

Astellas Environmental Report 2013

Astellas Pharma Inc.

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1. Editorial Policy

In publishing this "Astellas Environmental Report 2013," Astellas Pharma Inc. 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 who have an invested interest. The environment is one of the CSR fields in which Astellas actively tackles issues, sets targets, and undertakes initiatives. When preparing this Report, every effort was made to include easy-to-understand explanations using specific examples, numerical data, and graphs and charts. Readers are asked to take note of the fact that due to the rounding up of figures used in numerical environmental performance data, there may be cases where the total figure given does not tally precisely with the aggregated value.

An overall picture of CSR-based management at Astellas and activities in the five fields of compliance, employees, the economy, society, and the environment is contained in the Astellas Annual Report 2013, a printed publication that is scheduled for release in August 2013. Accordingly, excerpts from the Astellas Environmental Report 2013 can be found in the Environment Section of the Annual Report 2013.

1.1. Scope of this Report

This Report covers the operations of all the production facilities of Astellas group worldwide and non-production sites in Japan included in the Company's consolidated financial statements. However, the scope covered may differ depending on the item. Accordingly, details of the scope covered are identified on an individual basis in instances where a discrepancy arises.

In addition, certain environmental data includes the results of activities of subcontractors because the environment and society is affected not only by the Company's own activities but also via the supply chain.

1.2. Reporting Period

As a general rule, this Report covers the activities of facilities in Japan from April 1, 2012 to March 31, 2013, and the activities of overseas facilities from January 1, 2012 to December 31, 2012. (Certain sections of this Report contain details of activities and initiatives both prior to and after these identified reporting periods.)

1.3. Important Organizational Changes during the Term of the Report

There were no organizational changes that had an impact on environmental performance during the term of the Report.

1.4. Guidelines

The Astellas Environmental Report 2013 has been prepared with reference to the Environmental Reporting Guidelines (2012 edition) issued by Japan's Ministry of the Environment.

1.5. Notation of Carbon Dioxide

Carbon dioxide is spelled out in full in the Environmental Action Plan. All other references to carbon dioxide including notations in graphs are presented in its abbreviated form, CO₂.

Information regarding publication:

Date of issue : June 2013 (available on the Company's website)

Next scheduled issue : June 2014 (scheduled) Copy to be posted on the Company's website

Please note there is no printed version of the Astellas Environmental Report 2013.

2. Environmental Initiatives

Astellas recognizes that maintaining a healthy global environment is important both for building a sustainable society and engaging in business activities on an ongoing basis.

At the same time, the Company is cognizant of the growing gravity of threats to the ecosystem and such environmental issues as greenhouse gas (GHG) emissions attributable to the mass consumption of fossil fuels and deterioration of the natural environment due to the excessive extraction of resources. Other issues that impact the regional environment include air and water pollution, soil contamination, the emission of chemical substances, and industrial waste.

In order to ensure sustainable growth, Astellas is conscious of the need to adhere strictly to all statutory and regulatory requirements as they relate to wide-ranging environmental issues. At the same time, the Company recognizes the critical importance of fulfilling its corporate responsibilities toward society with the understanding that any failure to do so will lead to a deterioration of its standing in society and ultimately corporate value. Because of the inherent risk that expenditure will directly impact the Company's operations, consideration must also be given to increases in energy and raw material costs reflecting the sharp rise in resource prices, as well as expenses incurred in responding to new environment-related regulations including taxes. Should energy and water resource costs in Japan climb 1%, for example, expenses are expected to surge by tens of millions of yen.

Accounting for each of the aforementioned, positive steps toward the effective use of energy and resources will not only reduce environmental load, but also bolster business operations.

Moving forward, Astellas will accordingly engage in activities that are in harmony with the global environment. We will put in place an ideal image of the Company from a long-term and global perspective while continuously implementing initiatives that address issues in the regional community with an eye toward tomorrow's generation.

- Main Environmental Targets Achieved in Fiscal 2012 (Summary)

| Environmental Action Plan Numerical Targets | Fiscal 2012 Performance |
|--|--|
| <p style="text-align: right;">【Fiscal 2005 as the base year】</p> 1. Measures to Address Global Warming <ul style="list-style-type: none"> 1) Reduce GHG emissions by 35% or more compared with fiscal 2005 levels by fiscal 2020 (Global) <ul style="list-style-type: none"> ▪ Japan : Reduce by 30% or more ▪ Overseas production facilities : Reduce by 45% or more 2) Reduce CO₂ emissions generated through sales activities by 30% or more from fiscal 2005 levels by the end of fiscal 2015 (Japan) 3) Reduce CO₂ emissions caused by office electricity consumption by 20% or more compared with fiscal 2005 levels by the end of fiscal 2015 (Japan) | 1. <ul style="list-style-type: none"> 1) Ratio to FY2005 level : -15.3% <ul style="list-style-type: none"> Japan : -11.1% Overseas : -29.6% 2) Ratio to FY2005 level : -22.3% 3) Ratio to FY2005 level : -3.6% |
| <p style="text-align: right;">【Fiscal 2005 as the base year】</p> 2. Reduce water consumption by 20% or more from fiscal 2005 levels by the end of fiscal 2015 (Global) | 2. Ratio to FY2005 level : -28.7% |
| 3. Final volume of waste for disposal in landfill (Japan) Reduce the final volume of waste for disposal to less than 2% of volume discharged | 3. Ratio to total volume of waste discharged: 0.8% |
| <p style="text-align: right;">【Fiscal 2006 as the base year】</p> 4. Reduce the amount of volatile organic compounds (VOCs) discharged by 25% or more compared with fiscal 2006 levels by fiscal 2015 | 4. Ratio to FY2006 level -39.2% |
| <p style="text-align: right;">【Fiscal 2005 as the base year】</p> 5. Double the biodiversity index from the fiscal 2005 level by fiscal 2020 (Global) | 5. Ratio to FY2005 level 1.96 times |

* VOC : Volatile Organic Compounds

3. Environmental Management

Astellas' basic stance toward the environment as well as the health and safety of its employees is outlined under its Environmental and Safety Policy in accordance with its Charter of Corporate Conduct. Moreover, the Company works systematically and continuously to achieve the fiscal 2015 targets set out in its Environmental and Safety Guidelines while putting forward specific medium-term targets under its Environmental and Safety Action Plan with respect to priority issues to be tackled.

3.1. Environmental Management Framework

Environmental initiatives are a key component of CSR-based management. Accordingly, the CSR Committee discusses and decides Astellas' basic policy on the environment as well as the Environmental Action Plan. This policy and plan are commonly shared among all business facilities, with each work site using the plan as a basis for formulating its own policy and action plan. In keeping with specific business activities, every effort is made to achieve established targets.

3.2. Environmental Management System

Companywide initiatives as well as more specific programs developed by each facility are implemented in order to achieve each action plan. After performing Companywide audits to confirm progress at each facility, Astellas identifies new issues and implements revisions. By promoting this type of Plan-Do-Check-Act (PDCA) cycle on both a Companywide and individual facility basis, the Company is taking steps that lead to a reduction in environmental load and overall risk.

In response to internationally accepted standards for environmental management systems, Astellas has obtained ISO14001 certification for all the production plants of Astellas group worldwide, except the Norman Plant in the United States. Regarding our research centers, we have established a management system that addresses both environmental and safety issues. Moving forward, we are working to continuously improve activities in each field. Also, in our offices and the sales and marketing departments, we will continue to enhance our organizational structure with the aim of raising the level of activities.

3.3. Environmental Audits

To ascertain the status of overall environment and safety activities at Astellas as well as the issues confronted by facilities, a Companywide audit of environmental and safety activities is conducted in accordance with Environmental and Safety Guidelines. A written follow-up evaluation on the status of implementation is then conducted focusing on those issues uncovered, with audit confirmation undertaken the next fiscal year. Individual facilities and the headquarter departments responsible for environmental and safety issues share views on social needs and frontline issues. In this context, audits fulfill the critical role of ensuring that Astellas' direction and goals remain consistent.

In addition, Astellas has introduced an environmental and safety assessment system, whose function is to ascertain and minimize in advance the environmental load and all safety risks across such stages as production, distribution, and disposal during the research and development phase as well as the building or installing of new facilities.

The purpose of this assessment system is to ensure that such wide-ranging activities as complying in advance with new pharmaceutical laws and regulations, addressing global warming, as well as reducing the volume of solvents used, curtailing the discharge of harmful chemical substances, and evaluating the hazardous nature of chemical raw materials from the research and development stage are firmly entrenched within the Company's business practices. Assessment results are an important basis for deciding such key issues as whether to advance product development to the next stage, establish a facility, or purchase land.

3.4. Education and Training

In order to carry out business activities in an environmentally friendly manner, it is vital that all employees have a sound understanding and awareness of their individual roles and responsibilities. To this end, we are working to improve the skill base of employees through a wide variety of training programs. This includes specialized education for employees engaged in activities that require specialist knowledge and skills in such areas as environmental conservation and hazardous operations, and the development of employees professionally qualified in environmental matters.

We also explain our policies and site rules to construction workers at our plants, raw materials suppliers, and waste disposal contractors, and seek collaboration on our environmental and safety programs.

3.5. 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 develop specific measures and procedures, conduct regular training sessions, while reconfirming and testing the validity of our procedures, communication networks and the division of roles focusing particularly on risks that are recognized as a high priority. In this manner, we are working diligently to reduce environmental risk.

We are particularly concerned about the discharge of harmful substances that could lead to the pollution of rivers and seas as well as cause problems at 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 to prevent environmental pollution, including the installation of backup equipment, while working to reduce the risk of pollution. In addition, we are bolstering efforts to monitor operations and to measure the quality of water draining out of our plants to ensure proper operating management of sewage treatment facilities.

3.6. Compliance with Environmental Regulations

There were no breaches of environment-related legislation or regulations in fiscal 2012. Over the past five years, Astellas' facilities exceeded effluent standards on one occasion in fiscal 2008, three occasions in fiscal 2009 and fiscal 2010, and two occasions in fiscal 2011. In each instance, however, our response proved effective. Moreover, there have been no lawsuits or fines related to environmental issues over the past five years.

3.7. Environment-Related Accidents and Complaints

No environment-related accidents occurred in fiscal 2012. Astellas has not recorded an environment-related accident over the past five years.

There were three environment-related complaints relating to the Yaizu Facilities in fiscal 2012. One complaint regarding the noise of air conditioning was received. Steps were taken to upgrade equipment and to modify operating methods. During construction of a new structure, local residents complained of interruptions to their television reception. In addressing this complaint, steps were taken to realign the direction of television antennas. The third complaint was in connection to fallen leaves outside the facilities. To address this issue, the Company undertook a clean-up while also pruning trees. In each case, Astellas was quick to resolve the issue. Moving forward, we will work to prevent the occurrence of incidents arising from noise, foul odors, and vibrations. We also intend to maintain appropriate levels of communication with local communities even when there is no violation of regulations.

3.8. Soil Contamination Assessment

Under the Soil Contamination Countermeasures Act of Japan and prefectural ordinances, soil contamination assessments are mandatory where projects for building or demolishing facilities exceeding a certain scale are undertaken and collectively there is a change in the characteristics of the land. To date, Astellas has undertaken soil contamination assessments based on relevant laws and ordinances as well as related voluntary evaluation to determine the existence or otherwise of contamination. In the event contamination is identified, the Company has taken purification and other remedial measures.

In fiscal 2012, a soil contamination assessment was undertaken at the Kiyosu Research Office. There was no contamination detected. Drawing on the results of soil contamination assessments completed over the past five years, the following instances of contamination were detected.

- (1) Soil contamination survey upon the closure and demolition of the former Tokyo Research Center (Fiscal 2009 and 2010)

Due to contamination caused by total mercury (leachate, content), lead (content), and fluorine, the site was designated a contaminated site. The contaminated soil was excavated and removed, and by May 2011 all designations at the site had been rescinded.

- (2) Soil contamination survey at the Kashima R&D Center (Fiscal 2010)

As a result of contamination caused by arsenic, fluorine, and boron and their chemical compounds, the site of the R&D building was designated a contaminated site. However, because a new staff building covered the contaminated site and there were no contaminants on the soil surface, no remedial action such as excavation or removal was undertaken.

4. Environmental Action Plan

In addition to setting guidelines that clearly outline its environmental vision, Astellas drew up an Environmental Action Plan to specify short and medium-term targets for key environmental items. The Company works continuously to achieve the numerical targets contained in the plan.

The Environmental Action Plan is renewed on a rolling basis. Accordingly, targets are raised and new items are added to the plan as a result of regular reviews that take into account such factors as progress achieved in the previous fiscal year and social conditions.

The Environmental Action Plan was revised to reflect progress and results in fiscal 2012. Brief details are presented as follows. Currently, the activities of all the production facilities of the Astellas group worldwide and non-production sites in Japan fall within the scope of the Environmental Action Plan. At the same time, the activities of overseas research facilities, offices, and other bases of operation continue to increase in line with the Group's efforts to further expand and develop its business globally. As a result, steps are being taken to ascertain the performance of overseas facilities and bases that fall outside the scope of the Environmental Action Plan, focusing particularly on energy consumption. Looking ahead, we will review and revise the Environmental Action Plan as considered necessary.

