TOSHIBA
Leading Innovation

Committed to People,
Committed to the Future. TOSHIBA

Toshiba Group Environmental Report 2009

Toshiba Group Business Overview

Company Overview (as of March 31, 2009)

Company name	Toshiba Corporation
Headquarters address	1-1, Shibaura 1-chome, Minato-ku, Tokyo
Founded	July 1875
Paid-in capital	280.3 billion yen
Consolidated net sales	6,654.5 billion yen
Number of employees (consolidated)	199,456

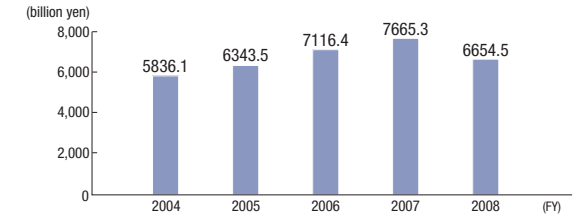
CSR-related international charters/guidelines Toshiba endorses

- United Nations Global Compact
- Global Reporting Initiative (GRI)

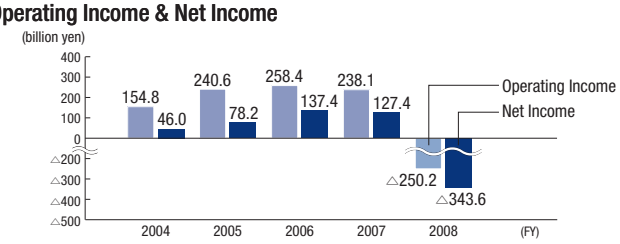
Number of shareholders	462,649
Number of shares issued	3,237,602,026 shares
Number of consolidated subsidiaries	537 (239 in Japan, 298 overseas)
Number of affiliates accounted for by the equity method	199
Stock exchange listings	Tokyo, Osaka, Nagoya, London

Financial Results (Consolidated)

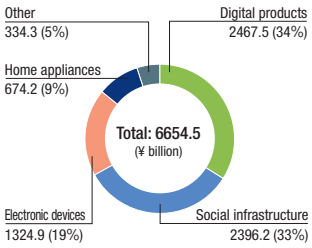
Net Sales



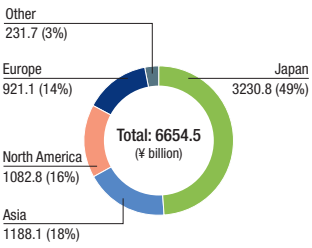
Operating Income & Net Income



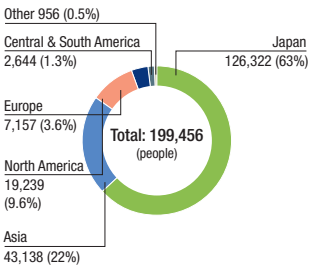
Sales by Business Segment (FY2008)



Sales by Region (FY2008)



No. of Employees by Region (as of March 31, 2009)



Main Products and Services

Digital Products

Energy-saving Digital Hi-Vision LCD TV with superior picture quality

Small notebook PCs with enhanced functions

Easy-to-use Hi-Vision recorder with superior picture quality

Mobile phones with audiovisual pleasure

Social Infrastructure Systems

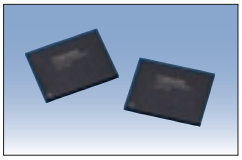
High-efficiency turbine for thermal power generation

High-resolution medical CT scanner

High capacity, super high speed elevator
(Image by Tobu Railway Co., Ltd. & Tobu Tower Sky Tree Co., Ltd.)

New rechargeable battery offering excellent safety, a long-life cycle and a rapid charge-discharge capability

Electronic Devices



High-capacity NAND flash memory

High-capacity and ultra high-speed SD memory card

Industrial-use LCD module using a long-life LED backlighting system

Ultra-compact fuel cell for mobile equipment

Home Appliances

Water and energy saving, low-noise washing machine with dryer

Energy-saving LED lights with long life

Air conditioner
(winner of Energy Conservation Grand Prize for 2 consecutive years)

High-capacity refrigerator retaining freshness

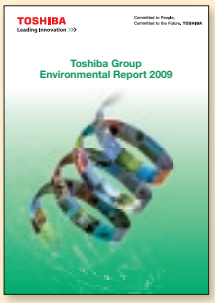
Please refer to the Toshiba Annual Report 2009 for detailed business and financial information. This information is also available at the following website: http://www.toshiba.co.jp/about/ir/index.htm

Editing Policy

Toshiba Group has published the Environmental Report since 1998. (From 2004 to 2007, environmental information was provided in the CSR Report.)
This report is published to put together detailed environmental information on Toshiba Group in book form so that it can be provided to all stakeholders of the Group. In this year's edition, the editors used various means to make the report richer in content, such as expanding the CEO Commitment, Highlights, and Energy sections and adding a page describing Toshiba Group's policy and summarizing FY2008 activities to the title leaf for each section.
All information in this report is disclosed on Toshiba's website. Additional information will also be provided there as it becomes available.

■Providing detailed environmental information

Toshiba Group Environmental Report 2009 and Toshiba's website for environmental management



▶ http://www.toshiba.co.jp/env/en

■Reporting on CSR activities (social and environmental) in general

Toshiba Group CSR Report 2009 and Toshiba's website for CSR activities

▶ http://www.toshiba.co.jp/csr/en

●Organizations covered

In principle, Toshiba Group (Toshiba Corporation and its 537 consolidated subsidiaries in Japan and overseas). In cases where the scope of that section of the report is not Toshiba Group, then the individual entity is indicated.
Note: "Toshiba" in this report means Toshiba Corporation.

●Reporting period

This report focuses on the results of activities in FY2008 (from April 1, 2008 to March 31, 2009), but includes some activities continuing from the past and some more recent activities.

●Publication

Current issue: November 2009 (Next issue: Scheduled for November 2010; Previous issue: November 2008)

●Reference Guidelines

- **Global Reporting Initiative (GRI)**
  Sustainability Reporting Guidelines Third Edition (G3)
  (Note) The comparative table for GRI guidelines is posted on Toshiba's website.
- **Ministry of the Environment of Japan**
  Environmental Reporting Guidelines 2007
  Environmental Accounting Guidelines 2005

Contents

CEO Commitment

We will contribute to a world in which people lead richer lifestyles in harmony with the Earth through imagination, innovation, and integrity.

Norio Sasaki
Director
President and CEO
Toshiba Corporation

Introduction

I have been involved in the nuclear power generation business since I entered the company. The design of piping systems, the first task on which I worked, requires a comprehensive understanding of a huge nuclear energy system as a whole, as well as the organization of an enormous project through the coordination of a large number of designers over a long period of time. I sometimes ran up against huge brick walls and needed to return to the starting point and think "why did this happen?" I then realized I needed to fully exercise my imagination. Even after I took up a managerial post, these formative experiences of my early years at Toshiba have supported me.

Today, we are urged to cope with global warming and other critical environmental problems, and furthermore, we have to recover from the aftereffects of the once-in-a-century global economic crisis. Even under these circumstances, the option of pushing environmental problems aside simply does not exist. As we state "Committed to People, Committed to the Future" in our slogan, we at Toshiba Group consider business administration and environmental management as one and the same thing. We trust that now is the time to overcome huge barriers like the environmental crisis and the economic crisis through our powers of imagination underpinned by a sharp sensitivity to the times and powers of conception.

Toshiba Group's Environmental Vision 2050

Mankind has been blessed with, and continued to live in, a varied, sound global environment since time immemorial. We have to thank the Earth for its blessings and hand it over to future generations. Today, however, the impact of human activities on the environment exceeds the environmental capacity of the Earth, bringing about such crises as global warming and depletion of natural resources and jeopardizing the global ecosystem. It is necessary to realize a sustainable society by carrying out initiatives aimed at a low-carbon society, a recycling-based society, and a society that coexists with nature.

Toshiba Group manages its business operations as a corporate citizen of planet Earth with the future of the world in mind. Underlying this commitment is a corporate culture that emphasizes "integrity," which means soundness and sincerity. With compliance with laws and regulations as a fundamental premise, all managers and employees of Toshiba Group are required to act in accordance with the Toshiba Group Standards of Conduct. And we have formulated the Toshiba Group Environmental Vision 2050 to realize a vision of a world in which "People lead richer lifestyles in harmony with the Earth" by 2050. Under this vision, we believe that it is the mission of Toshiba Group as a corporate citizen of planet Earth to reduce environmental impacts and create new value by steadily achieving the specific goals set in the Voluntary Environmental Plans.

Toward mitigating global warming

In order to realize a sustainable society, which makes environmental protection consistent with economic growth, all nations in the world have to ensure that the world's total carbon dioxide (CO_2) emissions peak within 10 to 20 years from now and halve them by 2025. Furthermore, advanced nations have to reduce CO_2 emissions by 80% by that same year.

Toshiba Group is engaged in businesses that cover all energy-related areas from the generation of energy to its consumption. We will fulfill our social responsibility by making maximum efforts and contributions to mitigate global warming. In particular, we believe that the Group's most advanced technologies such as nuclear power generation, CO_2 separation and collection technology, photovoltaic power generation, new rechargeable batteries, and new lighting using light-emitting diodes (LED) will contribute greatly to the realization of a sustainable society by offering new value, which we call "value innovations."

On the other hand, in all processes from development to production to marketing and sales, we have to pursue "process innovations" to reform the conventional way of doing business. Toshiba Group is actively carrying out various initiatives to curb increases in greenhouse gas emissions from the operation of its offices as a result of business expansion and keep them at 70% of the 1990 level or less by 2012 and from that year on reduce them by 10% by 2025. In order to achieve these goals, we will make an all-out effort to take energy-saving measures and use renewable energy for a wider range of our operations, thus reducing the overall greenhouse gas emissions.

Toward protecting biodiversity

The year 2010 is designated as the International Year of Biodiversity, and the 10th Conference of the Parties to the United Nations Framework Convention on Biological Diversity will be held in Nagoya in October 2010. In addition, as typified by the Ministry of Economy, Trade and Industry's guidelines for corporate biodiversity-related activities, there is a strong movement under way to urge business firms to make efforts to protect biodiversity.

Since early on, we have paid attention to how our core business operations were related to the protection of biodiversity and used a comprehensive environmental assessment method, which incorporates the impacts of business operations on biodiversity into the overall environmental assessment of business operations. In the future, we will deepen our understanding of the relationship between business operations and biodiversity and pursue an ideal way of carrying out business operations in a sound and sincere way—in other words, with integrity.

Environmental Vision 2050

Toshiba Group practices environmental management that promotes harmony with the Earth, contributing to the creation of a richer lifestyle for society.

Aiming to become a leading eco company

Some 130 years ago, Hisashige Tanaka, the founder of Toshiba, who lived in an age of upheavals from the last days of the Tokugawa regime to the Meiji period, was always ahead of the times he lived in to meet the demands of society and he continued to pursue inventions that would excite and surprise people.

With an insatiably inquisitive spirit and a fiery passion, both of which we inherited from the founder and his successors (Toshiba's DNA, so to speak), in our mind, we will evolve by exercising our powers of imagination, looking hard at what things will be like five years or 10 years from now or even farther into the future, and bringing about innovations one after another. And through innovative approaches to energy and eco products, two areas on which Toshiba Group focuses, we will also lead the world in realizing a low-carbon society as we take measures to cope with global warming, today's most urgent issue.

As a leading eco company, based on the concept of being a corporate citizen of planet Earth, which keeps integrity in mind, Toshiba Group will make a positive approach to society and contribute to the future of a sustainable earth with the aim of realizing a world in which all people live richer lifestyles in harmony with the Earth.

Chapter. 1

Highlights

Toward Environmental Vision 2050

As a corporate citizen of planet Earth, Toshiba Group will contribute to create of a richer lifestyle for society in harmony with the Earth, based on a hard look at how things should be in 2050.

"DNA" of Toshiba Group

Toshiba designates 1875 as the year of its foundation. In that year, Hisashige Tanaka, also known as Karakuri Giemon, built a factory called "Tanaka Seizo-sho," which was also used as an office, in the Ginza Brick Town of Tokyo, and began to manufacture telegraph equipment. Later, this developed into Shibaura Engineering Works Co., Ltd.

In 1890, meanwhile, Ichisuke Fujioka established a company called "Hakunetsu-sha" to manufacture electric incandescent light bulbs. Later, this developed into Tokyo Electric Company. In 1939, this company merged with Shibaura Engineering Works to form Tokyo Shibaura Electric Co., Ltd. Since its foundation, Toshiba has produced numerous technologies that were either firsts in Japan or the world as shown in the figure below.

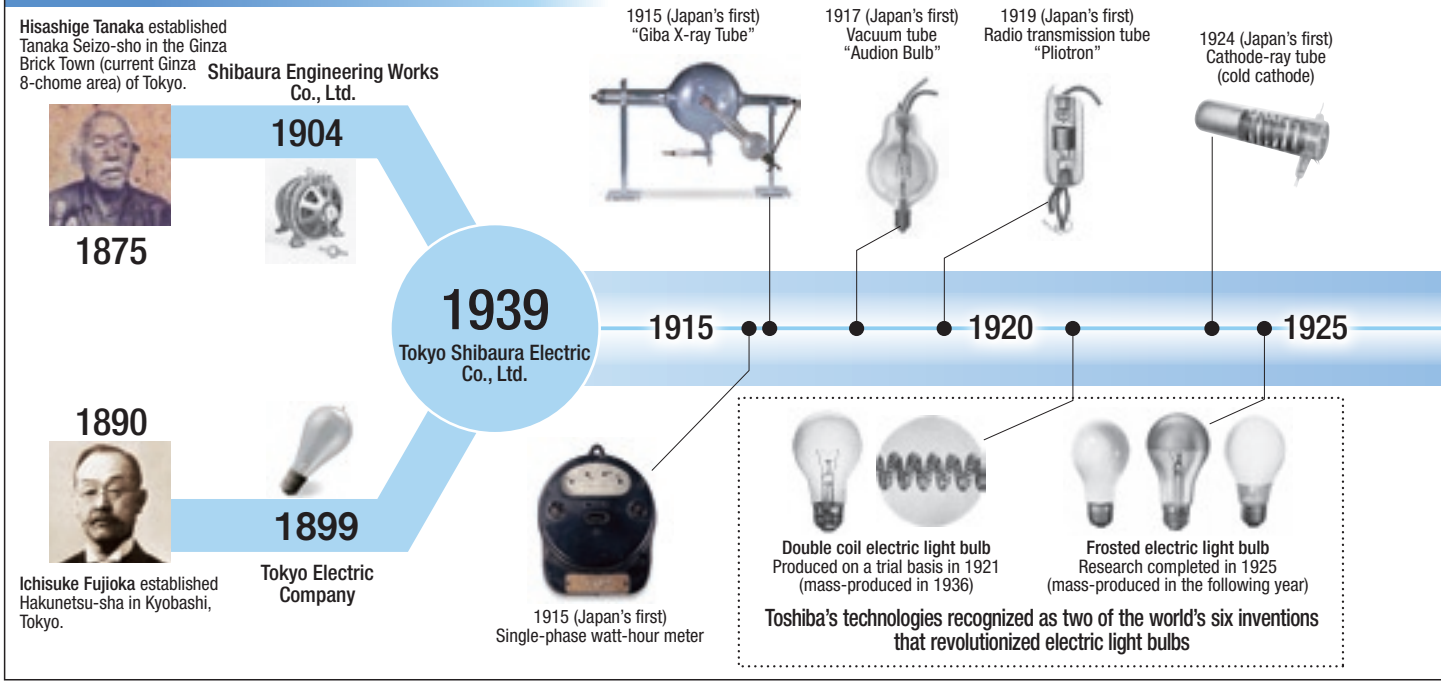
Japan's first electric incandescent light bulb, which Fujioka successfully developed as a commercial product after much effort, helped develop Toshiba's technological capabilities greatly in subsequent years. Both the double coil electric light bulb invented in 1921 and the frosted electric light bulb developed in 1925 are recognized as two of the world's six inventions that revolutionized electric light bulbs throughout the world. Toshiba has also produced firsts in Japan in large numbers. Examples include the X-ray tube and the vacuum tube both created making the most of the technological capabilities nurtured through the development of electric light bulbs, as well as the cathode-ray tube, which is a variety of these tubes. These are the origin of Toshiba's businesses and products today, such as medical equipment, semiconductors, and TVs.

Electric rice cookers and other home appliances developed in the postwar period substantially reduced the time spent on household chores, encouraging women to participate in public affairs, and word processors greatly changed the way of doing business in Japan. Toshiba's laptop PC, a first of its kind in the world, was realized in 1985 through many technological breakthroughs. Today, it is taken for granted that anyone can easily give a beautiful presentation using a notebook PC. In the future, Toshiba will further advance its technology by, for example, combining notebook PCs with NAND flash memory, and will also change the world by creating completely new ways of doing business and new lifestyles that nobody has ever imagined before.

In terms of social infrastructures, on the other hand, Toshiba introduced its first elevator to the world in 1967 as buildings became taller and taller during the rapid economic growth of the Showa period. Since then, the company has achieved many technological innovations, and in 2004, it delivered the world's fastest elevator, which runs a speed of 1,010 meters per minute, to the Taipei 101 skyscraper in Taipei.

As described above, Toshiba continues to contribute to society by achieving innovations on a continuous basis and creating new value while constantly looking hard at the demands of the times. This is the DNA Toshiba Group has inherited from generation to generation since Toshiba was founded.

History of Toshiba's technology



Environmental Vision 2050

What role, then, should Toshiba Group play in society now?

The world economy achieved rapid growth after World War II, but on the other hand, many environmental problems, including global warming, have surfaced. In 2050, the world population is projected to reach approximately nine billion, 1.5 times as large as in 2000. As the population grows, the effects of human activities on the environment are expected to increase. Moreover, there are cultural differences and economic gaps as well as conflicts of interests among nations worldwide. However, we should not allow these differences, gaps, and conflicts of interests prevent people from enjoying abundant lifestyles irrespective of whether they live in advanced nations, emerging economies, or developing countries.

The world economy is suffering from the aftereffects of a once-in-a-century crisis, but the recession is no reason to give lower priority to environmental management.

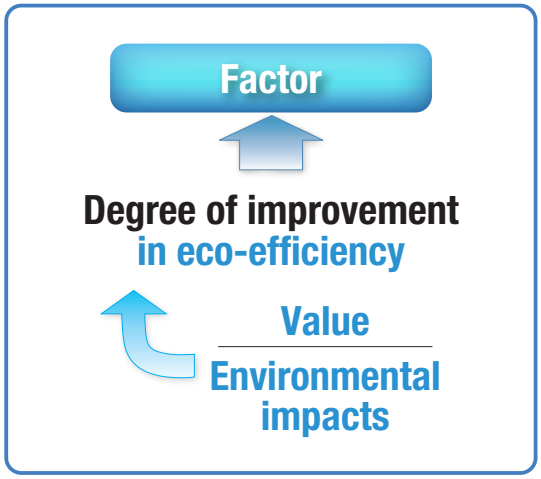
In order to help to solve these problems, Toshiba Group developed Environmental Vision 2050, a plan built from a long-term perspective that keeps major reform of social infrastructures in mind. Environmental Vision 2050 envisages an ideal situation in 2050 in which not only are global environmental problems solved, but people everywhere lead abundant lifestyles in harmony with the Earth. We consider it to be our most important role and mission today to continue leading the world and bringing about innovations as a corporate citizen of planet Earth in order to create a better global environment while recognizing and respecting differences in culture, history, and customs among countries and territories worldwide.

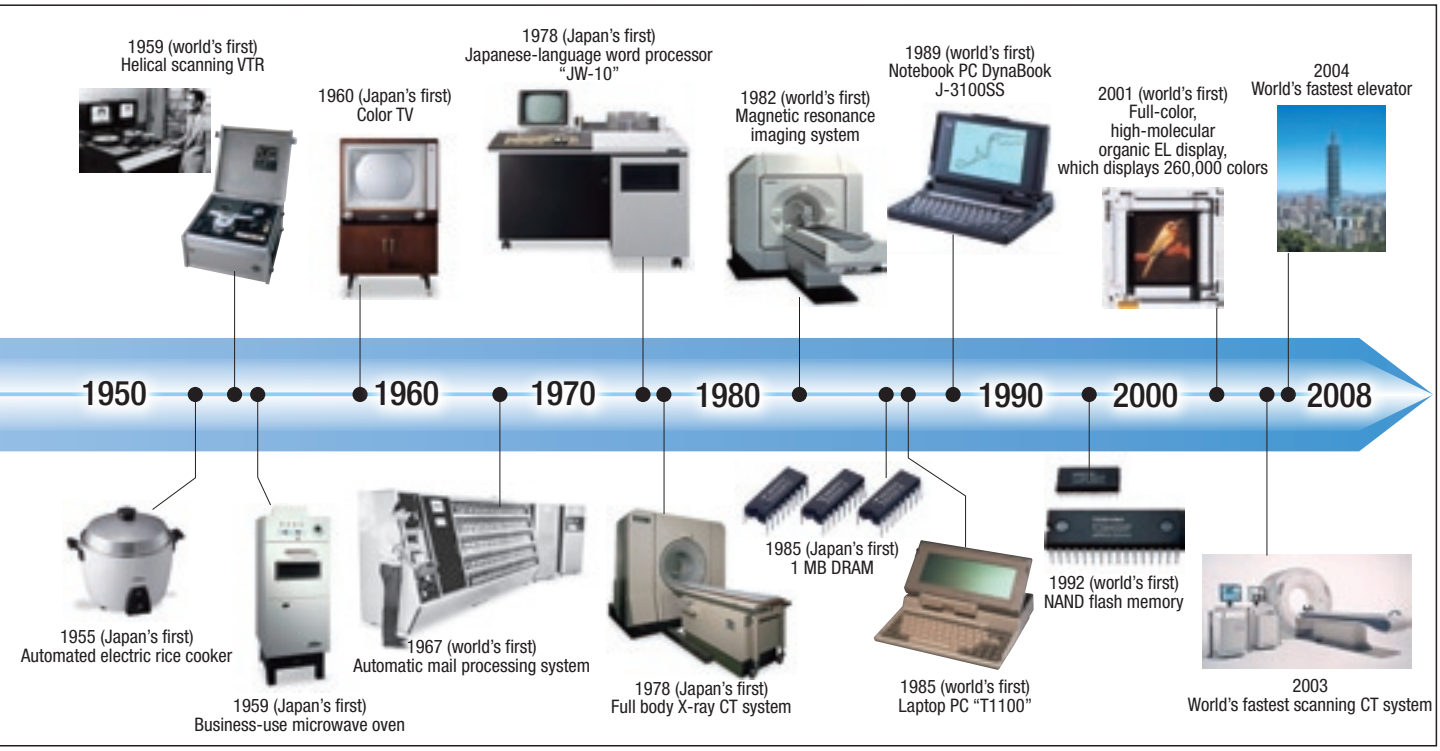
Establishing targets using the Factor

(degree of improvement in eco-efficiency)

Toshiba Group uses the "degree of improvement in eco-efficiency," which combines "reduction in environmental impacts" with "creation of enriched value" as an indicator to create enriched value while reducing environmental impacts with the aim of solving global environmental problems. This concept, put forward by Dr. Ernst Ulrich von Weizsäcker of the Wuppertal Institute for Climate, Environment and Energy in Germany in 1991, is generally called the "Factor."

As shown in the figure below, the larger the value of a product becomes and the smaller its environmental impacts becomes, the more the eco-efficiency for the product improves. For example, if the environmental impact of a product is reduced to half, its Factor becomes 2, or if its value doubles, its Factor also becomes 2. If both happen at the same time, the Factor becomes 2×2, or 4.





Ideal situation in 2050

This section discusses the Factor that will be achieved if the ideal situation is realized in 2050.

Professor Emeritus Yoichi Kaya of the University of Tokyo, the Director-General of the Research Institute of Innovative Technology for the Earth, has put forward what he calls the "Kaya Identity," which represents the relationship between human activities and CO_2 emissions as shown in the figure below*. The Kaya Identity was reported to the Intergovernmental Panel on Climate Change (IPCC) in 1990 as an equation that indicates the effects of reductions in CO_2 emissions on GDP growth and was referred to in the IPCC's Fourth Assessment Report as well.

According to this formula, "CO_2 emissions resulting from human activities" is expressed as the product of "CO_2 emissions per unit energy consumption," the "energy efficiency of economic activities" (ratio of energy consumption to GDP), the "economic level per capita," and the "population."

Eco-efficiency is obtained by dividing "value" by "environmental impacts," but if this is simplified, "value" can be symbolized by GDP, an index of economic affluence, and "environmental impacts" by CO_2 emissions. In other words, if eco-efficiency is considered to be equal to "GDP/CO_2 emissions," it can be expressed as the product of "GDP per capita (G/P)," the "population (P)," and the reciprocal of CO_2 emissions (1/CO_2 emissions) using the Kaya Identity.

In this section, let us consider the degree of improvement in eco-efficiency for the world based on forecasts and goals for 2050.

1) First, according to the Organization for Economic Cooperation and Development (OECD), "GDP per capita" (i.e. "value") is expected to grow by an average of 3.4 times for the whole world though it varies from one country to another.
2) Next, in order to prevent environmental impacts from increasing as the world population is projected to grow by 1.5 times, it is necessary to heighten eco-efficiency by 1.5 times.
3) And at the G8 Summit in L'Aquila in July 2009, the leaders of advanced countries agreed to reduce greenhouse gas emissions by 80% by 2050, but at COP15 in Copenhagen in December 2009, participants will discuss the common goal of halving CO_2 emissions for the whole world by the same year. In order to achieve this goal, it is necessary to increase eco-efficiency by at least two times.

Multiplying the above figures indicates that the Factor must be increased to 10 (3.4×1.5×2=10) in order to improve the average eco-efficiency for the whole world. Incidentally, specific reduction targets for 2020 are being discussed mainly by advanced countries as part of the medium-term CO_2 emission reduction plans. If the growth rate for the population and GDP during the period up to 2020 is taken into account as described above, the Factor will be 2.6 if CO_2 emissions are reduced by 15% and 3.2 if they are reduced by 30%.

*●Kaya, Y.; Impact of carbon dioxide emission control on GNP growth: Interpretation of proposed scenarios, Paper presented to the IPCC Energy and Industry Subgroup, Response Strategies Working Group, Paris, (mimeo), (1990).
●IPCC 2000; Special report on emissions scenarios, Cambridge University Press, (2000).

What is the Factor for 2050?

CO_2: CO_2 emissions resulting from human activities E: Primary energy consumption G: GDP P: Population

Kaya Identity: Formula that represents the relationship between human activities and CO_2 emissions

$$CO_2 = \frac{CO_2}{E} \times \frac{E}{G} \times \frac{G}{P} \times P$$

- $\frac{CO_2}{E}$: CO_2 emissions per unit energy consumption
- $\frac{E}{G}$: Energy efficiency of economic activities
- $\frac{G}{P}$: Economic level per capita

Eco-efficiency obtained if two elements are simplified: value = GDP and environmental impacts = CO_2 emissions

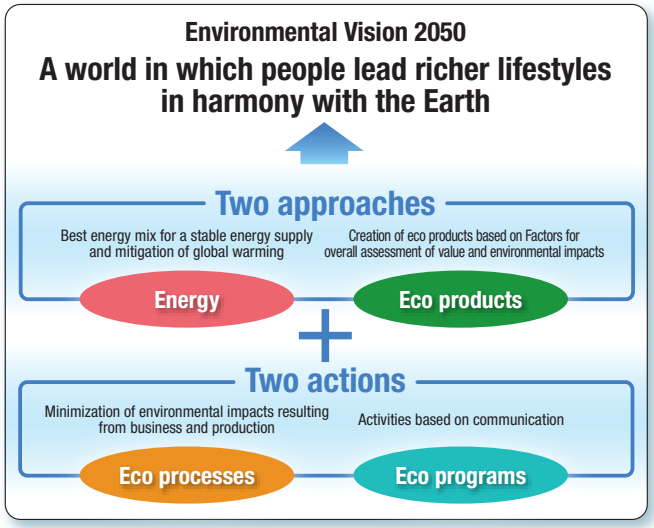
$$\frac{G}{CO_2} = \frac{G}{P} \times P \times \frac{1}{CO_2} = \frac{E}{CO_2} \times \frac{G}{E}$$

- $\frac{G}{CO_2}$: Simplified eco-efficiency
- $\frac{G}{P}$: ×3.4 Increase in value (Growth in GDP per capita)
- P: ×1.5 Improvement of eco-efficiency (Curbing increase in environmental impacts due to population growth)
- $\frac{1}{CO_2}$: ×2 Improvement of eco-efficiency (Reducing CO_2 emissions on a global scale)
- $\frac{E}{CO_2}$: Energy suppliers → Energy approach
- $\frac{G}{E}$: Energy users → Eco Product approach

×10 = **Factor 10**

Initiatives for achieving Factor 10

Simplified eco-efficiency can be expressed as the product of "energy efficiency per unit CO_2 emission (E/CO_2)" and the "efficiency of economic value per unit energy consumption (G/E)," taking energy consumption into account. In this formula, "energy efficiency per unit CO_2 emission" is a requirement for energy suppliers to obtain a large volume of energy while minimizing CO_2 emissions. The "efficiency of economic value per unit energy consumption," on the other hand, is an important perspective for energy users, who are required to create large value while minimizing energy consumption.



Two approaches and two actions to achieve the goals of Environmental Vision 2050

Toshiba Group is one of the few corporate groups that can offer enriched value to society by providing products and services in a wide range of business domains from energy supply to energy use. On the energy supply side we will take what we call an "Energy approach," which entails ensuring a stable energy supply and mitigating global warming, but on the energy use side we will take an "Eco Product approach," which entails contributing to customers in terms of both value delivery and environmental impact reduction. Through these two approaches, Toshiba Group will promote efforts to increase eco-efficiency for the world as a whole.

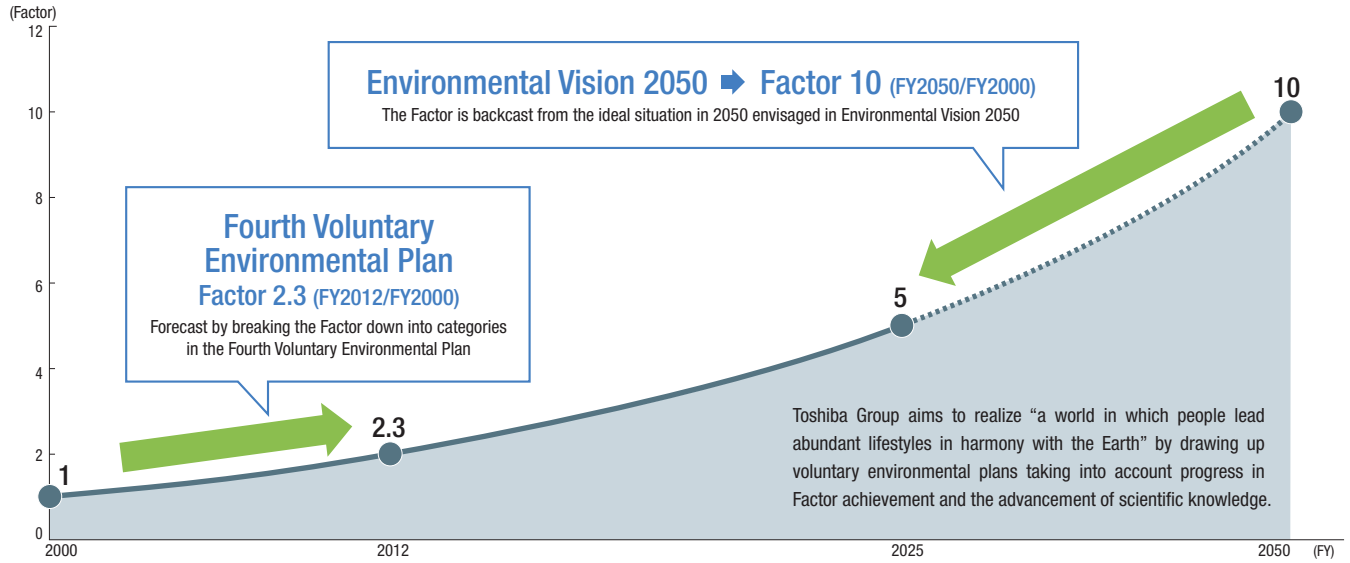
When we create products and services through the Energy approach and the Eco Product approach and send them into the world, it is needless to say that it is important to pay attention to reducing environmental impacts in the production processes and throughout all of our business operations as well. In addition, the demand for communication activities for properly conveying our environmental initiatives and the environmental performance of our products to stakeholders is higher than before.

Toshiba Group positions these activities as Eco Process actions and Eco Program actions, each of which support our two approaches and we are taking comprehensive environmental measures from various angles.

Targets for Environmental Vision 2050

As mentioned earlier, it is necessary to increase eco-efficiency for the whole world by ten times by the year 2050. In order to contribute greatly to achieving this goal, Toshiba Group has set targets for Environmental Vision 2050 as the degree of improvement (Factor) for overall eco-efficiency, which covers all products and business processes, with FY2000 as the base year. Specifically, as indicated in the figure below, we are determined to raise the Factor for all products and business processes we are currently promoting to 2.3 in 2012 (2.0 in 2010), the final year of the Fourth Voluntary Environmental Plan, and to 5 in 2025, the midpoint of Environmental Vision 2050. And we will work in a responsible way to achieve Factor 10, the degree of improvement the world is required to attain by 2050.

The milestone for 2012 is set based on forecasts made through the implementation of the Fourth Voluntary Environmental Plan. We aim to make Environmental Vision 2050 a reality by backcasting medium- and long-term measures from the ideal situation in 2050 taking into account progress in Factor achievement and the advancement of scientific knowledge.



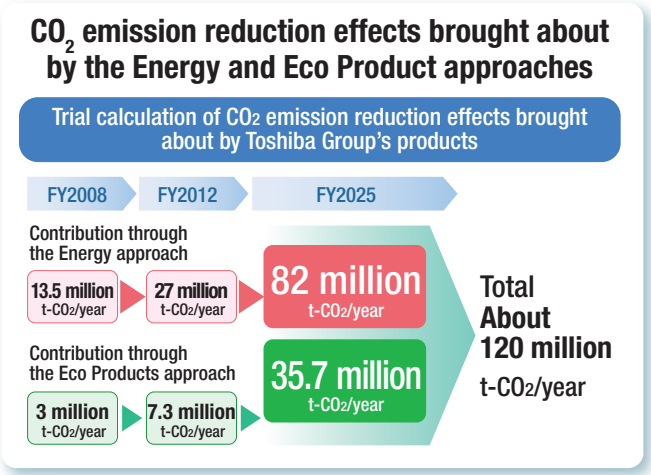
Toshiba Group's contribution to CO_2 emission reduction through eco products

This section discusses how far Toshiba Group can contribute to reducing CO_2 emissions in the world through the Energy and Eco Product approaches. The figure below indicates projections of energy-derived CO_2 emissions in the world, which were published in the International Energy Agency's publication "Energy Technology Perspectives 2008." In this figure, the case of stabilization at 450 ppm shows the changes in maximum permissible CO_2 emissions if we are to keep the global average temperature rise at 2°C or less as described in the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. In the case of the baseline, which indicates that countries in the world will continue to pursue their current policy, the temperature is expected to rise by 6°C or more, and energy-derived CO_2 emissions for the whole world in 2050 is estimated at 62 billion tons/year. In order to reduce them to 14 billion tons/year, 50% of the current level, it is necessary to develop the innovative technologies listed below on both the energy supply and energy consumption sides.

Toshiba Group's Energy and Eco Product approaches are believed to contribute greatly to technological innovation in almost all of these areas. The upper right figure is a calculation of the effects of reduction in CO_2 emissions on a trial basis. The Energy approach aims to achieve the best energy mix, which utilizes diverse power generation systems in a well-balanced manner, including conventional energy such as nuclear and thermal energy and new energy such as renewable energy. In the field of power distribution, Toshiba Group promotes a stable energy supply chiefly by applying supply/demand control technology and reducing power loss on power transmission lines to zero. The CO_2 emission reduction effects in FY2008 brought about by these approaches are estimated at 13.5 million tons/year. Toshiba Group intends to increase these effects to 27 million tons/year in 2012 and 82 million tons/year in 2025.

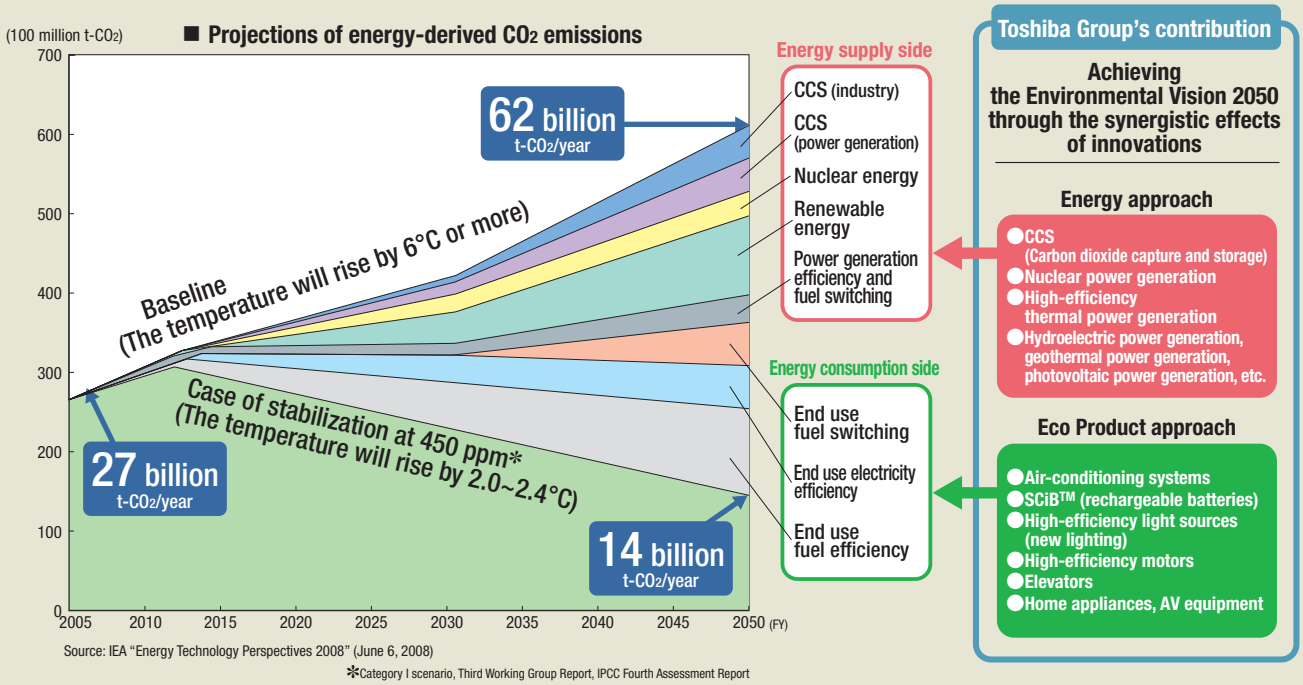
This section looks at Eco Products, which consume energy. The CO_2 emission reduction effects brought about during the entire product life cycle if all products shipped by Toshiba Group in 2008 in a wide range of categories from home appliances, digital products, and semiconductors to social infrastructures that replaced all such products shipped in 2000 are estimated at three million tons/year. By continuing to create innovations in the future, Toshiba Group aims to increase CO_2 emission reduction effects to 7.3 million tons/year in 2012 and 35.7 million tons/year in 2025 through its Eco Products, which achieve both creation of enriched value and coexistence with the Earth.

CO_2 emission reduction effects brought about by the Energy and Eco Product approaches



Aiming to reduce CO_2 emissions by 120 million tons/year in 2025 through the Energy and Eco Product approaches

Technologies required for reduction of the world's CO_2 emissions



Source: IEA "Energy Technology Perspectives 2008" (June 6, 2008)

*Category I scenario, Third Working Group Report, IPCC Fourth Assessment Report

Progress in Toshiba Group's Voluntary Environmental Plan

Toshiba Group formulated its First Voluntary Environmental Plan in FY1993. Since then, as it advanced to the Second and Third Voluntary Environmental Plans, it has raised the level of its activities while expanding the number of initiatives and the scope of governance.

The Fourth Voluntary Environmental Plan, which is currently being implemented, was developed in March 2005 with 2010 as its last year, but taking into account the Environmental Vision 2050 published in October 2007, we extended the last year of the Plan to 2012, when the First Commitment Period under the Kyoto Protocol ends.

The Voluntary Environmental Plan is an action plan that indicates in concrete terms measures required for the achievement of the target Factor, the degree of improvement for the overall eco-efficiency shown in the Environmental Vision 2050. The Fourth Plan sets target Factors with 2000 as their base year from two perspectives: products and business processes (manufacturing). As indicated in the figure below, Toshiba Group achieved the goal for FY2008 with a planned Factor for products of 1.88 while actually achieving a Factor of 2.05. Similarly, the planned and actual Factors for business processes were 1.20 and 1.25, respectively. Toshiba Group achieved its goal in this area too. In 2012, Toshiba Group aims to achieve Factors of 2.55 and 1.30 for products and business processes, respectively.

