	8	24	53
	Ground water	-	-	-	-
	Others	-	-	-	-
Established Markets	Surface water	145	166	151	128
	Ground water	-	-	-	-
	Others	-	-	-	-
Greater China	Surface water	21	19	21	19
	Ground water	-	-	-	-
	Others	-	-	-	-
International Markets	Surface water	-	-	-	-
	Ground water	-	-	-	-
	Others	-	-	-	-
<b>Revenue (¥ billion)</b>		<b>1,312</b>	<b>1,301</b>	<b>1,250</b>	<b>1,296</b>
<b>Water resource productivity (¥ billion/thousand m<sup>3</sup>)</b>		<b>0.15</b>	<b>0.17</b>	<b>0.17</b>	<b>0.18</b>
<b>Ratio to Base-year</b>		-	<b>16%</b>	<b>11%</b>	<b>17%</b>

#### ■ 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 2021, 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 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:  $\frac{\text{Waste generated (tons)}}{\text{Revenue (¥ billion)}}$

#### ■ 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 2021, the waste generated per unit deteriorated 1% over the base year (fiscal 2016).

#### Changes in Waste Generation Volume and Revenue

	Fiscal 2016	Fiscal 2019	Fiscal 2020	Fiscal 2021
<b>Waste generated (tons)</b>	<b>13,899</b>	<b>13,922</b>	<b>14,352</b>	<b>13,882</b>
Japan	11,836	11,065	10,714	10,158
US	54	71	361	576
Established Markets	1,956	2,637	3,228	3,043
Greater China	54	149	40	105
International Markets	-	-	-	-
<b>Revenue (¥ billion)</b>	<b>1,312</b>	<b>1,301</b>	<b>1,250</b>	<b>1,296</b>
<b>Waste generated per unit (tons/¥ billion)</b>	<b>10.6</b>	<b>10.7</b>	<b>11.5</b>	<b>10.7</b>
<b>Ratio to Base-year (%)</b>	-	<b>-1%</b>	<b>-8%</b>	<b>-1%</b>

#### ■ 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 PCB-contaminated Waste Storage

We have been systematically conducting detoxification of any 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 2022 was as follows.

State of PCB-contaminated Waste Storage	
Load-figure	Weight (kg)
Drum	9,821

## 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 have taken 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 sites in Japan are as shown in the table below. The NOx emissions from non-Japanese production sites in fiscal 2021 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	Changes in Emission Volume (tons)				
	Fiscal 2017	Fiscal 2018	Fiscal 2019	Fiscal 2020	Fiscal 2021
VOC	34	44	28	22	21
NOx	21	22	17	21	17

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 2021. Our total amount of designated chemical substances released into the environment in fiscal 2021 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 2021 (tons)

Substance name	Volume handled	Volume released			Volume transferred	
		Air	Water	Soil	Waste	Sewerage
Acetonitrile	17.783	0.121	0.000	0.000	13.618	0.000
Chloroform	8.947	0.447	0.000	0.000	8.499	0.000
N, N-dimethylformamide	4.264	0.000	0.000	0.000	4.228	0.000
Toluene	5.647	0.000	0.000	0.000	5.647	0.000
n-Hexane	2.134	0.107	0.000	0.000	2.027	0.000
Chlorodifluoromethane (HCFC-22)	1.140	0.251	0.000	0.000	0.889	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 2021 was 9 tons, on a par with the previous fiscal year. Outside Japan, the COD in fiscal 2021 was 29 tons, slightly down 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. In addition, from fiscal 2015 we evaluated our wastewater management method by using bioassays targeting business facilities that were releasing wastewater into rivers after treatment. We confirmed that they are now less likely to have a significant impact on the ecosystem.

