



# EMR 2007

Environmental Management Report

# c o n t e n t s

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Scope of the report    Organizations covered by the report: The Head Office, the Technology Center and factories in Japan  
(Midorigaoka Factory, Shioda Factory, Tsuji Factory, Aoki Factory and Fujiyama Factory)  
Period covered by the report: From April 1, 2006 through March 31, 2007

## Message from the Chief Operating Officer

In its corporate philosophy, Sanyo Denki declares its intention to “implement management strategies to contribute to the conservation of the global environment and human prosperity through its activities for society and the environment.” The company is working to promote business activities based on this declaration.

One of the conditions required for business management today is to be aware of the importance of conserving the global environment and to implement environmental conservation measures through daily business activities.

We have been repeatedly told over recent years that the average global temperature is increasing. We are therefore well aware of the ever-increasing importance of protecting the environment and preventing global warming.

As the Sanyo Denki Group expands its production in Asia and worldwide, increasing amounts of materials and parts required for production are supplied at overseas production sites. Finished products are also used in countries worldwide. As an enterprise that intends to live in harmony with all global peoples, the Sanyo Denki Group recognizes the ever-growing importance of adopting business policies aimed at protecting the global environment.

In addition to adopting measures to save electric energy and reduce hazardous substances, we are working to contribute to conserve the global environment by developing new products based on the following three technologies

- Technologies to protect the global environment
- Technologies to protect human health and safety
- Technologies to use new energy resources and save energy

When developing new products, we avoid the use of hazardous substances, and design products to ensure their high performance and long life and to reduce power consumption and save energy through product life cycles for customers. We also develop products aimed at reducing the amount of materials and parts and reducing environmental burdens, including the use of energy required for material production.

The development of products designed for environmental conservation is of crucial importance in all environmental conservation activities of Sanyo Denki, which certifies newly developed products that satisfy evaluation standards for environmental conservation as “eco-products” (eco-design products). Meanwhile, Sanyo Denki is also committed to providing maintenance services for products that are used for a long time and reducing environmental burdens by managing product life cycles.

Through these activities, we aim to provide our products for customers in order to contribute to their environmental activities and reduce environmental burdens.

Sanyo Denki will continue to play an active role in protecting the global environment for the future. We would like to request your understanding and cooperation for our activities.



Director and Chief Operating Officer  
Taketomi Kotani

小谷武福

# Environmental Policy and System

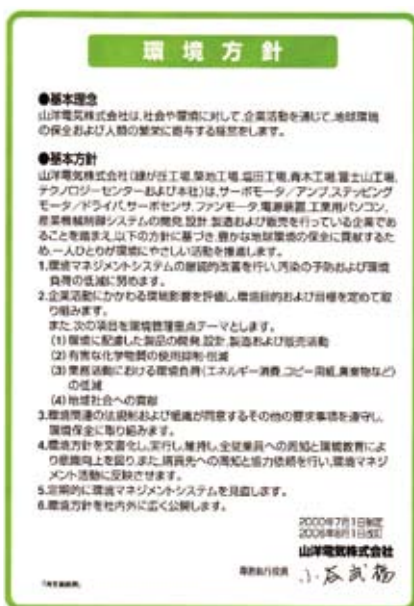
## Environmental Policy

### Basic Philosophy

Sanyo Denki Co., Ltd. will implement business management strategies to contribute to the conservation of the global environment and human prosperity through its activities for society and the environment.

### Basic Policy

Recognizing its responsibilities as a company engaged in the development, design and sales of servo motors and amplifiers, stepping motors and drivers, servo sensors, fan motors, power supplies, industrial PCs, and industrial machine control systems, every member of Sanyo Denki (at the Midorigaoka Works, Tsuiji Works, Shioda Works, Aoki Works, Fujiyama Works, the Technology Center and the Head Office) will adopt the following policy and promote activities that are environmentally friendly, with the aim of contributing to the conservation of a healthy global environment.



Environmental policy brochure

## System

It has been seven years since the Environmental Committee was established in April 2000. The committee has been working to maintain a level of energy saving and waste reduction in factories equivalent to that of the previous year. In addition to reducing environmental burdens, the committee is also striving to reduce the volume of hazardous chemical substances and develop eco-products to achieve its major environmental management goals.

### Major Responsibilities of the Environmental Committee

Formulation of policies on environmental conservation activities, and reporting and instructions on the same

Formulation and enforcement of company rules and procedures (including company-wide environmental manuals) concerning environmental conservation activities

Promotion of environmental conservation activities at the head office, factories and branch offices through those in charge of environmental management

External contacts concerning company-wide environmental conservation activities

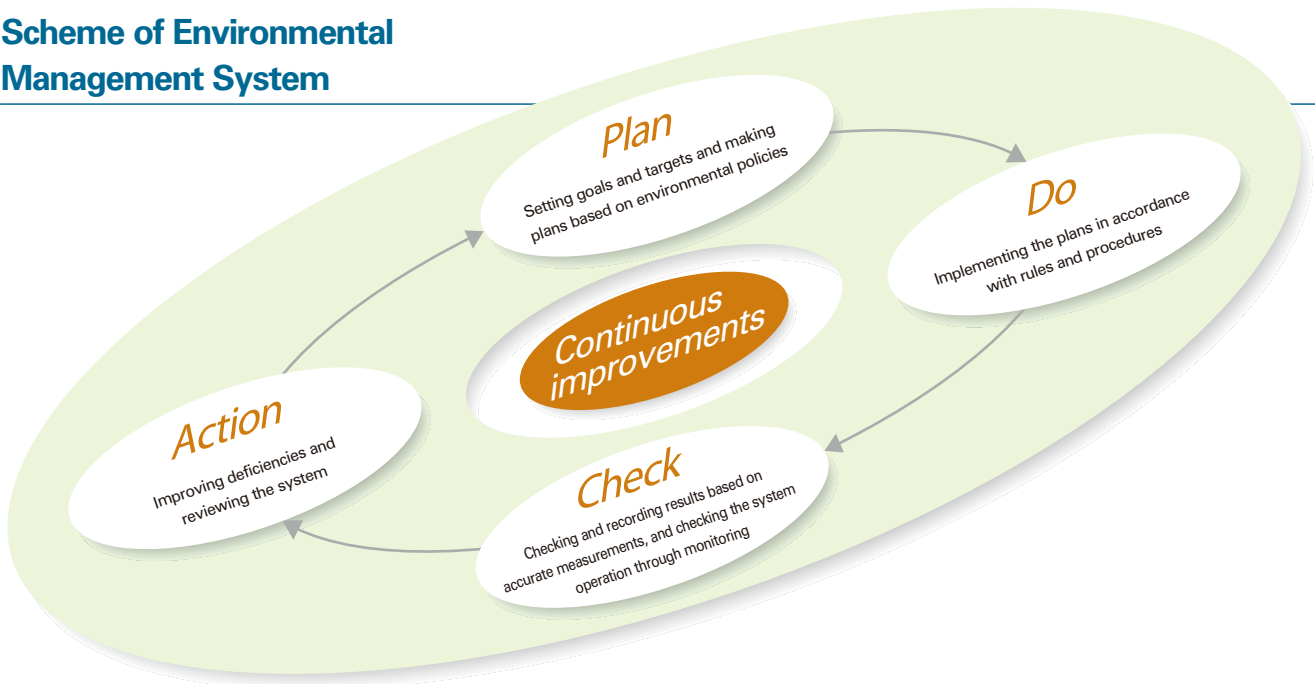
Surveys on social situations relating to environmental conservation activities