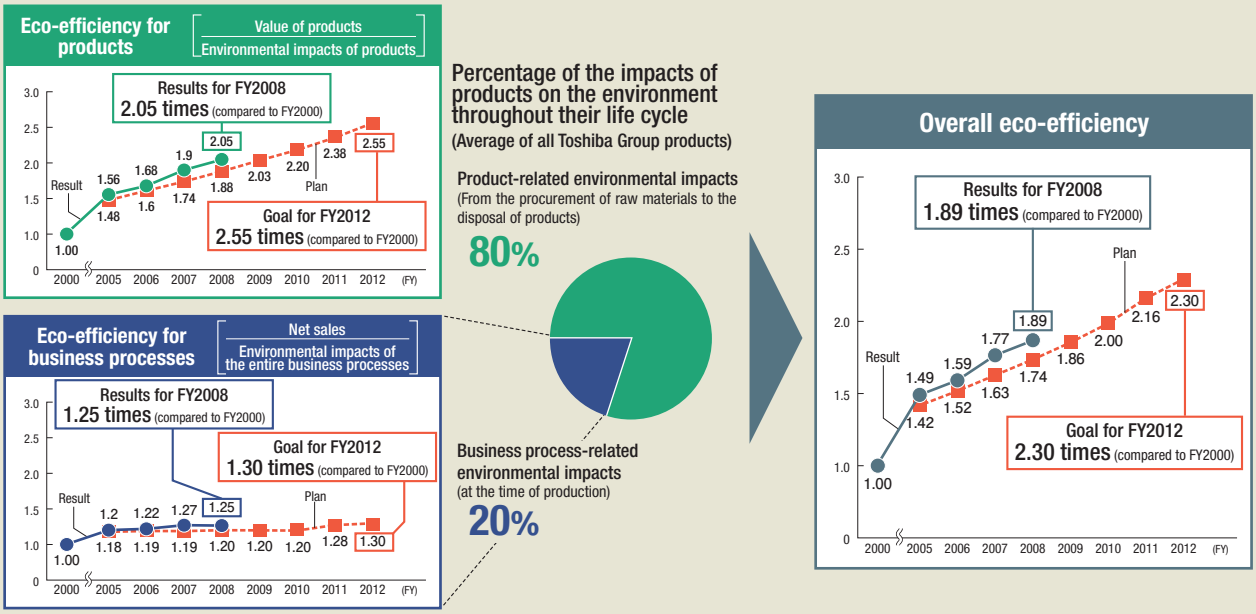
If the impacts of products on the environment during their life cycle is taken into account, the impacts of business processes on the environment, or in other words, the impacts of products on the environment at the time of production, accounts for about 20% on average of the total environmental impacts of all Toshiba Group products during their life cycle. Therefore, the overall eco-efficiency is calculated in this section by assuming that product-related environmental impacts account for 80% of the total and then seeking weighted averages of product and business process Factors.

Toshiba Group achieved the goal for FY2008 with a planned Factor for the overall eco-efficiency of 1.74 while actually achieving a Factor of 1.89. In 2012, which is the last year of the Fourth Voluntary Environmental Plan, Toshiba Group aims to achieve a Factor of 2.30.

Pages 11 and 12 list environmental measures specified in the Fourth Voluntary Environmental Plan and Factors that correspond to these measures. Figures in greenish-yellow cells indicate Factors. Four indicators are established for products from the perspective of offering environmentally conscious products, and in FY2008, Toshiba Group could not achieve its goal for CO_2 emission reduction effects brought about by eco-products. This is mainly because, due to the rapid deterioration of the economy, shipments of home electric appliances, which usually contribute greatly to reduction in CO_2 emissions, were lower than initially planed. In the future, Toshiba Group will increase CO_2 emission reduction effects by stepping up its efforts to market digital products and home electric appliances on a global scale. The FY2008 goal for the product Factor was achieved because the goals for such indicators as the ratio of environmentally conscious products to total sales were achieved.

Aiming to increase the overall eco-efficiency by 2.3 times in FY2012

(FY2012/FY2000)



If two eco-efficiency goals are achieved, the goal of increasing eco-efficiency by 2.3 times will be achieved.

Eco-efficiency for products (2.55 times) × 0.8 + Eco-efficiency for business processes (1.30 times) × 0.2 = Overall eco-efficiency (2.30 times)

On the other hand, nine indicators are established for business process-related measures from three perspectives: mitigation of global warming, management of chemical substances, and efficient use of resources.

The goal of reducing total emissions of chemicals into the air and waters was not achieved due to increase in the number of production bases managed, greater production growth than initially projected, and other factors. In terms of reduction in final waste disposal volumes, the goal was not reached, mainly because of the delay in response by overseas operation bases with underdeveloped recycling systems and infrastructures. In both areas, Toshiba Group will take stronger measures so that the goal is achieved by 2012.

The table lists Factors for each indicator of eco-efficiency for business processes. In FY2008, the goal was not reached with respect to the Factors for energy-derived emissions of CO_2 and chemicals from business processes. For business process-related eco-efficiency, net sales are used for the numerator to represent value, and the substantial decline in net sales due to the global recession during the second half of FY2008 affected the eco-efficiency.

A comparison of Factors for each indicator shows that in order to achieve the target Factor for all business processes (1.30 in 2012), it is necessary to significantly improve eco-efficiency for management of chemical substances, reduction in greenhouse gas emissions (other than CO_2), and other indicators. The Factor for all business processes is calculated by adding Factors for various indicators according to the percentage of environmental impacts computed using the LIME method (Japanese version of the environmental assessment method based on the calculation of damage; for details see page 41).

Toshiba Group aims to achieve the target Factors for both products and business processes in 2012.

■ Progress in various measures taken under the Fourth Voluntary Environmental Plan and the relationship between Factors for products and business processes

Degree of improvement for the overall eco-efficiency	FY2008			FY2009	FY2012
	Goal	Result	Evaluation	Goal	Goal
	1.74	1.89	+0.15 (Achieved)	1.86	2.30

Improvement of eco-efficiency for products		Indicator	FY2008			FY2009	FY2012
			Goal	Result	Evaluation	Goal	Goal
Delivery of environmentally conscious products	Delivery of environmentally conscious products	Factor for products	1.88	2.05	+0.17 (Achieved)	2.03	2.55
		Percentage of environmentally conscious products to total sales	40%	43%	+3% (Achieved)	50%	80%
			The percentage of digital products to total sales is growing steadily, and in addition, that of the parts business, including semiconductors, is also on the rise.				
		Number of excellent ECPs created	5 products	5 products	±0 (Achieved)	10 products	25 products
			The goal of creating five excellent ECPs was achieved as initially planned. Initiatives for goal attainment are also under way in a wide range of product categories such as medical equipment and washing machines with dryers.				
	Reduction in CO_2 emissions through Eco Products	CO_2 emission reduction effects brought about by Eco Products	5.3 million tons	3 million tons	-2.3 million tons (Not achieved)	5.8 million tons	7.3 million tons
			CO_2 emission reduction effects were smaller than in FY2008 because shipments of home electric appliances, which usually make great contributions to reduction in CO_2 emissions, were sluggish. Toshiba Group will increase CO_2 emission reduction effects by stepping up its efforts to market digital products and home electric appliances on a global scale.				
	Abolition of use of all specified chemical substances	15 specified chemicals contained in products※1, 2	80%	89%	+9% (Achieved)	90%	Abolition of use of all these chemicals
			Toshiba Group continues to not use these chemicals in electronic devices and digital products. Similar initiatives are also under way in the area of social infrastructure.				

※1 15 specified chemical substances include
(1) bis (tributyl tin) = oxide (TBTO), (2) tributyl tins (TBTs), and Triphenyl tins (TPTs), (3) polychlorinated biphenyls (PCBs), (4) polychlorinated naphthalenes (containing three or more chlorines per molecule), (5) short-chain chlorinated paraffins (ClU-Cl3) (6) asbestos, (7) azo colorants, (8) ozone-depleting substances, (9) radioactive substances, (10) cadmium and its compounds, (11) hexavalent chromium compounds, (12) lead and its compounds, (13) mercury and its compounds, (14) polybrominated biphenyls (PBBs), and (15) polybrominated diphenyl ethers (PBDEs). (Detailed definitions and exceptions are provided separately)

※2 Total sales of products that do not contain any of these 15 specified chemicals are used when the percentage of certain products to total sales is given.

Innovation in business processes		Indicator	FY2008 Goal	FY2008 Result	FY2008 Evaluation	FY2009 Goal	FY2012 Goal
		Factor for the entire business processes	1.20	1.25	+0.05 (Achieved)	1.20	1.30
Mitigation of global warming	Reduction in energy-derived CO_2 emissions*3	Factor for business processes (energy-derived CO_2 emissions)	0.81	0.78	-0.03 (Not achieved)	0.82	0.90
		Total emissions per unit production*4	43%	44%	+1% (Achieved)	44% reduction	47% reduction
		Domestic production base	43%	47%	+4% (Achieved)	44% reduction	47% reduction
			The level of reduction in energy-derived CO_2 emissions is kept high by taking various energy measures such as the introduction of clean rooms with high levels of energy efficiency.				
	Reduction in greenhouse gas emissions (other than CO_2)	Factor for business processes (greenhouse gases other than CO_2)	1.89	2.39	+0.50 (Achieved)	1.86	2.57
		Total emissions	35%	54%	+19% (Achieved)	35% reduction	38% reduction
			Increase in greenhouse gas emissions resulting from the installation of new production lines was controlled mainly by introducing systems to remove such gases.				
	Reduction in CO_2 emissions resulting from product logistics	Factor for business processes (CO_2 emissions resulting from product distribution)	1.35	1.46	+0.11% (Achieved)	1.40	1.68
		Total emissions per unit production	36%	44%	+8% (Achieved)	38% reduction	44% reduction
			Progress was made in energy conservation by promoting measures to make distribution more efficient.				
Management of chemical substances	Reduction in total emissions of chemicals into the air and waters	Factor for business processes (emissions of chemical substances)	1.71	1.29	-0.42 (Not achieved)	1.47	2.57
		Total emissions	35%	23%	-12% (Not achieved)	25% reduction	54% reduction
			Total emissions grew due to the effects of the increase in the number of production bases and production growth during the first half of the year. Plans call for the introduction of alternative substances, reform of business processes, and installation of systems to remove chemicals.				
Efficient use of resources	Reduction in the total volume of waste generated	Factor for business processes (total volume of waste generated)	0.81	0.81	±0.00 (Achieved)	0.81	0.74
		Total emissions per unit production	23%	28%	+5% (Achieved)	23% reduction	24% reduction
			Progress was made in waste reduction by reducing the volume of materials used through improved production and treatment processes.				
	Reduction in final waste disposal volumes	Ratio of waste finally disposed of (waste zero emission*5 achievement base)	60%	51%	-9% (Not achieved)	80%	Goal attained at all bases
			Progress is behind schedule in zero emission achievement at overseas operation bases with underdeveloped recycling systems and infrastructures when considering each base individually. In the future, Toshiba Group will further advance activities to identify and develop recyclers overseas through information exchange with local governments and business partners. The overall final disposal ratio was 5.9%, 0.2 percentage points lower than in the previous year.				
	Product reuse and recycling	Factor for business processes (product reuse and recycling)	1.25	1.54	+0.29 (goal attained)	1.28	1.13
		Volume of end-of-life products recycled*6	158%	173%	+15% (Achieved)	159% increase	180% increase
			Toshiba Group will continue to increase the volume of end-of-life products collected and recycled in Japan and abroad.				
	Volume of water received	Volume of water received	8%	25%	+17% (Achieved)	9% reduction	10% reduction
			Progress was made in reducing the volume of water received by reusing water through the introduction of waste treatment and collection systems into operation bases that consume much water.				

(Note)

Unless otherwise specified, all goals, set against the 2000 level, cover production and non-production sites in Japan and abroad.

As an indicator that enables appropriate assessment of reduction in greenhouse gas emissions, volume-based real outputs are used for basic unit-based goals.

Real output = [Nominal domestic output] / [Ratio of the domestic corporate goods price index (CGPI) for each year (1990 is 1), based on CGPI (electric equipment) published by the Bank of Japan] + [Nominal overseas output]

*3 In this table, the CO_2 emission coefficient for electricity in Japan is 3.35 t-CO_2/10,000 kWh.

*4 The base year is FY1990.

*5 Toshiba Group defines zero emissions as reducing the portion of byproducts and all other materials resulting from business operations that are disposed of by burying them underground after they undergo various types of treatment to 0.5% or less.

*6 The base year is FY2001, when the Household Appliance Recycling Law was enforced.

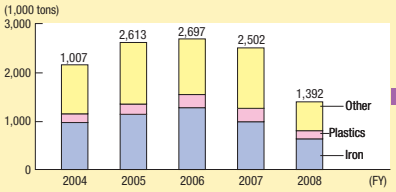
Overview of Environmental Impacts

Toshiba Group handles a wide range of products and services from household appliances and information/communications equipment to semiconductor and electronic components and power generation facilities. It will work to improve eco-efficiency by understanding and analyzing its environmental impacts.

Input

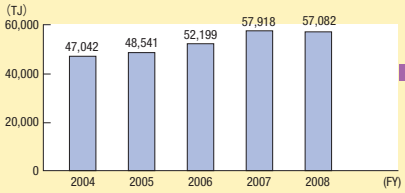
Materials*1	1,392 thousand tons		
Iron	631 thousand tons	Other	593 thousand tons
Plastics	168 thousand tons		

(FY2008)



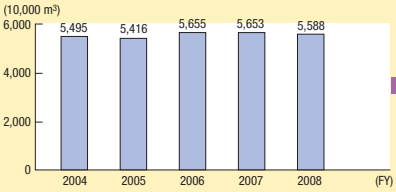
Energy	57,082 TJ*2		
Electricity	49,049TJ	Kerosene	67TJ
City gas	3,442TJ	Light oil	1,093TJ
Bunker A heavy oil	562TJ	Other	1,823TJ
LPG	1,046TJ		

(FY2008)



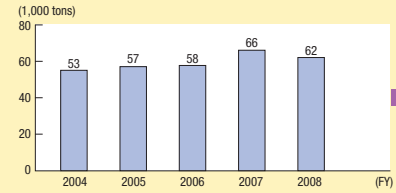
Water	55,880 thousand m³		
Industrial water	34,260 thousand m³	Groundwater	14,190 thousand m³
City water	7,430 thousand m³		

(FY2008)



Chemical substances	
Amount handled	62 thousand tons

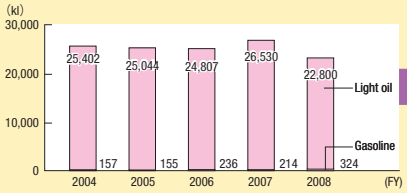
(FY2008)



Energy (product logistics in Japan)			
Gasoline	324kl	Light oil	22,800kl

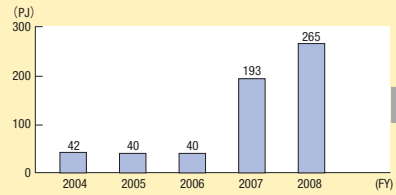
(FY2008)

*Trucks only



Energy	
Electricity (excluding power generation equipment)	265 PJ*2

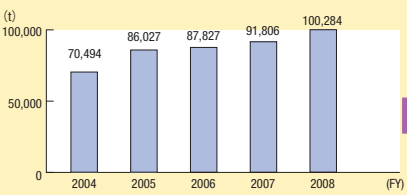
(FY2008)



After FY2007, the scope of data collection for products was expanded.

Volume of end-of-life products collected	
(Volume of items processed)	100,284 tons

(FY2008)

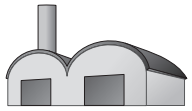


Toshiba Group

R&D and design

Procurement

Manufacturing



Distribution

Use

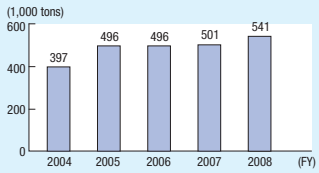
Recovery and recycling

*1 Material inputs are calculated based on the Estimation Method for Material Inputs Using Input-Output Table (EMIOT), a method independently developed by Toshiba Group. EMIOT uses ratios of resources, which are prepared based on the Input-Output Table, to calculate total material inputs. The distinctive features of the method are that input-output analysis is applied only to the flow of resources from upstream to downstream, and that ratios of resources by industrial sector are stored in a database. Using this method, it is possible to calculate weights of input resources by resource type from the data on procurement (monetary value) by resource category, which is gathered by procurement divisions. Therefore, data can be gathered not only on direct materials, but also on indirect materials. Previously, it was difficult to clarify the amounts of resources in parts made of composite materials or the amounts of resources associated with services. EMIOT has enabled clarification of the amounts of resource inputs by resource type for such materials.

The following material flow chart shows data on resource inputs such as the consumption of energy, water and chemical substances and data on outputs such as the environmental impact of emissions into the air and waters and the impact of generation of waste in FY2008. In addition, it shows data on the input of raw materials and the volume of major products shipped, as well as changes in such data during the past five years. These data were collected from 538 Toshiba Group companies (actual results for FY2008).

Output

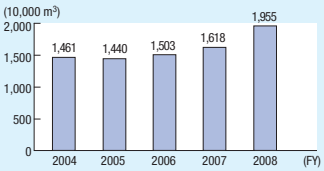
Volume of major products shipped
541 thousand tons
(FY2008)



Volume of water reused and recycled 19,550 thousand m³

Amount of water reused	5,990 thousand m³
Amount of water recycled	13,560 thousand m³

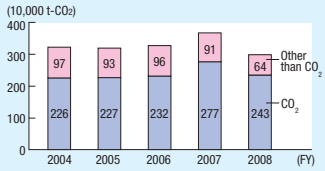
(FY2008)



Greenhouse gas*3 3.07 million t-CO2

CO_2	2.43 million t-CO_2
Other than CO_2	640,000 t-CO_2
PFC	430,000 t-CO_2
SF_6	150,000 t-CO_2
HFC	50,000 t-CO_2
Other	10,000 t-CO_2

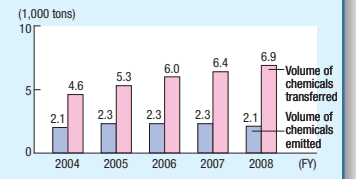
(FY2008)



Chemical substances

Volume of chemicals emitted	2.1 thousand tons
Volume of chemicals transferred	6.9 thousand tons

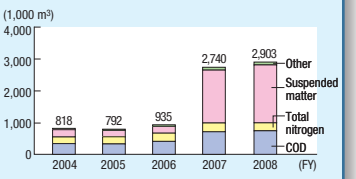
(FY2008)



Environmental Impacts on water

Total volume of wastewater	47,740 thousand m³
BOD	330 tons
COD	740 tons
Suspended matter	1,816 tons
Total nitrogen	260 tons

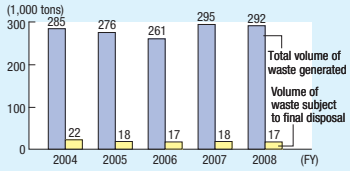
(FY2008)



Waste

Total volume of waste generated	292 thousand tons
Volume of waste recycled	251 thousand tons
Volume of waste subject to final disposal	17 thousand tons

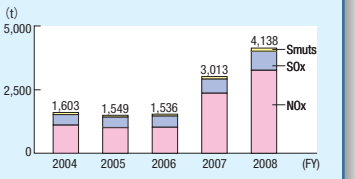
(FY2008)



Environmental Impacts on air

SOx	748 tons
NOx	3,269 tons
Smuts	122 tons

(FY2008)

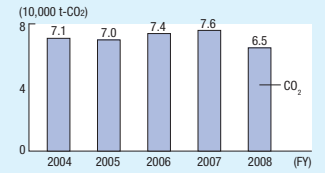


Greenhouse gas emissions at the time of transport (logistics in Japan)

CO_2	65 thousand t-CO_2

(FY2008)

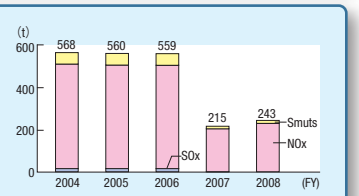
*Including ships and aircraft



Environmental Impacts on air

SOx	0.4 tons
NOx	229 tons
Smuts	14 tons

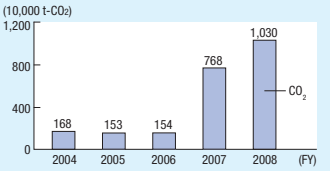
(FY2008)



Greenhouse gases

CO_2 (excluding power generation equipment)	10,300 thousand t-CO_2

(FY2008)

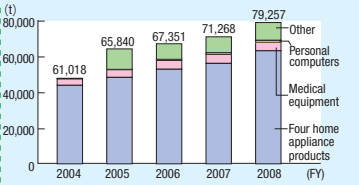


After FY2007, the scope of data collection for products was expanded.

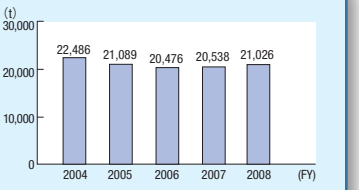
Weight of products recycled 79,257 tons

Four home appliance products	63,529 tons
Medical equipment	4,708 tons
Personal computers	1,123 tons
Other	9,898 tons

(FY2008)



Volume of waste after product recycling
21,026 tons
(FY2008)



*2 TJ = 10^{12} J; PJ = 10^{15} J
The joule is a unit of energy measuring mechanical work, heat, and electricity. One joule equals about 0.239 calories.

*3 The CO_2 emission coefficient for fuel and heat is based on the Energy Conservation and Recycling Assistance Law and the Law concerning the Promotion of Measures to Cope with Global Warming (figures provided by suppliers are used for the unit calorific value of city gas). The same coefficient for domestic electricity is based on data (power station side) from the Federation of Electric Power Companies of Japan (3.35 t-CO_2/10,000 kWh in 2008). That coefficient for overseas electricity is based on data from reports of the Japan Electrical Manufacturers' Association.

Shaded areas indicate a sequence of processes in which raw materials are shipped as finished products and recycled or disposed of.

Chapter. 2

Energy

Initiatives in the Energy-related Fields

We will contribute to providing a stable supply of energy and mitigating global warming with an optimum combination of different energy sources.

Summary of activities in FY2008

Conventional Energy

Nuclear power generation P17

- Promotion of the construction of nuclear power plants, which can generate electricity without CO_2 emissions
- Further reduction in CO_2 emissions during the operations by improving the power generation capacity of nuclear power plants in operation

Thermal power generation P18

- Promotion of initiatives for the early commercialization of A-USC (Advanced Ultra-SuperCritical) technology
- Development of a high-performance absorbent that reduces energy consumption required for CO_2 capture and storage

Renewable Energy

Solar power generation P19

- Establishment of an organizational framework aimed at promoting a Mega Solar System project

Geothermal power generation

- Promotion of the development of high-performance, high-reliability turbine technology

Hydroelectric power generation P20

- Achievement of the highest level of power generation efficiency in the world (2% increase in output capacity and a maximum efficiency of 95% or higher)
- Promotion of a project to replace old turbine runners with more advanced runners (the project being developed in Australia, Indonesia, South Korea and other countries)

Micro-hydroelectric power generation

- Promotion of the use of hydroelectric energy through the development of the Hydro-eKIDS™ series (flow: 0.03 to 3.5 m^3/s, water height: 2 to 15 m, output capacity: 1 to 200 kW)

Power Distribution Networks

Smart Grid P21

- Development of the μEMS (Micro Energy Management System) which has a function that controls power loads within the grid and a function that controls supply and demand in coordination with power supply companies

Fuel cells P22

- Commercialization of the ENE・FARM cell system (compact, lightweight type using city gas or LPG)
- Further development of products (reducing product weight to 104 kg or less, installation space to 2.5 m^2 or less and noise level to 40 dB or less)

Switchgears

- Development of a high-capacity (2500 A) solid insulated switchgear for the global market

Transformers

- About 40% reduction in power loss through unique technology (compared with previous JIS product models of our company group) and achievement of a further reduction in power loss

CO_2 Emissions Continue to Increase as Power Consumption Increases

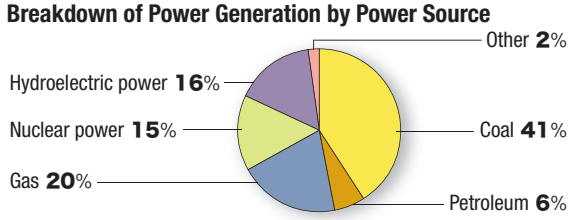
As a result of the rapid economic development in newly emerging countries, there has been an increase in the demand for electric power throughout the world, especially in China, India and other Asian countries. The annual global consumption of electricity, which currently amounts to at least 16 trillion kWh, is predicted to increase to about 1.5 times the current level by 2030.

While various power generation methods are used to provide power, thermal power generation, which generates electricity by burning fossil fuels such as coal, petroleum and gas, accounts for about 70% of the world's power currently being generated. Meanwhile, comparison of CO_2 emissions generated by different types of power generation systems shows that thermal power generation causes more CO_2 emissions per unit power generated than other power generation systems. Thermal power generation therefore presents serious problems, including global warming and resource depletion, making it more and more difficult to depend on fossil fuels as the only resource.

While global warming is still hotly debated at international conferences due to conflicting national interests, there is a common consensus among all countries about the need to create a sustainable society and to promote the development of a low-carbon and recycle-based society designed to achieve the common goal.

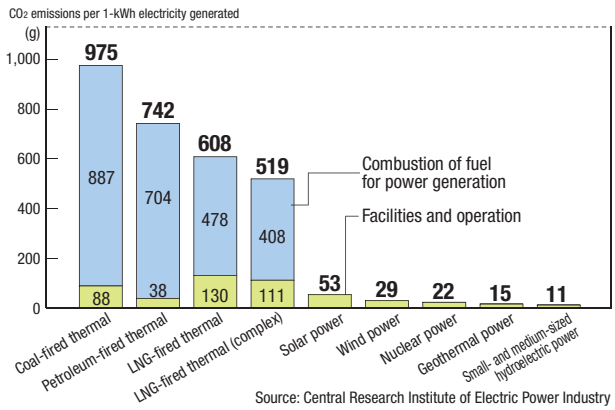
The goal of reducing energy-originated CO_2 emissions throughout the world by half, presented in the IEA's Energy Technology Perspective 2008 (see p. 9 for details), is very difficult to achieve. Achieving the goal requires medium- and long-term technological innovation in a wide range of areas from energy supply to consumption. We are therefore faced with an urgent need to develop measures for the future aimed at providing a stable supply of energy and mitigating global warming at the same time.

■ **Breakdown of Power Generation by Power Source**



Source: Word Enwrgy Outlook 2008

■ **CO_2 Emissions by Power Source**



Source: Central Research Institute of Electric Power Industry

Energy Approach by Toshiba Group

In order to develop specific measures to achieve the goals of Environmental Vision 2050, Toshiba Group is promoting an energy approach aimed at providing a stable supply of energy and mitigating global warming with an optimum combination of different energy sources.

In areas related to electric power generation and distribution, including conventional energy (nuclear and thermal power generation), renewable energy (hydroelectric, geothermal and solar power generation), dispersed power sources and power supply systems, we will promote innovation from two different perspectives: *process innovation* aimed at thoroughly reviewing conventional methods to add value to existing processes and *value innovation* aimed at creating entirely new value.

In the area of nuclear power generation, the IEA estimates that an average of thirty-two nuclear power plants, which do not emit CO_2 during power generation, need to be built annually. Construction plans are currently being developed in various countries, opening up possibilities for many new construction projects. Toshiba Group will provide boiling water reactor (BWR) plants and pressurized water reactor (PWR) plants to meet the needs of these countries and will contribute to reducing CO_2 emissions through the construction of new power plants. We will also provide technologies to improve the power generation capacity and operation rate of plants in operation in order to reduce CO_2 emissions generated from plants in operations. And to extend the service life of uranium resources that provide fuel supplies, we will step up our efforts to develop technologies related to fast reactors and the reprocessing of nuclear fuel aimed at establishing a fuel cycle.

In the area of thermal power generation, the IEA estimates that there is a need to achieve a total annual reduction of 9 billion tons of CO_2 emissions in combination with reductions in industrial areas by 2050 by using CCS* technology designed for the efficient capture and storage of carbon dioxide. At present, many companies are working to develop CO_2 capture technology for power plants, and experimental studies of CO_2 capture using small demonstration plants are being conducted throughout the world. Our company group will take the initiative to promote development aimed at commercializing CCS technology as soon as possible and will also continue to make improvements in the performance of turbine systems.

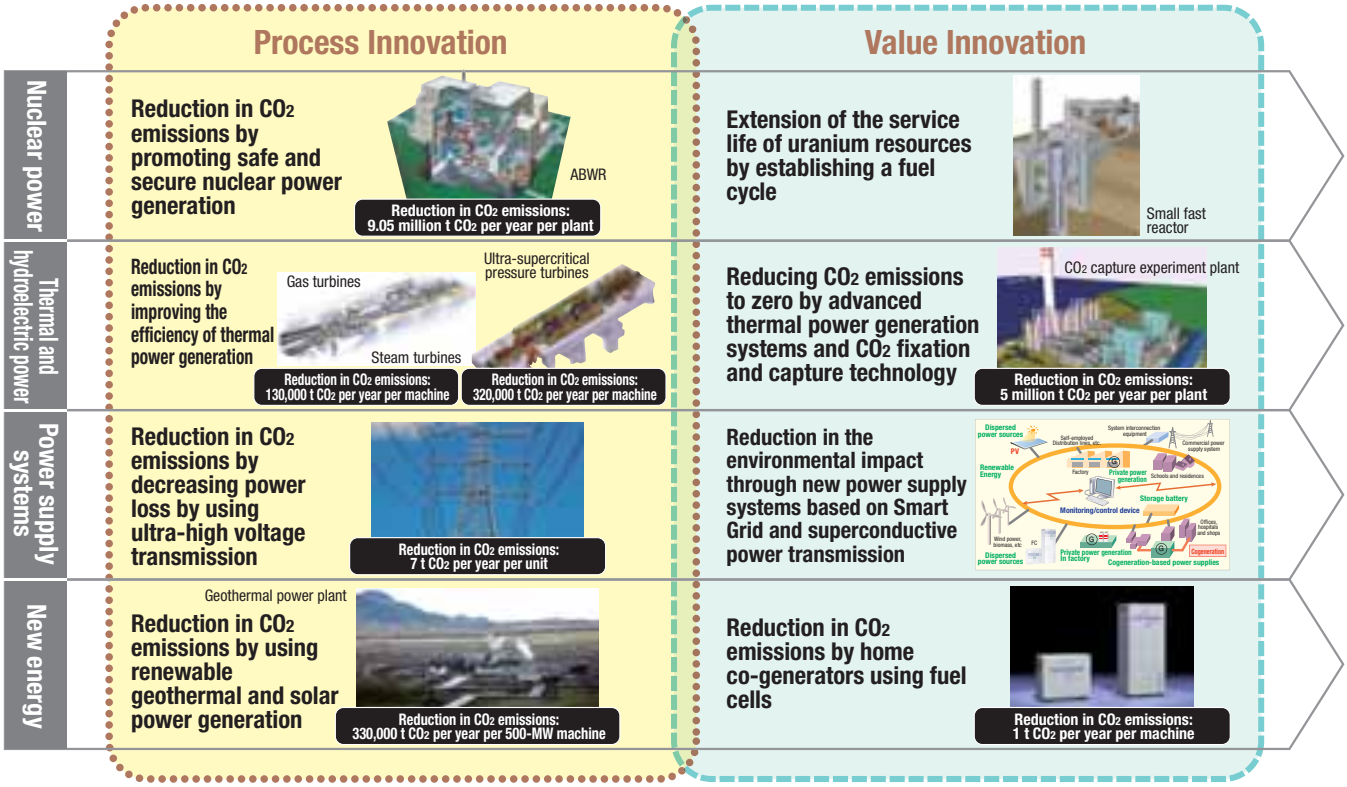
In the area of renewable energy, the IEA estimates that there is a need to achieve an annual reduction of about 10 billion tons of CO_2 emissions by 2050. Toshiba Group is working on a variety of initiatives in this area, including solar power generation, geothermal power generation, hydroelectric power generation and micro-hydroelectric power generation. We newly organized a Solar Power Generation System Project Promotion Division on January 1, 2009. In the area of hydroelectric power generation, we are working to improve power generation efficiency by replacing old turbine runners (rotor blades) with the most advanced model.

In the area of power distribution, we are developing ultra-high voltage transmission which decreases power transmission loss; Smart Grid, a next-generation power network system, which is expected to play an important role in making effective use of power; and switchgears and transformers that can support a stable power supply. We are also working on initiatives to achieve reductions in CO_2 emissions in the area of home energy supply, such as the commercialization of compact, lightweight ENE・FARM models.

Toshiba Group estimates that these initiatives will result in a total reduction of 13.5 million t CO_2 per year in FY2008. We will continue to develop innovations in energy technology in order to achieve a reduction of 27 million t CO_2 per year by 2012 and a reduction of 82 million t CO_2 per year by 2025.

*: Carbon dioxide Capture and Storage

■ **Toshiba Group's Approach to Energy**



Conventional Energy

Nuclear Power Generation

Countries around the world expect nuclear power generation to play an essential role in providing a stable supply of energy and mitigating global warming. Toshiba Group will contribute to reducing CO_2 emissions through the promotion of safe and secure nuclear power generation.

Contributing to Providing a Stable Supply of Energy and Mitigating Global Warming

The global primary energy demand is predicted to increase to about 1.5 times the current level by 2030, only twenty years from now. At present, we depend on fossil fuels for about 80% of our energy supplies. Meanwhile, the use of fossil fuels presents serious problems, including global warming and resource depletion, making it more and more difficult to depend on these sources for our energy supplies. Although solar power and wind power are expected as sources of clean energy, they are unlikely to become conventional energy sources because of their economic performance and supply stability. Under these circumstances, nuclear power generation is expected to play an essential role in providing a stable supply of energy and mitigating global warming at the same time.

Nuclear power generation is capable of producing a large amount of energy without emitting CO_2 during the operation. While it is estimated that fossil fuels will only be available for about 100 more years, uranium, which is a reprocessable nuclear fuel, is estimated to be available for use as energy for as long as 3,000 years.*1 By building a 1.35 GW nuclear power plant instead of a coal-fired thermal power plant, we will be able to achieve an annual reduction of as much as 9.05 million tons of CO_2.*2 This is equivalent to annual CO_2 emissions from about 3.9 million privately owned vehicles.*3

A cross-sectional view of a 1.35-million-kW nuclear power plant

Nuclear power generation is highly evaluated by the IEA as a technology effective in reducing CO_2 emissions. The IEA estimates that in order to stabilize the CO_2 concentration in the atmosphere at the level of 450 ppm,*4 there is a need to build a 1.28-TW nuclear power plant (equivalent to 1,280 GW plants) by 2050. Countries that have been following strategies to minimize the use of nuclear power generation are now adopting strategies aimed at promoting its use one after another, accelerating the development of plans to construct nuclear power plants in countries around the world.

As a Leading Company in Nuclear Power Generation

Toshiba Group has been engaged in the construction of 112 nuclear power plants in ten countries around the world, thereby contributing to reducing approximately 700 million tons of CO_2 emissions*6 annually. We will continue to provide countries around the world with nuclear power plants, which can produce electricity without CO_2 emissions during the operation. We also contribute to achieving further reductions in CO_2 emissions in plants in operation by developing and providing technologies designed to increase the power generation capacity and operation rate of existing facilities. For example, replacing conventional turbines by high-performance turbines improves power generation efficiency and increases the amount of electricity generated without increasing the thermal output of the nuclear reactors. Proper management of plant facilities also improves the operation rate of power plants. If the amount of electricity generated by the 53 nuclear power plants (48.2 GW) that are being operated in Japan is increased by 20% from the current level and the operation rate of these plants from the current 70% to 90%, approximately 150 million tons of CO_2 emissions will be eliminated annually. Toshiba replaced old turbines used in a BWR plant with high-performance turbines for the first time in Japan, As a result, about 5%*7 increase of power generation capacity has been achieved annual reduction of about 260,000 tons of CO_2 emissions.

High-performance turbine (Provided courtesy of Tokyo Electric Power Company)

Initiatives for the Future

In order to contribute to the continuous, stable operation of nuclear power plants, Toshiba Group will step up its efforts to develop technologies related to fast breeding reactors, spent fuel reprocessing and nuclear waste disposal required to secure a supply of uranium, to manufacture fuel and to extend the service life of uranium resources, and will promote nuclear power generation through all stages of plant life cycles. We will also develop hydrogen manufacturing technologies using heat generated from nuclear reactors and technologies related to nuclear fusion in order to preserve the global environment and energy resources for “planet Earth 1,000 years from now.”

*1: Source: *Graphical Flip-chart of Nuclear & Energy Related Topics 2009*, Japan Atomic Energy Relations Organization
*2: Reduction calculated based on comparison of CO_2 emissions between coal-fired thermal power plants and nuclear power plants assuming that a 1.35-million-kW power plant is operated at 80% of its capacity, from *Graphical Flip-chart of Nuclear & Energy Related Topics 2008*
*3: 2.3 tons of CO_2 emissions per year per privately owned vehicle (based on data presented on the website of the Forestry Agency)
*4: The level of concentration that makes it possible to limit the increase in temperature to no more than 2°C in order to avoid serious damage to ecosystems, from the IPCC report
*5: Calculated from the IEA’s Energy Technology Perspective 2008
*6: The total power generation capacity of the 112 power plants whose nuclear reactors are maintained by Toshiba Group as the major contractor is 110 GW (based on a survey conducted by Toshiba in April 2008). The reduction in CO_2 emissions is calculated assuming that the annual reduction of CO_2 emissions per 1.35-million-kW nuclear power plant is 9.05 million tons.
*7: The power output capacity was increased from 784,000 kW to 823,000 kW.

Thermal Power Generation

In order to make effective use of fossil fuels and to reduce CO_2 emissions, Toshiba Group is working to improve the efficiency of thermal power generation, while at the same time developing various technologies designed to achieve zero-emission thermal power generation.

Effective Use of Fossil Fuels and Reduction in CO_2 Emissions by Improving the Efficiency of Thermal Power Generation

At present, thermal power generation accounts for approximately 70% of the total amount of electricity produced around the world. However, thermal power generation, which uses fossil fuels, causes more CO_2 emissions than other power generation methods. In order to reduce CO_2 emissions per unit power produced, Toshiba Group is developing next-generation thermal power technologies aimed at improving plant efficiency and commercializing the CCS*1 (CO_2 capture and storage) system.

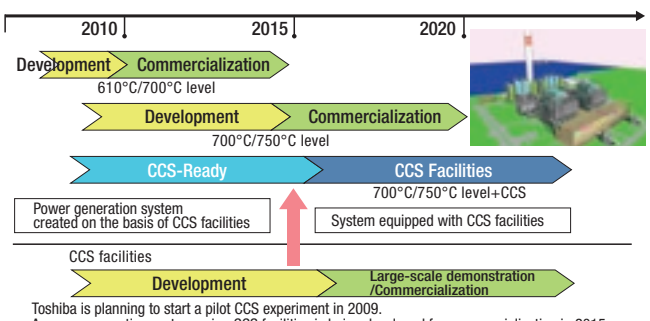
To improve the efficiency of thermal power generation, it is of vital importance that the temperature of the steam or gas used to rotate the turbines is raised. Toshiba Group is working on the development of ultra-high-temperature materials and cooling technologies in order to commercialize an A-USC*2 system (Advanced Ultra-SuperCritical steam turbine system) more efficient than previous models, which is designed to increase steam temperature from 600°C to above the 700°C mark. In the area of combined cycle power generation using a combination of gas and steam turbines, we are also engaged in jointly developing a power generation system designed to increase gas temperature to the level of 1,500°C with the U.S. company General Electric, which is starting commercial operation in July 2008 in Japan.

*1: Carbon dioxide Capture and Storage *2: Advanced Ultra-SuperCritical

Accelerating the Development of CO_2 Capture and Storage Technology The Key to Realizing Next-generation Power Generation System

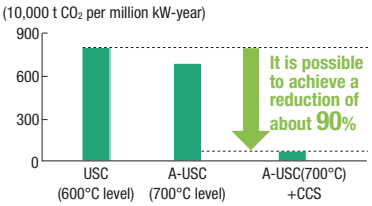
Toshiba Group is engaged in the development of CO_2 capture and storage (CCS) technology designed to separate and capture CO_2 emitted from thermal power plants and other such facilities and then store it underground. More specifically, this development is aimed at commercializing CCS technology. In order to commercialize this technology, it is essential that we develop a system that makes it possible to separate and capture CO_2 without reducing the economic performance of a power plant. In the course of its basic research, Toshiba Group has developed a high-performance absorbent that minimizes the energy consumption required for the CO_2 capture process. Experiments conducted using small-scale test equipment have confirmed that its level of performance is the best in the industry.

Toshiba Group is also constructing a pilot plant within a coal-fired thermal power plant located in Japan. The principal reasons behind the decision to build this pilot plant are as follows: (1) to demonstrate the performance of our CCS system by using boiler exhaust gases emitted from the coal-fired thermal power plant; (2) to perform the test experiments required to design a system for large-scale power plants in the future, including measuring the effects of substances contained in exhaust emissions generated by the thermal power plant, such as SOx, on our system; and (3) to acquire technical know-how regarding the integration of our system with other power generation system machinery, including turbines.



Toshiba is planning to start a pilot CCS experiment in 2009.
A power generation system using CCS facilities is being developed for commercialization in 2015.

It is estimated that the use of CCS technology in conjunction with A-USC systems will enable us to reduce CO_2 emissions generated by thermal power plants by approximately 90%. We will step up our efforts to develop new technologies in order to achieve zero-emission thermal power generation for the future.



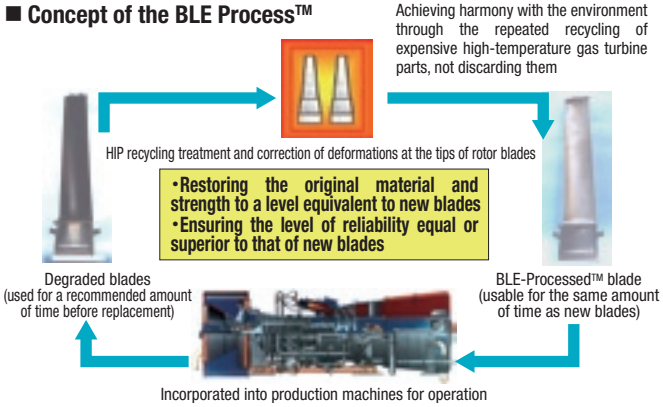
The most advanced systems that are currently commercially available are USC (Ultra-SuperCritical) systems. Using A-USC (Advanced USC) systems in combination with CCS technology will result in a dramatic reduction in CO_2 emissions.