#### Changes in BOD Load (tons)

Substance	Fiscal 2017	Fiscal 2018	Fiscal 2019	Fiscal 2020	Fiscal 2021
BOD	12	10	8	9	9
Drainage into rivers	9	8	7	8	8
Drainage into sewer system	3	2	1	1	1

Target: All Japanese production facilities and R&D centers

#### Changes in Drainage Volume (thousand m<sup>3</sup>)

Destination	Fiscal 2017	Fiscal 2018	Fiscal 2019	Fiscal 2020	Fiscal 2021
Drainage Volume	8,293	8,058	7,061	7,038	6,810
Drainage into rivers	8,066	7,820	6,836	6,835	6,610
Drainage into sewer system	227	238	225	203	200

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 PTP (plastic) packaging used for tablets and capsules. Hospitals and pharmacies discard PTP 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. 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.

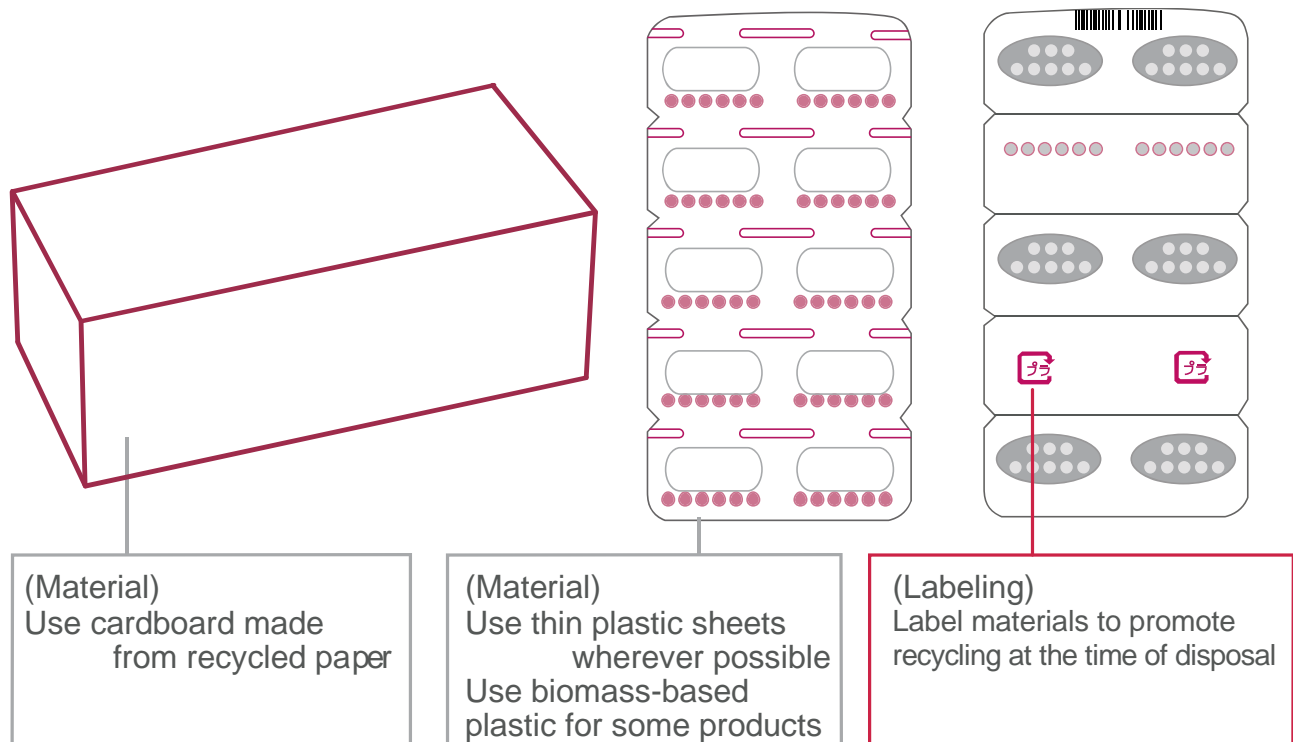
One initiative is to start using press through pack (PTP) biomass plastic made from plant-derived raw material. PTP is eco-friendly packaging using 50% of raw materials from sugarcane-derived polyethylene, a biomass plastic. PTP are required to have a high level of tablet protection and

usability, and by using a packaging technology developed over many years, it meets these requirements and can be mass-produced.

