



EHS Report 2021

www.astellas.com/en/sustainability/environment-health-and-safety



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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, 2021)
Representative Director	Kenji Yasukawa (President and CEO)
Foundation	1923
Revenue	¥1,249,528 million (consolidated basis, as of March 31, 2021)
Employees	15,455 (consolidated basis, as of March 31, 2021)
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, 2020 to March 31, 2021, and the activities of overseas business sites from January 1, 2020 to December 31, 2020. (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.
- Astellas Pharma Tech Co., Ltd.

Americas

- Astellas US LLC
- 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.
- Audentes Therapeutics Inc.
- Various sales affiliates

EMEA

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

Asia/Oceania

- Astellas Pharma China, Inc.
- Various sales affiliates

Certain EHS data includes the results of activities of

■ 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.

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

We acquired Audentes Therapeutics, Inc. on January 15, 2020; and Nanna Therapeutics Limited on April 19, 2020.

■ Guidelines

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

■ Notational System of Numerical Results

Totals and tallies of shares may not always match due to the effect of rounding.

■ Information regarding Publication

Date of issue: June 2021
Next scheduled issue: June 2022

There is no printed version of the EHS report.

(English version edited: June 28th, Japanese original version issued on June 7th, 2021)

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 has adopted “Turning innovative science into VALUE for patients” as its VISION. In order to continuously achieve sustainable growth, Astellas will need to sensitively grasp changes in the environment and continuously evolve in step with those changes. We will need to address changes in the environment, such as energy trends and climate change, the effective use of resources, and the prevention of pollution. We will also need to implement appropriate management of occupational health and safety in step with changes in modalities, which we will need to handle in many more different ways due to Astellas’ Focus Area approach. In the EHS field, we will be constantly called upon to address changes. Here, Astellas will advance EHS activities based on high ethical standards, in accordance with the Astellas EHS Policy and Guidelines.

Our support of the Task Force on Climate-related Financial Disclosures (TCFD) recommendations was one of our topical initiatives for fiscal 2020. Growing numbers of companies are supporting the TCFD amid increasing demands, mainly from institutional investors, for information disclosure on initiatives addressing environmental issues. Astellas announced its support in December 2020 and began disclosing information in response to TCFD from 2021. Moreover, under the Corporate Strategic Plan (CSP2021) announced in May, we added strategic targets to new initiatives to improve sustainability. The main elements of these strategic targets are the achievement of a greenhouse gas (GHG) emission reduction commitment approved under the Science-Based Targets (SBT) initiative and improved transparency related to disclosure of information about climate change mitigation measures. Reduction of GHG emissions is moving forward as the Environmental Action Plan progresses. In addition to using power derived from renewable energy sources, external factors such as measures to counter the spread of COVID-19 have produced results exceeding targets for 2030. We will continue working toward the 2030 targets this year.

Moreover, it is essential for management to ensure the safety of employees as they engage in corporate business activities. In order to remove hazards that could lead to work-related accidents at an early stage, it is crucial to continuously undertake broad-based risk assessments and develop a sharp eye for assessing hazards. We will continuously implement training and risk mitigation activities in order to prevent work-related accidents in all business areas, including research, production and sales.



Chief Administrative Officer
& Chief Ethics & Compliance Officer
Fumiaki Sakurai

Modality: Material classifications and methods such as small-molecule compounds, peptides (middle molecules) and other protein medicines; nucleic acid medicines; therapeutic antibodies; and cell medicines

Task Force on Climate-related Financial Disclosures (TCFD): A task force the Financial Stability Board (FSB) set up to disclose information on climate-related financial affairs.

SBT initiative: A group jointly established in 2015 by CDP, United Nations Global Compact (UNGC), World Resources Institute (WRI), and World Wide Fund for Nature (WWF). An international initiative that encourages countries and companies to set GHG reduction target to achieve the goal of the Paris Agreement—to limit global warming to below 2°C above pre-industrial levels.

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.

■ EHS Risk Management and Governance

Fundamental policies and action plans relating to 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 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).

The system is that a specialist department monitors risk management related to EHS 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 investment related to climate change measures or responses to EHS-related risks. In fiscal 2020, the Executive Committee and Board of Directors discussed issues such as initiatives to improve sustainability, including the climate change response, for integration into management planning, and these issues have been reflected in the new corporate strategic plan, CSP2021.

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

■ Astellas EHS Guidelines

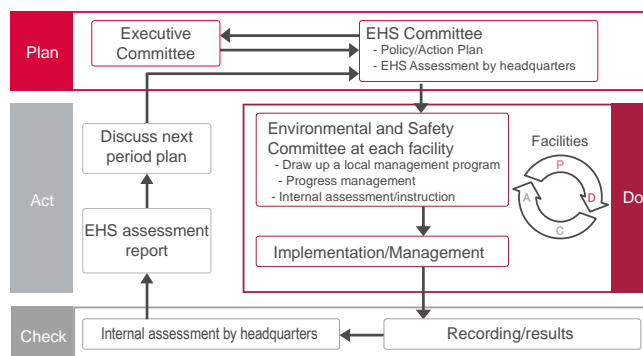
The Astellas EHS Guidelines set forth unified standards that identify Astellas' aspirations in its EHS activities.