Preventive Maintenance Technologies That Support the Long-term, Stable Operation of Facilities and Extension of the Service Life of High-temperature Gas Turbine Parts

The use of combined cycle power generation facilities using gas turbines is increasing year by year for the purpose of achieving the reduction in CO_2 emissions required to create a low-carbon society, increasing energy use efficiency and improving economic performance. Toshiba Group is developing various technologies that support the long-term, stable operation of facilities.

In order to analyze and assess high-temperature gas turbine parts, which are used in harsh environments and to determine their remaining service lives based on the level of degradation, we developed a technology for making highly accurate diagnoses by combining a number of methods, including the finite element method (FEM) and methods for testing cleavage strength, tensile strength, durability and fatigue strength. We are also working to commercialize service life extension and repair technologies aimed at recycling gas turbine rotor/stator blades and extending their service lives. Based on the BLE (Blade Life Extension™) concept unique to our company group, we repeatedly reuse old rotor blades that meet our repair standards instead of simply discarding them. The repair and recycling of these parts not only reduces running costs and improves economic performance, but also effectively minimize the environmental impact.

■ Concept of the BLE Process™



Renewable Energy

Solar Power Generation

Toshiba Group will contribute to reducing CO_2 emissions through the promotion of solar power generation systems designed to provide a steady and efficient power supply.

Geothermal Power Generation

Since delivering geothermal turbines and generators to its customer for the first time in Japan, Toshiba Group has continued to improve the performance of facilities, thus contributing to reducing CO_2 emissions through the promotion of geothermal power generation.

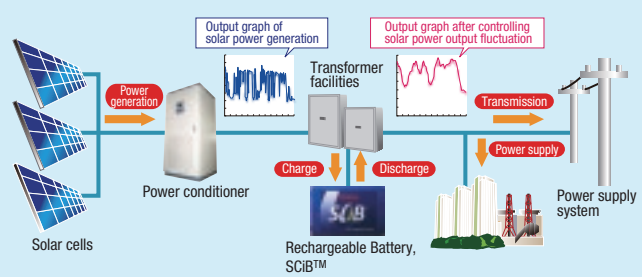
Providing a High Efficiency Power Conditioner at the Top Level in the Industry

These days, solar power generation systems of various sizes are often adopted by companies to be used in factories and are also increasingly used in homes, gaining widespread popularity. Solar power generation reminds the image of rooftop solar cell panels, but these panels alone do not complete a system. Output from solar cells is direct current and in order to use this current or to safely connect it to commercial power supply systems, it is necessary to have a power conditioning system (PCS), transformer, switchgear and protection system and protector facilities. Toshiba Group has succeeded in commercializing a high efficiency PCS at the top level in the industry, which is rated as having an output capacity of 250 kW and a maximum efficiency of 97.5%. This PCS can efficiently transform solar energy into electricity, generating a larger amount of electricity than previous models. It is desined compact and lightweight for ease of installation, requiring an area of only $1m^2$ and weighing 900kg (transformer less type). Using this system in combination with the rechargeable battery, SCiB™, provides an efficient means of controlling solar power output fluctation, which may present problems, when a large number of solar power generation systems are connected with distribution power grid.

Promoting Solar Power Generation with Mega Solar System Technology

Toshiba Group is able to provide a full range of services from system development to maintenance, as well as products and technologies required for large-scale solar power generation systems for power supply services and for industries. Such technologies include system technologies (such as Smart Grid designed to develop a network of transformers, power supply facilities, dispersed power sources and electricity users) and system engineering technologies for large-scale power plants. Toshiba Group has a track record of quality after delivering more than 100 systems to airports, government agencies and schools and has also delivered about 10,000 PCS to private homes. We will use all our know-how to accelerate the development of the Mega Solar System, which is designed for power supply services and industries and will contribute to reducing CO_2 emissions.

■ **Structure of the Solar Power Generation System Provided by Toshiba Group**



A Power Generation System That Minimizes CO_2 Emissions during Power Generation and Provides a Stable Power Supply Unaffected by Weather Conditions

Geothermal power generation produces electricity by extracting hot water and steam heated by underground magma reservoirs and by rotating steam turbines using the energy of the extracted water and steam.

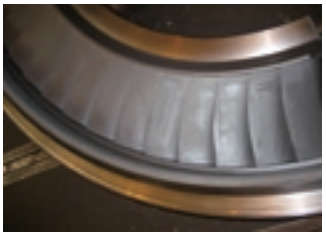
Geothermal power generation, which causes a very low level of CO_2 emissions, is attracting global attention as a renewable energy source that has low environmental impact. Unlike other renewable energy sources, such as solar power generation and wind power generation, geothermal power generation is capable of providing a stable power supply unaffected by weather conditions.

Toshiba Group was one of the first company groups that developed geothermal power generation facilities for commercial use. Since delivering turbines and generators designed for a geothermal power plant in 1966 for the first time in Japan, it has continued to provide these facilities to various countries around the world, including Japan, the United States, the Philippines, Iceland and Mexico. We currently provide geothermal facilities equivalent to about 30% of the total global geothermal power generation capacity.

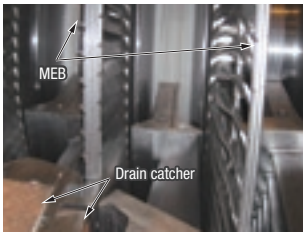
Hellisheidi Power Plant (Iceland)

Supporting the Promotion of Geothermal Power Generation by Improving the Performance and Reliability of Turbines

Geothermal power generation uses high-temperature water and steam extracted from underground sources. Therefore, it is of critical importance to develop technologies for improving resistance to corrosion caused by corrosive gases contained in the extracted hot water and steam and technologies for removing steam moisture that causes energy loss and corrosion of parts. Toshiba is working to develop a number of such technologies. For example, we are engaged in the development and commercialization of technologies for coating steam turbine parts with anti-corrosive materials in order to improve the corrosion resistance of these parts. We have also developed turbine blades that separate moisture from steam and a mechanism that removes separated moisture out of turbines.



Coating applied to a turbine nozzle



MEB and a drain catcher

Hydroelectric Power Generation

Hydroelectric power generation, which produces electricity without CO_2 emissions by using the gravitational force of falling water, provides clean and renewable energy, the effective utilization of which is being reviewed by countries around the world.

Micro-hydroelectric Power Generation

Micro-hydroelectric power generation is a small-scale hydroelectric power generation method that generates power using the potential energy of small rivers and canals. It contributes to reducing CO_2 emissions by making efficient use of energy.

Hydroelectric Power Systems Provide a Stable Supply of Clean Energy without Causing CO_2 Emissions during Power Generation

Among power generation systems that use clean and renewable energy without CO_2 emissions, hydroelectric power generation is the most efficient in providing a stable power supply at low power generation costs. It is an energy supply method that enables many countries to make effective use of domestically available water resources.
Toshiba Group has been engaged in developing technologies for turbines and generators and improving their performance since 1894, when it manufactured a hydroelectric power generator for the first time in Japan. We continue to provide countries around the world with high-efficiency hydroelectric power systems with low environmental impact.

Contributing to Reducing CO_2 Emissions with the Latest Turbine Runner Replacement Technology

The past several years have seen an increase in the number of large-scale repairs of hydroelectric power plants that were constructed at a rapid pace after the 1960's. In order to address the need to upgrade power generation facilities, Toshiba Group is working to not only restore the original capacities and functions of these facilities, but also to develop various types of advanced technologies—e.g. increasing the output capacity of turbine by enhancing the efficiency of runners (rotor blades), improving the functions of control devices using computerized systems, and saving energy for thermal spraying and other maintenance work. We have succeeded in enhancing the efficiency of runners, achieving the world's highest level of power generation efficiency (2% increase in output capacity and a maximum efficiency level of 95% or higher) through development using highly accurate flow analysis and performance tests using model turbine. We are currently working on runner upgrading projects like this in power plants throughout the world. Commercial operation has already started in plants in Australia, Indonesia, South Korea and other countries.

Chuncheon Hydroelectric Power Plant, South Korea

Simple Hydroelectric Power Generation Systems that Make Effective Use of Small Water Resources

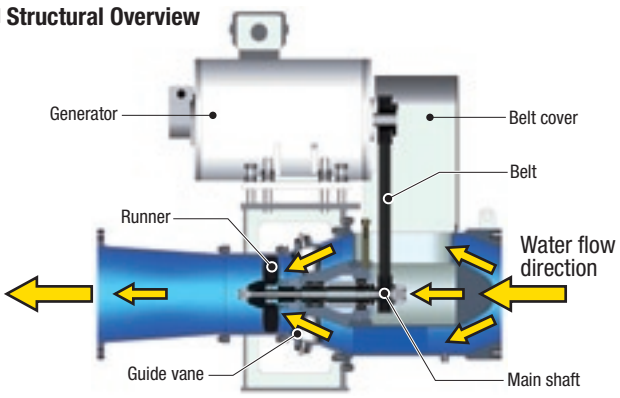
Unlike large-scale hydroelectric power generation, micro-hydroelectric power generation makes effective use of small water resources to generate electricity. Toshiba Group has developed and commercialized Hydro-eKIDS™, a micro-hydroelectric power generation system designed for companies that are using water for purposes other than power generation, whose needs have been ignored in the past. Unlike conventional hydroelectric power generation systems, Hydro-eKIDS™ does not require large-scale civil engineering or construction work and can be used anywhere there are water sources available, including water supply and disposal systems, irrigation canals, wastewater from factories and water discharges from rivers. It provides an effective means of using these water sources as dispersed power sources and contributes to reducing greenhouse gas emissions and saving energy.

Mibugawa No. 4 Power Plant, Mibugawa Electric Power Company

Flexible Means of Collecting Unused Hydraulic Energy

The Hydro-eKIDS™ series comprises five different standard unit models, with flows ranging from 0.03 to 3.5 m^3/s, net head from 2 to 15 m and output capacities from 1 to 200 kW. These models are available for a wide range of applications. Units can be connected in series or in parallel to one another to be used in places where the net head is at a medium level and the water flow is large. Since the generator can be installed above a warterturbine, the system requires only a small space for installation and can be installed with simple foundation work. It has various characteristics, such as being easily connectable to existing water pipes using a pipeline structure. Compared to large-scale power generation systems, it has a smaller number of replaceable parts, reducing maintenance costs and the impact on the environment.

■ **Structural Overview**



Power Distribution Networks

Smart Grid

Toshiba Group will contribute to reducing CO_2 emissions through Smart Grid, the next-generation power supply network required for a stable supply of power and the effective use of natural energy.

Smart Grid, the Next-generation Power Supply Network, Will Support a Stable Power Supply and Reduction in CO_2 Emissions

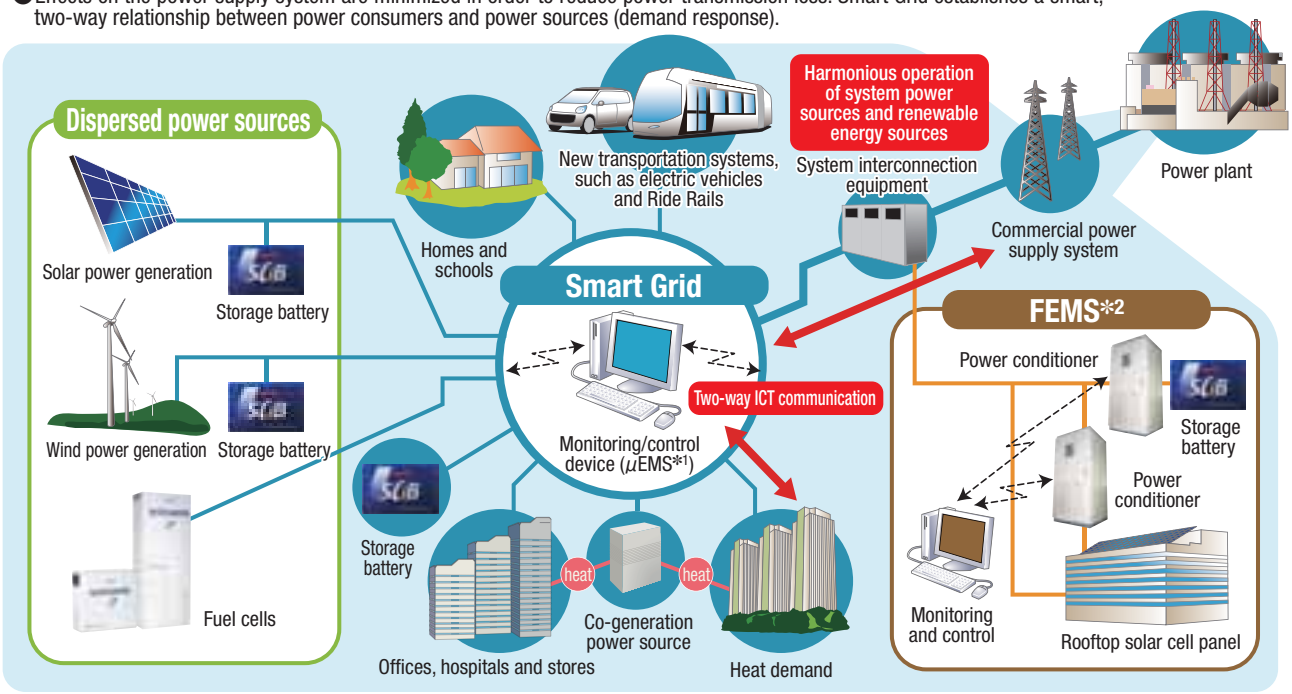
Smart Grid is a next-generation energy supply system designed to connect a number of dispersed power sources, such as solar power facilities, wind power facilities and fuel cells, to power consumers that put loads on the system, such as homes, factories and office buildings, through a network of electricity and communication in order to control power sources and power loads at the same time. Control technologies using telecommunications (ICT control) make it possible to analyze and forecast consumers' power demands and to provide power supplies from solar power generation facilities and storage batteries in response to these demands and to maintain a balance between power supply and demand by controlling the power sources used to operate devices in homes and offices. Smart Grid is expected to play an vital role in making effective use of natural energy, Reducing power transmission loss and providing a stable supply of power.

Using Toshiba Group's Comprehensive Capability to Develop Smart Grid

Toshiba Group is working to develop the μEMS (Micro Energy Management System), which functions to control power loads within the grid and to maintain a balance between supply and demand in coordination with power supply companies, as a key technology for Smart Grid. We are stepping up our efforts to provide an environmentally conscious, comprehensive energy system in combination with energy-saving products and systems manufactured in-house, such as solar power generation systems, SCiB™ (Rechargeable battery), control/connection technologies, building energy management systems and LED lighting systems.

■ **Smart Grid, the Next-generation Power Supply Network**

- A number of dispersed power sources and storage cells are interconnected through the network and coordinated with one another by ICT control in order to make effective use of natural energy.
- Effects on the power supply system are minimized in order to reduce power transmission loss. Smart Grid establishes a smart, two-way relationship between power consumers and power sources (demand response).



*1: Micro Energy Management System *2: Factory Energy Management System

Topics

SCiB™, a Rechrageable Battery Designed to Ensure Safety and a Long Life

SCiB™ is a rechargeable battery with superb safety. SCiB™ also have excellent characteristics such as, long life and rapid charging capability with ability to charge 90% of the capacity in as fast as 5 minutes. SCiB™ has a charge retention rate of over 90% even after having been discharged and recharged more than 6,000 times and has excellent service life characteristics that can help to reduce waste. Due to these characteristics, it is expected to play an essential role in the development of products designed to minimize CO_2 emissions in various areas, such as electric vehicles, hybrid cars, electrically assisted bicycles, electric motorcycles, forklifts, automatic guided vehicles, power regeneration for solar power generation and emergency power sources. SCiB™ is also expected to be used for Energy storage equipment, which forms part of the next-generation power supply network (Smart Grid).

Fuel Cells

Over many years, Toshiba Group has been engaged in the development of residential fuel cell systems in order to reduce CO_2 emissions from homes.

Co-generation system for Homes That Reduce CO_2 Emissions and Provide Hot Water

Residential fuel cells are systems that produce electricity through electrochemical reactions. They not only heat water with the heat generated by these reactions, but also provide "on-site energy" generated at the site where they are used, meaning there is no power transmission loss. Residential fuel cells also discharge almost no air pollutants generated from burning gas and are attracting attention as clean energy systems.

Toshiba has been engaged in the development of phosphoric acid fuel cells for many years. We have been working on the development of 1-kW class residential fuel cells since 2000 based on the experience and know-how accumulated over these years. We have succeeded in commercializing ENE•FARM (made by Toshiba Fuel Cell Power Systems Corporation), the only fuel cell for both city and LP gases, designed to be compact and lightweight. ENE•FARM, which makes effective use of waste heat, is estimated to reduce CO_2 emissions by about 1 ton (40%) per system compared with the level before its installation.

Striving toward Promoting Residential Fuel Cells and Reducing CO_2 Emissions through the Development of Products That Lead the Industry in Performance

Installing 748 fuel cells in homes that participated as monitors in a large-scale field test project launched by the Ministry of Economy, Trade and Industry in 2005, we designed ENE•FARM based on the knowledge gained from the project. Accordingly, our fuel cell model, which weighed 170 kg before the test, was made more compact, with its weight reduced to 104 kg and the area required for its installation reduced to 2.5 m^2. We also designed the model to have a low noise level, achieving a level not exceeding 40 dB, which is equivalent to the level of a library. The ENE•FARM model requires regular maintenance only once every two years, for about 30 minutes each time. Thus, we have succeeded in developing a product that leads the industry in durability and costs. We will continue our development in order to further improve the performance of our products.

Polymer electrolyte fuel cell
for residential application, TM1Z

Switchgear and Transformer

Toshiba Group contributes to reducing CO_2 emissions through the development of products designed to minimize the environmental impact, including switchgears and transformers, which are required in order to provide a stable power supply.

Contributing to Reducing CO_2 Emissions through the Development of Switchgear Designed to Minimize the Environmental Impact

Solid insulated switchgear (SIS), which function as breakers that receive electricity, are installed in facilities such as large buildings and factories that use a large amount of electricity. Toshiba has developed 24/33-kV SIS switchgear models that eliminate the use of sulfur hexafluoride (SF_6) gas, which has a global warming potential 23,900 times larger than carbon dioxide, thereby contributing to reducing the environmental impact.

Previous gas insulated switchgear (C-GIS) models used 5 kg of SF_6 gas (equivalent to 120 tons of CO_2 emissions). By developing high performance epoxy resin, we have succeeded in insulating the main circuit without using SF_6 gas. As a result, we are able to reduce CO_2 emissions by about 62%* compared with the C-GIS model of the same voltage class.

Solid insulated switchgear
KA-20M25

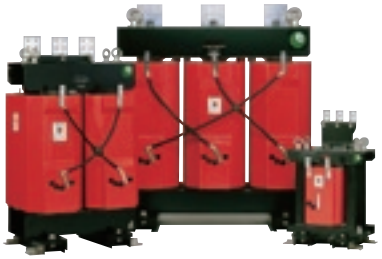
Another important point about the minimization of the environmental impact by the 24/33-kV SIS is the effective use of resources made possible by reducing the size and weight of the products. We reduced the weight by more than half and the size by 40%* compared with C-GIS models. We also adopted a BMA (Balanced magnetic actuator) and simplified the product structure, thereby reducing the number of parts to less than half. As a result of these design changes, we were able to simplify the maintenance and inspection procedures and reduce the environmental impact simultaneously. These basic technologies are being developed not only for products for domestic markets, but also for products for overseas markets. In FY2008, we started the development of large-capacity (2500 A) solid insulated switchgears for the global market.

*: In the case of 24-kV SIS

Transformers Also Designed to Greatly Reduce the Impact on the Environment

Transformers are used to drop the voltage from the power grid to 100 or 200 V in order to make it possible to use the electricity in buildings. Toshiba has reduced the power loss of transformers by approximately 40% compared with previous models (Comply with JIS C4306-1999) by using its unique technologies and improved the ease of storage by reducing the area required for installation. We have also succeeded in reducing CO_2 emissions by 4 tons* annually compared with previous models. Using these transformers in combination with switchgears will make it possible to provide a stable power supply and to reduce the influence on the environment.

*: In the case of the 500-kVA Transformer



Top-runner cast resin transformer
RCT-N22A

Chapter.3

Eco Products

Environmentally Conscious Products

Toshiba Group is promoting the development of ECPs (Environmentally conscious products), which involves environmentally conscious product design, the assessment of environmental impact and disclosure of the environmental performance.

Summary of activities in FY2008

Product Eco-efficiency

Average factor for products
- The goal was 1.88, the result was 2.05. (goal achieved)

P23

Environmentally Conscious Products

Percentage of environmentally conscious products to total sales
- The goal was 40%, the result was 43%. (goal achieved)

P23

Mitigating Global Warming through Products

Reduction in CO_2 emissions through Eco Products
- CO_2 emissions were reduced by three million tons, falling short of the goal.

P25

Management of Chemicals for Products

Abolition of Use of Specified Chemical Substances
- The goal was 80%, the result was 89%. (goal achieved)
- Reduction of PVC and BFR was promoted.

P26

Efficient use of Resources for Products

Reduction in the volume of packaging materials used
- The volume was reduced by 16%, achieving the goal earlier than expected.

P27

Creation of Excellent ECPs

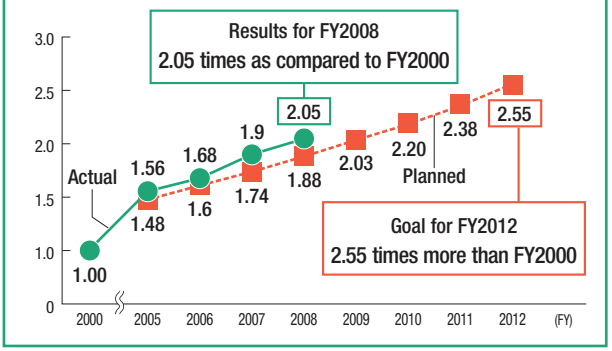
Five Excellent ECPs were offered as initially planned, achieving the goal.

P31

Aiming to increase the product Eco-efficiency by 2.55 times in FY2012

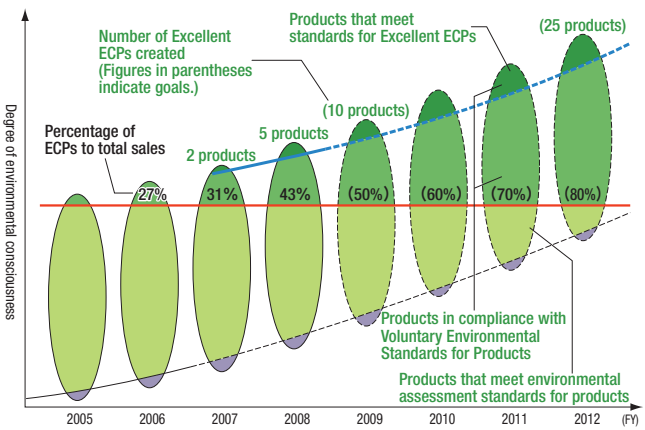
Toshiba Group, introducing the "Factor" (degree of improvement for the product eco-efficiency; for details see page 29) as an important indicator, is promoting activities to create ECPs. The goal is to increase the product eco-efficiency by 2.55 times as compared to FY2000, the base year, by FY2012. At the end of FY2008, the Factor for 80% of Toshiba Group's entire product lineup was calculated. By working to enhance the value of products and reduce environmental impact, Toshiba Group was able to achieve a factor of 2.05, much higher than the goal of 1.88.

Product eco-efficiency = Value of a product / Environmental impact of a product



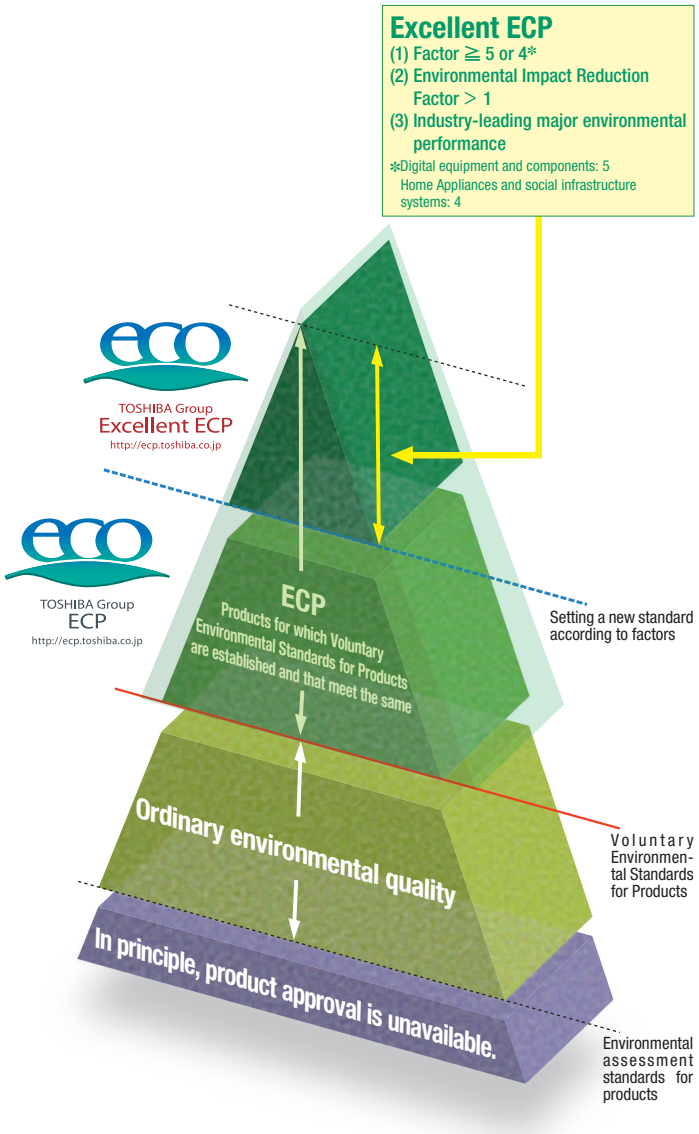
Under the Fourth Voluntary Environmental Plan, Toshiba Group is working to boost the environmental performance of our entire product lineup by increasing the percentage of environmentally conscious products (ECPs) and create the industry's top eco products by developing Excellent ECPs. In FY2008, the percentage of ECPs to total sales was 43%, surpassing the goal of 40%, and five Excellent ECPs were created and offered to the market as planned.
In FY2009 and on, Toshiba Group will continue to work toward the creation of ECPs, always aiming for higher goals.

■ **Excellent ECP/ECP Creation Goals and Results**



Excellent ECP and ECP

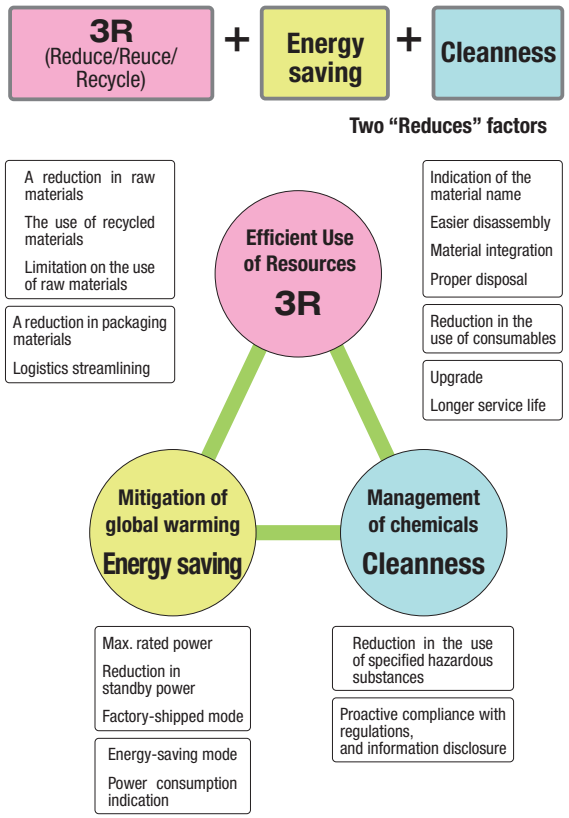
In developing products, we conduct a product assessment across their life cycles from procurement, manufacturing, logistics and use to disposal and recycling in order to conduct product development and reduce the environmental impacts on the global environment.
Whereas product assessment is used to confirm the minimum necessary environmentally conscious requirements for product development, Voluntary Environmental Standards for Products have been established in Toshiba to create highly environmentally friendly products and those products complying with such Standards are certified as environmentally conscious products (ECPs). These were established as the industry's highest level of environmental performance standards in FY2005.
To create more environmentally conscious products, those products for which the factors are improved and which are industry-leading eco-products achieving major environmental performance are called "Excellent ECPs." While ECPs aim to boost the environmental performance of the entire product lineup, the aim of Excellent ECPs is to attain the industry's highest level of environmental performance.



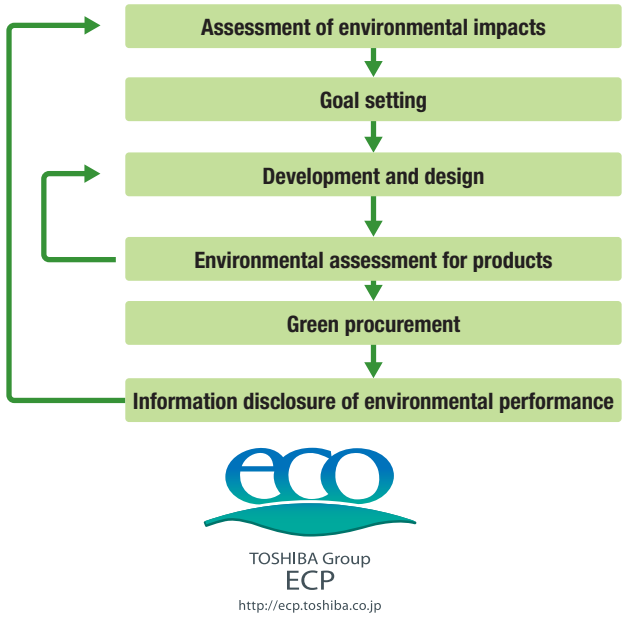
Initiatives for creating ECPs

The basic principle of ECP creation is to take three aspects of environmental needs into consideration: mitigation of global warming, efficient use of resources, and management of chemicals. It is important to work on eco design from the perspective of the 5R's: 3R (reduce, reuse, and recycle) plus 2 "Reduce" factors (energy conservation and clean). Toshiba Group is advancing ECP creation by developing internal regulations and guidelines from the perspective of the 5R's.

■ 5R Design



■ Work Flow to Create ECPs



Mitigating Global Warming through Products

Reducing CO_2 emissions by offering eco products

In order to stop global warming, Toshiba Group is focusing on developing environmentally conscious products to reduce the environmental burden throughout the life cycle of products from the procurement of raw materials and manufacturing to use and disposal.

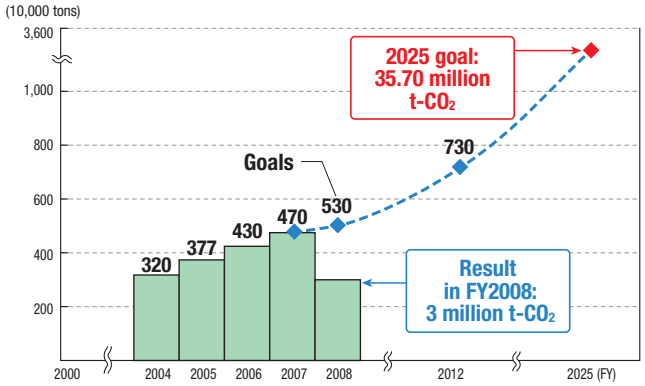
CO_2 emissions from Toshiba Group's products, which cover a wide range of categories from consumer electronics to power generation plants, vary from one stage of the life cycle to another. For example, a larger load at a raw-material procurement stage is imposed on digital products, such as mobile phones and notebook PCs, whereas the load at a manufacturing stage predominates in the case of semiconductor products, such as SD memory cards.

For products that consume a large amount of energy and those which are used over a long period of time, power consumption during the use stage accounts for most of the environmental impact, and therefore, the most effective way is to reduce the amount of electric power consumed when they are used.

For this reason, and in order to evaluate its diverse product lineups appropriately, Toshiba Group did a trial calculation of the effects of one year's reduction if products bought in FY2000 were replaced by new ones, not only taking into consideration the stage of use, but also the entire product life cycle. In this way it estimated the CO_2 emission reduction effects obtained through its products and is working to increase such effects.

The volume of CO_2 emissions reduced in FY2008 was three million tons. Since shipments of consumer electronics, which constitute a major portion of CO_2 emissions, were sluggish, the volume was smaller than in FY2007.

■ Reduction in the Volume of CO_2 Emissions by Offering Eco Products



From FY2009 on, in order to facilitate measures to cope with global warming at the product level, Toshiba Group will form a working group to promote such measures, thus identifying key factors, sharing advanced case examples, and using the underlying technology for all relevant products. It will also increase CO_2 emission reduction effects by globally offering digital products as well as LED light bulbs and other home electric appliances that are highly effective in energy conservation, particularly by expanding business in these areas in the markets of emerging economies where demand is growing rapidly. We will create many No. 1 energy-saving products by continuing to the next level in environmentally conscious designs, taking the entire product life cycle into account, and striving to reduce CO_2 emissions even more by having more customers use our products.

Example **Particular attention paid to making energy-saving air-conditioners**

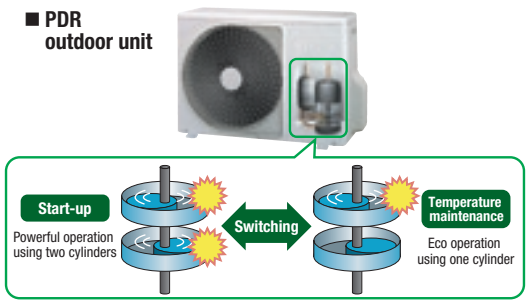
Toshiba Carrier Corporation

With the highest-level of energy-saving performance in the industry and its energy monitor (an industry first*), which shows power consumption in real time, the home-use room air-conditioner Daiseikai™ PDR Series achieves both "energy-saving at the time of use" and "visible energy-saving." Toshiba Carrier estimates that these efforts enable the air-conditioners to reduce CO_2 emissions by 22% during their entire life cycle.

●Energy-saving at the time of use

By stopping the operation of one of the two cylinders in the compressor and letting only the other operate at the time of low load, the Daiseikai™ PDR Series can reduce the minimum power consumption to 45 W, comparable to that of electric fans. This keeps the room temperature stable, making users more comfortable.

■ PDR outdoor unit

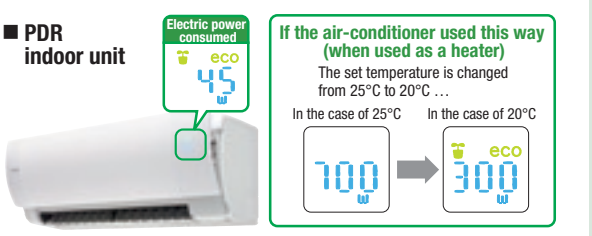


●Visible energy-saving

The energy monitor was developed in response to the needs of users who said, "Even if I buy an energy-saving air-conditioner, I don't know if it's really saving energy," and "I want to know the electricity rates I am being charged when I use an energy-saving air-conditioner."

The current power consumption is displayed on the front panel of the indoor unit, and the character mark and the eco mark are lit during energy-saving operation, an indication of the high energy-saving nature of the Daiseikai™ PDR Series (from the start of operation to the time when the room temperature becomes stable, the operation power level displays the amount of electric power consumed, and later, the current power consumption is displayed).

■ PDR indoor unit



For example, if the set temperature is raised or curtains are closed, the amount of electric power consumed falls. Since users can look at the power consumption and what they are being charged during operation, they can feel that they have a direct connection with energy-saving efforts and easily participate in energy-saving efforts at home.

* As of September 22, 2008. The current power consumption is displayed on the main body of the air-conditioner, and the display is updated every 15 seconds.

Management of Chemicals for Products

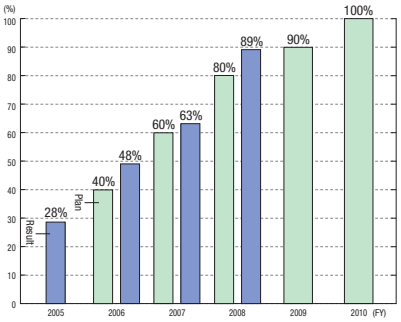
Abolishment of the Use of Specified Chemicals

Based on the belief that the task of minimizing the risk associated with the chemical substances that have been suggested and adopted in WSSD* and so on should be regarded as an important task we should complete, Toshiba Group is proceeding with activities to phase out specified chemical substances, decrease their content rate in products and exercise content rate management for the same so that customers can use Toshiba products with confidence.

Under the Fourth Voluntary Environmental Plan, which started in FY2005, Toshiba Group identified 15 rank A chemical substances and set the goal of eliminating all of these substances from its products by FY2010. In FY2008, the fourth year of the Plan, the ratio of products that did not contain any of the 15 chemical substances of all products sold reached 89%. We are steadily carrying out activities to eliminate all these substances from our products.

* WSSD: World Summit on Sustainable Development

■ Ratio of products not containing these 15 substance groups to net sales



[15 substance groups subject to restriction] (Rank A)

(1) Bis (tributyl tin) = oxide (TBTO)
(2) Tributyl tins (TBTs), and Triphenyl tins (TPTs)
(3) Polychlorinated biphenyls (PCBs)
(4) Polychlorinated naphthalenes (PCNs with 3 or more chlorines)
(5) Short-chain chlorinated paraffins (C10-C13)
(6) Asbestos
(7) Azo colorants
(8) Ozone-depleting substances
(9) Radioactive substances
(10) Cadmium and its compounds
(11) Hexavalent chromium compounds
(12) Lead and its compounds
(13) Mercury and its compounds
(14) Polybrominated biphenyls (PBBs)
(15) Polybrominated diphenyl ethers (PBDEs)

* Detailed definitions and specific applications to be excluded are specified separately.

Initiatives for reducing chemical substance content and using alternatives instead

In addition to prohibiting the use of the 15 chemical substances in its products, Toshiba Group manages chemical substances contained in its products by defining 20 rank B chemical substances as chemicals that it must strive to reduce and replace with others. Even for these rank-B substance groups, Toshiba Group will aggressively proceed with efforts to replace them with alternatives if they are available from the viewpoint of mass production and cost efficiency and also if they can reduce the environmental burden without affecting the capabilities, performance, or quality of products. These initiatives will gradually be extended to cover other substances, including polyvinyl chloride (PVC) and brominated flame retardants (BFR).

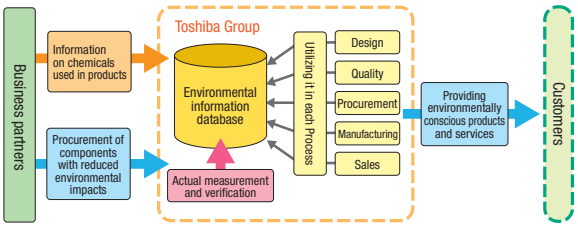
[Rank-B substance groups]

•Polyvinyl chloride •Brominated flame retardants (excluding PBBs and PBDEs) •Antimony/antimony compounds •Beryllium/beryllium compounds •Certain phthalates •Arsenic/arsenic compounds •Bismuth/bismuth compounds •Nickel (for external use only) •Selenium/selenium compounds •Zinc compounds •Chlorinated paraffin (excluding some short-chain chlorinated paraffins) •Trivalent chrome/trivalent chrome compounds •Cyanogen compounds •Nickel (excluding external use)/nickel compounds •Perfluorocarbons •Hydrofluorocarbons •Halogen resin additives (excluding bromic flame retardants) •Sulfur hexafluoride •Manganese compounds •Organotin compounds (excluding TBT and TPT)

Green Procurement Initiatives

Toshiba Group is promoting green procurement worldwide with the cooperation of business partners. Prior to the procurement of parts and raw materials, the ratios of environmentally harmful substances and scarce resources relative to the weight of procurement items have been checked, and Toshiba Group prioritizes the use of parts and raw materials which are superior in terms of environmental impacts. This information, stored in a database, is utilized to not only certify newly procured goods and determine whether to replace already procured goods, but also to develop environmentally conscious products. Furthermore, in order to support this information, we analyze chemical substances contained in parts and raw materials in-house and are actively developing and improving analytical methods to raise accuracy and efficiency levels.

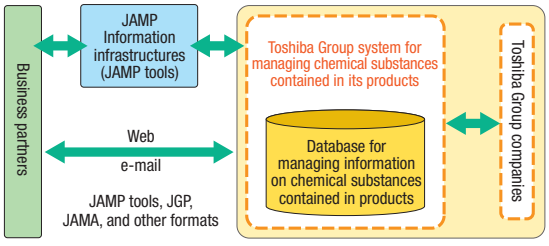
■ Creating a database of procurement items, such as parts and raw materials



Addressing New Regulations

In an effort to meet the European regulations on chemical products known as REACH*1, which were enforced in June 2007, it is necessary to establish a system for disclosing and conveying information on chemical substances contained in parts, materials, and products smoothly within a supply chain. Toshiba Group is also establishing a system and its corresponding infrastructure for managing the giving and receiving of information on such chemical substances. In order to ensure the appropriate giving and receiving of information in a supply chain, we will also actively make the most of tools, information infrastructures, and other systems offered by JAMP*2 of which we are member.

*1 REACH: Registration, evaluation, authorization, and restriction of chemicals
*2 JAMP: Joint Article Management Promotion-consortium



Example **Initiatives for reducing chemical substances contained in notebook PCs**

Personal Computer & Network Company, Toshiba Corporation


dynabook SS RX2


dynabook NX

●Using PVC-free AC cables

Models launched in the Japanese market after April 2009 use PVC-free AC cables.

