

TOSHIBA ELECTRONIC DEVICES & STORAGE CORPORATION
ENVIRONMENTAL REPORT

2017

TOSHIBA ELECTRONIC DEVICES & STORAGE CORPORATION

Environmental Report



Toshiba Electronic Devices & Storage Corporation Group contributes to resolving social issues with energy-saving, IoT society infrastructure development.



CONTENTS

Top Management Commitment / Statement of Environmental Philosophy of Toshiba Electronic Devices & Storage Corporation Group 3

1 Environmental Management 5

- Environmental Management System / Environmental Management Committee
- Compliance with Laws and Risk Management
- Acquisition of ISO14001 Certification
- Implementation of Environmental Audit at Toshiba Group / Environmental Training
- Current Status of Environmental Impact
- Targets and Outcomes

2 Reduction of Environmental Impact of Products 9

- Environmental Focus on Products Design and Engineering Stages
- Green Procurement / Controlling Chemical Substances in Products
- Reducing the Environmental Impact with LCA
- Further Environmental Consideration in Physical Distribution
- Devices that contribute to resolving social issues

3 Reduction of Environmental Impact in manufacturing 13

- Reduction of Energy-Originated CO₂ Emissions
- Various Activities to Reduce Greenhouse Gases including PFCs
- Activities Aiming to Reduce Chemical Substance Discharges
- Waste sent to landfill less than 0.5% has been promoted at all manufacturing sites
- Efficient Use of Finite Water Resources

4 Environmental Communication 16

- Environmental Communication Activities Developed and Carried Out at our sites
- Various Communication Activities / External Awards
- Raising environmental awareness through unique activities
- Promoting the Preservation of Biodiversity

5 Data and Third Party verification 22

- Acquisition of 14001 certification
- Third party verification
- Editorial Policy / Editor's Postscript

Semiconductor × HDD

Top Management Commitment

We promote the environmental management practices as an all-purpose device manufacturer that contributes to resolving social issues.

Hiroshi Fukuchi
President,
TOSHIBA ELECTRONIC DEVICES & STORAGE CORPORATION



Foreword

With the increasing seriousness of global environmental problems, such as global warming, we feel that it is vital to take advantage of opportunities to work cooperatively with others around the world in facing these challenges. For instance, we must join others in adopting the Paris Agreement at COP 21, adopting sustainable development goals (SDGs) as spelled out at the United Nations Summit, signing the United Nations Responsible Investment Principles (PRI) for Government Pension Investment Funds (GPIF), and commencing ESG (Environment, Society, Governance) investments.

With these opportunities in mind, the company, as a member of the Toshiba Group, promotes Toshiba's "Environmental Vision 2050", which strives to create a society where human beings live in harmony with the globe by the year 2050. We are promoting environmental activities according to an environmental action plan that determines specific activities and target values.

Contributing to resolving social issues with device technology and low environmental burden manufacturing

Toshiba Electronic Devices & Storage Corporation was established in July 2017 as part of a reorganization within the Toshiba group. Its goal is to become a comprehensive device manufacturer of discrete semiconductors, mixed signal ICs, logic ICs, linear sensors, and hard disc drives, that meet our customers' various needs and intended uses. For instance, in the automotive and industrial fields, our customers desire device technology that must not only ensure stability and

safety, but also must conserve energy and resources (through miniaturization of equipment), increase efficiency, and enhance thermal countermeasures. Thus, we would like to engage in design of products with both the environmental and societal impact in mind.

On our operations side, we have many manufacturing facilities within Japan as well as overseas. In particular, our proportion of Toshiba Group's environmental impacts related to production - CO₂ emissions, waste and water usage - is high, and this trend will expand as future business expansion. As such, we bear great responsibility in ensuring that our manufacturing processes are properly managed to minimize environmental impact in each region.

We encourage feedback from many sources, including our industrial and academic partners as well as our employees, on how we can continue to improve our environmental management practices, in addition to the energy-saving efforts, continued over many years.

Community Outreach

We seek to cultivate open and trusting relationships with the local communities in which we operate. For that reason, we engage in various community outreach activities. We visit neighborhood elementary schools to provide environmental awareness lessons to students. We engage in conservation efforts that help protect the habitats of endangered or threatened species. We also provide guided tours of our manufacturing facilities and give demonstrations about our environmental practices. In the future I would like to continue such activities while thinking about new ideas.

Environmental Management

Statement of Environmental Philosophy of Toshiba Electronic Devices & Storage Corporation Group

Business changes from July 1, 2017 also enacted the environmental policy as shown below. Regardless of organizational changes, activities concerning resolution of social issues through business activities, such as the integration of environmental management systems with business processes and activities aimed at improving environmental performances, will not change. Our environmental statement and philosophy is posted on our website and in our environmental report, available to anyone as well as to employees. We will promote our activities while addressing environmental issues as one of our most important management priorities, based on this environmental philosophy.

Statement of Environmental Philosophy of Toshiba Electronic Devices & Storage Corporation Group

Vision

Recognizing Toshiba Group's Basic Policy for the Environment that the Earth is an irreplaceable asset and it is humankind's duty to hand it on to future generations in a sound state, Toshiba Electronic Devices & Storage Corporation Group is pursuing creation of new values and symbiosis with the Earth. Also Toshiba Electronic Devices & Storage Corporation Group contributes to the development of a sustainable society by promoting environmental activities designed to contribute to the realization of a world that is low-carbon, recycling-based and nature-harmonious.

Policy

Toshiba Electronic Devices & Storage Corporation Group considers environmental stewardship to be one of management's primary responsibilities, and promotes environmental activities proactively to reduce the environmental impact in the manufacturing process for semiconductor and storage products from the design stage in harmony with economic activities. Toshiba Electronic Devices & Storage Corporation Group strives to take the environment into consideration in its business activities such as development, manufacturing, sales, services, and disposal from life cycle perspective, and aims to contribute to society by supplying products that consider environmental impact, and by realizing energy saving and reduction of resource usage in equipment in which semiconductor and storage products are installed.

1. Compliance and sustainability

- 1) Toshiba Electronic Devices & Storage Corporation Group complies with all applicable laws and regulations, industry guidelines it has endorsed, and its own standards concerning the environment.
- 2) Toshiba Electronic Devices & Storage Corporation Group strives to continuously improve and effectively apply its environmental management system through internal audits and reviews in order to enhance environmental activities level and environmental performances.

2. Execution

Toshiba Electronic Devices & Storage Corporation Group strives to assess the environmental impact of its business activities including with regard to biodiversity which comprehend development, procurement, manufacturing and sales, set objectives and targets with respect to the reduction of environmental impact, pollution prevention and development of energy saving technologies, and execute proactive environmental measures including the following:

- 1) Striving to create and supply semiconductor and storage products that consider environmental impact through the development of energy-saving and resource-saving designs, and by the restriction of the amounts and types of chemical substances contained in products;
- 2) Promoting reduction of our contribution to global warming by implementing productivity improvements, reducing our emission of greenhouse gases, developing and implementing energy-saving technologies for power systems and manufacturing equipment, along with establishing guidelines to track our progress in these issues;
- 3) Contributing to a recycling-based society through efforts to promote 3R (reduce, reuse, recycle) measures proactively along with improving productivity, developing technologies to reduce, reuse or recycle resources used during our manufacturing processes, and establishing guidelines related to our waste and recycling, while also promoting efficient utilization of natural resources by implementing measures aiming to reduce waste generation and water intake;
- 4) Promoting risk reduction on environmental issues by appropriately restricting and using chemical substances, developing technologies to effectively reduce the use of certain chemical substances, and establishing guidelines for our chemical usage, along with making efforts to reduce the total amount of chemical substances released into the environment and the amount of chemical substances treated;
- 5) In order to preserve biodiversity, Toshiba Electronic Devices & Storage Corporation Group strives to assess and mitigate the environmental impact of its business activities on biodiversity and seeks to make a better contribution to society;
- 6) Facilitating mutual understanding with stakeholders by disclosing information through public relations, exhibitions, and mass-media regarding semiconductor and storage products from the energy-saving viewpoint, and collaborating with local communities and society at large;
- 7) Striving to enhance the awareness of employees with respect to environmental management, and considering the environment in business activities and processes throughout the Toshiba Electronic Devices & Storage Corporation Group.

Toshiba Electronic Devices & Storage Corporation Group discloses this Statement of Environmental Philosophy to the public, promotes awareness of this Statement of Environmental Philosophy throughout Toshiba Electronic Devices & Storage Corporation Group, and promotes its business activities according to this Statement.

Revised on Jul 1, 2017

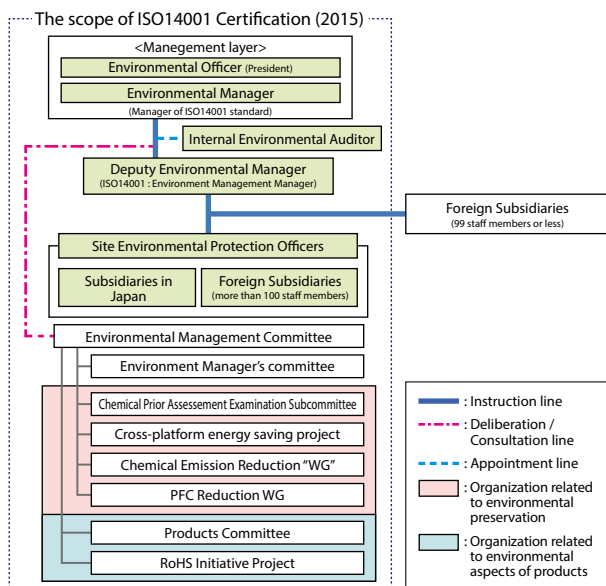
Hiroshi Fukuchi

President, Toshiba Electronic Devices & Storage Corporation

Environmental Management

Environmental Management System

Our environmental management, as is true with the Toshiba Group, consists of five pillars: (1) reducing the environmental burden of manufacturing, (2) improving the total environmental performance of products and services through management, (3) ensuring thorough environmental risk compliance, (4) promoting environmental brand improvement measures, and (5) conserving biodiversity that develop proactive activities based on the following environmental management system.