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 2020, EHS assessments were conducted at 17 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 2020, Astellas conducted on-site assessments of two companies in Japan 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	Electricity	226,105 MWh
	(Renewable sourced)	97,398 MWh
	City gas	19,620 thousand m ³
	LPG	1,114 tons
	LNG	958 tons
	Kerosene	1 kiloliters
	Diesel oil	1,498 kiloliters
	Gasoline	4,108 kiloliters
	Purchased heat (hot/cold water)	4,687 GJ
	Purchased heat (steam)	20,838 GJ
<hr/>		
Resources	Other renewable energy	48,963 GJ
	Water	7,570 thousand m ³
	Raw materials and consumables (by weight) *1	4,348 tons
	Raw materials and consumables (by volume) *1	311,093 kiloliters

Scope3 Indirect GHG

Upstream GHG emissions		
1	Purchased goods and services	55,959 tons
2	Capital goods	95,377 tons
3	Fuel and energy related activities (not included in Scope1 and Scope2)	30,481 tons
4	Transportation and distribution	2,579 tons
	Truck transportation of raw materials	(163 tons)
	Plant → warehouse	(109 tons)
	Warehouse	(720 tons)
	Warehouse → wholesalers	(1,588 tons)
5	Waste generated in operation	2,605 tons
6	Business travel (by airplane)	5,008 tons
7	Employee commuting	1,862 tons
8	Leased assets	Not relevant
Downstream Scope3 emissions		
9	Transportation and distribution	Not relevant
10	Processing of sold products	Not relevant
11	Use of sold products	Not applicable
12	End-of-life treatment of sold products	544 tons
13	Leased assets	Not relevant
14	Franchises	Not relevant
15	Investments	Not relevant

Remark: The calculation method for Scope3 emissions is mentioned on page 19

OUTPUT		
GHGs	Scope 1 *2	63,276 tons
	(Sales fleets)	12,980 tons
Scope 2		59,320 tons
Pollutants (atmosphere)	NOx	22 tons
	VOC *3	22 tons
Pollutants (water bodies)	BOD	9 tons
	COD	21 tons
Discharge *4	Water discharge	7,233 thousand m ³
Waste material	Waste generated	14,352 tons
	Landfill volume *5	98 tons

*1 all Japanese business premises

*2 Non-energy related GHG emissions are not included.

*3 all production facilities and R&D sites in Japan

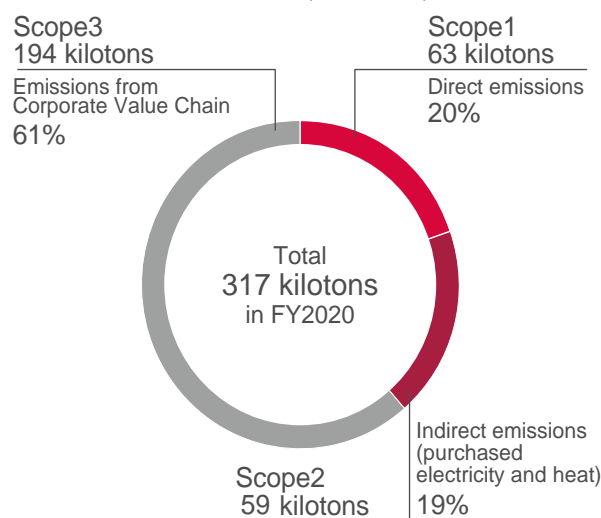
*4 volume of water discharge from non-Japanese production facilities was equivalent to withdrawal amount.

*5 all Japanese facilities excluded sales branched

GHG Emissions Throughout the Value Chain

GHG emissions associated with Astellas' business activities amounted to 317 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.

GHG emission breakdown (fiscal 2020)



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

■ Results of fiscal 2020 (summary)

Goal of Environmental Action Plan	Fiscal 2020 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 39% decrease (Emissions: 123 kilotons) 21% decrease
2. Measures for the Conservation of Natural Resources [Base year: fiscal 2015] - Enhance water resource productivity by around 2.5 times the fiscal 2005 result by the end of fiscal 2020 (For research and production sites in Japan and overseas) Indicator: Revenue (¥ billion)/Water resources withdrawn (1,000 m³)	Ratio to fiscal 2005 level 3.2 times
3. Waste management [Base year: fiscal 2005] - Improve waste generated per unit of revenue to around 20% of the fiscal 2005 result by the end of fiscal 2020 (For research and production sites in Japan and overseas) Indicator: Volume of waste generated (tons)/Revenue (¥ billion)	Ratio to fiscal 2005 level 23%
4. Biodiversity [Base year: fiscal 2005] - Triple the biodiversity index by fiscal 2020 from the fiscal 2005 level	Ratio to fiscal 2005 level 3.5 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 2020, there was an infraction of Dutch regulation that Meppel Plant did not make an advance notification to the governmental authorities of temporary installation of a rental power generator. The plant has reported to the supervisory authorities and completed necessary actions. 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. However, over the past five years,

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. We are continuously implementing measures eyeing the target fiscal years of each plan.

Results for fiscal 2020 are as follows:

there was an incident in which Astellas exceeded the upper limit of agreed values specified in a pollution prevention agreement with a local government. However, 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

In fiscal 2020, there were no environment-related accidents. Astellas has not recorded any environment-related accident over the past five years.

In addition, there were no environment-related complaints associated with facilities operations.

■ Soil Contamination Assessments

In fiscal 2019, 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, sites other than the above where contamination has been found are as follows:

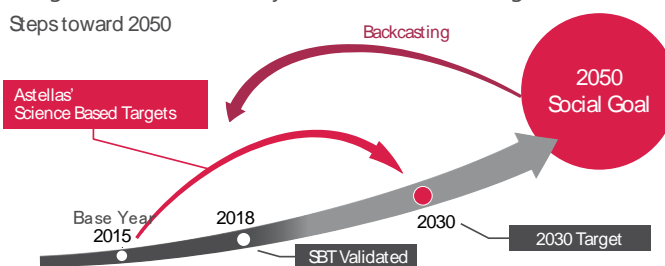
- Former Kashima R&D Center: Designation as a contaminated area (fiscal 2016)

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 force in 2016. In November 2018, the SBT Initiative certified the targets laid out in Astellas' Environmental Action Plan.