●Using halogen- and antimony-free* printed wiring boards

Printed wiring boards that do not contain halogen compounds (chlorine and bromine) and antimony compounds are used for mainboards.

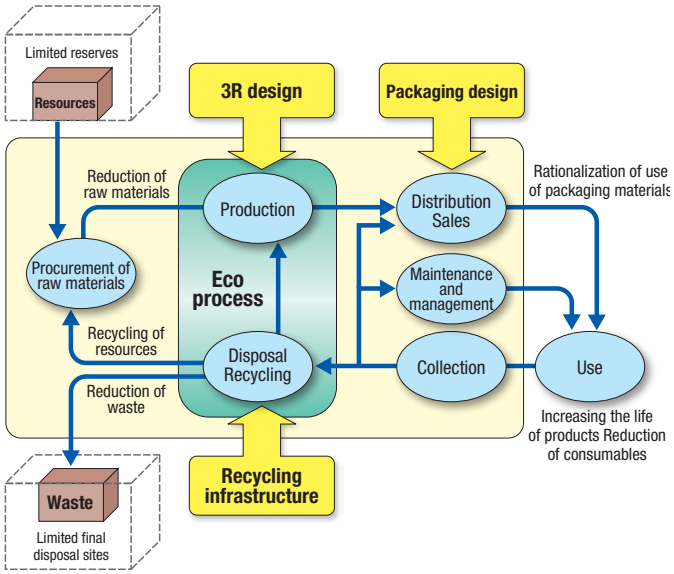
* According to Japan Electronics Packaging & Circuits Association standards

Efficient Use of Resources for Products

Concept of 3R design

In order to realize a recycling-based society, manufacturers are required to reduce the volume of resources extracted and discharged as waste throughout the product life cycle. To that end, Toshiba Group is working on designs in line with reduce, reuse, and recycle, starting from the design and development of products.

"Reduce" refers to reducing the weight and size of products, as well as making products usable for longer by increasing their sturdiness and rendering them more energy-saving when they are used. "Reuse" involves offering parts as modules to make maintenance and upgrading easy among other measures. "Recycle" features such efforts as using recyclable materials for a wider range of products, reducing the number of parts, choosing materials carefully, and indicating the quality of the materials used.

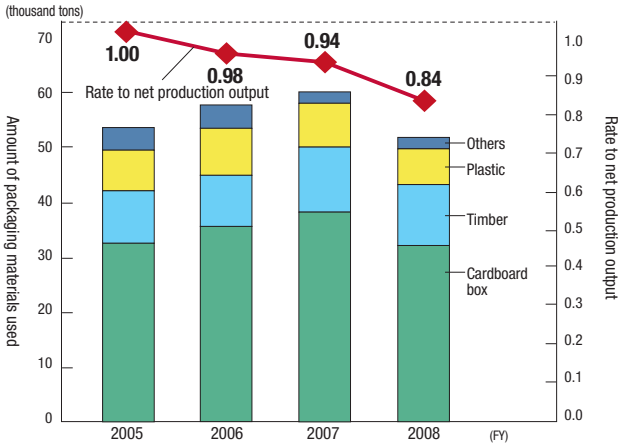


Initiatives for rationalizing use of packaging materials

Toshiba Group set the goal of reducing the volume of packaging materials used in Japan by 15% (per unit production) as compared to the FY2005 level by FY2010 and is promoting such initiatives as reducing the volume of packaging materials used, and reusing them, in the production, distribution, and sales processes.

In FY2008, Toshiba Group substantially reduced the volume of packaging materials it used, achieving a 16% reduction (per unit production) as compared to the FY2005 level. This means that it achieved the goal for FY2010 ahead of schedule. In the future, we will continue to apply examples of improvements to other initiatives for further improvement. We will also consider extending these initiatives to cover a wider range of operations.

■ **Changes in the amount of packaging materials used and rate to net production output**



Resource recycling initiatives

Toshiba Group is working to recycle waste plastic materials generated from end-of-life and other products. In the case of washing machines, for example, it utilizes resources recovered from used washing tubs and reuses them for water inlet covers and base plates for the washing machines. In addition, the back cabinets of TVs are recycled by reusing them as bottom covers (for details see page 52).

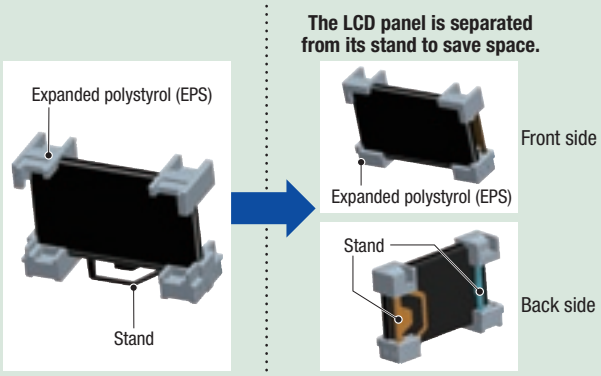
In FY2008, a total of about 1,100 tons of recycled plastic materials were used for the base plates of washing machines, multifunctional peripherals (MFP), TVs, air-conditioners, notebook PCs, and other products. In the years to come, Toshiba Group will continue to use recycled materials for a wider range of products in order to contribute to the realization of a recycling-based society.

Example

Reducing packaging materials
–Applying separated packaging into a wider range of liquid crystal TV stands–

Digital Media Network Company, Toshiba Corporation

It became possible to reduce the packaging volume by 30-40% as compared to the previous level by packing the LCD panel and its stand separately*. Toshiba Group will contribute to reducing CO_2 emission in the distribution stage by improving the load factor.



* Separated packaging was first applied to 42V to 32V models in the REGZA ZH/Z/FH/H/C7000 Series.

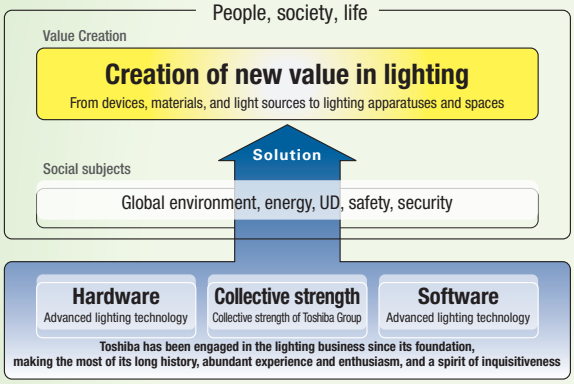
Topics

Toshiba's LEDs Change Lighting and the Future

New Lighting Systems Division

Lighting the way to warmth and harmony with people and the environment

The history of the lighting business at Toshiba can be traced to 1890, when Hakunetsu-sha manufactured Japan's first electric incandescent light bulbs. In 1940, Toshiba commercialized Japan's first fluorescent lamps. In 1980, when there was growing interest in energy saving and resource saving due to the Oil Crisis, the company started sales of the world's first bulb-shaped fluorescent lamps called the "Neo Ball." Furthermore, the E-CORE LED lighting series launched in 2007 is spreading as the next-generation lighting that will harmonize the mitigation of global warming with economic efficiency. In Japan, it is estimated that lighting accounts for about 16% of total domestic power consumption, making it an issue that should be addressed on a global scale.



Toshiba has always provided the most advanced lighting while taking the needs of the environment into consideration. In May 2008, Toshiba announced that it would discontinue production of electric incandescent light bulbs and shift to environmentally conscious lighting earlier than any other company by 2010, creating major waves in the industry. In the future, Toshiba will continue to further bolster its New Lighting Systems Division, which focuses on LED lighting, and create new value in the field of lighting from devices, materials, and light sources to lighting apparatuses and spaces, thus contributing to realization of a full, comfortable future.

東芝は環境のことを考えた新しいあかり「LED電球」の開発に取り組んでいきます。

Toshiba, which manufactured and sold Japan's first electric incandescent light bulbs, decided to discontinue production of electric incandescent light bulbs by 2010. The company is advocating a shift to light sources that take the needs of the environment into consideration.

E-CORE™ [E-CORE]

LED Lighting Series

Environmentally conscious, long-lasting, energy-saving E-CORE LED Lighting Series

Energy Efficient · Long Life · Compatible With Enclosed Fixtures · Crack Resistant Cover · Low Heat Radiation · Instant Illumination


E-CORE Downlight
2000 Series


E-CORE LED lamps
Beam lamp type and midget reflector type


E-CORE LED lamp
Incandescent bulb shape, 6.9 watts

"Industry's No. 1 energy-saving performance"*1
"Power consumption is about one-eighth of that of ordinary electric incandescent lamps."*2



E-CORE base light
Square type (upper)
Straight type (lower)


E-CORE security lamp


E-CORE guidance lamp

*1:In terms of incandescent bulb shape (PS shape) LED lamps
As of June 22, 2009 (Toshiba's survey)
*2:If the LELAW6L/2 incandescent bulb shape LED lamp is compared with Toshiba's LW100V54VW55 white electric incandescent light bulb

What Is the Factor T?

Eco-efficiency and the factor

Eco-efficiency is an indicator used to make economic growth consistent with environmental protection as we aim for a sustainable society.
This indicator, which uses value for the numerator and environmental impact for the denominator, enables a comprehensive evaluation of eco-efficiency because it becomes larger the more a product reduces its environmental impact and provides greater value.
The Factor indicates how many times larger eco-efficiency is as compared to a certain standard, and when eco-efficiency is evaluated, it can be divided into two parts: the product value factor and the environmental impact reduction factor.

Factor T

The Toshiba Group's initiatives are characterized by the following three types of integration.
(1) Product value: Its integration is achieved with weight assigned to several functions through QFD.
(2) Environmental impact: It is integrated as the amount of environmental damage through the use of LIME.
(3) The eco-efficiency of the business process and a product's eco-efficiency are integrated.
At Toshiba Group, all activities undertaken to create environmentally conscious products (ECPs) based on the factor calculation described above are collectively referred to as "Factor T" with the T standing for "Toshiba," so as to further promote the creation of more ECPs.

$$\text{Factor} = \frac{\text{Eco-efficiency of a product subject to assessment}}{\text{Eco-efficiency of the benchmark product}} = \frac{\dfrac{\text{Value of a product subject to assessment}}{\text{Environmental impact of a product subject to assessment}}}{\dfrac{\text{Value of the benchmark product}}{\text{Environmental impact of the benchmark product}}} = \text{Value factor} \times \text{Environmental impact reduction factor}$$

Process prior to the calculation of the Factor

Product subject to assessment: Room air-conditioner Daiseikai PDR Series RAS-402PDR (FY2008)

Benchmark product: RAS-406YDR (FY2000)

Important points in environmental impact reduction

●22% reduction in power consumption
Dual compressor
High-efficiency inverter, improved airflow performance

●Space saving
It's compact and can be installed in a narrow space.
No non-recyclable parts are used.

Important points in the improvement of product value

●Quick heating in the morning
Powerful, quick heating in the morning

●Cleanness of Air conditioner interior
1 Cleaning of air filters
2 Sterilization Aqua de Cleaning heat exchanger
(surface-treated heat exchanger for sterilization and cleaning by water)
3 Ozone deodorizing & plasma cleaning for mold removal

●"Visible" power consumption
Energy Monitor for energy-saving operation at a glance

●CO_2 emissions indicated
Indicates operating hours, electricity charge, temperature, humidity and CO_2 emissions

Calculating the impact of products on the environment

The "Easy-LCA" is mainly used to calculate the environmental impact in a product's life cycle. It incorporates an environmental impact database based on the Input-Output Tables serving as the source of statistics of inter-industry shipment value in Japan. This is a simplified evaluation tool for life cycle assessment (LCA) developed by Toshiba in 1996, which is able to calculate 30 types of environmental loads (inventory) in the life cycle. By comprehensively evaluating the environmental impact using the LIME method* and determining the impact of the benchmark product and products subject to assessment on the environment, the environmental impact reduction factor can be calculated.

*The LIME method is one of the most prominent environmental assessment methods in Japan, which was developed by the National Institute of Advanced Industrial Science and Technology. LIME2, its revised version, was announced publicly in FY2008.

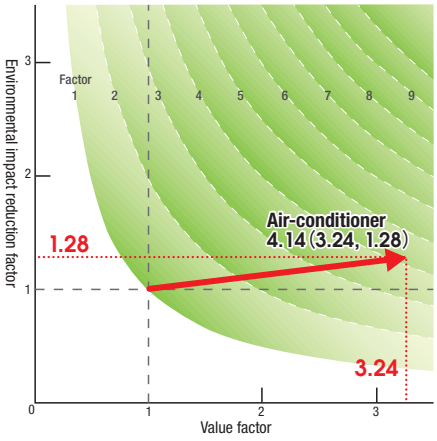
■ Simplified evaluation tool for LCA: Easy-LCA

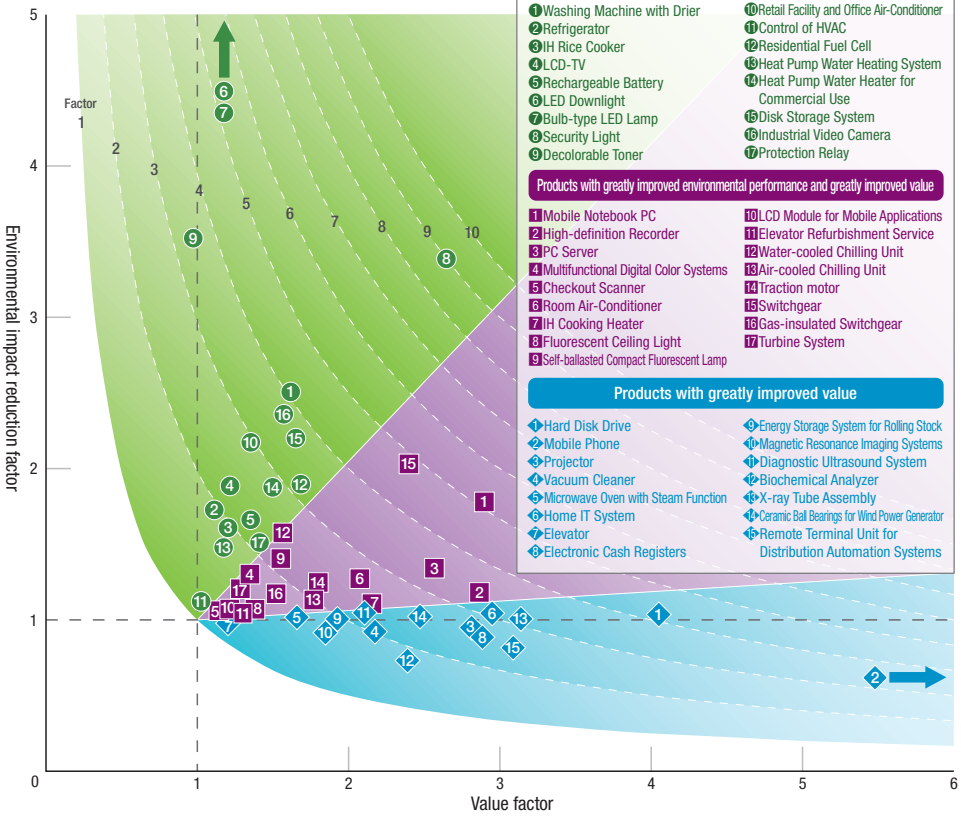
- Commercially available in October 1997
- Provided with a database based on the inter-industry relation table
  The latest inter-industry relations table 2000 in Japan is used.
  The environmental impact per unit in about 400 sectors is presumed.
  According to the amount in value on a pro-rata basis,
  the sectors can be subdivided into about 4,000 sectors.
- Adoption of the hybrid method
  Based on buildup analysis,
  the overseas environmental impact can be presumed and added.
- Thirty types of environmental impact inventories can be calculated.

Category		Item
Consumption	Fuels	Crude oil (fuel), coal, and natural gas
	Material	Crude oil (material), iron, copper, aluminum, lead, zinc, manganese, nickel, chromium, gravel, crushed stone, limestone, and timber
Emission	Atmospheric air	CO_2, SOx, NOx, PM, HFC, HFC23, PFC, and SF_6
	Water quality	BOD, COD, SS, Total-N, and Total-P
Energy (heat quality)		

Source:
Sales data from
Toshiba Plant Systems & Services Corporation

By plotting the Factor for each product in a graph with the value factor as its x-axis and the environmental impact reduction factor as its y-axis, we can determine which of "value improvement" or "environmental impact reduction" affects the Factor for the product more strongly based on the gradient of the line.

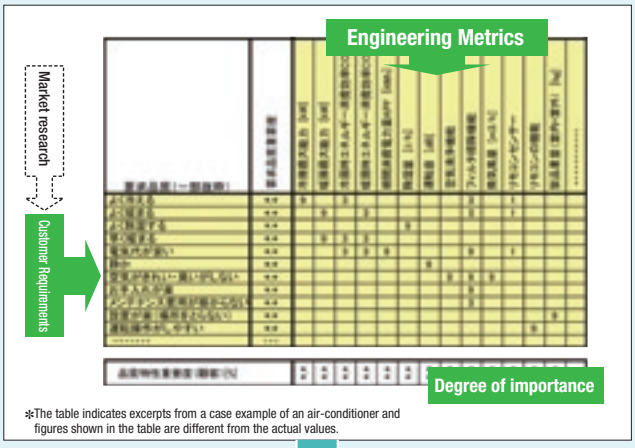




Calculating the value of products

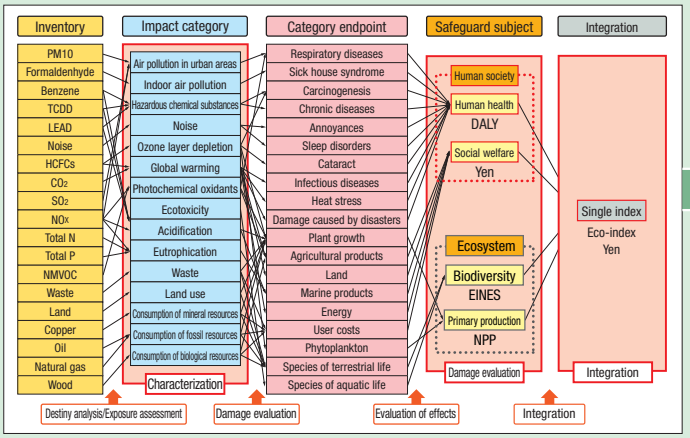
To obtain the value factor of a product, the value of a product is calculated based on the functions and performance of the product, using the quality function deployment (QFD) technique. The QFD is the method via which real customer requirements are determined based on actual opinions obtained from customers, a matrix table in connection with design specifications (Engineering Metrics) is prepared, and the strength and weaknesses are determined in order to derive important Engineering Metrics from the same. It has been firmly established as methodology to enhance customer satisfaction in the product development of Toshiba Group. By applying this QFD method and comparing the performance of the benchmark product with that of a product subject to assessment, non-dimensional numeric values are determined depending on important quality characteristics so that the numeric values can be integrated as a product value indicator (value factor).

■ QFD matrix table



*The table indicates excerpts from a case example of an air-conditioner and figures shown in the table are different from the actual values.

■ Life cycle impact assessment method based on endpoint modeling (LIME)



Value Factor
Degree of improvement of product value
3.24

×

Environmental Impact Reduction Factor
Degree of reduction of environmental impacts
1.28

Factor
Degree of improvement as a result of a comprehensive assessment of a product
4.14

Excellent ECPs

Creating Excellent ECPs

ECPs, which achieve the industry's highest level of environmental performance by improving its Factor, are certified as Excellent ECPs and are emphasized mainly by giving them an Excellent ECP mark. Two products were certified as Excellent ECPs in FY2007 and five in FY2008.

TOSHIBA Group
Excellent ECP
http://ecp.toshiba.co.jp

■Products certified as Excellent ECPs in FY2008

Washing Machine with Drier

Compact heat-pump drum-type washing machine.
Top level*1 of power consumption at the real test*2.

TW-4000VF

*1 When sales began
*2 Real cloth test ver.2 at 6 kg

Environmental Impact Reduction Factor 2.50

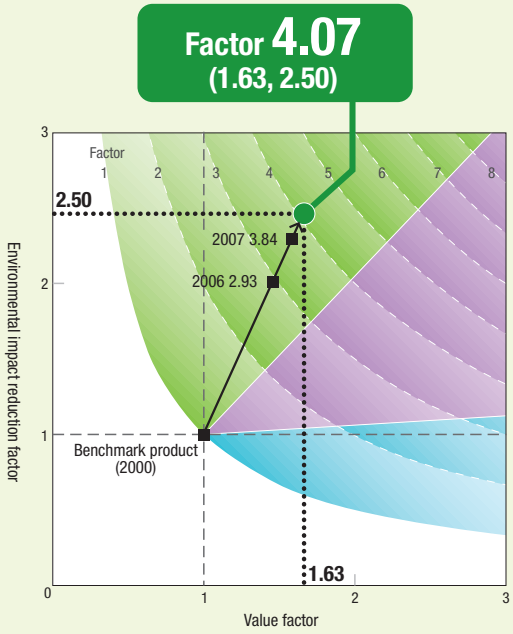
●Mitigation of global warming
67% reduction in power consumption by optimized control of the compressor, PMV, and flow rate. 67% reduction in CO_2 emissions compared with the benchmark model owing to reduced power consumption and water consumption.

●Efficient use of resources
64% reduction in water consumption during washing and drying of 6 kg of laundry owing to adoption of heat pump.

Value factor 1.63

●Quick washing and drying
43% reduction of drying time owing to improved heat pump performance.

●Ease of installation
The height of the machine is 50 mm less than a conventional model. The height of the feedwater inlet is 980 mm, which can accommodate 90% of water taps.



LCD-TV

No. 1 energy-saving product* (42V). In addition to "picture quality" and "recording," "eco" is added to the product lineup as a new standard for selection. All three models (32-, 37-, and 42-inch) use an eco LCD panel. They provide the industry's highest level of environmental performance along with their high picture quality.

REGZA
C8000 series

Environmental Impact Reduction Factor 2.51

●Mitigation of global warming
76% reduction in annual power consumption by optimization of video signals and backlight control.

●Efficient use of resources
71% reduction in weight by adoption of a lightweight stand and lightweight metal parts.

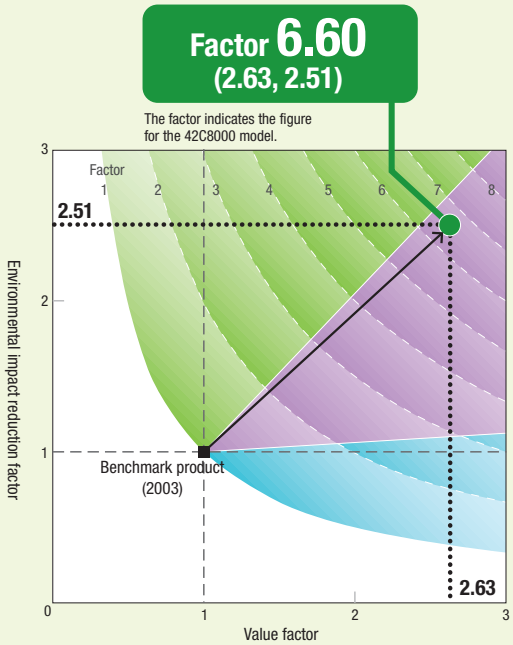
* When sales began in March 2009

Value factor 2.63

●Automatic picture adjustment
Automatic picture adjustment optimized for the viewing environment.

●Video picture realizer
Reproduction of true-to-life picture quality by histogram analysis etc.

●Full HD LCD panel
Over 2 million pixels for high-quality reproduction of high-definition images.



Factor = **Value factor** × **Environmental Impact Reduction Factor**

Bulb-type LED Lamp

LED lamps provide the ideal retrofit replacement of incandescent lamps.

Environmental Impact Reduction Factor **9.56**

Value factor **1.49**

●Mitigation of global warming

Power consumption and CO_2 emissions slashed to 1/11 of those of an incandescent lamp.
(Midget reflector lamp type)

●Easy replacement

Replacement of an incandescent lamp with this low-power-consumption LED lamp is simple because this lamp's cap is the same as that of an incandescent lamp.

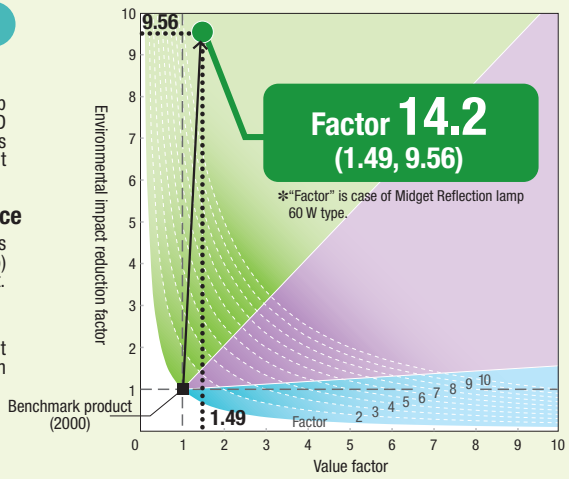
●Long life and low maintenance

Long life of 20,000 hours (13 times longer than an incandescent lamp) greatly reduces the need for replacement.

●Instant Illumination

Turns on quickly like an incandescent lamp and withstands frequent turning on and off.

✻ When sales commenced



Mobile Notebook PC

Equipped with a 128GB SSD. High durability and long-time battery operation. Rated as "Gold" in the U.S. Environmental Protection Agency's EPEAT evaluations (Overseas model name: Protage A600).

dynabook NX

Environmental Impact Reduction Factor **2.08**

Value factor **3.08**

●Mitigation of global warming

Low power consumption owing to the low-voltage unit and system power management.

●Efficient use of resources

Resource saving by miniaturization of substrates, thin LCD/DVD, and thin casing.

●Management of chemicals

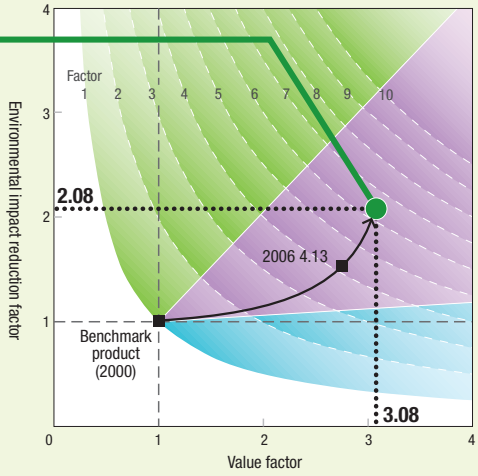
Adoption of mercury-free LED backlight LCD and halogen and antimony-compound-free substrate.

●Enhanced performance

Large-capacity flash memory drive for high-speed data storage. Long-time battery operation.

●High reliability

Principal components protected from external shock and structural design offering protection against liquid infiltration. Fingerprint sensor and TPM security prevent unauthorized access to HDD.



X ray CT system

AquilionONE™ enables scanning one organ –including the heart, brain and others – in just one rotation within 0.35 seconds.

Environmental Impact Reduction Factor **1.89**

Value factor **4.24**

●Mitigation of global warming

Reducing power consumption per examination to a maximum of 25% of the previous level*.
Kinetic energy of rotating parts in Gantry is back to electricity instead of heat.

Aquilion ONE

●High quality images

Enabling same-phase, wide-area detector, which is both isotropic and isophasic.

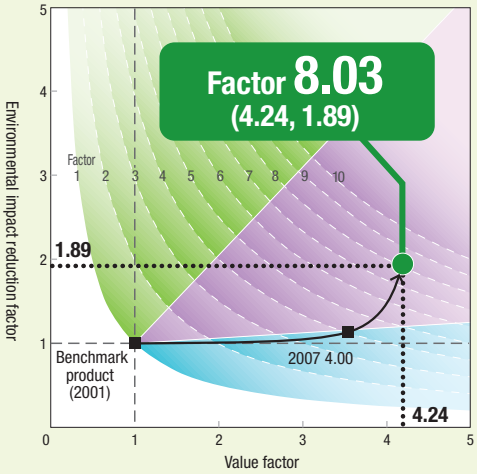
●Shorter examination time

Enabling scanning one organ –including the heart, brain and others – in just one rotation, reducing the examination time to one-tenth or less of previous levels.

●Reduction in radiation dose

Reducing the level of radiation dose during scanning of the heart in one rotation to a maximum of 25% of the previous model.

✻ As compared to Toshiba's products launched in 2001



Major Factor Calculated Products

Home Appliances

1 Refrigerator

Factor **1.93** (2008/2006)

Refrigerator Freezer
<Freshness Meister> GR-A51R
(December 2008)

Benchmark product
GR-W50FB

Environmental Impact Reduction Factor **1.74**

Adoption of R600a refrigerant whose ozone-depleting potential and global warming potential are both low. Reduction of power consumption by 140 kWh/year and 55 kg reduction in CO_2 emissions compared with the benchmark model.

Value factor **1.11**

i-Twin Cooling for high-humidity cool air to keep food fresh. Platinum Plus Unit to keep the interior of the refrigerator clean without letting cool air out. A vegetable crisper is incorporated in the refrigeration compartment at waist height. Universal design makes it easy to see what is inside and easy to access.

2 Microwave Oven with Steam Function

Factor **1.67**

Microwave Oven with Steam Function
ER-F400
(September 2008)

Benchmark product
ER-ESB1

Environmental Impact Reduction Factor **1.01**

Quick startup and great reduction in cooking time owing to 36% increase in output power. Enhanced efficiency owing to the adoption of high-efficiency magnetron and half-bridge inverter.

Value factor **1.66**

Food is cooked quickly and the tastiness is retained. A variety of cooking using steam at temperature ranging from 400°C to 35°C. Spacious far-infrared Stone oven suitable for cooking a feast.

3 Counter-top IH Cooking Heater

Factor **2.41**

Counter-top IH Cooking Heater
UHP-V331S
(September 2008)

Benchmark product
BHP-M46F

Environmental Impact Reduction Factor **1.12**

Heat efficiency of 90% is achieved by the adoption of a high-efficiency inverter and improved heating coil. Auto power-off function achieves zero stand-by power consumption.

Value factor **2.16**

Universal design with large operation buttons and large letters, numbers etc. for easy operation. Improved cooling fan performance for quiet operation (25 dB) at a gentle heat. Counter-top heater equipped with a slide rail door open/close mechanism.

4 Vacuum Pressure IH Rice Cooker

Factor **1.93**

Vacuum Pressure IH Rice Cooker
RC-10VGB
(September 2008)

Benchmark product
RC-10EG

Environmental Impact Reduction Factor **1.61**

Energy-saving-standard achievement rate of 100%.
Annual power consumption of 91.9 kWh/year.

Value factor **1.20**

70% increase in the tasty elements of the rice surface by soaking of rice in water at 30°C. Cooked rice is kept warm and tasty for up to 40 hours. 38% increase in the heat generation owing to boron alloy.

5 Self-ballasted Compact Fluorescent Lamp

Factor **2.20**

Compact Self-ballasted
Fluorescent Lamp "NeoBall Z Real PRIDE"
EFA15EL/10-PD and 2 more model (July 2008)

Benchmark product
EFA14

Environmental Impact Reduction Factor **1.42**

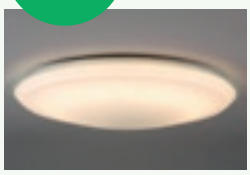
30% reduction in power consumption (10 W). 15% reduction compared with the previous year's model. Rated life is doubled to 12,000 hours, which means reduction in waste. Weight is also reduced. Lead-free inner tube and soldering.

Value factor **1.55**

Replacement of an incandescent lamp with this lamp is simple because it is virtually the same size and shape as an incandescent lamp. 99% ultraviolet protection. Less attraction of bugs. 58% reduction of color fading. Plastic globe reduces the instances of breakage.

6 Fluorescent Ceiling Light

Factor **1.46**



Fluorescent Ceiling Light
"NeoSlim V Digilx"
FVH16700TRUEN and 1 more model
(September 2008)

Benchmark product
FVH11000R

Environmental Impact Reduction Factor **1.06**

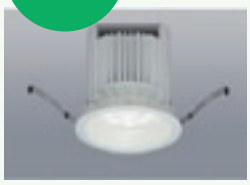
10% reduction in power consumption. Dimming control to suit user preference allows the maximum of 40% reduction. Two lamps achieve illumination equivalent to that of three conventional lamps.

Value factor **1.38**

1-100% dimming function to suit user preference. Morning timer, night timer, on/off timer for security, and fade-in and fade-out lighting function.

7 LED Downlight

Factor **8.24**



High-efficiency LED Downlight
"E-CORE Series" 100 W Type
LEDD-70001W-LS8 and 11 more models
(August 2008)
※ Models for dimming launched in October 2008

Benchmark product
Incandescent downlight
ID7100NB(W)

Environmental Impact Reduction Factor **6.28**

Power consumption and CO_2 emissions slashed to 1/6. Mercury-free LED light source.

Value factor **1.31**

Illuminance equivalent to a 100 W incandescent lamp. The industry's highest luminous efficacy (65 lm/W). Long life of 40,000 hours greatly reduces the need for replacement. 0-100% continuous dimming function to suit user preference.

8 Vacuum Cleaner

Factor **1.98**

Toshiba Cleaner
"Quie" VC-2000X
(September 2008)

Benchmark product
VC-H9D

Environmental Impact Reduction Factor **0.91**

Since the power maintenance mechanism prevents clogging, electric power is not wasted. Use of the automatic eco mode reduces power consumption by about 28% as compared to the previous model. CO_2 emissions are curbed by 22 kg. This model achieves a recycling rate of 91.4% (resin recyclability rate) for its parts.

Value factor **2.18**

Springs are used to hold the motor, reinforcing the vibration control structure. The new sensor and the corner-hugging rollers allow the vacuum cleaner to run nimbly in all directions. Even dust near the wall can be removed in a single pass. The automatic dust removal and air-cleaned filters keep the model powerful at all times.

Factor = **Value factor** × **Environmental Impact Reduction Factor**

9 Home IT System

Factor **3.11**

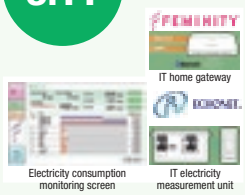
Environmental Impact Reduction Factor **1.06**

Visualization of power consumption allows users to recognize which appliances use a lot of electricity because CO_2 emissions, electricity charge, etc. are indicated. 6%* reduction of CO_2 emissions.

Value factor **2.95**

Electricity consumption, CO_2 emissions, and electricity charges are displayed for each circuit breaker. Capable of batch control of air conditioners, lighting equipment, floor heating, etc. Check the operation of home appliances via a mobile phone and control them from a remote location.

*Target at the time of commercialization.



Feminity with an IT unit for electricity measurement
(timing of introduction: to be announced)

Benchmark product
Feminity without electricity measurement and monitoring functions

10 Residential Fuel Cell

Factor **3.21**

Environmental Impact Reduction Factor **1.90**

40% reduction in CO_2 emissions per year (equivalent to about one(1) ton) for a typical household. Weight reduction of Fuel cell package to 104 kg. Easy to handling.

Value factor **1.69**

Overall efficiency, combining electric efficiency and heat recovery efficiency, of more than 86%. Quiet operation: 40 dB or less. Silence is similar in a library. Annual maintenance; Reduced to visit customer. Emissions consist of only water and CO_2.

Proton-exchange membrane fuel cell for residential application
TM1Z Type
(Introduced in July 2009)

Benchmark product
Conventional fuel cell

11 Heat Pump Water Heating System

Factor **1.74**

Environmental Impact Reduction Factor **1.48**

35% reduction in CO_2 emissions in energy saving mode compared with high power mode. Cardboard packaging.

Value factor **1.18**

High-efficiency operation to heat water using air heat. Functions are selectable by remote controller. Parallel connection is possible for a site where consumes a lot of hot water.

Heat Pump Water Heater using CO_2 Refrigerant ECO CUTE
(left) HPE-455CU (right) HPE-F375CT
(December 2008)

Benchmark product
(left) HPE-FC370T
(right) HPE-450CU

12 Hard Disk Drive

Factor **4.17**

Environmental Impact Reduction Factor **1.03**

Improvement of the energy consumption efficiency to 1/80 compared with the benchmark model. Weight is less than 1/5 that of a 3.5-inch HDD with the same capacity.Halogen-free HDD eliminating the use of chlorine and bromine.

Value factor **4.05**

Storage capacity of 500 GB owing to the improvement of the magnetic head and disk. Plenty of capacity for storage of video and photos on a notebook PC. Reduction of acoustic noise during data seek by 14 dB compared with the benchmark product.

2.5-inch Hard Disk Drive
MK5055GSX
(December 2008)

Benchmark product
MK6015MAP

13 Mobile Phone

Factor **5.25**

Environmental Impact Reduction Factor **0.59**

Efficient resource utilization through miniaturization of parts, reduction of parts count, and high-density packaging. Elimination of the use of the 15 specified substances. Reduced use and substitution of polyvinyl chloride (PVC) and brominated flame retardant (BFR) in principal parts.

Value factor **8.97**

(Sportio) Palm-held, straight type for easy access and quick operation. Compatible with Run & Walk Appli., automatic management of running and walking data is available on the phone.
(823T) Totally coordinated chic design using materials offering excellent texture. Clear-screen LCD for enhanced visibility in sunlight.

Mobile Phone
Sportio (June 2008)
823T (August 2008)

Benchmark product
Toshiba model introduced in 2000

14 LCD Module for Mobile Applications

Factor **1.26**

Environmental Impact Reduction Factor **1.07**

Max. 50% reduction in power consumption because of adjustment of backlight according to the screen brightness. Elimination of the use of mercury because of the adoption of LED backlight.

Value factor **1.18**

Natural reproduction as a result of backlight adjustment according to the screen brightness.

Reduction of Backlight Consumption for Mobile Applications
LTM033DJ20 (May 2008)

Benchmark product
LTM027DG7A
(November 2007)

15 Mobile Notebook PC

Factor **5.11**

Environmental Impact Reduction Factor **1.76**

Low power consumption owing to the low-voltage unit and system power management. Resource saving by miniaturization of substrates, thin LCD/DVD, and thin casing. Adoption of mercury-free LED backlight LCD and halogen and antimony-compound-free substrate.

Value factor **2.90**

Large-capacity flash memory drive for high-speed data storage. Long-time battery operation. Principal components protected from external shock and structural design offering protection against liquid infiltration. Fingerprint sensor and TPM security prevent unauthorized access to HDD.

dynabook SS RX2
(September 2008)

Benchmark product
dynabook2650

16 High-definition Recorder

Factor **3.42**

Environmental Impact Reduction Factor **1.19**

Even the high-speed start-up standby mode achieves a low power consumption level of 3.4 W. The thin model design reduces the weight by about 37% and volume by about 43%, contributing to resource saving. The recyclability of resin materials is increased by indicating resin materials when 25 g or more are used.

Value factor **2.88**

The XDE high-precision technology enables DVDs to be played with image quality as approaching that of high-definition images. The MPEG4 AVC technology allows users to record hours upon hours of full high-definition images on the hard disk drive.

High-definition Recorder
"Vardia" RD-S303
(November 2008)

Benchmark product
RD-X1

Major Factor Calculated Products

Office and Retail Facility

1 Multifunctional Digital Color Systems

Factor 1.76

Environmental Impact Reduction Factor 1.30

Reduce CO_2 emissions by high-efficient fusing engine and low-temperature fusing toner. Use of recycled plastics. Reduce harmful substances by halogen-free and chromium-free materials.

Value factor 1.35

Large color LCD with touch panel enables easy operation. High-speed printing is to match business needs. High speed document scanner enables fast scanning for high volume documents.

e-STUDIO 6530C (June 2008)

Benchmark product FANTASIA22i

2 Decolorable Toner

Factor 3.46

Environmental Impact Reduction Factor 3.53

Contribution to CO_2 emissions by reducing paper consumption. 60% reduction* in office paper purchase. Reduced cost.

Value factor 0.98

No need of special paper. Plain paper can be used. Possible to write on paper by using dedicated decolorable pens and markers. Use of blue toner allows easy sorting of paper for reuse. Contribution to enhancement of employees' environmental awareness and environmental education.

Decolorable Toner "e-blue" e-STUDIO207 (Introduced in May 2007)

Benchmark product Conventional toner

* Results at Toshiba

3 Projector

Factor 2.64

Environmental Impact Reduction Factor 0.94

49% improvement in brightness/power efficiency by selection of the optimum optical unit. 90% reduction in the weight of packaging materials by substituting packaging materials with a carrying case. Halogen-free printed circuit board.

Value factor 2.81

16% reduction in noise (dB) owing to enhanced cooling performance. Vivid color rendering by Toshiba's unique color compensation technology. Equipped with fully automatic keystone correction for simple setting.

Projector TLP-X100 (October 2008)

Benchmark product TLP670

4 PC Server

Factor 3.46

Environmental Impact Reduction Factor 1.34

40% reduction in footprint compared with the use of an external UPS owing to built-in battery. The battery life is 5 years whereas an external UPS must be replaced every two years. Use of nickel-metal-hydride battery instead of battery containing lead.

Value factor 2.57

Power supply with built-in battery for data protection during power outage and instantaneous power failure. Intelligent battery for automatic start-up and shut-down.

MAGNIA LiTE41S Battery Backup Model SYU4090F SYU4090G SYU4090H SYU4090J (September 2008)

Benchmark product SYU3190A

5 Disk Storage System

Factor 3.63

Environmental Impact Reduction Factor 2.20

Energy consumption efficiency: 0.11 W/GB (standard value: 0.63 W/GB). Suppression of power consumption by eliminating virtually allocated but unused disks. 54% reduction in CO_2 emissions as a result of reduced number of parts and revised configuration.

Value factor 1.65

Improvement of throughput (Fourfold performance increase over the previous model). Easy planning of volume capacity. Data Backup by remote replication.