Astellas' Environmental Action Plan

1. Measures to Address Global Warming

- 1) Reduce GHG emissions by 35% or more compared with fiscal 2005 levels by the end of fiscal 2020 (Global)
 - Reduce GHG emissions in Japan by 30% or more compared with fiscal 2005 levels by the end of fiscal 2020
 - Reduce GHG emissions at overseas production facilities by 45 % or more compared with fiscal 2005 levels by the end of fiscal 2020
- 2) Reduce carbon dioxide emissions generated through sales activities by 30% or more compared with fiscal 2005 levels by the end of fiscal 2015 (Japan)
- 3) Reduce CO2 emissions caused by office electricity consumption by 20% or more compared with fiscal 2005 levels (Japan)

2. Measures for the Conservation of Natural Resources

Reduce water consumption by 20% or more compared with fiscal 2005 levels (Global)

3. Management of Chemical Substances

Reduce the amount of volatile organic compounds (VOCs) discharged by 25% or more compared with fiscal 2006 levels by the end of fiscal 2015 (Japan)

4. Waste Management

Reduce the final volume of waste for disposal to less than 2% of the total discharged (Japan)

5. Biodiversity

Raise the biodiversity index to double the fiscal 2005 level by fiscal 2020 (Global)

The background and history of each review of the Environmental Action Plan is presented briefly as follows.

| | Fiscal 2005 | Fiscal 2006 | Fiscal 2007 | Fiscal 2008 | Fiscal 2009 | Fiscal 2010 | Fiscal 2011 | Fiscal 2012 | to Fiscal 2013 |
|--|----------------------|-------------|------------------------|--|----------------|-------------|-------------|-------------|----------------|
| Measure to address global warming | | | | | | | | | |
| Fiscal 2010 plan | Stage 1 Plan | | Stage 2 Plan (interim) | | Transition | | | | |
| Fiscal 2020 plan | → | | | | | | | | |
| Sales vehicle initiatives | → | | | | | | | | |
| Office initiatives | → Changed | | | | | | | | |
| Measure to conserve natural resources | | | | | | | | | |
| Reduce water consumption | → Achieved Continued | | | | | | | | |
| Green procurement | → | | | Suspended | | | | | |
| Introduce low-pollution vehicles | → | | | Achieved (transition to Sales vehicle initiatives) | | | | | |
| Manage chemical substances | | | | | | | | | |
| Dichloromethane | → | | Achieved | | | | | | |
| Chloroform | → | | | → | | | Suspended | | |
| Formaldehyde | → | | | | Achieved | | | | |
| VOC | → | | | | | | | | |
| Measures to dispose of waste | | | | | | | | | |
| Reduce landfill waste | Landfill volume | | → Achieved | | Zero emissions | | | | |
| Biodiversity | | | | | | | | | |
| Biodiversity index | → | | | | | | | → | |
| Issuance of site reports | → | | | Achieved | | | | | |

5. Interaction Between Astellas and the Environment

Japan

INPUT

| | | |
|---------------------------|-----------------------|--------------------------------|
| Energy | Electricity | 205,346MWh |
| | City gas | 24,167 thousand m ³ |
| | LPG | 2,000 tons |
| | LNG | 2,540 tons |
| | Fuel oil | 44 kiloliter |
| | Kerosene | 52 kiloliter |
| | Diesel oil | 31 kiloliter |
| | Gasoline | 2,930 kiloliter |
| | Purchased heat energy | 2,280 GJ |
| | Resources | Water |
| Raw materials (in weight) | | 4,717 tons |
| (in volume) | | 515 kiloliter |
| Copier paper | | 229 tons |



OUTPUT

| | | |
|-----------------|-------------------------------|-------------------------------|
| GHGs | | 172 thousand tons |
| Pollutants | SOx | 0 tons |
| | NOx | 33 tons |
| | VOC | 66 tons |
| | BOD | 14 tons |
| | Chemical substances* | 16 tons |
| Water discharge | Drainage into rivers | 9,926 thousand m ³ |
| | Drainage into sewerage system | 437 thousand m ³ |
| Waste material | Volume of waste generated | 11,455 tons |
| | Volume of waste discharged | 11,415 tons |
| | Landfill volume | 95 tons |

* Class 1 designated chemical substances under the PRTR system

GHG Emissions (Scope 3*)

| | UNIT : tons | |
|--|------------------------------------|-------|
| Commuting | 3,804 | |
| Overseas business trip | 8,255 | |
| Raw material shipments (tanker trucks) | 216 | |
| Product shipments | Plant to Warehouse | 382 |
| | Distribution warehouse | 926 |
| | Warehouse to Wholesaler | 2,328 |
| Waste shipments | 148 | |
| Product use (aerosol used in inhaled asthma medications) | 7,127 (CO ₂ equivalent) | |
| Total | 23,186 | |

* Scope 3: Indirect GHG emissions by companies resulting from supply chain activities (manufacturing, shipping, business trips, commuting, etc.)

Overseas

INPUT

| | | |
|--------|-------------------------------|-------------------------------|
| Energy | Electricity | 49,027 MWh |
| | City gas | 5,052 thousand m ³ |
| | LPG | 3 tons |
| | Diesel oil | 183 kiloliter |
| | Gasoline | 13 kiloliter |
| | Purchased heat energy (steam) | 19,748 GJ |
| | Resources | Water |



OUTPUT

| | | |
|-----------------|---------------------------|----------------------|
| GHGs | | 40 thousand tons |
| Pollutants | SOx | 0.1 tons |
| | NOx | 12 tons |
| | VOC | 9 tons |
| | BOD | 17 tons |
| | Water discharge | Drainage into rivers |
| Waste materials | Volume of waste generated | 3,132 tons |
| | Recycled volume | 2,408 tons |

SOx : sulfur oxides

NOx : nitrogen oxides

VOC : volatile organic compounds

BOD : the biochemical oxygen demand

6. Measures to Address Global Warming

Global warming is an environmental problem that threatens the very survival of the human race. Lessening and neutralizing the threat of global warming requires active involvement on all levels, including by national governments, local governments, corporations and citizens. Astellas recognizes that proactive efforts to prevent global warming provide a key element in the Company fulfilling its corporate social responsibility. At the same time, we understand that the dependence on fossil fuels, which are a major cause of global warming, places considerable constraints on the ongoing activities of a company from the perspectives of cost and procurement. In this context, we have positioned global warming countermeasures as an important management issue.

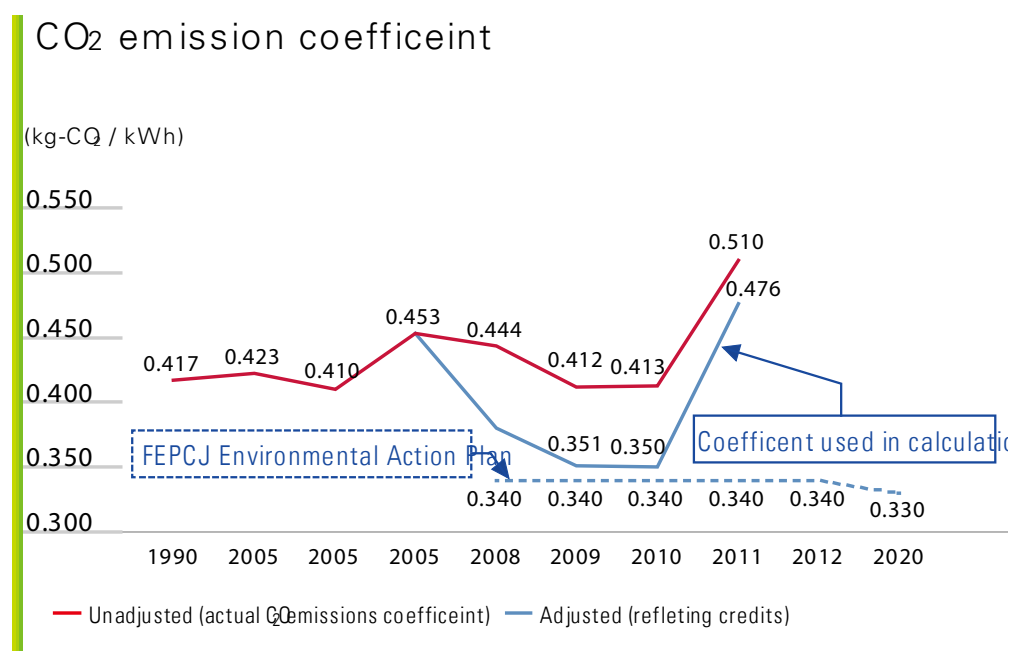
Fixing the problem of global warming will require a prolonged, sustained effort, and for this reason, international society has agreed that industrialized countries should target a reduction in GHGs of at least 80% compared with current levels by the year 2050. As a stepping stone toward achieving this target, Astellas has set medium-term targets in its Environmental Action Plan. Under the plan, existing facilities are to reduce CO₂ emissions generated through energy consumption by 1% or more compared with the previous fiscal year and to achieve a reduction of five kilotons of GHGs on a fiscal year basis through strategic investments.

(About the CO₂ emissions coefficient and electricity consumption)

CO₂ emission intensity (CO₂ emissions per unit of end-use electricity) identified by the Federation of Electric Power Companies of Japan (FEPCJ) is used in electricity consumption CO₂ emission calculations. Electric power companies have set the goal of reducing CO₂ emission intensity to an average of around 0.34kg-CO₂/kWh between fiscal 2008 and fiscal 2012 while striving to reach the target of around 0.33kg-CO₂/kWh in fiscal 2020. However, CO₂ emission intensity in fiscal 2011 escalated by 0.126kg-CO₂/kWh compared with the previous fiscal year. This was largely attributable to the increase in thermal power generation due to the prolonged suspension of operations at nuclear power plants as a result of the Great East Japan Earthquake.

In setting its own numerical targets, Astellas is taking into consideration the plans of electric power companies. While trends in CO₂ emission coefficients results remain shrouded in uncertainty, substantial discrepancies are expected compared with conditions at the time the Company sets its numerical targets. As a result, the use of existing calculation methods may fail to adequately portray our earnest efforts and global warming countermeasures.

With this in mind, and in addition to numerical data based on existing calculation methods, figures are presented on the assumption that there was no improvement or deterioration in CO₂ emission intensity from fiscal 2010.



Source: Environmental Action Plan by the Japanese Electric Utility Industry (2008-2012 Edition) issued by the Federation of Electric Power Companies of Japan.

6.1. Reducing GHG Emissions

Environmental Action Plan (Measures to Address Global Warming)

- Reduce GHG emissions by 35% or more from fiscal 2005 levels by the end of fiscal 2020 (Global)
- Reduce GHG emissions in Japan by 30% or more from fiscal 2005 levels by the end of fiscal 2020
- Reduce GHG emissions at overseas production facilities by 45 % or more from fiscal 2005 levels by the end of fiscal 2020

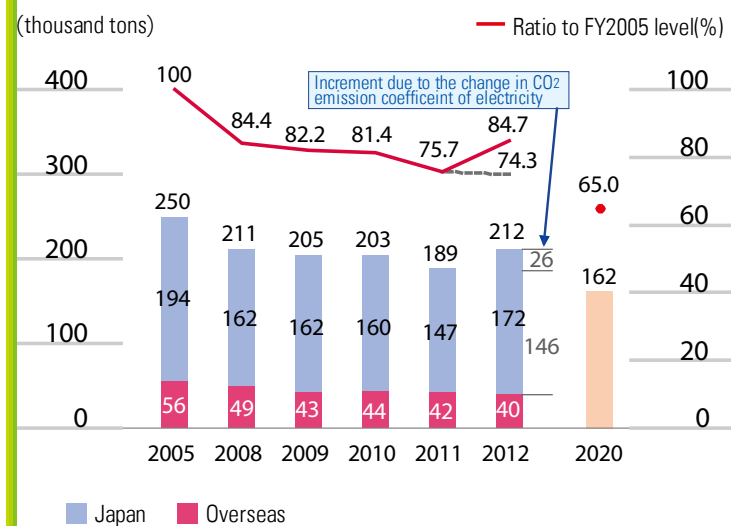
In fiscal 2012, the Astellas group's CO₂ emissions decreased 38 kilotons, or 15.3%, on a global basis compared with the base year, on a year-on-year basis, however, this represented a 22 kiloton, or 9.0 percentage points, deterioration. Despite the drop overseas, this result was largely attributable to the increase in CO₂ emissions in Japan. As a ratio of the total, CO₂ emissions in Japan climbed from 77.6% in the previous fiscal year to 81.3% in fiscal 2012. Based on this result, the need to take appropriate countermeasures in Japan is becoming increasingly important.

CO₂ emissions in Japan declined 22 kilotons, or 11.1%, compared with the base year. This was, however, a deterioration of 25 kilotons, or 13.1 percentage points, compared with the previous fiscal year. While direct emissions (scope 1)^{*1} from facilities were essentially unchanged year on year, indirect emissions (scope 2)^{*2} increased due to the substantial deterioration in the fiscal 2011 electricity CO₂ emissions coefficient.

If we recalculate on the assumption that there was no year-on-year change in the electricity CO₂ emissions coefficient, CO₂ emissions declined 47 kilotons, or 24.5%, compared with the base year. This was a one kiloton, or 0.3 of a percentage point, improvement compared with the previous fiscal year. Further analysis indicates that the increase attributable to the resumption of full-fledged operations at the Takahagi Facilities, which had been damaged as a result of the Great East Japan Earthquake, was offset by the effects of fuel conversion at the Takahagi Facilities and the Nishine Plant implemented during the previous fiscal year, the upgrade and replacement of facility equipment as a global warming countermeasure, widespread acceptance of energy conservation measures, and other factors.

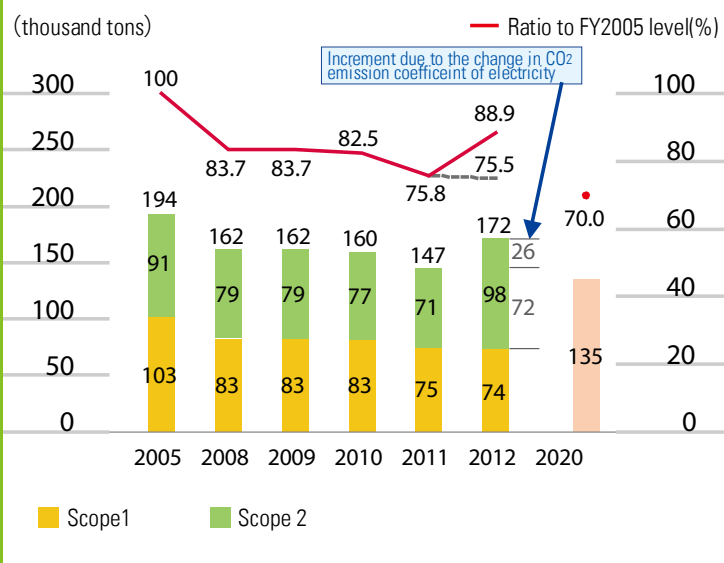
CO₂ emissions at overseas plants decreased 17 kilotons, or 29.6%, compared with the base year. This was a three kiloton, or 5.0 percentage points, improvement compared with the previous fiscal year. Scope 1 emissions declined approximately two kilotons due to the startup of a woodchip boiler introduced at the Kerry Plant. This plant also employs a wind power generation system. While these facilities contributed to a reduction of 824 tons, any benefits were effectively eliminated due to the year-on-year upswing in scope 2 emissions reflecting the increase in purchased electricity at other plants.

