

# Environmental Awareness in Product Development

Casio is introducing eco-designs and creating eco-products, and proposing new ways for people to achieve sustainable lifestyles. In 2009, new targets have been set to guide Casio's activities with the launch of the Casio Green Star Products project.

## Logistics Initiatives

In order to reduce CO<sub>2</sub> emissions in the logistics process, Casio is promoting the following three action plans.

- **Shortening transport distances**  
Promoting direct shipping to customers from logistics centers in and outside Japan
- **Promoting a modal shift\***  
Actively using modes of transport with low environmental impact such as rail for transport between sites
- **Improving loading efficiency and reducing transport volume**  
Improving the packaging design of electronic dictionaries and musical instruments, and reducing the volume of packaging

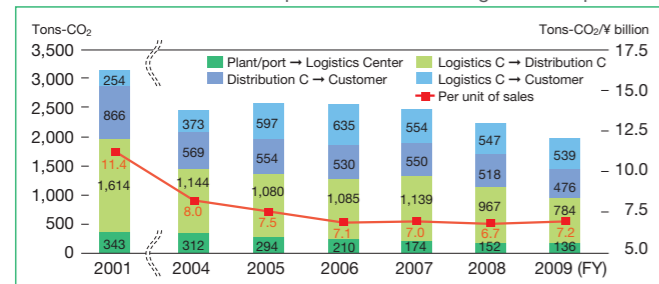
\*Casio is currently trying out a transportation method that combines rail and ferry for shipping from Zhongshan, China, to Japan. Full-scale implementation of this method is expected to reduce CO<sub>2</sub> emissions by at least 95%.



## CO<sub>2</sub> reduction results in Japan

In fiscal 2009, Casio achieved an 11.4% reduction in CO<sub>2</sub> emissions from the previous year, and a 36.7% reduction compared with the base year (fiscal 2001) per unit of sales.

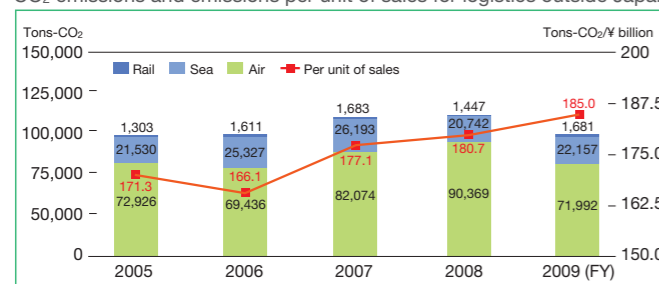
CO<sub>2</sub> emissions and emissions per unit of sales for logistics in Japan



## CO<sub>2</sub> reduction results outside Japan

In fiscal 2009, Casio achieved a 14.9% reduction in CO<sub>2</sub> emissions from the previous year, and an 8.0% reduction compared with the base year (fiscal 2005) per unit of sales. Henceforward, to achieve the targets for fiscal 2010, Casio will reduce the size of packaging, reduce air freight, and reduce transport distances.

CO<sub>2</sub> emissions and emissions per unit of sales for logistics outside Japan