Environmental Management Committee

The Environmental Management Committee is chaired by the Environmental Officer of the Toshiba Electronic Devices & Storage Corporation (President) and consists of executives, general managers of sites, presidents of domestic subsidiaries, and other functionaries, and is held every six months. The committee handles diverse environmental issues, including determining the environmental management roadmap, business operation activity reports, confirming priority measures, and ensuring that employees are aware of the Statement of Environmental Philosophy of Toshiba Electronic Devices & Storage Corporation Group.

This promotes information and knowledge about specified items and environmental management to field managers and the presidents of related companies as well as employees.

Compliance with Laws and Risk Management

The Toshiba Group has established self-regulation values which are stricter than applicable laws for environmental impact discharges to bodies of water and air borne emissions, and is following self-imposed rules through individualized approaches at each business operation. Internal environmental audits are conducted to identify potential environmental risks, thereby striving to prevent environmental accidents from occurring. Information regarding audit results are shared throughout the group. Each business operation also reduces environmental risk at facilities with various measures, such as the installation of double containment systems in facilities that use pipes and storage tanks for chemical agents. During FY2016, no group member was in breach of any environmental law nor subject to any fine or other penalty related to the environment.

Acquisition of ISO14001 Certification

Toshiba Electronic Devices & Storage Corporation Group is proceeding with the acquisition of integrated certification for all its global business processes, and has maintained the certification (at 13 company sites within Japan and eight sites outside Japan (note)) in fiscal year 2017. We will continue our contributions to resolve social issues by the creation and offering of energy and resource conservation and products that are consistent with the business policy based on our global comprehensive environmental management system. We will also strive to minimize impact on the environment by our organization, conduct community outreach according to regional characteristics, and conduct biodiversity preservation activities along with effective environmental management activities. For the business locations and subsidiaries that have acquired certifications and certification numbers, etc., see Chapter 5.

(Note) The scope extends to the main company and all Japan-based consolidated companies (manufacturing and non-manufacturing) and overseas consolidated companies (manufacturing and non-manufacturing) with more than 100 employees.



All Toshiba Electronic Devices & Storage Corporation Group worksites join in the commitment to prevent hazardous substance discharges. In this column, we introduce some examples of these efforts.

① Hardware measures:

We introduced drainage dikes, double jointed piping and above-ground aerial piping to prevent hazardous chemical substance leaks. (Photos: Kaga Toshiba Electronics Corporation)



Drainage dikes
*Red frame indicates a drainage dike.
Installation of drainage dikes to prevent leakage of fluids and underground seepage when wastewater is spilled from tanks.



Double joints in piping
Installation of double joints in piping to enable checking for leakage of fluids.

② Software measures:

Troubleshooting drills to catch abnormalities and stage foreseeable emergencies are held. Below is an exercise in a situation where it is assumed that waste liquid from a waste liquid recovery transport vehicle has leaked and flowed into a rainwater drain. Employees quickly take diffusion prevention measures, applying neutralizing agents, absorb waste liquid with absorbents and review the training performance. (Photos: NuFlare Technology, Inc.)



Employees perform an initial response to the leak



Taking diffusion prevention measures by means of sandbags



Recovering the leaked substance by means of absorption mats



Discussion between participants and evaluators after the exercise

Implementation of Environmental Audit at Toshiba Group

Since 1993, the Toshiba Group has been conducting regular environmental audits covering most Toshiba group company sites through its proprietary Toshiba Group Environmental Audit System. This system is based on the "3 Zen (all) approach," which promotes management of all facilities in all areas by all employees; the "3 Gen (actual) approach," which emphasizes measurement of the actual situation of actual items at actual plants; and the "visual control" approach, which includes, for example, the practice of labeling every piece of equipment to indicate its proper status so that it can be checked easily in the field for compliance.

The environmental audit is conducted for two days by an audit team that consists of qualified auditors from within the company. The sites receive audits on the following items: 1) environmental management, 2) legal compliance and 3) plant management, as displayed in the figure on the right-hand. The plant audit, in particular, is conducted at 19 facilities

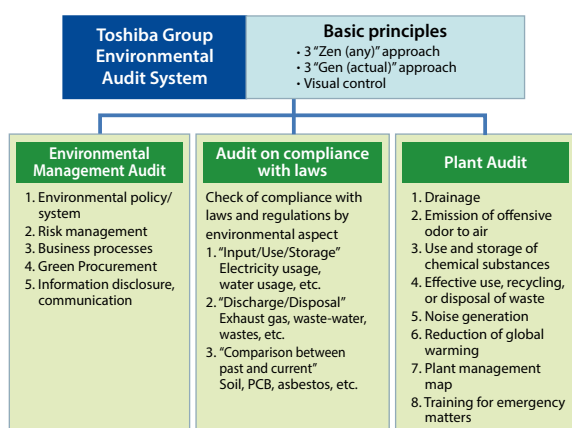
and includes checks of waste water treatment equipment, recycling, and chemicals warehouses and facilities that use chemicals, as well as training for handling emergency situations.

Compliance, measurement control, 4S (Seiri, Seiton, Seiketsu, and Seisou, meaning in English: sorting (removing unnecessary things), straightening (keeping things orderly and available as needed), sanitation, and sweeping (maintaining a clean workplace), and employee education are also strictly monitored.

Any audited site which receives instructions for improvement, if any, must implement corrective measures within six months in order to implement further optimization and continuous improvements.

Toshiba Electronic Devices & Storage Corporation Group endeavors to ensure thorough compliance with laws and regulations, the reduction of environmental loads at each sites, reduction of risks and other efforts to enhance its environmental performance through the consolidated environmental audit system and ISO14001.

Toshiba Group Environmental Audit System



Audits are also performed with respect to efforts in clean rooms



An auditing team checks the contents of initiatives listed on an environmental bulletin board together with employees



An auditing team checks the specified storage volume of a medicine depository based on the Fire Services Act



An auditing team evaluates the functions and management conditions of an underground relay tank

Environmental Training

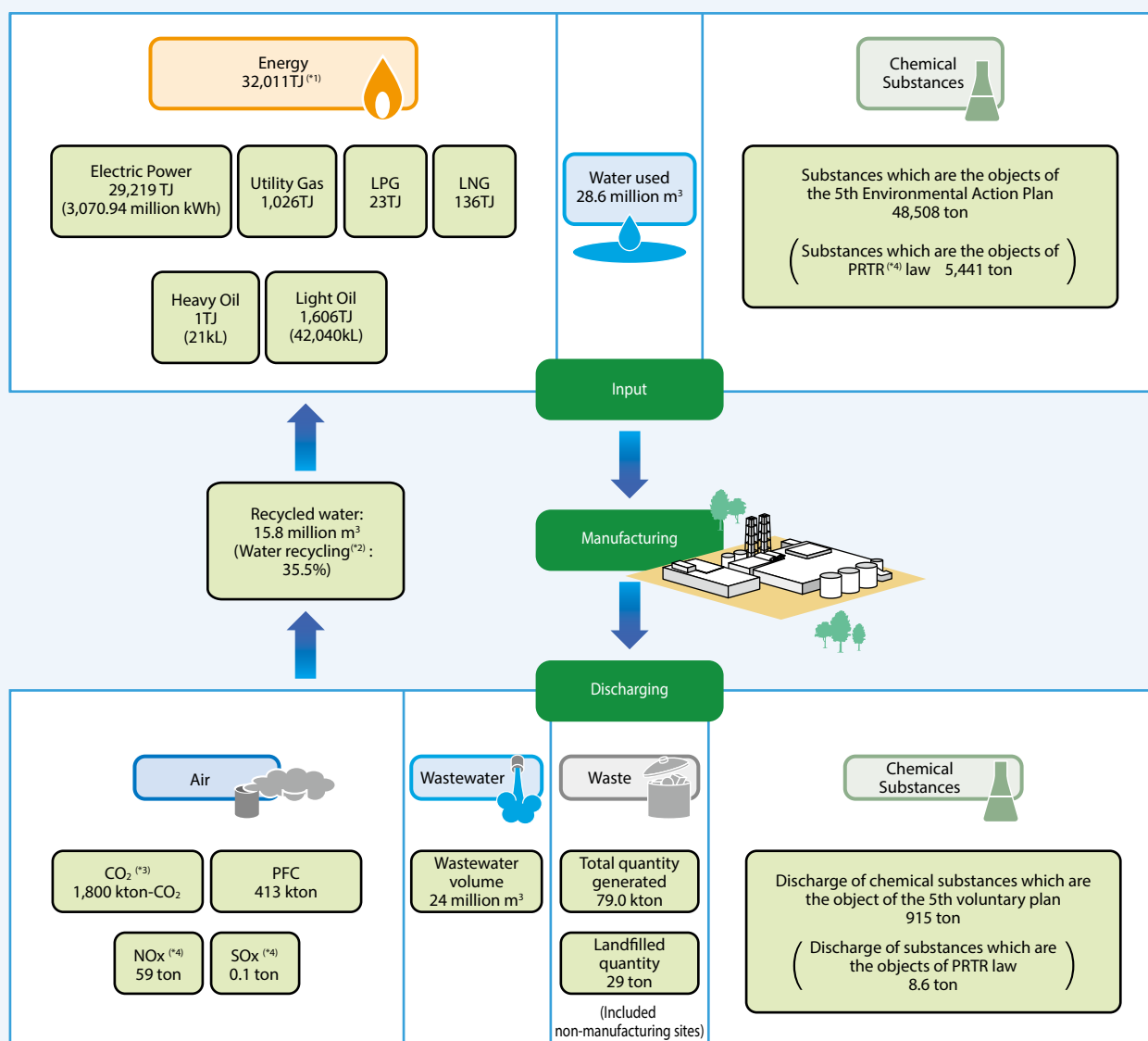
Toshiba Electronic Devices & Storage Corporation Group is conducting environmental education for all employees in order to make them thoroughly understand environmental management and to raise awareness of environmental activities. Toshiba Electronic Devices & Storage Corporation Group uses e-learning software for general environmental training of its employees. For new employees, engineers, and