GHG Emissions (Global)

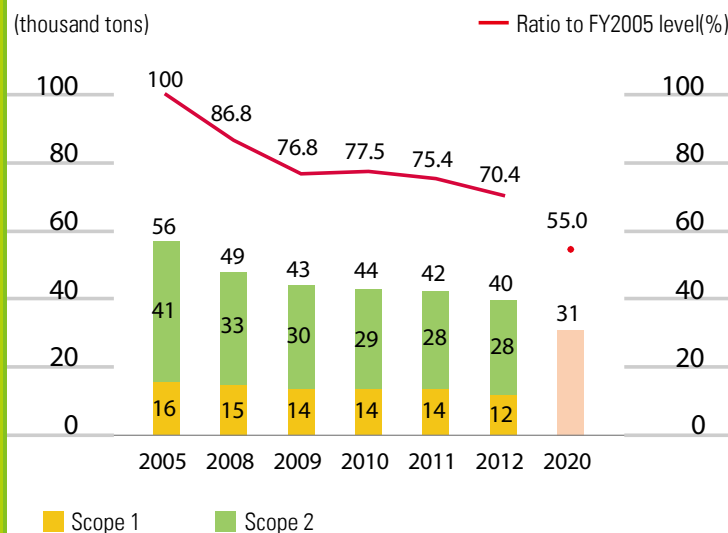


*1 GHG emitted directly from group facilities as a result of the combustion of fuels
*2 GHG emitted from electricity and heat supplied from external sources

GHG Emissions (Japan)



GHG Emissions (Overseas)



In fiscal 2013, new facilities are expected to come online during the period. With expectations of a reduction, we anticipate that CO₂ emissions will stay at the same level as fiscal 2012.

Astellas' Environmental Action Plan global warming countermeasures cover all facilities in Japan including branches, sales office, and training centers as well as six overseas production bases. Drawing on energy data for all other overseas bases for fiscal 2012, the data coverage ratio of the Environmental Action Plan currently stand at around 90%. Moving forward, we will consider extending the coverage of the Environmental Action Plan to overseas regional headquarters and research bases.

Breakdown of GHG Emission

GHG Emissions (Global)

Unit: kilotons-CO₂

| Fiscal year | Total emissions | Scope 1 (Direct emissions) | | | Scope 2 (Indirect emissions) | |
|-------------|-----------------|----------------------------|------------------------|---|------------------------------|---|
| | | Direct emissions | Breakdown | | Indirect emissions | Of which, from use of renewable sources |
| | | From energy consumption | From other GHG sources | | | |
| 2005 | 250 | 118 | 111 | 7 | 132 | — |
| 2008 | 211 | 99 | 95 | 4 | 112 | — |
| 2009 | 205 | 96 | 92 | 4 | 109 | — |
| 2010 | 203 | 97 | 94 | 3 | 106 | — |
| 2011 | 189 | 89 | 89 | 0 | 100 | 12 |
| 2012 | 212 | 86 | 86 | — | 126 | 10 |

GHG Emissions (Japan)

Unit: kilotons-CO₂

| Fiscal year | Total emissions | Scope 1 (Direct emissions) | | | Scope 2 (Indirect emissions) | |
|-------------|-----------------|----------------------------|------------------------|---|------------------------------|---|
| | | Direct emissions | Breakdown | | Indirect emissions | Of which, from use of renewable sources |
| | | From energy consumption | From other GHG sources | | | |
| 2005 | 194 | 103 | 95 | 7 | 91 | — |
| 2008 | 162 | 83 | 79 | 4 | 79 | — |
| 2009 | 162 | 83 | 79 | 4 | 79 | — |
| 2010 | 160 | 83 | 80 | 3 | 77 | — |
| 2011 | 147 | 75 | 75 | 0 | 71 | — |
| 2012 | 172 | 74 | 74 | — | 98 | — |

From other GHG sources: This refers to CO₂ derived from the burning of oil waste by incinerators at the Takaoka Plant and the Takahagi Facilities.

GHG Emissions (Overseas)

Unit: kilotons-CO₂

| Fiscal year | Total emissions | Scope 1 (Direct emissions) | | | Scope 2 (Indirect emissions) | |
|-------------|-----------------|----------------------------|------------------------|---|------------------------------|---|
| | | Direct emissions | Breakdown | | Indirect emissions | Of which, from use of renewable sources |
| | | From energy consumption | From other GHG sources | | | |
| 2005 | 56 | 16 | 16 | — | 41 | — |
| 2008 | 49 | 15 | 15 | — | 33 | — |
| 2009 | 43 | 14 | 14 | — | 30 | — |
| 2010 | 44 | 14 | 14 | — | 29 | — |
| 2011 | 42 | 14 | 14 | — | 28 | 12 |
| 2012 | 40 | 12 | 12 | — | 28 | 10 |

Scope 2 (Of which, from use of renewable sources): Emissions from the use of renewable sources refers to electricity generated by wind turbines purchased by the Norman Plant.

6.2. Energy Consumption

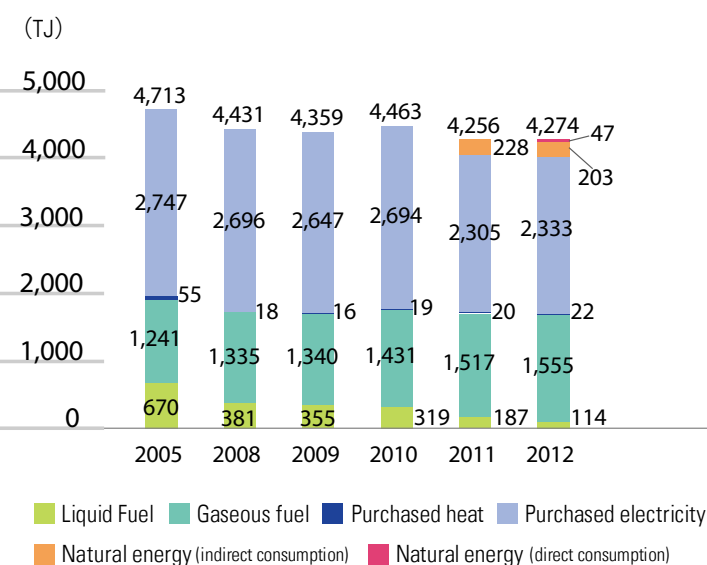
In fiscal 2012, the Astellas group used 4,274 terajoule (TJ) of energy on a global basis, up 0.4% compared with the previous fiscal year. In Japan, energy used amounted to 3,484 TJ, a year-on-year increase of 0.5%, and overseas use totaled 790 TJ, about the same as the previous fiscal year.

The use of fuel oil at production and research bases was eliminated during fiscal 2011 in Japan. As a consequence, liquid fuels including fuel oil and diesel oil declined and gas fuels such as liquid natural gas (LNG) at Takahagi Facilities and Nishine Plant as well as city gas using cogeneration systems at the Tsukuba Research Center increased. While essentially the same as the previous fiscal year, the level of purchased electricity compared with fiscal 2010, before there was any impact from the Great East Japan Earthquake, was down 6.0%.

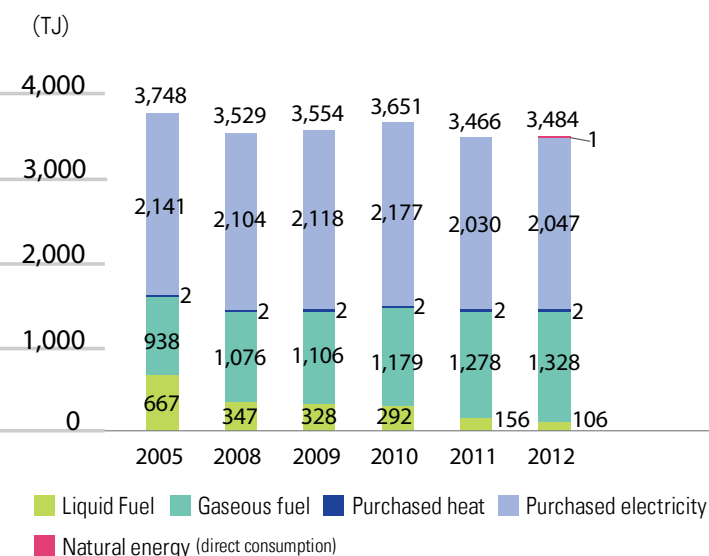
The power generated by photovoltaic panels installed at the Tsukuba Research Center and Kashima R&D Center amounted to 88 MWh (877 GJ). The entire volume was used for facility activities. In addition, power generation through cogeneration systems came to 6,182 MWh.

Overseas, 32 TJ of heating value was used by the woodchip boiler at the Kerry Plant. This reduced the plant's dependence on the previously used diesel oil, therefore resulting in a decline in liquid fuels. The Kerry Plant also employs wind power generation which provides a capacity of 1,416 MWh (14 TJ). This has helped to reduce the volume of purchased electricity. The Norman Plant undertakes the purchase of wind power generated electricity. Of the total amount of electricity purchased (20,852 MWh) in fiscal 2012, 20,410 MWh (203 TJ) was derived from wind farms. In fiscal 2013, energy consumption is projected to increase. This reflects the scheduled commencement of operations of several new facilities in Japan.

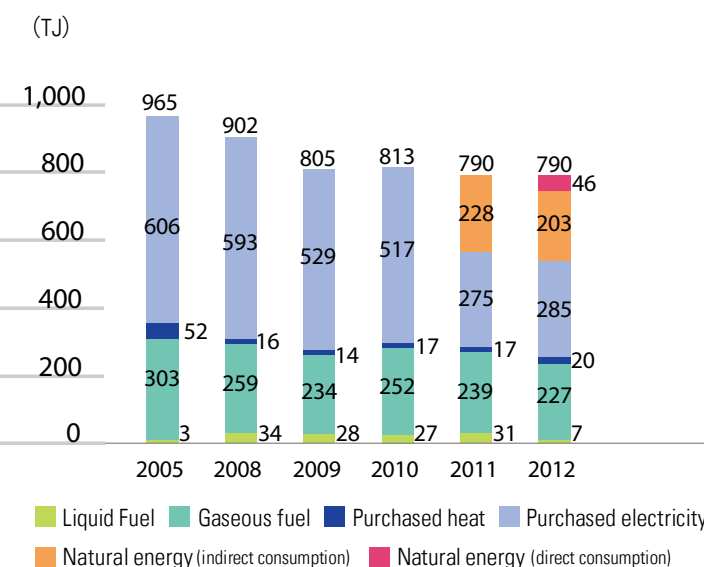
Energy consumption (Global)



Energy consumption (Japan)



Energy consumption (Overseas)



Consumption by Type of Energy (Global)

UNIT : TJ

| FY | Total | Liquid fuel | | Gaseous fuel | | Purchased Heat | Purchased Electricity | | Natural Energy | | | | |
|------|-------|-------------|------------|--------------|---------|----------------|-----------------------|------|----------------|------|-----------|-------|---|
| | | Fuel Oil | Diesel oil | City gas | LPG LNG | | Total | Wind | Total | Wind | Wood chip | Solar | |
| 2005 | 4,713 | 437 | 233 | 1,015 | 226 | 55 | 2,747 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2008 | 4,431 | 183 | 199 | 1,222 | 113 | 18 | 2,696 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2009 | 4,359 | 175 | 180 | 1,223 | 117 | 16 | 2,647 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2010 | 4,463 | 161 | 158 | 1,324 | 108 | 19 | 2,694 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2011 | 4,256 | 32 | 155 | 1,324 | 193 | 20 | 2,532 | 228 | 0 | 0 | 0 | 0 | 0 |
| 2012 | 4,274 | 2 | 112 | 1,315 | 240 | 22 | 2,536 | 203 | 47 | 14 | 32 | 1 | |

Note: The portion of purchased electricity derived from wind power is the electric power generated using wind power at the Norman Plant. Graph data corresponds to natural energy (indirect consumption).

6.3. Reduction of CO₂ Emissions from Sales Activities and Offices

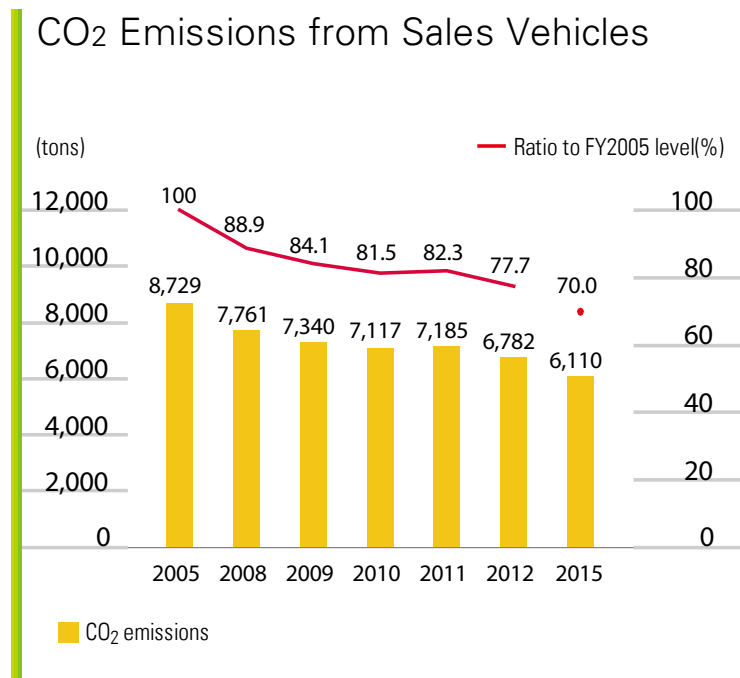
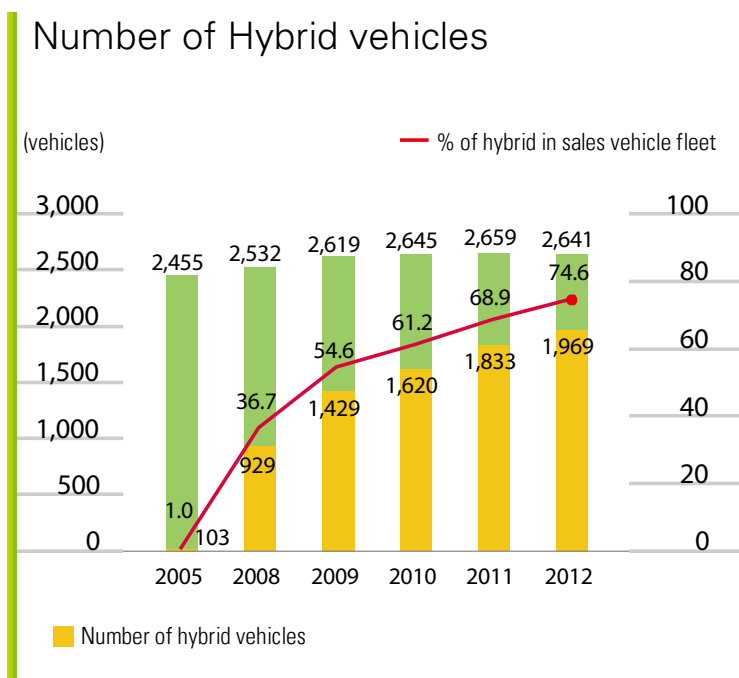
Environmental Action Plan (Measure to address global warming)

- Reduce carbon dioxide emissions generated through sales activities by 30% or more from fiscal 2005 levels by the end of fiscal 2015
- Reduce carbon dioxide emissions caused by office electricity consumption by 20% or more from 2005 levels by the end of fiscal 2015

In Japan, one issue is that the commercial and residential and transport sectors have increased their emissions of GHGs. In addition to the Action Plan for reducing GHGs, which covers all activities at Astellas, the Company has set individual numerical targets for its fleets of sales vehicles and offices in Japan to reduce CO₂ emissions.