In the review of risks and opportunities that the SBT target setting process and climate change will present to businesses, we have adopted the 2°C Scenario of the International Energy Agency (IEA 2DS). Guided by IEA 2DS, we will promote measures from a medium- to long-term perspective.



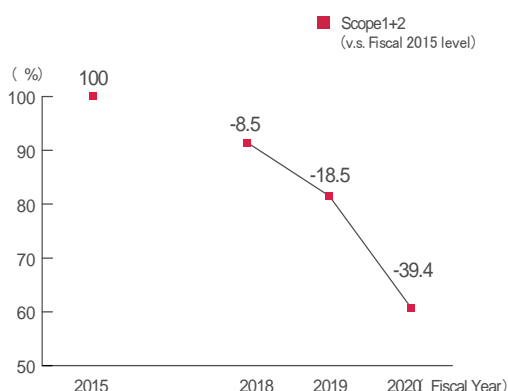
Environmental Action Plan (Climate Change Mitigation Measures) (SBT approved)

- 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 2018	Fiscal 2019	Fiscal 2020
GHG emissions (Scope 3) (tons)	271,010	221,905	229,953	194,414
Revenue (¥ billion)	1,373	1,306	1,301	1,250
Emissions per unit of revenue (tons / ¥ billion)	197	170	177	156
Ratio to Base-year (%)	-	-14.0	-10.5	-21.2

As the scope and method of aggregation for Scope 3 Category 1 have been revised, GHG emissions and emission intensity have been revised retroactively to FY2018.

Changes in Actual GHG Emissions Volume

The actual volume of GHG emissions in fiscal 2020 was 123 kilotons (Scope 1: 63 kilotons, Scope 2: 59 kilotons).

Changes in Actual GHG Emissions Volume by Area

	Fiscal 2015	Ratio (%)	Fiscal 2018	Ratio (%)	Fiscal 2019	Ratio (%)	Fiscal 2020	Ratio (%)
Japan	166,857	75	155,379	80	132,888	80	94,522	77
Scope 1	61,036		56,422		48,842		46,217	
Scope 2	105,821		98,957		84,046		48,305	
Americas	31,837	14	17,505	9	13,666	9	13,546	11
Scope 1	21,329		10,205		8,442		7,479	
Scope 2	10,508		7,300		5,223		6,067	
EMEA	19,970	9	17,450	9	15,289	9	10,626	9
Scope 1	16,093		15,415		13,596		9,551	
Scope 2	3,877		2,035		1,693		1,074	
Asia/Oceania	4,080	2	4,039	2	4,295	3	3,903	3
Scope 1	41		51		18		29	
Scope 2	4,039		3,988		4,277		3,874	
Total	222,744		194,373		166,138		122,596	
Scope 1	98,500		82,093		70,898		63,276	
Scope 2	124,244		112,280		95,239		59,320	

* Non-energy related GHG emissions are not included.

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.

■ Analysis of the Risks and Opportunities That Climate Change Presents to Our Business

Based on IEA 2DS, we carry out scenario analysis regarding changes in the external environment due to such factors as international policy trends and emissions trading systems, the impact on work operations of physical changes caused by climate change, and assessments by stakeholders concerning our measures to mitigate and adapt to climate change. We believe that understanding the conceivable risks and moving forward with medium- to long-term measures to minimize risk will lead to opportunities for our business to be sustainable.

■ Investment Plan for Climate Change Mitigation Measures

In fiscal 2020, 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 ¥760 million was actually completed, resulting in reduction of 741 tons of GHG.

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

■ 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.

■ 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 bases, 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 reported under Scope 1.

	Changes in GHG Emissions Volume (Tons)		
	Fiscal 2018	Fiscal 2019	Fiscal 2020
Total	23,725	20,333	12,980
Japan	4,114	3,226	2,531
Americas	9,172	7,902	4,913
EMEA	10,439	9,205	5,536

When it cannot be directly measured, the actual fuel usage is estimated from fuel purchase cost and average fuel price in the reporting period, or by mileage and fuel consumption (catalog value). In certain parts of EMEA, the volume of CO₂ emissions from company vehicles or private vehicles (if used in sales activities) are calculated by estimating fuel usage from the number of vehicles in use for sales activities. We are currently assessing the usage record of sales vehicles in the Asia/Oceania region.

■ Impact of COVID-19

In fiscal 2020, COVID-19 had an impact on our business activities. Activities continued for pharmaceutical development and supply at research and production bases, but significant restrictions were placed on sales activities and employees' business trips. As a result, the limitations on business activities had an impact on greenhouse gas emissions, with reduced use of vehicles for sales activities resulting in a reduction of about 7,400 tons in emissions and restrictions on aircraft use for business trips resulting in a reduction of about 28,800 tons of emissions (compared to fiscal 2019).

Our efforts to reduce GHG emissions

■ Using Renewable Energy

The use of renewable energy is one of the most effective climate change countermeasures. Astellas is proactively introducing photovoltaic panels and wind power, and such equipment as biomass boilers, to its facilities. All energy generated through these means is consumed at these facilities.

Moreover, we purchase electricity generated by renewable energy sources. As a result, we are indirectly suppressing GHG emissions.

Starting in April 2020, Astellas switched all electricity consumed by its three research and production facilities in Japan (Tsukuba Research Center, Tsukuba Biotechnology Research Center and Takahagi Chemistry & Technology

Development Center) to hydroelectric power (*), which is free of greenhouse gas (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.