ArrayFort AF7500 MKC0264A (August 2008)

Benchmark product MKC0151A

6 Electronic Cash Register

Factor 2.58

Environmental Impact Reduction Factor 0.90

LCD backlight off and other functions reduce standby power consumption by 15%. The foldable structure of the LCD reduces the size of packaging materials by 22%. Halogen-free materials are used for the printed circuit boards.

Value factor 2.88

The model has an 8.5-inch large color liquid crystal display to increase visibility and operability. A color-coded keyboard based on a universal design is used to make the register easy to use. MA-2055 can be connected to a LAN, an automatic change machine, a stationary scanner, or other systems.

Scanning POS register MA-2055 (January 2008)

Benchmark product MA-1855

7 Checkout Scanner

Factor 1.22

Environmental Impact Reduction Factor 1.07

8% reduction in standby power consumption owing to lower-voltage circuit element. Use of recycled plastic for the duster tray. Adoption of halogen-free material for printed circuit board.

Value factor 1.14

The industry's first voice guidance function for easy operation. Adjustable scanner angle for improved reading performance. Enhanced ease of storing with storable cable and duster tray.

Smart Line Scanner LS-790T (June 2008)

Benchmark product LS-780

Factor = **Value factor** × **Environmental Impact Reduction Factor**

8 Elevator

Factor **1.33**

Elevator
SPACEL-EX
(Introduced in July 2006)

Benchmark product
SPACEL

Environmental Impact Reduction Factor **1.01**

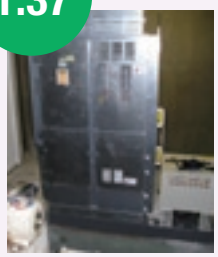
Life 8 times longer than that of the previous model and 10% reduction in lighting power consumption. Elevator floor is made of resin that does not generate harmful gases when incinerated. Abolition of use of lead for wire rope terminals.

Value factor **1.32**

Prevention of locking in and provision of information for enhanced safety and security. "Attentive" door system to ensure safety during getting in and out of the elevator. Advanced universal design for ease of use.

9 Elevator Refurbishment Service

Factor **1.37**



Elevator Control Board Refurbishment
CV260RN
(August 2008)

Benchmark product
CV16

Environmental Impact Reduction Factor **1.05**

Reduction in power consumption due to the change from the conventional AC feedback control to inverter control. Possible to perform refurbishment work without removing the existing motor, hoist, car, and platform facilities. Elimination of unnecessary replacement for efficient utilization of existing resources.

Value factor **1.31**

Reduced time required for transport and replacement work because of division of a control panel into compact units. Change from relay system to microcomputer controlled system resulted in enhanced reliability because of fewer replacement parts. Remote surveillance for 24 hours×365 days.

10 LED Security Light

Factor **8.96**

High-efficiency LED Crime Prevention Light
"E-CORE Series"
LEDK-70941-LS8 and 3 more models
(November 2008)

Benchmark product
HB-10055HC

Environmental Impact Reduction Factor **3.38**

70% reduction in power consumption and CO_2 emissions. The optimum design to secure the distance of 35 m between lamps* to minimize the number of lamps required. Mercury-free light source.

Value factor **2.65**

Possible to lower the electricity contract category for cost efficiency. Rated life of 40,000 hours means no need for replacement for 10 years. Easy installation and difficult to break.

* Class B of the illumination recommended by the Japan Security Systems Association.

11 Retail facility and Office Air-Conditioner

Factor **4.24**

Toshiba Air Conditioning
for LightCommercial Use
Super Power Eco Cube
Indoor unit: AIU-AP805H
Outdoor unit: ROA-AP805HS
(December 2008)

Benchmark product
Indoor unit: AIU-J806HG (1997)
Outdoor unit: ROA-J804HT (1997)

Environmental Impact Reduction Factor **2.06**

57% reduction in annual power consumption compared with the conventional model (a rated model of Toshiba). 1.3 tons/year reduction in CO_2 emissions compared with the conventional model. Adoption of lead-free soldering and chromium-free steel plating.

Value factor **2.05**

Automatic cleaning to maintain energy-saving performance for a long time. New flaps for omnidirectional airflow contribute to comfort with minimal uneven temperature distribution. The monitor displays the status during trial operation for simple, quick installation.

12 Heat Pump Water Heater for Commercial Use

Factor **2.81**

Heat Pump Water Heater for Commercial Use
"Hot Power Eco Ultra-BIG"
(July 2007)

Benchmark product
Gas boiler in the same class

Environmental Impact Reduction Factor **1.87**

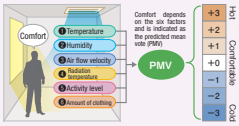
While combustion-type water heaters are the mainstream, this high efficient heat pump water heater halves CO_2 emissions and the running cost is one third that of a conventional water heater.

Value factor **1.50**

Up to 40 tons of hot water consumption per day. Also capable of responding to the instantaneous demand for a large amount of hot water. Control unit with LCD touch panel for integrated control of the entire system. Greatly reduced piping work. 25% reduction in the footprint.

13 Control of HVAC

Factor **1.15**



Neuro-PMV Control
(April 2000)

Benchmark product
Before introducing the system

Environmental Impact Reduction Factor **1.13**

10-20% reduction of energy consumption by reduced consumption of cool water, hot water and fan power and prevention of excessive cooling and heating. Control is executed by software. Minimization of hardware means resource saving in the manufacturing phase.

Value factor **1.02**

Air-conditioning control based on Predicted Mean Vote (PMV) to maintain a comfortable indoor environment.

14 Air-cooled Chilling Unit

Factor **4.00**

Air-cooled Super Flex Modular
Chiller, Type-V
RUA-TBP/S series
(October 2008)

Benchmark product
Absorption chiller TAG-C010 (2000)

Environmental Impact Reduction Factor **1.83**

50% reduction in CO_2 emissions owing to improved efficiency. 50% reduction in weight resulting in reduced amount of materials used. 98.4% of the materials are recyclable.

Value factor **2.18**

50% reduction in footprint owing to air cooling and space-saving modular structure. Quick installation and reduced transfer power due to variable flow rate control according to the load.

Major Factor Calculated Products

Social Infrastructure (Hospital/Plant/Transportation)

1 Diagnostic Ultrasound System

Factor **2.23**

Diagnostic Ultrasound System
"Aplio ARTIDA" SSH-880CV
(February 2008)

Benchmark product
SSA-770A

Environmental Impact Reduction Factor **1.06**

30% reduction in energy consumption as a result of reduced examination time owing to innovative imaging technology. A common platform enables use of many conventional mechanical parts (40%). 10% reduction in non-recyclable items as a result of fewer printed circuit boards owing to high-integration technology.

Value factor **2.11**

Improved real-time 3D imaging performance owing to the original technology. Efficient diagnosis of cardiovascular diseases realized through the use of novel algorithms. Major reduction in the examination time due to the use of innovative transducers.

2 Biochemical Analyzer

Factor **1.77**

Biochemical Analyzer
TBA-c16000
(Introduced in January 2006)

Benchmark product
TBA-200FR

Environmental Impact Reduction Factor **0.74**

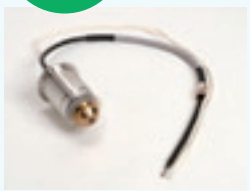
Test efficiency is enhanced through sample carry-over reduction technology. Use of blood collection tubes is halved for resource saving. 33% reduction in reagent consumption due to reduction of the minimum reaction volume.

Value factor **2.39**

The world's lowest impact on the carry-over of samples by a dispensing nozzle ensures data reliability. One operator can perform continuous biochemical and immunoassay measurements. Optimum operation is possible, such as the fast provision of biochemical data with high priority.

3 X-ray Tube Assembly

Factor **3.15**



Oil-free X-ray Tube Assembly for Industrial Use
AFX-200RA-Pd
(April 2008)

Benchmark product
None (Oil-cooled X-ray Tube)

Environmental Impact Reduction Factor **1.01**

3.9 kg reduction in the product weight and 20.6 kg reduction in CO_2 emissions compared with conventional oil-cooled X-ray tube as a result of reduced use of materials. Reduced environmental risks during use and disposal because of the elimination of the use of insulation oil, which is not readily biodegradable.

Value factor **3.14**

4 times greater throughput owing to enhanced X-ray output power. As compact as a conventional unit despite high performance.

4 Industrial Video Camera

Factor **3.74**

Industrial Video Camera
CMOS High Definition Camera IK-HR1D
(October 2008)

Benchmark product
IK-TF9C

Environmental Impact Reduction Factor **2.37**

13% reduction in power consumption owing to the adoption of a CMOS sensor. 35% reduction in parts count and 12% reduction in weight.

Value factor **1.58**

The smallest and the lightest among models capable of Full HD output (as of September 2008). Possible to output 60 frames/sec to an ordinary Full HD monitor. Low-noise processing and 6-color matrix function by the novel signal processing.

5 Rechargeable Battery

Factor **2.27**

SCiB™, Rechargeable Battery
TBP series (battery module)
(January 2009: Commercialization)

Benchmark product
Electric bicycle with LIB battery

Environmental Impact Reduction Factor **1.66**

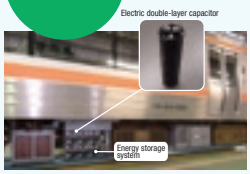
Battery for eco products, such as electric bicycles, electric motor bikes, and electric cars. A long life of 6,000 charge-discharge cycles leads to reduction of waste.

Value factor **1.36**

Excellent safety: Minimal risk of thermal runaway due to short circuit caused by physical stress.
Long life: Capacity loss less than 10% even after 6,000 charge-discharge cycles.
Rapid charging: 90% of the capacity can be charged in around 5 minutes.

6 Energy Storage System for Rolling Stock

Factor **1.99**



Energy storage system
(electric double-layer capacitor (EDLC))
COB015-A0
DC/DC converter system
COV068-A0
(Timing of Introduction to be announced)
* Jointly developed with Central Japan Railway Company and test run in January 2005.

Benchmark product
Suburban commuter train

Environmental Impact Reduction Factor **1.02**

8% of inverter regenerated energy (energy generated during braking) is absorbed and recycled, amounting to 2% of the rolling stock acceleration energy.

Value factor **1.94**

50% of the energy previously consumed by the mechanical brakes of a motor-powered train is recycled. Reduced brake abrasion lengthens the life of parts.

7 Traction Motor for Railway Vehicles

Factor **2.32**

Fully closed permanent magnet synchronous motor (PMSM)
(Delivered in September 2007)

Benchmark product
Self-ventilated traction motors

Environmental Impact Reduction Factor **1.60**

Use of permanent magnets reduces power consumption by about 20% (as compared to Toshiba's previous model). The fully closed structure prevents the inside of the motor from becoming dirty and damaged, reducing maintenance work.

Value factor **1.45**

Use of permanent magnets increases the efficiency of the motor by about 5% as compared to its predecessor. The small amount of heat generated reduces the need for heat radiation, allowing the model to be made smaller. This large-capacity motor can even be installed in a narrow space. The fully closed system blocks noise from inside, lowering the noise level to about 6 dBA (as compared to Toshiba's previous model).

Factor = Value factor × Environmental Impact Reduction Factor

Social Infrastructure (Electric Power System/Parts)

8 Turbine System

Factor **1.55**

Advanced ultra-super-critical steam turbine system
(timing of introduction: to be announced)

Benchmark product
Steam turbine system for pulverized-coal-fired power plant

Environmental Impact Reduction Factor **1.22**

Dramatic energy saving owing to a 20% improvement in thermal efficiency. The turbine system is fueled by coal, an abundant resource, which it uses very efficiently to generate power.

Value factor **1.27**

High-temperature steam improves thermal efficiency, dramatically reducing fuel consumption. Use of high-temperature-resistant materials enables use of high-temperature steam. Compact system owing to reduced fuel consumption.

9 Ceramic Ball Bearings for Wind Power Generator

Factor **2.51**

Ceramic Bearing ball for Wind Turbine Bearing

Ceramic Bearing ball for Wind Turbine Bearing

Benchmark product
Steel ball

Environmental Impact Reduction Factor **1.02**

Reduction in rotational energy loss of ball bearings. Resource saving as a result of longer ball bearing life (3 times longer). Reduction in waste of worn-out bearings because our Ceramic Bearing Balls do not require frequent replacement. Environmentally beneficial reduction in the amount of bearing grease required.

Value factor **2.47**

Easy maintenance by highly durable and reliable generator bearing system which is substantially free from electric corrosion because of ceramic balls' good insulation property.

10 Protection Relay

Factor **2.14**

Protection Relay D4 Series
(September 2007)

Benchmark product
D3 Series

Environmental Impact Reduction Factor **1.51**

60% reduction in power consumption owing to reduced number of PCBs and low-power consumption design. 30% reduction in the number of printed circuit boards owing to adoption of high-performance CPU and high-capacity FPGA.

Value factor **1.42**

Enhanced reliability owing to a reduced number of printed circuit boards and suppressed temperature increase. Improved maintainability owing to enriched guidance functions.

11 Remote Terminal Unit for Distribution Automation Systems

Factor **2.51**

Remote Terminal Unit for Distribution Automation Systems
TOSDAC-D24E
(February 2008)

Benchmark product
TOSDAC-D23E

Environmental Impact Reduction Factor **0.81**

Use of lead-free PCBs (partial use). Reduced use of hexavalent chromium and other hazardous substances. Change of the casing material from Sheet Moulding Compound to recyclable polycarbonate.

Value factor **3.08**

Equipped with distribution line fault detection, sampled-data recording, and quantitative measuring functions. Enhanced maintainability owing to IT.

12 Switchgear

Factor **4.88**

Solid Insulated Switchgear
"SIS" KA-20M25
(July 2002)

Benchmark product
"C-GIS" GFB-20M25

Environmental Impact Reduction Factor **2.04**

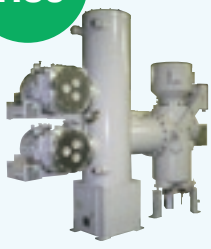
62% reduction in CO_2 emissions as a result of elimination of SF_6 gas, reduction of the parts count, and weight reduction. 50% reduction in mass, 40% reduction in volume, and 50% reduction in parts count.

Value factor **2.40**

Elimination of SF_6 gas by the combination of vacuum and epoxy mold. Compactness makes it suitable for transportation by elevator. Great reduction in the parts count owing to a newly developed operating mechanism with simplified structure. So, inspection is simple.

13 Gas-insulated Switchgear

Factor **1.80**



145 kV gas-insulated switchgear (GIS)
G3A-b
(Introduced in October 2008)

Benchmark product
G3A-a

Environmental Impact Reduction Factor **1.18**

25% reduction in the consumption of SF_6 gas compared with the benchmark model owing to down sizing. Down sizing and less weight led to reduced consumption of raw materials and a 20% reduction in CO_2 emissions.

Value factor **1.52**

Downsizing slashes the space required for installation. Operation panel and inspection unit are almost entirely positioned on the front of the switchgear for enhanced operability and maintainability. As construction of the foundation for the housing involves less work, projects can be executed faster.

Environmental Systems and Technologies

High-concentration Organic Wastewater Treatment Facility

●Energy-saving wastewater treatment system that helps reduce running costs and environmental load

Social Infrastructure Systems Company, Toshiba Corporation

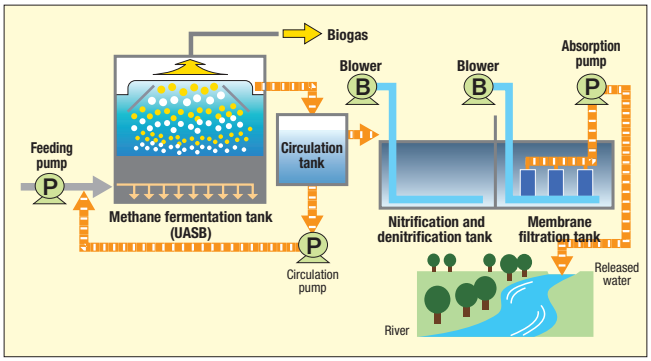
In the past, general wastewater treatment in the food industry (and other industries in which organic compounds have a large environmental load) has been the activated sludge method, which uses aerobic microorganisms (activated sludge) to dissolve organic compounds through oxidation reactions. While this method is simple in structure, it has the defects to need high maintenance costs. One example is that the blower, which sends air to the treatment tank, consumes a large volume of electric power and another is the surplus sludge, which is generated in this process, takes high costs in treatment.

In order to cope with this problem, Toshiba developed and commercialized a unique UASB* methane fermentation and treatment system. This system has been developed based on an upflow anaerobic sludge blanket (UASB) reactor. UASB reactors are well-known of all equipment that makes methane fermentation. Methane fermentation systems use anaerobic microorganisms to dissolve organic compounds in water into biogas. This system has various excellent characteristics: low power consumption due to no need for aeration power, the ability to reduce industrial waste costs due to the small volume of surplus sludge generated, the ability to reduce the installation area because the high concentration of bacterial cells can make the reaction space smaller than aerobic equipment, and a unique two-stage UASB methane fermentation system, which achieves an even higher BOD removal rate.

To date, this system has been applied to wastewater treatment at many food manufacturing plants, including potato starch and delicatessen production plants. Toshiba will continue to offer optimized systems that meet customers' diverse needs for wastewater treatment.

*UASB: Upflow anaerobic sludge blanket

One of Japan's largest high-concentration organic wastewater treatment facilities (UASB methane fermentation, nitrification and denitrification, membrane-filtrated activated sludge, and biological desulfurization) delivered to a Hokkaido JA Shihoro potato starch plant



The example of wastewater treatment flowsheet

Biomass Carbon Production System

●Effective use of unused woody biomass" contribution to reduction of fossil resource and CO_2 emission

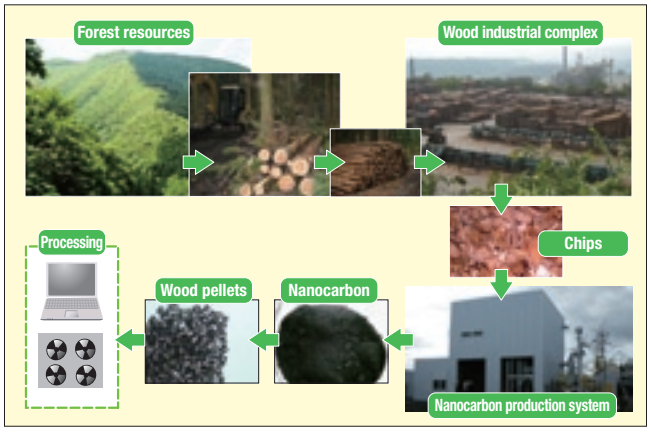
Social Infrastructure Systems Company, Toshiba Corporation

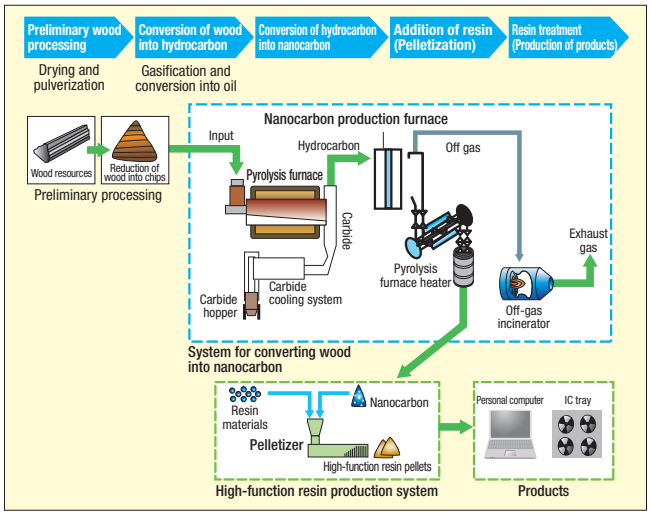
Nanocarbon is known as great additive which can improve strength, conductivity and heat transfer of materials such as plastic, ceramic and metal. Various applications of nanocarbon are being developed and it is expected that its demand will increase in the future.

Toshiba developed the nanocarbon production system, which apply woody biomass as raw materials. Since it uses "unused woody biomass", this system can contribute to the reduction of CO_2 by reduction of the amount of fossil resources and the revitalization of regional forestry.

This system was chosen as a "Project for creating new business utilizing forest resources" for the call of the Forest Agency of Japan. Under this project, Toshiba constructed a pilot plant in Hita City, Oita prefecture, in February 2009.

In the same time, we will also work the product development of nanocarbon that it can be provided to the market in the short time after production technology would be established.





Remediation System of PCB Contaminated Soil

●Purifying contaminated soil safely and reliably to contribute to the creation of a social environment that enables people to live with a sense of security

Geosteam Corporation

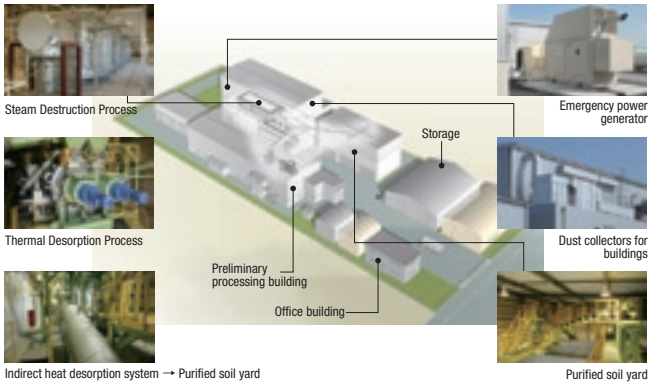
In recent years, problems of polluted soil containing polychlorinated biphenyl (PCB) have been revealing all over Japan, and technology and facilities that are enable to purify PCB-contaminated soil safely and reliably are urged to be developed.

Geosteam Corporation, which established in June 2008 and started operation in August, is the first company specializing in PCB-contaminated soil remediation in Japan. It has the largest purification facilities*1 for soil remediation which can process 11,000 ton per year. The Geosteam™ technology*2 is a soil remediation technology for degrading PCB, dioxins and residual agricultural chemicals which have been recognized by the Ministry of Environment and the Ministry of Land, Infrastructure, Transport and Tourism in Japan. The purified soil can be used as general soil. We intend to spread this business meeting the needs of market with the safe and reliable soil remediation technology and contributes to people's life and environment.

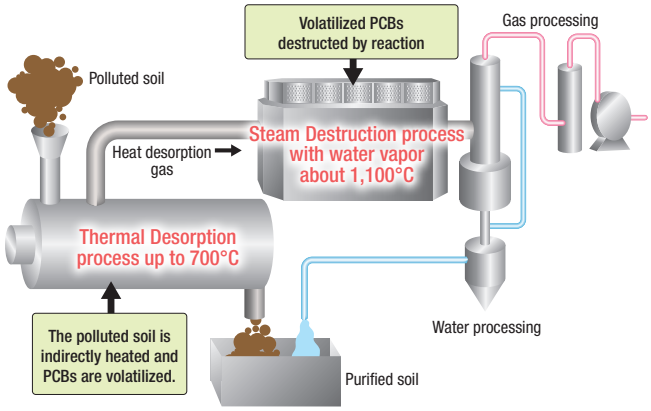
*1 As of July 2009 (as researched by Toshiba)

*2 The Geosteam™ technology consists of two processes: removing PCB and other pollutants from soil by heating the soil in order to evaporate the pollutants (indirect heat desorption) and using steam to dissolve the pollutants evaporated from the soil (water vapor reduction), thus making the pollutants harmless. In this technology, all processes from the removal of pollutants to their dissolution are performed in a series of systems without handling hazardous solvents and chemicals. This prevents pollutants from being discharged outside the systems. Geosteam is a registered trademark of Toshiba Corp.

■ Purification facility for soil polluted by PCBs



■ Overview of treatment technology



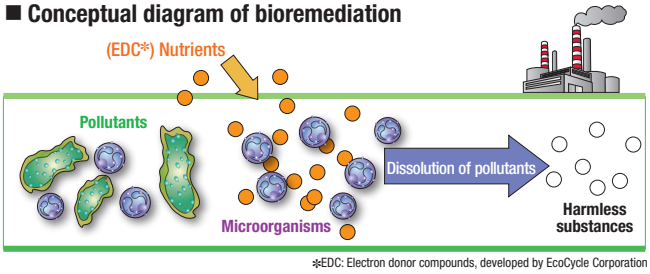
Groundwater Purification Technology Using Bioremediation

●Initiative for developing technology for purifying groundwater using microorganisms

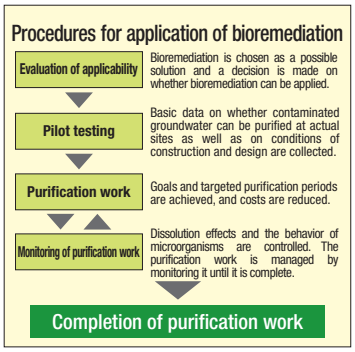
Term Corporation

The conventional technology for purifying groundwater contaminated with volatile organic compounds (VOC) was the groundwater pumping and treatment method. This method, however, requires a long time before purification is completed, and operating costs also swell, meaning that acceleration of the purification process is the main issue at hand. As one of the solutions to this issue, Term is developing technology for purifying contaminated groundwater through bioremediation. This technology involves providing useful microorganisms living in the soil with nutrients to invigorate them, thus enabling them to dissolve pollutants. It does not require large equipment as compared to the existing method (activated charcoal adsorption) and can even be applied to plants currently in operation. It also keeps purification costs low and shortens the purification process. There are four important points to this technology: technology for evaluating biological applicability in advance, the establishment of evaluation technology through analysis of hydrogeological structure, the development of methods for injecting and spreading nutrients efficiently, and the establishment of a monitoring method for processes leading up to the completion of purification. Currently, Term is monitoring the performance of this technology at customers' sites in Fukushima and Ibaraki Prefectures, where pilot testing and the bulk of the construction work have been completed. The company continues to accumulate know-how on basic technology at the sites where it constructed purification facilities using this technology, and it is determined to produce satisfactory results in order to apply the technology to other sites in the future.

■ Conceptual diagram of bioremediation



*EDC: Electron donor compounds, developed by EcoCycle Corporation




Well injection method (natural injection)

Chapter.4

Eco Processes

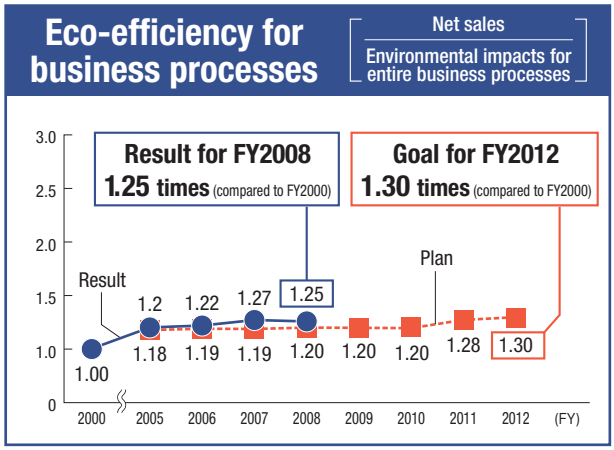
Environmental Considerations in Business Operations

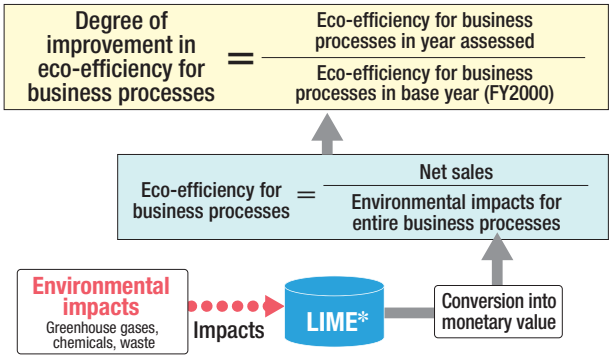
Toshiba Group is working to reduce the impacts of its business operations on the global environment. This section reports Toshiba Group's initiatives for reducing such environmental impacts from three perspectives: mitigation of global warming, management of chemicals, and efficient use of resources.

Summary of activities in FY2008

Increasing eco-efficiency for business processes by 1.3 times in FY2012

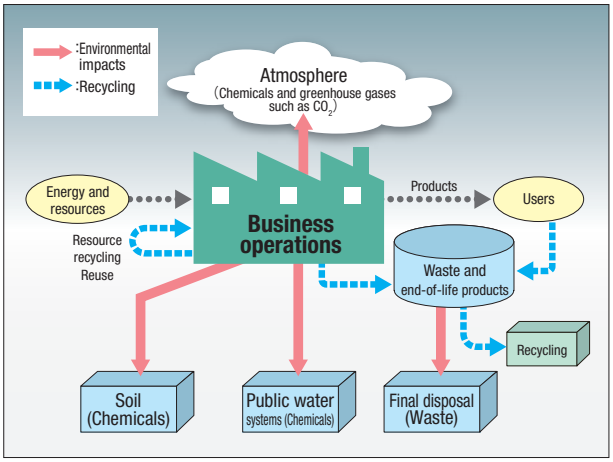
The goal of Toshiba Group is to increase eco-efficiency for business processes (an indicator for comprehensively evaluating the impacts of its business operations on the environment) by 1.3 times compared to the FY2000 level by FY2012. In order to achieve this goal, Toshiba Group set eight specific targets in its Fourth Voluntary Environmental Plan (see p. 12 for details). In FY2008, it achieved the goal, increasing the eco-efficiency for business processes by 1.25 times and surpassing the goal of 1.20 times.





*LIME: A Japanese version of the environmental assessment method based on damage calculations, developed by the National Institute of Advanced Industrial Science and Technology's Research Center for Life Cycle Assessment to integrate various environmental assessment methods.

■ Environmental impacts resulting from business operations



Striving to ensure that greenhouse gas emissions peak and then decline

●Long-term vision for reducing total emissions and Japan's medium-term target

The Fourth Assessment Report published by the Intergovernmental Panel on Climate Change (IPCC) in 2007 stated that there is no doubt about the existence of global warming and that there is a strong possibility that rises in temperatures worldwide is the result of growth in greenhouse gas emissions. At a Cabinet meeting in July 2008, the Japanese government adopted the Action Plan for Achieving a Low-carbon Society in which it shared the international goal of halving the world's greenhouse gas emissions by 2050 and announced the long-term goal of reducing Japan's greenhouse gas emissions by 60-80% compared to the current level by the same year. In June 2009, it worked out the medium-term goal of reducing Japan's greenhouse gas emissions by 15% compared to the 2005 level (8% compared to the 1990 level) in 2020 by (1) working to attain the long-term goal, (2) ensuring that all major emitters worldwide participated in the next framework for reducing greenhouse gas emissions, and (3) making environmental protection consistent with economic growth. There is a strong movement under way to realize a low-carbon society.

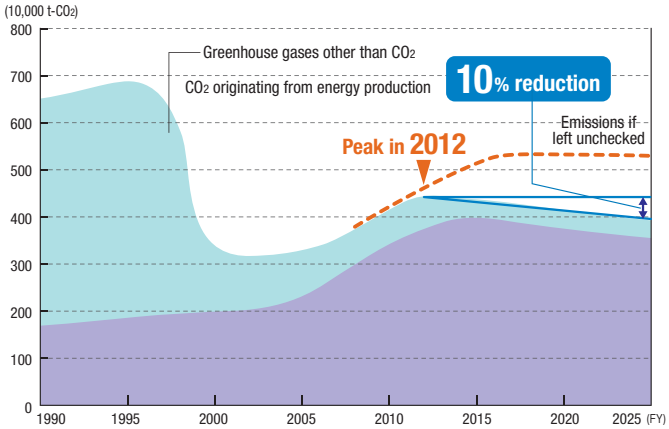
●Toshiba Group's initiatives

In 1990, greenhouse gases other than CO_2, which were used to insulate heavy electric machinery and produce semiconductors, accounted for more than 70% of Toshiba Group's greenhouse gas emissions. From 1995 to 2000, it put much effort into taking measures such as the collection and reuse of these greenhouse gases and, as a result, successfully reduced its emissions to one third of the previous level or less. On the other hand, CO_2 emissions originating from energy production are rising as business expands, and greenhouse gas emissions are expected to grow in the future because Toshiba Group plans to build new factories mainly in the semiconductor business.

In order to reduce greenhouse gas emissions, Toshiba Group will step up its efforts to take energy-saving measures such as constructing clean rooms that approach simulated effective energy-saving designs, working with equipment manufacturers to conserve energy consumption for manufacturing equipment, and introducing high-efficiency machinery and tools. It will also work proactively to install systems to remove greenhouse gases used in the production of semiconductors and liquid crystal displays and improve the removal efficiency of such systems.

As its business expands, Toshiba Group aims to reduce the increasing greenhouse gas emissions to the maximum extent possible. Specifically, it strives to ensure that such emissions stop increasing and peak at 70% of the 1990 level or less by FY2012 and then reduce such emissions by 10% compared to the FY2012 level by 2025.

■ Changes in total greenhouse gas emissions for Toshiba Group*



* The scope of reporting includes Toshiba Group companies in Japan and abroad, as well as manufacturing/sales processes at both production and non-production sites. Figures for the period up to FY2007 indicate actual results, and those for FY2008 onward show planned figures. The planned figures are based on expected CO_2 emission coefficients of electricity for the period up to 2020 (as assumed based on the plan for increasing the zero-emission power source rate, which was described in the Japanese government's "Action Plan for Achieving a Low-carbon Society (July 2008)"). "Emissions if left unchecked" means emissions expected if no reduction measures are taken. Greenhouse gases other than CO_2 include methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

■ Initiative in business operations

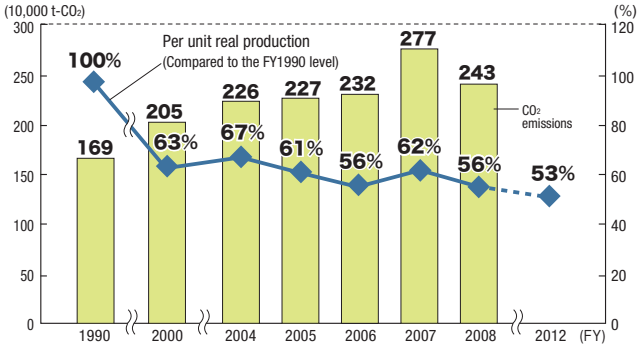
	Initiatives for reducing environmental impacts	Principal measures
Mitigation of global warming	• Reducing energy consumption and the volume of greenhouse gases used • Introduction of energy-efficient processes and equipment • Shift to low-carbon energy and gases with low greenhouse effects	• Compliance with energy management standards and elimination of waste • Reform of production and manufacturing processes • Reducing CO_2 emissions through use of alternative fuels • Utilization of renewable and new energy • Introduction of high-efficiency machinery and tools • Thorough energy conservation in clean rooms • Installation of systems for removing greenhouse gases • Use of alternatives to greenhouse gases
Management of chemical substances	• Pre-use risk evaluation for hazardous substances • Reducing the volume of chemicals used and using alternatives • Appropriate management of substances used	• Preliminary review of chemical substances • Promotion of environmental measures at priority facilities • Reform of production and manufacturing processes • Installation of removal systems in discharge processes • Use of alternatives to chemical substances
Efficient use of resources	• Reducing the total volume of waste generated • Reuse of waste • Collection and recycling of end-of-life products • Reducing the volume of water received and promoting recycling and reuse	• Reducing components used and byproducts resulting from processing • Reform of production and manufacturing processes • Thorough sorting of waste • Development of new uses for waste when it is reused • Promotion of recycling and reuse of used water • Recycling of end-of-life products: Compliance with local laws and expansion of target areas (countries and states)

Mitigation of Global Warming

Reduction in CO_2 emissions originating from energy production

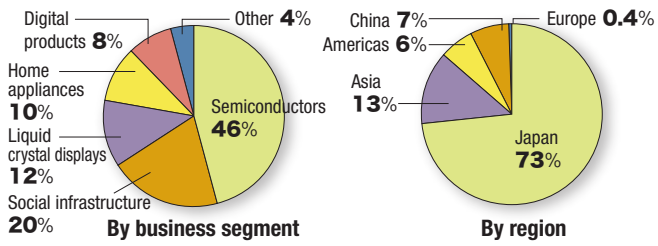
Toshiba Group is working to introduce energy-efficient processes and equipment in order to reduce CO_2 emissions originating from energy production per unit production by 45% by FY2010 and 47% by FY2012, to 53% of the FY1990 level. In FY2008, it reduced CO_2 emissions originating from energy production by 12% compared to the previous year. As a result, it reduced CO_2 emissions per unit production by 44%, achieving the target for the year.
It is expected that more energy will be used in the future as business expands, mainly in the area of semiconductors, but Toshiba Group aims to attain its goals by making further efforts to apply energy-saving measures.

■ Changes in CO_2 emissions originating from energy production and changes per unit production



The CO_2 emission coefficient for fuel and heat is based on the Act on the Rational Use of Energy and the Act on Promotion of Measures to Cope with Global Warming (Figures provided by suppliers are used for the unit calorific value of city gas). That for electricity in Japan is based on data from the Federation of Electric Power Companies of Japan (power station side) (3.35 t-CO_2/10,000 kWh in 2008). That for overseas electricity is based on data from reports of the Japan Electrical Manufacturers' Association.

■ Breakdown of CO_2 emissions originating from energy production (FY2008)

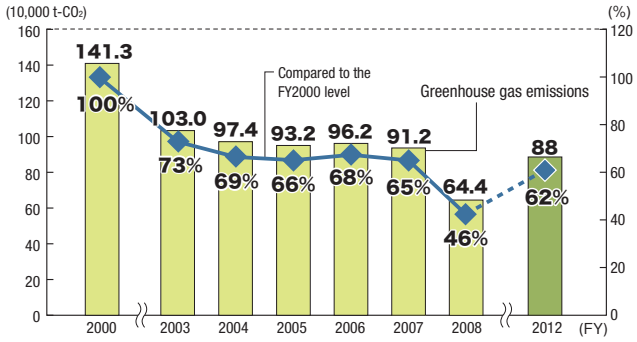


Reducing emissions of greenhouse gases other than CO_2

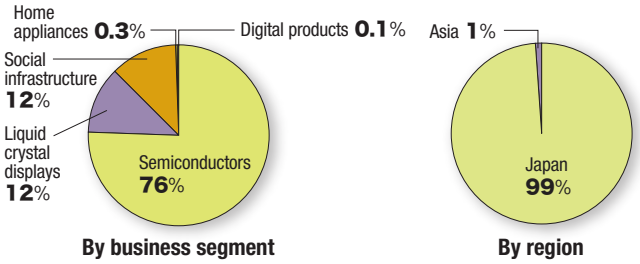
Toshiba Group aims to reduce the emissions of six types of greenhouse gases covered by the Kyoto Protocol* by 36% by FY2010 and 38% by FY2012, to 62% of the FY2000 level. In particular, it is taking measures to replace SF_6, PFC, and HFC, all of which have high greenhouse effects, with gases with low global warming potential and introduce greenhouse gas removal systems into existing and newly built production lines.
In FY2008, emissions of greenhouse gases other than CO_2 declined substantially because Toshiba Group accelerated the installation of greenhouse gas removal systems in existing production lines and because there was a decrease in the production of semiconductors and liquid crystal devices. It is expected that emissions of these gases will grow next year and thereafter as business expands, but Toshiba Group aims to attain the goals by installing greenhouse gas removal systems and improve the efficiency of greenhouse gas removal.

* The six types of greenhouse gases whose emissions must be reduced under the Kyoto Protocol are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

■ Changes in emissions of greenhouse gases other than CO_2



■ Breakdown of emissions of greenhouse gas other than CO_2 (FY2008)



Example 1 Energy conservation at a semiconductor factory

Oita Operations, Toshiba Corporation

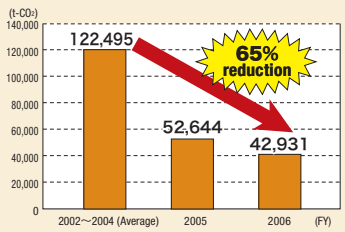
Clean rooms at semiconductor factories consume a large amount of energy for air-conditioning throughout the year. The Oita Operations substantially improved the overall efficiency of air-conditioning mainly by increasing the efficiency of refrigeration equipment and supplementary machine systems and establishing energy-saving automatic control systems. Through these measures, the factory reduced annual CO_2 emissions by 12,291 tons.

High-efficiency inverter refrigerator

Example 2 Reducing emissions of greenhouse gases (other than CO_2)

Fuchu Operations, Toshiba Corporation

The Fuchu Operations had used SF_6 (whose global warming potential is 23,900 times as high as CO_2) for vacuum valve testing systems, but reduced greenhouse gas emissions by 65% by developing a testing system that uses an alternative to the greenhouse gas. It was recognized by the Tokyo metropolitan government as an excellent business site for this accomplishment.



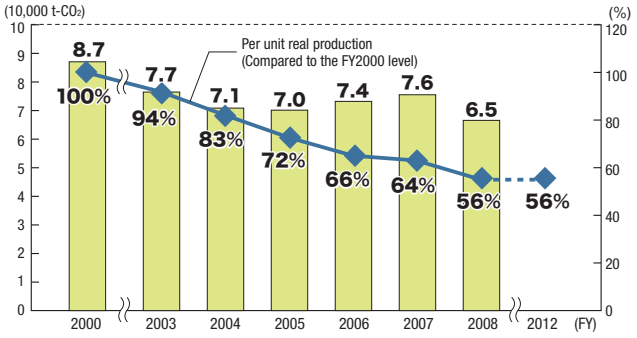
Changes in CO_2 emissions from Fuchu Operations

Reducing CO_2 emissions associated with product logistics

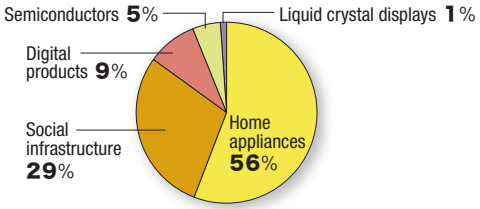
Each company of Toshiba Group is working to save energy during product logistics in collaboration with Toshiba Logistics Corporation and aims to reduce CO_2 emissions per unit production by 44% in FY2012, to 56% of the FY2000 level.
In FY2008, Toshiba Group substantially improved CO_2 emissions and emissions per unit production compared to the previous year by taking such measures as choosing the optimal modes of transport, including a modal shift, raising the load factor for trucks, and consolidating distribution centers.
In the future, Toshiba Group will proactively promote a modal shift for product logistics covering a distance of 500 km or more to further decrease CO_2 emissions.
Toshiba Group's approximate CO_2 emissions associated with overseas and international product logistics are calculated as follows.

