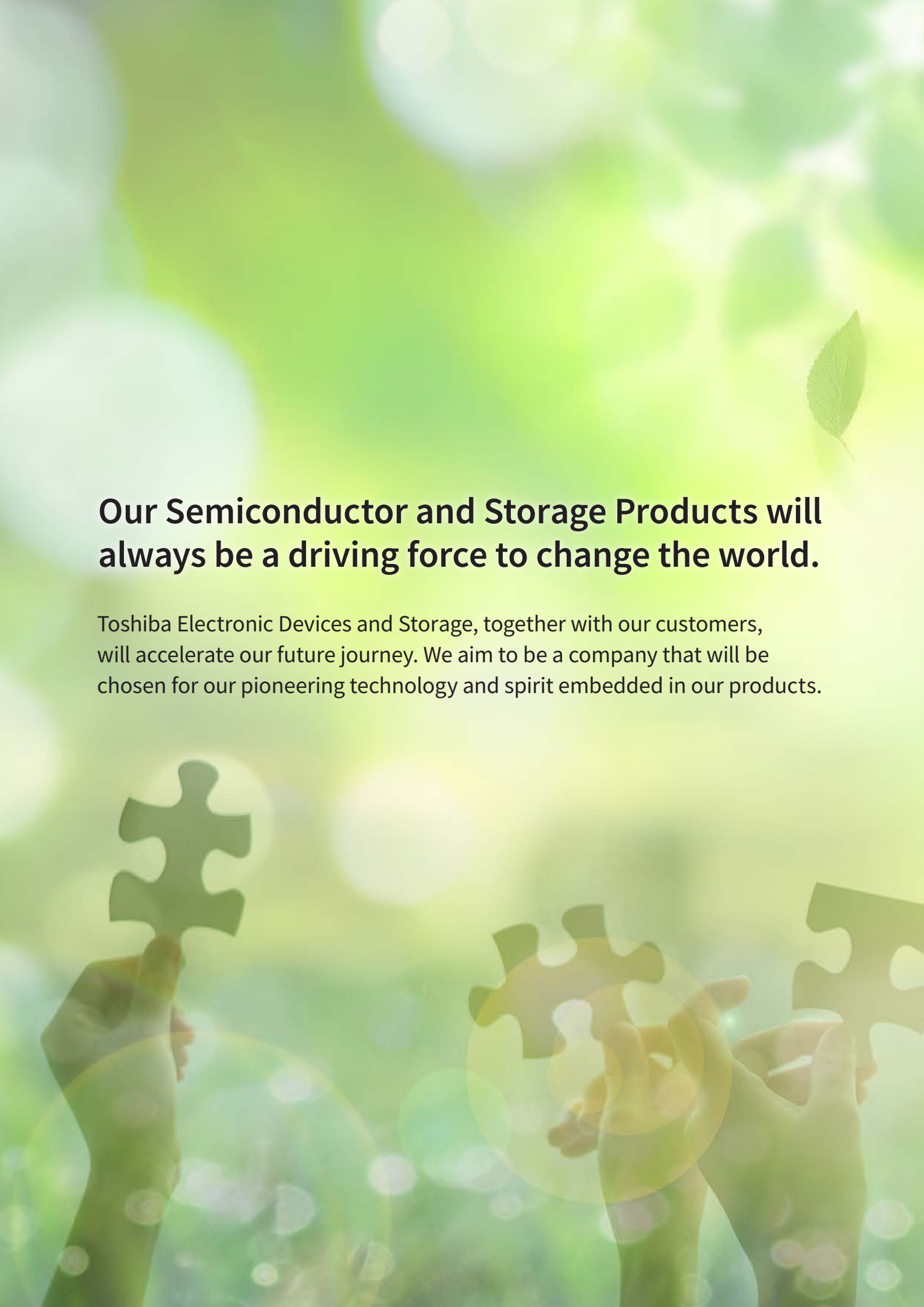
TOSHIBA

Toshiba Electronic Devices & Storage Corporation

ENVIRONMENTAL REPORT 2019



Our Semiconductor and Storage Products will always be a driving force to change the world.

Toshiba Electronic Devices and Storage, together with our customers, will accelerate our future journey. We aim to be a company that will be chosen for our pioneering technology and spirit embedded in our products.

Contents

Editorial policy

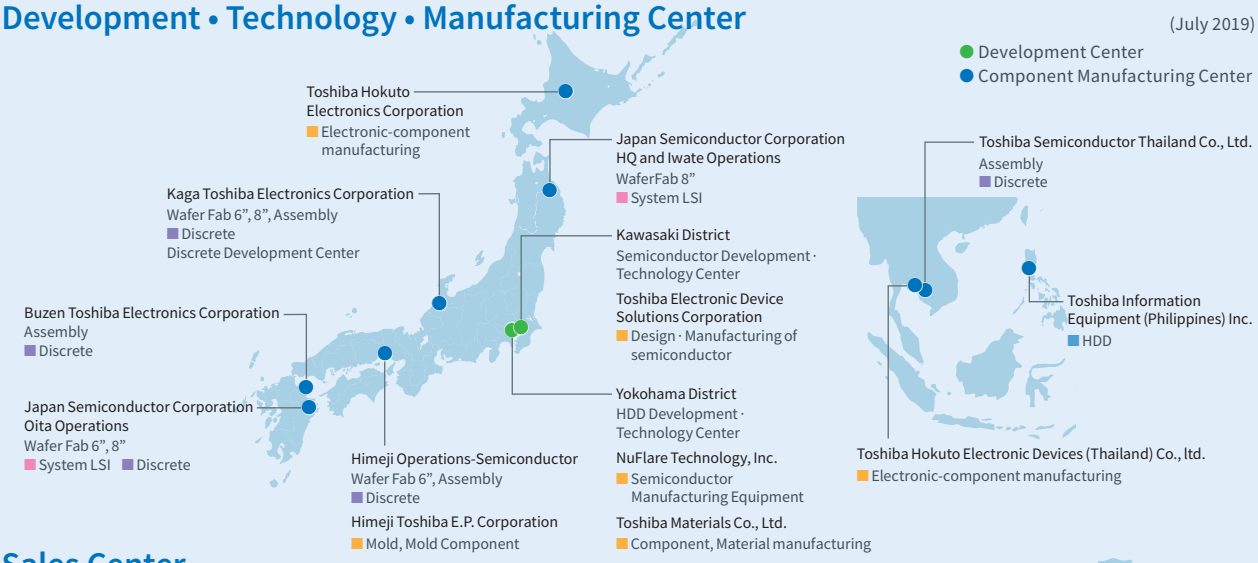
The Environmental Report 2019 of Toshiba Electronic Devices & Storage Corporation Group presents the results of Toshiba Electronic Devices & Storage Corporation Group's environmental management activities in fiscal 2018.
The object of this report is to present our statement of environmental philosophy, system, achievements and activity plan about reduction of environmental impact of products and in manufacturing, and environmental communication.
This report has been compiled by referring to the Guidelines for Environmental Report (fiscal 2018 version) of the Ministry of Environment, Japan.

Toshiba Electronic Devices & Storage Corporation Overview

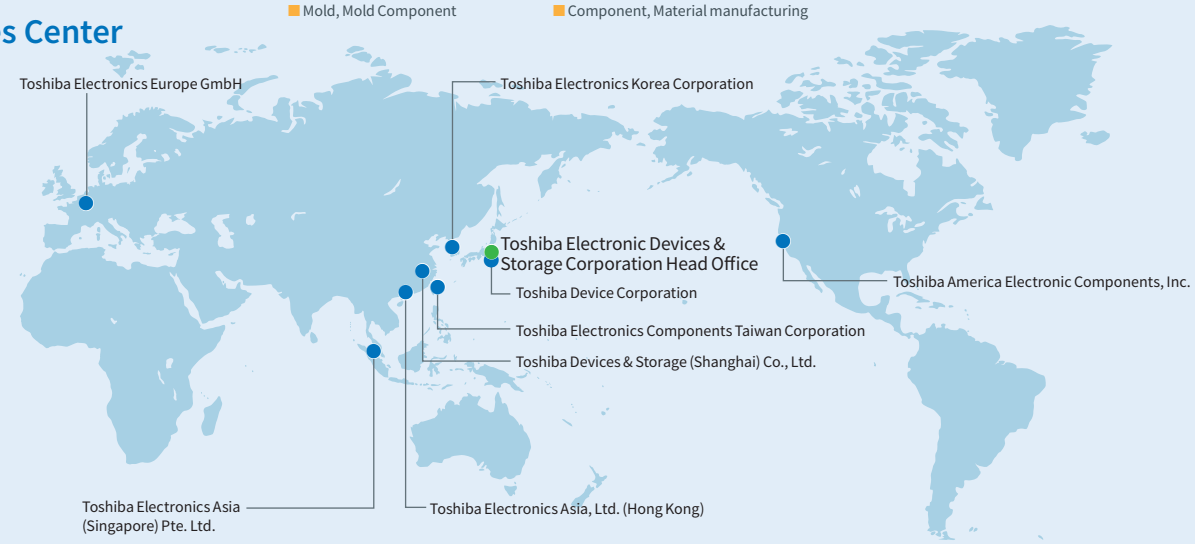
Toshiba Electronic Devices & Storage Corporation gained independence from a corporate internal company at Toshiba Corporation in July, 2017, and started as a separate entity.
Toshiba Electronic Devices & Storage Corporation Group of companies are engaged in a wide range of parts and components business operations which includes conventional semiconductor business and storage products business, as well as semiconductor manufacturing device business that is handled by NuFlare Technology, Inc.; and from April 2019 along with parts, components and materials business handled by Toshiba Hokuto Electronics Corporation and Toshiba Materials Co., Ltd.
Experience and knowledge from each respective business area are brought together, in an aim of creating high value added products.

Development • Technology • Manufacturing Center

(July 2019)



Sales Center



Toshiba Electronic Devices & Storage Corporation Group
All Toshiba Group except Toshiba Electronic Devices & Storage Corporation Group

Number of employees
20,108 (Fiscal 2018)

15% of all Toshiba Group

Consolidated sales
879,600 million yen (Fiscal 2018)

21% of all Toshiba Group

Research and development spending
44,000 million yen (Fiscal 2018)

25% of all Toshiba Group

Capital expenditure
29,000 million yen (Fiscal 2018)

34% of all Toshiba Group

Environmental Management Dialogue

“Understanding the Central Role of the Environment in Management”

Toshiba Electronic Devices & Storage Corporation
President Hiroshi Fukuchi

Toshiba Electronic Devices & Storage Corporation
Chief Production Executive Naoyuki Okamura

What should we be thinking about and what should we be doing at the moment, to resolve social issues through products and manufacturing, establish symbiosis with local communities and realize abundant life of the mankind in harmony with earth? The President and the Chief Production Executive talk about these issues.

(Dialogue conducted on Tuesday, September 3, 2019)

1. Thoughts for the future

Fukuchi: The current global trend relating to the environment recognizes that activities for sustainable development goals (SDGs) enhance corporate values and further lead to the growth of a company. We also believe that we should consider SDGs and that our employees should take part in such activities, each from individual standpoints. When we visit our customers, many of which are major corporations, they refer to their SDGs related activities. Toshiba Group has been gradually progressing with improvement of awareness in the past year or two, due in part to encouragement from the Corporate Division. The situation with our corporate group is such that we make up a large proportion of the environmental burden produced by Toshiba Group as whole. We therefore need to have a proper understanding about our corporate activities and their impact on the environment. We must make our contributions to resolve social issues even more than before, through our corporate activities.

Okamura: Yes, I would agree with that. In a world where contributions to solving social issues are being sought through corporate activities, I think it is important to deepen the understanding of such issues among stakeholders, including our business partners. I was asked to “describe our current status” during a meeting with a business partner the other day. I thought that was not interesting enough, so I decided to explain about “SDGs” as well. I had impromptu discussions with the Environmental Division and created the presentation materials from those discussions. The feedback from the business partner was so good that they were even interested in the SDGs badge that I always wear, so I briefed them on that as well. The relationship with our business partners is very important when we engage in our corporate activities. I would reiterate that gaining the understanding of our stakeholders, even on such occasions, is a responsibility of a corporation.