Environmental Committee

# Organizational Charts for Environmental Management

## Scheme of Environmental Management System



## Position of the Environmental Committee and Its Organization



### ■ Eco-product Development Subcommittee

The subcommittee promotes the development of competitive products designed to protect the environment in accordance with eco-design standards.

### ■ Energy Saving Subcommittee

The subcommittee promotes energy saving through its daily activities for the environmental management system. It also formulates long-term energy saving strategies and proposes cost-effective investments.

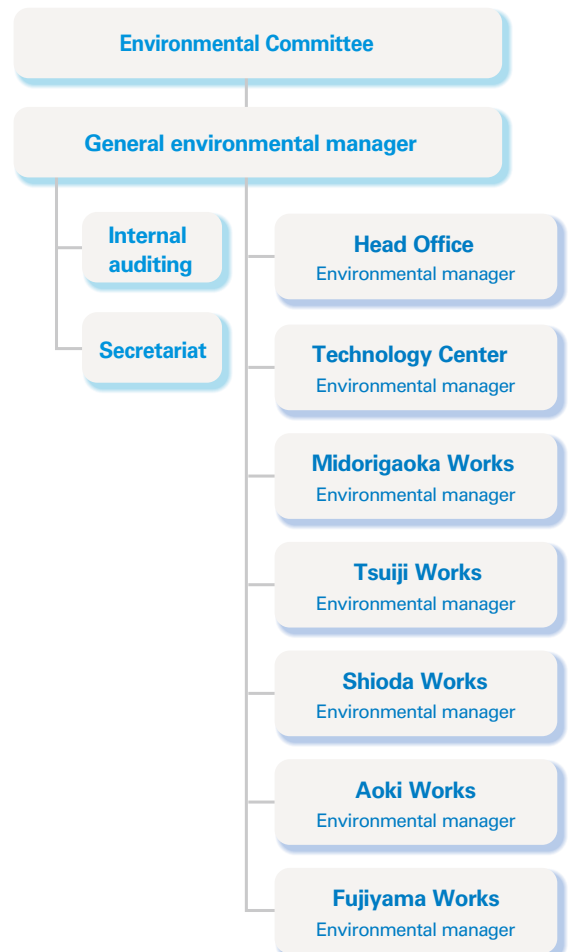
### ■ Waste Reduction Subcommittee

The subcommittee works to reduce waste and disposal costs and achieve zero emissions.

### ■ Chemical Emission Reduction Subcommittee

The subcommittee strives to reduce emissions of hazardous chemical substances and minimize environmental pollution via self-management. It also works to promote the use of lead-free soldering and lead-free electric wires, reduce hazardous chemical substances, and develop measures for PRTR (pollutant release and transfer register).

## Organization Chart for Environmental Management System



# Activity Report for Fiscal 2006

We developed 12 new eco-products this fiscal year and were also able to raise the sales ratio of eco-products to 26.2%. We achieved a 99.5% level of zero emissions for the company as a whole.

Activity	Goal for fiscal 2006	Track record in fiscal 2006		
Promotion of eco-designing	Creation of eco-products	Twelve new products certified as eco-products		
Sales activities	Sales ratio of eco-products: 25% or higher	Sales ratio of eco-products: 26.2%		
Reduction of hazardous chemical substances	Use of lead-free soldering	Lead-free soldering is employed in nearly 100% of production in each department, and we will continue promoting it. Nearly all types of fan motors and stepping motors have been converted to RoHS-6 compliant devices. Other machines are also being converted to RoHS-6 compliant devices.		
	Development of products with reduced amounts of RoHS-6 hazardous substances Reduction of substances defined in the PRTR Law			
Reduction in power consumption	Midorigaoka Works	(16%)	(8%)	
	Tsuiji Works	26%	15%	
	Shioda Works	10%	9%	
	Aoki Works	37%	29%	
	Fujiyama Works	31%	33%	
	Technology Center	17%	10%	
	Head Office	23%	28%	
Reduction in fuel consumption	A Fuel oil:708 kL ※Total of the Midorigaoka, Tsuiji, Shioda and Fujiyama Factories	13%	27%	A Fuel oil : 595kl
	LPG : 101,000 m <sup>3</sup> N ※Total of the Aoki Factory and the Technology Center	38%	43%	LPG : 93,600 m <sup>3</sup> N
Reduction in the use of copying paper	Midorigaoka Works	(34%)	(27%)	
	Tsuiji Works	(20%)	(6%)	
	Shioda Works	(45%)	(20%)	
	Aoki Works	23%	31%	
	Fujiyama Works	2%	8%	
	Technology Center	22%	37%	
	Head Office	30%	34%	
Reduction of waste*1	Midorigaoka Works	(39%)	(43%)	
	Tsuiji Works	77%	74%	
	Shioda Works	(15%)	(29%)	
	Aoki Works	14%	18%	
	Fujiyama Works	42%	48%	
	Technology Center	3%	3%	
	Head Office	49%	47%	
Contribution to local communities	Cleaning of areas around the Head Office, the Technology Center and the factories conducted more than once every month	Goal achieved		
Promotion of zero emission	Raising the recycling rate of waste company-wide to 98% or higher.	Company-wide rate : 99.5%		

Notes:1.The reduction rate is calculated using fiscal 2000 as the base year, except for copying paper, for which fiscal 1999 was used as the base year.  
2.Figures in parentheses indicate increases. ※ Factories are managed based on absolute values.