At Astellas, we have been progressively changing our leased fleets to hybrid vehicles since fiscal 2008. As of the end of fiscal 2012, some 1,969 vehicles, or 74.6%, of our 2,641 fleets were hybrids, up 136 compared with the previous fiscal year. In the fiscal year under review, CO₂ emission from gasoline used in our fleets amounted to 6,782 tons. This was a 77.7% decrease compared with 2005 and 403 tons, or 4.6 percentage points, lower than the previous fiscal year. To reach our target, we need to reduce CO₂ emissions by a further 7.7%. We believe this will be achievable by continuing the conversion to hybrids in line with our plan.

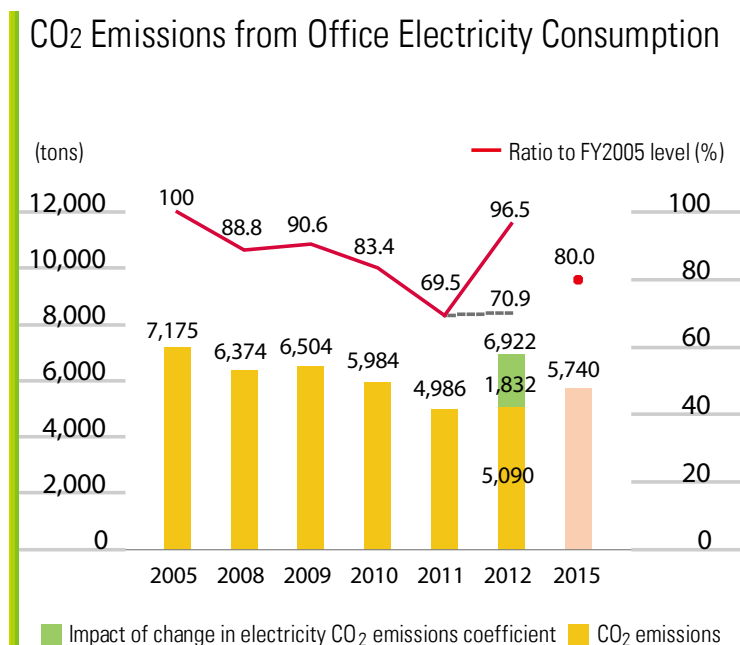
Astellas has not fully grasped the status of fleets used for sales overseas. In the U.S., the Group uses 1,209 vehicles, with CO₂ emissions totaling 12,000 tons. While conditions will vary markedly from country to country and region to region, the amount of CO₂ emissions globally is believed to be several times higher than Japan. As a result, we recognize that we should take steps to ascertain the status of fleets used by major sales bases with plans to consider measures aimed at reducing environmental load.



Total electricity consumption by the Group's offices, which included Astellas' headquarters and approximately 160 sales offices throughout Japan, amounted to 14,542 MWh. This represents a 23.1% reduction compared with fiscal 2005 and a 6.1 percentage points decrease compared with the previous fiscal year. In addition to the widespread acceptance of energy conservation from the previous fiscal year, the decline in electricity consumption is largely attributable to the upgrade and replacement of air conditioning units at a data server center.

CO₂ emissions due to electricity consumption amounted to 6,922 tons as a result of the deterioration in electricity CO₂ emissions coefficient. This was a 3.5% reduction compared with fiscal 2005 and a downturn of 27.0 percentage points compared with the previous fiscal year. If we recalculate on the assumption that there was no year-on-year change in the electricity CO₂ emissions coefficient, CO₂ emissions would come in at 5,090 tons, or 70.9%, compared with the base year allowing us to again achieve numerical targets.

Astellas has yet to achieve its numerical reduction target for CO₂ emissions attributable to office electricity consumption. While future trends in electricity CO₂ emissions coefficient remain uncertain, electricity consumption has already fallen 20% or more compared with fiscal 2005. Taking into consideration the aforementioned factors, we have amended the numerical target for CO₂ emission reduction. Moving forward, we will continue to promote reductions with the aim of containing electricity consumption to less than 20% compared with fiscal 2005 from fiscal 2013.



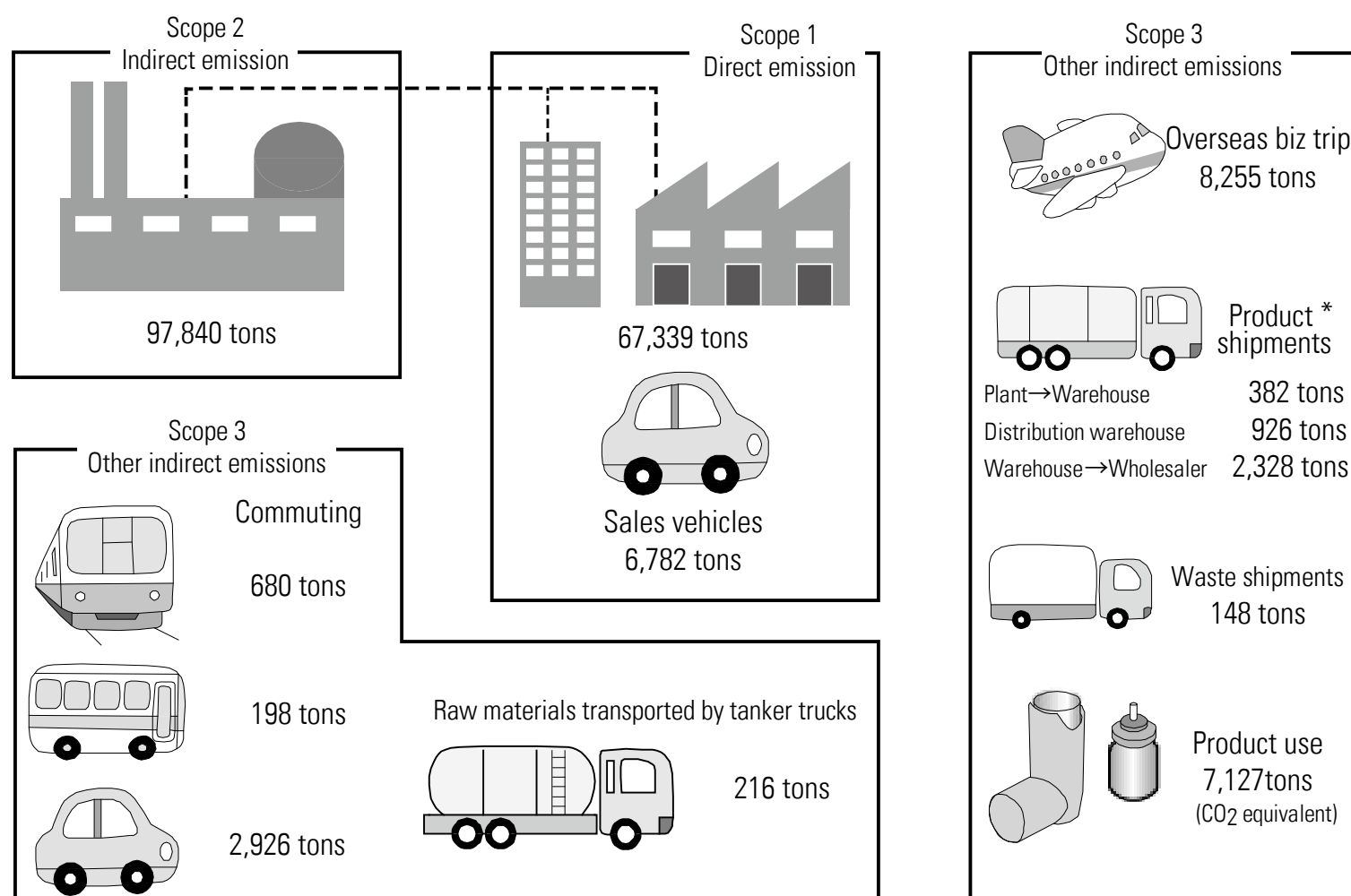
6.4. GHG Emissions Resulting from Supply Chain Activities

The Environmental Action Plan contains targets that have been set to address the issue of global warming. It focuses on GHG emissions generated by the Group's facilities and CO₂ emissions from energy sources through the use of electricity and heat supplied from outside sources.

In addition to knowing and publicizing their own GHG emissions, in recent years there has been more and more emphasis on emissions produced along the entire supply chain - including raw materials procurement, product distribution, employee commuting and business trips, and waste treatment. Following this trend, standards are being reviewed and reformulated to reflect this broader scope, including the Greenhouse Gas Protocol, ISO standards, and guidance issued by Japan's Ministry of the Environment.

Recognizing these social implications, we included some supply chain GHG emissions for the first time when ascertaining our environmental performance in fiscal 2011. Specifically, we included transportation use for employees commuting to and from work and overseas business trips, as well as shipments of products and waste. In fiscal 2012, steps were taken to ascertain the level of GHG emissions from the transportation of various solvents by tanker trucks for use as raw materials at new production bases.

In the future, plans are in place to consider efforts to ascertain the level of GHG emissions across the supply chain at overseas bases.



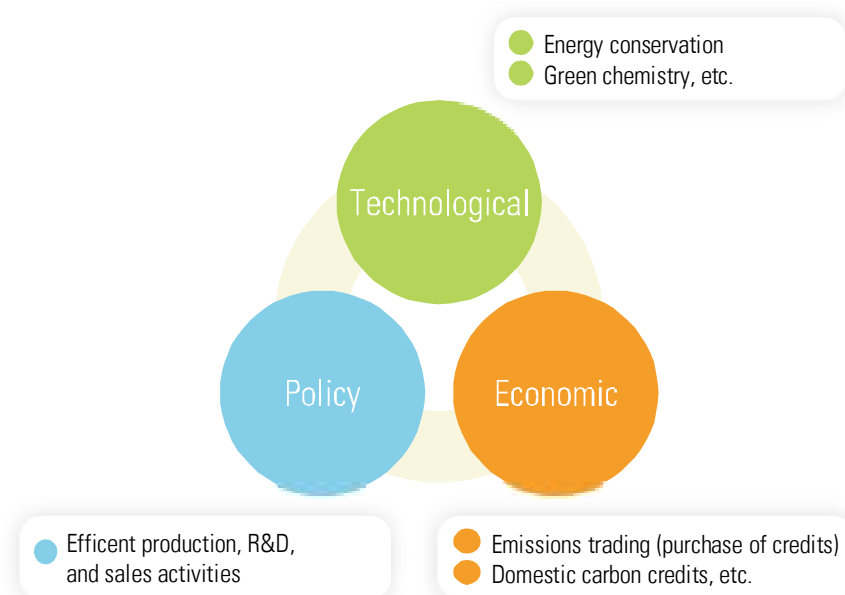
* Product shipments are handled by outside contractors

| Category | Assumptions used to estimate CO ₂ emissions | Fiscal 2012 | |
|--|--|-----------------------------------|-------|
| Commuting | Railway | 28,799 | |
| | Bus | 2,367 | |
| | Private vehicle | 11,465 | |
| Overseas business trips | Travel distance (thousand passenger-km) | 33,771 | |
| Raw materials transported by tanker trucks | Fuel consumption (kiloliter) | 83 | |
| Product shipments | Plant → Warehouse | Fuel consumption (kiloliter) | 146 |
| | Distribution warehouse | Energy consumption (thousand kWh) | 1,946 |
| | Warehouse → Wholesaler | Fuel consumption (kiloliter) | 902 |
| Waste shipments | Shipment weight x distance (ton-km) | 677,158 | |
| GHG emissions attributable to product use | Shipments (Tons – CO ₂ equivalent) | 7,127 | |

6.5. Global Warming Prevention Framework and Initiatives

Astellas believes that it will not be possible to achieve the level of GHG emission reductions demanded of private enterprises by simply continuing with existing energy conservation measures implemented independently by each facility. Consequently, in fiscal 2009, Astellas established the Global Warming Prevention Committee as a special task force under the CSR Committee, which is chaired by a member of top management.

Astellas is pursuing measures to achieve medium to long-term numerical targets set in accordance with group-wide strategy formulated by the Global Warming Prevention Committee. In addition to considering technological means to lower energy consumption, the Committee is also tasked with examining policy measures, such as efficient production and research systems, and utilizing economic measures, including emissions trading and a carbon credit system.



Measures for preventing global warming are a key management priority under the new Mid-Term Management Plan that covers the period through the end of fiscal 2014. The Global Warming Prevention Committee is responsible for formulating medium to long-term action plans and investment plans for the entire Astellas group, and advancing strategic measures driven by Astellas' Tokyo headquarters. In fiscal 2012, Astellas invested a total of approximately ¥0.1 billion in initiatives instigated by the Global Warming Prevention Committee over and above the amount spent on energy-saving activities by group facilities. As a result, the Group expects to reduce the amount of GHGs it generates by 914 tons. In addition, the decision to invest approximately ¥0.6 billion in fiscal 2013 is expected to lower GHG emission by around 2,000 tons.