2. Making contributions towards resolution of social issues through our products

Fukuchi: From the perspective of products, we believe that power devices, system LSIs and storage products that we create and supply to the society are all essential products for achieving technical innovations, since energy and power savings are required as devices evolve and industries develop. I believe it is very important to develop and provide our customers with products that consider the future as well, in the sense that it leads to the development of our own business. I believe that each and every one of our employees, including those involved with manufacturing, get the feeling that requirements from our customers have emphasis on considerations for the environment. As a company that works with technology, setting a target of becoming a company that is strong in semiconductors, storage devices and new material businesses and to work towards increasing our contributions to energy saving are important for Toshiba. I would like to see more proactive investments made for that purpose and to achieve such targets.

Okamura: Anticipating the future and manufacturing products that are developed according to the needs of that anticipated future ahead of time. I believe that this would certainly lead to solutions for social issues and development of the company. Our mainstay products include Visconti™ for car mounted applications, power semiconductors, hard drives for enterprise applications and the like and we promoted these at Toshiba Group Environmental Exhibition held in February this year. I believe we have many more products that can contribute to the environment. What I have observed at the Environmental Exhibition, however, although we have confidence in our activities that "contribute to resolving social issues"; it is also a reality that for the visitors, what we offer are just "parts and components", and there are many aspects about our products that they find difficult to really understand. In that aspect we made efforts both internally as well as externally in offering products that consider environmental impact in the past; but for the future, I believe we need to make even more effort and devise means to transmit our message externally, and to acquire the skill to communicate well, so that we can proactively appeal that the products we offer are needed to resolve social issues.

3. Towards expansion of manufacturing that is gentle to the environment

Fukuchi: It is important for us to continue making capital investments, so that the electronic device industry continues to evolve in the future. Capital investments we make will primarily be on facilities, in particular for power devices and large capacity hard disk drives. Investing in new equipment, however, results in an increased amount of power consumption and infrastructural costs, which can then potentially raise the level of burden on the environment. I believe that having the Engineering Department, Manufacturing Department and Production Department all come together to make decisions on capital investments, and in a unified manner consider in advance about how environmental burden can be reduced, selecting which equipment and how such equipment should be used, can lead to energy savings and cost reductions in the end. Making capital investments to replace equipment to new ones while saving energy and expanding production scale as well will also become an aspect that would make the difference in the future.

Okamura: Semiconductors in particular, consume a large amount of electricity for manufacturing and I for one believe that figuring out a way to reduce this power consumption during manufacturing is important. How to reduce things that are disposed of also, along with, although this may perhaps be a bit mundane, how to reduce defects by improving the yield rate while improving output levels and sustain efficient production are important as well. Then we have reduction of processes as well. The basic stance for this is that the Engineering Department plays a central role, starting from the development and design stages. This involves costs. So that means the Environmental Department will not play a primary role but Development Engineering Department and Engineering Department at the Manufacturing plant take on the main role and I believe taking care of this that way is the starting point. On the other hand, efforts such as room pressure optimization for clean rooms at Japan Semiconductor Corporation Oita Operations, or energy savings achieved by reducing exhaust air temperature from outside air processors, which were also exhibited at Toshiba Group Environmental Exhibition held in February this year, are the sort of activities that will be fruitful if administrators of facilities can coordinate with the Environmental Department to push those matters forward. With energy in particular, we have ongoing corporate internal activities such as power cost and CO_2 emissions reduction project, which is engaged in the reduction of environmental burden and costs at the same time and I am hopeful that there will be fruitful results as we continue with such efforts.

Fukuchi: I believe it is important for us to continue with them, and I think that it is also important to horizontally expand successful examples to respective sites. Examples from manufacturing plants that are ahead in reduction of environmental burden can be horizontally expanded more and more. Toshiba Hokuto Electronics and Toshiba Materials joined our group as new members of our parts and materials division in April this year. What this signifies is that what we have been doing with semiconductors need to be transferred to an HDD related field, while what we have been doing with HDD need to be brought into the parts and materials field, to transfer among the three business entities. Each manufacturing plant would have advantages and disadvantages, but it is essential that we bring forth synergy in a good sense, to make the whole better. I would like to see that done by people at the Production Planning Department, with you, Mr. Okamura, leading the way.

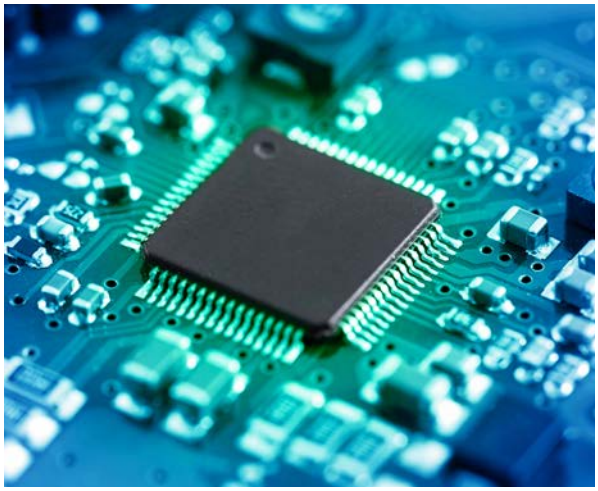
Okamura: Yes, I would agree with that. Products we make differ from one division to another, but details of activities for reducing environmental burden can be horizontally expanded, so I would like to take charge and implement appropriate actions.

Okamura: We also procure parts and materials from our suppliers, who deliver them. This means that environmental burden arises not just within our company but also at our suppliers, when our parts and materials are manufactured and transported to us. We must conduct our activities, while keeping in mind that we need to reduce such environmental burden that are generated at our suppliers as well. I think we can hold a briefing for our suppliers every half year, and ask them to take part in our activities. I believe that environmental burden reduction activities that involve our suppliers will become an essential part of our corporate activities in the future. We need to consider implementing activities by sharing information about activities that our suppliers have been conducting and what we have been doing.

4. Responsive actions for laws and regulations

Okamura: Compliance with laws and regulations is a matter of utmost priority in order to “realize a sustainable society”. Deliberations on responsive actions and collaborations with respective business divisions will be taking place at a global environment conference we hold periodically. For instance in terms of manufacturing, there is the Kigali Amendment to the Montreal Protocol. It involves medium-term investment plans for substituting Freon, while assessing manufacturing risks. In terms of products, this involves a global compliance to laws and regulations, with the EU-RoHS directive at the core. Such legal and regulatory compliance is not a matter that can be dealt with by the Environmental Department alone. It is important that each and every employee make efforts in their duties with proper awareness of the matter. I think it is important for us to work on raising awareness about the environment, including legal and regulatory compliance. I believe the extension of such efforts leads to a sustainable society.

Fukuchi: Timely response is important when changes with laws and regulations occur. I would like to see you, Mr. Okamura, take lead of the whole group and lead each division. In the event an environmental problem arises, our stakeholders also need to implement responsive actions, so I would like our employees be aware of that as they fulfill their duties.

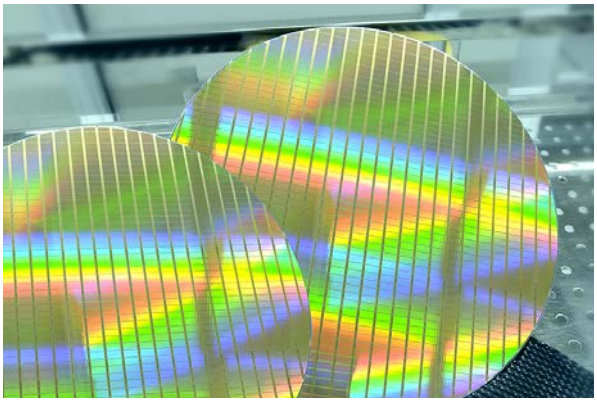


5. Aiming for plants that are rooted in local communities

Fukuchi: Coexisting with local communities is the most important factor when manufacturing products in any local community. I believe we need to collaborate with communities in a variety of ways. I think that there are stories that you can talk about with reality as someone working at Toshiba, such as external classes on the environment for elementary school students and environmental report meetings for everyone in the community. We are able to provide information from a perspective that is different from those of teachers at school and that is an extremely good opportunity for children to learn. I am sure everybody has similar experiences, but in my case I remember I was taken to a beer brewery to observe a manufacturing plant back in those days when I was still an elementary school student. Educating young children is a very good thing to do, and breeding golden venus chub (Hemigrammocypris rasborella) at Himeji Operations-Semiconductor is one aspect of our activities to conserve biodiversity that is only possible at a manufacturing plant with wide area of land and a pond. Getting the local community interested in our environmental activities is also extremely important in creating a sense of oneness within our company and at the manufacturing plant.

Okamura: I heard about ten years ago when I visited a manufacturing plant in a regional area, that local residents had a negative image about the plant because there was an environmental problem in the past. Expanding the plant further caused increased anxiety on the part of residents in the neighborhood. We have been disseminating the image of safe and secure factory operations to eliminate such negative images about manufacturing plants. We have also started environmental education as an aspect of communication with elementary schools in the neighborhood, as a means to increase fans of Toshiba in the following generations. Gases and chemicals are used in manufacturing processes of semiconductors, so we have received a number of inquiries from residents in the neighborhood. For that reason also, conducting activities to gain understanding of people in the neighborhood is something we would like continue and want to see taking root.

Fukuchi: I understand that female employees at Japan Semiconductor Corporation Oita Operations responded to external lessons on the environment for elementary school students. Such efforts are very positive indeed. I believe this would also demonstrate that we have a work environment where women feel at ease to participate, so I would like them to continue with this.



6. What should our company be doing now?

Fukuchi: Environmental activities are not conducted with “conducting environmental activities as the objective”. I would like to remind everyone to remember that such activities are cumulative and they are an extension of our business activities. I would like to see education being provided in ways that are easy to understand for everyone, to spread such correct awareness within our company. I would also like to see proactive public relations to impress on people about the proactive environmental management our corporate group is engaged in that resolves social issues and contributes to the achievement of the SDGs through our products, in our manufacturing and by our environmental communication activities.

Okamura: As global environmental problems intensify and global responsive actions through such means as achieving SDGs are required, I would like our employees to recognize that environmental activities are not something that is done just in Japan, but are a global undertaking. It is important for us to properly benchmark activities conducted overseas and by other companies and I would like to see us take proactive actions to go after relevant awards not just in Japan but overseas as well. I believe that in so doing we can energize environmental activities at respective sites even more than we have seen in the past and progressively raise motivations of our employees. I would like for us to put in effort to shift our activities from ones that are domestic in nature to international environmental activities.