# Prevention of Global Warming

We recognize the crucial importance of energy saving activities aimed at reducing CO<sub>2</sub> emissions as a measure to prevent global warming, and are working to promote energy saving activities by improving energy consumption efficiency and using clean energy. While our electricity consumption increased in 2006 compared with last year due to an increase in production, we were able to reduce CO<sub>2</sub> emissions thanks to decreases in the consumption of non-electricity energy, including A fuel oil. There was also a decrease in energy consumption per production unit.

## Specific Measures for Energy Saving

The introduction of a monitoring system for the consumption of electricity and A fuel oil at the Fujiyama Works  
 Estimation of the amount of energy saved by secondary pumps for the hot and cool water generators in building F3

### Effects of introducing the monitoring system

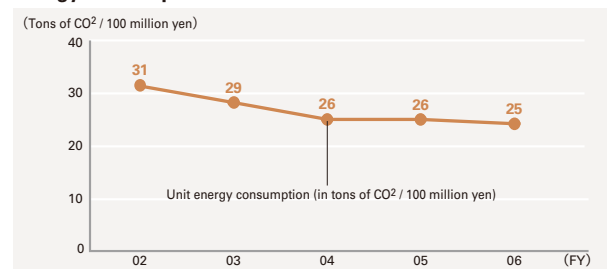
The introduction of a monitoring system for the consumption of electricity and A fuel oil at the Fujiyama Works

- The system enables us to regularly monitor the consumption of electricity and A fuel oil for the three hot and cold water generators at the Fujiyama Works.
- The system enables us to regularly monitor the electricity consumption for the compressors installed in buildings F1, F2 and F3.
- The system enables us to regularly monitor the electricity consumption for the two safety furnaces of the Power System Division and the two safety furnaces of the Cooling System Division.
- The system enables us to regularly monitor the consumption on the intranet from other factories as well.

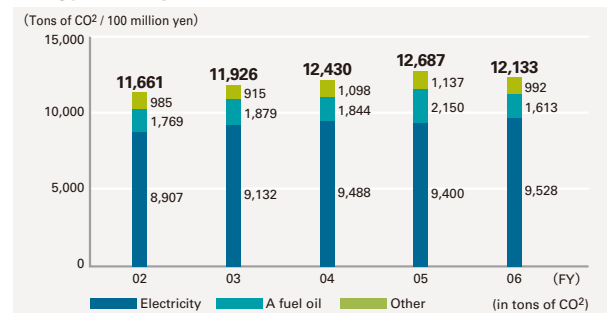
The system enables us to check the energy saving effects at a glance based on comparison with past data. Estimation of the amount of energy saved by secondary pumps for the hot and cool water generators in Building F3

- Since the cost-efficiency was low, we made estimates only.

### Energy consumption measured in terms of the amount of CO<sub>2</sub>



### Energy consumption measured in terms of the amount of CO<sub>2</sub>



A fuel oil flow meter



Power meters



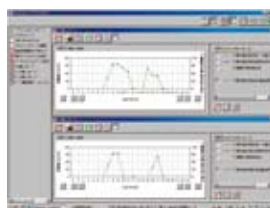
Power meters (power detectors)



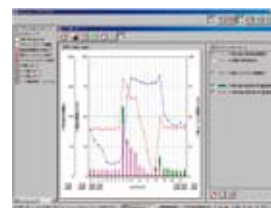
Measuring device



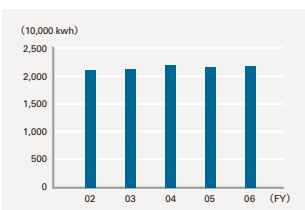
Real-time power consumption screen



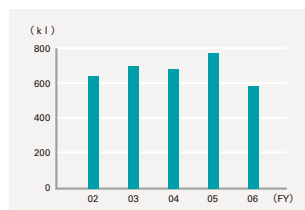
Comparison with past records



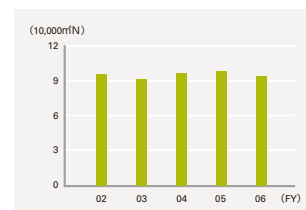
Screen to show the power consumption of building F3



Power consumption



A fuel oil



LPG

# Environmental Accounting

Sanyo Denki created an environmental accounting system in fiscal 2003 with the aim of implementing efficient and effective measures for environmental conservation. We measure the costs required for environmental conservation in our business activities and the effects produced by these activities using quantitative indicators (measured in terms of monetary units or physical quantities) and analyze these costs and effects in order to improve the efficiency and activity levels of environment management.

## Track records for fiscal 2006

### ● Environmental conservation costs

The environmental conservation costs for fiscal 2006 amounted to 977 million yen, with 177 million yen for investments and 800 million yen for expenditure. Research and development accounted for as much as 98.2% of the investments, while research and development (65.2%) and management (24.6%) accounted for a large part of the expenditure.

### ● Effects of environmental conservation

We were able to save energy equivalent to 554 tons of CO<sub>2</sub> thanks to environmental management on resources input for business activities.

### ● Economic effects

In terms of economic effects of environmental conservation, we were able to make profits of 62 million yen through the sales of useful materials and reduce costs by 3 million yen through energy saving measures.

