

Toward the Realization of Environmental Vision 2050

Toshiba Group will resolve global environmental issues and create new value through innovation to ensure that all people can lead affluent lifestyles in harmony with the Earth.

Environmental Vision 2050

The world population topped seven billion in October 2011, and rapid population growth and the urbanization of populations are expected to continue to occur mainly in the emerging countries of Africa, Asia, etc. As a result, there are food, water, and energy shortages and the non-renewable resources that support today's society, including fossil fuels, metals, and minerals, are decreasing in number. In addition, the temperature is rising due to the effects of global warming, causing serious problems worldwide, including floods, droughts, and enormous typhoons. These various problems have complex interrelationships, and their effects spread by the year. Against this backdrop, the U.N. Sustainable Development Goals (SDGs) came into effect in January 2016 alongside Paris Agreement, which was put into effect in November of the same year to provide a new international framework to prevent global warming. Thus, guidelines and rules shared worldwide aiming to resolve global issues have been developed one after another in recent years.

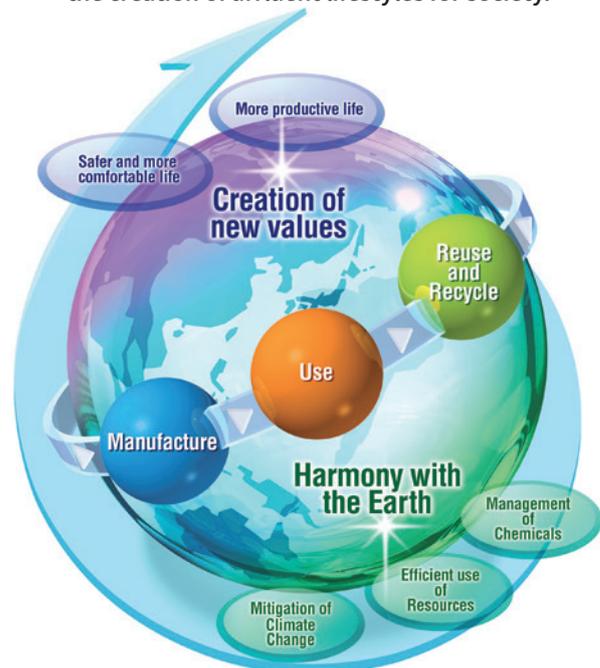
As the international community becomes increasingly aware of environmental issues, companies engaged in global business activities must do more than before to resolve such issues. We believe that as a member of the international community, Toshiba Group has the responsibility of helping resolve global environmental issues through our activities in four business domains: energy, electronic devices, and digital solutions centering around social infrastructure.

To fulfill this responsibility, Toshiba Group has developed Environmental Vision 2050, a corporate vision that envisages affluent lifestyles in harmony with the Earth as an ideal

situation for mankind in 2050, and will work to realize this vision. Throughout the life cycle of products from manufacture and use to recycling and reuse, Toshiba Group will strive to provide safer and more comfortable lifestyles and create enriched value for customers. Toshiba Group will also strive for harmony with the Earth by working to mitigate climate change, using resources efficiently, and managing chemicals properly in order to reduce environmental impacts.

Environmental Vision 2050

Toshiba Group practices environmental management that promotes harmony with the Earth, contributing to the creation of affluent lifestyles for society.

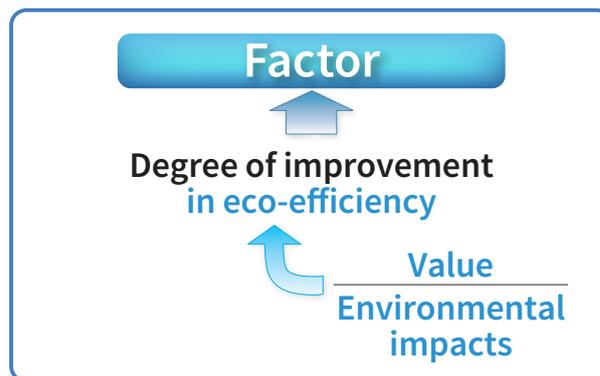


Performance indicators for our Vision

Based on the concept of eco-efficiency, we have set goals to ensure that all people can lead affluent lifestyles in harmony with the Earth as envisaged in Environmental Vision 2050.

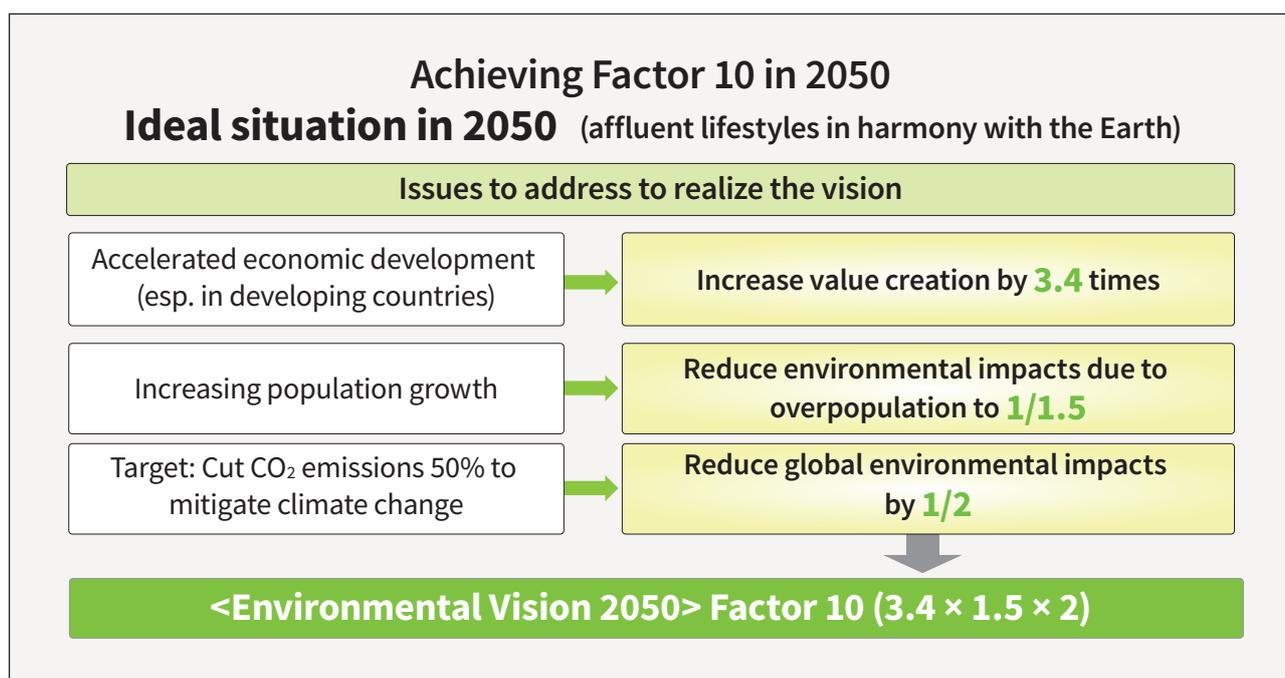
Eco-efficiency can be expressed as a fraction, with the creation of new value as the numerator and environmental impacts as the denominator. The more enriched value created — or the more environmental impacts are reduced and progress made toward coexisting with the Earth — the more eco-efficiency improves. We call the degree of improvement in eco-efficiency the "Factor," and increasing the Factor leads to affluent lifestyles in harmony with the Earth.