sales representatives, face-to-face training is also provided. We will continue environmental training for all employees, improving the contents to raise environmental awareness.

We also train auditors for Toshiba Group Environmental Audit System based on the internal auditor training program of the Toshiba Group. Potential candidates for the training program for site environment auditors must be above the rank of deputy manager. They sit for written tests and undergo plant training on the applicable environmental laws, ISO 14001, internally structured policy, rules, and other key areas.

Current Status of Environmental Impact

The company group utilizes the environmental management information system introduced by the Toshiba Group, and manages and analyzes the environmental impact within the group in order to develop effective environmental conservation measures. The status of Toshiba Electronic Devices & Storage Corporation Group's environmental impact in FY2016 is described below. Please refer to chapter 3 "Reduction of Environmental Impact in manufacturing" regarding some of our specific initiatives currently ongoing in our efforts to reduce the impact of our business activities on the environment.



Above value includes Toshiba Memory Corporation.

(*)1 TJ: tera (10¹²) joule

(*)2 Water recycling rate: (required feed water - water supplied) / (required feed water) X 100 (%). (as defined by JEITA (Japan Electronics and Information Technology Industries Association))

(*)3 CO₂ Emission coefficient: In line with the Act on Promotion of Global Warming Countermeasures and Law Concerning the Rational Use of Energy (town and city gas unit thermal quantities use values provided by suppliers). Electricity consumed in Japan based on data from The Federation of Electric Power Companies of Japan (The receiving end). Overseas electricity consumption based on the GHG Protocol.

(*)4 NO_x, SO_x: Values pertain to sites in Japan

Targets and Outcomes

The Toshiba Group has enhanced its environmental activity level by expanding action items and numbers of involved worksites in several stages since the first environmental action plan established in 1993. Today, we are making efforts to be an enterprise that contributes to the sustainable lifestyles of individuals and society based on the fifth environmental action plan, which has its term from FY2012 to FY2016.

In this chapter, we will introduce the achievements of FY2016 plan and our plans in FY2017 based on the sixth environmental action plan from FY2017.

Achievement of FY2016 plan by the Toshiba Electronic Devices & Storage Corporation Group ^(*)

As shown in the table below, we achieved all target items in FY2016. To meet reduction targets of greenhouse gases, we introduced inter-departmental energy conservation activity measures and promote reduced PFC gas emissions. We also

developed measures for the reduction of waste based on the 3R (reduce, reuse and recycle) principle. In regards to the reduction of chemical emissions and substances, we instituted recycling and chemical reduction plans.

Item	Indicator	FY2016		
		Plan	Result	Evaluation
Reduction of energy-originated CO ₂ emissions ^{*2}	Total emissions	1,954 thousand ton or less	1,795 thousand ton	○
Reductions of total emissions of certain greenhouse gases, excluding CO ₂ ^{*3}	Total emissions	471 thousand ton or less	413 thousand ton	○
Emissions of chemical substances to air and water (total amount)	Total emissions	1,020 ton or less	915 ton	○
Chemical substances treated (total amount)	Total emissions	49.0 thousand ton or less	48.5 thousand ton	○
Total waste amount ^{*4}	Total amount of waste generated minus amount of valuable waste	50.1 thousand ton or less	48.8 thousand ton	○
Reduction in the total amount of waste generated	Total waste generated	86.3 thousand ton or less	79.0 thousand ton	○
Reduction of water intake	Amount of water intake	34 million m ³ or less	28.6 million m ³	○
Biodiversity preservation activities	Preservation and measurement of objective species at all targeted sites	All sites	All sites	○

Above values include sites in and outside Japan.

Supplementary notes:

*1 Above values include Toshiba Memory Corporation.

*2 Electrical CO₂ emissions coefficient are used to calculate energy-originated CO₂ emissions (in Japan, 5.31 t-CO₂/10,000 kWh). Overseas electricity is based on the GHG Protocol.

*3 The subject substances: based on Global Warming Countermeasures Act, Emission quantity calculation methods: based on 2006 IPCC guidelines, Global Warming Potential (GWP) coefficient: Based on IPCC 4th evaluation report.

*4 The waste amount is remaining after valuable materials are subtracted from the total amount of waste generated.

Plans Post FY2017 by Toshiba Electronic Devices & Storage Corporation Group ^(*)

Below chart is FY2017 environmental performance plan. We can expect a higher demand for our products as the market for smart-phone storage systems, data centers and other application fields increase in the future. We anticipate the increase of environmental loads as a result of expanding

our production capabilities. But at the same time, we will conduct enhanced efficient raw material use, and chemical substances to promote resource conservation and waste recycling all in efforts to reduce environmental loads.

Item	Indicator	FY2017 Plan
Reduction of energy-originated CO ₂ emissions ^{*2}	Total emissions	664 thousand ton or less
Reductions of total emissions of certain greenhouse gases, excluding CO ₂ ^{*3}	Total emissions	163 thousand ton or less
Emissions of chemical substances to air and water (total amount)	Total emissions	241 ton or less
Total waste amount ^{*4}	Total amount of waste generated minus amount of valuable waste	11.3 thousand ton or less
Reduction in the total amount of waste generated	Total waste generated	18.7 thousand ton or less
Reduction of water intake	Amount of water intake	15.8 million m ³ or less
Biodiversity Preservation Activity	Number of objective sites (measurement and preservation activities)	9 sites

Above values include sites in and outside Japan.

Supplementary notes:

*1 Above values do not include Toshiba Memory Corporation.

*2 Electrical CO₂ emissions coefficient are used to calculate energy-originated CO₂ emissions (in Japan, 5.31 t-CO₂/10,000 kWh). Overseas electricity is based on the GHG Protocol.

*3 The subject substances: based on Global Warming Countermeasures Act, Emission quantity calculation methods: based on 2006 IPCC guidelines, Global Warming Potential (GWP) coefficient: Based on IPCC 4th evaluation report.

*4 The waste amount is remaining after valuable materials are subtracted from the total amount of waste generated.

Reduction of Environmental Impact of Products

During product development we consider the product's environmental impact, including its energy consumption and use of chemical substances.

Communication technologies have advanced in recent years, and smart-phones, cloud computing and other products and systems utilizing information and communications technology (ICT) will continue to drive tremendous increases in energy demand. Energy conservation in electronic devices is a pressing matter. Meanwhile regulations on chemical substances contained in products as they relate to the environment are becoming increasingly strict worldwide, and semiconductors and storage products must comply with these laws. Toshiba Electronic Devices & Storage Corporation Group offers products for home appliances, storage systems, social infrastructure and many other uses. We are continuing efforts to create products in line with energy conservation and chemical substance management, throughout our product design, development, and production.

Environmental consideration at the stages of product design and engineering

At the stages of product design and engineering, Toshiba Electronic Devices & Storage Corporation Group conducts assessments of the environmental impact of its products as a part of the engineering process (please refer to the chart below) and confirms environmental quality, legal compliance, chemical substances management, energy savings and natural resources savings. Information on

chemical substances contained in new raw materials and products is reviewed to identify the existence or use of "Procurement Prohibited Substances" and "Procurement Controlled Substances" as designated by Toshiba Electronic Devices & Storage Corporation Group.