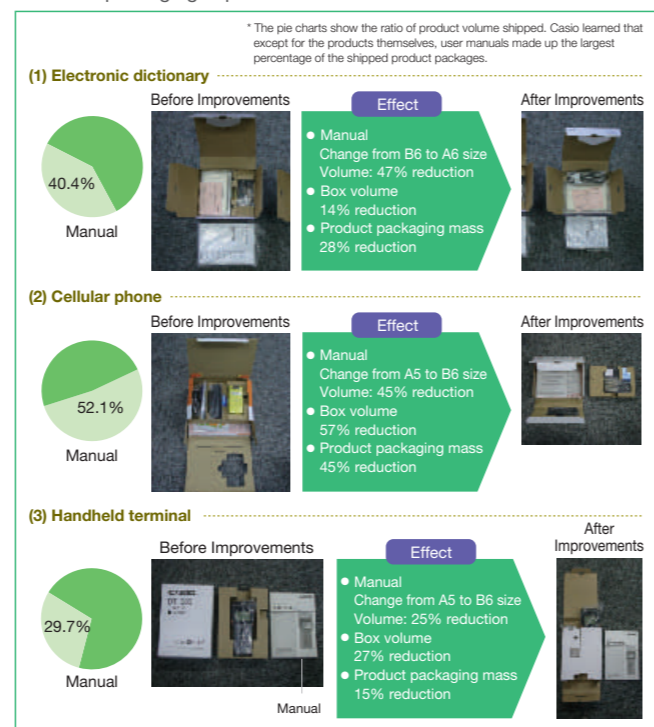


## Reducing Packaging Materials by Changing the Size of User Manuals

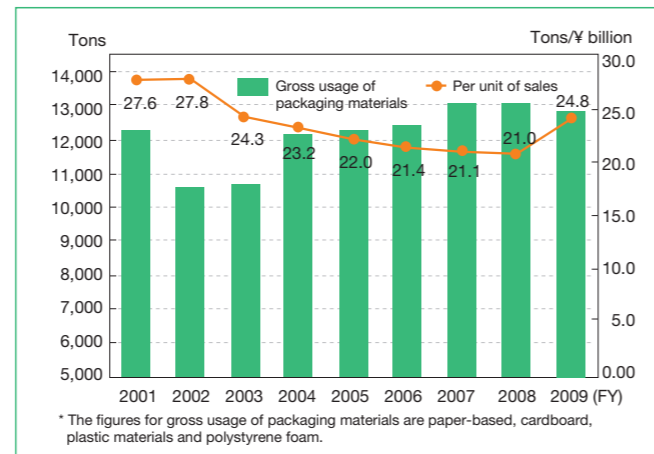
To reduce the amount of product packaging needed, Casio conducted a survey of the shape of the packaging of all of its products, as well as the size and mass of items enclosed with those products. The results showed that the size of the user manuals was a major determinant of the size of the packaging being used.

Casio adjusted the size of the manuals for three products, its electronic dictionaries, cellular phones, and handheld terminals, allowing those products to be packaged more effectively and creating a structure that allows for more efficient shipping. In the future, Casio will continue to make efforts to improve its packaging by monitoring the effects of its total use of packaging materials and watching the trends by unit of sales.

Effects of packaging improvements



Gross usage of packaging materials and usage per unit of sales



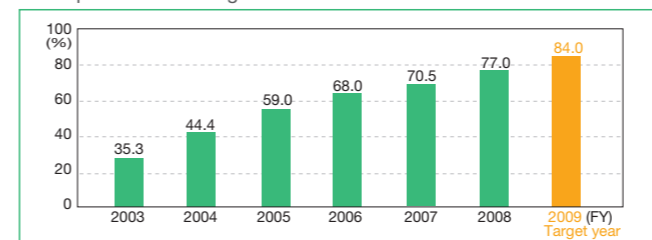
## Casio Green Product Performance and Adapting to New Standards

In fiscal 2002, Casio launched its Casio Green Products project to promote the creation of eco-products. Products that meet rigorous standards, based on the results of a product environmental assessment, are certified as Casio Green Products. The company worked toward the goal of achieving a Casio Green Products sales ratio of 80% by fiscal 2009, and achieved it early.

After internal discussions, Casio decided to identify the most environmentally friendly of the Casio Green Products as Casio Green Star Products.\* Casio set a new goal in fiscal 2010 of raising the sales ratio of Casio Green Star Products to 30% by fiscal 2013.