Based on several predictions about the future shapes society may take, we examined how much we need to raise the Factor by 2050. It is assumed that the gross domestic product (GDP) of a country reflects value that its people can enjoy. According to the Organization for Economic Co-operation and Development (OECD), the world's average GDP per capita is expected to grow 3.4 times by 2050. It is also expected that the world population will increase by 1.5 times compared to 2000 by 2050. And at the Conference of Parties to the U.N. Framework Convention on Climate Change, participants emphasized that it is necessary to reduce greenhouse gas emissions by half by 2050.



If the three points cited previously are taken into account, the required degree of improvement in eco-efficiency (Factor) in the world in 2050 is 10.2 ($3.4 \times 1.5 \times 2$). In light of this, Toshiba Group has made it a goal to achieve Factor 10 by 2050.

Factor 10 cannot be achieved merely by conducting business as usual. This very ambitious goal can only be accomplished by developing multiple major innovations over an extended period. Nevertheless, we will strive to the utmost to achieve our goal. Also, if there are major changes in society or international rules before 2050, we will flexibly reexamine this goal as needed.



Eco-Efficiency and Factor

Overall eco-efficiency

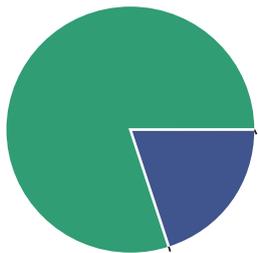
Environmental Vision 2050 requires Toshiba Group to increase the degree of improvement in overall eco-efficiency ten times (Factor 10) by FY2050 compared to the FY2000 level.

Toshiba Group's overall eco-efficiency is calculated by combining product eco-efficiency and business process eco-efficiency. The overall eco-efficiency in FY2017 was 2.27 times the FY2000 level (Factor 2.27). Although our overall eco-efficiency decreased in FY2016 due to impacts from a significant change in the business structure, we will introduce new environmental management measures and aim to achieve Environmental Vision 2050 under the new business portfolio.

Changes in overall eco-efficiency

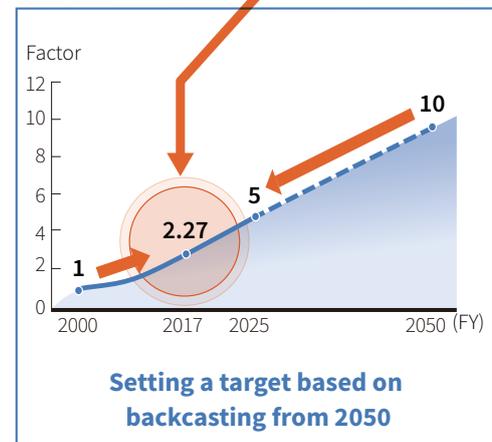
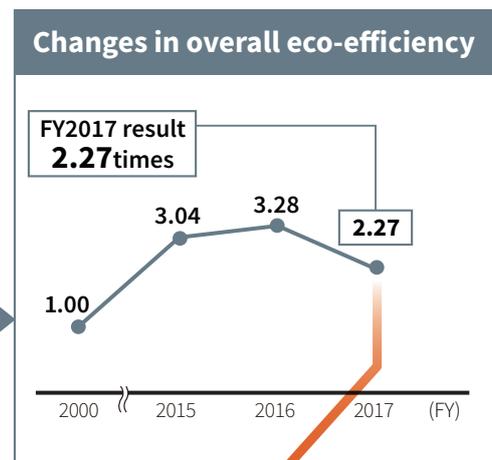
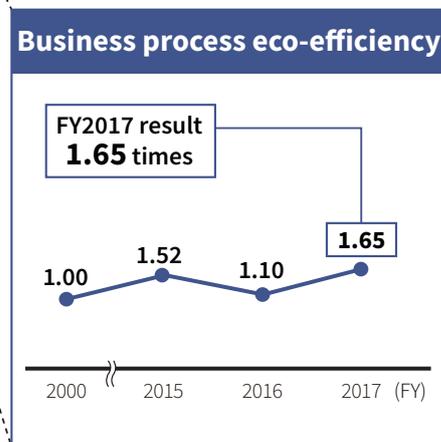
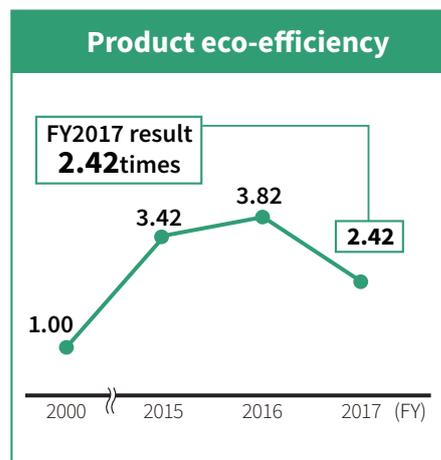
Environmental impacts related to product
(From material procurement to product disposal and recycling)