The Sixth Environmental Action Plan

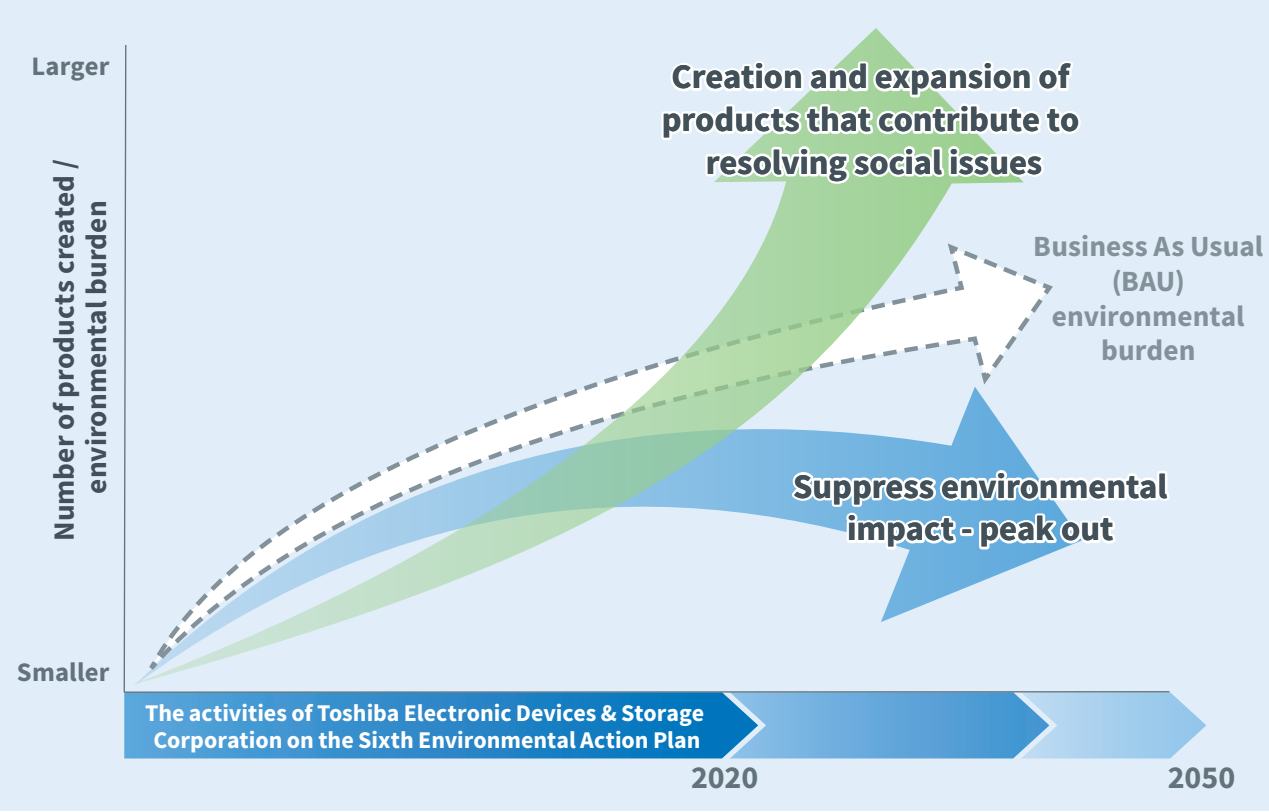
Toshiba Group The Sixth Environmental Action Plan

In order to realize an ideal state of the Earth in 2050 envisaged by Environmental Vision 2050, the Toshiba Group has formulated their medium-term goals on the environment as the “Sixth Environmental Action Plan” (Activity Period: FY 2017 to FY 2020), and is currently implementing its activities. In formulating this, various factors were taken into consideration, including external factors such as the adoption of the Paris Agreement at COP 21, adoption of SDGs at the UN summit, and the start of operation of the ESG investment, as well as internal factors such as changes in the company’s business structure, and the successes and points for reflection from the Fifth Environmental Action Plan (Activity Period: FY 2012 to FY 2016). Activities the Toshiba Group should be focused on for the coming four years were considered next. Regarding the contents, we set a total of 15 items with goals over the two areas of “Business (products / services and manufacturing)” and “Management”.

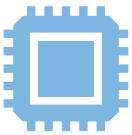
The “Environmental Action Plan” is reviewed every few years and contributes to resolving global environmental issues in an effective manner.

Image of environmental contribution activities aimed for by Toshiba Device and Storage Corporation Group

Advancements with products and environmental technologies are sought to create products that contribute to resolving social issues and control environmental burden.



Areas of focus under the Sixth Environmental Action Plan



Business (Improvement of environmental performance for products and services):

We will develop energy-saving products for realizing a low-carbon society through suppression of CO_2 emissions, both at the time of manufacturing of products, and during their use, through resource savings, such as in the miniaturization of products, and through reductions in specified chemical substances contained within the products.

Business (Reduction of environmental impact in manufacturing):

We will seek to achieve highly efficient manufacturing that curbs greenhouse gas emissions, chemical substances emissions, waste production, and water usage at each manufacturing base and simultaneously reduces environmental burdens and costs. And management of greenhouse gas emissions and waste production will continue, both in terms of “primary units” and “total amounts”.

Management:

In an effort to improve compliance with laws and regulations throughout Toshiba Group, we established “Thoroughness in environmental risk and compliance” as a new item. We will strive to strengthen compliance with global environmental laws and regulations, foster environmental human resource development, and aim to create a system that can constantly monitor risks.

The table below shows targets and actual results for environmental performance based on Toshiba Group’s Sixth Environmental Action Plan. 11 out of 15 items in total were established as our corporate goals.

Environmental Goals and Targets	Unit	FY 2017 Result	FY 2018 Result	FY 2019 Target	FY 2020 Target
Expand devices that support our lives (p.11)	Number of products	(Managed by different index)	3 Products	3 Products	3 Products
Reduce CO_2 emissions (p.16)	kt-CO_2	641	634	703	698
Reduce PFC emissions (p.16)	kt-CO_2	138	129	152	169
Reduce water usage (p.18)	km^3	14,029	14,023	15,731	16,328
Reduce overall waste generation (p.20)	kt	16.6	16.1	19.3	19.8
Reduce waste volume (p.20)	kt	10.3	10.1	12.1	12.5
Reduce chemical substance discharge (p.23)	t	222	229	246	271
Promote biodiversity activity (p.28)		7 Site implementation	11 Site implementation	Contribution to Aichi target	Same as on the left
Promote social communications (p.26)		PR, advertisements, exhibition promotion	Same as on the left	Promote with PR and advertisements	Same as on the left
Promote local communications (p.26)		Implement site communications	Same as on the left	Same as on the left	Same as on the left
Improve environmental awareness (p.29)		Implement awareness improvement measures	Same as on the left	Same as on the left	Same as on the left

Actions for the Achievement of Sustainable Development Goals (SDGs)

SUSTAINABLE DEVELOPMENT GOALS

The 2030 Agenda for Sustainable Development, which was adopted at the U.N. Headquarters in New York in September 2015, defines 17 Sustainable Development Goals (SDGs) as important goals for the international community in order to realize sustainable development towards 2030 by resolving issues such as poverty, famine, energy, and climate change.

Many goals of SDGs are closely related to environmental management at Toshiba Device and Storage Corporation Group and as such, we believe promoting environmental management will contribute to achieving such goals. Ten goals that are relevant to our business activities are introduced through this report.

3 GOOD HEALTH AND WELL-BEING

Reducing accidents caused by human error, and contributing to the development of safe and pleasant towns, realized for the ongoing benefit of residents, from children to the elderly. (p.11)

4 QUALITY EDUCATION

External lessons on the environment for elementary school students in the neighborhood and natural environment observation sessions are held to raise environmental awareness of elementary school students, who are the generation of the future. (p.26)

6 CLEAN WATER AND SANITATION

Efforts are being made to return used water resources to nature, cleaner than when it was received. (p.18)

7 AFFORDABLE AND CLEAN ENERGY

Reducing losses of power semiconductors by keeping the ON-resistance low, thereby contributing to energy conservation. (p.11)

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Supporting the information infrastructure for the IoT society. (p.11)

11 SUSTAINABLE CITIES AND COMMUNITIES

Realizing safe and pleasant communities for persons of all ages. (p.11)

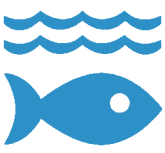
12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Aiming for "high-efficiency manufacturing", that simultaneously reduces the environmental burden, and the manufacturing costs generated in the production process. (p.15)

13 CLIMATE ACTION

Efforts are being made to reduce greenhouse gas emissions, which occur in development and mass production processes of products. (p.16)

14 LIFE BELOW WATER



Waste materials littering rivers and beaches in the vicinity of our plants throughout Japan and overseas are being collected. (p.27)

15 LIFE ON LAND

Forestation improvement activities are promoted as an effort to pass on abundant nature to future generations, through activities that are rooted in local communities. (p.28)

Devices that support our lives

Visconti™ Series Image Recognition Processors

SDGs 3, 7, 11, 13

This is an image recognition processor that achieves both high performance and energy saving. Images captured by a camera is instantaneously identified and the driver is notified of any danger to make our communities safer and securer.

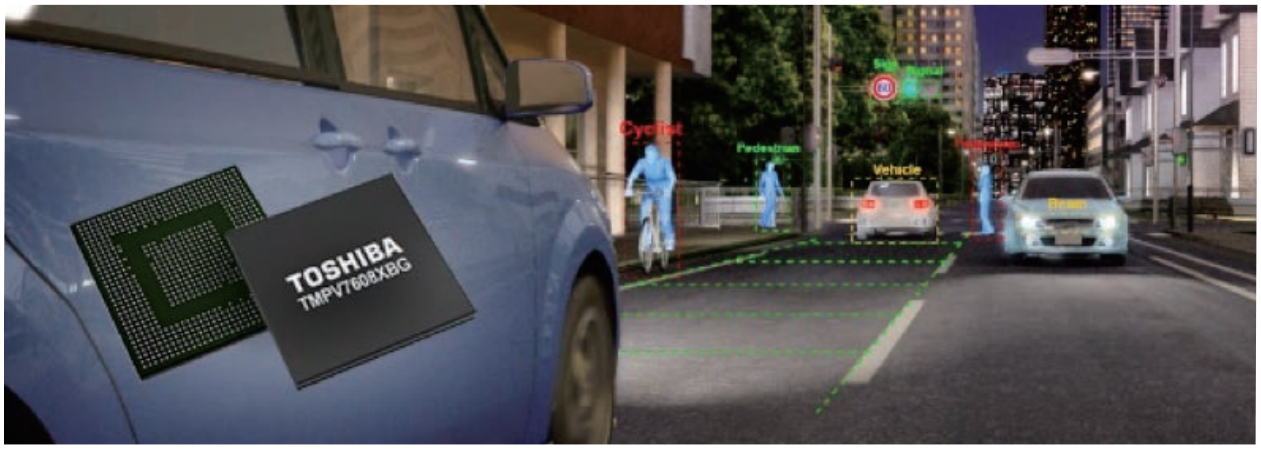
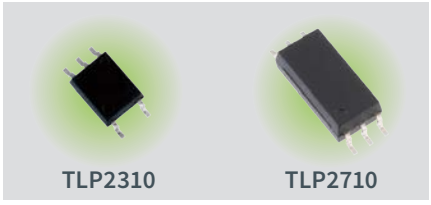


Photo-coupler

SDGs 7, 13

Electrical signals are first converted into light and then reverted to electrical signals by this device to shut out noise and maintain security of instruments. This is used in a variety of equipment, such as power supplies and testers.



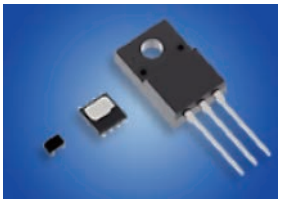
TLP2310 TLP2710

Uninterruptible power supply

U-MOSIX Series Power Semiconductors

SDGs 7, 13

The product is utilized in a variety of applications, for converting alternating to direct current, transforming voltage, turning motors and the like. The U-MOS IX series of products adopt the latest process and feature high efficiency.



NL HDD filled with helium*

SDGs 4, 7, 9, 13

This is an HDD for servers that is filled with helium instead of conventional air. Helium is used instead of air to reduce resistance, which in turn saves energy, while the gap between the head and the disk is narrowed to increase capacity.

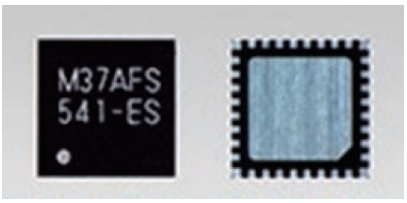
Data server

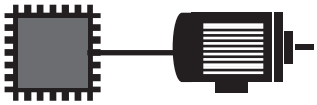
* : HDD: Hard Disk Drive

Vector control microcomputer

SDGs 7, 13

Motors are used for home appliance, server, automobile, etc. Vector controlled microcomputers enables maximum motor efficiency.





Silicon Nitride Ceramic Bearing Balls

SDGs 7, 13

Contributes to energy saving with higher strength, greater rigidity and superior wear resistance compared to steel ball bearing with less than half the weight of comparable steel balls. The product is also an insulator and free of corrosion or rust, making it suitable for applications in harsh environments.

Linear Image Sensors

SDGs 7

Mounted on MFP* for homes and offices, and used for copying and scanning. New product development aims for resource saving and reduced power consumption.