Usage of Renewable Energy (Fiscal 2020)

Offices	Type of renewable energy	Energy consumed
Kerry Plant	Wind turbine generation (Power capacity 800 kW)	2,074 MWh
	Wood chip biomass boiler (Power capacity 1.8 MW)	44,932 GJ
	Purchase of electricity generated by renewable energy sources	7,380 MWh
	Photovoltaics	109 MWh
Dublin Plant	Purchase of electricity generated by renewable energy sources	5,555 MWh
Meppel Plant	Purchase of electricity generated by renewable energy sources	12,148 MWh
Leiden	Purchase of electricity generated by renewable energy sources	1,464 MWh
	Use of geothermal heat	1,365 GJ
Europe HQs	Purchase of electricity generated by renewable energy sources	389 MWh
Spanish Sales Affiliates	Purchase of electricity generated by renewable energy sources	313 MWh
US HQs	Use of geothermal heat	3 GJ
Universal Cells	Purchase of electricity generated by renewable energy sources	813 MWh
Tsukuba Research Center	Purchase of electricity generated by renewable energy sources	37,940 MWh
	Photovoltaics	47 MWh
Tsukuba Bio Research Center	Purchase of electricity generated by renewable energy sources	8,630 MWh
Takahagi	Purchase of electricity generated by renewable energy sources	20,537 MWh
Yaizu Facilities	Use of geothermal heat (cannot be measured)	-

■ New environment action plan

The action plan, excepting climate change measures, has reached its target year of fiscal 2020. We evaluated the direction of our activities until now and reviewed the action plan with a target fiscal year of 2025. The

Environmental Action Plan, climate change measures, applicable from fiscal 2021 is as follows (the action plan for climate change measures remain the same as now):

Item	Target
Water resource productivity (WRP)	Enhance approx. 20% water resource productivity based on fiscal 2016 by the end of fiscal 2025. (R&D and Production) - Indicator: Sales (Bln yen)/Volume of water resource withdrawn (m ³)
Waste Generated per unit of Sales (WGS)	Improve approx. 10% waste generated per unit of sales based on fiscal 2016 by the end of fiscal 2025. (R&D and Production) - Indicator: Volume of waste generated (tons)/Sales (Bln yen)
Biodiversity	Raise the biodiversity index to quadruple the fiscal 2005 level by fiscal 2025

■ Breakdown of Energy Consumption

Global energy usage in fiscal 2020 by the Astellas Group amounted to 3,507 terajoules (TJ), for a decrease of 4% (151 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 2017	(%)	Fiscal 2018	(%)	Fiscal 2019	(%)	Fiscal 2020	(%)
Liquide fuel		65	2	62	2	49	2	39	1
Gaseous fuel		1,119	36	1,036	34	905	33	866	33
Heat purchased		7	0	5	0	1	0	2	0
Electricity purchased		1,960	62	1,964	64	1,764	65	1,710	65
Renewable energy sourced		0		0		0		669	
Natural energy		0.2	0	0.2	0	0.2	0	0.2	0
Photovoltaic		0.2		0.2		0.2		0.2	
Total		3,150	100	3,068	100	2,720	100	2,617	100
Americas		Fiscal 2017	(%)	Fiscal 2018	(%)	Fiscal 2019	(%)	Fiscal 2020	(%)
Liquide fuel		168	37	143	43	124	45	76	24
Renewable energy sourced		8		6		7		3	
Gaseous fuel		41	9	21	6	11	4	52	16
Heat purchased		-	-	-	-	-	-	-	-
Electricity purchased		241	54	171	51	141	51	192	60
Renewable energy sourced		-		-		7		8	
Natural energy		0	0	0	0	0	0	0	0
Geothermal heat		0		0		0		0	
Total		450	100	335	100	276	100	319	100
EMEA		Fiscal 2017	(%)	Fiscal 2018	(%)	Fiscal 2019	(%)	Fiscal 2020	(%)
Liquide fuel		137	22	156	22	138	23	86	17
Gaseous fuel		97	15	96	15	85	14	74	14
Renewable energy sourced		7		-		-		-	
Heat purchased		-	-	-	-	1	-	1	0
Electricity purchased		352	56	341	56	325	54	299	58
Renewable energy sourced		276		278		276		272	
Natural energy		45	7	47	7	54	9	54	11
Wind		6		6		6		7	
Wood chip biomass		37		39		46		45	
Geothermal heat		1		2		2		2	
Photovoltaics		-		-		0.4		0.4	
Total		631	100	640	100	603	100	515	100
Asia/Oceania		Fiscal 2017	(%)	Fiscal 2018	(%)	Fiscal 2019	(%)	Fiscal 2020	(%)
Liquide fuel		0.1	0	0.6	1	0.1	0	0.3	1
Gaseous fuel		0.2	0	0.2	0	0.1	0	0.2	0
Heat purchased		20	40	22	40	24	40	25	44
Electricity purchased		30	59	32	59	35	59	30	55
Natural energy		-	-	-	-	-	-	-	-
Total		51	100	55	100	58	100	55	100