- Total: 672,000 tons of CO_2
  Breakdown: 31,000 tons of CO_2 for logistics within overseas countries
  641,000 tons of CO_2 for international logistics

■ **Changes in CO_2 emissions associated with product logistics in Japan**



■ **Breakdown of CO_2 emissions associated with product logistics in Japan (FY2008)**



By business segment

Example 3 **Reducing CO_2 emissions through a modal shift**

Fukaya Operations, Toshiba Corporation

In order to prevent scratches to external boxes due to vibrations unique to railway transport, Fukaya Operations had used large trucks for the transport of liquid crystal TV sets. The plant took such measures as inserting sheets of plastic between the boxes and started to use regular railway transport service in December 2008. Through these measures, it expects to reduce 59 tons of CO_2 emissions annually.

Use of plastic boards

Using renewable energy

Toshiba Group has used a green power system since January 2005 and has entered into an agreement to purchase two million kilowatts of electricity under a green power certificate. While Toshiba Information Systems (UK) Ltd. covers all electric power it uses in its factories with renewable energy, Toshiba Europe GmbH covers 13% of the electric power it uses with renewable energy. In the future, Toshiba Group will install photovoltaic power generation equipment in new clean rooms it builds with the aim of using renewable energy in an even wider range of operations.

Emissions trading

Toshiba Corporation is participating in the Japanese government's Initiative for Trading Emissions in the Unified Domestic Market on a Trial Basis, which started in October 2008, and aims to achieve its targets by advancing CO_2 emission reduction plans consistent with the industry's voluntary action plan. Starting in FY2010, the Tokyo metropolitan government will require business sites to reduce greenhouse gas emissions and introduce an emissions trading system, launching Japan's first mandatory regulations for greenhouse gas emissions. Several operation bases of Toshiba Group in Tokyo, which will be covered by these initiatives, plan to attain targets through their own efforts by actively introducing high-efficiency air-conditioning equipment, LED lighting, and so forth. Furthermore, Toshiba Group is endeavoring to establish systems that enable it to respond to regulatory risks such as statutory regulations and environmental taxes, which the Japanese government is expected to introduce to achieve its medium-term targets. In order to help achieve the goals in the industry's voluntary action plan, Toshiba Group contributes to the Japan GHG Reduction Fund.

CDM business

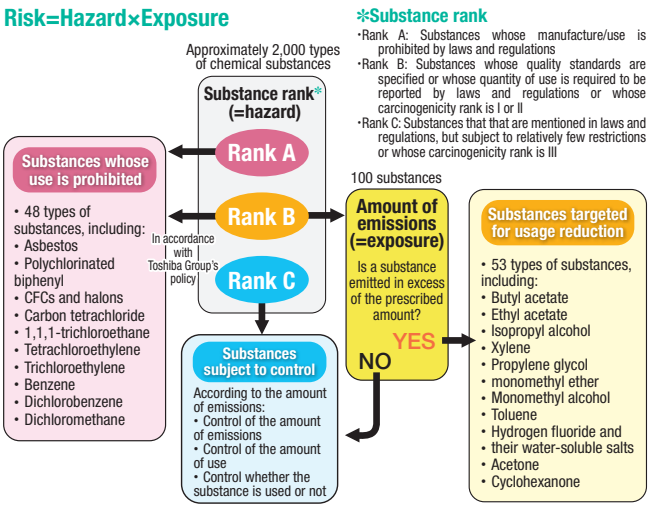
In January 2009, in order to promote a clean development mechanism (CDM) project in Vietnam, Toshiba worked with a local company to establish a new business firm that is responsible for both CDM business and biogas supply in Tay Ninh Province. The new firm will use Toshiba Group's high-concentration organic wastewater treatment technology to engage in a CDM business in which it collects biogas generated from wastewater treatment ponds at starch factories and other facilities in the country with the aim of reducing greenhouse gas emissions. In order to help factories reduce fuel costs, it will also supply the collected biogas to those who need it. Through the implementation of this project, it will contribute to improvement of the surrounding environment. In the future, the firm plans to reduce emissions of greenhouse gases in Vietnam equivalent to 500,000 tons of CO_2 annually by developing new projects to handle a wider range of high-concentration organic wastewater such as alcohol and food processing.

Management of Chemical Substances

Reducing emissions of chemicals and managing the volume of chemicals used

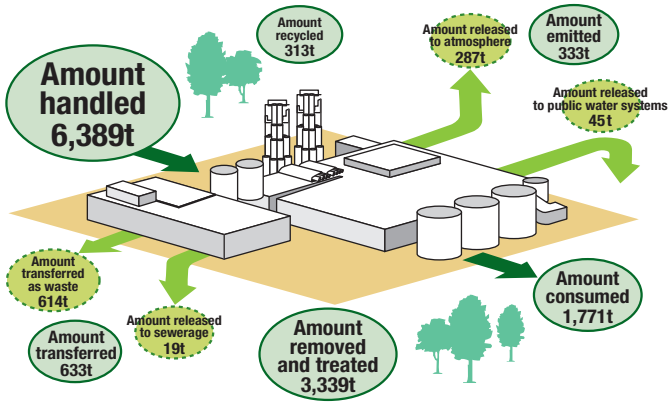
Toshiba Group classifies standards for the handling of chemical substances into the three categories of prohibition, reduction, and control and manages chemical substances according to the regulations established for each category. The relationship between substance ranking and management classifications, which shows the concept underlying this initiative, is indicated in the figure below. Approximately 2,000 types of chemical substances are classified into three ranks (hazard level A, B, and C) based on the regulatory levels set by environmental legislation, data on carcinogenic chemicals, and other factors. The classifications of prohibition, reduction, and control are determined by judging risks for each chemical substance using the product of the ranking of the substance and emissions equivalent to exposure to the substance. The concept of risk management in which the risk posed by a substance is expressed as the product of the hazard and the exposure level is applied though it is a quasi-risk assessment approach.

■ Substance ranking and management classifications



■ PRTR-based material balance

Shown below is the balance of the total material volume based on the PRTR Law in Toshiba Group (for details visit Toshiba's website).
http://www.toshiba.co.jp/env/en/industry/prtr.htm

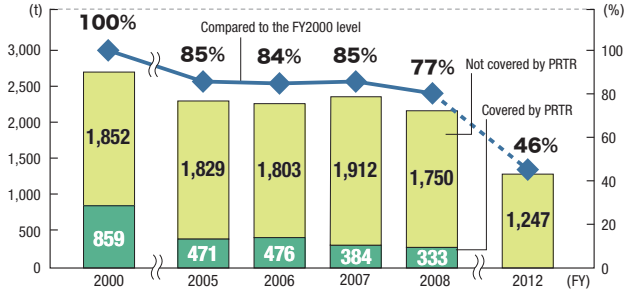


- The amount consumed refers to the amount of "substances covered by PRTR" that are changed into other substances by chemical reaction and transferred outside or transferred outside along with products whether they are contained therein or accompany them.
- The amount removed and treated refers to the amount of "substances covered by PRTR" that undergo such processes as incineration, neutralization, decomposition, reaction, and treatment and are changed into other substances outside operation sites.
- Landfills at operation sites (stable, controlled, or isolated) are equivalent to the amount released. The amount released into public water sewerage is categorized as the amount transferred.
- The difference between the amounts transferred and recycled is determined based on whether fees are charged for recycling of the materials. Accordingly, waste is included in the amount transferred if Toshiba Group asks contractors to dispose of it and pay for the service even if the purpose is to recycle it.

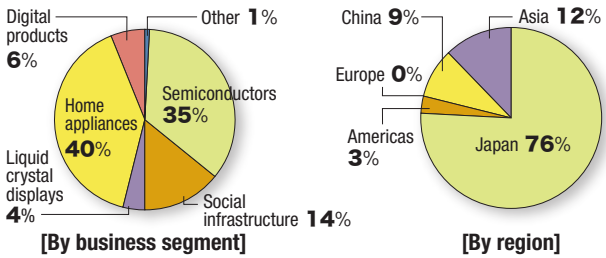
Toshiba Group strives to reduce the consumption of substances targeted for usage reduction if they have large direct impacts on the environment. By business segment, home appliances and semiconductors account for nearly 80% of the total emissions of such substances, and by region, 70% of such emissions originate from Japan. In FY2008, Toshiba Group gave priority to taking measures for substances contained in paints and cleaning solvents, which ranked high in such emissions, and promoted such initiatives as introducing systems for removing volatile organic compounds (VOCs) into the paint process, using alternative substances for the cleaning process, and replacing cleaning agents with alternative agents in the semiconductor production process. However, since the number of production bases subject to control rose and production volumes grew during the first half of the year, increasing the amount of substances whose use was to be reduced, Toshiba Group was unable to attain the goal of reducing such substances by 35% compared to the FY2000 level by FY2008. In FY2009 and thereafter, it plans to use

●Emissions of substances targeted for usage reduction

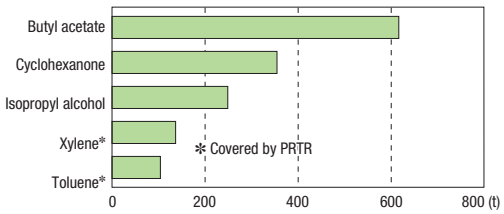
■ Changes in emissions



■ Breakdown of emissions (FY2008)



■ Emissions of top five substances targeted for usage reduction (FY2008)



Example

Reducing IPA emissions in the semiconductor wafer cleaning process

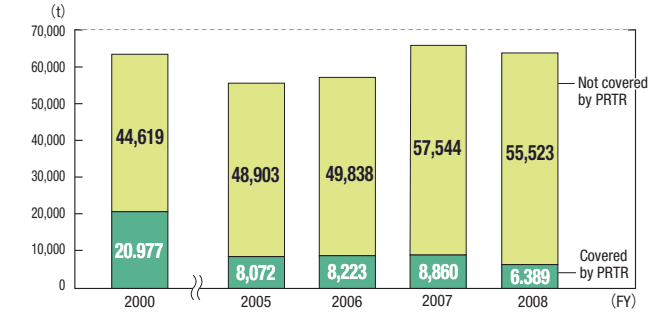
Semiconductor Company, Toshiba Corporation

The Semiconductor Company uses isopropyl alcohol (IPA) when it produces semiconductors. It substantially reduced the amount of IPA released into the atmosphere by using a simple water shower to adsorb and remove the substance. IPA can be removed efficiently by installing this system inside the equipment that uses IPA and treating IPA at locations close to where IPA is generated in high concentrations.
In addition, low-cost measures can be taken by installing this system in equipment immediately after the equipment is installed. IPA contained in exhaust gas is reduced by 75%, helping to significantly improve the removal

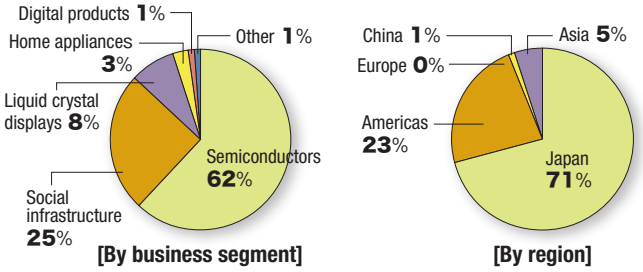
alternative substances and rethink processes as an upstream countermeasure and introduce emission removal systems as a downstream countermeasure.
A look at the substances handled, however, shows that semiconductors and social infrastructure systems account for more than 80% of the total, with substances used for chemical reactions and wastewater treatment ranked high. The material balance for PRTR-covered chemicals indicates that 28% of them are consumed together with the products that contain them and 52% are removed through neutralization and adsorption, which taken together represent the majority of the chemicals handled. It also indicates that only about 5% of the chemicals used are discharged into the air or public water systems. Going forward, Toshiba Group will continue to ascertain how chemicals are being used and manage their use properly.

●Amounts of substances targeted for usage reduction currently handled

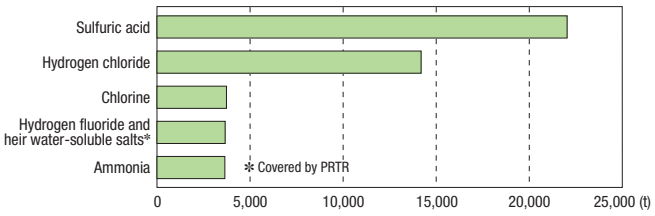
■ Changes in amounts handled



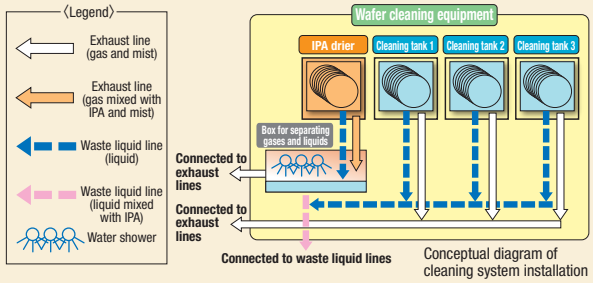
■ Breakdown of the amount handled (FY2008)



■ Amounts of top five substances targeted for usage reduction currently handled (FY2008)



rate compared to the previous system. IPA adsorbed by a water shower is reused as a nutrient for activated sludge in the biological treatment process for wastewater.

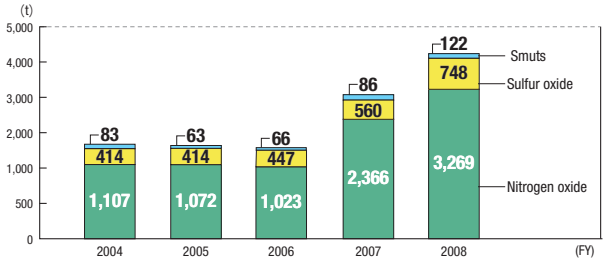


Conceptual diagram of cleaning system installation

Management of substances that have impacts on the atmospheric and aquatic environments

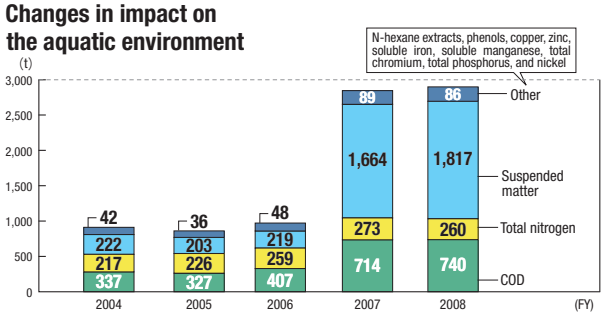
Toshiba Group is working to grasp the extent of emissions of sulfur oxides (SOx) and nitrogen oxides (NOx), both of which are major causes of air pollution, as well as of water pollutants and is also working to ensure appropriate management of such emissions. Each business site voluntarily sets the maximum permissible levels of concentrations for these substances and complies with these prescribed standards, but total emissions fluctuate as production volumes increase or decrease.

■ Changes in impacts on the atmospheric environment



In accordance with the Air Pollution Prevention Act, the amount of impact is calculated by multiplying the concentration of each substance by the amount of the substance emitted.

■ Changes in impact on the aquatic environment



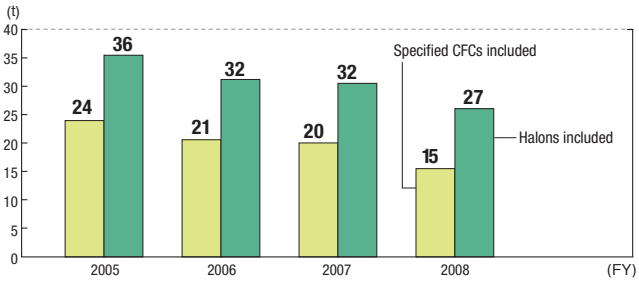
In accordance with the Water Pollution Control Act, the amount of impact is calculated by multiplying the concentration of each substance by the amount of the substance discharged.

Starting in FY2007, data include those for Sigma Power Ariake and Sigma Power Tsuchiura.

Management of ozone-depleting substances

Previously, Toshiba Group used chlorofluorocarbons (CFCs), trichloroethane, and other ozone-depleting substances as coolants for refrigerators as well as for the cleaning of parts, the dry-etching of semiconductors, and for foaming heat insulators. Of these, the use of specified CFCs for cleaning was completely discontinued in 1993 and that for inclusion in products in 1995.
On the other hand, Toshiba Group continues to use CFCs and halons by affixing stickers to air-conditioners, fire-extinguishing equipment, and other products that include these substances stating that they include the substances and thus ensuring their proper management. CFCs and halons are collected and treated appropriately when the products are no longer used. Currently, 1,775 air-conditioning systems and 848 fire extinguishers and fire-extinguishing facilities use CFCs and halons, and the amounts of CFCs and halons included in these products are 15 tons and 27 tons, respectively. These amounts are decreasing each year through appropriate treatment. In FY2008, Toshiba Group collected 4.4 tons of CFCs and 4.4 tons of halons.

■ Changes in the amount of CFCs and halons included in products



Efficient Use of Resources

Reducing the total volume of waste generated

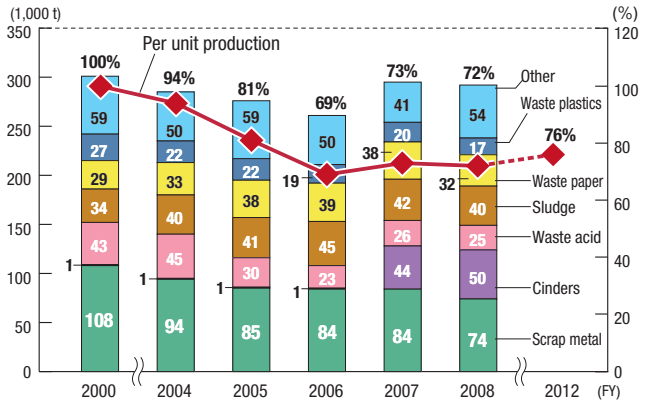
The goal of Toshiba Group is to reduce the total volume of waste generated by 24% (compared to the FY2000 level) by FY2012. In FY2008, the total volume of waste generated per unit production was 72% of the FY2000 level, a 28% reduction compared to the target of 23%. The absolute total volume of waste generated was decreased by about 3,500 tons from a year earlier. This is attributed to the effects of reduction in the volume of parts used through the improvement of the manufacturing and treatment processes, as well as those of promotion of waste reduction measures such as reducing products resulting from treatment. In addition, the effects of decrease in production due to the economic downturn affected the results of FY2008. Major waste includes sludge from semiconductor production sites, cinders resulting from power generation operations, and scrap metal, and Toshiba Group is striving to control the volume of waste generated by using creative ways and means to increase treatment efficiency.

It is expected that the volume of waste generated will grow in the future as business expands as a result of economic recovery, but Toshiba Group will make efforts to reduce the total volume of waste by taking various measures on a continuous basis.

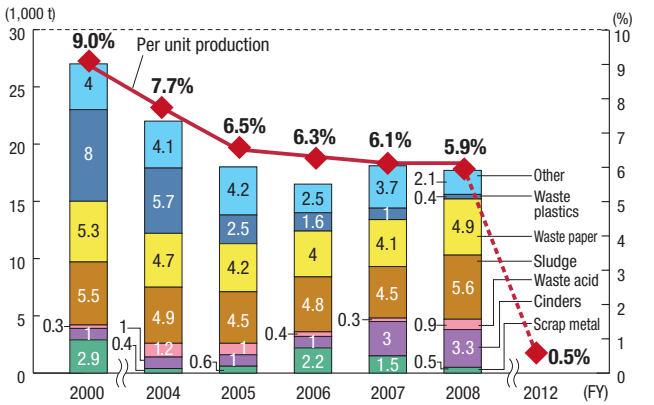
Reducing the amount of final disposal

Toshiba Group aims to achieve zero waste emission (for its definition, see *5 on page 12) at all its bases by FY2010. In FY2008, the amount of final disposal was decreased by about 500 tons from a year earlier due to the thorough sorting of waste, the development of new uses for recycled waste, and other efforts. The final disposal rate was 5.9%, 0.2 percentage points lower than in the previous year. By business segment, companies related to social infrastructure systems accounted for about 80% of the final disposal amount, and stepping up efforts to reduce the amount of final disposal in this segment is an issue to be addressed. Characteristic waste of this segment includes cinders and cast sand resulting from the manufacture of large castings for power generators. Toshiba Group is taking such measures as recycling these types of waste into brick and roadbed materials and changing their properties by improving the treatment process so that they can be recycled and used as recycled materials, and will make these efforts on a continuous basis in the years to come. The ratio of sites that achieved zero emission in FY2008 was 51% compared to the goal of 60%. Particularly, overseas bases with underdeveloped recycling systems and infrastructures were slow in making progress in this area. In the future, Toshiba Group will continue its initiatives by, for example, further advancing activities that help identify and develop recyclers overseas chiefly through information exchange with local governments and business partners.

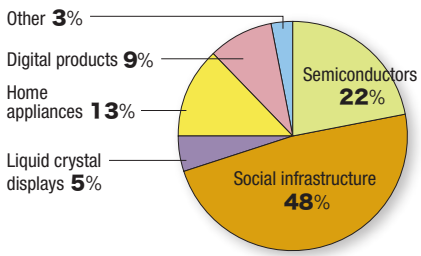
■ Changes in the total volume of waste generated



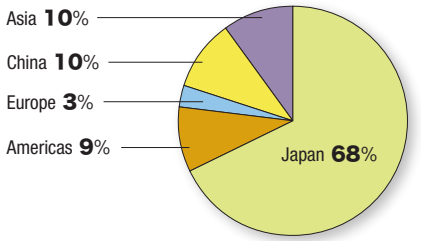
■ Changes in the final waste disposal amount and the final disposal rate



■ Breakdown of the total volume of waste generated (FY2008)

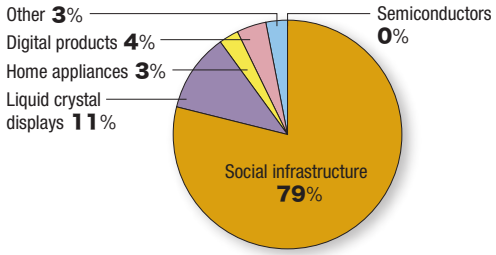


[By business segment]

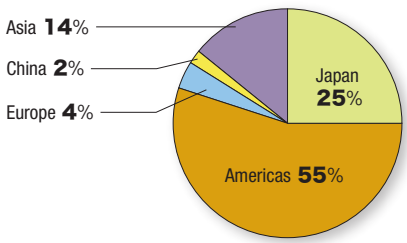


[By region]

■ Breakdown of the final waste disposal amount (FY2008)



[By business segment]

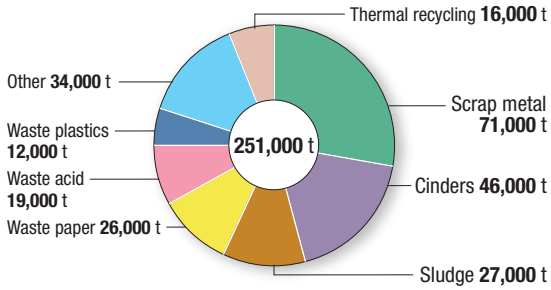


[By region]

●Promoting recycling

In FY2008, Toshiba Group recycled 251,000 tons of resources. The recycled resources consisted mainly of scrap metal, cinders, sludge, and waste paper, and 84% of them were used effectively for material recycling (recycled into materials for products), and the remaining 16% for thermal recycling (heat collection). In the future, Toshiba Group will continue to increase the total amount of resources recycled and at the same time will aim for higher quality recycling by, for example, increasing the percentage of materials recycled.

■ Breakdown of the amount recycled (FY2008)

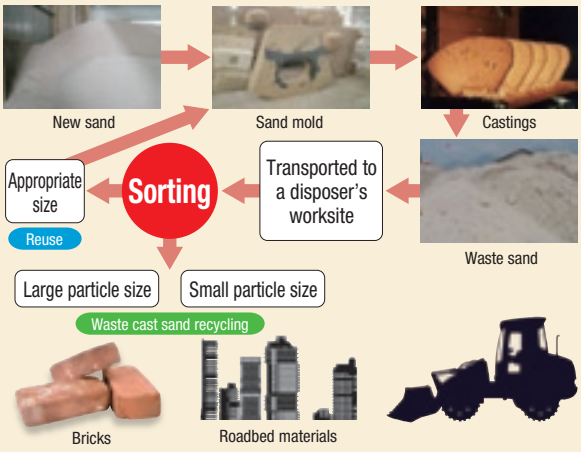


Example

Zero waste emission through a cast sand recycling system

Toshiba Hydro Power (Hangzhou) Co., Ltd.

The hydroelectric power generation equipment manufacturing plant of Toshiba Hydro Power (Hangzhou) Co., Ltd., based in Zhejiang Province, China, produces the world's largest castings, and huge volumes of waste cast sand are generated in the manufacturing process. Formerly, the company asked disposers to treat such sand as waste, but recently developed a system to sort it by particle diameter for reuse or for recycling it into bricks and roadbed materials. This was mainly accomplished with the guidance to disposers. This enabled the company to reduce the final disposal rate substantially, from 3.5% in FY2007 to 0.1% or less in FY2008, achieving what it defined as zero waste emission: reducing the rate to less than 0.5%.



Efficient use of water resources

The goal of Toshiba Group is to reduce the amount of water it receives by 10% compared to the FY2000 level by FY2012.

The amount of water received per unit production in FY2008 was reduced to 75% of the FY2000 level, a 25% reduction. Greatly surpassing the goal of 8%. The amount of water received was about 56 million m^3, about 600,000 m^3 less than in the previous year.

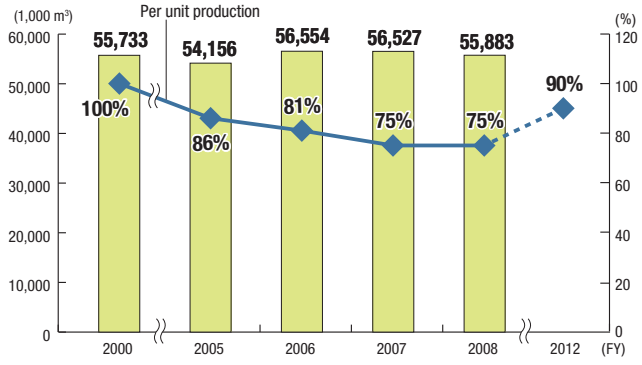
By business sector, the semiconductor business received nearly half of the water. Therefore, Toshiba Group is pushing forward with initiatives for reducing water consumption in this area.

Specific measures include reusing water resources by introducing wastewater treatment and collection systems into semiconductor production bases that consume the most water and using a dry exhaust gas treatment process*.

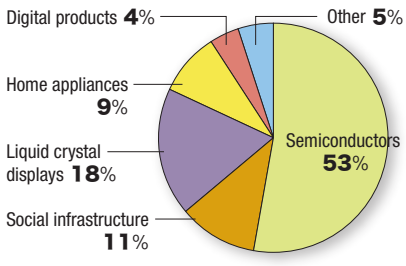
By region, Japan accounts for about 90% of the total amount of water received, but for regions where water is in shorter supply, Toshiba Group will steadily reduce the amount of water it receives by setting separate goals on a region-by-region basis.

* The conventional wet method involved in treating waste perfluoro compound gas by decomposing it and then dissolving the fluorine in water. The dry process makes treatment water unnecessary by adsorbing fluorine using calcium.

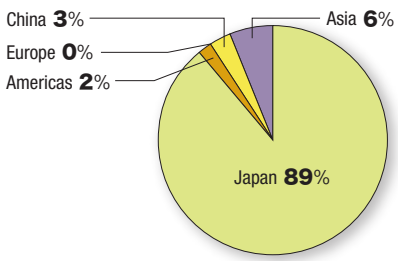
■ Changes in the amount of water received and that per unit production



■ Breakdown of the amount of water received



[By business segment]



[By region]

Response to Environmental Risks

Purification of soil and groundwater

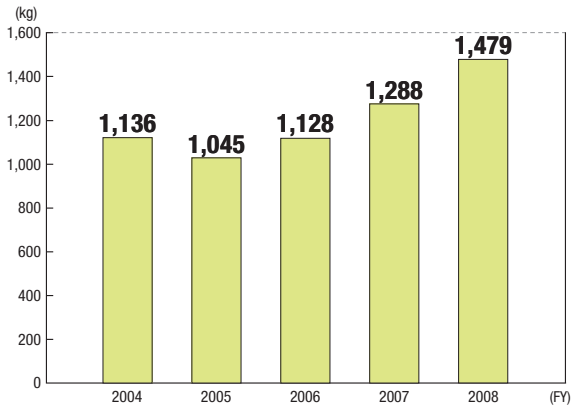
Toshiba Group is working to purify contaminated soil and groundwater by ascertaining the present condition of soil and groundwater contamination at its business sites. It is also taking safety measures for environment-related equipment to prevent contamination with chemicals and reduce contamination risks. A survey of all business sites confirmed contamination at 17 sites, where soil and groundwater contaminated with volatile organic compounds (VOCs) has been purified, and the results are being monitored. VOCs in groundwater are collected and eliminated mainly using the water pumping method.
Water pumping is conducted primarily in areas where VOCs remain at high concentrations, but plans call for Toshiba Group to keep the amount of VOCs collected at 1,000 kg/year by taking such measures as increased water pumping in areas where VOCs remain at relatively high concentrations after the concentration of VOCs in other areas declines as purification advances. In FY2008, approximately 1,480 kg of VOCs were collected. In the future, Toshiba Group will continue to advance soil and groundwater purification using appropriate methods, taking into account world trends in the progress of purification technology. At the same time, it will strive to ensure full communication with local governments and residents in neighboring areas through tours of purification facilities and other public relations activities.

■ Purification of soil and groundwater contaminated with volatile organic compounds

Business site	Location	Progress in purification	Purification method*1	Amount collected*2 (kg)
Fukaya Operations, Toshiba Corp.	Fukaya City, Saitama Prefecture	Transition to monitoring*3	A	–
Toshiba Electric Appliances Co., Ltd.	Maebashi City, Gunma Prefecture	Transition to monitoring	D, F	–
Former site of Asia Electronics Inc.'s Yokohama Operations	Yokohama City, Kanagawa Prefecture	Transition to monitoring	A, E, G	–
Komukai Operations, Toshiba Corp.	Kawasaki City, Kanagawa Prefecture	Purification in progress	A, G	114.7
Microelectronics Center, Toshiba Corp.	Kawasaki City, Kanagawa Prefecture	Purification in progress	A	9.6
Himeji Operations (Taishi district), Toshiba Corp.	Taishi Town, Ibo County, Hyogo Prefecture	Transition to monitoring (North district)	D, F, G	–
		Purification in progress	A	372.1
Oita Operations, Toshiba Corp.	Oita City, Oita Prefecture	Purification in progress	A	2.4
Fuji Operation Center, Toshiba Carrier Corp.	Fuji City, Shizuoka Prefecture	Purification in progress	A, B	263.6
Tsuyama Operation Center, Toshiba Carrier Corp.	Tsuyama City, Okayama Prefecture	Purification in progress	A, B	1.5
Former site of Toshiba HA Products Co., Ltd's Osaka Works	Ibaraki City, Osaka Prefecture	Work that will allow measures to be taken is complete	A, D, F	–
Former site of Toshiba Components Co., Ltd.'s Yokohama Works	Yokohama City, Kanagawa Prefecture	Purification in progress	A	33.9
Kawamata Seiki Co., Ltd.	Kawamata Town, Date County, Fukushima Prefecture	Purification in progress	A	0.1
Kitashiba Electric Co., Ltd.	Fukushima City, Fukushima Prefecture	Purification in progress	A	0.4
Former site of Toshiba Shomei Precision Corp.'s Kawasaki Works	Kawasaki City, Kanagawa Prefecture	Purification in progress	A, B, F	2
Former site of Toshiba Lighting & Technology Corp.'s Iwase Works	Sakuragawa City, Ibaraki Prefecture	Purification in progress	A	0.1
Ibaraki Works, Toshiba Lighting & Wako Electric Corp.	Mizukaido City, Ibaraki Prefecture	Transition to monitoring	A	–
Kimitsu Operations, Toshiba Components Co., Ltd.	Kimitsu City, Chiba Prefecture	Purification in progress	A, B	678.5

*1 Purification method: (A) groundwater pumping, (B) soil gas suction, (C) reduction decomposition, (D) oxidation decomposition, (E) interception containment, (F) removal by excavating soil, and (G) bio-activation
*2 Amount collected: Amount collected from April 2008 to March 2009
*3 Transition to monitoring: Shift to monitoring to confirm how things develop after work that will allow measures to be taken or purification is completed

■ Changes in the amount of volatile organic compounds (VOCs) collected (17 locations listed above)



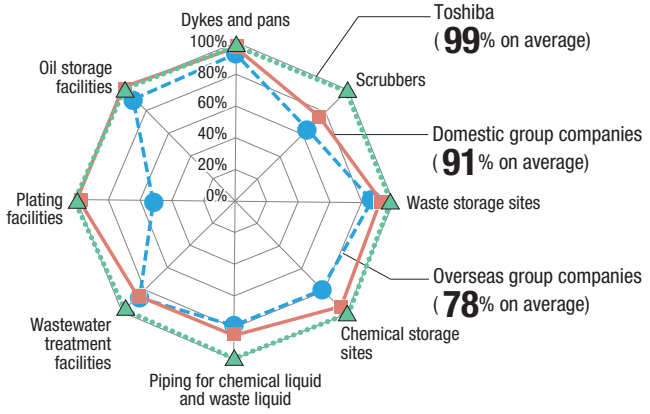
Example 1 **Environmental measures taken at the former site of Toshiba HA Products Co., Ltd.'s Osaka Works**

It was confirmed that the soil at the former site of Toshiba HA Products Co., Ltd.'s Osaka Works contained organic chlorine compounds and other substances in excess of environmental standards, and work to deal with these substances, mainly removal by excavating soil, began in April 2008. It was completed in June 2009.

Preventing contamination and reducing contamination risks

In order to prevent contamination with chemical substances and reduce contamination risks, Toshiba Group independently established the Structural Design Guidelines to prevent leaks of chemicals at its eight types of environment-related facilities such as wastewater treatment plants, and its overseas bases are also promoting continuous improvements in this area. In FY2008, Toshiba Group achieved a compliance rate of 99% for all of Toshiba's bases and 91% for all of its group companies' bases in Japan.
In its overseas operations, at the time of establishing a new business or relocating a business, Toshiba Group also assesses contamination risks by investigating land use and contamination histories. Assessments are made in accordance with laws and regulations in each country, and Toshiba Group's own rigorous standards are applied in countries without relevant legislation.

■ **Rate of compliance with the Structural Design Guidelines (FY2008)**



Example 2 **Leak prevention measures at environment-related facilities**

Scrubber (horizontal type)

Installation of a pan

Installation of a ditch to confirm leaks from the bottom

Tank

Storage and management of PCB

Since 1972, when the manufacture of products using polychlorinated biphenyl (PCB) was discontinued in Japan, Toshiba Group has kept PCB and PCB-containing products under strict surveillance, controlled them, and reported their storage to the relevant authorities in accordance with the Waste Management and Public Cleansing Act and the Act on Special Measures concerning Promotion of Proper Treatment of PCB Wastes. In addition to meeting the prescribed storage standards, it makes doubly sure through the installation of dykes and double containers and other measures that they are stored appropriately.
In order to treat PCB and PCB-containing products safely and as swiftly as possible, Toshiba, along with group companies, has registered some 7,600 transformers and condensers with Japan Environmental Safety Corporation (JESCO), which started to provide wide-area PCB treatment services in FY2005. In FY2008, about 50 high-voltage condensers were treated. In the future, Toshiba Group will continue to treat PCB and PCB-containing products properly in accordance with JESCO's treatment plans.

In this warehouse, PCB and PCB-containing products are kept under strict surveillance by taking such measures as the installation of dykes and double containers.

PCB-containing equipment being transported to Japan Environmental Safety Corp.

Recycling of End-of-life Products

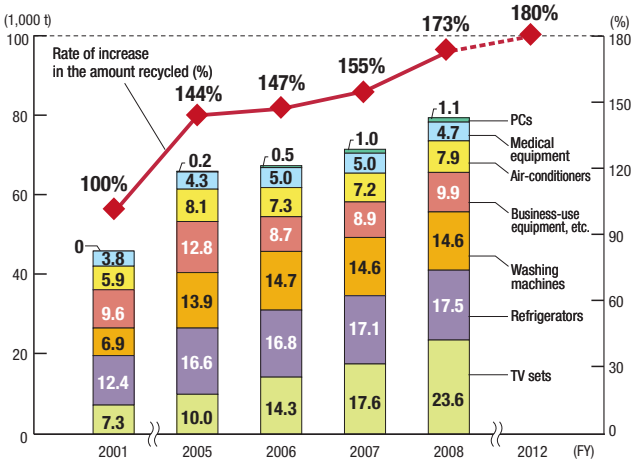
Recycling of end-of-life products

●Increasing the amount of end-of-life products recycled on a global scale

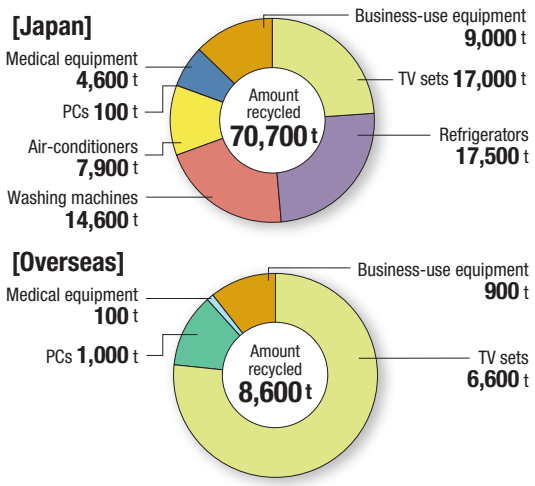
Toshiba Group contributes to resource recycling by promoting collection and material recycling of products customers have stopped using. It is carrying out activities aimed at increasing the amount of end-of-life Toshiba products recycled to 180% compared to the 2001 level in 2012. In Japan, in addition to products covered by the Law for the Recycling of Specified Kinds of Home Appliances, the Act on the Promotion of Effective Utilization of Resources, and other laws, it has established a unique scheme to collect medical equipment, elevators, POS systems, and other products. Toshiba Group also responds appropriately to the Directive on Waste Electrical and Electronic Equipment (WEEE) in Europe and state statutory regulations in the United States. In the U.S. in particular, it promotes collection and recycling of end-of-life products through its voluntary PC and TV recycling program, tie-ups with major retailers, and special recycling events.

In FY 2008, Toshiba Group collected about 100,000 tons of end-of-life products of which it recycled about 79,000 tons in Japan and abroad. While its goal for FY2008 was to increase the amount recycled to 158% of the FY2001 level, it boosted the amount to 173%, more than attaining the goal. In the future, Toshiba Group will continue to increase the amount of end-of-life products collected and recycled in Japan and establish a collection scheme in a wider range of its overseas locations.

■ Changes in the amount of end-of-life products recycled (global)



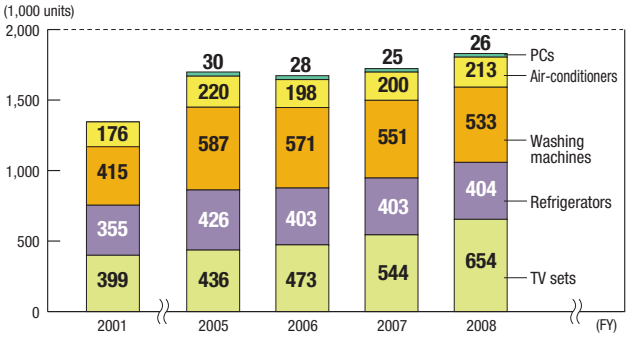
■ Breakdown of the amount of end-of-life products recycled (FY2008)



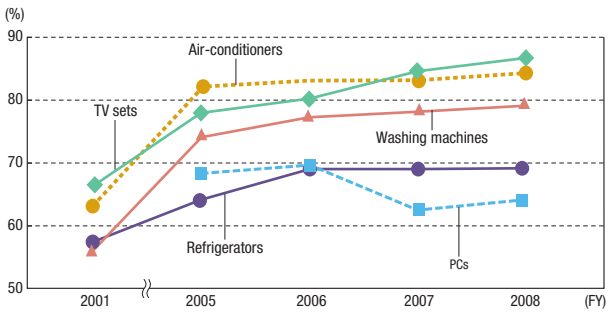
●Increasing the amount of waste home appliances and PCs recycled in Japan

In Japan, Toshiba Group collects, transports, and recycles end-of-life home appliances in accordance with the Law for the Recycling of Specified Kinds of Home Appliances and the Act on the Promotion of Effective Utilization of Resources. In FY2008, it collected some 1.8 million end-of-life home appliances, accounting for 14% of all collected appliances, and this remained almost at the same level as the previous year. And 26,000 end-of-life PCs were collected from business firms and homes for recycling. With respect to liquid crystal TV sets and clothes dryers, which came to be covered by the Law for the Recycling of Specified Kinds of Home Appliances in April 2009, Toshiba Group will work with disposers to ensure appropriate treatment of hazardous substances and efficient collection and recycling of items with value.