* : Multi Function Printer

Magnetrons

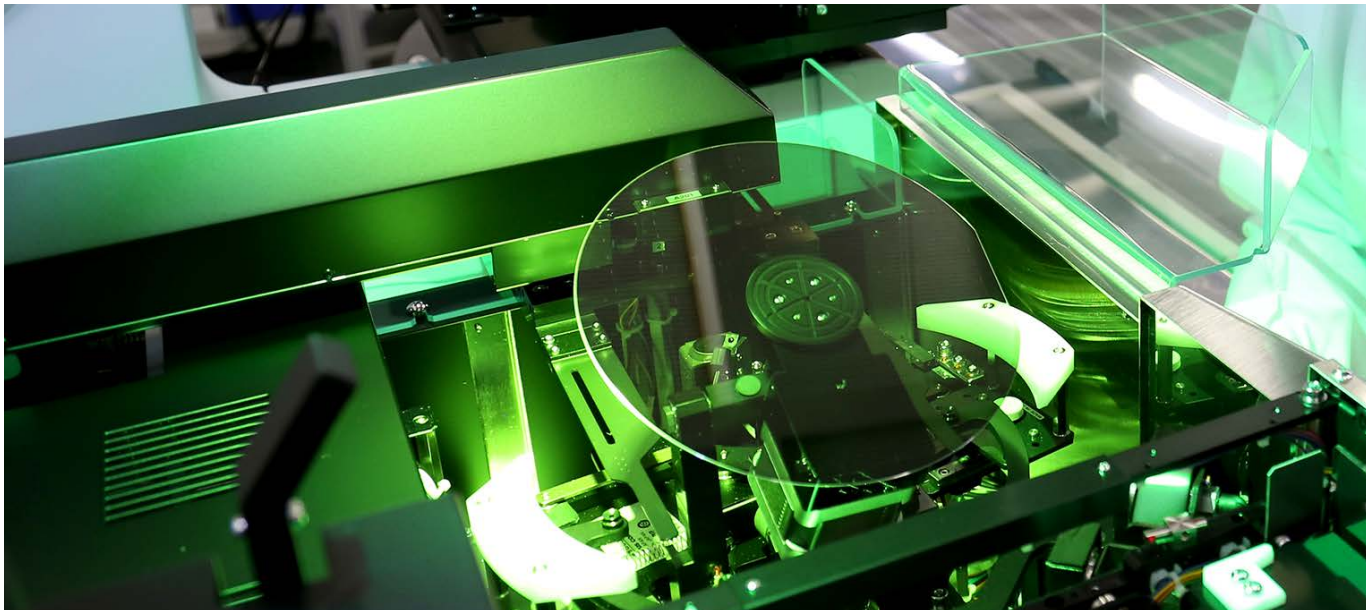
SDGs 7

Microwave oven is essential to our daily lives. Microwaves are generated with a magnetron*, heating by vibrating molecules in the food. Contributes to energy saving by efficiently generating microwaves.

* : A type of vacuum tube

Reduction of Environmental Impact of Products

SDGs 12, 15



Environmental consideration at the stages of product design and engineering

The Group is working on energy savings, and the control of chemical substances in products, through the design and development stages, and through the material procurement stages, creating products that are environmentally friendly.

Verification of chemical substance contents:

Conditions of chemical substances included in raw materials and parts used in our products are verified and materials are selected to avoid restricted substances, while development of technologies, product design and development that have small environmental impact are promoted. Compliance with laws, ordinances and various regulations relevant to products is verified by conducting environmental assessments.

Miniaturization and weight reduction of products:

Product packages are miniaturized and weight is reduced to decrease the amount of raw materials used to miniaturize various electrical devices in which our products are incorporated, as well as resource conservation.

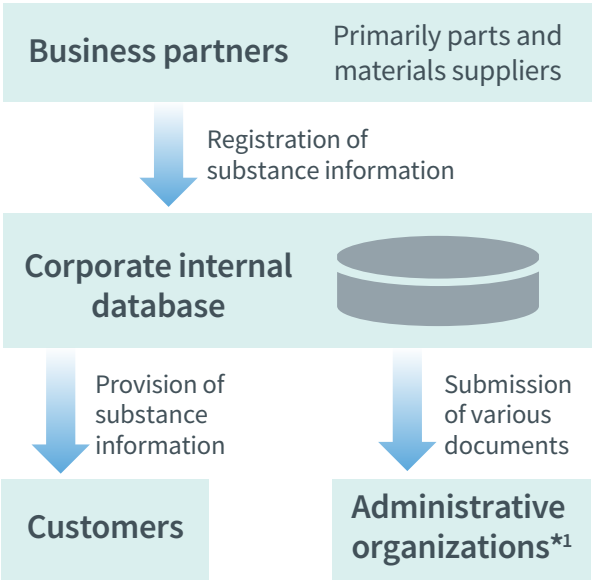
Lower power consumption design:

Low power consumption designs are realized by reducing power loss with lowered ON resistance of power semiconductors and power consumption is reduced while products are used.
Furthermore, development of devices that far exceed performance limits of conventional silicon devices are being advanced with the use of compound semiconductors such as SiC (silicon carbide) and GaN (gallium nitride).

Reducing number of processes:

Highly efficient mass production system, which starts at design and development stage, is being built. Power consumption is reduced by decreasing the number of processes for manufacturing.

Material procurement with consideration for the environment



*1: European Chemicals Agency, etc.

Toshiba Electronic Devices & Storage Corporation Group has established green procurement guidelines and is developing green procurement activities with consideration to the environment.

In addition to explaining the contents of said guidelines to all suppliers, we collect information on chemical substances contained in products from the suppliers, including the content of "Procurement-Prohibited Substances" and "Procurement-Controlled Substances" as specified by the Company, and check the compliance status according to said guidelines.

Briefing sessions are held on a continual basis, to promote understanding about our green procurement activities, and business partners are requested to cooperate with our efforts.

Compliance with domestic and overseas environmental laws and regulations

Regulations for chemical substances related to products are enforced or scheduled to be enacted in all countries around the world.

Amongst recent developments relating to substances subject to the EU RoHS Directive, in addition to the six substances currently regulated (Pb, Hg, Cd, Cr^{6+}, PBB, PBDE), four phthalate esters (DEHP, BBP, DBP, DIBP) were added (July 22, 2019). In response to such developments, the company has already completed substitution for the four phthalate esters.

The corporate group will continue to gather information on the latest domestic and overseas trends of policies and regulations concerning chemical substances contained in products, promote alternatives for chemical substances that may become subject to various regulatory restrictions and review our established "procurement prohibited substances" and "procurement controlled substances" to reflect our Green Procurement Guidelines.

Toshiba Electronic Devices and Storage Corporation Group regulations relating to environmental management etc.

- Domestic regulations, etc.: Ozone Layer Protection Law, Chemical Substances Control Law, Industrial Safety and Health Law, PRTR Law, Water Pollution Control Law, etc.
- Overseas regulations, etc.: RoHS related regulations for each country, WEEE Directive, European ELV Directive, REACH Regulation, ErP Directive, etc.
- Others : Customer requests, etc.

Expand devices that support our lives FY 2018 Result

FY 2018 Target	FY 2018 Result	Evaluation
3 Products	3 Products	○

We select U-MOSIX, visconti4 and NL HDD filled with helium. We will continue to create more devices that support our lives in the future.

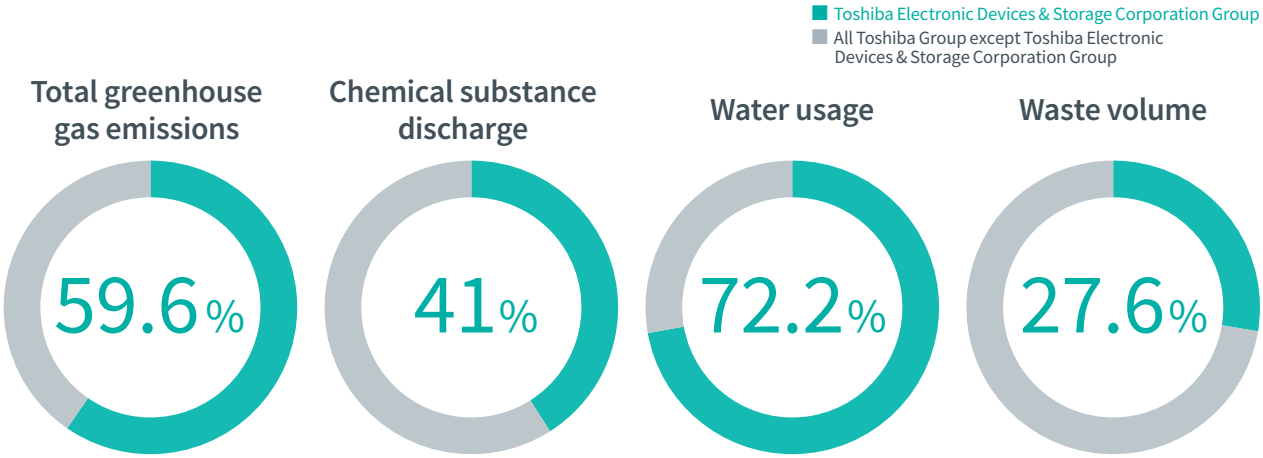
Reduction of Environmental Impact in Manufacturing

Environmental burden reductions through high-efficiency manufacturing and expansion of advanced technology

The Group is aiming for “high-efficiency manufacturing”, that simultaneously reduces the environmental burden, and the manufacturing costs generated in the production process. In step with progress towards an information-oriented society, we continue to expand and strengthen production capacity for our semiconductor and HDD products in order to meet vigorous demand in the market. Our parts and materials business supply high precision components for a broad range of fields such as industrial medicine and as a result, our environmental burden is expected to increase for the time being. However, by promoting various measures throughout the organization, such as introducing highly energy-efficient facilities, making process improvements, and reviewing the design of product parts, we will work to suppress any environmental burden imposed by the Company. In addition, we will contribute globally to high-efficiency manufacturing in the semiconductor industry through the development and provision of highly accurate and highly efficient semiconductor manufacturing equipment using world-leading advanced technology.

Semiconductors as well as parts and materials businesses produce a large environmental burden*

Our group comprise a large portion of the environmental burden produced by Toshiba Group and as such, we continue to implement proactive actions to reduce environmental burden.



*: Reference : Toshiba Group Environmental Report 2018 https://www.toshiba.co.jp/env/en/communication/report/pdf/env_report18_all_e.pdf

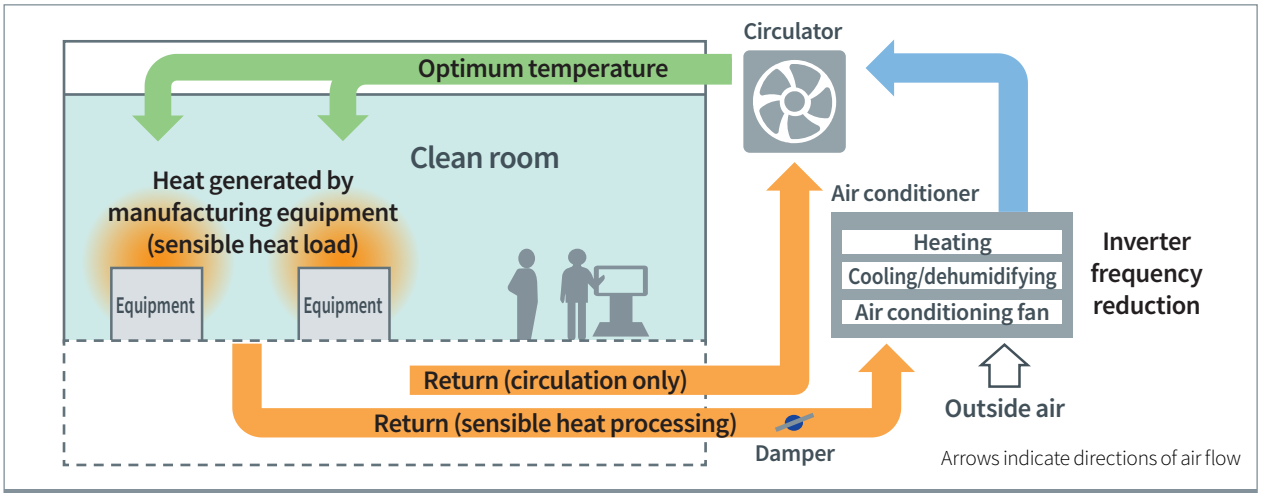
Climate change countermeasures

SDGs 13

A large amount of energy is constantly used for air conditioning management, operation of manufacturing equipment and producing testing in the manufacturing processes of semiconductor products and HDD products. Furthermore, PFC (perfluoro chemical) gases are used in the etching process and the like in semiconductor manufacturing. Some of these gases lead to global warming that is equivalent to more than several thousand times that of CO_2.
Our corporate group has therefore launched a project that crosses over corporate organizations in 2004, to reduce greenhouse gases with emphasis on “efficient manufacturing”. Considering facilities with greater energy saving effects is a given when upgrading facilities, but a large amount of energy is consumed to operate clean rooms and there are a large number of similar facilities in each process. One idea can therefore lead to significant reduction in energy consumption.