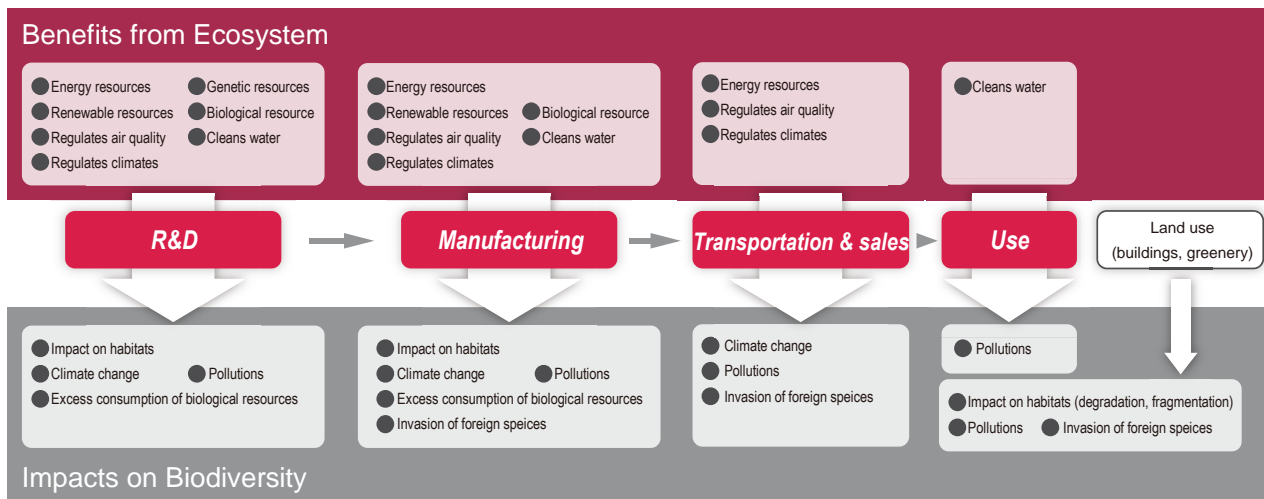
Sustainable biodiversity initiatives

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)

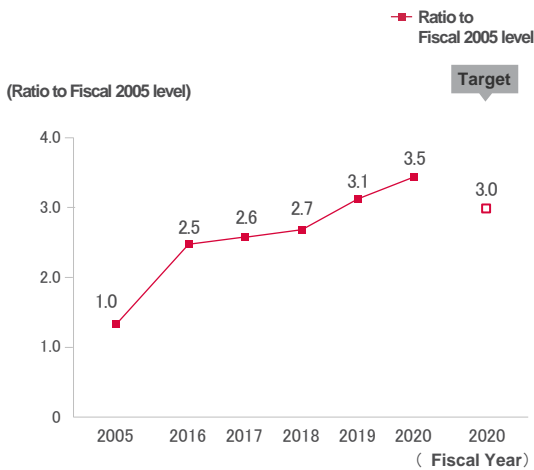
■ Raise the Biodiversity Index to triple the fiscal 2005 level by fiscal 2020. (Global)

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

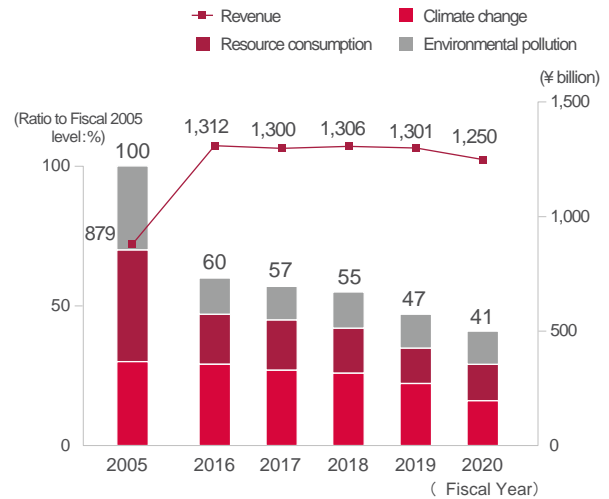
The Biodiversity Index for fiscal 2020 came in at 3.5 times the figure recorded in fiscal 2005. As the scope of the Environmental Action Plan has expanded regarding climate change, so has the scope of each index used to calculate the Biodiversity Index. The following graph has been recalculated from past indices. We will continue our current activities aiming to achieve our targets by the end of fiscal 2020.

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)

- Enhance water resource productivity by around 2.5 times the fiscal 2005 result by the end of fiscal 2020.

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 2020 improved 3.2 times compared with the base year of fiscal 2005.

Changes in Water Resources Withdrawn and Revenue

	Fiscal 2005	Fiscal 2018	Fiscal 2019	Fiscal 2020
Water resource withdrawn (thousand m³)	17,055	8,501	7,503	7,570
Japan				
Surface water	14,012	7,503	6,979	6,938
Ground water	2,479	810	330	436
Others	-	-	-	-
Americas				
Surface water	289	18	8	24
Ground water	-	-	-	-
Others	-	-	-	-
EMEA				
Surface water	235	149	166	151
Ground water	16	-	-	-
Others	-	-	-	-
Asia/ Oceania				
Surface water	24	21	19	21
Ground water	-	-	-	-
Others	-	-	-	-
Among them, research and production site	16,990	8,490	7,493	7,564
Revenue (¥ billion)	879	1,306	1,301	1,250
Water resource productivity (¥ billion/thousand m³)	0.05	0.15	0.17	0.17
Ratio to Base-year (Times)	-	3.0	3.4	3.2

■ 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 2020, 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 to around 20% of fiscal 2005 result by the end of fiscal 2020

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 2020, the waste generated per unit improved 23% over the base year (fiscal 2005).

Changes in Waste Generation Volume and Revenue

	Fiscal 2005	Fiscal 2018	Fiscal 2019	Fiscal 2020
Waste generated (tons)	44,771	14,820	13,992	14,352
Japan	38,476	12,411	11,065	10,714
Americas	551	591	71	361
EMEA	5,621	2,237	2,637	3,228
Asia/Oceania	123	114	149	50
Revenue (¥ billion)	879	1,306	1,301	1,250
Waste generated per unit (tons/¥ billion)	51	11	11	11
Ratio to Base-year (%)	-	22	21	23

■ 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 2021 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) it discharges accompanying the use of solvents in production and research activities, and makes efforts to reduce emissions. Moreover, we have taken steps to minimize the impact of our business operations on our employees, the regional communities in which we work, and the global environment. Such steps include measures to prevent environmental pollution by chemical substances as well as workplace accidents and health hazards, and take the form of adopting new production methods that do not employ high-risk chemicals.