Toshiba Electronic Devices & Storage Corporation Group's approach regarding Controlled Substances

► Japanese laws and regulations

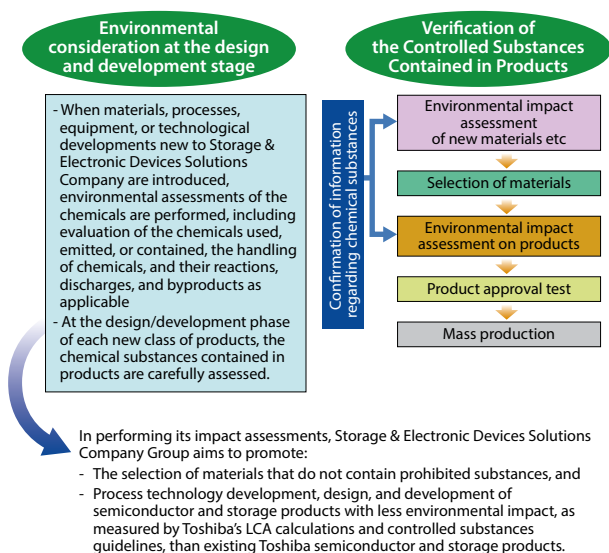
- Law concerning the Protection of the Ozone Layer through the Control of Specified Substances and Other Measures,
- Law concerning the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
- Industrial Safety and Health Law,
- Chemical Weapons Convention
- The law concerning reporting, etc. of the release to the environment of specific chemical substances and promoting improvement in their management
- Water Pollution Control Law
- Waste Management and Public Cleansing Act

► Laws and regulations outside Japan.

- "RoHS"-type regulations enacted in several countries/regions, WEEE Directive of EU, ELV Directive of EU, REACH, ErP Directive, etc.

► Others:

- Customer requests



Promoting Green Procurement Initiative

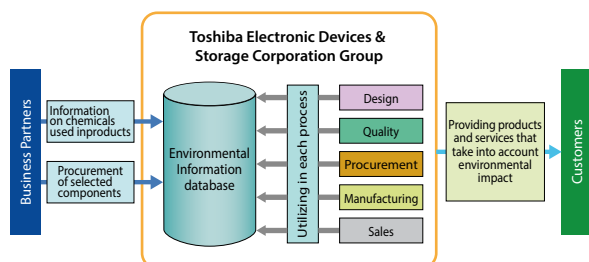
In line with its Green Procurement guidelines, Toshiba Electronic Devices & Storage Corporation Group requests suppliers to provide information related to the "Procurement Prohibited Substances" and "Procurement Controlled Substances" that we have designated. We meet with our suppliers to ensure that our Green Procurement guidelines are fully understood by the suppliers and provide information and materials through the Internet.



Controlling chemical substances in products

Regulations controlling chemical substances in products have been or will soon be enforced in many countries. They include some major regulations that are relevant to Toshiba Electronic Devices & Storage Corporation Group, such as the EU's RoHS Directive, End of Life Vehicles (ELV) Directive, and Packaging and Packaging Waste Directive. Similar regulations to EU RoHS also went into effect in China and South Korea. Since June 2007, the EU has enforced REACH, which requires evaluation and registration of all chemical substances manufactured in or imported into the European Union. It also requires clarifying and understanding of chemical substances contained in products and provision of information for customers. Semiconductor and storage products are used in an extremely wide range of applications, such as in electrical/ electronic equipment, control systems, and vehicles. Hence, the control of information on chemical substances which comprise the products is an important factor for product quality assurance. Toshiba Electronic Devices & Storage Corporation Group has designated certain chemicals used by the Group as "Procurement Prohibited Substances" and "Procurement Controlled Substances" in order to either prohibit or restrict content in products in accordance with applicable laws and regulations of each country.

We procure components and raw materials through green procurement activities that reflect our prohibitions or restrictions on Controlled Substances. In addition, we investigate the content percentages of chemical substances that might give significant impact to the environment and endeavor to select parts and raw materials with a lower impact on the environment. This information is stored in the database, and used to inform the authorization of new procurement, to determine when currently procured materials should be replaced, and to develop products (see the figure below).



Further Environmental Consideration in Physical Distribution

Toshiba Electronic Devices & Storage Corporation Group also takes various measures to promote environmental management in the physical distribution stages.

Pursuant to Japan's Law Concerning the Rational Use of Energy revised in April 2006, Toshiba Electronic Devices & Storage

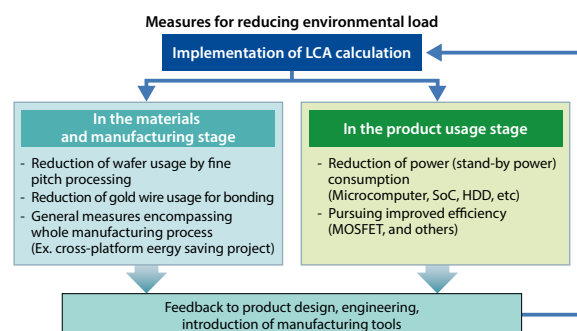
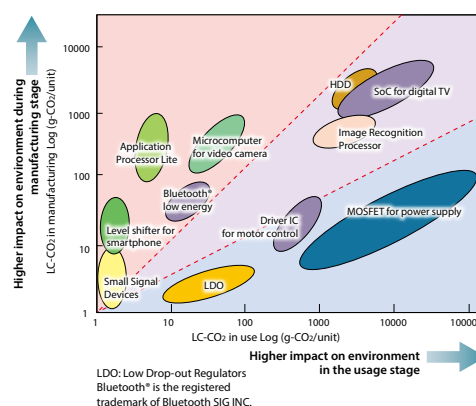
LCA measures to reduce environmental impact

Life cycle assessment (LCA) is a method of evaluating a product by totaling the amount of material and energy input in a series of processes from beginning to end, such as collection of resources for product materials, production of materials, manufacturing of products, transportation, distribution and disposal, and the amount of the substances released that impact the environment.

Toshiba Electronic Devices & Storage Corporation Group completed calculations of the LCA for sample products from nearly all of our product groups. The results are being used in studies and analyses on the environmental impact of our products.

In this way, we will be able to identify the most efficient points of improvement by visualizing the environmental impact during the manufacturing and use of semiconductors systematically. (Refer to the chart below)

For example, implementing fine pitch processing and efficient production methods may help reduce impact on the environment about the products with higher impact on environment during manufacturing stage. Further, designing products with low power consumption may help conserve energy about the products with higher impact on environment in the usage stage.



Corporation Group endeavors to reduce CO₂ emissions from all distribution phases.

The table below shows the actual CO₂ emissions created by the Toshiba Electronic Devices & Storage Corporation Group's physical distribution of products delivered in Japan, and the improvement rate of CO₂ emissions since FY2010. We have proactively produced positive results by optimizing distribution routes.

	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
CO ₂ emissions associated with products delivery logistics (Unit ton)	2,145	1,585	1,262	973	618	523	558
Improvement rate of CO ₂ emissions with reference to FY2010 ^(*) (par unit of output normalized by deflator)	100%	76%	49%	44%	24%	21%	23%

Supplementary notes:

(*)1 The object of the CO₂ emissions is associated with products delivery logistics in Japan.

(*)2 Improvement rate of CO₂ emissions with reference to FY2010 indicates the ratio of CO₂ emissions associated with products transportation per unit of output normalized by deflator each year compared with FY2010, expressed as a percentage. (Baseline FY2010: 100%)

Not always obvious, Toshiba's products support safety,

In the IoT society, where everything is linked via the internet, and trends toward a low-carbon society grow with emphasis through Toshiba's semiconductor and storage technologies and our application devices, to reduce environmental loads

IEGT

IEGT (Injection Enhanced Gate Transistor) is used in motor controls at railroads and in hybrid vehicles and in power transformers at power stations. We strive to develop IEGT aiming to contribute to energy efficiency and compactness of application products.



Plastic Case Module package Press-Pack package Power transformer substations

Automotive semiconductors

Semiconductors are used in steering, braking control, and door mirror systems as well as in other areas. These automotive devices must meet strict environmental standards.



Automotive device packages

Vector control microcomputer

Storage devices for SSD and HDD require effective cooling fans. Vector controlled microcomputers enables maximum motor efficiency



Cooling fan

Vector control microcomputer TMPM37AFSQG

Small 5 x 5 mm package

HDD for data centers and enterprises

Tiered storage systems are structured in effective high-speed SSD combinations and feature large-capacity HDD. Near-line HDD for enterprise is the best suited for large capacity.



Tiered Storages

Date center

MG06 series

Tiered storage actualize high-speed and large-capacity by taking advantage of their unique feature.

Large capacity HDDs are excellent for systems that require vast quantities of data storage.

Visconti™

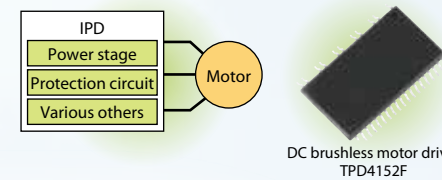
Visconti™ is a high performance image recognition processor with original circuitry that instantly analyzes and inputs an image from cameras and supports safe driving.



Visconti4 series TMPV7608XBG

IPD

IPD (Intelligent Power Device) is an output stage single package control circuit with various protection functions, for motor drive and features excellent compactness.



DC brushless motor driver TPD4152F

Photo-coupler

A device that converts electric signals to light, reconverts to electric signals to maintain the integrity of power circuits. It is used in various devices, home appliances like air-conditioners, FA industrial machines.



Midget-type TPL3440S

High-Current TPL3556A

Low power consumption TPL5774

Personal Storage System

Memories are made every day. Toshiba personal storage protects your precious memories.

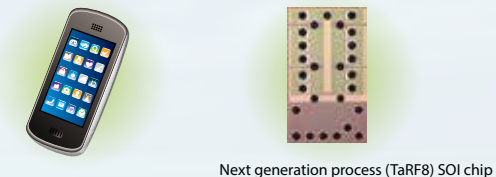


CANVIO PREMIUM

CANVIO for Desktop

SOI-SW

Toshiba developed an antenna switch that does not use hazardous gallium arsenide with our unique process using SOI (silicon on insulator) technology. High performance and compact size are achieved.