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 2021 is 376 tons, and the Company was requested to pay ¥12 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 enacted in April 2022 to promote the recycling of resources related to plastic. The amount of plastic waste generated in Japan in fiscal 2021 was 253 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 2021 comprised ¥624 million in investments and ¥2,194 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. As a result of the PCB disposal having progressed in part, the allowance for the current PCB treatment amounted to ¥251 million.

### ■ Total environmental conservation costs in fiscal 2021

Category		Environmental Conservation Costs (¥ million)				
		Investments	Costs			
			Total	Expense	Depreciation	
Business Area Cost		614	1,688	1,005	663	
Breakdown	Pollution Prevention	Prevention of atmospheric pollution	17	221	192	28
		Prevention of water pollution	231	402	192	210
		Prevention of soil contamination	13	56	51	4
		Prevention of noise, bad odor and vibrations	0	11	10	1
		Other	0	4	4	0
	Subtotal		261	693	449	244
	Global Environmental Conservation	Mitigation of climate change	87	220	44	177
		Prevention of ozone layer depletion	266	361	146	215
		Management of chemical substances	0	67	65	2
		Other	0	16	1	14
	Subtotal		353	664	256	408
	Resource circulation	Efficient use of wastes	0	196	196	0
		Conservation of water	0	0	0	0
		Treatment of wastes	0	100	89	11
		Other	0	15	15	0
Subtotal		0	311	300	11	
Upstream/Downstream costs		0	12	12	0	
Administration costs		0	223	223	0	
R&D costs		10	37	17	20	
Social activity costs		0	3	3	0	
Environmental remediation costs		0	251	251	0	
Total		624	2,194	1,511	683	
Total environmental conservation costs, excluding environmental remediation costs		624	1,943	1,260	683	

### 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	10 million
Sludge drying, reduction in amount of waste liquid disposal contracted out (through increased disposal in-house)	0.2 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	4 million
<b>Total</b>	<b>14 million</b>

### ■ Changes in Environment-related Investment and Expensed

Categories	Fiscal 2017		Fiscal 2018		Fiscal 2019		Fiscal 2020		Fiscal 2021	
	Investments	Expenses	Investments	Expenses	Investments	Expenses	Investments	Expenses	Investments	Expenses
Pollution Prevention	229	478	172	502	98	401	519	362	261	449
Global Environmental Conservation	264	431	1,354	302	375	237	246	237	353	256
Resource Circulation	0	345	0	350	0	278	0	293	0	300
Upstream/downstream costs	0	53	0	45	0	11	0	12	0	12
Administration costs	1	217	0	261	0	193	0	226	0	223
R&D costs	30	61	52	23	32	41	18	19	10	17
Social activity costs	0	1	0	1	0	4	0	3	0	3
Environmental remediation costs	0	293	0	256	0	256	0	251	0	251
<b>Total</b>	<b>523</b>	<b>1,879</b>	<b>1,578</b>	<b>1,740</b>	<b>505</b>	<b>1,420</b>	<b>782</b>	<b>1,401</b>	<b>624</b>	<b>1,511</b>

## 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 2021, there were no work-related fatalities, while there were 10 cases of injuries requiring leaves of absence. The longest number of work days lost was 81 days due to a fracture in an accident while transporting machinery. Driving sales fleets was limited due to the impact of COVID-19, which resulted in a reduction of work-related accidents accompanying car use. We will strive for risk reduction activities on a global scale to maintain a work-related accident severity rate of 0.005 or less so that the severity rate does not decline due to external factors.