80%



Environmental impacts in business process
(during manufacturing)

20%



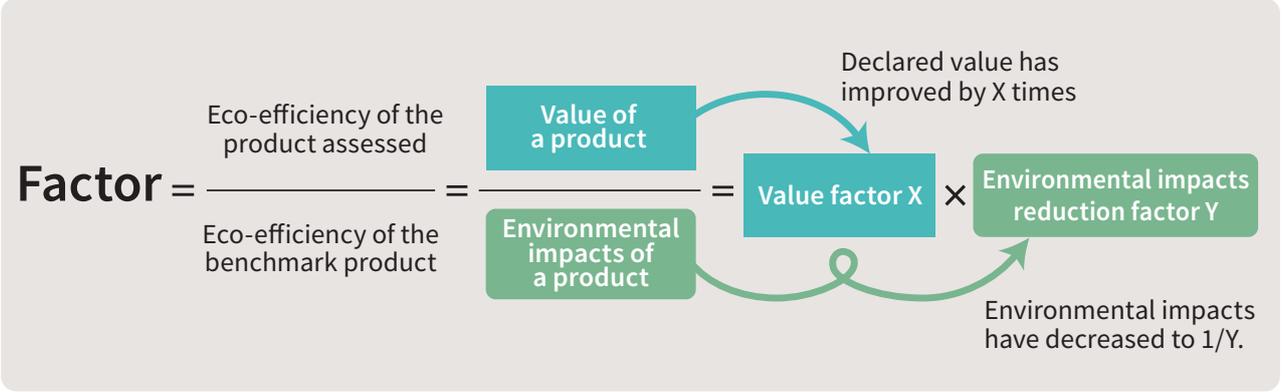
Product eco-efficiency (Factor T)

Toshiba Group originally developed a method for calculating eco-efficiency to introduce an indicator that allows overall assessment of products' environmental consciousness. Comprehensive activities for creating ECPs that are aimed at increasing the Factor are part of the Factor T initiative, which was named using the first letter from Toshiba's name.

Factor T is expressed by multiplying a value factor, which represents a product's degree of improvement in value, with an environmental impacts reduction factor, which represents the degree of environmental impacts. The value factor quantifies the value of a product or service using QFD*1, while the environmental impacts reduction factor assesses environmental impacts using LIME*2.

*1 QFD : Quality Function Deployment is a standard tool used in product design.
 *2 LIME : Life-cycle Impact assessment Method based on Endpoint modeling developed by the Research Center for Life Cycle Assessment, the National Institute of Advanced Industrial Science and Technology (AIST) as a method integrating various environmental impacts.

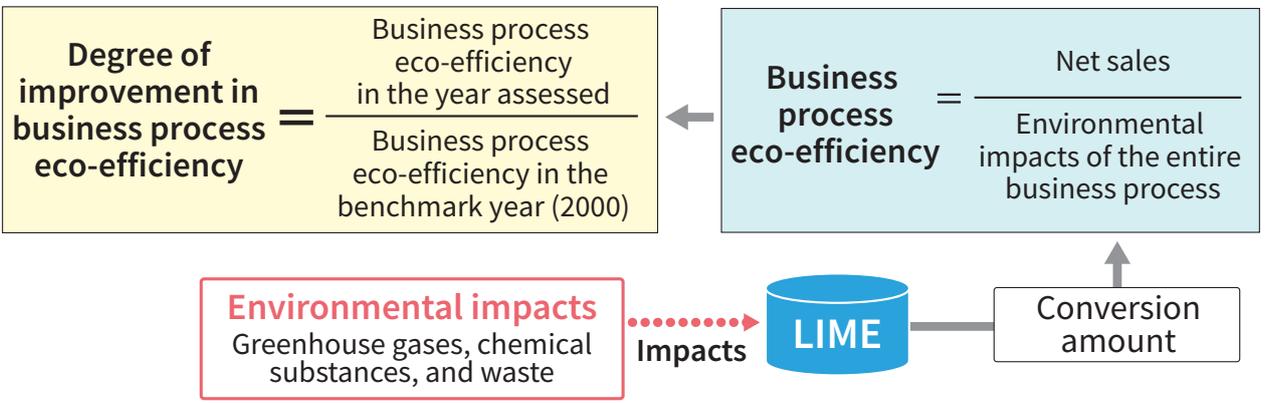
Calculation of product eco-efficiency (Factor T)



Business process eco-efficiency

Toshiba Group is striving to reduce environmental impacts by assessing the effect of environmental impacts on business activities and ranking the degree of improvement from the benchmark year as business process eco-efficiency.

Calculation of business process eco-efficiency



Special Feature

Vision and Strategies

Business - Manufacturing

Business - Products / Services

Management

The Sixth Environmental Action Plan

Setting medium-term goals based on Environmental Vision 2050

In order to realize an ideal state of the Earth in 2050 envisaged by Environmental Vision 2050, Toshiba Group formulates Environmental Action Plan for medium-term goals and manages specific environmental activities and their targets. Since Toshiba Group formulated our first Environmental Action Plan in FY1993, we have reviewed the scope of environmental activities and governance once every several years. Under the ongoing Sixth Environmental Action Plan for the period from FY2017 to FY2020, we set goals for 15 items in two areas: or namely activities to reduce environmental impacts in the lifecycles of products and services (Business), and basic activities to support such activities (Management). While further developing our activities along with these goals toward realizing Environmental Vision 2050, we will help resolve global environmental issues.

Progress of the Sixth Environmental Action Plan

The achievements made in FY2017 are summarized as follows. Although we fell short of targets on some items, our activities made progress in all areas and there were no items where there was a drastic failure to reach targets.