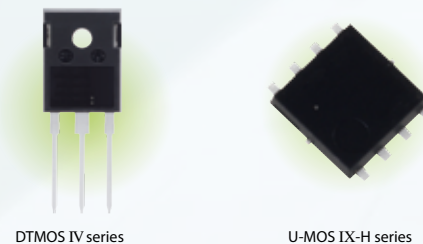


Next generation process (TaRF8) SOI chip

Toshiba device solutions that underpin social infrastructure

DTMOS, U-MOS

Semiconductors used in power sources to control, increase/decrease voltage, DTMOS, U-MOS feature minimal loss, that support energy conservation in servers, data transmissions and in other devices.

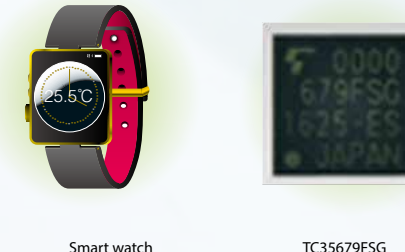


DTMOS IV series

U-MOS IX-H series

Bluetooth® low energy

Bluetooth low energy is a standard of Bluetooth wireless communication and has low power consumption. Longer battery life in wearable devices is achieved.



Smart watch

TC35679FSG

ApP Lite™ TZ1200 series

TZ1200 series processors for IoT and wearable devices that can display a variety of data with less power consumption.



Bluetooth® is a trademark of Bluetooth SIG INC. *Company names, product names, service names, system names, etc. are the trademarks of their respective companies.

Reduction of Environmental Impact in manufacturing

We aim at reducing the environmental load by interdepartmental activities.

The company group, as one of its important obligations within its business activities, proactively promotes environmental burden reduction efforts such as energy-saving, resource conservation through activities organized through multi-divisional cooperation. As the information-oriented society advances, we plan to expand and strengthen production capacities, and make further efforts toward energy and resource conservation through efficient equipment operations, introducing energy conserving machines and devices.

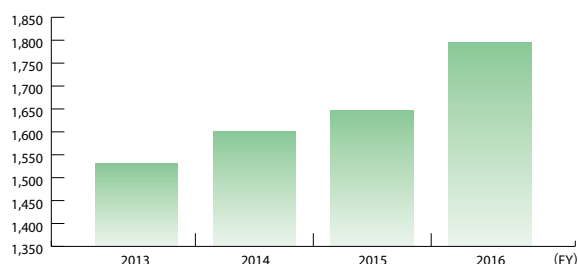
In this chapter, we introduce efforts in progress designed to reduce environmental load at our manufacturing sites.

Reduction of CO₂ emissions

In FY2004 we started an interdepartmental project to reduce emissions of greenhouse gases, such as CO₂. In addition to the conventional energy conservation measures at the power management and facility level, we requested production engineers and tool manufacturers to participate in this project in order to cover a broad range of activities. The knowledge gained was shared among various departments, and energy saving measures were implemented at various sites.

The CO₂ emission quantity last fiscal year was around 1.8 million tons. Although emission is expected to increase as we boost production capabilities, we will continue to invest in and implement various power conservation measures to minimize environmental impact.

Amount of CO₂ emissions per year (1000 ton-CO₂)



(Data covers all worldwide manufacturing sites and certain non-manufacturing sites)
 Above values include Toshiba Memory Corporation.
 Electrical CO₂ emissions coefficient are used to calculate energy-originated CO₂ emissions.
 Overseas electricity is based on the GHG Protocol.

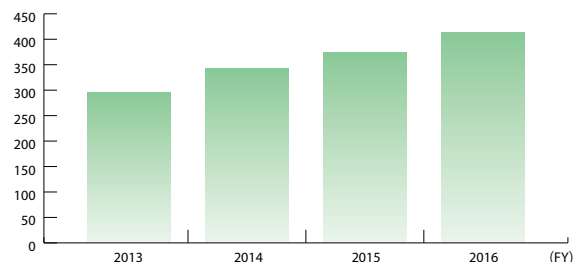
Proactive efforts to reduce PFC emissions and other greenhouse gases

Semiconductor manufacturing processes use perfluorocarbon (PFCs), hydrofluorocarbon (HFCs), sulfur hexafluoride (SF₆) and nitrogen trifluoride (NF₃). These are called alternative Freon 4 gases, and although they do not harm the ozone layer, they produce and have greenhouse effects, and require countermeasures. At COP21 (note 1), held in Paris at the end of 2015, recognition of and talks to reduce these greenhouse gases were a significant issue in global warming prevention discussions.

The World Semiconductor Council (WSC) (note 2) identified PFC and other greenhouse gases for reduction, and reached agreement to reduce these by 10% of current levels versus levels set in 1995 by Japan, US and Europe, by 2010. Emission volumes of wafer-area-basic-unit 0.22 kgCO₂e/cm² were set as WSC expected voluntary values by 2020 as countermeasures along with global industrial collaboration. (CO₂e: CO₂ equivalent/CO₂)

We achieved these industrial targets through measures that reduced usage volumes of gases, by installing hazard removal devices and improving manufacturing processes at our current manufacturing sites. The quantity of PFC emissions and other global warming gases in FY2016 were approximately 410,000 tons-CO₂. We will continue efforts to integrate hazard removal devices into new manufacturing facilities to minimize environmental impact.

Transition of amount of PFC (PFC, HFC, NF₃ etc) emissions (1000 ton-CO₂)



(Data covers all manufacturing sites in and out of Japan)
Above values include Toshiba Memory Corporation.

(Note 1) COP21: United Nations Framework Convention on Climate Change 21th Conference

(Note 2) World Semiconductor Council (WSC): Semiconductor council where world semiconductor industrial associations participate

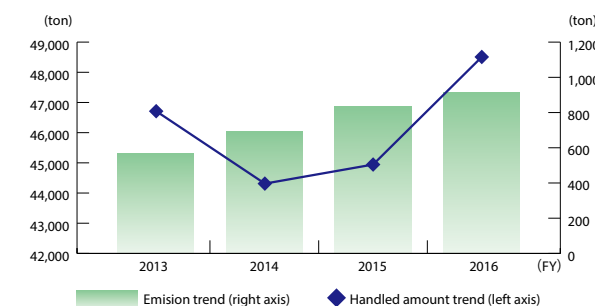
Measures to reduce discharge of chemical substances

Various chemical substances are used in the manufacturing processes of semiconductor and storage products. After using these chemical substances, our company minimizes discharges to water systems and emissions to the atmosphere by collecting chemical substances and treating or removing hazardous elements by installing coagulation-sedimentation facilities and abatement systems.

Measures have been taken to reduce amounts of chemical substances in use as well as amounts of discharge and emissions during the manufacturing processes. Toshiba Corporation targeted 43 chemical substances (including 20 PRTR* substances) for discharge management in FY2016. In the future, we expect an increase in the amount of discharges and emissions as production capacity increases, however our efforts to reduce emissions will continue.

*PRTR: Japan's Pollutant Release and Transfer Register Act.

Amount of chemical substances handled and discharged (ton)



(Data covers all manufacturing sites in and out of Japan)
Above values include Toshiba Memory Corporation

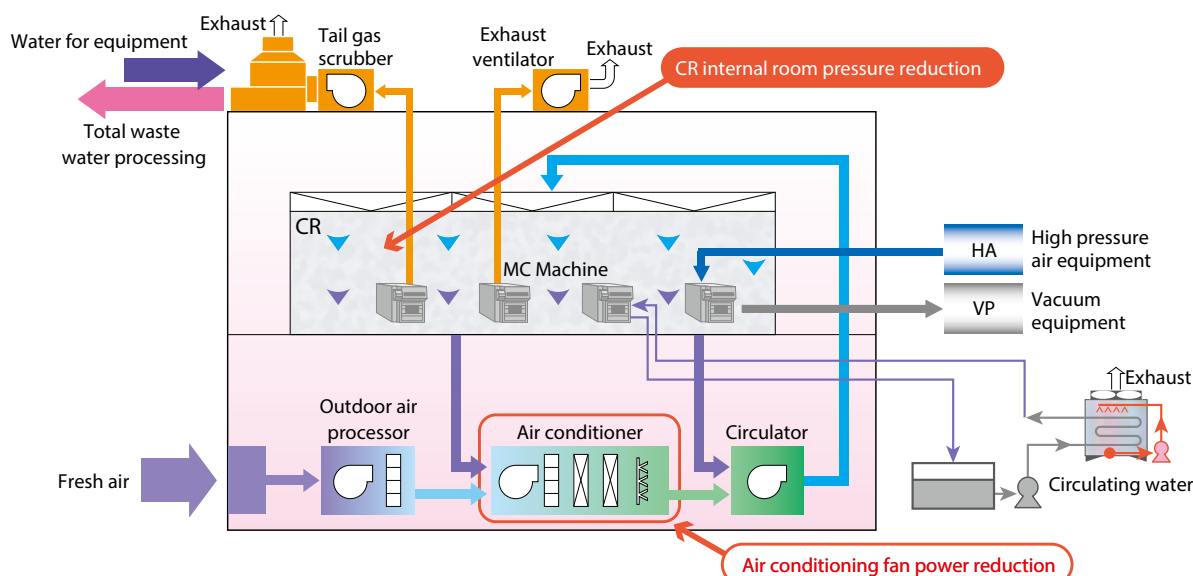
Column 1

Efforts to save energy by reducing the clean room pressure at Toshiba Device & Storage Co., Ltd., Himeji Operations-Semiconductor

At the Toshiba Electronic Devices & Storage Corporation Himeji Operations-Semiconductor, where discrete semiconductors for power devices are fabricated, the interiors of clean rooms have been designed to maintain high-room pressure, so that dust and other contaminants cannot enter from outside.