		2019	2020	2021
<b>Global *1</b>	Number of work-related injuries (leave of absence)	19	6	10
	Frequency rate of work-related injuries *	0.58	0.18	0.33
	<b>Severity rate of work-related injuries *</b>	<b>0.244</b>	<b>0.005</b>	<b>0.008</b>
<b>Japan *2</b>	Number of work-related injuries (leave of absence)	3	1	1
	Frequency rate of work-related injuries *	0.25	0.09	0.10
	<b>Severity rate of work-related injuries *</b>	<b>0.627</b>	<b>0.000</b>	<b>0.002</b>
<b>US</b>	Number of work-related injuries (leave of absence)	11	1	3
	Frequency rate of work-related injuries *	1.87	0.15	0.42
	<b>Severity rate of work-related injuries *</b>	<b>0.069</b>	<b>0.000</b>	<b>0.012</b>
<b>Established Markets *3</b>	Number of work-related injuries (leave of absence)	2	3	4
	Frequency rate of work-related injuries *	0.28	0.40	0.57
	<b>Severity rate of work-related injuries *</b>	<b>0.001</b>	<b>0.014</b>	<b>0.008</b>
<b>Greater China</b>	Number of work-related injuries (leave of absence)	0	1	2
	Frequency rate of work-related injuries *	0	0.30	0.82
	<b>Severity rate of work-related injuries *</b>	<b>0</b>	<b>0.015</b>	<b>0.036</b>
<b>International Markets</b>	Number of work-related injuries (leave of absence)	3	0	0
	Frequency rate of work-related injuries *	0.72	0	0
	<b>Severity rate of work-related injuries *</b>	<b>0.006</b>	<b>0</b>	<b>0</b>

### ■ 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

\* Please refer to the abbreviation table for details. \*1 Number of work-related injuries (leave of absence), frequency rate of work-related injuries and severity rate of work-related injuries for 2019 have been revised due to its recognition as an occupational accident. Severity rate of work-related injuries for 2020 has been revised due to settlement of days lost in an occupational accident in 2021. \*2 Number of work-related injuries (leave of absence), frequency rate of work-related injuries and severity rate of work-related injuries for 2019 have been revised due to its recognition in 2021 as an occupational accident. \*3 Severity rate of work-related injuries for 2020 has been revised due to settlement of days lost in an occupational accident in 2021.

### ■ 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 <sub>2</sub> emissions
Electricity	9.97 GJ/MWh	-- *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 <sup>3</sup> N	2.24 tons/thousand m <sup>3</sup> 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

\*1 To calculate the CO<sub>2</sub> emissions resulting from electricity usage, Astellas uses CO<sub>2</sub> 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* (2021 edition) published by the International Energy Agency (IEA).

\*2 In converting the amount of power that we generated from renewable energy sources such as photovoltaics and wind into energy value in Joule, we have used 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	<b>Based on: Purchase price (¥ million)</b> Purchase monetary amount of raw material x emission source unit of each raw material and consumable	Target: Production sites in Japan 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)
2 Capital goods	<b>Based on: Capital expenditures (¥ million)</b> Facility investment amount (consolidated) x emission source unit per price of capital goods  Construction in progress asset is not excluded. Intangible assets are not included.	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 <sub>2</sub> equivalent / million yen
3 Fuel and energy related activities (not included in Scope 1 and Scope 2)	<b>Based on: Consumption of each type of energy (GJ)</b> 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)	<b>Based on: Fuel usage (kiloliter), Energy consumption (MWh)</b> CO <sub>2</sub> emissions during transportation: Calculation method for CO <sub>2</sub> emissions from energy sources related to cargo transportation by transportation carrier stipulated by Act on the Rational Use of Energy CO <sub>2</sub> emissions at distribution warehouses: Electricity usage amount x emission source unit	Target: Transport in Japan* Emission source unit during transportation: • Source: Manual for Calculation and Reporting of Greenhouse Gas Emissions Calculation (Ver4.8) Electricity emissions intensity: • The latest adjusted emission coefficient for each power supplier  *CO <sub>2</sub> emission from transports outside of Japan is also calculated in the same manner.
5 Waste generated in operation	<b>Based on: Shipping weight and distance (tons*kilometer)</b> CO <sub>2</sub> emissions generated during industrial waste transportation: Calculation method for CO <sub>2</sub> emissions from energy sources related to cargo transportation by transportation carrier stipulated by Act on the Rational Use of Energy  CO <sub>2</sub> emissions generated during industrial waste treatment: Amounts of recycled industrial waste, incineration processing, and direct landfill processing x waste type/emission source unit by processing method	Target: Production sites in Japan Emission source unit during industrial waste transportation: • Source: Manual for Calculation and Reporting of Greenhouse Gas Emissions (Ver4.8)  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)	<b>Based on: Distance traveled (1,000 people*kilometer)</b> 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
7 Employee commuting	<b>Based on: Distance traveled (1,000 people*kilometer)</b> Train: Number of persons commuting by train x distance x emission source unit Bus: Number of persons commuting by bus x distance x emission source unit Car: Number of persons commuting by car x distance x emission source unit	Target: Japan (Number of commuting days per year: 237 days) Emission source units of trains, buses, and cars: • Source: National Institute of Advanced Industrial Science and Technology (AIST), LCI Database IDEA version 2.3
11 Use of sold products	<b>Based on: Shipment volume (Number of shipments x volume containing HFC/shipment) (Tons-HFC)</b> Amount of HFC used as fillers in inhalation-type medical drugs x GWP	Applied to an asthma inhalation treatment (a product that used hydrofluorocarbon (HFC) that had been sold.
12 End-of-life treatment of sold products	<b>Based on: Weight of containers and packaging (Tons)</b> 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*[9]; emission source units by waste type (Secretariat) (including waste transportation stage)