■ 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 2020 amounted to 6 tons.

Astellas does not use equipment that runs on fuel oil, and thus SOx (sulfur oxide) emissions are not discharged.

Substance	Changes in Emission Volume (tons)				
	Fiscal 2016	Fiscal 2017	Fiscal 2018	Fiscal 2019	Fiscal 2020
VOC	49	34	44	28	22
NOx	27	21	22	17	22

VOC: Plants and research facilities in Japan

NOx: All business facilities in Japan (excluding branches and 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 emissions 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 2020. Our total amount of designated chemical substances released into the environment in fiscal 2020 was 1 tons, representing a continuing decrease.

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 2020 (tons)

Substance name	Volume handled	Volume released			Volume transferred	
		Air	Water	Soil	Waste	Sewerage
Acetonitrile	15.887	0.057	0.000	0.000	4.296	0.000
Chloroform	8.517	0.376	0.000	0.000	8.141	0.000
N, N-dimethylformamide	6.987	0.000	0.001	0.000	3.921	0.000
Toluene	1.066	0.000	0.000	0.000	1.066	0.000
n-Hexane	2.629	0.131	0.000	0.000	2.497	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 2020 was 9 tons, slightly up from the previous fiscal year. Outside Japan, the COD in fiscal 2020 was 35 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.

Substance	Changes in BOD Load (tons)				
	Fiscal 2016	Fiscal 2017	Fiscal 2018	Fiscal 2019	Fiscal 2020
BOD	13	12	10	8	9
Drainage into rivers	11	9	8	7	8
Drainage into sewer system	2	3	2	1	1

Target: All Japanese production facilities and R&D centers

Changes in Drainage Volume (thousand m³)

Destination	Fiscal 2016	Fiscal 2017	Fiscal 2018	Fiscal 2019	Fiscal 2020
	Drainage Volume	8,194	8,293	8,058	7,061
Drainage into rivers	7,969	8,066	7,820	6,836	6,835
Drainage into sewer system	225	227	238	225	202

Target: All business facilities in Japan (excluding branches and 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.

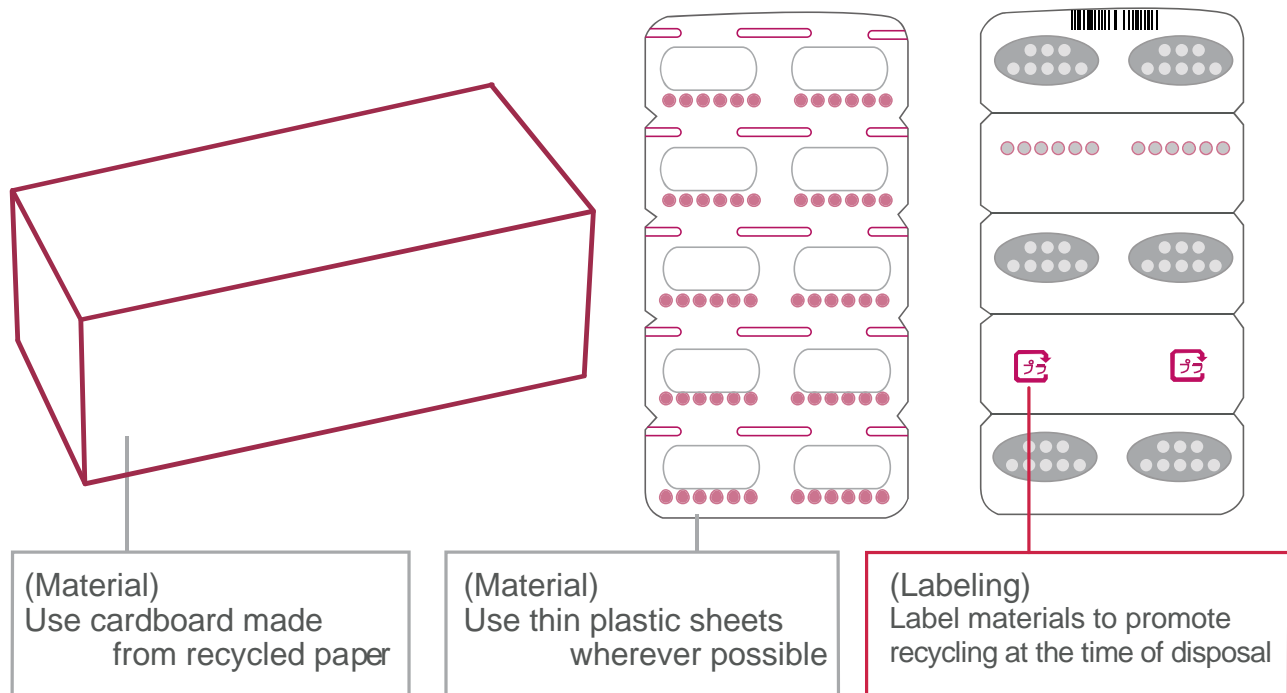
■ Containers and Packaging Recycling

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.

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 2020 is 433 tons, and the Company was requested to pay ¥13.29 million in recycling costs.