## Environmental Conservation Costs

(In thousands of yen)

Category	Details of the costs	Details of major activities	Investment	Expense
(1) Costs within the area of business	① Pollution prevention costs	Air pollution prevention (measurement of smoke and soot) Water pollution prevention (inspection of wastewater treatment tanks, extraction of sludge, sewage disposal, etc.)	0	15,283
	② Global environment conservation costs	Periodical electricity checks	3,110	13,219
	③ Resource recycling costs	Reduction of waste, recycling, and proper waste disposal	0	47,577
	Total of items ① through ③		3,110	76,079
(2) Upstream and downstream costs		Green procurement of office supplies and commissions for refurbishing and reconditioning products	0	1,995
(3) Administration costs		Development and operation of the EMS and environmental training for employees	0	196,635
(4) R&D costs		Development of eco-products (such as testing equipment and making molds)	174,553	521,939
(5) Social activity costs		Annual membership fee for the Japan Environmental Management Association for Industry, and other fees	0	3,698
(6) Environmental remediation costs			0	0
Total			177,663	800,346

Note: Expenses include depreciation of facilities and personnel costs.

## Effects of Environmental Conservation

(Note 1) : △ indicates items for which no effects were observed in comparison with last year.

Classification	Indicators for the effects of environmental conservation		
	Indicators for environmental burdens	Indicators	Indicator value (note1)
Effects on resources input for business activities	Input of energy	Decrease in energy consumption	Energy consumption measured in terms of the amount of CO <sub>2</sub> : 554 tons of CO <sub>2</sub> Electricity consumption: △304,000 kWh A fuel oil consumption: 198 kL LPG consumption: 2.6 tons Kerosene consumption: 7.2 kL Light oil consumption: 43.8 kL Town gas consumption: 1,400Nm <sup>3</sup>
		Increase in the percentage of renewable energy in total energy consumption	Photovoltaic power generation: 0.001% (company-wide)
	Input of water	Decrease in water consumption	△10,700 m <sup>3</sup>
	Input of other resources	Decrease in the input of other resources	Copying paper consumption: △131.8million sheets
Effects on environmental burdens due to emissions and waste produced by business activities	Discharge of waste and other materials	Decrease in the total discharge of waste and other materials	Total discharge of waste : 49.7tons
		Increase in the percentage of recyclable materials in the total discharge of waste	Recyclable materials and useful materials : △0.077%
		Decrease in the discharge of hazardous waste	Discharge of hazardous waste : 4.4tons

## Economic effects of environmental conservation measures (substantive effects) (In thousands of yen)

Detail of effects	Details	Amount
Profits	Sales of useful materials	62,644
Reduction of costs	Reduction of costs by energy saving	2,480
	Reduction of waste disposal costs by recycling	190
	Reduction of expenses for copying paper	711

Note: Accounting is based on the "Environmental Accounting Guidelines 2002" published by the Ministry of the Environment.

### Method of accounting

Period: From April 2006 through March 2007

Scope: Sanyo Denki Co., Ltd. (non-consolidated)

Method of cost calculation: Environmental conservation costs

= Environmental conservation investments + Environmental conservation expenses

Environmental conservation investments

= Investments in environmental conservation facilities × Environment conservation rate

Environmental conservation expenses = Depreciation + Personnel costs + Other expenses

Effects of environmental conservation: Calculated based on a comparison between the total amount for the current period and that for the base period (from April 2005 through March 2006)

Economic effects of environmental conservation measures: Sales of useful materials include all sales.

The decrease of costs is calculated based on the difference between the current and base periods. Presumed effects are not included.



# Product Development

## Eco-products

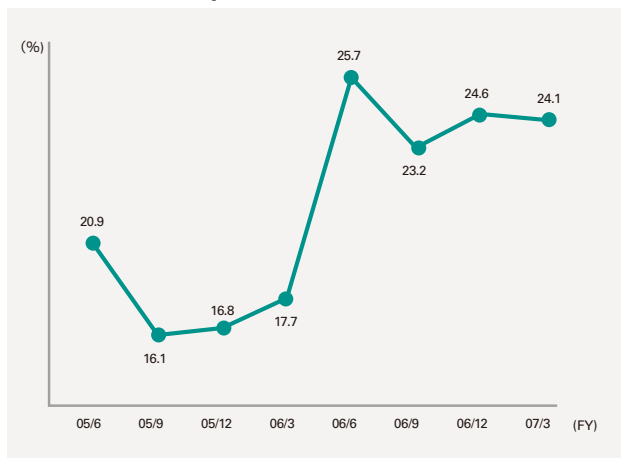
### Initiatives for eco-designs

Sanyo Denki assesses products at the design stage and evaluates their effects on the environment during all production processes, including the supply of parts and materials, manufacturing, distribution, utilization, recycling, and disposal. Newly developed products are evaluated in comparison with commercially available and existing products to see whether they satisfy the evaluation standards required to be certified as “eco-products” (eco-design products). Eco-products are presented in catalogues and other materials with “LEAF symbols.”

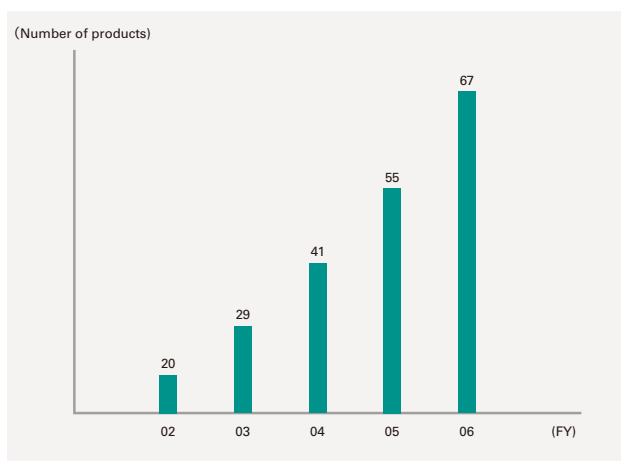


ECO PRODUCTS

### Sales ratio of eco-products



### Number of Products Certified as Eco-products (Total Number of Products in All Divisions)



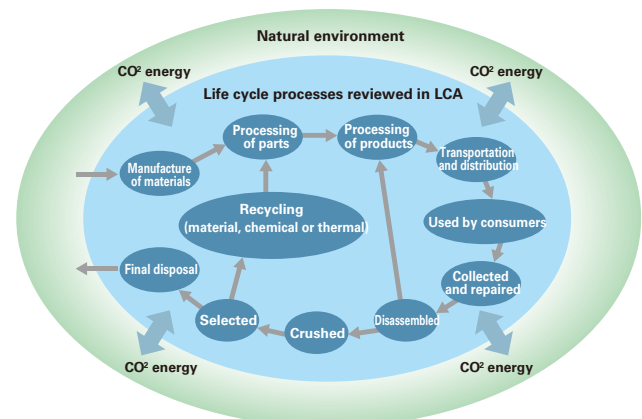
### Life Cycle Assessment (LCA)

We evaluate the environmental adaptability of a product, based on its life cycle assessment. Life cycle assessment is one of the techniques used to provide general quantitative measures for environmental effects, including global warming, and evaluate the effects of products through their life cycles.