■ Changes in the number of the four major home appliances and PCs collected (Japan)



■ Changes in the rate of the four major home appliances and PCs collected (Japan)



Example 1 **Recycling of end-of-life electric and electronic equipment, etc.**

Term Corporation

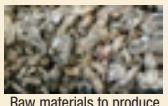
When end-of-life electric and electronic equipment is recycled, it is put into a large plant to crush and sort it for treatment, and recycled materials such as iron, aluminum, stainless steel, and plastics are collected through a combination of mechanical (magnetic, excess current, high magnetism) and manual sorting.

OA, medical, automation, and other types of equipment

After preliminary processing such as the manual removal of hazardous substances, packaging materials, and other items, end-of-life electric and electronic equipment is put into a crushing machine.

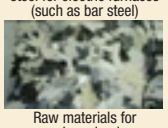
Crushing machine

Separated through manual sorting



Raw materials to produce steel for electric furnaces (such as bar steel)

Recycled plastic materials



Raw materials for secondary aluminum processing

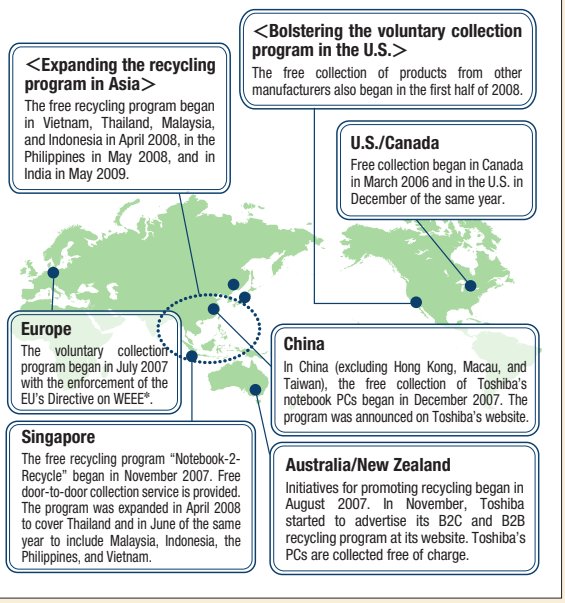
Raw materials for nonferrous refineries

Example 2 Bolstering the global PC recycling program

Personal Computer & Network Company, Toshiba Corporation

The Toshiba PC recycling program already covers more than 80% of PCs that Toshiba Group has shipped, and the Personal Computer & Network Company is also considering implementing it in regions not covered by the program.

■ **Regions where the PC recycling program is being implemented**



✻ WEEE: Waste electrical and electronic equipment

Example 3 Recycling of TV sets in the U.S.

Toshiba America Consumer Products, L.L.C.

In the U.S., Toshiba Group collects and recycles TV sets through MRM*, a recycling company. MRM is making preparations to meet state statutory regulations and implement a TV set collection program at 280 locations nationwide. It also works with major retailers to stage special recycling events for collection and audits local recycling companies.

✻ Electronic Manufacturers Recycling Management Company, L.L.C. (MRM) is a recycling management company established in September 2007 through joint investment by Panasonic Corporation, Sharp Corporation, and Toshiba Corporation.

A special recycling event held in a tie-up with a major retailer

Development and application of recycling technology

●Development and application of recycling technology

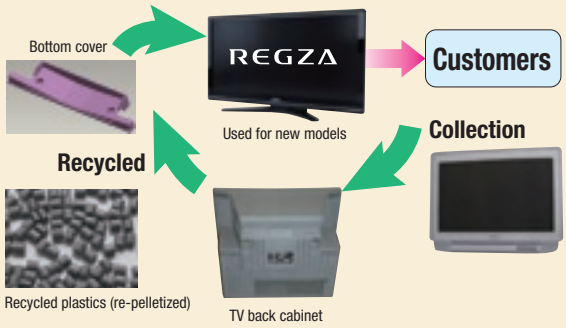
As part of its initiative for recycling end-of-life products, Toshiba Group concentrates on developing recycling technology to utilize resources recovered from end-of-life products. Plastic parts used for washing machine tubs and refrigerator vegetable containers and shelves are collected before they are crushed, and sorted by material type so that they can be reused as parts for new refrigerators as well as base plates of new washing machines/dryers and dish washers/dryers. Other plastic materials are also used effectively after they are recycled into raw materials for construction materials and sundry goods.

Example 4 Utilization of recycled plastics —from TVs to TVs—

Digital Media Network Company, Toshiba Corporation

The cabinets (back covers) of TV sets collected in accordance with the Law for the Recycling of Specified Kinds of Home Appliances are reused as raw plastic materials for TV parts*.

✻ These materials started to be used for certain new LCD TV models launched in FY2008.



Example 5 Utilization of recycled materials from end-of-life home appliances

Toshiba Home Appliances Corporation

Toshiba Home Appliances recycles plastics collected from waste home appliances into parts for new home appliances by establishing a supply chain, including the collection of plastic parts at home appliance disposal plants (such as Term Corporation and Nishinihon Kaden Recycle Corporation) and the processing of materials. The quality of collected plastics as materials—such as strength, durability, and color tone—is maintained by removing foreign substances from them, treating them with additives, or otherwise processing them. Thus efforts are being made to increase the percentage of recycled materials used (i.e., minimize the percentage of virgin materials used).

Recycled plastic parts are used for the base plate and other parts of the TW-5000VF washing machine/dryer. The weight of recycled plastic parts used for this model is about 5.7 kg/unit.

Chapter.5

Eco Programs

Communication with Stakeholders

We believe that it is essential to have our environmental initiatives understood by stakeholders and work with them toward creating a better global environment through dialogue.

Summary of activities in FY2008

Providing information to stakeholders

- Published the Toshiba Group Environmental Report for the first time after five years and won an Environmental Communication Award
- Disclosure of a digest report on approximately 130 manufacturing sites
- Creation of an eco booklet, The Little Prince
- Display of environmentally conscious products at exhibitions in various countries around the world

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Global activities

- Development of various environmental communication activities in different countries

P55

Biodiversity

- Disclosure of policies on biodiversity
- A total of 600,000 trees planted through the 1.5 Million Tree-planting Project

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Stakeholder dialogue

- The second stakeholder dialogue in the US held in February 2009

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Team Minus 6% Campaign

- Achieving savings of a total of 22,291 kWh of electricity by conducting the "Light Down" operation worldwide

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Evaluation by external parties

- Toshiba's air conditioners for retail facilities and offices, room air conditioners and bulb-type LED lamps receive awards at the 19th Energy Savings Award Program
- Toshiba Information Equipment (Philippines), Inc. receives the E3 Award

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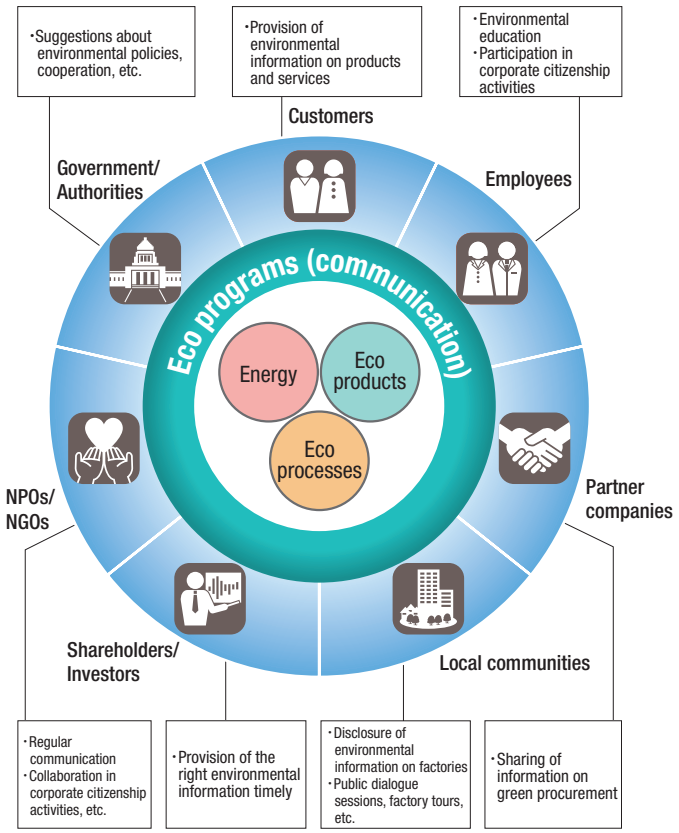
■ Relationships between Major Stakeholders and Toshiba Group



■ Major Initiatives for Communication with Stakeholders

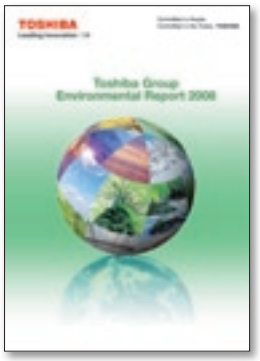
	Policy	Major activities
Proactive communication	・Provision of information to stakeholders ・Provision of information to local communities	・Publication of environmental reports ・Disclosure of site reports ・Disclosure of information on the environmental website ・Environmental advertisements (TV commercials, newspapers, magazines, etc.) ・Display of environmentally conscious products at exhibitions ・Environmental labeling of products
Promotion of dialogue	・Two-way communication with stakeholders	・Stakeholder dialogue ・Dialogue sessions with local communities
Formation of partnerships	・Promotion of corporate citizenship activities ・Collaboration with stakeholders	・Efforts to preserve biodiversity ・1.5 Million Tree-planting Project ・Environmental programs with local communities ・Environmental education in local communities ・Participation in the Team Minus 6% Campaign

Providing Information to Stakeholders

Environmental Report and Website

Since the publication of the first volume of its environmental report in 1998, Toshiba Group has disclosed its environmental information every year. The Toshiba Group Environmental Report 2008, which was published last year, received the Environment Minister's Award for Global Warming Mitigation Measures and the Award for Outstanding Environmental Reports at the 12th Environmental Communication Award Program held by the Ministry of the Environment in Japan.

We also updated our entire environmental website in order to provide more detailed information in addition to the content of our environmental reports.



Toshiba Group Environmental Report 2008
(available in Japanese and English)

Toshiba Group's environmental website
http://www.toshiba.co.jp/env/en

Site Report

In order to present an overview of business activities at our manufacturing sites around the world and to have our environmental initiatives understood by local community residents, we disclose environmental information on each of our manufacturing sites. We summarized major environmental initiatives in FY2008 and presented digest reports on about 130 sites on our webpage. Some of our manufacturing sites publish their own reports and present the information on the website. Copies of these reports are also distributed to visitors to our factories.

The Environmental Report 2008 published by the Toshiba Yokohama Complex received the Site Report Award for the second consecutive year at the 12th Environmental & Sustainability Report Award Program held by Toyo Keizai.

Digest reports on manufacturing sites

Yokohama Complex's Environmental Report 2008

Site report
http://www.toshiba.co.jp/env/en/company/region.htm

Advertisements

With the catch phrase "Energy and Ecology for the Earth," we placed environmental advertisements in Japan in TV commercials and newspapers to communicate our initiatives for the mitigation of global warming. Also, we issued an eco booklet, The Little Prince, and distributed copies of it during various events and factory tours in order to encourage children to think about the environment.

Advertisement of The Little Prince

Eco booklet for children

Exhibitions

We take an active part in presenting our products at various exhibitions around the world in order to have our environmental initiatives understood by as many people as possible.

March 2009	5th Eco-Products International Fair (Philippines)
February 2009	18th Toshiba Group Environmental Exhibition (Toshiba headquarters, Japan)
January 2009	CES 2009 (USA) (the largest global consumer electronics show)
December 2008	Eco-Products 2008 (Tokyo, Japan)
October 2008	CEATEC JAPAN 2008 (Japan) (IT & Electronics Comprehensive Exhibition, one of the largest of its kind in Asia)
August 2008	IFA 2008 in Berlin (Germany) (one of the world's largest consumer electronics trade shows)
July 2008	G-8 Toyako Summit (Hokkaido, Japan)
June 2008	Integrated Exhibition of the Environment 2008 (Hokkaido, Japan)
	Eco & Energy Exhibition in commemoration of G-8 ministerial conference on energy problems (Aomori Pref., Japan)
May 2008	Environmental Fair in Kobe (Hyogo Pref., Japan)

Eco-Products 2008

G-8 Toyako Summit
"Zero-emission house"

Toshiba Science Museum

The Toshiba Science Museum is a center for corporate cultural activities focused on the theme "Communion between People and Science." It provides experience with cutting-edge science and technology, there are hands-on workshops to encourage people to think about environmental problems and it offers lectures by guest speakers. The museum attracts many visitors with these programs.

Toshiba Science Museum website http://museum.toshiba.co.jp/

Global Activities

Toshiba Group is engaged in various environmental communication activities worldwide. We are working to make our environmental initiatives known to a wide range of stakeholders, including communities and schools near Toshiba factories and offices, as well as to customers, students and employees in order for everyone think about environmental problems together.

Global

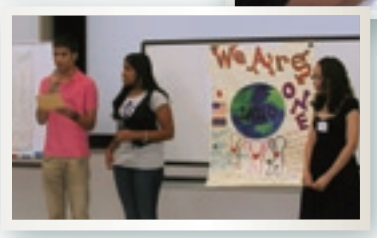
Activities across the world

Toshiba Youth Conference for a Sustainable Future 2008

We held the Toshiba Youth Conference for a Sustainable Future 2008 in July 2008. It is a camp program held in Japan under the auspices of the Toshiba International Foundation. High school students from Thailand, the United States, and Japan gathered together to discuss environmental issues. Along with teachers and volunteers chosen from among Toshiba Group employees, nineteen students from the three countries who have keen interest in environmental problems, lived together for a week to participate in a wide variety of activities, including tours of Toshiba's facilities, lectures by experts, and workshops.
The conference was held again in 2009, with high school students from the above three countries plus Poland, to provide opportunities for young people from different countries to discuss environmental issues shared by people around the world.

A tour of the Toshiba Science Museum

Students from different countries in a discussion



Presentation on the closing day

Americas

Activities in the United States

Presenting Our Environmental Conscious Products at CES 2009

We exhibited our home appliance products at the 2009 International CES, a consumer electronics show held in January 2009 in Las Vegas, the US. In the environmental exhibition corner, we displayed Toshiba Group's Environmental Vision 2050 along with environmentally conscious products, including TVs, PCs, LED lights and SCiB™ cells, and presented our ongoing efforts for recycling and tree planting.

Toshiba Green Innovation Award Program for Outstanding Environmental Activities in Local Communities

Toshiba America Information Systems, Inc. and Toshiba America, Inc. sponsor the Toshiba Green Innovation Award Program in Orange Country, the US. This is a program aimed at awarding local companies, institutions, and organizations for their outstanding environmental activities, such as the development of environmentally conscious products, services, and technologies. In 2008, the award was given to a water treatment facility in Orange County.

Europe

Activities in Europe

A Green Day Event Held to Raise Environmental Awareness among Employees

Toshiba Medical Systems Europe B.V., which sells medical systems, held a "Green Day" event in April 2009 in order to raise awareness on environmental issues among its employees. Employees from various European countries participated in the event to share information and to have discussions on the environmental management of Toshiba Group.

Presenting Toshiba Group's Environmental Activities at the IFA Berlin Show

At the IFA Berlin Show (Germany) held in August and September 2008, we displayed the most advanced digital products and set up an environmental corner to present Toshiba Group's environmental activities.

China

Activities in China

Xihu Lake (West Lake, China) Clean Up Program

Hangzhi Machinery & Electronics Co.,Ltd. carries out a program for cleaning up Xihu Lake located near its office every year with the participation of volunteers from among its employees. In 2008, a total of 322 employee volunteers and their family members participated in the program held in November with company waste collection bags in hand in order to protect the beautiful landscape and water environment of the lake.

Shanghai Eco Showcase Set Up to Display Environmentally Conscious and Energy-Saving Products

We set up a display corner, the Shanghai Eco Showcase, in a large-scale shopping center in Shanghai for a month from December 2008 to enable visitors to experience Toshiba's environmentally aware and energy-saving products first-hand. We presented an environmental message by Toshiba's TV commercial characters, Li Bingbing and Huang Xiaoming, attracting many visitors.

Asia Oceania

Activities in Asia and Oceania

The 3E Award Given to Toshiba in the Philippines

Toshiba Information Equipment (Philippines), Inc. is actively engaged in various environmental communication activities conducted with the participation of employees, such as joint clean up programs with local community residents, environmental classes in elementary, and junior high school in the neighborhood and poster contests.
In October 2008, the company received the E3 Award for its environmental activities and management. The E3 Award is given by the Philippine Chamber of Commerce and Industry to companies that are engaged in innovative environmental management.

Exhibition at the Eco-Products International Fair 2009

We exhibited our products at the Eco-Products International Fair 2009 held in Manila, Philippines in March 2009, presenting Toshiba's environmental activities in a wide range of areas, from energy and social infrastructure to home appliance products. We invited 500 students from local schools and had many visitors.

Biodiversity

Toshiba Group's Policies on Biodiversity

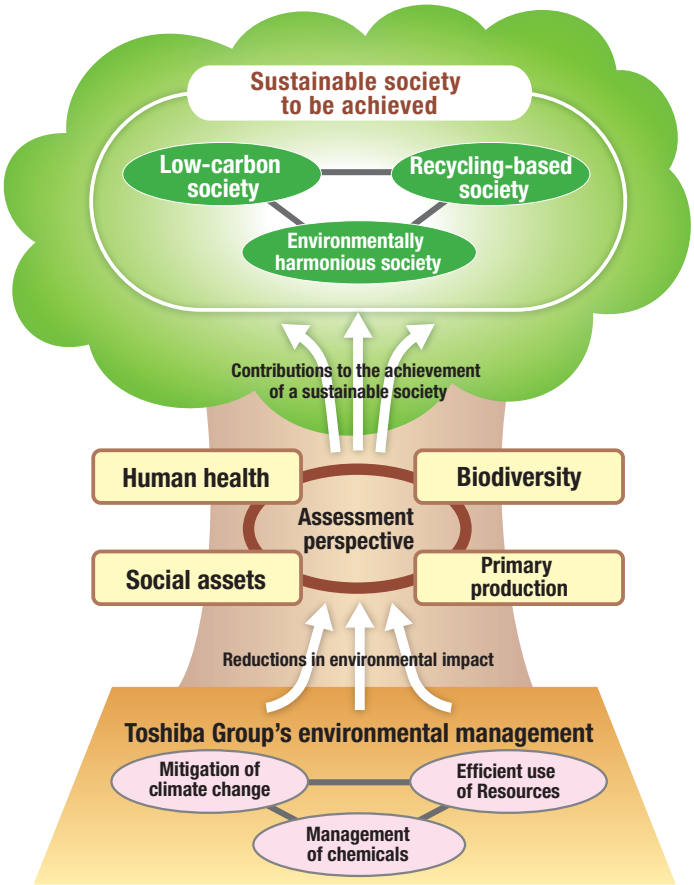
We humans receive various benefits from ecosystem services provided by a variety of biological species. Ecosystem services include provisioning services, such as the supply of resources and water, and regulating services, such as climate regulation and water purification. These services are supported by the circulation of materials, including water, nutrients, and carbon, that circulate through ecosystems. Toshiba Group, whose business activities are also vitally dependent on ecosystem services, believes that conservation of the biodiversity of ecosystems is the key to environmental management.

Toshiba Group contributes to the conservation of biodiversity not only through its core business operations, including the promotion of water, environment, and energy businesses, the reduction of material procurement, and the minimization of environmentally harmful emissions, but also through its corporate citizenship activities, such as the 1.5 Million Tree-planting Project, conducted in collaboration with local governments and NPOs. There is a need to direct our attention to the indirect impact of our activities exerted on the environment through supply chains as well as their direct impact.

●Policies on the conservation of biodiversity

In order to conserve biodiversity and promote the sustainable use of biological resources that constitute biodiversity, Toshiba Group will implement the following measures:

- ●Analysis of the impact of our business activities on biodiversity
- ●Reduction of the impact on biodiversity through our business operations designed for the conservation of biodiversity in order to make sustainable use of resources
- ●Development of an organizational framework to promote these measures



●Environmental activities and assessments aimed at achieving a sustainable society

The development of an environmentally harmonious society, which is designed to conserve biodiversity and provide the benefits of nature for many generations to come, is essential for achieving a sustainable society, along with the development of a low-carbon society designed to mitigate global warming and a recycling-based society designed to overcome problems regarding the use of resources and waste disposal. Toshiba Group is working to reduce the environmental impact of its activities based on policies focused on mitigation of climate change, efficient use of resources and management of chemicals.

The consumption of resources and discharge of environmentally harmful substances, which business activities necessarily involves, have various impacts on the environment. In order to measure the effects of impact mitigation measures, there is a need to adopt an approach aimed at making a comprehensive assessment of indirect impacts on various aspects of the environment. To that end, we assess environmental impacts using the life-cycle impact assessment method based on endpoint modeling (LIME*), which is designed to comprehensively assess environmental impacts from four different perspectives.

LIME classifies impacts on the environment into two categories, impacts on human society and impacts on ecosystems, and assesses environmental impacts from four perspectives: how the existence of mankind and ecosystems is affected (human health and biodiversity) and how the security of resources in human society and the photosynthesis capacity of ecosystems are affected (social assets and primary production). Thus, the assessment of the environmental effect regarding overall eco-efficiency, which is used as an index in the Toshiba Group Environmental Vision, integrates the four perspectives, including the perspective concerning biodiversity. The assessment of effects on biodiversity includes, for example, effects of environmentally harmful substances contained in wastewater discharged from factories on the increase of endangered species.

* LIME (Life-cycle Impact assessment Method based on Endpoint modeling): the LCIA method developed by the National Institute of Advanced Industrial Science and Technology (see pp. 29 and 30)

Example **Protecting the habitats of diverse animal species in a lagoon**

Toshiba Corporation Yokohama Complex

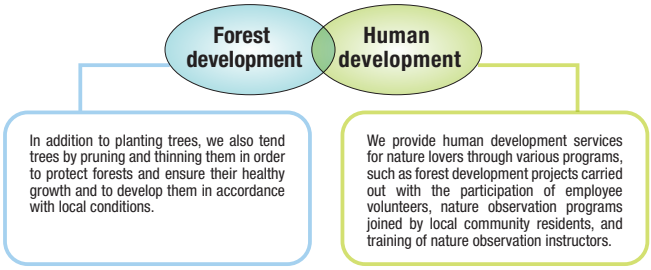
On the premises of the Yokohama Complex, there is a pond, known as a "lagoon," which is part of a drainage channel for treated wastewater discharged from factories (used for manufacturing processes and for living) and rainwater. One of the purposes of the use and management of this lagoon is to secure space for biological habitats. The lagoon is inhabited by diverse species of animals and plants, including spotbill ducks and water speedwells, which are designated as near threatened species. In FY2008, we provided an environmental education session using the results of an ecosystem survey, showing insects collected in the lagoon to local elementary school children.

1.5 Million Tree-planting Project

Toshiba Group is promoting the 1.5 Million Tree-planting Project aimed at growing a 1.5-million-tree forest by 2025, its 150th year of business. In addition to planting trees, we also prune and thin trees for proper forest management. Through these activities, we contribute to creating ecosystems required for the growth of diverse biological species. We also provide human development services for nature lovers through our activities, such as tree-planting events for employees, nature observation programs, and training of nature observation instructors. In FY2008, we carried out our programs in 12 places in Japan and in 6 places overseas, planting an accumulated total of approximately 600,000 trees. As part of our tree-planting project, we are working to promote collaboration with local governments, concluding agreements on forest development with nine local governments, including Tokyo Metropolitan and Hyogo Prefectures, by the end of June 2009.

We received the 2009 Tokyo Metropolitan Prefecture Environmental Award (Governor's Award) for our cooperation in the forest development project in Tama City.

■ Objectives of the 1.5 Million Tree-planting Project



●Forest development

Tree planting

In May 2009, we donated 80,000 saplings to restore the national forest in the State of California, US, which was burnt in a forest fire. Toshiba's employees participated in planting trees as volunteers.

In May 2009, we crated Company Forest Toshiba Fuchu (Ome) in Ome City, Tokyo. In this forest, we will be engaged in forest development activities over the next ten years, planting trees and weeding.

Tree thinning

In October 2008, we signed an agreement with Hyogo Prefecture, Shiso City, and Hyogo Tree-planting Association, and held a tree thinning workshop.

In November 2008, we held a tree thinning workshop in Kameoka City, Kyoto Prefecture. A total of 20 employees and their family members participated in the workshop to experience tree thinning and learned about thinning and mountain plants.

●Human development

Nature observation and nature learning programs

In order to help people understand the joy and importance of nature, we hold a nature hands-on observation program, the Toshiba Forest Science Expedition Team. The program is supported by Toshiba's employees certified as nature observation instructors.

We provide learning sessions when holding forest development events in order to raise environmental awareness among the employees and their family members who participate in the events.

■ Development of a system to establish a link between the promotion of thinning and the use of thinned trees in collaboration with local governments and NPOs

Concluding a comprehensive agreement on forest development with Aomori Prefecture to support the activities of the Forest Neighborhood Association

In May 2009, Toshiba Group concluded a comprehensive agreement on cooperation in forest development with Aomori Prefecture. Based on this agreement, we are working in collaboration with Aomori Prefecture to develop a total of about 10.5 ha of forest land in Shichinohe-machi and Misawa City and are using the land as training grounds for the environmental education of employees. We will also use the Forest Neighborhood Association system promoted by the environmental NPO Office Neighborhood Association*. This system allows wood generated by tree thinning in Misawa City to be processed and made into paper by paper manufacturers and to be used as copy paper for pamphlets and other printed materials. We contribute to the development of a recycling-based society not only through the thinning of trees, but also through the use of thinned trees.

* A new tree thinning promotion system organized by the environmental NPO Office Neighborhood Association, which is aimed at creating a link between forest development and companies in order to establish a connection between tree thinning and the use of thinned trees.

Stakeholder Dialogue

Toshiba Group holds dialogues with stakeholders in countries around the world in order to improve its activities based on stakeholders' opinions.

●The second environmental dialogue held in the US

Toshiba America, Inc. invites members of environmental NGOs and socially responsible investment (SRI) research organizations to hold environmental dialogues on a continuous basis.

At the first environmental dialogue held in March 2007, which was attended by experts from NGOs such as the National Recycling Coalition (NRC) and SRI research organizations, it was suggested that we issue a corporate statement with clear numerical targets. In response to this suggestion, we formulated the Toshiba Group Environmental Vision 2050 in 2007, announcing our commitment to reducing our environmental impact and establishing clear target that reflect our values and intentions. In 2008, we released our environmental report, unveiling our pledge to devote ourselves to reducing greenhouse gas emissions. Also, in order to communicate these environmental initiatives to a wide range of stakeholders, we took measures to maintain close communication with major media companies.

At the second environmental dialogue held in February 2009, we had discussions with representatives from environmental NGOs and SRI research organizations concerning expectations about our environmental activities and commitment. At this meeting, we received favorable feedback and expectations from the participants concerning our Environmental Vision 2050, as well as our ongoing recycling efforts in the US, our environmental communications and the publication of our corporate environmental report. Some of the encouraging comments we received included: "Toshiba's activities represent major advancements beyond what was reported in the first dialogue, and I understood very well the seriousness of your company's commitment to resolve environmental problems," and "I hope that the company further strives to address environmental challenges earnestly by making the most of its comprehensive strength, which features a broad range of businesses and a diverse product portfolio." At the same time, we also received feedback such as: "The company should focus on stakeholders' interests and provide environmental information that is easier to understand," "The company needs to tackle environmental problems as one of its business opportunities and increase its competitiveness as a leading company in environmental initiatives," and "I want the company to develop an approach to environmental labeling that consumers can easily understand."

Participants in the second U.S. environmental dialogue

NGO : Carbon Disclosure Project, The Climate Group, Green Electronics Council, National Recycling Coalition, Resources for the Future

SRI : Domini

Toshiba : Chairman & CEO of Toshiba America, Inc and other employees .

Team Minus 6% Campaign

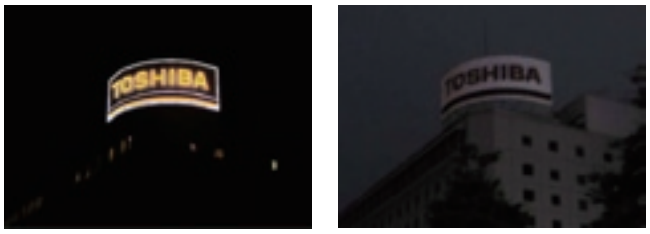
Toshiba Group is participating in the Team Minus 6% National Campaign, which was launched in April 2005 by the Ministry of the Environment. In addition to promoting the "Light Down" campaign, the "Cool Biz" campaign, and the use of the environmental consciousness logo, we also encourage employees to participate in the environmental household accounts program (the Eco Family Project of the Ministry of the Environment) so as to raise the environmental awareness of their family members.

●Promotion of the "Cool Biz" campaign

We encouraged employees to wear casual business clothes ("Cool Biz") while working in Toshiba Group offices and to strictly follow the rule to set the air conditioner temperature to 28°C during the summer. We also displayed "Cool Biz" posters in our company offices in order to call for the cooperation of employees and customers.

●"Light Down" campaign to reduce CO_2 emissions

We participated in the Black Illumination 2008 campaign (June 21) and the Star Festival Light Down campaign (July 7) organized by the Ministry of the Environment and put out all signboard illuminations in offices and towns. Toshiba Group designated the period between June 20 and July 7 as the voluntary campaign period and carried out the "Light Down" operation, with a total of 78 domestic and overseas facilities participating in our voluntary campaign and a total of 22,291-kWh electricity saved during the period. This is equivalent to the amount of electricity consumed by a household in about six years.



Before lights out　　After lights out

Signboard illumination in front of the Toshiba Sendai Building

●Promotion of the environmental accounts campaign

Toshiba Group is participating in the Eco Family campaign of the Ministry of the Environment in Japan in order to raise the environmental awareness of its employees. The number of Toshiba employees' families that participated in the campaign by March 2009 amounted to 36,323.

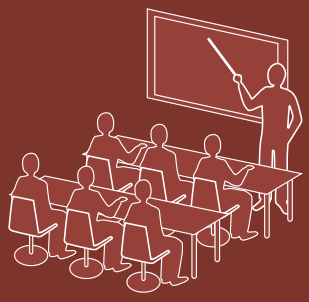
Evaluation by External Parties

Award title	Award-winning item(s)	Evaluated group
Evaluation of eco products		
Economy, Trade and Industry Minister's Award (the 19th Energy Conservation Grand Award)	15 air conditioner models for retail facilities and offices, including the Super Power Eco Cube Series, ROA-AP1125HS/AIU-AP1125H 	Toshiba Carrier Corp.
Energy Conservation Center Chairman's Award (the 19th Energy Conservation Grand Award)	4 room air conditioner models, including the Daiseikai RAS-402PDR 	Toshiba Carrier Corp.
Energy Conservation Center Chairman's Award (the 19th Energy Conservation Grand Award)	4 bulb-type LED lamp models, including the E-CORE (LED lamp) LEL-BR9N-F 	Toshiba Lighting & Technology Corp.
Best Product and Service Award/Nikkei Industrial Newspaper Award (2008 Nikkei Award for Outstanding Products & Services)	2 high-output LED bulb models, including the E-CORE series, midget reflector type 60-W class and 2 beam lamp type 100-W class models 	Toshiba Lighting & Technology Corp.
Mayor of Osaka Award (Electrical Construction Equipment and Materials Fair 2008)	High-efficiency LED downlight Dimming type E-CORE 60 	Toshiba Lighting & Technology Corp.
Evaluation of eco processes		
2008 METI Director-General's Award for Outstanding Energy-Saving Processes	Significant reduction of freezing energy for clean room air conditioning	Oita Operations, Toshiba Corp.
2008 METI Director-General's Award for Outstanding Energy-Saving Processes	Reduction of the pure water heating load through the efficient use of a heat exchanger	Iwate Toshiba Electronics Co., Ltd.
3R Promotion Council Chairman's Award	3R promotion activities across a business site	Ome Complex, Toshiba Corp.
Tokyo Metropolitan Office Global Warming Mitigation Measure Planning System Award	Outstanding business site: AAA assessment	Fuchu Complex, Toshiba Corp.
E3 Award (Excellence in Ecology and Economy Award)	Overall environment protection activities	Toshiba Information Equipment (Philippines), Inc.
Outstanding Energy Efficiency Award	Energy-saving activities	Toshiba Information Equipment (Philippines), Inc.
Green Rating Award	Wastewater management	Toshiba Information Equipment (Philippines), Inc.
Ministry of the Environment & Water Resources, Singapore, Friends of Water	Water supply management	AFPD Pte Ltd. (Singapore)
2008 Hangzhou Economic Development Zone Energy Savings Award	Energy-saving activities	Toshiba Information Equipment (Hangzhou) Co., Ltd. (China)
Ontario Waste Minimisation Award: Business Silver	Efficient use of resources	Toshiba of Canada, Ltd.
Montreal Protocol Exemplary Project Recognition	Protection of the ozone layer	Toshiba Semiconductor (Thailand) Co., Ltd.
The Honor Certificate of Energy Award for Good Governance Project Year 2008	Energy-saving activities	Toshiba Hokuto Electronic Devices (Thailand) Co., Ltd.
TCEQ 2008 Public Drinking Water Recognition Program Award for Exceptional Compliance with the Total Coliform Rule Requirements	Contributions to the heath of citizens through factory wastewater treatment systems	Toshiba International Corp. (US)
Evaluation of eco programs (communication)		
Environment Minister's Award for Global Warming Mitigation Measures and Award for Outstanding Environmental Reports (the 12th Environmental Communication Award)	Toshiba Group Environmental Report 2008	Toshiba Group
Site Report Award (Toyo Keizai's 12th Environmental and Sustainable Report Award, Environmental Report Section)	Environmental Report 2008	Yokohama Complex, Toshiba Corp.
Corporate & School Partnership (CASP) Programme	Environmental communications with elementary schools	AFPD Pte Ltd. (Singapore)
Evaluation of eco management		
Japan Environmental Efficiency Forum Chairman's Award (Environmental Efficiency Award 2008, Product Activity Section)	High-environmental-efficiency lighting instruments designed to replace incandescent lamps	Toshiba Lighting & Technology Corp.

Evaluation by assessment organizations		
Ranking based on the 12th Environmental Management Survey by Nikkei Inc.	2nd place (manufacturing industry)	Toshiba Group
Intangible value assessment by Innovest (US)	AA	Toshiba Group
Nikkei BP Environmental Management Forum: the 10th Environmental Brand Survey	14th place (among 560 major companies of different industries)	Toshiba Group

Chapter.6

Management



Environmental Management

As a corporate citizen of planet Earth, Toshiba Group places prime importance on integrity in order to support fair and trustworthy business practices and promotes activities that form the core of its environmental policy in order to strengthen its global environmental management system.

Summary of activities in FY2008

Environmental Policy

Toshiba Group has explicitly stated its policies on environmental conservation in its Corporate Philosophy and promotes environmental management by focusing on environmental issues as one of its top management priorities. It has also formulated the Basic Policy for the Environment which lays out specific environmental strategies to be shared by all members of the group.

Basic Commitment of Toshiba Group

We, Toshiba Group companies, based on our total commitment to people and to the future, are determi ned to help create a higher quality of life for all people, and to do our part to help ensure that progress continues within the world community.

Commitment to People

We endeavor to serve the needs of all people, especially our customers, shareholders, and employees, by implementing forward-looking corporate strategies while carrying out responsible and responsive business activities. As good corporate citizens, we actively contribute to further the goals of society.

Commitment to the Future

By continually developing innovative technologies centering on the fields of Electronics and Energy, we strive to create products and services that enhance human life, and which lead to a thriving, healthy society. We constantly seek new approaches that help realize the goals of the world community, including ways to improve the global environment.

TOSHIBA Group Slogan

Committed to People,
Committed to the Future. TOSHIBA

Toshiba Group's Basic Policy for the Environment

Based on the recognition that it is our responsibility to maintain the health of the global environment as an irreplaceable asset for future generations, Toshiba Group will contribute to the development of a sustainable society by creating new value and by achieving harmony with the global environment in accordance with the Toshiba Group Environmental Vision.

◆Promoting environmental management

- Toshiba considers environmental stewardship to be one of management's primary responsibilities and promotes environmental activities in harmony with economic activities.
- Toshiba assesses the environmental aspects of its business activities, products and services, and specifies objectives and targets with respect to the reduction of environmental impacts and prevention of pollution.
- Toshiba strives to continuously improve environmental management through internal audits and reviews of activities.
- Toshiba complies with all laws and regulations, industry guidelines it has endorsed, and its own standards concerning the environment.
- Toshiba strives to enhance the awareness of all its employees with respect to the environment and requires that they make a practical contribution to the environment through their work.
- Toshiba operates globally, and accordingly, promotes environmental activities throughout Toshiba Group.

◆Providing environmentally conscious products and services and reducing their environmental impact through business activities

- Toshiba recognizes that natural resources are finite and implements vigorous environmental measures to promote their effective and practical use in terms of both products and business processes.
- Toshiba develops and provides environmentally conscious products and services which contribute to the reduction of environmental impacts throughout their life cycles.
- Toshiba strives to reduce the environmental impacts of all business processes, encompassing design, manufacturing, logistics, sale, and disposal, with a particular focus on the prevention of global warming, efficient utilization of resources and control of chemical substances.

◆As a corporate citizen of planet Earth

- Toshiba contributes to society through its environmental activities, which include the development and provision of excellent, environmentally conscious technologies and products and cooperation with society at large and with local communities.
- Toshiba is committed to maximizing disclosure and transparency in communication with stakeholders and society at large in order to facilitate mutual understanding.

Based on the Basic Policy for the Environment, Toshiba Group is working to systematically promote environmental initiatives in accordance with the Environmental Vision which sets numerical targets to be achieved as well as establishes voluntary environmental plans. Voluntary environmental plans are action plans for achieving the numerical targets.

In order to achieve the goals of the voluntary environmental plans, we have developed an environmental management structure aimed at promoting initiatives that form the core of our environmental management. In addition to measures that ensure compliance with laws and regulations, which is our top priority, we provide a wide range of environmental education programs for all employees. We are also working to develop an ISO 14001 system aimed at ensuring legal compliance and supporting management structures within individual companies and to monitor our environmental management, development of environmentally conscious products and environmental activities at our business sites through our environmental auditing system (EASTER) in order to improve the level of activities. As a tool for the management and analysis of environmental information and environmental accounting data, we have created a global environmental management information system, which is centrally controlled. And in order to provide incentives to take on environmental challenges, we have developed an environmental award system for organizations, teams and individuals and a performance evaluation system for in-house companies and key group companies.

Basic Commitment of Toshiba Group

Basic Policy for the Environment

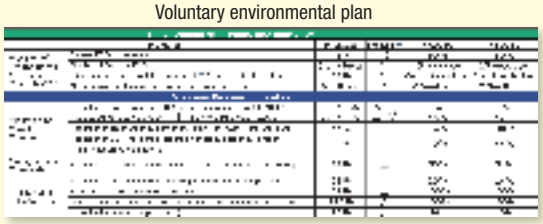
- Promoting environmental management
- Providing environmentally conscious products and services and reducing their environmental impact through business activities
- As a corporate citizen of planet Earth

Environmental Vision

▶See p. 5 for details.

Action Plan for Achieving the Vision

Voluntary environmental plan



▶See p. 11 for details.

Core Initiatives

Environmental Awards and Performance Evaluation

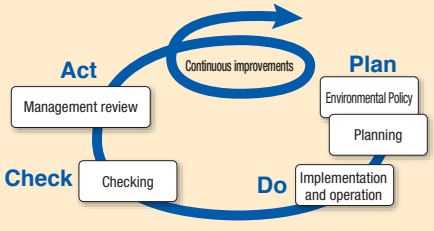
Environmental Education

Environmental Management Information System

Environmental Accounting

Environmental Audit system

ISO14001



Observance of Environmental Laws and Regulations

Management Structure

Environmental Management Structure

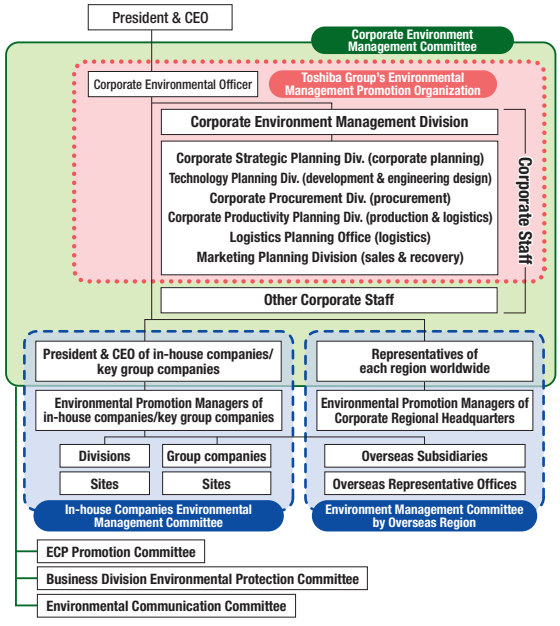
Toshiba Group is promoting environmental management worldwide as a group. There are four pillars upholding our environmental management: (1) strengthening of the environmental management structure, (2) provision of environmentally conscious products and services, (3) development of environmentally conscious manufacturing, sales and processing, and (4) promotion of environmental communication. We take active measures to promote initiatives focused on these objectives.

In order to promote environmental management, the Corporate Environmental Officer supervises the group as a whole, giving instructions to in-house companies and the presidents of key group companies. The Corporate Environment Management Division formulates specific strategies for environmental management. With a view to promoting and strengthening environmental management not only among environmental divisions, but also throughout all companies, we have organized Toshiba Group's Environmental Management Promotion Organization, which is directly supervised by the Corporate Environmental Officer. This organization, which is composed of divisions that provide direct support for Toshiba Group's businesses and services from environmental perspectives–i.e. the Technology Planning Division (development & engineering design), Corporate Procurement Division (procurement), Corporate Productivity Planning Division (production & logistics), Marketing Planning Division (sales & recovery) and Corporate Environment Management Division–started its activities in 2005. In FY2009, the Corporate Strategic Planning Division (corporate planning) and the Logistics Planning Office (logistics) were added as members of the organization in order to further enhance our environmental management.