Example case | Optimization of air conditioning for clean rooms (Japan Semiconductor Corporation Oita Operations)

Energy saving was achieved by optimizing air conditioning facilities, made possible by adjusting the amount of returning air to match the amount needed to cope with the amount of sensible heat produced by manufacturing equipment inside clean rooms and by regulating the amount of air taken in from outside.



Optimized operation of air conditioners to match sensible heat load of clean room

PFC gases are dealt with by implementing neutralizing equipment in new facilities and reduced by reviewing process conditions.

Performance report for previous fiscal year

Energy-originated CO_2 emissions (CO_2 Equivalent)

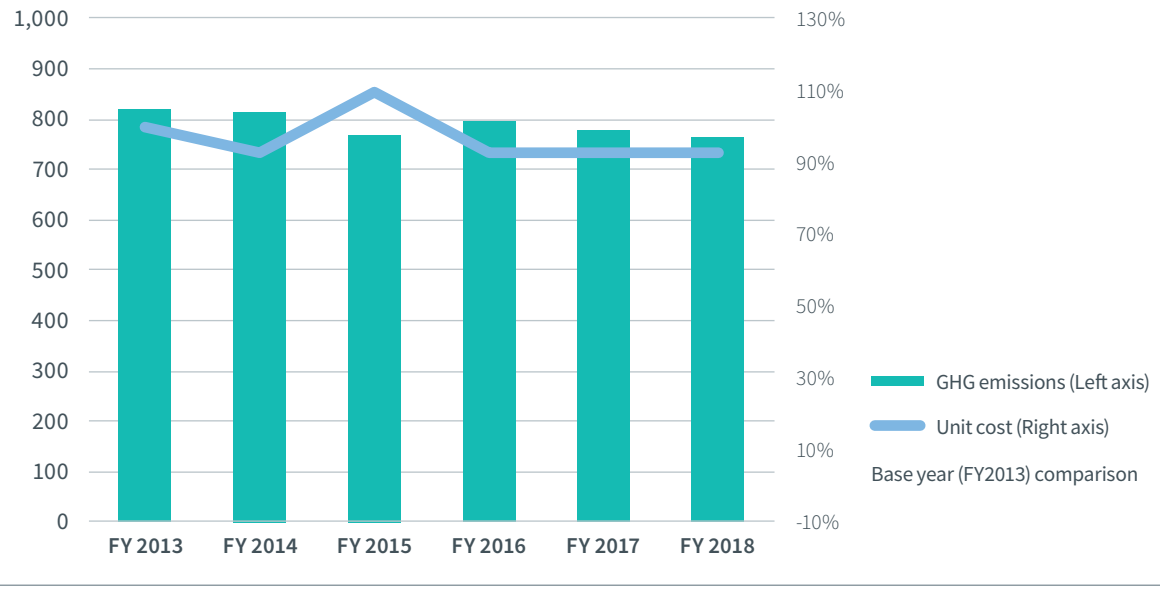
FY 2018 Target	FY 2018 Result	Evaluation
660kt or less	634kt	○

PFC emissions (CO_2 Equivalent)

FY 2018 Target	FY 2018 Result	Evaluation
165kt or less	129kt	○

The corporate group has achieved goals for FY2018, through persistent efforts made day in and day out.

Transition of amount of GHG emissions (kt/Year)



*: CO_2 emissions + PFC emissions

Targets and results based on Toshiba Group's Sixth Environmental Action Plan

Energy-originated CO_2 emissions (CO_2 Equivalent)

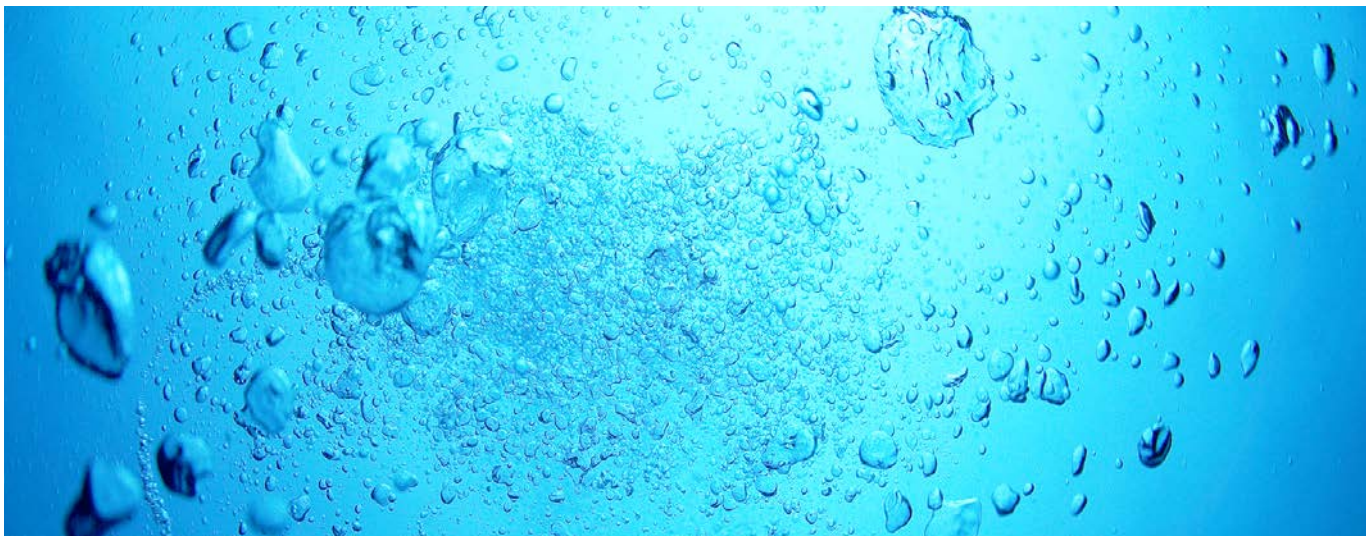
FY 2017 Result	FY 2018 Result	FY 2019 Target	FY 2020 Target
641kt	634kt	703kt	698kt

PFC emissions (CO_2 Equivalent)

FY 2017 Result	FY 2018 Result	FY 2019 Target	FY 2020 Target
138kt	129kt	152kt	169kt

Highly efficient use of water

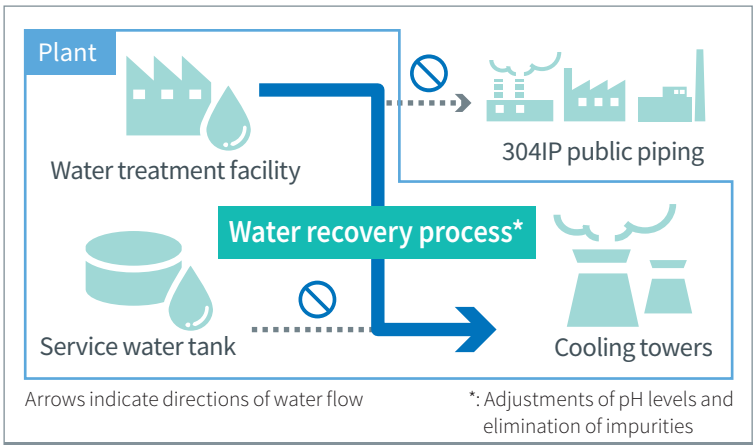
SDGs 6, 12, 14



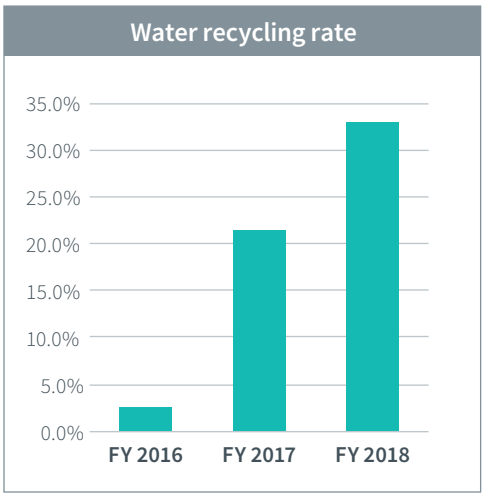
Japan is a country with an abundance of water resources and relatively low water risk. On a global scale, however, climate change and population growth are raising water risk, while in recent years disasters due to torrential rain is also being reported more frequently in Japan.
Extremely large quantities of water are consumed during the manufacture of semiconductors and hard disks, such as to dilute chemicals, for cleansing, as cooling water of equipment, etc. Our corporate group has a particularly high volume of water consumption within the Toshiba Group and we are making proactive efforts to use well water, reuse water, as well as recycle water in our day to day efforts to make efficient use of water resources.

Example case | Improving water recycling rate (Toshiba Semiconductor Thailand Co., Ltd.)

Drainage water (water drained from air conditioners, equipment cooling circulation water, etc.) was reused to supply water for scrubbers in FY2017 to improve our recycling rate.
The reuse of water discharged from production processes to supplement water for cooling towers, which used to use service water, was considered in June, 2017. This led to a 100% recycled water for supplementing water for cooling towers in FY2018. This led to a water recycling rate of 33% in FY2018, up from 2.5%% in FY2016, which made a significant contribution towards reduction in quantity of water received.



Improvement of cooling tower water supply



* Water recycling rate: (required water supply - supplied amount) ÷ required water supply x 100 (%)

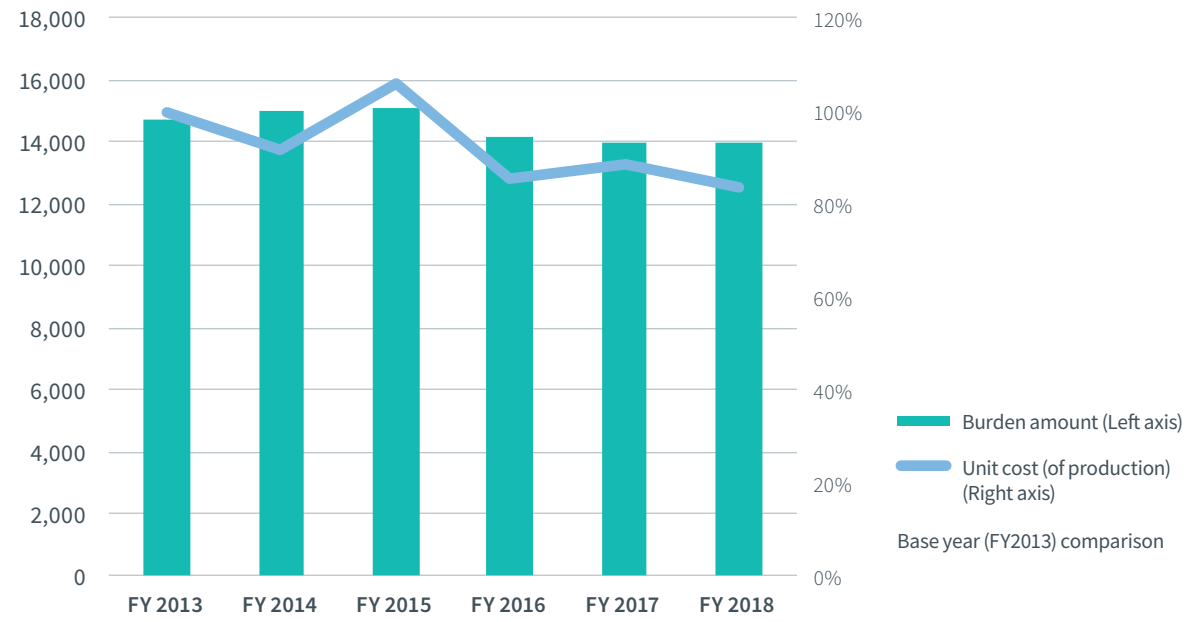
Performance report for previous fiscal year

Water usage

FY 2018 Target	FY 2018 Result	Evaluation
15,254km^3 or less	14,023km^3	○

The corporate group has achieved goals for FY2018, through persistent efforts made day in and day out.