Business —Reducing environmental impacts in manufacturing—

We pursue high-efficiency manufacturing designed to simultaneously reduce environmental impacts and costs by properly managing greenhouse gases, waste, water, and chemicals emitted from production sites. In FY2017, we proactively promoted energy-saving measures and improved the production processes at our sites, increased the turning

of waste into valuables, and reused water worldwide. As a result, we were able to achieve our targets for all items.

Business —Improving environmental performance of products and services—

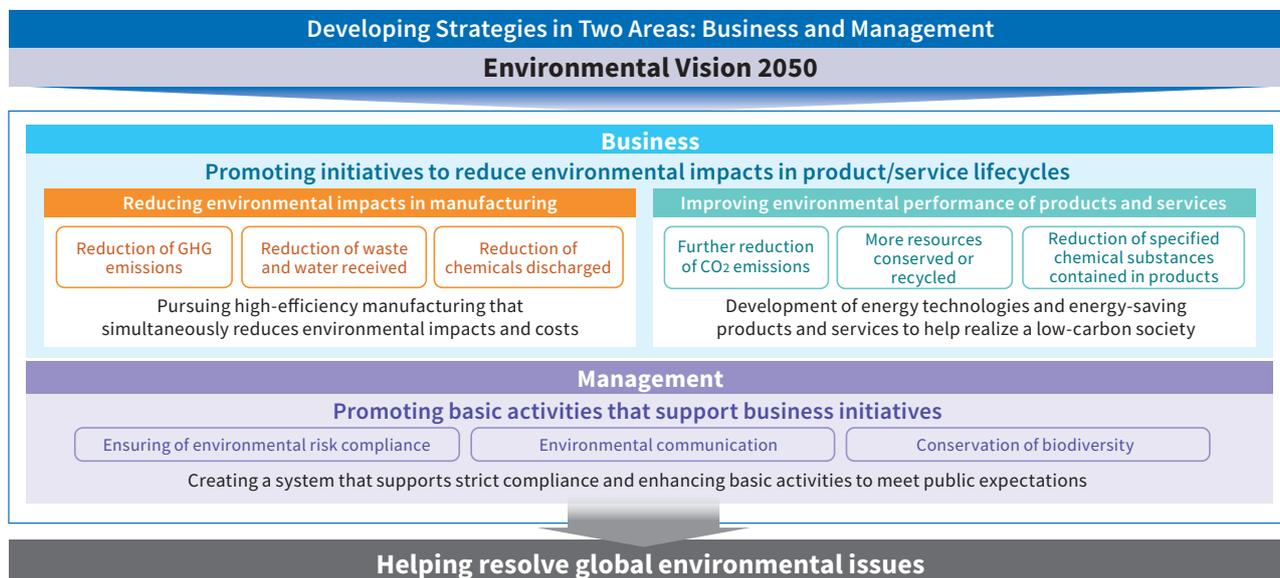
We are working to improve the environmental performance of products and services by reducing CO₂ emissions in terms of both power consumption and supply, by reducing product resource usage, and by managing the chemicals contained in products. In FY2017, although we fell short of these targets for some items including increased reduction of CO₂ emissions (power supply)*, due to demand fluctuations etc, we steadily improved the energy-saving performance of products and services and reduced product resource usage in various businesses.

* Reductions in emissions from products and services associated with power supply such as power plants

Management

As basic activities that support business initiatives, we are ensuring environmental risk compliance, promoting environmental communication, and conserving biodiversity. In FY2017, in addition to strengthening the structure for compliance with global laws and regulations, we enhanced communication with various stakeholders by improving information disclosure in our Environmental Report and website, holding Toshiba Group Environmental Exhibition and educational programs for elementary schoolchildren, and conducting Global Environmental Action at our global sites. In terms of biodiversity conservation, we have conducted activities at our sites worldwide to achieve "Aichi Targets" which are global goals.

After sorting issues concerning the items for FY2017 that we could not achieve, we will further intensify our activities toward achieving FY2018 targets.



■ Toshiba Group's Sixth Environmental Action Plan

◆ Business

★★★Achieved ★★Almost achieved ★Significantly fell short of goals

Activity area	Activity content		FY2017			FY2018	FY2020
			Target	Result	Evaluation	Target	Goal
Reducing environmental impacts in manufacturing	Reduction of total greenhouse gas emissions*1		1.46 million t-CO ₂	1.27 million t-CO ₂	★★★	1.54 million t-CO ₂	1.66 million t-CO ₂
			We further reduced greenhouse gas emissions by actively promoting energy-saving measures and by improving production efficiency at each site.				
	Improvement of total energy-derived CO ₂ emissions per unit activity (Compared to FY2013 level)		98%	97.8%	★★★	96%	92%
			We further improved total energy-derived CO ₂ emissions per unit activity by actively promoting energy-saving measures and by improving production efficiency at each site.				
	Reduction of waste volumes*2		45,000 t	37,000 t	★★★	48,000 t	52,000 t
			We further turned more waste into valuables and minimized waste volume through efforts to improve production processes and sort waste more carefully.				
	Improvement of the total volume of waste generated per unit production (Compared to FY2013 level)		99%	86%	★★★	98%	96%
We further improved the total volume of waste generated per unit production by working to improve production processes.							
Improvement of the amount of water received per unit production (Compared to FY2013 level)		99%	89%	★★★	98%	96%	
		We further improved the amount of water received per unit production by reusing water at the sites such as semiconductor sites that normally consume large amounts of water.					
Reduction of the total amount of chemicals discharged per unit production (Compared to FY2013 level)		99%	79%	★★★	98%	96%	
		We further reduced the amount of chemicals discharged by taking such measures as to deal with solvents which ranked high among our emissions and to use alternative substances.					
Improving environmental performance of products and services	Increased reduction of CO ₂ emissions (cumulative total)	Power supply*3	9.6 million t-CO ₂	9 million t-CO ₂	★★	12.9 million t-CO ₂	16.3 million t-CO ₂
		We worked to develop and spread a wide range of energy technologies, such as hydroelectric, geothermal, photovoltaic power, and high-efficiency thermal power.					
	Power consumption*4	1.7 million t-CO ₂	1.86 million t-CO ₂	★★★	3.4 million t-CO ₂	6.3 million t-CO ₂	
		We reduced CO ₂ emissions during use by developing products with the highest energy-saving performance and highly energy efficient products.					
	Increased amount of resources saved (cumulative total)		100,000 t	99,800 t	★★	180,000 t	460,000 t
			We significantly reduced resource consumption for products in each area.				
	Increased amount of recycled resources (recycled plastics) used (cumulative total)		740 t	851 t	★★★	1,500 t	3,000 t
We increased their usage in multi-function printers and industrial air conditioners.							
Reduction of specified chemical substances contained in products		—	Using alternative materials completed for hard disks and POS systems. Shipment of alternative products for POS systems also started.	★★	Activities will be continued.		
Using alternative materials for four phthalates*5 or identifying alternates for all products by July 2019							