In Himeji, the air conditioning system that was previously used was eliminated as a result of revising the appropriate clean room pressure values. This contributes to reducing the load of air conditioning equipment and electric power.

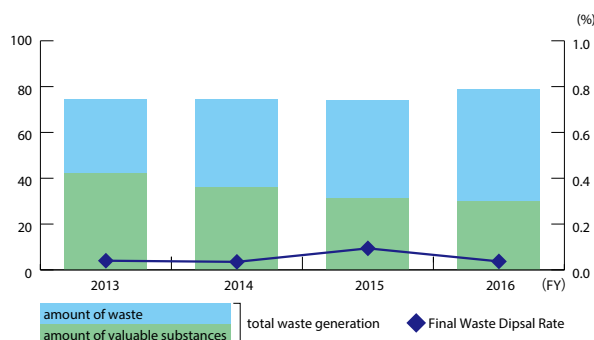
Power reduction in an air conditioned room fan by reducing the pressure



We focus on effective use of valuable resources through 3R

We take a company-wide approach to 3R (Reduce, Reuse, Recycle). 3R activities are performed at local company sites to effectively use resources. For example, used chemicals and metals are thoroughly sorted and recycled using higher level resource recycling technologies in manufacturing plants. Through these and other efforts, we achieved an excellent level of final waste disposal rate of 0.04% in FY2016.

Total amount of waste generated, and final waste disposal rate (1000 tons, %)



(Data covers all worldwide manufacturing sites and certain non-manufacturing sites)
Above values include Toshiba Memory Corporation

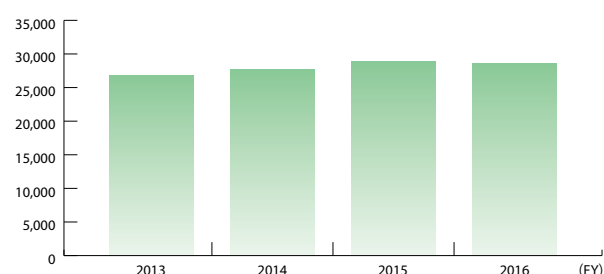
The amount of waste as an index on the reduction target, which is the amount remaining after valuable materials are subtracted from the total amount of waste generated.

Efficient use of finite water resources is also targeted

Water is a precious and vital resource. From a global perspective, there are many regions that have limited access to water resources. The scarcity of water resources is becoming increasingly significant in some areas of Japan that are experiencing accelerated population growth. We recognize scarcity of water resources as a critical issue, and we are taking steps to reduce water intake and prevent water contamination.

Total amount of water intake in FY2016 was 28.6 million m³ in volume, and 35.5% in recycling rate*.

Amount of water intake (1000 m³)



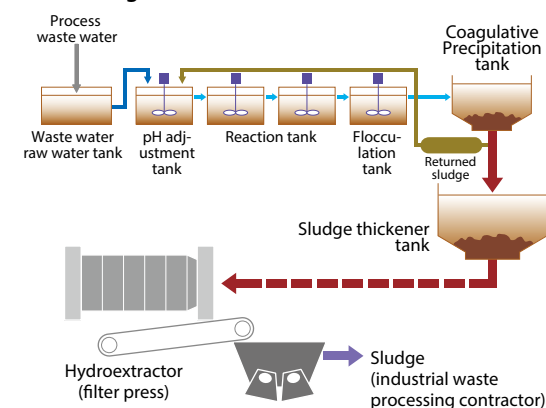
(Data covers all worldwide manufacturing sites and certain non-manufacturing sites)
Above values include Toshiba Memory Corporation

* : Water recycling rate: (required feed water - water supplied) / (required feed water) X 100 (%).
(as defined by JEITA (Japan Electronics and Information Technology Industries Association))

Column 2 Efforts to reduce sludge at Kaga Toshiba Electronics Corporation

At the Kaga Toshiba Electronics Corporation Plant, sludge generated by wastewater treatment is dehydrated by a filter press, and the amount of sludge discharge is greatly affected by post-dehydration moisture content. By reviewing sludge dehydrator filter management standards, we were able to improve its moisture content and reduce sludge by about 13 tons per month. This reduction also lead to a reduction in industrial waste treatment costs.

Sludge reduction by revision of sludge dehydrator filter management standards



Column 3 Water related risks

The company group, in cooperation with InterRisk Research Institute & Consulting, Inc., conducted water risk assessment surveys by extracting water from sites with high water usage and sites with high water risks. By evaluating risks from such multifaceted aspects as water supply and demand (current and future trends), water disasters, vulnerability to water pollution (public health and ecosystems), the risk to the entire basin where a plant is located, i.e. from the upstream area that is the water source to the downstream area, can be comprehensively evaluated. (A+ indicates minimum risk and C- indicates maximum risk.)

In domestic site basins, an evaluation was obtained that was favorable overall, i.e. future water supply risk is expected to be alleviated due to an increase in the water supply as a result of climate change and a reduction in domestic demand.

This information will also be used to recognize future water risks.

Water Risk Assessment at Four Main Sites

Subject of Evaluation	Water demand		Water disaster	Water Pollution vulnerability		Overall evaluation
	Current	Future trend		Public health	Ecosystem	
Oita City, Oita Prefecture	B+	A	A-	A-	A+	A-
Kitakami City, Iwate Prefecture	B	A	A+	B+	A	A-
Nomi City, Ishikawa Prefecture	B+	A	A+	A-	A+	A
Ibo-gun, Hyogo Prefecture	B	A	A+	B+	A	A-

Environmental Communication



We strive to have our activities recognized in society and raise employees' environmental awareness through environmental communication activities at our sites in Japan and overseas.

Toshiba Electronic Devices & Storage Corporation Group has promoted a variety of environmental communications at its sites in Japan and overseas through activities like providing stakeholders outside the company including employees and their families with environmental information, and participating in various environmental exhibitions. The objectives of these activities are to raise employees' environmental awareness and to promote environmental practices in the course of their regular work, and finally to have outside stakeholders understand our activities.

Examples of environmental communication activities in Japan and overseas:

Strengthening Cooperation with Local Governments

In October 2016 the Himeji Operations – Semiconductor invited three local government representatives to attend a response training designed to respond to an accident or emergency situation at the plant. After the training, there was a valuable exchange of views that included reconfirmation of standards with respect to joint government responses in the event of emergencies. Openness and cooperation with local government was reaffirmed.

As well as our commitment to training with local governments, the company will continue to strengthen its environmental management into the future.



Gas leak measurement training



Post training exchange with local governments

Joint Environmental Exhibition with Local Companies

Buzen Toshiba Electronics Corporation held an environmental exhibition together with five local companies, the goal of which was to improve employees environmental awareness through environmental communication with the community and introducing Toshiba's eco friendly products. Together the five company promoted activities that further raised environmental awareness, by providing members from the community to handle products that have potential to solve social issues and that are relevant to peoples' daily lives.



Holding an environmental exhibition together with five local companies



Employees receiving an explanation of exhibits

Environmental communication activities

Japan Semiconductor Corporation



Private companies and government officials discuss initiatives and activities

Japan Semiconductor Corporation encourages social contributions and activities regarding the environment. At its headquarters and Iwate Operations, Japan Semiconductor Corporation holds its "Environmental Briefings that Start with the Community" event together with private companies and government officials every year. From its beginning in 2005, it has been facilitating understanding of the importance of the environment and its wider knowledge of corporate environmental initiatives. These have included tours of environment-related facilities and strengthening of mutual trust, in order to cultivate a sense of security toward the company and toward maintaining its roots in the local community.

Seventeen people participated in the briefing that was held in November 2016, resulting in favorable comments from participants such as "I was happy to participate" and "I felt secure."

Iwate Operations have been promoting biodiversity and conservation on the wetlands found on its premises. Its goal is to promote the breeding of *Lysimachia clethroides* and the rare *Hemerocallis esculenta*, which today seldom blooms in the flatlands, and are rare. The company is also planting White lilies (the flower of Kitakami City), primroses, and Japanese primroses, and the employees have created flowerbeds with local plants and flowers. In addition, together with the Kitakami plant of Dai Nippon Printing Group's DT Fine Electronics Co., Ltd., it is promoting rare species protection and propagation activities as well as promoting the area as a place for employees to relax.



Flowerbed created by employees to propagate rare species

Meanwhile, at Oita Operations, the company has been holding "Environment Delivery Lessons" for neighborhood elementary schools every year since 2006 to promote activities that are designed to educate the next generation with the importance of the environment. In these lessons easy-to-understand terms and explanations of its water-related efforts as a semiconductor factory and its water contamination, waste water sedimentation, as well as power generation programs are given.

They also explain the importance of water resources, prevention of global warming, and conservation of biodiversity.