Investment Plan for Preventing Global Warming

| Investments | Fiscal 2012 | | Fiscal 2013 | |
|---|-------------------------------|---|--|---|
| | Investment Amount (¥ million) | Reduction (Projection) (tons of CO ₂) | Amount of fixed investment (¥ million) | Reduction (projection) (tons of CO ₂) |
| Introduction of advanced technologies, including heat pumps | 13 | 65 | 51 | 2 |
| Use of renewable energy | - | - | 75 | 131 |
| Introduction of energy monitoring systems | - | - | 18 | - |
| Investment in improved operational efficiency | 120 | 849 | 479 | 1,951 |
| Economic measures including offset credit verification | - | - | 10 | - |
| Total | 133 | 914 | 633 | 2,084 |

6.6. Our Efforts to Reduce GHG Emissions

Astellas' manufacturing plants, research centers, and offices are implementing a variety of initiatives with the aim of reducing GHG emissions. 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 CO₂ emissions generated by energy sources. Measures as part of everyday activities and energy-saving activities by all employees are also important. To this end, each facility adopts a two-pronged approach, comprising measures for improving equipment and undertaking routine energy-saving activities.

Fuel Conversion

The amount of CO₂ generated in order to obtain the same level of heating value reached by steam boilers and other equipment varies depending on whether fuel oil, city gas, or LPG is used as the energy source. Therefore, switching to a fuel that generates less CO₂ helps prevent global warming.

Because fuel oil and kerosene generally produce more CO₂ than city gas, Astellas has been actively converting its steam boilers so that they run on city gas instead of fuel oil and kerosene. This conversion of steam boilers at research and production bases was completed by fiscal 2011.

Installation of Heat Pump Devices

Astellas has actively introduced heat pump technology that makes effective use of heat in the air when upgrading existing air conditioning in equipment or installing new equipment. In fiscal 2011, Astellas began using heat pumps at the Takahagi Facilities and the Tsukuba Biotechnology Research Center upon the completion of a heat pump conversion program at these facilities.

Going forward, we will pursue the introduction of heat pump technology after securing a stable supply of electricity.

Introduction of an Energy Monitoring System

Knowing exactly how much energy we use does not directly lead to lower energy consumption. However, the ability to confirm the status of energy usage can assist the elimination of wasteful practices and the formulation of new strategies.

For these reasons, we have instituted a program to introduce energy monitoring systems at our facilities.

Using Renewable Energy

The direct use of renewable energy sources, such as solar and wind energy, is the most effective method of addressing the issue of global warming. Accordingly, Astellas hopes to actively introduce renewable energy technology where feasible.

The Group's Kerry Plant in Ireland brought online a wind turbine power generation station with a maximum output of 800 kW and a wood chip biomass boiler system with a maximum output of 1.8 MW from March 2012. In fiscal 2012, the full amount of 1,416 MWh produced by the wind turbine power generation station was used to power the facility. In addition, the wood chip biomass boiler also used 32,246 GJ of heat. Through these means, the total amount of CO₂ emission reduction came to 3,031 tons.

In Japan, the Tsukuba Research Center and Kashima R&D Center have installed photovoltaic generation systems. In fiscal 2012, the full amount of 88 MWh generated was used to power each facility. Thanks to these initiatives, the amount of CO₂ emission reduction came to 42 tons.

The Norman Plant in the United States purchases electricity generated by wind turbine power generation farms in Oklahoma. In fiscal 2012, electricity generated by wind turbines accounted for 20,410 MWh of the plant's overall electricity purchased, which totaled 20,852 MWh.

7. Sustainable Biodiversity Initiatives

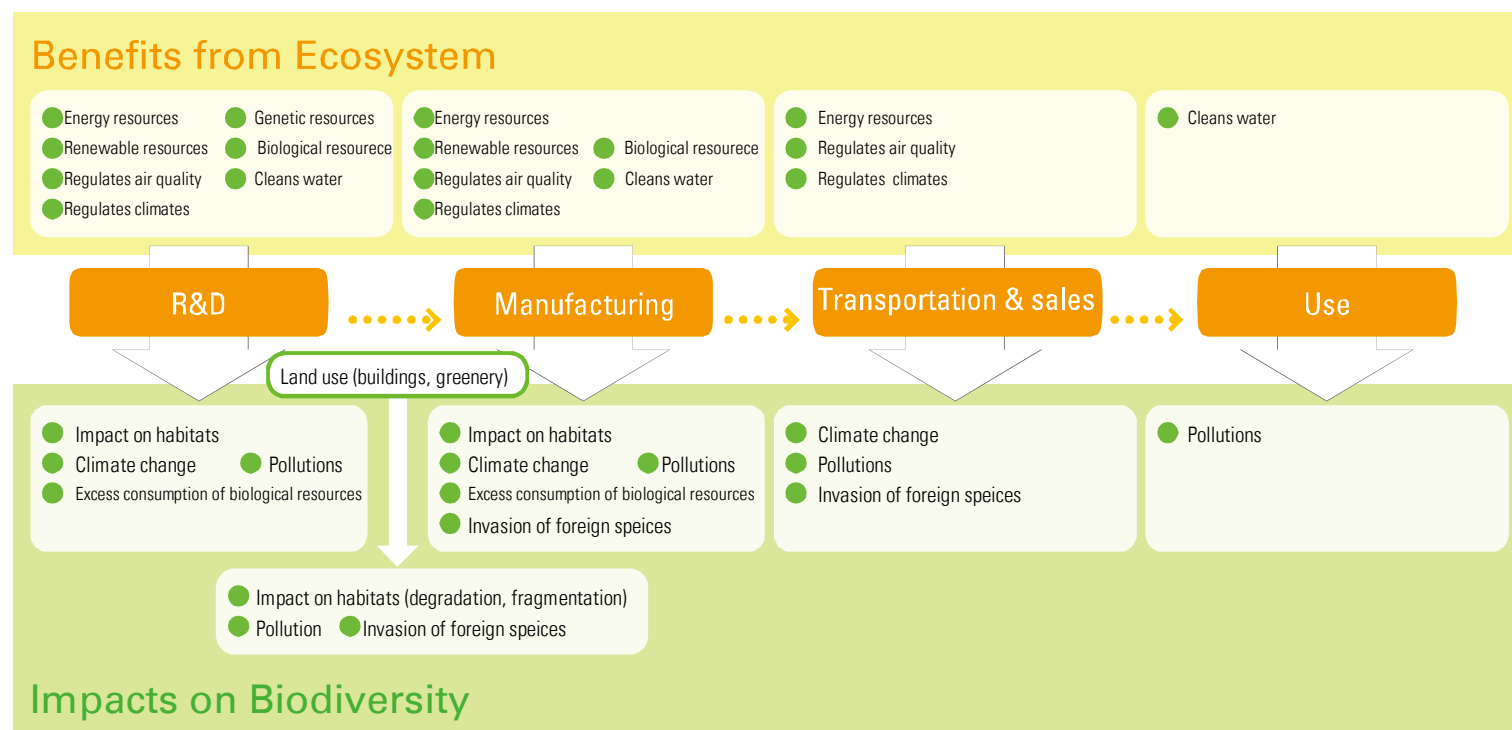
Global warming and the loss of biodiversity are two of the most serious environmental problems that humankind must address in order to ensure its survival. Countries around the world agreed to address these two issues in 1992 at the Earth Summit held in Rio de Janeiro in Brazil, where they adopted the United Nations Framework Convention on Climate Change and the Convention on Biological Diversity. In the ensuing period, international discussions on each issue have been vigorous and lively.

Many countries have responded to this movement by drawing up national strategies on biodiversity. Moreover, society is increasingly demanding that companies make greater efforts to preserve biodiversity.

7.1. Basic Policy on Biodiversity

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.

- ◆ We will endeavor to lessen our overall environmental impact on biodiversity by working to prevent global warming, minimize 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 ecosystems.



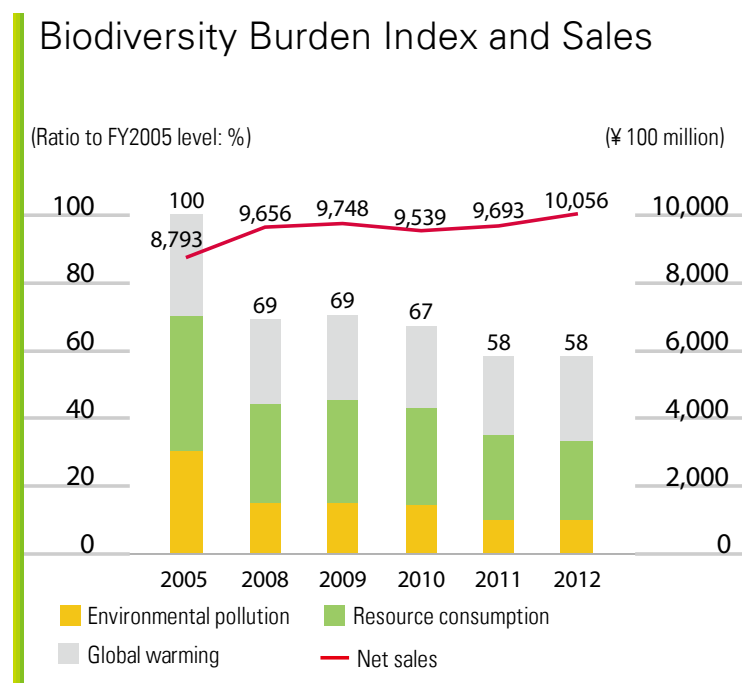
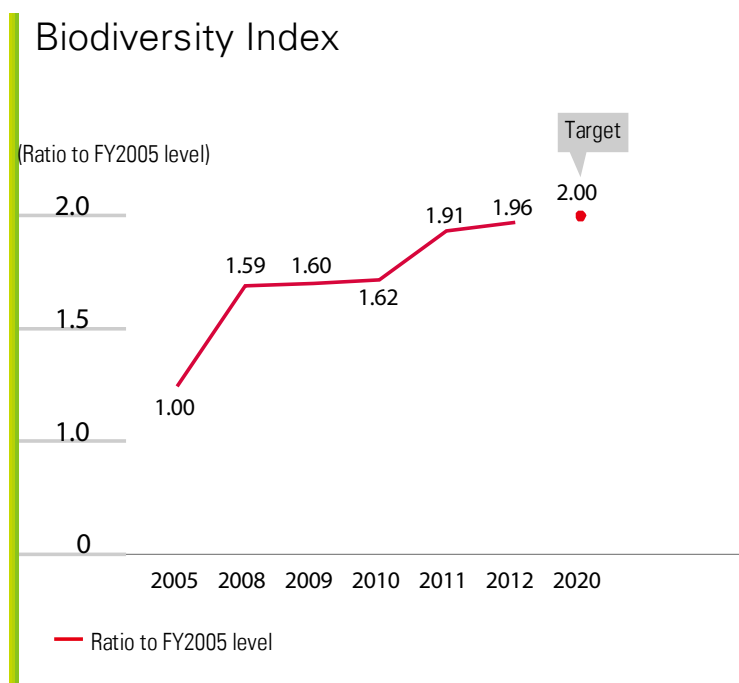
7.2. Biodiversity Index

The government's National Biodiversity Strategy of Japan 2010 identified the challenges the country faces due to four crises affecting biodiversity. They are (1) species and habitat degeneration due to excessive human activities and development; (2) degradation of *satochi-satoyama* natural rural areas due to insufficient management; (3) ecosystem disturbances caused by the introduction of alien species by human activity and chemical contamination; and (4) global warming.

We believe that it is difficult for Astellas to participate directly in the prevention of *satochi-satoyama* degradation in the course of its business activities. Accordingly, we have excluded this crisis from the scope of our biodiversity strategy. We have created an index by reclassifying the main factors responsible for the other three crises into the categories of environmental pollution, resource consumption, and global warming.

We have established a biodiversity index target to be achieved by fiscal 2020 that is double the value of the base year of fiscal 2005. We use the index to quantify improvements that reduce our impact on biodiversity and the progress made on related initiatives.

The biodiversity index for fiscal 2012 came in at 1.96 times the figure recorded in fiscal 2005. This was an improvement of 0.05 points compared with the previous year. The amount of CO₂ emission through electricity consumption increased due to the upswing in net sales and successful reduction of the environmental load across other categories. In fiscal 2013, energy and water consumption is projected to rise owing mainly to a new facility that is scheduled to come online. Given this circumstance, we will continue making improvements in each category of the index in order to achieve the targets established for fiscal 2020.



(Biodiversity Index Calculation Method)

The environmental load 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 sales 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.

$$\text{Biodiversity Index} = \frac{\text{Consolidated sales in assessment fiscal year}}{\sum \left[\frac{\text{Burden in assessment fiscal year}}{\text{Burden in the base year}} \times \text{Weight} \right]}$$

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

7.3. Sustainable Biodiversity Initiatives through Social Contribution Activities

Turning to the principal factors responsible for the deterioration of biodiversity, Astellas recognizes the difficulty in participating directly in the prevention of *satochi-satoyama* natural rural area degradation due to insufficient management in the course of its ongoing business activities. Despite this difficulty, we are keen to pursue initiatives through our social contribution activities in cooperation with external and other organizations.

To date, members of the Group's Fuji Plant have participated in the planting of beech trees at the foot of Mount Fuji, an event organized by Fuji City. While continuing to participate in this project, other members of the Group helped plant approximately 600 seedlings at Mount Tsukuba in fiscal 2012.

The Tsukuba Research Center, which serves as the core drug discovery research for Astellas Pharma Inc., is located in Tsukuba City. The Mount Tsukuba area holds a place of significant importance in the research of the immunosuppressant Prograf. Conscious of the degradation that is taking place in the forests surrounding Mount Tsukuba, the Mount Tsukuba Shrine and several organization have banded together to engage in tree-planting activities as a part of efforts to regenerate the forest area. Astellas Pharma is a supporter of this initiative and participated in recent activities. Of the 600 seedlings planted, 90 came from acorns gathered from the Tsukuba Research Center site.



8. Resource Recycling Initiatives

Resolving the serious global issues of climate change and biodiversity requires changing the existing style of economic development. Namely, the whole of society must pursue a sustainable society and economy while reducing the volume of resources it consumes.

Astellas recognizes that since the use of sustainable resources is essential for continuing its business activities, it must play an active role toward the creation of a recycling-oriented society. Astellas is 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.

8.1. Effective Use of Water Resources

Environmental Action Plan (Measures for the Conservation of Resources)

- Reduce water consumption by 20% or more compared with fiscal 2005 levels by the end of fiscal 2015 (Global)

Since the effective use of water resources serves as a useful indicator for gauging society's impact on biodiversity, Astellas has set numerical targets for reducing water usage.