Information required for LCA and evaluation of the results include the following data

- (1) Input information for LCA of a product
  - Power consumption, including the stand by power consumption required for the operation of the product
  - Material quantity of the product
  - Service life of the product
  - Load capacity required to ship the product
  - Data on parts required for the product (including data on the amount of parts required, materials, processing methods, material quantity and possibility of collecting the product)
- (2) Evaluation information
  - Amount of energy consumption
  - Amount of CO<sup>2</sup> emission

### Life Cycle Processes Reviewed in LCA



Effects on the natural environment (global warming) are assessed at each stage of the life cycle, based on the energy consumption and the amount of CO<sup>2</sup> emission.

# Product Development

## Representative Eco-products of Fiscal 2006

### Results of LCA

Twelve new eco-products were developed in 2006. We will present the results of the LCA of three representative products. The results are based on a comparison of the amounts of CO<sup>2</sup> emitted during the time of use between newly developed models and their immediate predecessors. Since these products are used by customers for a long time, the reduction of CO<sup>2</sup> emitted during the time of use will be most effective in preventing global warming. The following results show the CO<sup>2</sup> emission volumes for one year (result of LCA divided by the service life of a product).

### Cooling fan San Ace 80 CR Type 80mm square × 80mm thick Counter rotating fan

#### Features

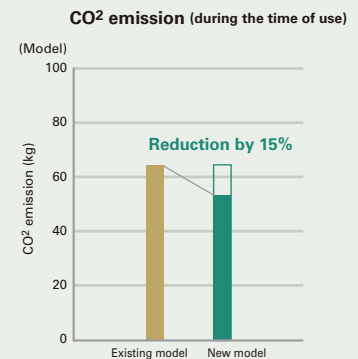
● Compared with an existing model (two cooling fans G, 80 mm square × 38 mm thick combined), the maximum air flow was increased by 68%, the maximum static pressure by 73%, while power consumption was reduced by 20% and the sound pressure level by 5 dB (A). The product is RoHS compliant.

#### Models compared for LCA

Newly developed model: 9CR0812S801

Existing model: 9G0812G101 (two of them combined)

The CO<sup>2</sup> emission volumes during the time of use include only the power consumption of the fans; calculated based on the assumption that they are operated at a rated rotation speed throughout their entire service lives.



### Uninterruptible Power Supply SANUPS E11A (1.5kVA/100Voutput)

#### Features

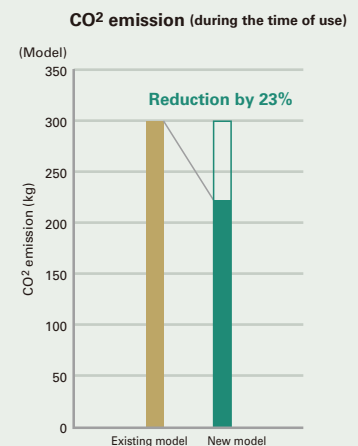
● The 1.5 kVA model was added to the hybrid UPS E11A series model, which automatically selects an operation method best suited to the user's power supply quality. The product achieves 94% device efficiency for a stable power supply, increasing the efficiency by 2% compared with the existing model.

#### Models compared for LCA

Newly developed model: E11A152A001P

Existing model: ASE15S1UA001

The CO<sup>2</sup> emission volumes during the time of use include only the power consumption of the UPS's; calculated based on the assumption that they are operated at a rated output level, 24 hours a day and 365 days a year throughout their entire service lives.



### AC Servo Motor SANMOTION R Series

#### Features

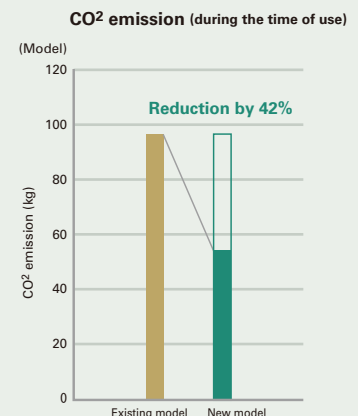
● Compared with our company's existing model, the total length of the motor was reduced by 30% and power loss by 30% (series average). Peak output torque and the maximum number of revolutions were increased compared with the existing model, and these changes made it possible to provide a wider power range (1.2-fold increase in the peak output torque and the maximum number of revolutions compared with the existing model). The product is RoHS compliant.

#### Models compared for LCA

Newly developed model: AC Servo Motor R2AA06020FXP00

Existing model: AC Servo Motor Q1AA06020DXS00

The CO<sup>2</sup> emission volumes during the time of use include only the power consumption of the motors; calculated based on the assumption that they are operated at a rated power level for 20 hours a day and 250 days a year.



## Promoting Green Supply

### ■ Establishment and Implementation of the Chemical Substance Management Guidelines

We are implementing the "Chemical Substance Management Guidelines." These guidelines were established in August 2005 for the management of hazardous substances concerning parts and indirect materials used for our company's products.

These guidelines provide management rules concerning substances specified in laws and regulations, such as substances whose use is restricted or prohibited by the RoHS Directive, substances banned by laws and regulations, and substances designated by the Japan Green Procurement Survey Standardization Initiative (JGPSSI). They include definitions of terms, RoHS threshold values, survey questionnaires for our suppliers on chemical substances that affect the environment, and a guarantee form to assure that no RoHS-restricted substances are contained in materials.