◆ Management

Activity area	Activity content		FY2017		FY2018	FY2020
			Result	Evaluation	Target	Goal
Ensuring of environmental risk compliance	Enhancement of compliance with global environmental regulations and human resource development <ul style="list-style-type: none"> Reviewing of measures to ensure compliance with global environmental regulations Enhancement of local networks of environmental human resources at overseas production sites 		<ul style="list-style-type: none"> The number of violations of laws and regulations was zero. We created a mechanism for distributing global legal information internally and identifying issues in a timely manner. We prepared for a study meeting on legal issues for persons responsible for the environment at our Chinese sites, which led to a scheduled meeting to be held next year. 	★★	Activities will be continued.	
Environmental communication	Improvement of information disclosure <ul style="list-style-type: none"> Improvement of reporting based on external requirements 		<ul style="list-style-type: none"> Toshiba Group Environmental Report 2017 received an award of merit in the Ministry of the Environment's Environmental Communication Awards in Japan. 	★★★	Activities will be continued.	
	Development of networks with stakeholders <ul style="list-style-type: none"> Enhancement of communication with customers through Toshiba Group Environmental Exhibition and education program at Toshiba Science Museum Enhancement of communication with local communities by implementing Global Environmental Action at our sites worldwide 		<ul style="list-style-type: none"> We held 26th Toshiba Group Environmental Exhibition, which received nearly 3,000 visitors. We held educational programs for elementary school-children at Toshiba Science Museum and elementary schools about 30 times. Energy-saving events, education activities etc. were carried out in Japan, Europe, Americas, Asia, and China. 	★★★	Activities will be continued.	
Conservation of biodiversity	Contributions to Aichi Targets <ul style="list-style-type: none"> Choosing 10 of the 20 Aichi Targets as Toshiba goals to develop measures at our sites worldwide 		<ul style="list-style-type: none"> We conducted activities toward achieving Aichi Targets at approximately 70 sites worldwide. 	★★★	Activities will be continued.	

Note : Values related to the energy consumption required for manufacturing (nominal production amounts, number of products manufactured, number of persons, total floor area, etc.) are used for basic-unit goals for greenhouse gas emissions. For waste, water, and chemical substances, volume-based nominal outputs are used as an indicator for basic-unit goals that allows appropriate assessment.

*1 The CO₂ emission coefficient for electricity in Japan is 5.31 t-CO₂/10,000 kWh. Electricity outside of Japan is based on GHG Protocol data.

*2 Obtained by deducting the volume of objects with value from the total volume of waste generated (excluding the sites engaged in waste treatment and power generation)

*3 Reductions in emissions from products and services associated with power supply such as power plants. The calculation method is as follows:

Compare with CO₂ emissions (rate to net production output) for average thermal power of the same fuel type; for renewable energy, compare with CO₂ emissions (rate to net production output) for average thermal power of all types; an accumulated total of annual reductions plus reductions achieved by newly built power generation systems. Acquire the accumulative total amount of contribution through power generation in a single-year and at newly installed facilities.

*4 Reductions in emissions from products and services associated with power consumption such as social infrastructure products. The calculation method is as follows:

[CO₂ emissions of assumed substitute products - CO₂ emissions of shipped products] (Compares emissions per year during the usage stage and cumulates emissions for half the expected number of years of use)

*5 Bis (2-ethylhexyl) phthalate, butyl benzyl phthalate, di-n-butyl phthalate, and diisobutyl phthalate. These substances are used mainly as plasticizers for plastics (e.g., cable coatings) and there is some concern about their effects on the human body.

Risks and Opportunities

Material issues

Since FY2015, Toshiba Group has set three high priority responsibilities (Materiality). In reference to opinions from stakeholders as well as assessment reviews by third-party organizations and including self-evaluations conducted based on the international guidance standard ISO 26000 which concerns the social responsibilities of organizations, we evaluated these responsibilities in terms of material issues for both Toshiba Group and its stakeholders, and identified the following three high priority responsibilities. One of them is "Environmental Management," and among various environmental issues, we have chosen the following three items having both risks and opportunities with relatively high priority responsibilities: "Climate change mitigation and adaptation," "Sustainable resource use," and "Prevention of pollution."

■ Significance of Environment-related Items in Toshiba Group's High Priority Responsibilities

	Basic	Middle	High
High			<ul style="list-style-type: none"> • Climate change mitigation and adaptation • Sustainable resource use • Prevention of pollution
Middle		<ul style="list-style-type: none"> • Environmental protection, biodiversity and restoration of natural habitats 	
Basic			

↑ Priority for stakeholders | Impact on Toshiba Group →

For details about Toshiba Group's identifying material issues, visit our [CSR website](#)

We consider "Climate change mitigation and adaptation" to have significant impacts on business activities due to the magnitude and scale of their influence. According to IPCC*, to achieve a figure below the climate target of 2°C, the accumulated CO₂ emissions must be below 800 GtC. It was also pointed out that if the current level of emissions continues, the accumulated emissions will exceed the acceptable limit within 20 to 30 years. It is also anticipated that unusual weather will occur more frequently so there will be greater corresponding fluctuations in weather patterns. Our efforts for significantly reducing GHG emissions toward achieving a decarbonized society involve making a drastic change in our efforts for significantly reducing GHG emissions in our social system while still feeling very uncertain of what steps to take, which also holds true for the rapid surfacing of impacts from rising temperatures and climate change. It is absolutely essential that we recognize the risks and opportunities involved in such a drastic change and incorporate them into our future corporate management.