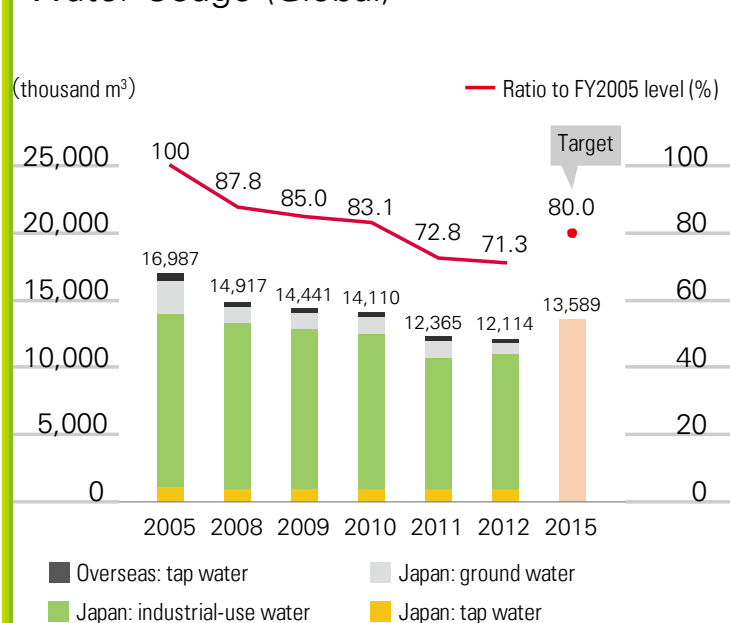
In fiscal 2012, the Astellas group used 12,114 thousand m³ of water on a global basis, down 1.5 percentage points, or 251 thousand m³ from the previous year, and down 28.7%, or 4,873 thousand m³, from fiscal 2005, the base year of the Environmental Action Plan.

Activities in Japan account for 97.3% of the Group's water usage, of which 85.1% is industrial-use water. As a result, the vast majority of water consumed by the company is drawn from local waterways.

While the numerical target for water consumption reduction was achieved in the previous fiscal year, Astellas was unable to ignore the temporary effect of the Great East Japan Earthquake. As a result, efforts were made to reduce water usage while retaining the same numerical target for fiscal 2012. Taking the aforementioned into consideration and thanks to other factors including successful efforts to cutback contract volumes of industrial-use water at the Takaoka Plant, we also achieved the numerical target in fiscal 2012. In fiscal 2013, several new facilities are scheduled to come online in Japan. We believe that this commencement of operations will not materially impact the volume of water usage and remain confident in our ability to continue the current reductions.

Based on the assumption that the numerical target has been achieved, we have decided to put in place the plan to maintain our current status from fiscal 2013.

Water Usage (Global)



8.2. Waste Management

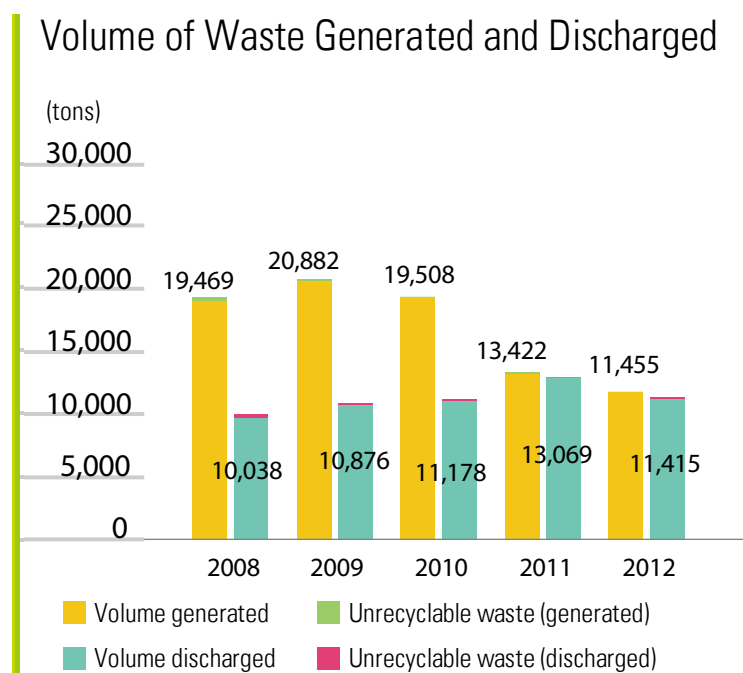
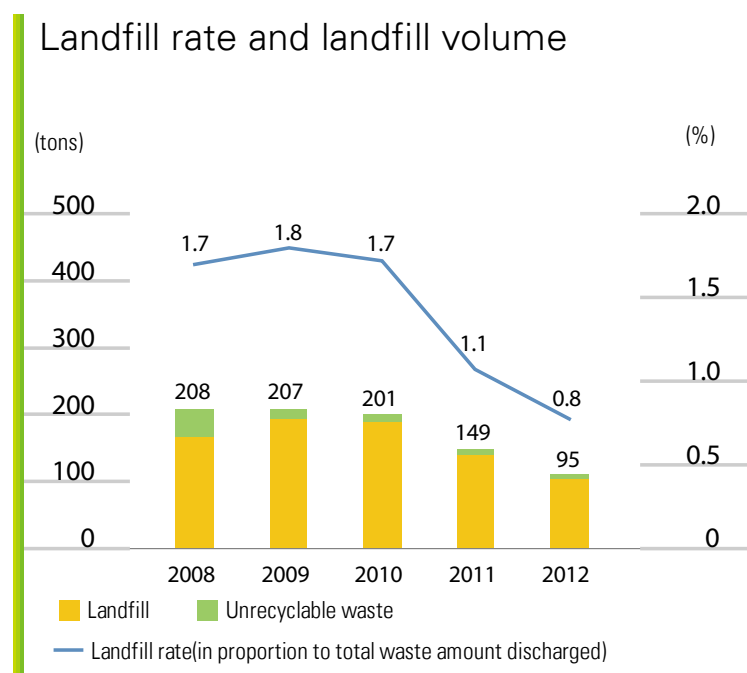
Environmental Action Plan (Waste Management)

Reduce the final volume of waste for disposal to less than 2% of the total discharged.

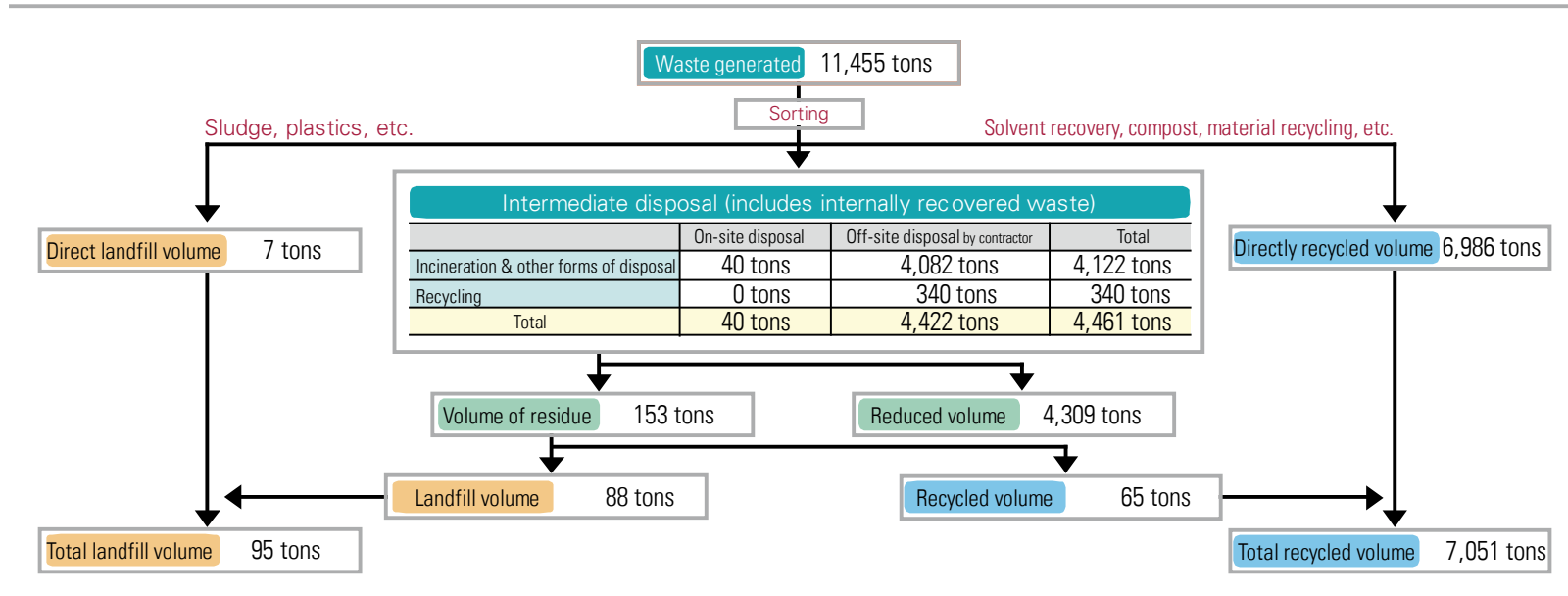
Astellas believes that efforts to reduce waste landfill volume to as close to zero as possible will encourage the recycling and reuse of waste materials. To realize this goal, we set targets for the zero emission ^{*)} of waste at our business facilities in Japan. In waste management, it is also important to prevent the illegal disposal of waste and environmental pollution caused by hazardous waste generated by research centers and plants. To prevent this from happening, we first examine appropriate methods of waste disposal, and check regularly that the waste disposers selected use appropriate waste disposal methods.

In fiscal 2012, the volume of landfill waste amounted to 0.8% of total waste generated, and 0.8% of total waste discharged. On this basis, we have continued to achieve zero waste emissions since fiscal 2008.

^{*)} Our zero emissions do not include animal carcasses that cannot be readily recycled, and other waste that is difficult to recycle, such as pharmaceutical waste from our distribution centers.



Waste Processing Flow Chart



8.3. State of PCB-contaminated Waste Storage

In fiscal 2012, treatment was completed for a total of 42 capacitors, containing high concentrations of PCB, stored at our Yaizu Facilities, Fuji Plant, and Hasune Office. Meanwhile, two capacitors, containing low concentrations of PCB, 23 fluorescent lamp ballasts, and 62 kg of PCB incrustation were newly stored as a result of the dismantling of facilities and other factors. Looking ahead, we properly store and manage fluorescent lamp ballasts and low-concentration PCB-contaminated waste until the treatment scheme is available with further development of treatment techniques.

| Status | Category | Number/Volume |
|--------|---------------------------|---------------|
| Stored | High-voltage transformers | 28 units |
| | Capacitors | 188 units |
| | Electric current breakers | 1 unit |
| | Fluorescent lamp ballasts | 7,408 units |
| | PCB-containing oil | 16 liters |
| | PCB incrustation | 85 kg |

9. Pollution Prevention Initiatives

Among environmental initiatives, the prevention of environmental pollution in local communities is just as important as global environmental issues. The system for managing typical pollution problems in Japan has begun to fail, as illustrated by an increase in accidents involving water contamination in the past few years. Consequently, relevant laws and regulations have become increasingly severe, including the strengthening of measures to prevent the escalation of harm in the event of an accident.

Meanwhile, the international community has reached an agreement on minimizing the adverse effects that the production and use of chemical substances have on human health and the environment by the year 2020. Each country is, therefore, implementing its own initiatives on the control of chemical substances.

Astellas sets its own levels—which are stricter than legal standards and pollution control agreements—for the major environmental management indicators used to measure air quality and water quality. In addition to reducing the discharge of contaminants, we also set voluntary targets for lowering the discharge of chemical substances into the atmosphere.

9.1. Air Pollution

Environmental Action Plan (Management of Chemical Substances)

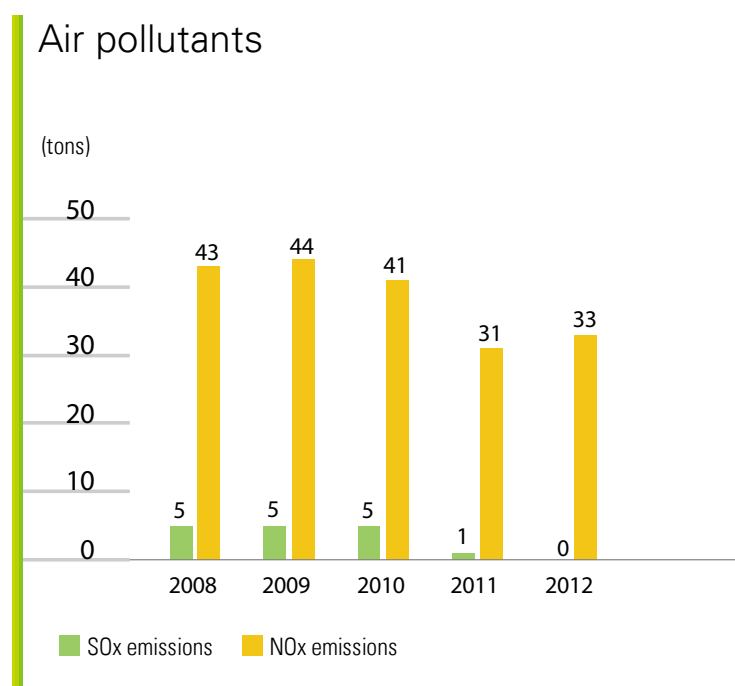
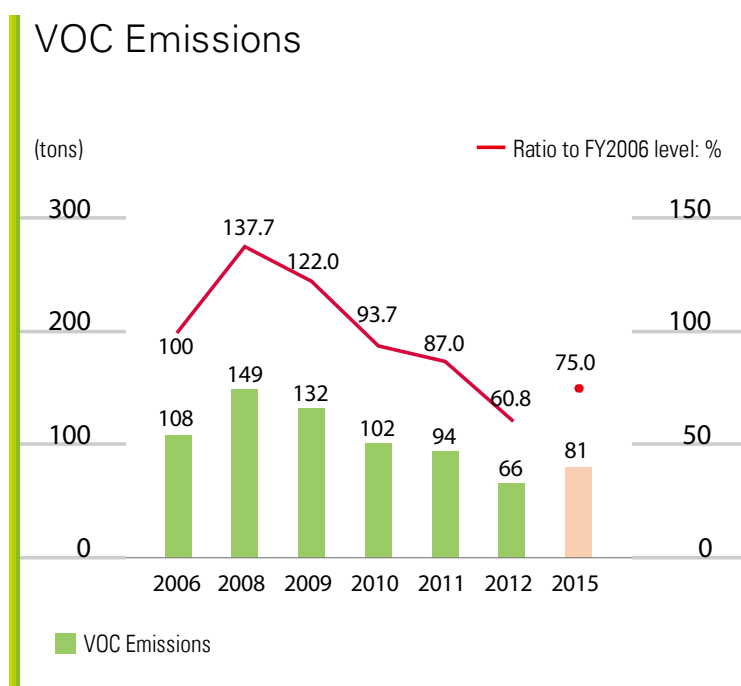
Reduce the amount of VOCs discharged by 25% or more compared with fiscal 2006 levels by the end of fiscal 2015.