We request that our suppliers understand our Chemical Substance Management Guidelines and submit the survey questionnaire and the guarantee form to ensure that no RoHS-restricted substances are contained in their supplies.

### ■ Green Purchasing

We are taking the initiative to purchase stationery and office supplies that are environmentally friendly, such as products using recycled materials, substitute materials and waste materials, refillable products and products with replaceable parts, and products designed for recycling.

## Reducing Hazardous Chemical Substances

The Hazardous Chemical Reduction Working Group, a subgroup of the Chemical Substance Emission Reduction Subcommittee, is working together with design sections of manufacturing divisions to achieve the goal of eliminating substances strictly prohibited by the RoHS Directive.

- The installation of equipment required to meet the RoHS standards for cooling fans is nearly completed.
- The installation of equipment required to meet the RoHS standards for stepping motors is nearly completed.
- Measures required to meet the RoHS standards for servo motors, servo amplifiers and stepping motor drivers are currently being implemented.
- Measures required to meet the RoHS standards for power supply devices are currently being implemented.



An X-ray fluorescent analysis device at the Aoki Factory

- Preparations are currently underway to conduct a survey requested by customers on hazardous substances designated by the JGPSSI and other organizations.
- Based on the Chemical Substance Management Guidelines, a survey is being conducted on hazardous chemicals contained in products.
- Our company guidelines concerning China RoHS are being presented to adopt appropriate measures for customers.
- Analysis of six RoHS substances contained in materials is being conducted using an X-ray fluorescent (XRF) analysis system.

\*RoHS Directive: The Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment adopted by the European Parliament and the European Council

RoHS six substances: lead, hexavalent chromium, cadmium, mercury, and specified brominated flame retardants (PBB and PBDE)

## Lead-Free Solder

The Fujiyama Works, which manufactures cooling fans, has been using lead-free solder for high-temperature soldering since March 2006, following the introduction of lead-free solder in all manufacturing processes in January 2004 (except for high-temperature soldering exempted from the RoHS standards).

Also, the Shioda Works, which is a major manufacturing branch of the Servo System Division and the Power System Division, has been working to install a series of equipment for lead-free manufacturing since fiscal 2004, and finally completed the installation.

- Cooling fans and stepping motors: Installation of equipment for surface mount soldering completed
- Servo motors: Installation of equipment for surface mount soldering completed
- Servo amplifiers and stepping motor drivers: Equipment for lead-free soldering being installed for RoHS products
- Power supply devices: Equipment for lead-free soldering being installed for RoHS products



Lead-free high-temperature soldering equipment at the Fujiyama Factory

# Production and Distribution

## Energy Saving Measures Implemented in Manufacturing Processes at Factories

Works	Measures implemented	Effects
Midorigaoka Works	(1) Decrease in the idling time of local ventilating fans (2) Decrease in the operation time of compressors and other machines on holidays (3) Use of energy-efficient equipment	(1) Savings in electricity through the efficient combination of the operation of facilities and local ventilation fans (2) Savings in electricity by minimizing unnecessary holiday operation time of large-scale equipment (3) Savings in electricity by installing a series of energy-efficient devices such as energy-saving mercury lamps and air dusters
Shioda Works	(1) Affixing calendar timers to machines (2) Redesigning of moulder programs (3) Replacement of the general aging method used in testing by the discrete aging method	(1) Savings in electricity by preventing switches from being left on (2) Savings in electricity by reducing the production cycle time (3) Savings in electricity
Tsuiji Works	(1) Operation of compressors using timers (2) Installation of insulators on the exterior walls of the transfer furnace (3) Promotion of energy saving during holidays by monitoring demand data	(1) Savings in electricity by reducing the operation time (2) Savings in electricity by improving thermal efficiency and by reducing rises in room temperature (3) Savings in electricity
Aoki Works	(1) Prevention of air leaks of machines, and replacement and repair of the same (2) Operation of ventilation fans using temperature sensors (3) Installation of insulators in the dryer (4) Operation management of air conditioners	(1) Savings in electricity by reducing wasted energy (2) Savings in electricity by improving the efficiency in machine operation (3) Savings in electricity by preventing heat radiation (4) Savings in LPG consumption by combining scheduled and manual operations
Fujiyama Works	(1) Economical use of lights at parking lots and passages (2) Adjustment of the operation time of air conditioners (3) Promotion of the use of solar energy (for lighting and power for facilities) (4) Saving energy required for air conditioning	(1) Savings in electricity by reducing lighting hours (2) Savings in electricity by reducing operation hours (3) Savings in commercial electricity (4) Savings in electricity

## Compliance with the PRTR Law

Sanyo Denki keeps accurate records of the amounts of discharge and transportation of PRTR-controlled substances that are required to be reported and used in amounts of more than one ton in any one of the factories, and submits reports to relevant organizations. Bisphenol A epoxy resin (liquid) at the Midorigaoka Works was exempted last year from the reporting obligation following lead used at the Fujiyama Works, which was exempted the year before last.

PRTR (pollutant release and transfer register): A system for collecting, aggregating and publishing data on various hazardous chemical substances to see how much of these substances are released into the environment from what sources, or are transferred with waste from what facilities.

PRTR-controlled substances	PRTR-controlled substances (that are required to be reported and used in amounts of one ton or more)
Antimony	Fujiyama Works 8.7t
Lead	Shioda Works 1.8t
Bisphenol A epoxy resin (liquid)	Tsuiji Works 2.5t
Styrene	Midorigaoka Works 6.6t

## Transportation

We are using vehicles that comply with the regulations on diesel car exhaust in seven municipal communities to transport supplies between factories. We are also promoting activities to stop idling in order to reduce environmental burdens.



Signboard for idling stop



Vehicle that complies with the regulations on diesel car exhaust in seven municipal communities



Regulation-compliant diesel car



Low-emission diesel car

## Packing and Wrapping

### Review of Stretch Film Substitutes

We are examining the use of reusable substitute products for stretch films that are currently used to prevent cargo from collapsing during transportation. Since the results of repeated tests of packing techniques, transportation and strength showed the need for improvements, including increasing man-hours for packaging, improving the efficiency in the collection of packages, and adopting more effective measures to prevent cargo collapse, we will continue our examination of the use of substitute products.