"Sustainable resource use" is associated with risks, such as introduction of laws and regulations regarding resource efficiency as well as energy efficiency, resource price hikes, and procurement. While reducing costs by improving resource efficiency, we will lower our dependency on resources through reuse and recycling.

In regard to "Prevention of pollution," we will ensure that chemicals contained in products are managed with the aim of minimizing the risk from the chemical substance. Since various related laws and regulations are being fully implemented on a global basis, we will prevent the risk of business suspensions

due to delays in compliance by ensuring information transmission along the supply chain. Meanwhile, we have developed a simplified screening technology for the four phthalates since we consider that compliance with laws and regulations to be introduced also represents a business opportunity.

With the aim of achieving Environmental Vision 2050, Toshiba Group's environmental management will continue to take initiatives mainly for these high priority responsibilities.

* Intergovernmental Panel on Climate Change

Climate Change Risks and Opportunities

As described above, climate change risks and opportunities are important management issues and multiple KPIs are included in the action plan for 2020 (the Sixth Environmental Action Plan) as responses to climate change. For greenhouse gas management, we set KPIs in terms of both Business processes and Products and services by taking into account that in addition to compliance with policies such as carbon tax and energy-saving regulations, companies' commitment to climate change will affect their environmental brands and even selection of their products and services by customers.

Greenhouse gas management by business processes is effective in reducing transition risks in the course of future enhancement of regulations (for example, future introduction or enhancement of a carbon tax system). In addition, we consider increasing our competitiveness by improving productivity while reducing transition risks, and also boosting our reputation by promoting GHG reduction activities that exceed the industry level as representing opportunities for us.

For products and services, the enhancement of energy-saving regulations poses risks. However, we have been monitoring and evaluating global trends of environmental laws and regulations by using industrial associations and external services, and also developing human resources that specialize in this area. In addition, since we have set CO₂ emission reductions from both the demand and supply sides as numerical targets so that opportunities such as expanding energy-saving markets and increasing energy demand in regions can be optimized, we will expand the renewal energy business and increase our offerings of products and services having high energy efficiency.

Furthermore, under the Sixth Environmental Action Plan, we also included "Improvement of information disclosure" in light of risks and opportunities associated with reputation. We will continue to work on these KPIs, whose progress is managed at meetings of the Corporate Environmental Management Committee held once semi-annually in light of external trends. Note that a structural reform of our business has been underway since last fiscal year, and the target values for the above KPIs for FY2019 onward will be reviewed in order according to the new business portfolio.

Toshiba Group has also been comprehensively assessing risks and opportunities on a mid- to long-term basis in line with recommendations made by the Task Force on Climate-related Financial Disclosures (TCFD). Toshiba Group has four business

domains, namely energy, electronic devices, digital solutions, and social infrastructure as the core, so each business has different risk drivers. For this reason, Toshiba Group companies individually identify risks and opportunities in light of their business situations. We assess the following items according to the risk items defined by the TCFD: introduction or enhancement of a carbon tax system (policy and regulation risks), replacement of technologies (technology risk), lawsuits on climate change (legal), further emphasis on energy-saving performance (market risk), damage to environment brands (reputation risk), and business suspensions due to flooding, etc. and an increase in fuel and lighting expenses (physical risk). We assess the probability of each of these risk items on a 10-point scale, further assess the extent of their impacts on a 5-point scale, and list the risk measures as well. As for opportunities, Toshiba Group companies evaluate their own businesses from the viewpoint of both areas that are driven as a result of transition to a decarbonized society and further market expansion, and we will update these opportunities as necessary while reflecting the latest external trends in them.

The risk that has the largest financial impact is business suspension. As represented by a backlash against coal fired power generation, it is also true that this is a risk largely dependent on the policy trends in the country or the entire region, and transcends the management decisions of a single business entity. For such a risk, we have a business structure covering the entire energy mix and also have established a system for providing the best energy solution matching the customer's requirements in the process of transition to a decarbonized society. In addition, we will continue to work on reducing CO₂ emissions through a 700°C ultra supercritical power generation system (Advanced-USC) that reduces environmental impacts through improved efficiency, a supercritical CO₂ cycle power generation system that can generate power and separate and collect CO₂ at the same time, and technology to separate and collect CO₂ from plants that emit CO₂.

On the other hand, since our core operation is a social infrastructure business, we believe it is our mission to implement low carbon and decarbonized systems in our society as quickly as possible and to accelerate the transition to a decarbonized society. We believe that pursuing that mission will lead to great business opportunities. Low carbonization of mobility area and buildings and facilities, distributed energy systems, and high efficiency manufacturing are domains where we can increase available opportunities by taking advantage of our strengths.

Although there are no physical risks that have yet surfaced, in the event of a large-scale disaster such as flooding and typhoons at the production and sales sites of Toshiba Group, the operation of such production sites may be suspended due to damage to production facilities, suspension of procurement of raw materials and parts, and paralyzed distribution and sales functions. We formulate a business continuity plan (BCP) for each business and production site and work with multiple suppliers to deal with such risks.

On the other hand, needs for adaptation to climate change are expected to further increase, and so we believe that expansion of disaster prevention solutions including weather radars and rainwater drainage systems in preparation for urban floods, and global development of air conditioner sales as a heat stroke countermeasure will help expand our business.

Overview of Environmental Impacts

We are proceeding to quantify the environmental impacts at each stage of the product life cycle — from materials procurement, manufacturing, transportation to customer use, collection and recycling. This data was collected from 389 Toshiba Group companies (actual results for FY2017). We carry out overall assessments on the environmental impacts of input resources/energy and emission of greenhouse gas and chemicals using the Life-cycle Impact assessment Method based on Endpoint modeling (LIME) and express it in terms of economic value. This makes it easy to compare the impact on sales, grasp improvements in environmental efficiency, and even recognize the impact as the magnitude of environmental risk.