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 2020 comprised ¥765 million in investments and ¥1,573 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 ¥9 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 2020

Category		Environmental Conservation Costs (¥ million)				
		Investments	Costs			
			Total	Expense	Depreciation	
Business Area Cost		765	1,573	891	682	
Breakdown	Pollution Prevention	Prevention of atmospheric pollution	94	166	133	33
		Prevention of water pollution	425	395	192	202
		Prevention of soil contamination	0	30	29	1
		Prevention of noise, bad odor and vibrations	0	5	3	2
		Other	0	4	4	0
	Subtotal		519	599	362	238
	Global Environmental Conservation	Mitigation of climate change	39	256	44	211
		Prevention of ozone layer depletion	207	330	136	195
		Management of chemical substances	0	56	53	3
		Other	0	24	4	20
	Subtotal		246	666	237	429
	Resource circulation	Efficient use of wastes	0	196	196	0
		Conservation of water	0	0	0	0
		Treatment of wastes	0	96	80	15
		Other	0	16	16	0
Subtotal		0	308	293	15	
Upstream/Downstream costs		0	12	12	0	
Administration costs		0	226	226	0	
R&D costs		18	43	19	24	
Social activity costs		0	3	3	0	
Environmental remediation costs		0	251	251	0	
Total		782	2,107	1,401	706	
Total environmental conservation costs, excluding environmental remediation costs		782	1,857	1,150	706	

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	5 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	5 million
Total	9 million

■ Changes in Environment-related Investment and Expensed

Categories	Fiscal 2016		Fiscal 2017		Fiscal 2018		Fiscal 2019		Fiscal 2020	
	Investments	Expenses	Investments	Expenses	Investments	Expenses	Investments	Expenses	Investments	Expenses
Pollution Prevention	588	457	229	478	172	502	98	401	519	362
Global Environmental Conservation	330	354	264	431	1,354	302	375	237	246	237
Resource Circulation	159	322	0	345	0	350	0	278	0	293
Upstream/downstream costs	0	53	0	53	0	45	0	11	0	12
Administration costs	1	246	1	217	0	261	0	193	0	226
R&D costs	55	83	30	61	52	23	32	41	18	19
Social activity costs	0	3	0	1	0	1	0	4	0	3
Environmental remediation costs	0	293	0	293	0	256	0	256	0	251
Total	1,134	1,812	523	1,879	1,578	1,740	505	1,420	782	1,401

Occupational Health & Safety

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

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

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

■ Occupational Health & Safety Action Plan

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

■ Incidence of Work-Related Injuries

To prevent work-related accidents, we share information on work-related accidents and near-misses that have occurred at business sites in Japan and overseas, without identifying any individuals involved. We are striving from more diverse perspectives to ensure a safe work environment.

From January to December 2020, there were no work-related fatalities, while there were six cases of injuries

■ 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

requiring leaves of absence. The longest number of work days lost was 78 days due to a fall on stairs. 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.

		2018	2019	2020
Global	Number of work-related injuries (leave of absence)	19	18	6
	Frequency rate of work-related injuries *	0.55	0.55	0.18
	Severity rate of work-related injuries *	0.009	0.014	0.004
Japan	Number of work-related injuries (leave of absence)	5	2	1
	Frequency rate of work-related injuries *	0.35	0.17	0.09
	Severity rate of work-related injuries *	0.003	0.002	0.000
Americas	Number of work-related injuries (leave of absence)	4	14	1
	Frequency rate of work-related injuries *	0.62	2.14	0.13
	Severity rate of work-related injuries *	0.004	0.066	0.000
EMEA	Number of work-related injuries (leave of absence)	8	2	3
	Frequency rate of work-related injuries *	0.89	0.22	0.36
	Severity rate of work-related injuries *	0.026	0.001	0.010
Asia/Oceania	Number of work-related injuries (leave of absence)	2	0	1
	Frequency rate of work-related injuries *	0.40	0	0.20
	Severity rate of work-related injuries *	0.002	0	0.010

* Please refer to the abbreviation table for details

Severity rates of work-related injuries for 2018 and 2019 have been revised due to the overreported number of days lost in some occupational accidents in 2018 and 2019, and the settlement of days lost in some occupational accidents in 2019

■ 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. For example, with regard to safety management of business contractors, Astellas provides regular safety education and requires business contractors to obtain permission to perform certain tasks, as necessary.

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	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 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

*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* (2020 edition) published by the International Energy Agency (IEA).

*2 In converting the amount of power generated by 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	Based on: Purchase price (¥ million) Purchase monetary amount of raw material x emission source unit of each raw material and consumable	Target: Production bases 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	Based on: Capital expenditures (¥ million) Facility investment amount (consolidated) x emission source unit per price of capital goods	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	Based on: Fuel usage (kiloliter), Energy consumption (MWh) CO ₂ emissions during transportation: Calculation method for CO ₂ emissions from energy sources related to cargo transportation by transportation carrier stipulated by Act on the Rational Use of Energy CO ₂ emissions at distribution warehouses: Electricity usage amount x emission source unit	Target: Transport in Japan Emission source unit during transportation: • Source: Calculation of Greenhouse Gas Emissions Calculation: Reporting Manual (Ver4.3.1) Electricity emissions intensity: • The latest adjusted emission coefficient for each power supplier
5 Waste generated in operation	Based on: Shipping weight and distance (tons*kilometer) CO ₂ emissions generated during industrial waste transportation: Calculation method for CO ₂ emissions from energy sources related to cargo transportation by transportation carrier stipulated by Act on the Rational Use of Energy CO ₂ 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 bases in Japan Emission source unit during industrial waste transportation: • Source: Calculation of Greenhouse Gas Emissions: Reporting Manual (Ver4.3.1) Emission source unit during industrial waste treatment and landfill: • Source: The Ministry of the Environment's emission source unit database (ver. 2.6) for calculating greenhouse gas emissions through the supply chain (March 2019) [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: Global (Results compiled from all airplane flights except for Asia (excluding China) and Oceania regions) 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	Based on: Distance traveled (1,000 people*kilometer) 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	Based on: Shipment volume (Number of shipments x volume containing HFC/shipment) (Tons-HFC) Amount of HFC used as fillers in inhalation-type medical drugs x GWP	There was one product that used hydrofluorocarbon (HFC) as a filler, but the product was discontinued at the end of March 2015. There is no product that is applicable after FY2015.
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*[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. 3.1) for calculating greenhouse gas emissions through the supply chain (March 2021)