### Tri-wall Pak

Reusable three-layered cardboard boxes (Tri-wall Pak) are used by our overseas subsidiaries as packaging material for shipments for Japan.



Tri-wall pak

## Reuse of Materials

We are returning wooden pallets used to transport purchased materials to carriers in order to promote their reuse.

[Other examples of reuse of materials]

Cardboard boxes : returned to suppliers  
Shock absorbers : reused within the company  
Inscription board mounts : recycled



Pallets

# Waste and Recycling

## Zero-emission Activities

Sanyo Denki is working as a member of the Zero-emission Promotion Committee and the Zero-emission Promotion Workshop (formed in April 2003) of the Nagano Techno Foundation\* Asama Technopolis Region Center to promote environmental conservation activities in collaboration with companies in the surrounding areas.

The Zero-emission Promotion Workshop holds sessions for activity reports and makes inspection visits to member companies to see how waste is sorted by type and processed, and carefully examines how to improve waste disposal methods.

\*The Nagano Techno Foundation was established to bring new life to the local economy and provide an autonomous basis for its development. To this end, the foundation is working to improve the level of local industries through technological innovation and develop new industries by exploiting local industry resources in five areas in Nagano Prefecture. The Asama Technopolis Region Center is one of its organizations.

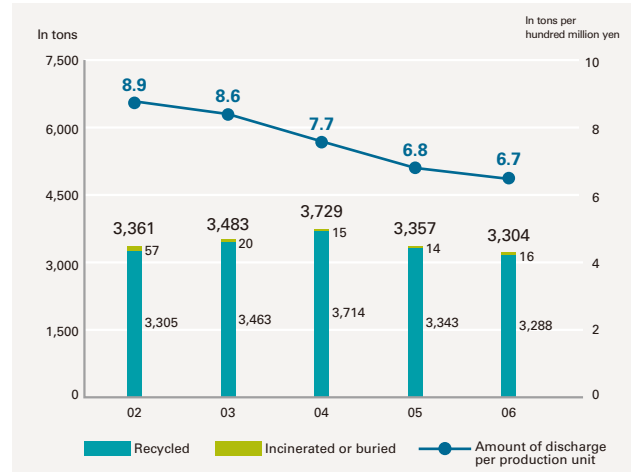
[Nagano Techno Foundation] Website: [www.tech.or.jp](http://www.tech.or.jp)

[Asama Technopolis Region Center] Website: [www.asatech.or.jp](http://www.asatech.or.jp)

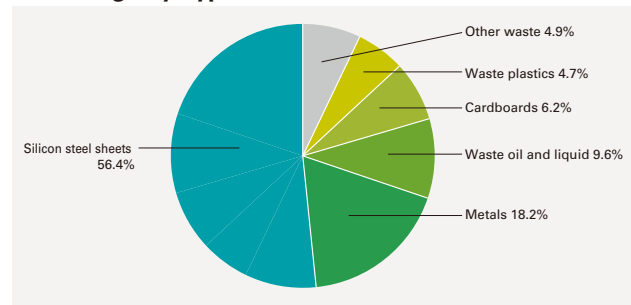
## Recycling

We created a recycling section for employees at the Tsuiji Works in 2003 to promote the in-house recycling of unneeded supplies such as OA equipment, desks, shelves and chairs.

## Changes in the Amount of Waste Discharged



## Percentage by Type of Waste



Waste	Amount discharged (tons)	Amount recycled (tons)	Recycling rate (%)	Recycling method
Sludge	Organic sludge	6.4	6.4 / 100.0	After oil and water are separated, dehydrated residues are turned into compost.
	Inorganic sludge	6.4	6.3 / 98.4	After intermediate treatment, some of the sludge is recycled as road construction materials. Some is also gasified by furnaces, with residues recycled as cement materials.
Waste oil	Oil-based materials	4.4	4.4 / 100.0	After oil and water are separated, the material is recycled as fuel.
	Water-soluble materials (detergents, grinding liquid, etc.)	268.3	268.3 / 100.0	After oil and water are separated, some of the treated water is released into rivers, and incinerated residues are used as cement materials.
	Volatile materials	6.8	6.8 / 100.0	Distilled and used as recycled oil
	Waste acid (batteries)	38.7	38.7 / 100.0	Crushed, sorted and all recycled.
Waste plastics	OA equipment and circuit boards	39.4	39.4 / 100.0	Crushed, sorted and all recycled.
	Vinyls and films	49.7	48.8 / 98.0	Turned into solid fuel (refuse derived fuel), reducing agents (using furnaces) and materials for power generation (thermal recycling)
	Molding scraps	32.1	32.1 / 100.0	
	Other solid scraps	24.4	24.4 / 100.0	
Styrofoam	10.2	10.2 / 100.0	Turned into raw materials (material recycling); immersed in solvent to be turned into soil, and recycled as raw material	
Metal scraps	Scraps generated in manufacturing processes	2432.6	2432.6 / 100.0	Recycled as metal materials
	Metals (including empty cans)	28.5	28.5 / 100.0	
Paper scraps	Used paper	12.3	12.3 / 100.0	Turned into raw materials for recycled paper
	Newspapers, magazines, and other papers	52.4	52.4 / 100.0	
	Cardboards	206.0	206.0 / 100.0	
Wood scraps	Packages and transportation pallets	67.0	67.0 / 100.0	Crushed and turned into combustion improver
Glass and ceramic scraps	Empty bottles, glass, and ceramics	2.7	2.7 / 100.0	Crushed and turned into road construction materials
	Fluorescent light bulbs	0.1	0.1 / 100.0	Crushed, sorted, and recycled
Other waste	Paper scraps and other waste	15.8	0.8 / 5.0%	Incinerated and recycled
Total	3304.2	3288.1 / 99.5		

# For Local Communities and Employees

## Social Contribution

### Internal Audits

We conduct internal audits by employees to check that the environmental management system created by the company is being properly implemented, effectively managed and maintained in accordance with regulatory requirements.