The Ministry of the Environment's database: The Ministry of the Environment's emission source unit database (ver. 3.2) for calculating greenhouse gas emissions through the supply chain (March 2022)

## Site data (major facilities) and Scope 3 (3 years)

### Takahagi Facilities

INPUT		
Energy	Electricity	22,015 MWh
	Kerosene	0 kiloliter
	LPG	0 tons
	LNG	991 tons
	City gas	0 thousand m <sup>3</sup>
	Diesel	0.1 kiloliter
	Gasoline	0 kiloliter
Water	Surface water	2,340 thousand m <sup>3</sup>
	Groundwater	- thousand m <sup>3</sup>
OUTPUT		
Air	GHG	3 kilotons
	NOx	3 tons
	VOC	0.2 tons
Water bodies	into rivers	2,340 thousand m <sup>3</sup>
	Sewerage system	- thousand m <sup>3</sup>
	BOD load	5 tons
	COD load	8 tons
Waste	Generated	1,384 tons
	Landfill	64 tons

### Yaizu Facilities

INPUT		
Energy	Electricity	43,931 MWh
	Kerosene	0 kiloliter
	LPG	0 tons
	LNG	0 tons
	City gas	4,691 thousand m <sup>3</sup>
	Diesel	5 kiloliter
	Gasoline	0 kiloliter
Water	Surface water	239 thousand m <sup>3</sup>
	Groundwater	399 thousand m <sup>3</sup>
OUTPUT		
Air	GHG	27 kilotons
	NOx	3 tons
	VOC	3 tons
Water bodies	into rivers	475 thousand m <sup>3</sup>
	Sewerage system	- thousand m <sup>3</sup>
	BOD load	0.3 tons
	COD load	1 tons
Waste	Generated	921 tons
	Landfill	1 tons

### Toyama Technology Center

INPUT		
Energy	Electricity	39,651 MWh
	Kerosene	0 kiloliter
	LPG	0 tons
	LNG	0 tons
	City gas	4,468 thousand m <sup>3</sup>
	Diesel	7 kiloliter
	Gasoline	2 kiloliter
Water	Surface water	2,455 thousand m <sup>3</sup>
	Groundwater	8 thousand m <sup>3</sup>
OUTPUT		
Air	GHG	29 kilotons
	NOx	3 tons
	VOC	12 tons
Water bodies	into rivers	2,399 thousand m <sup>3</sup>
	Sewerage system	- thousand m <sup>3</sup>
	BOD load	2 tons
	COD load	7 tons
Waste	Generated	5,973 tons
	Landfill	11 tons