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 is implementing measures to achieve these reduction targets.

In fiscal 2012, we discharged 66 tons of VOCs into the atmosphere, a year-on-year decrease of 28 tons, or 26.2 percentage points. The main factor in this decrease was the reduction and change of production items that use ethanol. To this end, we will continue adopting necessary measures, including the installation of equipment that curbs the discharge of VOCs in processes that use large quantities of such substances. In addition to reducing emissions discharged into the air, we are taking measures to limit as much as possible the impact on employees, local communities, and the global environment. For example, we are developing manufacturing methods that do not use highly hazardous chemicals in order to prevent environmental pollution, occupational accidents, and health problems caused by chemical substances.

Astellas also strives to reduce the discharge into the atmosphere of sulfur oxides (SOx) and nitrogen oxides (NOx) generated through the operation of steam boilers and incinerators, despite the absence of numerical targets for these emissions.

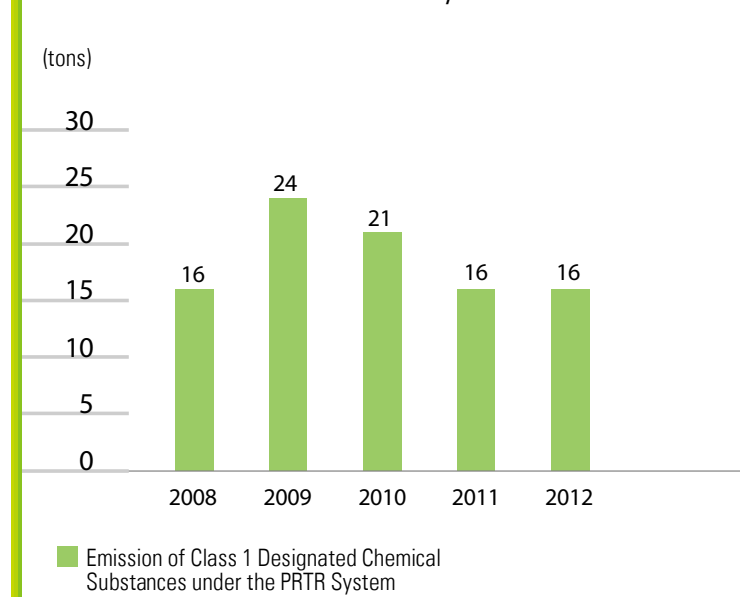
Owing to such factors as the startup of a cogeneration system that uses city gas as a fuel at the Tsukuba Research Center, the volume of NOx emission increased two tons, or 7.0%, compared with the previous fiscal year, to 33 tons in fiscal 2012. The volume of SOx emission was less than one ton (0.035 tons) reflecting a drop in the use of fuel oil to virtually zero.



9.2. Chemical Substances Subject to PRTR* Surveys

Japan's PRTR Act designates substances widely found in the environment that have been identified as being harmful to human health. The primary objective of the Act is to assess and improve activities by business operators for the voluntary control of chemical substances through the monitoring of volumes released and volumes transferred in waste. The table below contains data on the release and transfer of chemicals requiring notification under the PRTR Act in fiscal 2012. In fiscal 2012, Astellas discharged a total of 16 tons of these notifiable chemicals.

Emission of Class 1 Designated Chemical Substances under the PRTR System



* PRTR (Pollutant Release and Transfer Register)

The PRTR is a register of the amounts of potentially harmful chemicals released into the air, water, and soil, and the amounts transferred as waste material, which each business operator measures and collates independently. In Japan, business operators submit their registers to the government, which are then made available to the general public. The system began in 2001 with the enactment of the PRTR Act, which is officially titled the "Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof." Since fiscal 2010, the register includes notifiable substances specified in the amended Act.

Releases and transfers of PRTR chemical substances in fiscal 2012

| Substance name | Volume handled | Volume Released | | | Volume Transferred | |
|---|----------------|-----------------|-------|------|--------------------|----------|
| | | Air | Water | Soil | Waste | Sewerage |
| Acetonitrile | 28.014 | 0.137 | 0.005 | 0 | 15.518 | 0 |
| Toluene | 9.801 | 0.127 | 0 | 0 | 9.674 | 0 |
| N,N-dimethylformamide | 12.970 | 0.059 | 0.001 | 0 | 10.244 | 0 |
| Chloroform | 39.550 | 10.004 | 0 | 0 | 29.545 | 0 |
| n-Hexane | 15.011 | 1.241 | 0 | 0 | 13.770 | 0 |
| Dichloromethane (also known as methylene chloride) | 58.155 | 4.669 | 0 | 0 | 0.949 | 0 |
| N,N-dimethylacetamide | 6.646 | 0.000 | 0 | 0 | 6.646 | 0 |
| 1,4-dioxane | 1.769 | 0.001 | 0 | 0 | 1.769 | 0 |

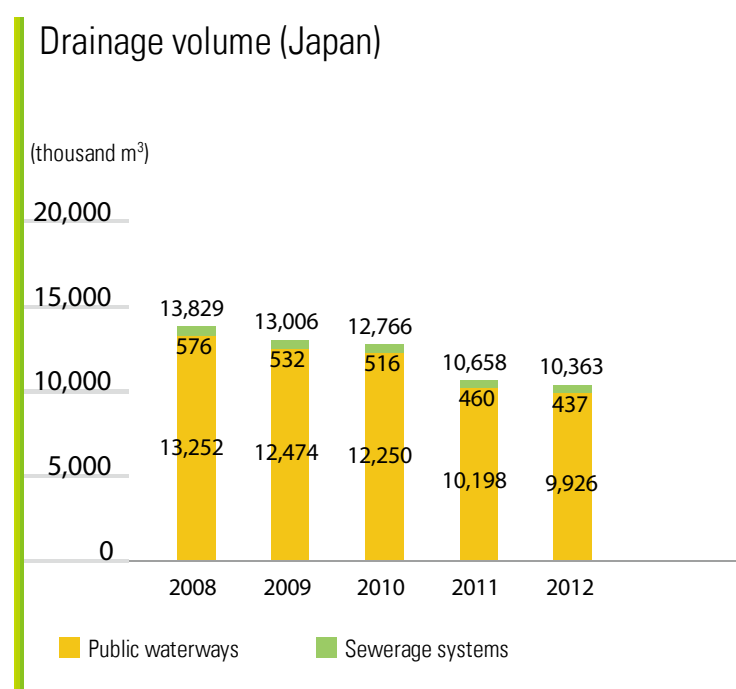
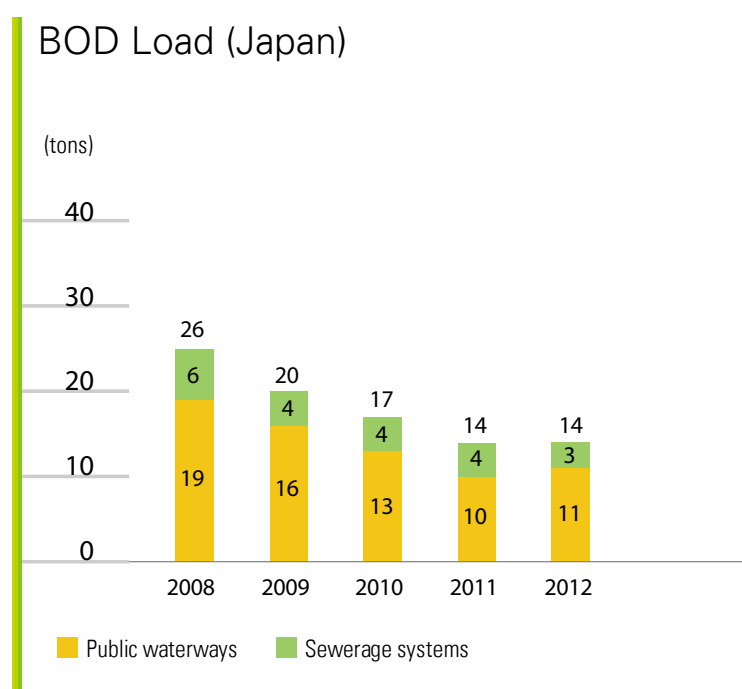
9.3. Water Pollution

Previously, Astellas measured the extent of its impact on aquatic environments in terms of biochemical oxygen demand (BOD). From fiscal 2012, the Company has also begun measuring chemical oxygen demand (COD) to help grasp the extent of its impact on aquatic environment.

In Japan, the BOD load in fiscal 2012 was 14 tons, down 0.6 tons, or 4.3%, compared with the previous fiscal year. This was largely attributable to the decline in drainage volume as a result of the drop in water usage. Excluding the Tsukuba Biotechnology Research Center, where COD loan measurements have not been implemented, the COD load in fiscal 2012 was 31 tons. The principal points of discharge were public waterways (27 tons) and sewerage systems (4 tons). Looking ahead, Astellas will continue to focus on reducing its impact on aquatic environments by undertaking all appropriate measures including the proper operations of wastewater treatment facilities.

Outside Japan, BOD in fiscal 2012 was 17 tons (excluding the Meppel Plant). COD for the same period was 46 tons (excluding the Norman Plant).

Since the discharge into water of chemical substances used in the manufacturing process can have a negative impact on ecosystems, we are examining ways to reduce their discharge into the environment wherever possible, from the R&D stage onward. With respect to future drug candidate substances, we are examining the impact pharmaceuticals would have on ecosystems through the evaluation of their biodegradability in the natural environment and other measures.



10. Environmental Impact of Products and Countermeasures

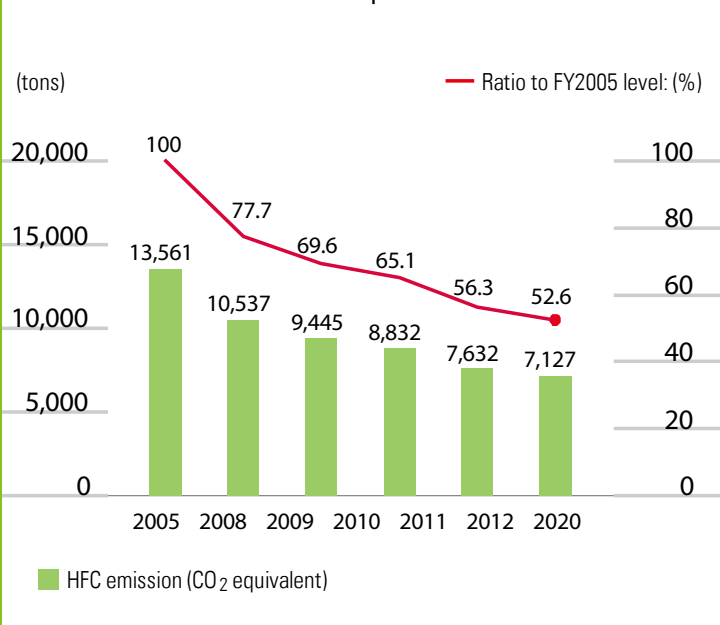
10.1. Greenhouse Gases

The products manufactured and marketed by Astellas do not consume energy during use. However, inhaled asthma medications that use hydrofluorocarbons (HFC) emit chlorofluorocarbon into the air when used. Currently, Astellas has only one product that uses HFC with manufacturing approval. On the one hand, using HFC enhances quantitative performance and makes inhaling easier. On the other hand, HFC imposes a considerable burden on the environment.

The HFC emitted into the air as a result of product use amounted to 4.7 tons in fiscal 2005. In fiscal 2012, this figure had fallen to 2.5 tons. Converting to CO₂ as a GHG, these figures come out to 13,561 tons and 7,632 tons, respectively.

In 2012, the Company launched a medication for bronchial asthma. Features of this medication include a fine powder drug that can be easily administered with fixed quantity using an inhaler. At the same time, this product takes into consideration efforts to reduce environmental load.

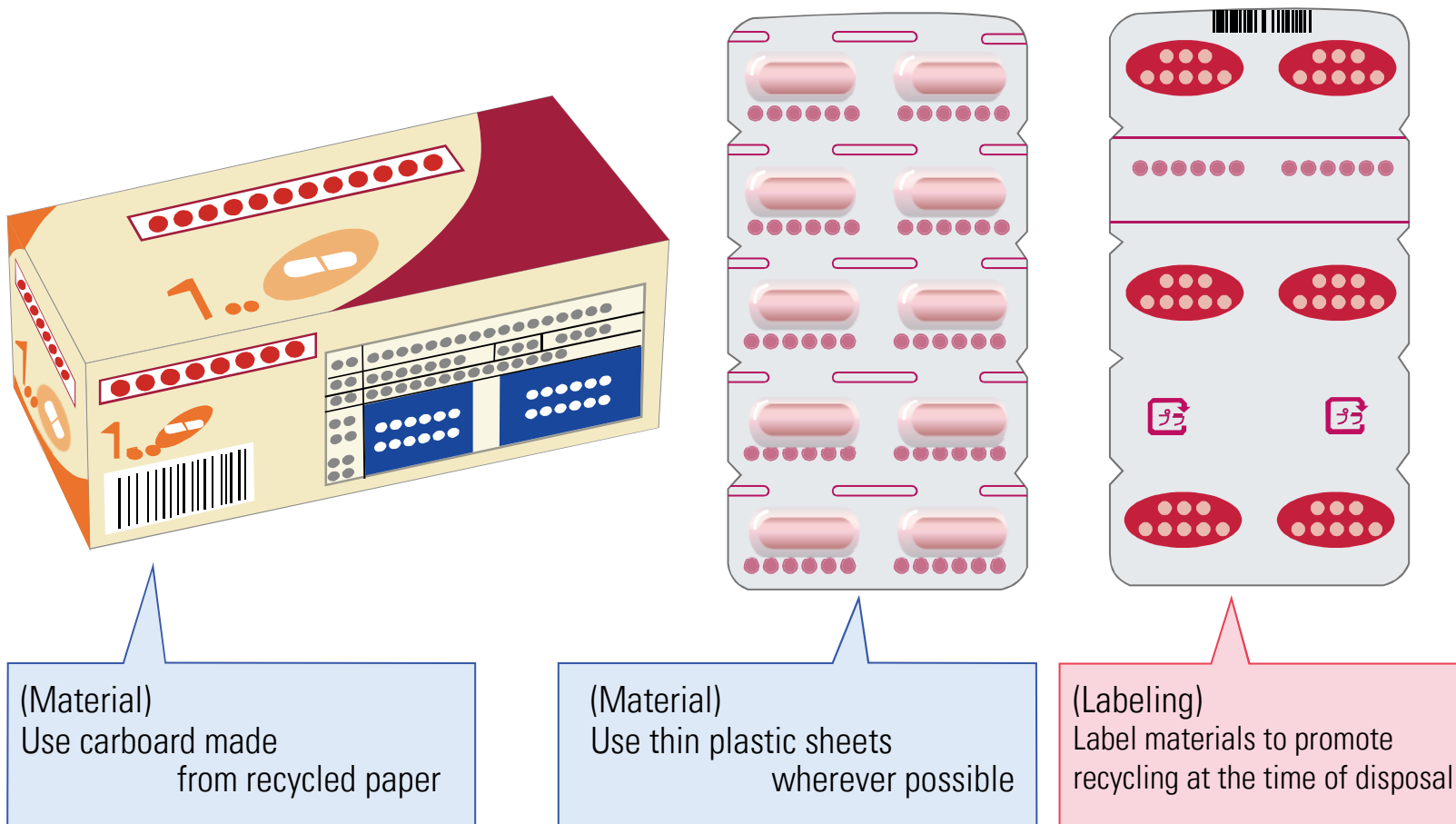
GHG emission form product use



10.2. Waste Materials

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 Affairs 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.