\*For details, see p. 37

Green product sales targets



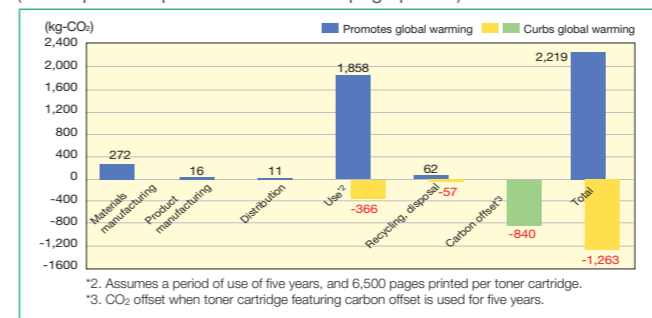
## Environmentally Friendly Page Printers

### LCA<sup>1</sup> of page printers and toner cartridges featuring carbon offset

A life-cycle assessment (LCA) identifies the CO<sub>2</sub> emissions produced during each stage of a product's life cycle, and yields results that can be used in the development of new products. The results of an LCA performed on the N3600 page printer showed that the CO<sub>2</sub> equivalent output during the use stage was 1,858 kg-CO<sub>2</sub>, or 84% of the total output for that product. This means that reducing the power consumed when the product is in use will lead to a reduction in CO<sub>2</sub> equivalent output for the product as a whole. Casio has begun efforts to reduce 47% of the CO<sub>2</sub> equivalent output for the product's entire life cycle by using toner cartridges that offset the CO<sub>2</sub> emissions produced by the electricity consumed during printing.

<sup>1</sup>LCA: A method of quantifying the environmental impact (such as CO<sub>2</sub> emissions) that a single product has on people or the planet over the course of its life, from the materials used, to product assembly, to final disposal of the item.

Effect on global warming (CO<sub>2</sub> equivalent per SPEEDIA N3600 page printer)

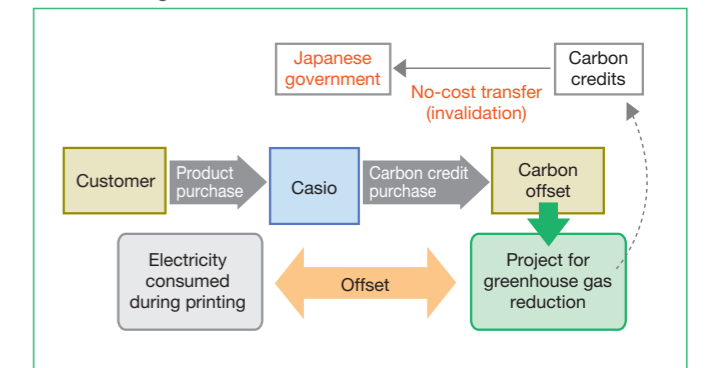


## Reducing greenhouse gases with toner featuring carbon offset

Since page printers indirectly contribute to CO<sub>2</sub> emissions through the electricity they use during printing, Casio calculated these emissions based on the amount of toner consumed. Using this information, the company came out with toner featuring a carbon offset. When a customer purchases this toner, Casio obtains carbon credits through a provider in order to offset the electricity used for printing. In this way, Casio is helping customers to simply and conveniently contribute to the fight against global warming whenever they purchase toner.

Casio currently offers carbon offset toner for three page printer models, the N3600, N6100, and B9000, but it plans to make this toner available for new models, as well.

Toner featuring carbon offset: how it works



Models that use toner featuring carbon offset



### Fiscal 2009 carbon offset performance report

The following carbon offset has been achieved through the use of toner cartridges featuring carbon offset:

Product/Period:	N3000 Series Return Toner Cartridges (Sold July 1, 2008 to March 31, 2009) N6000 Series Return Toner Cartridges (Sold October 1, 2008 to March 31, 2009) B9000 Series Return Toner Cartridges (Sold October 1, 2008 to March 31, 2009)
Offset amount:	906 tons-CO <sub>2</sub> (CO <sub>2</sub> equivalent tons)
Project name:	HFC Decomposition Project in Ulsan, South Korea (UN CDM Executive Board Registration No: 0003) 4.2 MW Wind Power Project in Maharashtra, India (UN CDM Executive Board Registration No: 0800)
Credit type:	Kyoto credit (Certified Emission Reductions; CERs)
Credit identification no:	KR-000-000-001-188-962 - 189-087 IN-000-000-054-016-079 - 016-858
Invalidation method:	Transfer to retirement account of the Japanese government
Provider name:	gConscious, Inc.