During the material procurement stage, Toshiba Group will make efforts to reduce environmental impacts mainly through reducing product resource consumption, increasing recycled material use, resource recycling, and promoting green procurement. Under the Sixth Environmental Action Plan, we set an "Increased amount of resources saved," "Increased amount of recycled resources (recycled plastics) used," and "Reduction of specified chemical substances contained in products" as KPIs.

During the manufacturing stage, in addition to legal compliance, continued process improvement is required so that the overall environmental impacts can be reduced. We set "Reduction of total greenhouse gas emissions," "Improvement of total energy-derived CO₂ emissions per unit activity," "Reduction of waste volumes," "Improvement of the total volume of waste generated per unit production," "Improvement of the amount of water received per unit production," and "Reduction of the total amount of chemicals discharged per unit production" as KPIs under the Sixth Environmental Action Plan with the aim of reducing total environmental impacts.

In FY2017, Toshiba Group used about 54 TJ's worth of renewable energy. This amount corresponds to a reduction of 2,887 t-CO₂. We will continue striving to use more renewable energy to achieve decarbonization during the manufacturing stage.

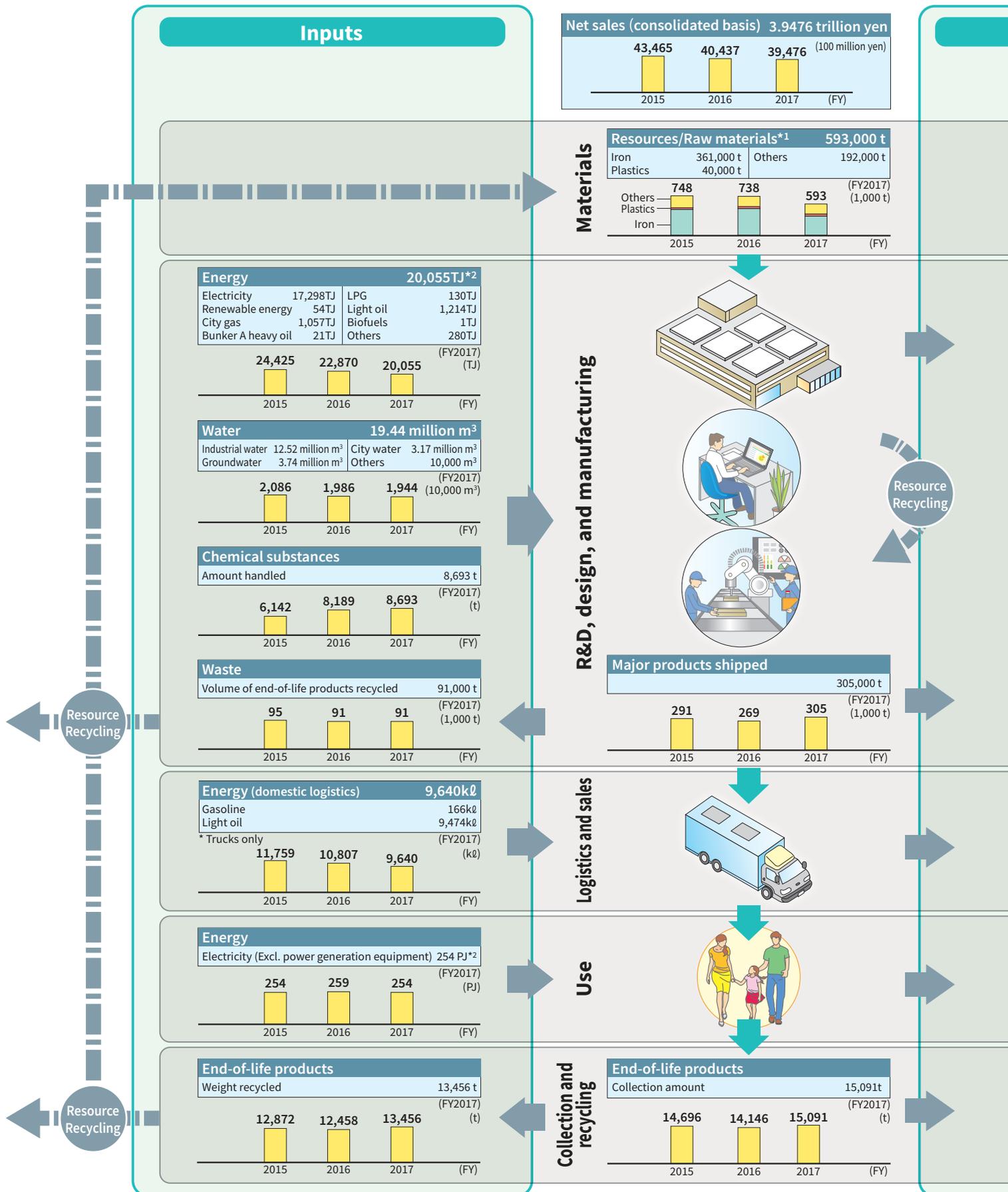
During the transportation stage, in addition to taking various energy and CO₂ reduction measures including improving load factors, applying modal shifts to a wider range of products, and shortening the transport distance by restructuring distribution centers, we are continuously taking 3Rs initiatives for packaging materials.

We realized that environmental impacts are most significant during the use of products and services in the product life cycle. Under the Sixth Environmental Action Plan, we set "Reductions in CO₂ emissions by eco-products" as a KPI and are making efforts to increase products and services that can reduce their environmental impacts on society as a whole. Since we can contribute to help achieve a low carbon society from both the energy supply side and the energy consumption side, we also set two KPIs, for the supply side and the consumption side.

During the collection and recycling of products stage, we are working to collect and recycle end-of-life products, such as industrial air conditioners, MFPS, and POS on a global basis.

Achieving an overview of environmental impacts is absolutely essential for the planning of goals and measures to take. We also set "Improvement of information disclosure" as an item for which to promote activity under the Sixth Environmental Action Plan, with a goal of better reporting. We will continue making progress by expanding the target items for data collection and strive to improve the accuracy of the data.