Introducing environmental initiatives in a neighborhood elementary school class



Outlining the mechanism of waste water treatment at a semiconductor plant



Elementary school students and Toshiba staff conducting experiments together

Such activities earned praise and received the "Encouragement Prize" at the "Environmental Human Resource Development Company Grand Prize 2016," sponsored by the Ministry of the Environment and the Environmental Consortium for Leadership Development.

<Award Points>

- Continuously implementing environmental education based on the Environmental Management System (EMS)
- Implementing a large number of local environment events, and contributing to employee education and local environmental awareness improvement
- The president himself participates in efforts and implements company-wide efforts



The president of Japan Semiconductor Corporation receives an environmental award

Environmental Award won by Toshiba Semiconductor (Thailand) Co. Ltd

Toshiba Semiconductor (Thailand) received a prize in the Environmental Conservation Category of the 2017 Prime Minister's Best Industry Awards as a company that contributed through its business activities to the environment, including the local area and society, and received the award from Prime Minister Prayut on August 23, 2017 at the Prime Minister's Office.

The Prime Minister's Industry Award was established by the Thai government in 1993 with the goal of promoting and nurturing domestic industries, and includes the seven divisions of productivity, environmental conservation, safety, quality, energy, logistics and small and medium size enterprises, as well as an additional top prize for which only companies that have won awards in three or more categories can be nominated.

This was the fourth time Toshiba Semiconductor (Thailand) has won this award, previously winning in the Environmental Conservation Category (2005), the Safety Category (2006), and the Energy Category (2016).

This year's award was mainly the result of the advancement of activities in four fields.



The president of Toshiba Semiconductor (Thailand) receives an award at the office of the Prime Minister

<Environmental Awareness Promotion>

Continuous achievement of environmental activity goals over four years by all employees with management as leaders



Promotion of environmental activities with the total cooperation of employees

<CSR Activities>

Activities for areas (factory areas) and elementary schools that include biodiversity activities



Inviting local elementary school students and explaining environmental activities and the mechanisms of waste water treatment

<Reduction of environmental impact>

Introduction of energy-saving equipment and water recycling systems, and 3R activities



A recycling system was introduced to treat the water used in the process after draining and being reuse in the cooling tower

<Ensuring Risk Management>

Introduction of a unique management system that complies with laws, regulations
System maintenance and training for emergencies

At Toshiba Semiconductor (Thailand), all employees along with management are working hard to create products that contribute to a better society, contribute to the community, and the environment.

Other Environmental Communication Activities

Environmental Awareness Promotion through Local Company Exchange

Management and independent specialist committee members of Kaga Toshiba Electronics Corporation visited neighboring companies from different industries. As well as exchanging opinions on environmental activities, they learned about various environmental management methods such as discharged waste separating methods, recycling center management, and implemented various trial programs in their own facilities.



Visiting neighboring companies



Activity reports and discussions

Sites' Environmental Report on website

We also post sites' environmental reports that describe their environmental efforts and performance information on the website of Toshiba Electronic Devices & Storage Corporation Group.



Environmental Information Presentation Forums hosted by the Government

Under global environmental activity promotions, the company announced examples of environmental activities for which its overseas group companies won awards at the Eco Forum, hosted by the government. The company will proactively continue information disclosure regarding global environmental activities going forward.



Announcing examples of environmental activities at Asia-Pacific Eco Business Forum hosted by Kawasaki City

Results of commendations for environmental activities

The following is a list of major awards Toshiba Electronic Devices & Storage Corporation Group won in FY2016. We received high evaluations on our environmental activities in Japan and abroad, e.g., "The Prime Minister Industry Award 2016" in Toshiba Semiconductor (Thailand) Co., Ltd. and "Environmental Human Resource Development Company Grand Prize 2016" in Japan Semiconductor Corporation.

Award Titles	Evaluated Points	Evaluated Entity	Dates
Iwate Prefectural Environmental Protection Liaison Committee Employee Excellence in Environmental Conservation Awards, Chairman's Award	Reduction of waste activities, Recycling promotion	Japan Semiconductor Corporation	June, 2016
Yokohama City, Kanagawa Prefecture Yokohama Environmental Action Awards Yokohama 3R Dream Promotion Award	3R Activities	Toshiba Corporation Storage & Electronic Devices Solutions Company Ofuna Office	November, 2016
Environmental Human Resource Development Company Grand Prize 2016	Project for fostering employee-created environmental activities	Japan Semiconductor Corporation	November, 2016
Iwate Prefecture FY2016 Iwate Prefectural Environmental Conservation Activities Awards, Iwate Governor's Award	Notable activities and results from the public welfare perspective	Japan Semiconductor Corporation Iwate Operations	January, 2017
Yokohama City, Kanagawa Prefecture 24th Yokohama Environmental Activities Award, Company Section, Practice Award	Activities to Reduce Waste Generated	Toshiba Corporation Storage & Electronic Devices Solutions Company Ofuna Office	March, 2017
The Prime Minister Industry Award 2016 Energy Sector	Energy-Saving Activities	Toshiba Semiconductor (Thailand) Co., Ltd.	FY 2016
CSR-DIW Continuous Awards	Efforts to comply with environmental laws and regulations	Toshiba Semiconductor (Thailand) Co., Ltd.	FY 2016
Department of Energy Excellent Energy-Saving Award	CO ₂ reduction activities	Toshiba Information Equipment (Philippines), Inc.	FY 2016

Activities to raise environmental awareness

Inauguration of "B-Smile" Transmission of Smiling Faces from Buzen

At Buzen Toshiba Electronics Corporation, an environmental activity group was launched by nine women in order to revitalize environmental activities, contribute to the region, and raise environmental awareness. Its name "B-Smile", rose from the collective will of the group to pass on environmental activities that are appreciated by children in the future. Toward that end, the women promoted environmental conservation activities while considering what could be done from the female point of view and believe that Earth is not inherited from our ancestors, but borrowed from our descendants, as expressed in the Buzen Toshiba Electronics Environmental Policy.



B-Smile members



The "greeting exercise," which is connected with improving awareness, at a monthly event



Making Green Curtain by B-Smile Members



Members giving an explanation at an environmental exhibition held together with local corporations

Ideas, activities and dynamism of the "Angel Corps"

One of the structures for revitalizing environmental activities at the Oita Operations of Japan Semiconductor Corporation is the Angel Corps, created by six female employees from the Facility Management Department. In addition to utilizing careful consideration and sensibilities from a women's point of view, they arrange environmental activities that utilize human networks. They also create activities that are vivid, lively, and smart activities designed to deepen communication with the local community. These activities also lead to raising the awareness of employees.



Angel Corps members



As part of Energy-Saving Month, members give a "Global Warming Problem" presentation to employees



The office manager and environmental conservation deputy manager together with members publicizing the unique "SR Promotion Month"



Members check the management conditions together with the office manager during a workplace patrol

Efforts to preserve the natural environment and biodiversity at manufacturing sites

Toshiba Electronic Devices & Storage Corporation Group conducts activities to preserve the natural environment at worksites both in Japan and overseas, in cooperation with local government administrations and other groups in the community.

Toshiba Electronic Devices & Storage Corporation Group also promotes the preservation of biodiversity in accordance with Toshiba Group's 2009 biodiversity guidelines.

< Toshiba Group Biodiversity Guidelines URL >

<http://www.toshiba.co.jp/env/en/vision/biodiversity.htm#anchorLink5>

Promoting Biodiversity at the Toshiba Electronic Devices & Storage Corporation Himeji Operations-Semiconductor



Toshiba Electronic Devices & Storage Corporation Himeji Operations-Semiconductor created a pond on its premises for golden venus and golden venus chubs, an endangered species since 2013, and acquired 26 adult fish from Himeji City Aquarium, and began breeding and protecting them.

In June 2016, the company initiated classes for neighborhood elementary schools regarding the importance of biodiversity conservation activities and the ecology of the golden venus chub. Forty golden venus chubs were successfully bred and raised on its premises and were given to the school's biotope. In September 2016, it released 40 more golden venus chubs into a biotope owned by a neighboring group company to promote the expansion of regionally integrated protection and breeding activities.

Since the activities begun in 2013, the company has maintained a population of around 200 fish in the pond, reaching the maximum number for the pond.

Conservation Efforts at Kaga Toshiba Electronics Corporation



At Kaga Toshiba Electronics Corporation, an in-house habitat for the endangered species (type II) acer diabolicum horsetails and the threatened species prenanthes tanakae, was prepared with the cooperation of experts in 2014. The company is engaged in the plants' protection and reproductive activities. Employees actively conduct maintenance such as gutter cleaning, reed and grass cutting, to provide a regularly optimized habitat. At the end of 2016 it was confirmed that the prenanthes tanakae is clustering more than last year in a wetland of 320 square meters, in addition to which the acer diabolicum has grown to a height exceeding two meters.

It has also been confirmed by surveys and observations together with experts that the horsetails have been growing well. All employees will continue to

engage in the protection and reproductive propagation activities for these three rare species.

Creation of a Biotope at Buzen Toshiba Electronics Corporation



At Buzen Toshiba Electronics Corporation, employees have created their own unique biotope on the premises and are building an environmental ecosystem consisting of networks that attract many flying organisms such as bees, dragonflies and butterflies. They will continue to maintain the biotope while receiving advice from experts and, in order to breed the larvae of native swallowtail butterflies, have begun planting more citrus trees in the biotope, attracting even more swallowtail butterflies. As well as regularly observing swallowtail butterflies and their larvae, they are conducting integrated protection and breeding activities for native species by donating citrus trees to neighboring elementary schools. They also participate in an "Ecological Survey of Aquatic Organisms" sponsored by neighboring elementary schools, and are learning the importance of ecosystems in the region.