# Environmental Action Plan

Casio established the themes of its Fiscal 2009 Environmental Action Plan from a new perspective. In addition to focusing on total carbon reduction and the creation of Green Star Products, the plan specifies development of environmental management systems (EMS) to include new sales sites.

## The Biodiversity Crisis\* and the Role of Private Enterprise

As a result of ongoing global warming and human production activities that have paid too little attention to the workings of nature, many wildlife habitats are deteriorating, ecosystems are being destroyed, and the number of endangered species is increasing.

Many of the rare metals used in electronic components are in danger of disappearing altogether, and the continued mining of those metals is seriously damaging the environment.

Businesses that engage in activities that use the planet's resources, whether animal or mineral, must review their conduct, preserve and protect biodiversity, and work hard to maintain a sound natural environment.

\* This refers to all of the species, genetic, and ecosystem diversity that exists in the planet's living beings. Maintaining biodiversity ensures that the natural environment remains abundant and healthy. Corporations today are being asked to work to preserve biodiversity, promote the sustainable use of resources, and ensure that everyone can continue enjoying nature's bounty.

### Casio's efforts to promote biodiversity

Casio's creation of products that are more compact, lightweight, slim, and energy-efficient restricts excessive resource development, thereby constraining the expansion and speed of the ecosystem degradation occurring all over the planet. Casio has also been promoting the sustainable procurement of raw materials.

Today, Casio is making the following efforts with regard to biodiversity:

- Participating in the development of alternatives to the rare metals and indium currently used in liquid crystal devices.
- Supporting the preservation of species, in Chuo City, Yamanashi Prefecture, Japan, Casio preserves local rare Otoguro cherry trees and is adding greenery to the local Casio plant. In Hamura City, Tokyo, Casio is participating in an "adopted" Ohga lotus activity.
- Working with NPOs and NGOs, Casio uses part of the proceeds from its collaborative product models for environmental education, and to support species preservation and ecosystem preservation.
- Developing products whose design and specifications are based on biodiversity considerations.
- Promoting the use of less paper through the digitization of content (in the form of electronic dictionaries, for example), thereby helping to control deforestation and preserve forest biodiversity.

Casio has not yet developed a group-wide measure, policy or action plan for its biodiversity efforts, so the effects and risks that its business activities pose with respect to biodiversity have yet to be definitively assessed. Going forward, Casio will be addressing this issue, together with its efforts to fight global warming, as an important component of its environmental management strategy.



Kofu Casio works with the local community to help restore Otoguro cherry trees.

## Green Procurement

Casio products are exported all over the world, and most countries now have chemical substance laws and regulations governing the parts and materials that are included in manufactured products. This is the case not only in the EU and some states of the US, places that have taken the lead in complying with such laws, but also across Asia and South America.

To ensure the legal compliance of its products, Casio asks its suppliers to adhere to restrictions regarding the content of specified chemical substances in the parts and materials contained in the products they supply, and to disclose detailed information regarding their content. In addition to setting product standards that address worldwide legal requirements, Casio has developed its own procurement standards for parts and materials. These are primarily based on the chemical substance regulations in the regions that import Casio's products. They have been included in procurement standards and suppliers have been asked to uphold them.

At the end of fiscal 2009, the sixth revised version of these standards was issued, with updated stipulations regarding the inclusion of prohibited chemical substances. Also added was a new request to suppliers to cooperate in adhering to the REACH regulations established by the EU. Moving forward, Casio will ask its suppliers to provide information regarding their management of chemical substances, which has been difficult to ascertain, along with information on a wide array of chemical substances. The company is currently developing streamlined methods of handling all of this information.