Transition of water usage (km^3/Year)



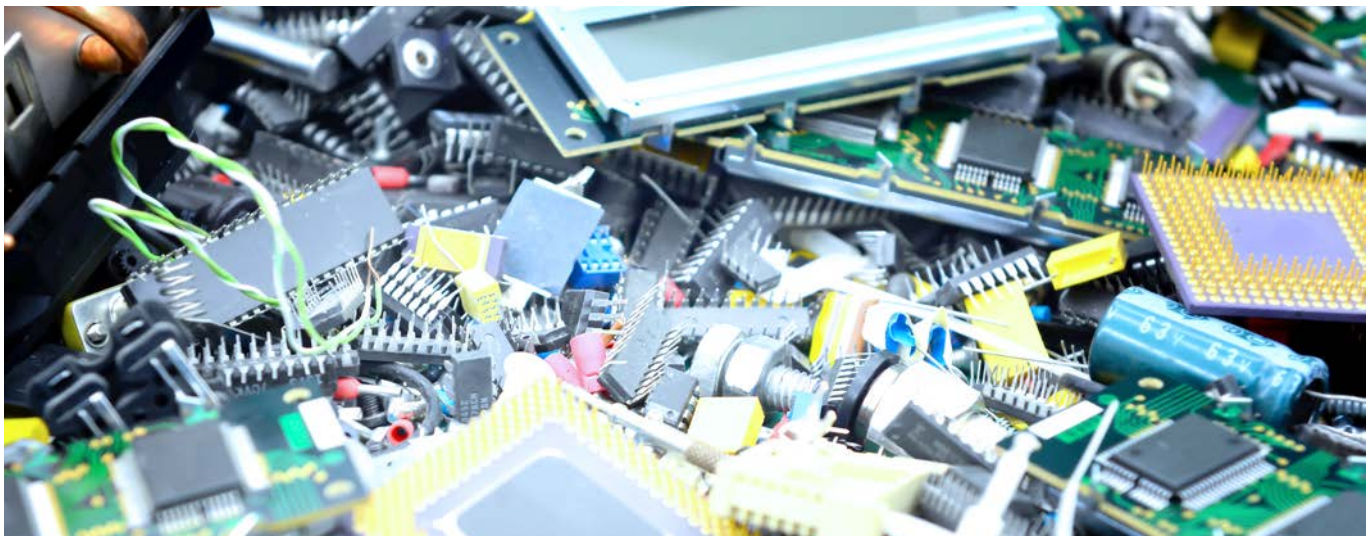
Targets and results based on Toshiba Group's Sixth Environmental Action Plan

Water usage

FY 2017 Result	FY 2018 Result	FY 2019 Target	FY 2020 Target
14,029km^3	14,023km^3	15,731km^3	16,328km^3

Contributions towards reduction of waste materials generated and resources recycling

SDGs 12, 14, 15

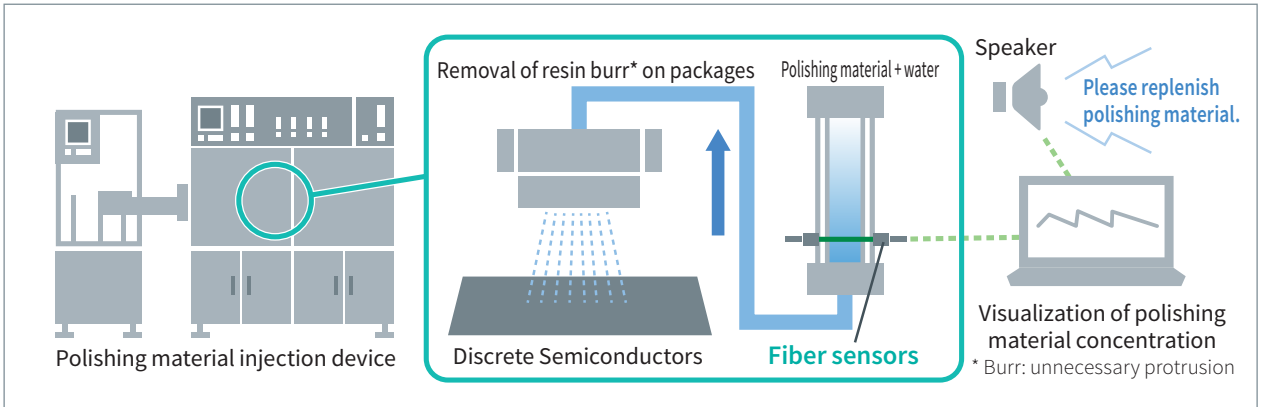


Industrial waste materials, such as metal scraps, plastic waste and sludge from drainage water treatment arise in manufacturing processes of semiconductors and storage devices.
Our corporate group aims to build a recycling society and the whole group is proactively making efforts to that end and promoting contribution from both aspects of reducing waste generated by our business activities and recycling resources.
Resource recycling is promoted with thorough sorting at each site, while consumption of resources is minimized by improving processes and the amount of chemicals used is optimized. The input side of consumption is reduced and that also leads to reduction of waste on the output side as a result, by being aware of effective use of resources.

Example case

Reduction of sludge associated with decreased amount of polishing materials used by sensing polishing material concentration (Himeji Operations – Semiconductor)

Unnecessary resin protrusions on packages are removed with polishing materials in the manufacturing process of discrete semiconductors. Such polishing materials are dissolved in water for use and their concentration needs to be managed, but the conventional method for managing concentration was replaced to a method involving the use of fiber sensors, which made it possible for us to see the polishing material concentrations in real time, thereby optimizing the input intervals and quantities of polishing materials. This led to the reduction of polishing materials used by about 3,010 kg in FY2018, which also reduced the amount of polishing material sludge produced.



Reduction of polishing material used

Our corporate group is not just reducing waste materials produced in our production processes but each and every one of our employees are making efforts on a day to day basis. Copies are made on both sides of sheets to reduce paper waste and recycling of such items as empty cans and PET bottles are also promoted thorough sorting.

During October each year, which is the 3R promotion month, each plant conducts individually unique activities in a proactive manner, to raise awareness of employees. Such activities include holding all employee environmental quizzes, and reuse exhibits, where unused office supplies, tools and OA accessories are offered for reuse by those who want them, as well as collection of empty cans and the like.

Example case | Empty can collection “Aluminum Can Hoihoi” (Japan Semiconductor Corporation)

Both Iwate and Oita Operations are engaged in the 5R promotion activities, which consist of the 3R activities of Reduce (cutting down waste), Reuse (reuse as is) and Recycle (use as resource), combined with the 2R of Repair (fix and use) and Refuse (rejecting unnecessary things).
“Aluminum Can Hoihoi” was conducted as an all employee 5R activity during the 5R Promotion Month of FY2018 (October 1 to 31). Collection containers were installed at entrances of each building to collect aluminum cans from beverages available on premises and collections were also conducted by each department. This led to the collection of about 100 kg of aluminum cans at both plants combined within a month. The proceeds raised by selling these to a contractor were donated to disaster stricken areas. This activity became an opportunity to make employees aware of the fact that sorting aluminum cans make them available for selling, and makes them a useful resource.

*3R (Reduce • Reuse • Recycle), 5R (Reduce • Reuse • Recycle • Refuse • Repair)

Performance report for previous fiscal year

Overall waste generation

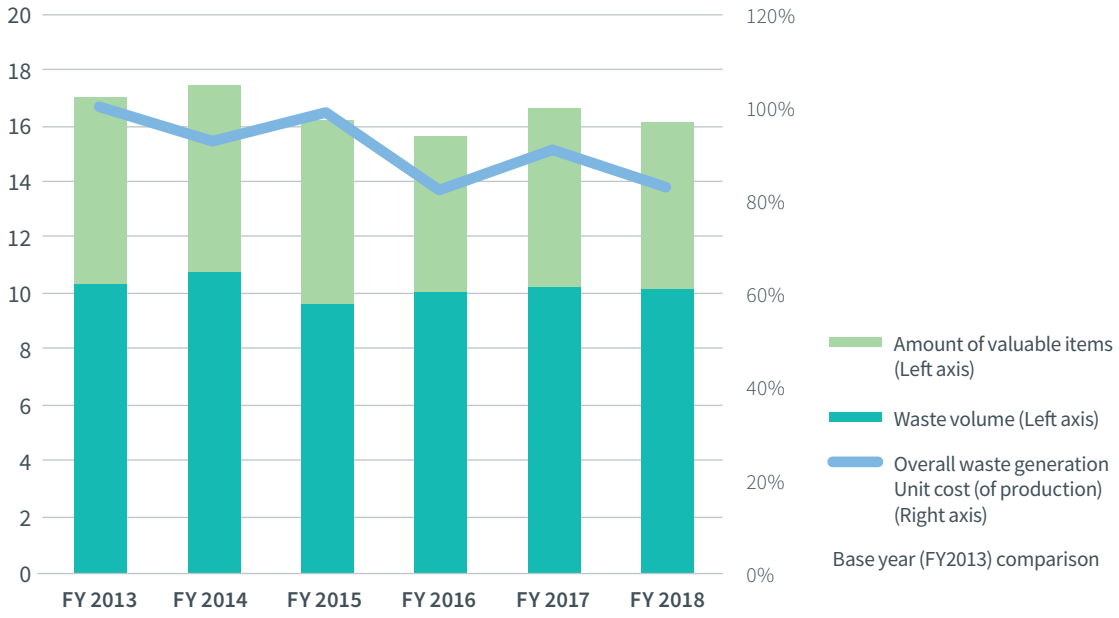
FY 2018 Target	FY 2018 Result	Evaluation
19.9kt or less	16.1kt	○

Waste volume

FY 2018 Target	FY 2018 Result	Evaluation
13.1kt or less	10.1kt	○

The corporate group has achieved goals for FY2018, through persistent efforts made day in and day out.

Transition of overall waste generation (kt/Year)



Targets and results based on Toshiba Group's Sixth Environmental Action Plan

Overall waste generation

FY 2017 Result	FY 2018 Result	FY 2019 Target	FY 2020 Target
16.6kt	16.1kt	19.3kt	19.8kt

Waste volume

FY 2017 Result	FY 2018 Result	FY 2019 Target	FY 2020 Target
10.3kt	10.1kt	12.1kt	12.5kt

*The waste volume is remaining after valuable materials are subtracted from overall waste generation.

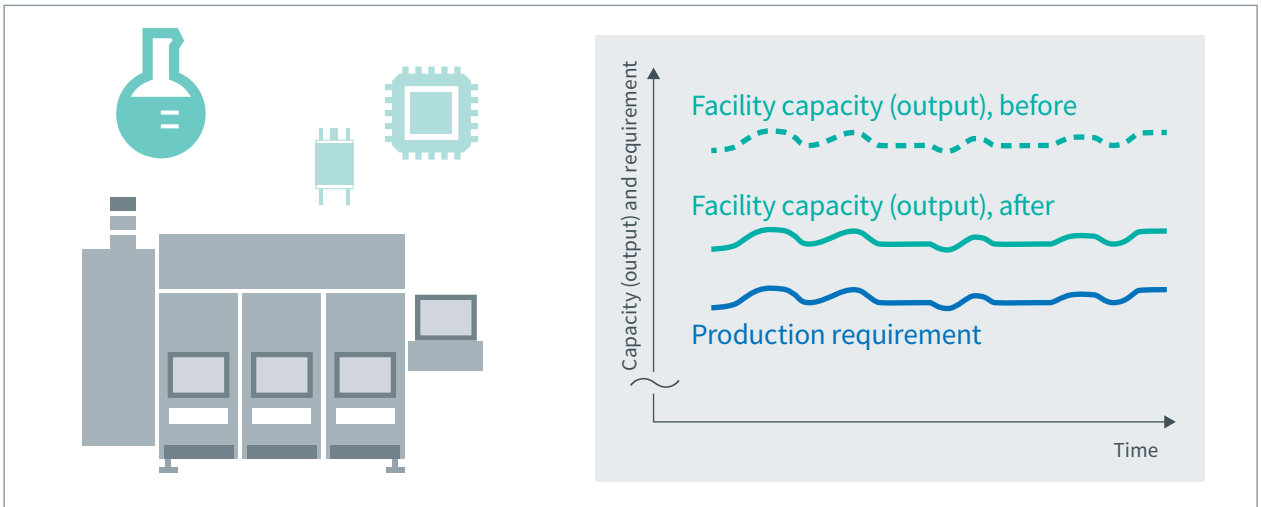
Reduction of chemical substances in production activities

SDGs 3, 12

A variety of chemical substances are used by our corporate group, in the manufacturing processes of semiconductors and storage products. Efforts are of course made to limit the use of harmful chemical substances as much as possible and to find alternative harmless chemical substances, but manufacturing processes in which chemical substances are used are also improved to reduce consumption (optimization of consumption). Furthermore, used chemical substances are also reused, optimally processed after collecting and detoxified through exhaust gas treatment and waste water treatment.
The reduction of environmental risk is promoted by taking actions that tackle both aspects of use as well as emission and disposal of chemical substances through reductions, thereby contributing to the protection of our global environment.