The Corporate Environment Management Committee was formed as a group-wide decision-making organization regarding environmental management. The Corporate Environmental Officer serves as the chairperson of this committee, which holds meetings twice a year, attended by executive officers, environmental management officers of in-house companies and key group companies, and overseas regional directors. Various issues are examined at these meetings, such as proposals concerning environmental facilities for business management, technological development, production and sales, as well as reviews of voluntary environmental plans aimed at achieving the Environmental Vision, in order to discuss and determine guidelines and plans.

The following committees were organized as subgroups of the Corporate Environmental Management Committee: the Environmentally Conscious Products (ECP) Promotion Committee, which promotes the development of environmentally conscious products and technologies; the Business Division Environmental Protection Committee, which promotes measures to reduce the environmental impact of business activities; and the Environmental Communication Committee, which promotes internal and external communication between our companies. These committees formulate detailed plans, identify potential problems and review measures implemented to solve problems in order to promote the sharing of information among all company members. Various committees specializing in particular themes are engaged in activities in a wide range of areas under the supervision of these committees.

■ Toshiba Group Environmental Management Structure

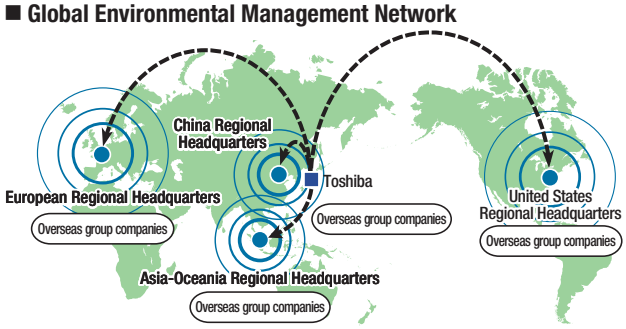


●Enhancement of the global environmental management structure

We have established corporate regional headquarters in Europe, the US, China and Asia-Oceania in order to collect and share information on environmental policies and regulations in different regions and to provide cooperation and support for group companies in these regions in developing effective environmental strategies.

Regional environmental management committee meetings are also held twice a year in response to the Corporate Environmental Management meetings. In FY2008, we focused on providing e-learning training and training for local auditors who conduct environmental audits of overseas sites.

■ Global Environmental Management Network



Environmental Management System (ISO 14001)

In recognition of the important role of activities at business sites in promoting environmental management, we obtained ISO 14001 certification for all of the Toshiba Corporation's 16 domestic business sites by 1997 and have maintained the certification to this day. Among the 184 business sites of Toshiba Group as a whole, we have obtained certification for 163 sites, which covers 95% of our employees. We will continue our efforts to obtain and maintain ISO 14001 certification, mainly for overseas business sites that have become eligible for certification as a result of business expansion.

Toshiba Semiconductor Company and Toshiba Elevator and Building Systems Corporation are striving to obtain integrated certification for their headquarters, sales offices, factories and their group companies in order to develop environmental management systems for entire companies and company groups.

■ List of ISO-14001-certified Sites

	Eligible sites	Certified sites	Certification rate	Percentage of employees
Toshiba Corporation's business sites	16	16	100%	100%
Domestic manufacturing sites	64	60	94%	97%
Domestic non-manufacturing sites	39	39	100%	100%
Overseas manufacturing sites	53	43	81%	93%
Overseas non-manufacturing sites	12	5	42%	24%
Total	184	163	89%	95%

As of March 31, 2009

✻The list of ISO-14000-certified sites is posted on our website:
http://www.toshiba.co.jp/env/en/management/iso14001.htm

Environmental education and certificates

In order to raise the level of environmental activities, we provide environmental education programs for all employees. These education programs are composed of (1) position-based education courses, (2) general education courses, (3) specialized education courses, and (4) ISO 14001 education courses, offering curriculums designed to meet the needs of different posts, occupational roles and specialties. Curriculums are reviewed annually for all education courses in order to help employees share the latest information.

In general education courses designed for all members of the group, we use e-learning to provide lessons to employees at local branches and to employees on business trips using mobile PCs in order to save time on transportation and to improve attendance rates.

In specialized education courses, we provide ECP education and in-house environmental auditor education. ECP education is provided for development and design engineers to help them learn the basics of ECP development and approaches to environmental conscious design.

We also offer programs for obtaining national and public certificates required for environmental activities. We will provide measures to encourage using environmental household accounts (Eco Family) and taking the ECO test* in order to raise environmental awareness among employees and their family members.

We will continue to improve our education programs and will promote the use of IT in our environmental education programs for all employees.

*Certification test for environmental specialists administered by the Tokyo Chamber of Commerce and Industry

■ Environmental education system

Position-based education	General education		Specialized education		ISO 14001 education		
			ECP education	In-house environmental auditor education			
Education for managers	Environmental mindset training course	e-learning (for all group company members)	Introductory course for environmentally conscious design	Education for the certification of in-house environmental auditors	General education (for all employees and business sites)	Training courses for internal auditors	Education for special employees
Education for employees in general	Environmental education for new employees		Practical course for environmental recycling design	・Site auditors			
Education for new employees				・Technology auditors			

As part of our in-house auditor education, we provide training for auditors for our comprehensive environmental auditing system (EASTER), which was put into practice in 1993. In the training program for site auditors, candidates are screened through group education, on-site training and a written examination. After the screening, candidates participate in actual audits as assistants and submit reports in order to be certified as auditors. Technology auditors are certified through group education and a written examination. In FY2008, 24 employees were certified as site auditors, 13 as technology auditors and 6 as overseas local auditors. The current number of certified auditors is 272. (See p. 66 for details on EASTER.)

■ Training for EASTER auditors (site auditors)

Education (1 day)
↓
On-site training
↓
Chosen as a candidate
↓
Assistance in audits
↓
Submission of audit reports (twice)
↓
Certified as an auditor

●Knowledge required
・Global environmental issues
・Environmental laws and regulations
・ISO environmental management system
・Environmental science and technology
・Toshiba's environmental promotion rules and structural guidelines, etc.

●Requirements for auditors
・Employment in positions equivalent to or higher than section chief
・Auditors are classified into chief auditors, executive auditors and assistant auditors depending on experience and skills

●Other
・Education session is held once a year.
・The pass rate is about 40%.

Toshiba Group certified auditors in FY2008

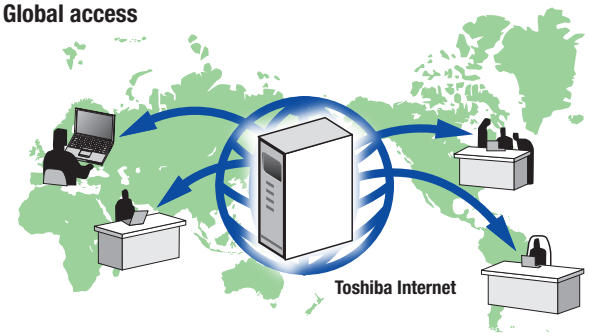
Site auditors: 161 Overseas local auditors: 18
Technology auditors: 93

Environmental management information system

We have developed an Environmental Management Information System in order to collect and manage environmental data required to promote environmental management. The Environmental Management Information System makes it possible to centrally manage and register not only performance data, such as energy consumption required for business activities and the amount of waste generated from these activities, but also environmental accounting information and the results of site environment audits. It covers all consolidated subsidiaries within the scope of management of Toshiba Group (538 companies in FY2008) and is accessible from countries around the world.

In FY2008, functions for controlling the target values of voluntary environmental plans were added to the system and measures were taken to improve the accuracy in the management of actual environmental performance data based on medium-term plans. We will continue to improve the various data functions in order to create a system that can provide timely data for environmental management.

■ Global access



■Unified system for the management, input and aggregation of data

Environmental Management Information System

- **Performance data** (FY2005~)
  - Energy and GHG — 93 items
  - Logistics energy — By transportation means and by purpose (FY2007~)
  - Waste — 22 categories, 17 items each
  - Chemical substances — 449 substances, 15 items each
  - Number of vehicles owned, etc. — 38 items
- **Management of target values** — VPE items (FY2008~)
- **Environmental accounting** — Cost: 48 items; Benefit A~D: 136 items (FY2006~)
- **Environmental audit** (FY2006~)
  - Audit plan and progress management — 10 items
  - Input of results; data preserved — 11 items with files attached in pdf and other formats

■Data entry screen (Japanese and English)

Environmental awards and performance evaluation

●Environmental award system

In FY2003, Toshiba Group organized the Toshiba Group Environmental Award Program in order to award President's awards to individuals, groups and offices that have delivered outstanding performance regarding environmental management or development of environmentally conscious products, business processes and communication.

Out of 25 groups carefully selected from among in-house companies and key group companies, 4 groups won Outstanding Performance Awards and received awards at the award ceremony held at the Toshiba Group CSR Conference (December). Two of the five groups chosen from overseas companies received Outstanding Performance Awards, which indicates the effects of Toshiba Group's global environment activities.

No group was chosen for the Highest Performance Award in FY2008. Public standards for environmental management are becoming stricter every year. We need to step up our group-wide efforts so that we will be able to carry out projects worthy of the award in FY2009.

■ Projects chosen for outstanding performance awards in FY2008

Promotion of Environmental Business Strategies through Shifting to High-efficiency Lighting, by the High-efficiency Lighting Promotion Team, Toshiba Lighting & Technology Corporation

The team formulated environmental business strategies through shifting to high-efficiency lighting and increased the value of Toshiba as an environmental brand by announcing the termination of the manufacture of incandescent lights before any other company, contributing to the popularization of high-efficiency lighting.

Creation of Environmental Flagship PCs and Development of Elemental Technologies, by the Environmentally Conscious PC Development Project Team, Personal Computer & Network Company

The team developed a flagship PC with high environmental performance, which was highly evaluated inside and outside the company, and contributed to the development of eco products and the improvement of environmental technologies by applying elemental technologies to a wide range of products.

Promotion of Top-level Environmental Management in the Philippines, by Toshiba Information Equipment (Philippines), Inc.

The company is working to promote top-level environmental management in the Philippines through its initiatives aimed at reducing the environmental impact of manufacturing and establishing collaboration with local communities, and received an award from the government, increasing the value of Toshiba as an environmental brand.

Achievement of Zero Waste by Establishing a System for the Recycling of Molding Sand, by the Environmental Project Promotion Team, Toshiba Hydro Power (Hangzhou) Co., Ltd.

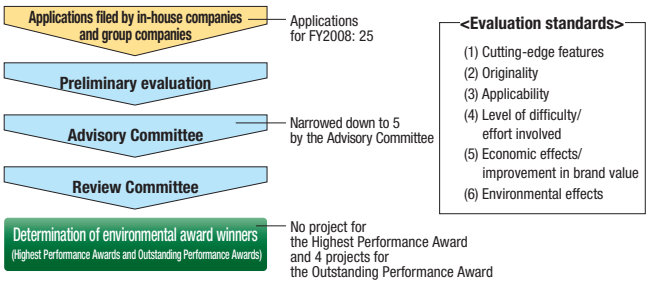
The team provided guidance for recycling companies in China for several years to establish a system for the recycling of molding sand, thereby achieving zero waste and greatly contributing to the effective use of resources.

2008 award winners

■ Projects Receiving Toshiba Group Environmental Awards

Environmental management (development of structures and systems, etc.)	Promotion of environmental management in coordination with the Environmental Vision, voluntary plans and business activities
Environmentally conscious products, technologies and services	Design and development of environmentally conscious products, development of environmental technologies and solutions
Business processes	Activities aimed at reducing the environmental impact regarding all business processes, including research and development, design, procurement, manufacture, sale, distribution, services and recovery of products
Environmental communication	Promotion of measures designed to raise environmental awareness inside and outside the company group

■ Toshiba Group Environmental Award screening process



●Performance evaluation system

Based on the EASTER system (Environmental Audit System in TOSHIBA on the basis of Eco-Responsibility), we evaluate the level of environmental management of all in-house companies and key group companies (14 companies). We numerically evaluate their (1) environmental policies and systems, (2) levels of legal compliance and risk management, (3) business processes, (4) products and services, and (5) approaches to information disclosure and communication, and provide feedback. The results of environmental management evaluation are reflected in the performance evaluation of these companies and serve as incentives.

Compliance with environmental laws and regulations

Toshiba Group sets self-regulation standards stricter than legal standards regarding atmospheric emissions and discharges into water so as to ensure that all its business sites comply with environmental rules. Information on new regulations and accidents that happen in other companies is shared among members of the group in order to implement comprehensive environmental measures. Unfortunately, however, one case of a violation of the rules was discovered in FY2008. We will take prompt and appropriate measures to deal with the problem and will step up our efforts to prevent recurrence based on what we have learned from this experience.

Detailed information is presented on our website to show what measures are taken to ensure legal compliance at our business sites.

Yokkaichi Operations, Toshiba Corporation

Violation of rules discovered in Yokkaichi Operations (July to August 2008)

Inappropriate reporting regarding the High-Pressure Gas Safety Act was discovered in the Yokkaichi Operations, about which Toshiba Corporation received a warning from Mie Prefecture. We submitted an additional report to Mie Prefecture on another case of inappropriate reporting discovered in a company inspection subsequently conducted. We apologize for trouble and inconvenience we have caused related parties. Detailed information on the inappropriate reporting and measures taken to prevent recurrence is presented on our website:

http://toshiba-yokkaichi.jp/topics/topics_080902_02.html

Error in the energy-saving product label on our high-definition recorders

Description errors were discovered in the label of our high-definition recorder model (RD-S303) at the beginning of FY2009. We sincerely apologize for these errors. We immediately reported the errors to related government agencies and requested all Toshiba Group companies to take measures to prevent recurrence. Detailed information on the description errors and corrections is presented on our website:

http://www3.toshiba.co.jp/hdd-dvd/products/info/s303/info_s303.html

(April 28, 2009)

Environmental Audits

After conducting environmental audits for the first time in 1989, Toshiba Group developed a comprehensive environmental auditing system (EASTER*) and has been using the system since FY1993 to conduct audits based on standards established by the group. The auditing system initially developed was composed of four categories: (1) system audits (environmental activity promotion systems, etc.), (2) on-site audits (levels of compliance with rules regarding environmental facilities, etc.), (3) VPE audits (levels of achievement of goals set in voluntary plans), and (4) technology audits (product environment management system, environmental performance, etc.). Audits were conducted in two days to check these items. The most important of these categories were on-site audits, reflecting the shop-floor approach emphasized by Toshiba. This approach is incorporated into the approach of site environment audits conducted today.

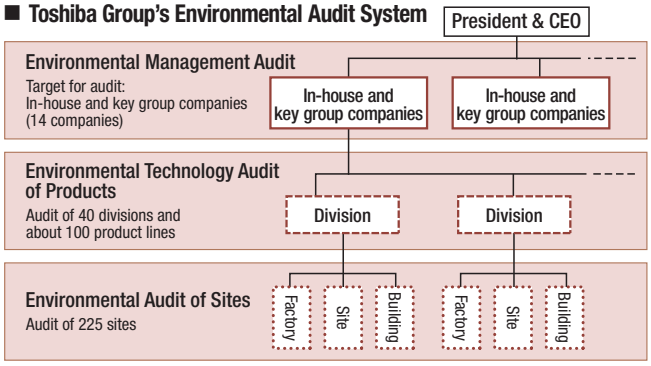
Environmental technology audits of products became an independent category in 1995. Environmental management audits were started in FY2004 to evaluate the level of environmental management in in-house companies and key group companies.

These multiple audits have been integrated into a single system since FY2006 so that they could all be conducted at once. Toshiba Group conducts environmental management audits covering in-house companies and 14 key group companies, environmental technology audits of products covering 40 divisions, and site environment audits covering 225 business sites, including non-manufacturing sites and non-consolidated subsidiaries. In-house companies and group companies conduct self-audits (self-inspections) within their companies based on the same standards in order to check business sites with relatively low levels of environmental impact that are not covered by site environment audits.

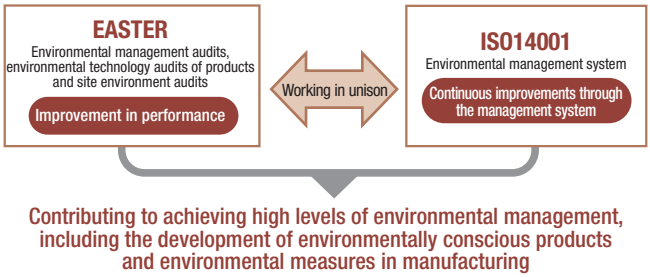
Toshiba Group is working to develop a management system based on ISO 14001 and to ensure performance through EASTER audits in order to achieve a high level of environmental management, including assurance of compliance with regulations, strengthening of risk management, development of environmentally conscious products and environmental measures in manufacturing.

Environmental Audit System in TOSHIBA on basis of Eco-Responsibility

■ Toshiba Group's Environmental Audit System



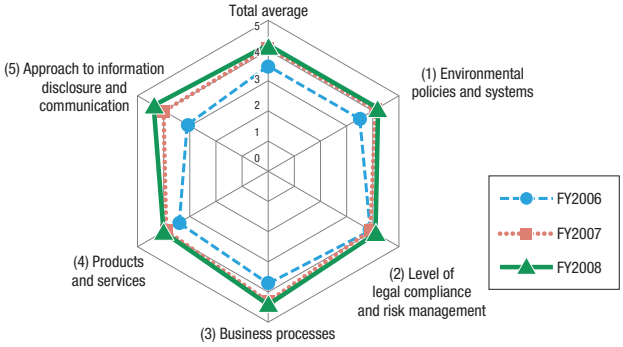
■ Roles of EASTER and ISO 14001



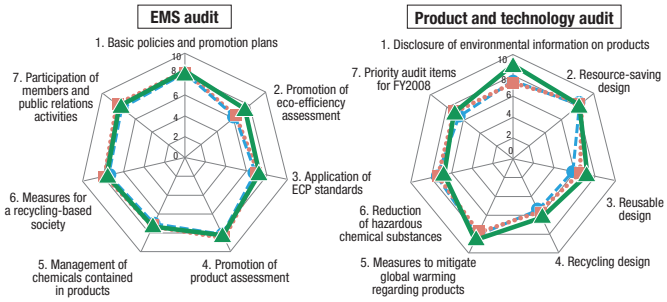
Contributing to achieving high levels of environmental management, including the development of environmentally conscious products and environmental measures in manufacturing

■ EASTER audit results (FY2008)

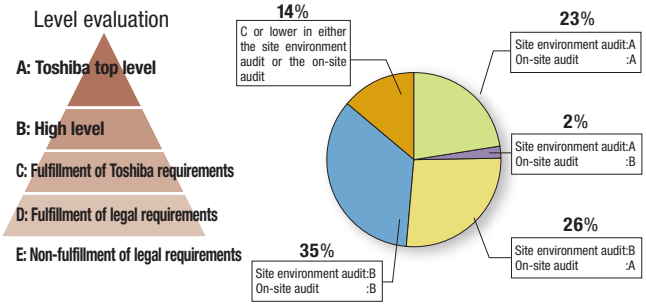
Environmental management audit (total number of check items: 66)



Environmental technology audit of products (total number of check items: 41)

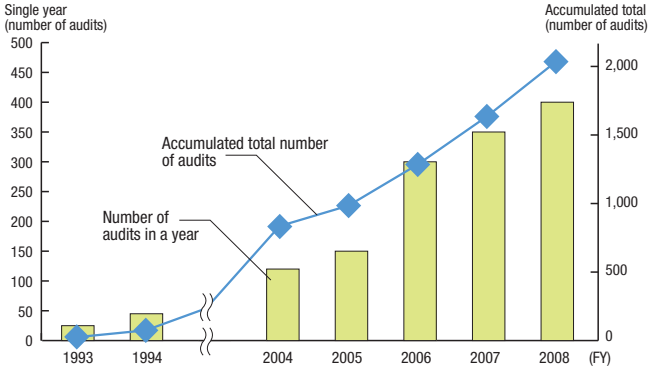


Site environment audit (total number of check items: 219)



The number of audits that are conducted, including self-audits, is increasing annually and the total number of audits conducted since FY1993 has exceeded 2,000. We also provide in-house training for auditors who conduct EASTER audits (see p. 64 for education programs). In order to provide the know-how about audits and auditor training programs developed within Toshiba Group for public use, we are planning to offer consulting services as part of the business of Term Corporation, one of Toshiba's group companies.

■ EASTER audit records



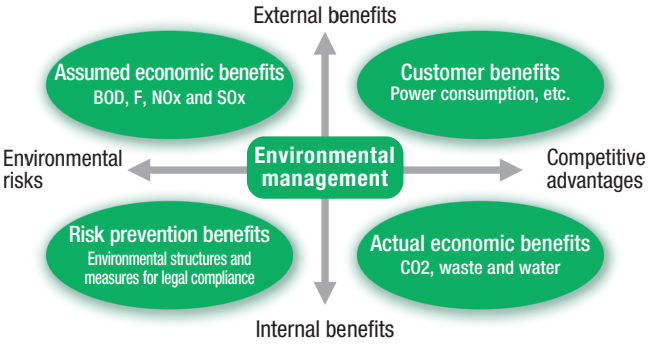
Environmental Accounting

●As a tool for environmental management

With a view to promoting environmental management, Toshiba Group is working to introduce an environmental accounting approach aimed at collecting accurate data on investments and costs required for its environmental conservation initiatives and analyzing the collected data in order to reflect investment effects and cost-efficiency in managerial decision making.

The figure below shows an outline of the environmental accounting of Toshiba Group. Our environmental accounting assumes four basic concepts: prevention of potential environmental risks, business chances, internal benefits and external benefits. We classify benefits into four categories based on combinations of these concepts to develop a comprehensive approach to environmental accounting: customer benefits resulting from reductions in the power consumption required for the manufacture of products, economic benefits estimated to result from reductions in air pollutant emissions, benefits resulting from preventing potential risks and actual economic benefits resulting from reductions in the amount of waste and energy consumption. These categories provide useful indices of environmental management.

■ **Environmental accounting as a tool for environmental management**



●Environmental costs and benefits

The environmental accounting for FY2008 covers 538 consolidated subsidiaries and 626 business sites. Environmental costs are categorized and calculated in accordance with the Environmental Accounting Guidelines 2005 of the Ministry of the Environment. Meanwhile, environmental impact reduction benefits are calculated in terms of both physical quantities and monetary values.

Total environmental costs increased by 18% from FY2007 to 60.7 billion yen. Costs required for global warming mitigation measures and the research and development of environmentally conscious products account for a relatively large percentage of total costs. Environmental research and development costs account for 4.1% of the total R&D costs during the fiscal year (2.8% in FY2007). Total investments decreased by 33% from FY2007 to 13.4 billion yen, with environmental investments accounting for 3.1% of total investments (3.3% in FY2007).

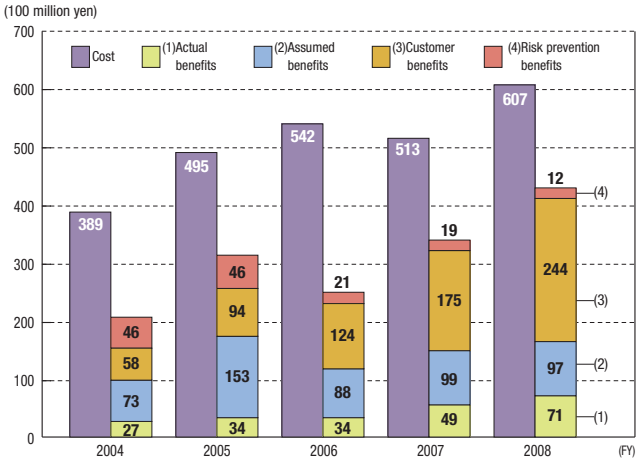
The total amount of environmental benefits increased greatly, by 27%, from the previous fiscal year to 42.5 billion yen. This is accounted for mainly by an increase in customer benefits resulting from reductions in environmental impact (including reductions in power consumption), which were in turn made possible by an increase in the sale of eco products.

In addition to the previous 626 business sites, Sigma Power Ariake and Sigma Power Tsuchiura were included in the calculation of environmental benefits starting from FY2008. Accounting results that include these companies are presented in the bottom half of the rows in the tables shown in page 68. Sigma Power Ariake began full-scale operation in December 2007. The actual and assumed environmental benefits of a company are calculated based on decreases in the environmental impact from the previous year. However, due to the fact that Sigma Power Ariake was in operation only for 4 months in FY2007, the calculation of total environmental benefits for the 12 months of FY2008 in comparison with the previous year results in a large negative value (-101.2 billion yean; negative benefits). Its environmental benefits calculated in terms of monetary values are expected to be positive after next year, when power plant data can be compared on a year-on-year basis.

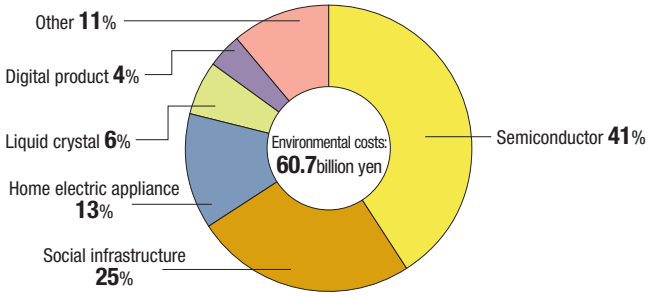
Data on environmental costs and benefits over the past five years shows that there has been an increase in environmental costs as a result of the expansion of the scope of group companies and an increase in costs required for global warming mitigation and the development of environmentally conscious products. There has also been an increase in environmental benefits, especially in customer benefits (environmental impact reduction benefits during the use of products).

Data on environmental costs by business segment shows that the semiconductor segment has the largest share, accounting for 41% of total costs, followed by the social infrastructure segment (25%).

■ **Changes in environmental costs and benefits (FY2004~FY2008)**



■ **Breakdown of environmental costs by business segment (FY2008)**

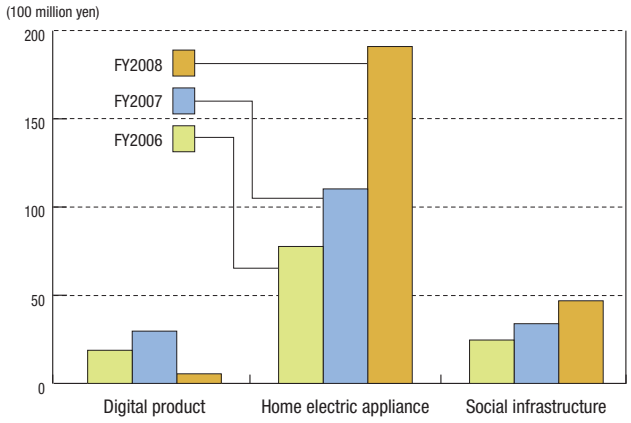


●Breakdown of customer benefits by business segment

The figure on the right shows changes in customer benefits over the past three years. In the calculation of customer benefits, environmental impact reduction benefits during the use of products are converted into monetary values. Among Toshiba Group's business segments included in the calculation, the digital product, home electric appliance and social infrastructure segments are of greatest importance. There was a large increase in customer benefits in the home electric appliance segment in FY2008. This is mainly due to an increase in the sale of bulb-type fluorescent lamps, which greatly contribute to reducing environmental impact.

At the same time, there was a decrease from last year in customer benefits in the digital product segment. Customer benefits are calculated based on the difference in annual power consumption between previous models and current models. Among some products, improvement in the functions of new product models caused power consumption to increase compared with previous models, resulting in negative customer benefits, which caused a decrease in overall customer benefits. There is a need to restrain increases in power consumption resulting from improvement in functions.

■ Breakdown of customer benefits by business segment



■ Environmental costs

Unit: million yen

Category	Description	Investments	Costs
Business area costs	Reduction in the environmental impact	11,807 (△6,308)	31,260 (4,701)
Upstream/downstream costs	Green procurement, recycling, etc.	822 (638)	2,326 (755)
Administration costs	Environmental education, EMS maintenance, tree planting on factory grounds, etc.	302 (△99)	9,456 (△1,079)
R&D costs	Development of environmentally conscious products, etc.	441 (△939)	15,650 (4,562)
Public relations costs	Support for local environmental activities, donations, etc.	17 (14)	117 (44)
Environmental damage restoration costs	Restoration of polluted soil, etc.	1 (△48)	1,912 (480)
Total		13,389 (△6,743)	60,721 (9,463)
		Total investments during the period	425.2 billion yen
		Total R&D costs during the period	378.3 billion yen

Figures in parentheses represent increases or decreases from the previous year.

■ Environmental benefits

Unit: million yen

Category	Description	Amounts	Calculation method
(1)Actual benefits*	Benefits that are represented as monetary values, such as reductions in electricity and water charges	7,128 (2,226) △2,321 (△7,223)	The amount of money, such as electricity charges and waste disposal costs, that was saved compared with the previous year, plus earnings from the sale of objects with value
(2)Assumed benefits*	Reductions in environmental impact that are converted into monetary values	9,740 (△176) △124,576 (△134,492)	The amount of money was calculated by multiplying the cadmium equivalent value of each substance obtained from environmental standards and the ACGIH-TLV (American Conference of Governmental Industrial Hygienists Threshold Limit Value) by damage compensation for cadmium pollution. This method of calculation provides a means of showing year-on-year reductions in the environmental impact on the atmosphere, water and soil and makes it possible to compare the environmental impact of different substances using the same standard by converting the impact into monetary values.
(3)Customer benefits	Reductions in environmental impact during the use of products that are calculated in terms of monetary values	24,447 (6,993)	Environmental impact reduction benefits through the life cycle of products are evaluated in physical quantity units and monetary units (amounts of money). The life cycle of a product includes (1) procurement of materials, (2) manufacturing, (3) transportation, (4) use, (5) shipment, (6) recycling, and (7) proper disposal. Toshiba's environmental accounting focuses on environmental impact reduction benefits during the use of products. Energy-saving benefits are calculated by using the following equation: Benefits (yen) = Σ [(Annual power consumption of the previous product model − Annual power consumption of the current product model) × Number of products sold annually × Benchmark unit price of electricity]
(4)Risk prevention benefits	Reductions in environmental risks compared with conditions prior to investments that are calculated in terms of monetary values	1,222 (△671)	Benefits accruing from investments in environmental structures, such as dikes, designed to prevent the pollution of soil and groundwater are evaluated as benefits of preventing potential risks. Risk prevention benefits are calculated for each capital investment item using the following equation: Risk prevention benefits = Quantity of chemical substances safely stored × Standard amount of money required for purification and restoration × Number of potential accidents. Values calculated using our own standards were used for the calculation of the standard amount of money required for purification and restoration and potential accidents in order to assess risks resulting from chemical leaks.
Total*		42,537 (8,372) △101,228 (△135,393)	

Figures in parentheses represent increases or decreases from the previous year.

(1) Actual benefits*

Item	Reductions in environmental impact	Benefits measured in monetary values (in millions of yen)
Energy	2,311,712(GJ) 655,488(GJ)	△1,342 △10,399
Waste	3,875(t) 482(t)	8,286 7,983
Water	2,346 (thousand m³) 625 (thousand m³)	184 95
Total		7,128 △2,321

(2) Assumed benefits*

Item	Reductions in environmental impact	Benefits measured in monetary values (in millions of yen)
Benefits from reductions in the amount of chemical substances discharged	78(t) △2,150(t)	9,740 △124,576

(3) Customer benefits

Item	Reductions in environmental impact	Benefits measured in monetary values (in millions of yen)
Environmental impact reduction benefits during the use of products	377,841(t-CO_2)	24,447

Reductions in the environmental impact represent differences between FY2008 and FY2007.
Negative figures indicate that there were increases in the environmental impact due to circumstances such as increases in production that exceeded the reduction benefits.
Due to rounding errors, sums of individual figures may not equal the totals.

*Actual and assumed benefits calculated for the same companies as last year are presented in the top half of the rows of the respective tables, while actual and assumed benefits calculated for all companies including Sigma Power Ariake and Sigma Power Tsuchiura are presented in the bottom half of the rows of the tables.

Third-Party Evaluation

Environmental Performance Data
Independent Verification Report

To: Toshiba Corporation

2009/July/15

Bureau Veritas Japan Co., Ltd
System Certification Services Headquarter

Objective of verification and review
Bureau Veritas Japan Co., Ltd (BV) has evaluated environmental performance data for Fiscal Year 2008 including environmental accounting and environmental efficiency data(environmental performance data) for the Toshiba Group Environmental Report 2009 (the Report), issued under the responsibility of Toshiba Corporation (Toshiba). Bureau Veritas' responsibility is limited to verifying environmental performance data generated in-country (domestic) and to reviewing environmental performance data generated at overseas sites, based on objective evidence.

Scope of work
Bureau Veritas has visited the following facilities and has evaluated environmental performance data for the Toshiba Group Environmental Report 2009.

Toshiba Principal Office:	Headquarters
Toshiba Oita Operations:	Manufacturing of System LSIs
Toshiba Kaihin Product Operations:	Manufacturing of power equipment
Iwate Toshiba Electronics Co.,Ltd:	Manufacturing of MOS LSIs
Toshiba Fukaya Operations (TV Division):	Designing and manufacturing of TVs

Verification and review work
Bureau Veritas has conducted the evaluation based on agreement with Toshiba, at:
Principal Office
- The reliability of data collection and aggregation systems, the adequacy of the overall process, and the effectiveness of internal verification checks
- The accuracy of the data collected for the reporting period

Domestic Operations and Manufacturing subsidiaries in Japan
- The appropriateness of the measurement and scope of data for collection
- The effectiveness of data measurement, collection and aggregation methods and of internal verification checks
- The accuracy of measured, collected and aggregated final data

Overseas Operations and manufacturing subsidiaries outside Japan
- The evaluation of environmental performance data reported from the sites to the principal office for the reporting period

Verification and review findings
Key findings:
1. Domestic environmental performance data presented in the Report is a true representation of that collected at site level and aggregated centrally at the Principal Office. No misstatements or inaccuracies were identified in the reporting data based on the scope of work above.
2. Overseas environmental performance data reported in the Report is a true representation of that collected and aggregated centrally.
3. Toshiba's systems for the monitoring, collection and aggregation of performance data is considered to be reliable and appropriately conducted at each of the visited sites.

Bureau Veritas has implemented a code of ethics across its business which is intended to ensure that all our staff maintain high standards in their day to day business activities. We are particularly vigilant in the prevention of conflicts of interest. Bureau Veritas activities for Toshiba Corporation are for Environmental Report verification only and we believe our verification assignment did not raise any conflicts of interest.

Reference View

Bureau Veritas has verified the environmental performance data collection activities at the Principal Office and at site level. Bureau Veritas has concluded the following:

1. Positive Findings

- The Environmental Management Information System has been adopted for collecting and aggregating the data. This system enables Toshiba to avoid manual data input errors and review site data. The implementation of this system has enhanced management of performance data and therefore its overall credibility.
- The product eco-efficiency indicator "Factor T" is calculated automatically for the most part by using Excel and LCA software. Various measures are adopted to prevent mistakes in the data input process and the result was seen to be reliable.
- Bureau Veritas has observed a robust data management system developed at site level that can be utilized company-wide to further improve the reliability of group data.
- All domestic and international data presented in the Report was a true representation of that collected at site level and aggregated centrally at the Principal Office.

2. Improvements Addressing Issues with Last Year's Report

- It is commendable that Toshiba has been collecting and processing information from an increasing number of global sites, providing improved data coverage that now covers more than 600 sites. However, variability in data management has been observed across the sites visited as part of the scope of this independent verification. Where data gaps have been identified, appropriate measures have been taken and where such gaps could not be filled, then estimated figures were used.
- There is a need for further improvement in the completeness of data collected at both overseas production and non-production sites, particularly at sites where the environmental impact is deemed to be high.
- The Principal Office management structure has been reorganized to provide a more systematic approach to data management. However, as the process for internal checking is not standardized, this can lead to differences in such data quality. Some degree of standardization and documentation of internal data checking for this purpose could strengthen the detection of missing and abnormal data.

3. Opportunities for Improvement

- Errors in the scope of data collecting, specific units of aggregation, and manual data input have been identified. A review of the data input process and related training needs is recommended to improve consistency and reliability.
- It was observed that in some sites, the existing aggregation process for energy and waste data is not documented and that complex aggregation is dependant on the level of skill and technical knowledge of individual staff members on site. A standardized and documented data checking and aggregation procedure and information sharing system should be developed for the collation and aggregation of energy usage and waste data.
- To ensure that performance data of the highest quality and reliability is presented in future environmental reporting it is recommended that external verification of data from Toshiba's overseas sites be carried out.
- Recycling data of end-of-life products is limited to Japan, Europe, and the United States. It is recommended, however, that such data also be covered in China and Asia in the future.

History of Our Activities

Promoting Organization	FY	Initiatives, activities, and topics
Toshiba Group's Environmental Management Promotion Organization restructured into six divisions by adding the Corporate Strategic Planning Division	2009	
Division restructured into four groups by adding a group in charge of overseas operations	2008	Publication of the Environmental Report 2008 Establishment of new standards for Excellent ECPs and the creation of a new ECP logo Declaration of the turning point in greenhouse gas emissions
Division restructured into three groups: one group in charge of planning, one group in charge of ECPs, and one group in charge of business processes	2007	Formulation of the Environmental Vision 2050
The Asia and Oceania Environment Division newly established	2006	Integration of the conventional Toshiba environmental audit systems to start a new environmental management audit system
The United States Environment Management Division newly established Toshiba Group's Environmental Management Promotion Organization newly established	2005	Publication of the "Factor T" brochure Acquisition of ISO 14001 certification for the Environmental Management Promotion Organization of Toshiba Corporation
Division name changed to the Corporate Environment Management Division The China Environment Management Division newly established	2004	Formulation of the 4th Voluntary Environmental Plan Formulation of Environmental Vision 2010 Publication of CSR Report 2004 Publication of the "Factor T: Introduction" brochure
The EC Environment Management Division newly established	2003	A third-party audit system introduced in environmental accounting
	2002	Achievement of zero waste Introduction of material flow cost accounting
Organization name changed to the Environmental Conservation Promotion Division	2001	Received the Green Award, Global Environment Award, etc.
	2000	Formulation of the 3rd Voluntary Environmental Plan Disclosure of environmental accounting
Organization name changed to the Recycling Promotion Center	1999	Decommissioning of all incinerators
	1998	Publication of the Environmental Report 1998
	1997	Revision of the Basic Rules for Environmental Protection Acquisition of ISO 14001 certification for all factories of Toshiba Corporation
	1996	Formulation of the 2nd Voluntary Environmental Plan
Organization name changed to the Environmental Conservation Center	1995	Establishment of the New Basic Rules for Environmental Protection, began taking steps to acquire an ISO 14001 certificate
	1994	Complete elimination of 1.1.1-trichloroethane
	1993	Formulation of the 1st Voluntary Environmental Plan Complete elimination of specified CFCs used for cleaning Implementation of the EASTER (Environmental Audit System in Toshiba on the basis of Eco-Responsibility)
The Environment Management Committee newly established	1992	
	1991	Establishment of the environmental policy and slogans, product assessment approach and goals for energy saving
	1990	Structural Design Guidelines, limit set on the amount of industrial waste that can be disposed of
An environmental management system implemented in all Toshiba Group companies	1989	Establishment of the Basic Rules for Environmental Management, formulation of the ODS reduction plan, environmental audits
The Environmental Management Center newly established	1988	

Editor's Postscript

As global environmental issues attract growing interest, we at Toshiba Group believe that we have to communicate our initiatives for dealing with these issues to a wider range of stakeholders in more detail and in an easier-to-understand way.
In this Environmental Report, we gave much thought to how to present our environmental initiatives so that they can be understood even by readers who do not have enough time to read it in full. One example is that we added a title page to the beginning of each section to summarize what we did in FY2008. We also paid attention to the use of color so that the report looks attractive to as many people as possible irrespective of differences among individual senses of color, and the report obtained certification from the Color Universal Design Organization. In order to ensure the reliability and transparency of the report, environmental performance data underwent a third-party review by Bureau Veritas Japan.
In the future, Toshiba Group will continue to make every possible effort to help solve global environmental issues. Please let us know what you think about this report.

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Inquiry page on Toshiba website
URL http://www.toshiba.co.jp/env/en/contact/

The report is also available on the Toshiba website

URL http://www.toshiba.co.jp/env/en

Toshiba Group
global environment mark

Production and printing of this report reflect the following considerations:

Paper

Use of FSC-certified Paper
Paper certified by Forest Stewardship Council (FSC) is used, which is made from wood from FSC-certified forests.

Use of Forest Thinning Support Paper
Printed on paper made with wood from forest thinning. "Morino Chonai-Kai" (Forest Neighborhood Association) – Supporting sound forest management.

A-(2)-060002

Use of paper made from domestic wood
In the Kyoto Protocol, Japan set a target of reducing greenhouse gas emissions by 6%, 3.9%, of which namely about two-thirds will be achieved by CO_2 absorption by forests. Active consumption of domestic wood leads to the growth of healthy forests, which will absorb considerable CO_2. While expressing our gratitude towards forests, we print this brochure using paper made from domestic wood to contribute to the further absorption of CO_2 by domestic forests.

Printing

Waterless Printing
Waterless printing, a printing process that eliminates the use of water, is adopted, taking advantage of the characteristics of printing plates made of ink-shedding material.

Non-VOC Ink
100% vegetable ink containing no volatile organic compounds (VOCs) is used.

Color Universal Design

Color Universal Design-certified
We sought to design the CSR Report using colors and patterns that are easy to distinguish regardless of the difference in color vision among people. Following a monitoring check, the CSR Report gained a color universal design certification from the Color Universal Design Organization (CUDO), an NPO in Japan.

1st Edition, published in November 2009
Printed in Japan