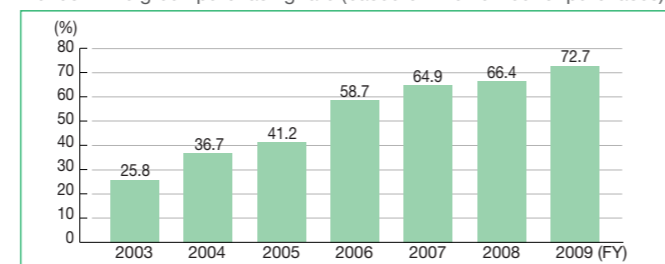
Products and materials that meet Casio's standards will comply with the chemical substance regulations in all regions, ensuring that Casio products will be able to be sold anywhere in the world. This will vastly improve the efficiency of Casio's product development processes. It is also likely to increase the international competitiveness of Casio's suppliers, since meeting Casio's standards will ensure that they are meeting the criteria contained in laws and regulations that are in force globally.

Casio's green procurement efforts are expected to reap benefits for both Casio and its suppliers alike.

## Green Purchasing

Casio is committed to green purchasing, or the proactive effort to purchase environmentally friendly indirect materials such as office supplies and office equipment (excluding software). Casio had been working to achieve the goal of a 70% green purchasing rate in fiscal 2010 at sites that have adopted the CATS e-P System, but it reached that goal in 2009, one year ahead of schedule. The vigorous promotion of green purchasing enabled 13 group companies to introduce the system in fiscal 2008, and one more in fiscal 2009, expanding the number to a total of 16 companies.

Trends in the green purchasing rate (based on the number of purchases)



## Fiscal 2009 Environmental Action Plan Performance

As a result of such external factors as the global financial crisis and credit crunch, Casio's sales and production totals have fallen and its per-unit figures have tumbled. Internal factors include the transfer of Casio's electronic component plant to a third party, yielding a year-on-year 34% reduction in input energy, 36% reduction in input water resources, and 27,000-ton reduction in CO<sub>2</sub> emissions, but these improvements are likely to be only temporary. However, in spite of the decline in capacity utilization, production sites have been engaging in efforts that are likely to produce future results, such as investing in more energy-efficient heating systems. Still, the CO<sub>2</sub> emissions of Casio's office sites have increased year-on-year in absolute volume, indicating that improvements need to be made.

In the area of chemical substance management, Casio has made steady progress, for instance, by revising its Green Procurement Guidelines, and building a new chemical substances database for procurement purposes. Casio has also hit its Green Product sales targets and moved on to set new, higher goals.

## Anticipated Environmental Efforts

Casio's Environmental Action Plans include a public commitment to the goal of building a low-carbon society, and call for the company to cooperate with other stakeholders in this process, using their input to help reduce the company's environmental impact.

### ● Creation of products that save energy and resources

From fiscal 2010, Casio began to certify those Casio Green Products that have the best environmental attributes as Casio Green Star Products, and will promote sales of these products.

### ● CO<sub>2</sub> reduction

Energy-efficiency investments in heating systems at production sites in Japan are expected to yield results.

- Office sites are switching to energy-saving lighting to help achieve the company's targets for reduction of total volume of CO<sub>2</sub> emissions.

- The environmental impact of Casio Europe's operations is expected to be reduced thanks to the new energy-saving building and the concentration of sales, service, and distribution functions in a central location.

### ● Environmental management system

- In addition to ISO14001, Casio is expanding its environmental management system to its sales and service divisions, and is creating a corporate culture that emphasizes employee participation in producing results.