### Takaoka Plant

INPUT		
Energy	Electricity	10,086 MWh
	Kerosene	0 kiloliter
	LPG	1,042 tons
	LNG	0 tons
	City gas	0 thousand m <sup>3</sup>
	Diesel	0.4 kiloliter
	Gasoline	0.7 kiloliter
Water	Surface water	1,414 thousand m <sup>3</sup>
	Groundwater	51 thousand m <sup>3</sup>
OUTPUT		
Air	GHG	8 kilotons
	NOx	1 tons
	VOC	4 tons
Water bodies	into rivers	1,396 thousand m <sup>3</sup>
	Sewerage system	- thousand m <sup>3</sup>
	BOD load	1 tons
	COD load	6 tons
Waste	Generated	105 tons
	Landfill	0.6 tons

### Tsukuba Research Center

INPUT		
Energy	Electricity	36,573 MWh
	Photovoltaics	52 MWh
	Kerosene	0 kiloliter
	LPG	0 tons
	LNG	0 tons
	City gas	7,210 thousand m <sup>3</sup>
	Diesel	0.5 kiloliter
	Gasoline	1 kiloliter
Water	Surface water	255 thousand m <sup>3</sup>
	Groundwater	0 thousand m <sup>3</sup>
OUTPUT		
Air	GHG	16 kilotons
	NOx	9 tons
	VOC	1 tons
Water bodies	into rivers	- thousand m <sup>3</sup>
	Sewerage system	163 thousand m <sup>3</sup>
	BOD load	1 tons
	COD load	2 tons
Waste	Generated	602 tons
	Landfill	16 tons

### Tsukuba Bio Research Center

INPUT		
Energy	Electricity	8,406 MWh
	Kerosene	0 kiloliter
	LPG	0 tons
	LNG	0 tons
	City gas	425 thousand m <sup>3</sup>
	Diesel	0 kiloliter
	Gasoline	0.2 kiloliter
	Water	Surface water
Groundwater		- thousand m <sup>3</sup>
OUTPUT		
Air	GHG	1 kilotons
	NOx	0.2 tons
	VOC	0.6 tons
Water bodies	into rivers	- thousand m <sup>3</sup>
	Sewerage system	32 thousand m <sup>3</sup>
	BOD load	0.0 tons
	COD load	- tons
Waste	Generated	1,173 tons
	Landfill	4 tons

### Scope 3 (3 years)

		FY2019	FY2020	FY2021
Upstream Scope3 emissions				
Category		GHG emissions		
1	Purchased goods and services	48,998 tons	55,959 tons	76,267 tons
2	Capital goods	118,186 tons	95,377 tons	85,361 tons
3	Fuel and energy related activities (not included in Scope1 and Scope2)	21,586 tons	30,601 tons*1	30,589 tons
	Transportation and distribution (upstream)	2,827 tons	2,579 tons	2,192 tons
4	Truck transportation of raw materials	(188 tons)	(163 tons)	(168 tons)
*2	Plant → warehouse	(134 tons)	(109 tons)	(102 tons)
	Warehouse	(705 tons)	(720 tons)	(921 tons)
	Warehouse → wholesalers	(1,800 tons)	(1,588 tons)	(1,001 tons)
5	Waste generated in operation	2,016 tons	2,605 tons	1,496 tons
6	Business travel (by airplane)	33,844 tons	5,008 tons	2,006 tons
7	Employee commuting	1,914 tons	1,862 tons	1,639 tons
8	Leased assets (upstream)	Not relevant	Not relevant	Not relevant
Downstream Scope3 emissions				
Category		GHG emissions		
9	Transportation and distribution (downstream)	Not relevant	Not relevant	Not relevant
10	Processing of sold products	Not relevant	Not relevant	Not relevant
11	Use of sold products	No emissions	No emissions	No emissions
12	End-of-life treatment of sold products	582 tons	544 tons	466 tons
13	Leased assets (downstream)	Not relevant	Not relevant	Not relevant
14	Franchises	Not relevant	Not relevant	Not relevant
15	Investments	Not relevant	Not relevant	Not relevant

\*1 Scope 3 Category 3 data for fiscal 2020 has been revised due to revisions in the amount of electricity purchased at some sites in fiscal 2020.

\*2 In addition to the above Category 4 data, CO<sub>2</sub> emissions from transportation of products (including active pharmaceutical ingredients, intermediates, etc.) outside of Japan in fiscal 2021 were 17,529 tons.