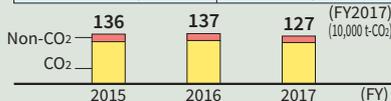
Overview of Environmental Impacts



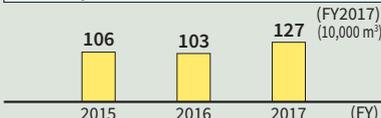
*1 Material inputs are calculated based on the Estimation Method for Material Inputs Using Input-Output Table (EMIoT), a method independently developed by Toshiba Group ("EMIoT": Estimation method for Material-inputs using Input-Output Table). EMIOT uses ratios of resources used per unit production, which are prepared based on the Input-Output Table, to calculate total material inputs. One distinctive feature of the method is that input-output analysis is applied only to the flow of resources from upstream to downstream. Another is that the volume of such resources by industrial sector is stored in a database. Using this method, it is possible to calculate weights of input resources by resource type from the data on procurement (monetary value) by resource category, which are gathered by materials procurement divisions. Therefore, data can be gathered not only on direct materials, but also indirect materials. Previously, it was difficult to totalize as resources the imported inputs that accompany the procurement of complex materials and service businesses. However, by using this method, it has become possible to grasp the amount of imported inputs by material category for such procured materials as well.

Emissions

Total GHGs*3		1.27 million t-CO₂	
CO ₂	1.09 million t-CO ₂	·SF ₆	46,000 t-CO ₂
Non-CO ₂	178,000 t-CO ₂	·HFC	14,000 t-CO ₂
·PFC	111,000 t-CO ₂	·Others	10,000 t-CO ₂



Water reused and recycled		1.27 million m³	
Water reused	870,000 m ³		
Water recycled	400,000 m ³		



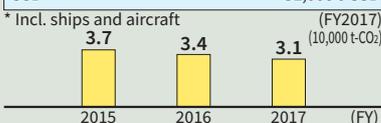
Chemical substances (atmosphere)		532 t	
Amount released	532 t		



Waste		96,000 t	
Waste generated	96,000 t		



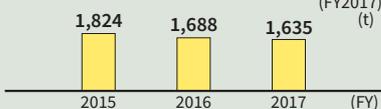
GHGs from transport (domestic logistics)		31,000 t-CO₂	
CO ₂	31,000 t-CO ₂		



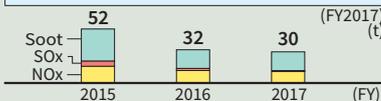
Greenhouse gas emissions		42.65 million t-CO₂	
CO ₂ (Excl. power generation equipment)	42.65 million t-CO ₂		



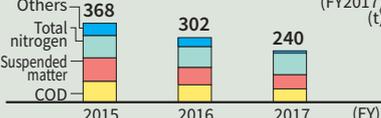
End-of-life products		1,635 t	
Amount disposed after recycling	1,635 t		



Emissions to the atmosphere		18 t	
Soot	18 t		
SOx	1 t		
NOx	11 t		



Emissions to the hydrosphere		101 t	
Total wastewater	15.66 million m ³	Total nitrogen	101 t
COD	62 t	Others	11 t
Suspended matter	66 t		



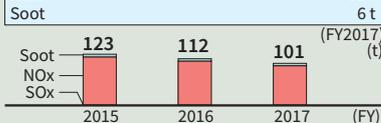
Chemical substances*4 (hydrosphere)		10.8 t	
Amount released	10.8 t		
Transfer to sewage	1.3 t		



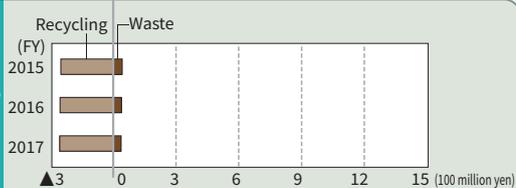
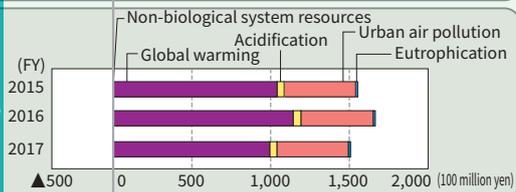
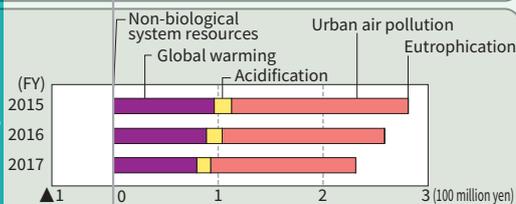
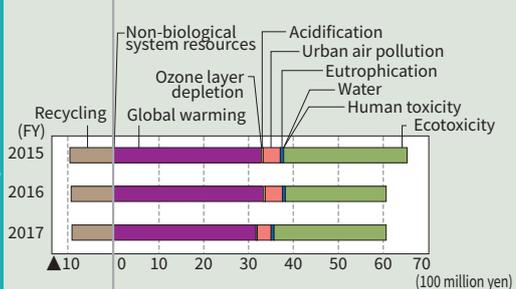
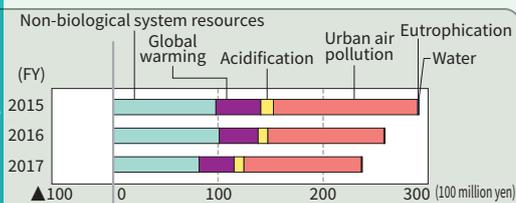
Waste		800 t	
Final disposal volume	800 t		



Emissions to atmosphere during transport		0.2 t	
SOx	0.2 t		
NOx	95 t		
Soot	6 t		



Environmental impacts (Overall evaluation)



*2 TJ = 10¹² J; PJ = 10¹⁵ J. J (Joule) is a unit of energy measuring mechanical work, heat, and electricity. One joule equals about 0.239 calories.

*3 In this table, the CO₂ emission coefficient for electricity in Japan is 5.31 t CO₂/10,000 kWh.

*4 The volume of hydrogen fluoride and its water-soluble salt emitted into hydrosphere since FY2009 is calculated to be zero because hydrogen fluoride used becomes non-water-soluble salt through post-use treatment.