Data and Third Party verification

Acquisition of ISO14001 certification

Name of the organization (as of December, 2017)	Certified body	Registration date	Approval certificate No
Toshiba Electronic Devices & Storage Co., Ltd. Head Office (Head Office Bldg. and Sales Office Sites)	JACO ^{(*)2}	1996/2/2	EC98J2014
Toshiba Electronic Devices & Storage Co., Ltd. Himeji Operations-Semiconductor			
Toshiba Electronic Devices & Storage Co., Ltd. Microelectronics Center			
Kaga Toshiba Electronics Corporation			
Himeji Toshiba E.P. Corporation			
Buzen Toshiba Electronics Corporation			
Japan Semiconductor Corporation Headquateras & Iwate operations			
Japan Semiconductor Corporation Oita Operations			
NuFlare Technology, Inc.			
Toshiba Device Corporation			
Toshiba Discrete Semiconductor Technology Corporation			
Toshiba Microelectronics Corporation			
Toshiba Semiconductor (Thailand) Co., Ltd.			
Toshiba Information Equipment (Philippines), Inc.			
Toshiba Electronics Europe GmbH. (including Toshiba Memory Europe GMBH)			
Toshiba Electronics Asia, Ltd. (including Toshiba Memory Asia, Ltd.)			
Toshiba Electronics (China) Co., Ltd.			
Toshiba Electronics Asia (Singapore) Pte. Ltd. (including Toshiba Memory Singapore Pte. Ltd.)			
Toshiba Electronic Components Taiwan Corporation (including Toshiba Memory Semiconductor Taiwan Corporation)			
Toshiba Electronics Korea Corporation (including Toshiba Memory Korea Corporation)			
Toshiba Memory Corporation Head Office	DNV ^{(*)2}	2010/6/29	80416-2010-AE-USA-ANAB
Toshiba Memory Corporation, Yokkaichi Operations			
Toshiba Memory Systems Co., Ltd.			
Toshiba America Electronic Components, Inc.			

Note: ^{(*)1} The subjects are the main company and all consolidated companies (manufacturing and non-manufacturing) and overseas consolidated companies (manufacturing and nonmanufacturing) with over 100 employees.

^{(*)2} JACO: Japan Audit and Certification Organization for Environment and Quality
DNV: DET NORSKE VERITAS AS Group

Third party assessment of environmental performance data

The Toshiba Group consigns third party verification to the PricewaterhouseCoopers Sustainability LLC with the objective of enhancement of reliability of greenhouse gases emission performance data. We received verifications on global data for data collection, aggregation and internal audit processes in the results of FY2016.



Toshiba Corporation's "Toshiba Group's GHG emissions"

Scope 2 (Category 1) emissions

Category	Categories covered by calculations	FY2015 calculation results (10,000 t-CO ₂ e)	FY2016 calculation results (10,000 t-CO ₂ e)	Changes in emissions
Toshiba	Scope 1: Direct GHG emissions (Scope 1) Scope 2: Indirect GHG emissions associated with energy-related emissions (Scope 2) Scope 3: Indirect GHG emissions associated with other activities	11	10	-1
Group Total		209	211	2%
Group Total		4,405	4,397	-2%

[note] Basis of calculation for CO₂ emissions to third-party assurance

- CO₂ emissions from fuel: Used CO₂ emissions factors provided in the Guideline for Calculation of Greenhouse Gas Emissions (version 4.1) published by the Japanese Ministry of the Environment.
- CO₂ emissions factor for purchased electricity: 5.31 t-CO₂/10,000 kWh (FY2015) is used for the power factor in Japan. GHG Protocol data is used overseas.
- Emissions amount of greenhouse gases other than CO₂: Global warming potentials are based on the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).
- Use of sold products: Calculated by multiplying the amount of annual energy consumption of use by the CO₂ emission coefficient, the assumed tenure of use and summed up by the quantities of sales.

< Limited Assurance Conclusion >

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the Selected Information in this report for the year ended March 31, 2017 is not prepared, in all material respects, in accordance with the Reporting Criteria.

Editorial policy

The Environmental Report 2017 of Toshiba Electronic Devices & Storage Corporation Group presents the results of Toshiba Electronic Devices & Storage Corporation Group's environmental management activities in fiscal 2016.

The object of this report is to present our statement of environmental philosophy, system, achievements and plan of action, environment-friendliness of products, manufacturing activities and environmental communication activities.

This report has been compiled by referring to *The Guidelines for Environmental Report (fiscal 2012 version) of the Ministry of Environment, Japan* and *The Guidelines for Environmental accounting (fiscal 2005 version) of the Ministry of Environment, Japan*.

[Scope of the report]

Reporting period: Fiscal 2016 (from April 1, 2016 to March 31, 2017)

Although the report focuses on the results of activities in fiscal 2016, it also includes those ongoing activities prior to and after fiscal 2016.

Organizations covered: Toshiba Electronic Devices & Storage Corporation Group *

* "Toshiba Electronic Devices & Storage Corporation Group" where mentioned, is a separate company of Toshiba Corporation, and refers to Toshiba Electronic Devices & Storage Corporation and its consolidated subsidiaries in Japan and overseas.

* The data of environmental burden on FY 2016 and before FY 2016 include the data of Toshiba Memory Corporation.

[Publication]

Previous issue: February 2017

Current issue: March 2018

Toshiba Electronic Devices & Storage Corporation Overview (as of 1st July, 2017)

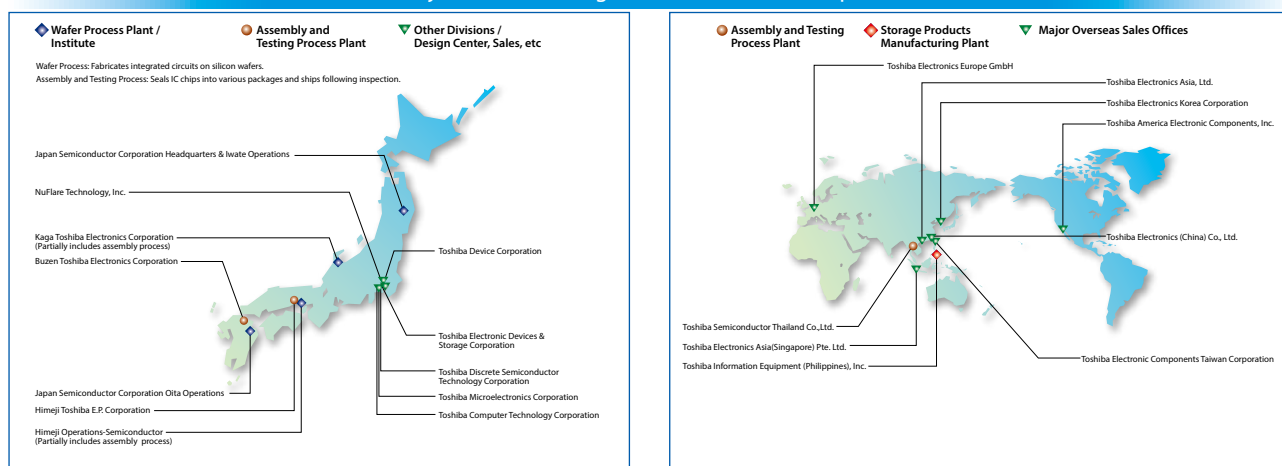
Company name: Toshiba Electronic Devices & Storage Corporation

Address: 1-1-1, Shibaura, Minato-Ku, Tokyo 105-8001, Japan

Number of employees: 4,500 (Non-Consolidated), 19,000 (Consolidated)

Consolidated sales: 740,000 million yen (Forecast in FY2017)

Major manufacturing sites and affiliated companies



Editor's postscript

Thank you for reading the Environmental Report 2017.

This year, with the corporate separation from July 1, 2017, we have endeavored to explain in an easy to understand manner, the undertakings of the company, such as its new top managements greeting, our product range that contributes to social problem solutions in the field of products, energy-saving efforts in manufacturing and water risk surveys related to semiconductor preprocessing sites where water use is relatively high, the introduction of activities of bases that received evaluations from outside companies, and environmental communication activities that utilize local area characteristics.

We will transmit information of our environmental activities through environmental reports and other means to our stakeholders. If you have any questions about our activities or the content of this report, kindly contact us through the following URL.

<https://toshiba.semicon-storage.com/ap-en/corporate/environmental-activities.html>

Productivity Planning Div. Environment Planning Promotion Group, Toshiba Electronic Devices & Storage Corporation

- If you have any inquiries, please contact us at the following website.
<https://toshiba.semicon-storage.com/ap-en/company.html>
- The original texts of laws and regulations, including but not limited to the EU RoHS Directive should be consulted for a full understanding of legal requirements. Environmental laws and regulations may be revised at any time, so users should take care to remain informed. The information contained herein is intended to be informative but carries no legal authority and does not constitute legal advice.
- Toshiba Electronic Devices & Storage Corporation Group reserves the right to revise the content of this Environmental Report without notice.
- The information contained herein is subject to change without notice.