Example case | Reduction of consumption and emission of chemicals (Kaga Toshiba Electronics Corporation)

Facility capacities (output) of semiconductor manufacturing facilities are adjusted according to production requirements to reduce consumption and emission of chemicals that are necessary to manufacture of semiconductors.



Facility capacities are optimized according to production requirements to reduce consumption and emission of chemicals

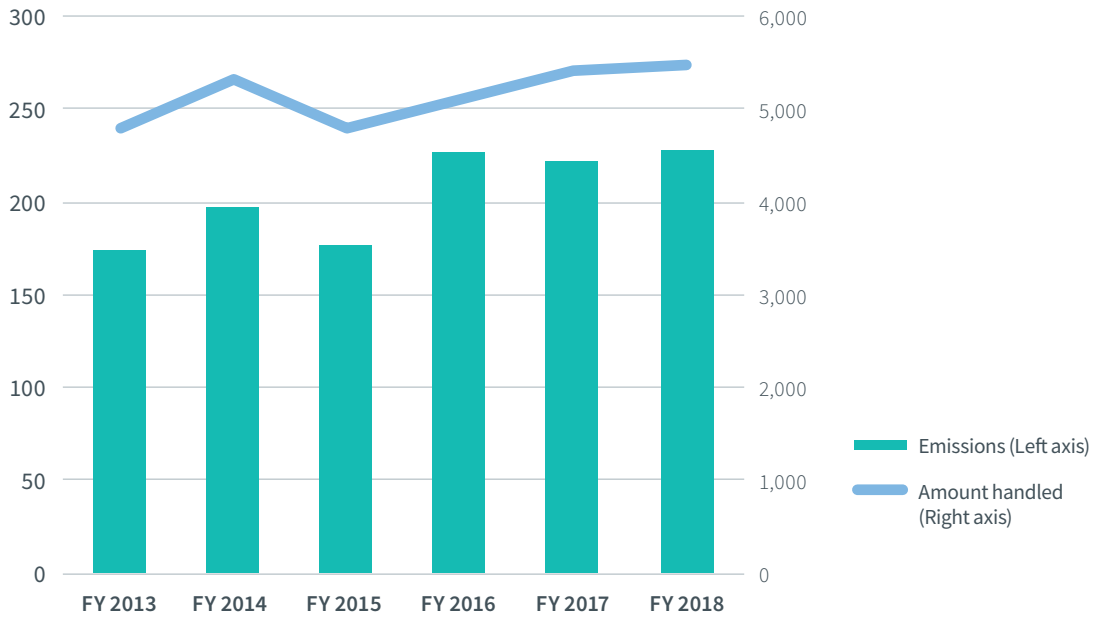
Performance report for previous fiscal year

Chemical substance discharge

FY 2018 Target	FY 2018 Result	Evaluation
239t or less	229t	○

The corporate group has achieved goals for FY2018, through persistent efforts made day in and day out.

Amount of chemical substances handled and discharged (t/Year)



Targets and results based on Toshiba Group's Sixth Environmental Action Plan

Chemical substance discharge

FY 2017 Result	FY 2018 Result	FY 2019 Target	FY 2020 Target
222t	229t	246t	271t

Transition of records on environmental impact in manufacturing

Energy-originated CO_2 emissions (CO_2 Equivalent) (Unit: kt)

FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
686	685	650	658	641	634

PFC emissions (CO_2 Equivalent) (Unit: kt)

FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
133	129	119	136	138	129

Water usage (Unit: km^3)

FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
14,734	15,030	15,070	14,149	14,029	14,023

Waste volume (Unit: kt)

FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
10.4	10.8	9.6	10.0	10.3	10.1

Overall waste generation (Unit: kt)

FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
17.0	17.4	16.2	15.6	16.6	16.1

Chemical substance discharge (Unit: t)

FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
173	197	177	226	222	229

Chemical substances handled (Unit: t)

FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
4,787	5,316	4,801	5,101	5,414	5,483

Environmental Communication

SDGs 4, 6, 11, 14, 15

Through proactive environmental communication activities, including biodiversity conservation work at our domestic and overseas bases, we are working to spread environmental information in society, and to improve the environmental awareness of employees.

Environmental Education

"Things we can teach because we are a company that manufactures semiconductors that support IoT society"

Our corporate group is conducting a variety of education on the environment, primarily at manufacturing sites both domestic and overseas, to children, who are our future generations. New semiconductor related environmental stories and electronic workshops using semiconductors have been incorporated since FY2018 as new additions to environmental education, which is provided to children living in the neighborhood of our domestic manufacturing sites. Children coming into contact with semiconductor products that are being made at a factory nearby, we hope, would present an opportunity for them to consider environmental issues.

Class report

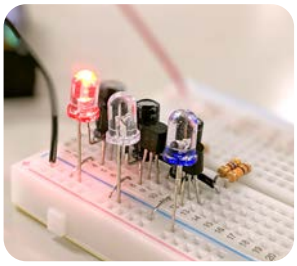
"What are semiconductors like?" was the topic of the hands-on class designed to introduce children to semiconductors and to teach them how they are useful to our lives and the environment.

Hands-on learning of semiconductors using models

Electronic workshop of signaling units

Classes for FY2018 used models of drum-type washing machines and the like that use motors to teach children how semiconductor products "manipulate electricity" to enrich our lives and make things convenient and how they contribute to resolving environmental issues through energy saving and the like. Electronic workshops used semiconductors and LEDs to engage all participants in enthusiastically connecting components to create signaling units and enjoy illuminating finished signaling units.

Children slowly inserting small parts onto the board



Completed signaling unit made of semiconductors and LEDs

Angel Squad members that taught classes at Oita Operations

Japan Semiconductor Corporation Oita Operations is not just reducing environmental burden associated with their manufacturing activities but they are also conducting environmental education for children, as an aspect of community contribution.
Classes on the environment for children is a means to educate people for a sustainable society but also offers an opportunity for people to get to learn about the plant.
Active lessons will continue in the future that go hand in hand with happy smiling children.

Plants conducting activities since FY2018
Toshiba Electronic Devices & Storage Corporation Himeji Operations-Semiconductor
Japan Semiconductor Corporation Oita Operations

Community symbiosis

NuFlare Technology, Inc.

Mount Fuji Waste Reduction Strategy

In collaboration with nature protection organizations, non-profit organizations and other companies that approve the “Mount Fuji Charter”, and to raise environmental conservation awareness of employees and their family members participate in the cleaning operation of “Mount Fuji Waste Reduction Strategy” conducted by volunteers as an aspect of environmental conservation activity at Mount Fuji.

Toshiba Electronics Asia, Ltd. (Hong Kong)

Overseas activity at Sam Mun Tsai

Coastal cleaning activity was conducted at Sam Mun Tsai, where fishing village culture remains, in collaboration with Hong Kong UNESCO Global Geopark. Participants learned about fishing village culture, participated in environmental activity to learn about the importance of symbiosis of man and nature.

Toshiba Devices & Storage (Shanghai) Co., Ltd.

Removal activity of introduced species, “bur-cucumber” (Sicyos angulatus)

About 40 employees participated in this activity to eradicate the introduced species, “bur-cucumber”. Bur-cucumber is a large vine of the gourd family that grows extremely fast and has a serious negative impact on the native ecosystem. We hope to raise environmental awareness through activities intended to protect ecosystems nearby.

Communication

Buzen Toshiba Electronics Corporation

Corporate environmental lectures

Lecturers from non-profit organizations are invited to speak about the current status of Buzen Sea, such as ecosystem and drifting trash issues in our corporate lectures intended to enhance environmental communication with the local community and to raise environmental awareness of our employees.

Kaga Toshiba Electronics Corporation

Responsive actions taken for onsite surveys conducted periodically by administrative authorities

Onsite surveys are periodically conducted by administrative authorities at plants that have concluded the agreement on pollution prevention. Efforts are made to sustain stable operations and to disclose accurate information to sustain manufacturing plants safe for all residents of the local community.

Toshiba Electronic Devices & Storage Corporation

27th Toshiba Group Environmental Exhibition

The “27th Toshiba Group Environmental Exhibition” was held at the Smart Community Center in Kawasaki City, drawing around 2,600 visitors over the two-day period. Contributions for achieving the “SDGs” (sustainable development goals) was the topic for the 27th exhibition, where devices and services that support our lives, as well as highly efficient manufacturing were introduced.

Efforts to biodiversity

SDGs 4, 6, 11, 14, 15

Toshiba Electronic Devices & Storage Corporation Group conducts activities to preserve biodiversity at worksites both in Japan and overseas.

Ibo District, Hyogo

Mr. Yuya Murakami　Mr. Seikichi Yao

Toshiba Electronic Devices & Storage Corporation
Himeji Operations-Semiconductor

Protection of Thoroughwort

Thoroughwort is a plant that is counted in the Seven Autumnal Flowers, familiar to our culture and its appearance and fragrance mentioned in traditional Japanese poems. The species is designated Rank B on the Red Data Book of Hyogo Prefecture and over 1,000 stumps of Thoroughwort that have genes of the Harima District, where the plant is located, is currently being protected. The nectar of the Thoroughwort flower contains ingredients preferred by the Chestnut Tiger butterfly (Parantica sita), which is a migratory species of butterfly. The protection activity started in 2013 and the first arrival of Chestnut Tiger butterflies was confirmed in October, 2018.

Light reddish purple color spreads over the area with anticipation for the arrival of Chestnut Tiger butterflies.

Nomi, Ishikawa

Mr. Hiroshi Tsuji

Kaga Toshiba Electronics Corporation

Kaga Toshiba Forest

In order to protect the abundant nature in the vicinity of the plant, improvement activities, referred to as “Kaga Toshiba Forest”, is conducted by employees and their family members twice a year, in Spring and Autumn. A new promenade was built to create an environment convenient for strolling.
We now have extremely rare species of Gifu butterfly“ (Luehdorfia japonica), designated a near-threatened species in Ishikawa Prefecture, visiting the area.
This attitude of conserving woodlands was positively evaluated the “Meritorious Person for Forest Environment of Ishikawa” was awarded in 2018.

Buzen, Fukuoka

Mr. Nozomu Shimoda　Mr. Kazuo Ooe

Buzen Toshiba Electronics Corporation

Biotope with fluttering Swallowtail butterflies

A biotope was organized on the premises of the citrus plant by planting trees to entice Swallowtail butterflies. Aside from holding periodical observation of Swallowtail butterflies and their larvae, a conservation and breeding activity of native species is conducted as an integrated effort with the neighborhood, by donating citrus trees to neighboring elementary schools.

Oita city, Oita

Ms. Yoshie Maruono

Japan Semiconductor Corporation Oita Operations

Preparing the river for the return of fireflies!

The activity started in 2010, to prompt a return of fireflies to Kitahanagawa River, located adjacent to Oita Operations. Activities continued in collaboration with local residents and in 2015 fireflies could be observed. Observation sessions are held annually, together with neighborhood children in the years.

Thailand

Ms. Kantika Phermpool

Toshiba Semiconductor Thailand Co., Ltd.