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

Takahagi Facilities

INPUT		
Energy	Electricity	20,537 MWh
	Kerosene	0 kiloliter
	LPG	0 tons
	LNG	958 tons
	City gas	0 thousand m ³
	Diesel	0.11 kiloliter
	Gasoline	0 kiloliter
Water	Surface water	2,221 thousand m ³
	Groundwater	0 thousand m ³
OUTPUT		
Air	GHG	3 kilotons
	NOx	5 tons
	VOC	0.2 tons
Water bodies	into rivers	2,221 thousand m ³
	Sewerage system	- thousand m ³
	BOD load	3 tons
	COD load	6 tons
Waste	Generated	1,026 tons
	Landfill	56 tons

Yaizu Facilities

INPUT		
Energy	Electricity	48,527 MWh
	Kerosene	0 kiloliter
	LPG	0 tons
	LNG	0 tons
	City gas	5,129 thousand m ³
	Diesel	0.3 kiloliter
	Gasoline	0.2 kiloliter
Water	Surface water	246 thousand m ³
	Groundwater	340 thousand m ³
OUTPUT		
Air	GHG	32 kilotons
	NOx	4 tons
	VOC	3 tons
Water bodies	into rivers	522 thousand m ³
	Sewerage system	- thousand m ³
	BOD load	0.4 tons
	COD load	2 tons
Waste	Generated	1,185 tons
	Landfill	0.6 tons

Toyama Technology Center

INPUT		
Energy	Electricity	37,701 MWh
	Kerosene	0 kiloliter
	LPG	0 tons
	LNG	0 tons
	City gas	4,283 thousand m ³
	Diesel	14 kiloliter
	Gasoline	2 kiloliter
Water	Surface water	2,509 thousand m ³
	Groundwater	35 thousand m ³
OUTPUT		
Air	GHG	28 kilotons
	NOx	2 tons
	VOC	11 tons
Water bodies	into rivers	2,457 thousand m ³
	Sewerage system	- thousand m ³
	BOD load	4 tons
	COD load	7 tons
Waste	Generated	6,631 tons
	Landfill	18 tons

Takaoka Plant

INPUT		
Energy	Electricity	10,772 MWh
	Kerosene	0 kiloliter
	LPG	1,111 tons
	LNG	0 tons
	City gas	0 thousand m ³
	Diesel	0.4 kiloliter
	Gasoline	0.8 kiloliter
Water	Surface water	1,658 thousand m ³
	Groundwater	61 thousand m ³
OUTPUT		
Air	GHG	9 kilotons
	NOx	1 tons
	VOC	5 tons
Water bodies	into rivers	1,635 thousand m ³
	Sewerage system	- thousand m ³
	BOD load	0.8 tons
	COD load	4 tons
Waste	Generated	84 tons
	Landfill	0 tons

Tsukuba Research Center

INPUT		
Energy	Electricity	37,940 MWh
	Photovoltaics	46 MWh
	Kerosene	0 kiloliter
	LPG	0 tons
	LNG	0 tons
	City gas	6,889 thousand m ³
	Diesel	0.3 kiloliter
	Gasoline	1 kiloliter
Water	Surface water	261 thousand m ³
	Groundwater	0 thousand m ³
OUTPUT		
Air	GHG	15 kilotons
	NOx	9 tons
	VOC	1 tons
Water bodies	into rivers	- thousand m ³
	Sewerage system	164 thousand m ³
	BOD load	0.9 tons
	COD load	2 tons
Waste	Generated	624 tons
	Landfill	20 tons

Tsukuba Bio Research Center

INPUT		
Energy	Electricity	8,630 MWh
	Kerosene	0 kiloliter
	LPG	0 tons
	LNG	0 tons
	City gas	416 thousand m ³
	Diesel	0 kiloliter
	Gasoline	0.3 kiloliter
Water	Surface water	35 thousand m ³
	Groundwater	0 thousand m ³
OUTPUT		
Air	GHG	0.9 kilotons
	NOx	0.2 tons
	VOC	0.9 tons
Water bodies	into rivers	- thousand m ³
	Sewerage system	34 thousand m ³
	BOD load	0 tons
	COD load	0 tons
Waste	Generated	1,128 tons
	Landfill	4 tons

Scope 3 (3 years)

		FY2018	FY2019	FY2020
Upstream Scope3 emissions				
Category	GHG emissions			
1	Purchased goods and services	69,693 tons	48,998 tons	55,959 tons
2	Capital goods	78,527 tons	118,186 tons	95,377 tons
3	Fuel and energy related activities (not included in Scope1 and Scope2)	24,486 tons	21,586 tons	30,481 tons
	Transportation and distribution	3,475 tons	2,827 tons	2,579 tons
	Truck transportation of raw materials	(252 tons)	(188 tons)	(163 tons)
4	Plant → warehouse	(292 tons)	(134 tons)	(109 tons)
	Warehouse	(849 tons)	(705 tons)	(720 tons)
	Warehouse → wholesalers	(2,083 tons)	(1,800 tons)	(1,588 tons)
5	Waste generated in operation	2,898 tons	2,016 tons	2,605 tons
6	Business travel (by airplane)	35,454 tons	33,844 tons	5,008 tons
7	Employee commuting	2,409 tons	1,914 tons	1,862 tons
8	Leased assets	Not relevant	Not relevant	Not relevant
Downstream Scope3 emissions				
Category	GHG emissions			
9	Transportation and distribution	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	590 tons	582 tons	544 tons
13	Leased assets	Not relevant	Not relevant	Not relevant
14	Franchises	Not relevant	Not relevant	Not relevant
15	Investments	Not relevant	Not relevant	Not relevant