Fiscal 2009 Casio Environmental Action Plan Performance Report

Theme	Target	Performance by end of FY2009 (compared to base year)	Progress assessment
<b>■ Product targets</b>			
1	Development targets for eco-products (1) Increase green product sales to 80% of total sales by FY2009	84%	★★★★
<b>■ Plant and business-site targets</b>			
1	Energy conservation targets (electrical power, fuel, etc.) (1) Japan production sites: Reduce CO <sub>2</sub> emissions per unit <sup>2</sup> by 35%, averaged over 5 years from FY2009 to 2013 (compared to FY 1991) (2) Japan office sites: Reduce CO <sub>2</sub> emissions per unit by 9%, averaged over 5 years from FY2009 to 2013 (compared to FY 1991) (3) Production sites outside Japan: Reduce CO <sub>2</sub> emissions per unit <sup>3</sup> by 30% by FY2013 (compared to FY 2005) (4) Office sites outside Japan: Reduce CO <sub>2</sub> emissions per unit by 3% by FY2013 (compared to FY 2005)	Reduced by 42.0% Reduced by 16.0% Increased by 24.3% Increased by 27.3%	★★★★ ●
2	Reduction target for greenhouse gases other than CO <sub>2</sub> (1) Reduce total emissions of greenhouse gases other than CO <sub>2</sub> (CO <sub>2</sub> equivalent) to below 2000 level by 2010	Increased by 147.6%	★
3	Resource conservation targets (water and paper) (1) Japan production sites: Reduce water usage per unit <sup>2</sup> by 10% by FY2009 (compared to FY2001) (2) Production sites outside Japan: Reduce water usage per unit <sup>3</sup> by 15% by FY2013 (compared to FY2005) (3) Japan sites: Reduce paper usage per unit <sup>2</sup> by 30% by FY2009 (compared to FY2004)	Reduced by 20.5% Reduced by 20.1% Increased by 37.5%	★★★★ ●
4	Waste reduction targets (1) Japan sites: Reduce generation of waste per unit <sup>2</sup> by 30% by FY2013 (compared to FY2001) (2) Production sites outside Japan: Reduce generation of waste per unit <sup>3</sup> by 30% by FY2013 (compared to FY2005)	Reduced by 41.8% Increased by 3.6%	★★★★ ●
5	Reduction of volatile organic compounds (VOCs) (1) Japan production sites: Reduce emission of VOCs by 30% by FY2011 (compared to FY2001)	Reduced by 16.0%	★★
6	Hazardous substance phase-out (1) Detoxify PCB-containing equipment now in storage as Japan Environmental Safety Corporation starts program in each region * Kofu Casio Co., Ltd: By FY2009	Finished delivering this equipment to JESCO. Continuing to store equipment until it can be accepted for treatment.	
7	Output reduction of PRTR substances (1) Japan production sites: Reduce output per unit <sup>2</sup> by 40% by FY2013 (compared to FY2004)	Reduced by 61.3%	★★★★
8	Green procurement targets (1) Sites in and outside Japan: Achieve 100% response rate (percent of parts covered by supplier surveys) for green parts by FY2009	100%	★★★★
9	Green purchasing targets (1) Japan sites: Raise the green purchasing ratio to 70% of total purchases (based on the number of purchases)	72.7%	★★★★
10	Targets for logistics-countermeasures (1) Reduce CO <sub>2</sub> emissions from logistics within Japan per unit <sup>1</sup> by 40% by FY2010 (compared to FY2001) (2) Reduce CO <sub>2</sub> emissions from logistics outside Japan per unit <sup>1</sup> by 5% by FY2010 (compared to FY2005)	Reduced by 36.7% Increased by 8.0%	★★ ●
<small>About the basic units Progress assessment</small>			
<small>*1: Per unit of sales *2: Per unit of actual production *3: Per unit of production ★★★★: Target was achieved and a new, higher target was established. ★★★: Target was achieved. ★★: Target not achieved, but steady improvement made over previous fiscal year. ★: Making progress toward achieving target and expect results next fiscal year and beyond. ●: Same as or worse than base value.</small>			

### Reference

- pp2-3. Fiscal 2010 Casio Environmental Action Plan
- p4. Fiscal 2010 Casio Environmental Action Plan Performance Report (Details)