Let’s build a check dam!

A check dam is a erosion control dam for prevention of landslides and mudflows in forests. The small check dam is useful not just for forest conservation but also to secure water for agricultural purposes. Check dam building and tree planting have been conducted by employees at Toshiba Semiconductor (Thailand). Enjoying while participating is an essential aspect of environmental activities.

Philippines

Ms. Minette A. Biares

Toshiba Information Equipment (Philippines) Inc.

Restoration of rice terraces of Ifugao

Rice terraces of Ifugao is a vast terraced rice fields that spreads across the central mountainous region in the northern part of Luzon Island of the Philippines and a natural cultural asset known for the picture perfect beautiful structure. We are engaged in a variety of activities, such as visiting this land each year and planting rice and maintaining the rice terraces, as well as donating tools and resources, while conducting classes for children to raise their environmental awareness.

Activities conducted by all sites can be viewed on the Biodiversity Activities Introduction page of Toshiba Group.

Toshiba Group Biodiversity

Awarded activities

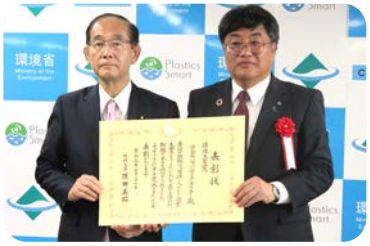
SDGs 4, 6, 11, 14, 15

Environmental activities of our corporate group were highly rated in FY2018. Promotion of proactive environmental activities will continue into the future, while aiming to achieve a sustainable society.

Japan Semiconductor Corporation
Toshiba Electronic Devices & Storage Corporation Himeji Operations-Semiconductor

2018 Excellent Enterprise Award for Environmental Human Resource Development
Double award of “Grand Prize” and “Incentive Prize”

Japan Semiconductor Corporation and Toshiba Electronic Devices and Storage Corporation Himeji Operations-Semiconductor were respectively awarded the Minister of Environment Award (Grand Prize) and the Incentive Prize at the “2018 Excellent Enterprise Award for Environmental Human Resource Development”. Japan Semiconductor has received awards three years in a row, following the Excellence Award from last year and the Incentive Prize the year before, while Himeji Operations-Semiconductor received the Incentive Prize two years in a row.



Mr. Yoshiaki Harada, Minister of the Environment (Left) and Mr. Kazuya Mori, President of Japan Semiconductor Corporation (Right).

Activities such as the “All Employees “5R Leader Declaration”” and other environmental activities that involve all employees united as a group, activities aimed at establishing communication among local businesses, administrative authorities, universities and residents, SDGs education and other such activities intended to continuously provide education on environmental awareness and to establish links with society at Japan Semiconductor were highly rated, which led their receiving the Minister of Environment Award. Himeji Operations-Semiconductor was awarded the Incentive Prize, due to high rating on environmental education being conducted to all employees that accommodate attributes of employees, external lessons on the environment for neighborhood elementary school students, nature observation activities and the like to raise awareness about prevention of climate change and conservation of biodiversity.

Japan Semiconductor Corporation Oita Operations

FY2018 Grand Prize for Energy Conservation: Chairman’s Award

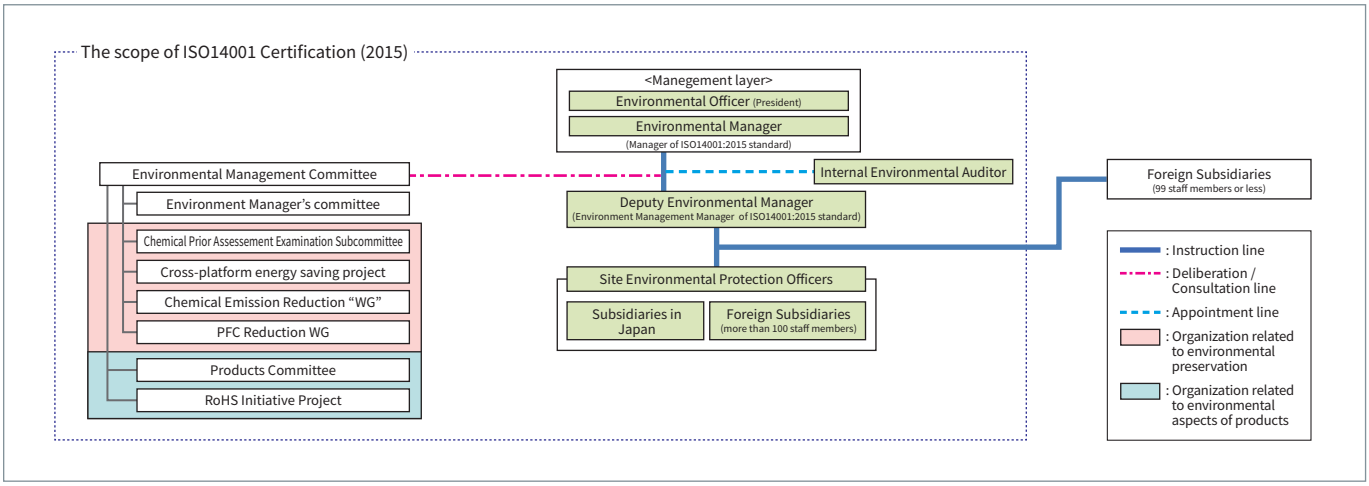
Energy conservation activities conducted by optimizing clean room environment at the integrated manufacturing circuit manufacturing plant was highly rated and led to receiving the Chairman’s Award at the Grand Prize for Energy Conservation.
Maximizing considerations for impact on technology and quality while reducing clean room internal pressure, reducing temperature of outdoor air processor and converting all the lighting at the plant to LEDs were deciding factors for receiving the award.

* Grand Prize for Energy Conservation: Awards given to superior energy saving activities conducted by business operators and at workplaces that can serve as role models to others, as well as products and business models with superior energy savings.

Foundations for 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.



Activities supporting environmental management

Environmental education for all employees
Twice a year*

■ Environmental education

In order to raise awareness of environmental management, the Group conducts environmental education through e-learning for all employees. In addition, based on the Toshiba Group's internal auditor training program, we are conducting Toshiba Comprehensive Environmental Audit System Auditor Training, which consists of written exams and on-site training on environmental laws, ISO14001, internal guidelines, regulations, etc.

* All Toshiba environmental education and our corporate group environmental education are respectively conducted annually.

Number of incidents
Zero

■ Compliance with Laws and Risk Management

We set voluntary control values stricter than legal regulations in respect of the environmental burden of emissions to the atmosphere, or to bodies of water, and comply with these at each site. In addition, with in-house environmental audits, we aim to identify any potential environmental risks, prevent environmental accidents, and reduce the environmental risks. During FY2018, no group member was in breach of any environmental law nor subject to any fine or other penalty related to the environment.

Environmental Management Committee
Twice a year

■ Environmental Management Committee

With the Environmental Management Officer as chairperson, a global environment conference is held twice a year with executives as the committee members and, in addition to deciding environmental management guidelines, priority measures such as legal compliance, reports on the status of base activities, and other individual environmental issues are discussed. Regarding matters of decisions, employees will be fully notified through base directors or presidents of the affiliated companies.

Environmental Audit at Toshiba group
13 Sites

■ Implementation of Environmental Audit at Toshiba group

From 1993, the Group conducts periodic environmental audits (Toshiba Comprehensive Environmental Audits) for Toshiba Corporation and separate companies of Toshiba Corporation based on some typical Japanese business practices with associated mnemonics. These translate roughly as: 3 ALLs for management of ALL facilities, in ALL areas, by ALL members; 3 ACTUALs for ACTUAL sites, ACTUAL things, ACTUAL situations; 3 SEEs of visual management for SEEing, being able to SEE, letting others SEE". The audit consists of Environmental management audit, Audit on compliance with laws, and Site audit. Particularly for site audits, in addition to the 19 facilities subject to the law, effectiveness-audits for response training in hypothetical emergencies are also implemented. We will also thoroughly review compliance with laws and regulations, measurement management, organization and orderliness, cleaning and cleanliness, and employee education. With regard to items for improvement extracted during the audit, we will implement measures within half a year, and will link these to further optimization of on-site management and ongoing improvements.

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 renewed ISO14001:2015 certification (at 9 company sites within Japan and 7 sites outside Japan (*1)) on August 7, 2019. 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., refer to the following table.

Name of the organization	Certified body	Registration date	Approval certificate No.
Toshiba Electronic Devices & Storage Co., Ltd. Head Office (Head Office Bldg. and Sales Office Sites)	JACO*2	1996.02.02	EC98J2014
Toshiba Electronic Devices & Storage Co., Ltd. Himeji Operations-Semiconductor			
Toshiba Electronic Devices & Storage Co., Ltd. Head Office Branch (Komukai Branch • Semiconductor System Engineering Center Branch)			
Kaga Toshiba Electronics Corporation			
Himeji Toshiba E.P. Corporation			
Buzen Toshiba Electronics Corporation			
Japan Semiconductor Corporation Headquarters & Iwate operations			
Japan Semiconductor Corporation Oita Operations			
NuFlare Technology, Inc.			
Toshiba Device Corporation			
Toshiba Electronic Device Solutions Corporation			
Toshiba Semiconductor (Thailand) Co., Ltd.			
Toshiba Electronics Europe GmbH.			
Toshiba Electronics Asia, Ltd.			
Toshiba Devices & Storage (Shanghai) Co., Ltd.			
Toshiba Electronics Asia (Singapore) Pte. Ltd.			
Toshiba Electronic Components Taiwan Corporation			
Toshiba Electronics Korea Corporation			
Toshiba Materials Co., Ltd.	JACO*2	1997.09.29	EC97J1072
Toshiba Hokuto Electronics Corporation	JACO*2	1998.09.25	EC98J1066
Toshiba America Electronic Components, Inc.	DNV*2	2010.06.29	10000244915-MSC-ANAB-USA
Toshiba Information Equipment (Philippines), Inc.	TÜV Rheinland	2018.11.20	01 104 023260
Toshiba Hokuto Electronic Devices (Thailand) Co., ltd.	BUREAU VERITAS	2001.03.16	TH012209

*1 The subjects are the main company and all consolidated companies (manufacturing and non-manufacturing) and overseas consolidated companies (manufacturing and non-manufacturing) with over 100 employees.

*2 JACO: Japan Audit and Certification Organization for Environment and Quality DNV: DET NORSKE VERITAS AS Group

Cooperation for third-party evaluation

■ Third party assessment of environmental performance data

We are cooperating with third-party verifications of greenhouse gas emissions by JACO*3 for the purpose of improving the reliability of Toshiba Group Environmental Performance Data as set out by Toshiba Corporation. In FY 2018, Himeji Operations-Semiconductor underwent verification from the Company base in respect of global data, which concerned data collection, aggregation, internal verification processes, etc.

*3 JACO conducts authentication of management system, etc.

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 hard disk drive (HDD) 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 hard disk drive (HDD) 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 hard disk drive (HDD) 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 hard disk drive (HDD) 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 1st Apr, 2018
Hiroshi Fukuchi
President, Toshiba Electronic Devices & Storage Corporation

[Scope of the report]

Reporting period: Fiscal 2018 (from April 1, 2018 to March 31, 2019)
Although the report focuses on the results of activities in fiscal 2018, it also includes those ongoing activities prior to and after fiscal 2018.
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.

[Publication]

Previous issue: February 2019
Current issue: November 2019

[Editor's postscript]

Thank you for reading the Environmental Report 2019.
This time, in addition to the results report for our environmental activities, we will introduce the environmental activities the Company will develop in the future, such as the contributions to the SDGs and the Sixth Action Plan, so we have made efforts that may help readers envisage, at least to a certain degree, a future image of the Company's environmental activities.
We believe that it is our responsibility to convey our environmental activities in a clear manner, as we enter the new era of Reiwa and as awareness about the environment is heightened among 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/us/corporate/environmental-activities.html
Productivity Planning Div. Environment Planning Promotion Group, Toshiba Electronic Devices & Storage Corporation

Toshiba Electronic Devices & Storage Corporation

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- 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.

Our Semiconductor and Storage Products will always be a driving force to change the world.

Toshiba Electronic Devices & Storage Corporation