11. 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."

In fiscal 2012, Astellas made investments of ¥963 million and incurred expenses, including depreciation and amortization, of ¥2,023 million. The main investments made to prevent pollution were maintenance of wastewater treatment facilities and the inspection and maintenance of underground water pipes. Investments made to help protect the global environment decided by the Global Warming Prevention Committee included conversion to alternative fuels and the introduction of energy monitoring systems. The economic benefits generated through environmental conservation activities amounted to ¥139 million, which includes lower costs owing to energy savings, the sale of waste organic solvents and metals, and a reduction in the cost of waste treatment. The tables below show Astellas' environmental conservation investments and environmental performance for the past five years. It should be noted that fiscal 2012 environmental remediation costs amounted to ¥255 million, which included provision for the treatment of PCBs.

Environment-related Investments and Expenses

(¥ million)

| Categories | FY2008 | | FY2009 | | FY2010 | | FY2011 | | FY2012 | |
|-----------------------------------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|
| | Investments | Expenses | Investments | Expenses | Investments | Expenses | Investments | Expenses | Investments | Expenses |
| Pollution prevention | 211 | 614 | 161 | 461 | 177 | 687 | 225 | 489 | 239 | 479 |
| Global environmental conservation | 100 | 203 | 80 | 231 | 403 | 287 | 730 | 413 | 465 | 413 |
| Resource recycling | 2 | 411 | 1 | 340 | 6 | 344 | 0 | 432 | 21 | 441 |
| Upstream/downstream costs | 0 | 33 | 0 | 73 | 0 | 67 | 0 | 65 | 0 | 66 |
| Administration costs | 0 | 417 | 0 | 331 | 18 | 364 | 0 | 331 | 0 | 304 |
| R&D costs | 2 | 28 | 8 | 28 | 13 | 37 | 7 | 36 | 29 | 13 |
| Social activity costs | 0 | 7 | 0 | 6 | 0 | 3 | 0 | 2 | 0 | 2 |
| Environmental remediation costs | 0 | 21 | 0 | 141 | 0 | 76 | 0 | 255 | 0 | 224 |
| Total | 315 | 1,734 | 250 | 1,611 | 616 | 1,865 | 963 | 2,023 | 753 | 1,943 |

Environmental Performance Trends in Japan (Annual basis)

| | | Items | FY2008 | FY2009 | FY2010 | FY2011 | FY2012 | |
|----------------------------------|-----------------|-----------------------|-------------------------|---------|---------|---------|---------|---------|
| INPUT | Energy | Electricity | MWh | 211,001 | 212,472 | 218,364 | 203,533 | 205,346 |
| | | City gas | thousand m ³ | 21,401 | 21,982 | 23,813 | 24,134 | 24,167 |
| | | LPG | tons | 2,255 | 2,301 | 2,118 | 2,056 | 2,000 |
| | | LNG | tons | - | - | - | 1,618 | 2,540 |
| | | Fuel oil | kiloliter | 4,677 | 4,480 | 4,110 | 840 | 44 |
| | | Kerosene | kiloliter | 1,303 | 1,147 | 661 | 428 | 52 |
| | | Diesel oil | kiloliter | 9 | 16 | 17 | 19 | 31 |
| | | Gasoline | kiloliter | 3,353 | 3,171 | 3,077 | 3,106 | 2,930 |
| | | Purchased heat energy | GJ | 2,225 | 2,225 | 2,225 | 2,183 | 1,677 |
| | Resources | Water | thousand m ³ | 14,579 | 14,105 | 13,760 | 12,031 | 11,786 |
| Raw material (determine weight)* | | tons | 10,481 | 12,630 | 2,000 | 1,324 | 4,717 | |
| (determine volume)* | | kiloliter | - | - | 9,128 | 4,229 | 515 | |
| OUTPUT | Global warming | CO ₂ | thousand tons | 162 | 162 | 159 | 147 | 172 |
| | | SO _x | tons | 5 | 5 | 5 | 1 | 0 |
| | Air pollution | NO _x | tons | 43 | 44 | 41 | 31 | 33 |
| | | VOCs | tons | 149 | 132 | 102 | 94 | 66 |
| | | BOD load | tons | 26 | 20 | 17 | 14 | 14 |
| | Water pollution | Drainage water | thousand m ³ | 13,829 | 13,006 | 12,766 | 10,658 | 10,363 |
| | | Volume generated | tons | 19,469 | 20,882 | 19,508 | 13,422 | 11,455 |
| | | Volume discharged | tons | 10,038 | 10,876 | 10,778 | 13,069 | 11,415 |
| Waste | Landfill volume | tons | 208 | 207 | 201 | 149 | 95 | |

* Raw materials and solvents have been tabulated separately from fiscal 2010

12. Methods for Calculating Performance Data

12.1. Methods for Calculating Energy Consumption and GHGs

Astellas' overseas facilities use the CO₂ emission coefficients in the Conversion Coefficients table below except for electricity and steam use of the overseas plants shown in the second table.

| Type | Conversion Coefficients | |
|--------------------------|-----------------------------------|-------------------------------------|
| | Calorific value | CO ₂ emissions |
| Electricity | 9.97 GJ/MWh | 0.476 tons/MWh ^{*1} |
| Fuel oil | 39.1 GJ/kiloliter | 2.71 tons/kiloliter |
| Kerosene | 36.7 GJ/ kiloliter | 2.49 tons/kiloliter |
| LPG | 50.8 GJ/tons | 3.00 tons/ton |
| LNG | 54.6 GJ/tons | 2.70 tons/ton |
| City gas | 45.0 GJ/thousand m ³ N | 2.24 tons/thousand m ³ N |
| Diesel oil | 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 |

| | Electricity ^{*2} | Steam |
|-----------------------------|---------------------------|---------------|
| Norman Plant | 0.570 tons/MWh | - |
| Dublin Plant Kerry Plant | 0.582 tons/MWh | - |
| Meppel Plant | 0.387 tons/MWh | - |
| Shenyang Plant | 0.787 tons/MWh | 0.091 tons/GJ |

*1 For CO₂ emissions calculations in fiscal 2012, we have used the coefficient for fiscal 2011, because at the time of the release (June 2012) of our Japanese Environmental Report, FEPC's latest CO₂ emission coefficient were unavailable.

*2 We used CO₂ emission coefficients by country for fiscal 2005, the base year for the Action Plan.

12.2. Scope 3 Calculation Method

- A) Coefficients for GHG emissions generated from the commuting of employees in Japan are shown below.
 - We assumed employees in Japan commuted to work on 230 days during fiscal 2012.
 - Train and Bus: For calculating GHG emissions generated from train and bus commuting, we used the emissions factor for passenger rail travel of 0.0236 kg-CO₂/passenger-km and the emissions factor for passenger bus travel of 0.0836 kg-CO₂/passenger-km contained in the guidelines (http://www.meti.go.jp/english/press/2012/0330_01.html) on supply chain GHG emissions accounting formulated by Japan's Ministry of Economy, Trade and Industry (METI) and the Ministry of the Environment (MOE) (March 2012)
 - Private vehicle: We used the private vehicle gasoline economy rate of 9.09 km per liter contained in MOE's guidelines for calculating GHG emissions of activities to be offset (April 2011).
- B) For GHG emissions generated by employees traveling overseas on business, we included only flights from or to Japan in the calculations. For the flight distances between airports, we mainly used international flight routes provided by CARBON OFFSET JAPAN, and calculated emission volumes using calculation sheets contained in "2010 Guidelines to Defra/DECC's GHG Conversion Factors for Company Reporting," released by the Department for Environment, Food and Rural Affairs (Defra) of the United Kingdom.
- C) The amount of GHG emissions at the time of product use is calculated based on the inhaled asthma medication (HFC specification product) marketed in Japan.
- D) The amount of GHG emissions attributable to shipments of products, waste, and raw materials is calculated based on shipments in Japan.

12.3. Revision of Data from Past Fiscal Years

- A) We have previously included integrated values from the Company's measurement data for the volume of energy consumption and water usage by overseas facilities. However, following an extensive review, we now use suppliers' invoiced amounts as a basis for data. As a result, related data for fiscal 2005 through fiscal 2010 have been amended.
- B) We have corrected some duplication of data on expenses related to environmental accounting for fiscal 2010 reported in the previous fiscal year.
- C) The Tsukuba Biotechnology Research Center switched to city gas in August 2010. However, owing to the discovery of a fault in the meter installed by the gas company, we have revised the data since the time of conversion to city gas. Consequently, the actual amount of city gas used is more than the amount charged by the gas company.
- D) We have reviewed the items classified under biological raw material, and applied this retrospectively to previous fiscal years. As a result, from fiscal 2005 through fiscal 2010 we have revised the biodiversity index and the biodiversity burden index data used for calculating the biodiversity index.

13. Corporate Data

| | | | |
|-------------------------|--|--------------------------------------|--|
| Company Name | Astellas Pharma Inc. | Net Sales | ¥1,005.6 billion (Consolidated basis, as of March 31, 2013) |
| Headquarters | 2-5-1, Nihonbashi-Honcho, Chuo-Ku, Tokyo 103-8411, Japan | Employees | 17,085 (Consolidated basis, as of March 31, 2013) |
| Capital | ¥103,000 million (as of March 31, 2012) | Professional institution affiliation | Japan Business Federation The Federation of Pharmaceutical Manufacturers' Associations of Japan Japan Pharmaceutical Manufacturers Association |
| Representative Director | Yoshihiko Hatanaka (President and Chief Executive Officer) | | |
| Foundation | 1923 | | |

■ Major consolidated subsidiaries

Japan

Astellas Business Service Co., Ltd.
 Astellas Learning Institute Co., Ltd.
 Astellas Research Technologies Co., Ltd.
 Astellas Marketing and Sales Support Co., Ltd.
 Astellas Pharma Tech Co., Ltd.
 Lotus Estate Co., Ltd.
 Astellas Analytical Science Laboratories, Inc.

Asia and Oceania

Astellas Pharma China, Inc.
 Astellas Pharma Hong Kong Co., Ltd.
 Astellas Pharma Korea, Inc.
 Astellas Pharma Taiwan, Inc.
 Astellas Pharma (Thailand) Co., Ltd.
 Astellas Pharma Philippines, Inc.
 P.T. Astellas Pharma Indonesia
 Astellas Pharma India Private Limited
 Astellas Pharma Australia Pty Ltd

Americas

Astellas US Holding, Inc.
 Astellas US LLC
 Astellas Pharma US, Inc.
 Astellas Pharma Global Development, Inc.
 Astellas US Technologies, Inc.
 Astellas Pharma Technologies, Inc.
 Astellas Research Institute of America LLC
 Astellas Venture Management LLC
 Astellas Pharma Canada, Inc.
 Astellas Farma Brasil Importação e Distribuição de Medicamentos Ltda.
 Agensys, Inc.
 OSI Pharmaceuticals LLC

Europe

Astellas B.V.
 Astellas Pharma Europe Ltd.
 Astellas Pharma Europe B.V.
 Astellas Ireland Co., Limited

■ Scope of environmental information report

| Company name | Facility | Location | Function |
|-----------------------------------|--|--------------------|---------------|
| Astellas Pharma Inc. | Nihonbashi Office | Chuo-ku, Tokyo | Headquarters |
| | Hasune Office | Itabashi-ku, Tokyo | Development |
| | Takahagi Chemistry & Technology Development Center | Takahagi, Ibaraki | Research |
| | Tsukuba Research Center | Tsukuba, Ibaraki | |
| | Tsukuba Biotechnology Research Center | Tsukuba, Ibaraki | |
| | Yaizu Pharmaceutical Research Center | Yaizu, Shizuoka | |
| | Kiyosu Research Office | Kiyosu, Aichi | |
| | Kashima R&D Center | Yodogawa-ku, Osaka | |
| Branches/Sales Offices | 18 branches, 159 sales offices | Sales & Marketing | |
| Astellas Pharma Tech Co., Ltd. | Nishine Plant | Hachimantai, Iwate | Manufacturing |
| | Takahagi Technology Center | Takahagi, Ibaraki | |
| | Yaizu Technology Center | Yaizu, Shizuoka | |
| | Fuji Plant | Fuji, Shizuoka | |
| | Toyama Technology Center | Toyama, Toyama | |
| | Takaoka Plant | Takaoka, Toyama | |
| Astellas Pharma Technologies Inc. | Norman Plant | U.S.A. | |
| Astellas Ireland Co., Limited | Dublin Plant | Ireland | |
| | Kerry Plant | | |
| Astellas Pharma Europe B.V. | Meppel Plant | Netherlands | |
| Astellas Pharma China, Inc. | Shenyang Plant | China | |

Note: Operating sites throughout this report are in principle identified according to the name of each facility. In instances where there are multiple facilities on the same site, the following names may be applied.

Takahagi Facilities (Takahagi Chemistry & Technology Development Center and Takahagi Technology Center)

Yaizu Facilities (Yaizu Pharmaceutical Research Center and Yaizu Technology Center)