To ensure the fairness and objectivity of internal audits, we created a certification system for internal auditors to avoid the auditing of divisions by their own members and conduct internal audits in accordance with the standards for internal audits.

The results of internal audits are reported to the top management and divisions audited, with the aim of making improvements to the environmental management system.

### Exchange and Cooperation with Local Communities

Members of the Head Office, the Technology Center and the factories in Japan clean the areas around their offices and factories more than once a month. The Aoki Works also participates in the "Clean Environment Campaign" organized by Aoki Village every year.

At the Midorigaoka Works and the Shioda Works, a large scale of cleaning was carried out cooperating with the neighborhood community association.

The Technology Center engaged in large scale cleaning by expanding its cleaning area.



Outdoor cleaning activities



Outdoor cleaning activities

## Education and Training

### Training Curriculum

Sanyo Denki's training system is composed of training programs by stratum, career training programs, and training programs by division.

In fiscal 2006, we held the following company lectures

- August 2006  
Lecture on designs for hazardous chemical substance reduction
- February 2007  
Briefing session on eco-products



Briefing session on eco-products

### In-house Awards Ceremony for Environmental Activities

We have held awards ceremonies since 2003 to honor the activities of the working groups of the Environmental Committee and the results of the environmental activities of branch offices and factories, aiming to enhance the awareness of employees about the environment.

Activities that were awarded honors in fiscal 2006

- Reduction of waste: Aoki Works
- Social contribution and volunteer activities: Aoki Works
- Eco-products: AC Servo Motor "SANMOTION Q," SAN ACE MC 109X9212, and 86-by-86 Two-Phase Stepping Motor, "SANMOTION F"

## Safety and Health

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To prevent occupational accidents and to ensure the safety and mental and physical health of employees, we formed the Safety and Health Committees and opened its branches at the Head Office and the Ueda branch office (for the Technology Center and the factories). The Safety and Health Committee aims to provide a safe and healthy working environment, and to that end, it allocates officially certified administrators and engineers and experts in environmental management to ensure occupational safety and provide health care.

### ■ Activities of the Safety and Health Committee

#### ● Inspection visits to workplaces

When a monthly committee meeting is held, committee members make an inspection visit to workplaces.

The committee checks whether appropriate measures have been taken to solve the problems pointed out in the previous month, and whether or not any other problems can be detected.

#### ● Prevention of occupational accidents

During inspection visits, committee members check certain priority issues to prevent occupational accidents.

All branch offices and factories are informed of occupational accidents that occur at workplaces so that they can implement appropriate measures to prevent any recurrence.

#### ● Reports from administrators

The committee receives reports from safety and health administrators concerning environmental measurements, inspection schedules, announcements, training sessions and revisions to laws and regulations.

#### ● Activities for maintaining and improving health

Medical examinations are conducted to achieve a 100% examination rate. Employees with health problems are provided with medical counseling and follow-up examinations.

The committee also provides dietary guidance and health consultant services to prevent lifestyle diseases in accordance with the annual schedules of branch offices and factories.

#### ● Mental health care

We provide contacts for consultant services, training sessions on self-care for managers and other employees, and counseling by nurses and company counselors.

#### ● Training and drills

- Emergency drills
- Lectures for dietary guidance



Emergency drill

# Goals for Fiscal 2007 and Challenges for the Future

We created 12 eco-products in fiscal 2006. We will continue to promote the development of products designed to reduce CO<sup>2</sup> emissions during their use and to be eco-friendly based on LCA. The sales ratio of eco-products was 26.2% in fiscal 2006, and we will continue striving to increase the sales ratio.

Item	Goals for Fiscal 2007	Goals to be achieved by fiscal 2009
Promotion of eco-products	Creation of eco-products	Creation of eco-products
Sales activities	Sales ratio of eco-products: 30% or higher	Sales ratio of eco-products: 50% or higher
Reduction of hazardous chemical substances	Promotion of the use of lead-free solder	Promotion of the use of lead-free solder
	Implementation of measures to meet the RoHS-6 standards	Implementation of measures to meet the RoHS-6 standards
	Reduction of PRTR-controlled substances	Reduction of PRTR-controlled substances
Reduction in power consumption	Reduction by 1% compared to 2006	Reduction by 3% compared to 2006
Reduction in fuel consumption	Maintaining the consumption of LPG at the current level (reduced by 44% compared to 2000)	Maintaining the consumption of LPG at the current level (reduced by 44% compared to 2000)
	Maintaining the consumption of A fuel heavy oil at the current level (reduced by 14% compared to 2000)	Maintaining the consumption of A fuel heavy oil at the current level (reduced by 14% compared to 2000)
Reduction in copier paper consumption	Maintaining the consumption at the current level (reduced by 30% compared to 1999)	Maintaining the consumption at the current level (reduced by 30% compared to 1999)
Reduction of waste	Maintaining the consumption at the current level (reduced by 19% compared to 2000)	Maintaining the consumption at the current level (reduced by 19% compared to 2000)
Contribution to local communities	Cleaning of the area around factories once or more every month	Cleaning of the area around factories once or more every month
	Participation in environment-related events	Participation in environment-related events
Promotion of zero-emission	Maintaining a company-wide waste recycling rate at 98% or higher	Maintaining the company-wide recycling rate of waste at 98% or higher



# Activities at Office and Works

## Head Office



Location: 1-15-1 Kitaotsuka, Toshima Ward, Tokyo  
 Area : 1,761 m<sup>2</sup>  
 Number of employees : 296  
 ISO certificate obtained : March 2002

## Shioda Works



Location: 517 Goka, Ueda City, Nagano  
 Area: 5,698 m<sup>2</sup>  
 Number of employees: 123  
 ISO certificate obtained: March 2001  
 PRTR-controlled substances: Lead, 1.8 tons  
 Products manufactured: AC/DC servo amplifiers, stepping motor drivers, system controllers, UPS' s (uninterruptible power supply devices), and printed circuit boards

## Tsuiji Works



Location: 82-5 Tsuiji, Ueda City, Nagano  
 Area: 9,580 m<sup>2</sup>  
 Number of employees: 28  
 ISO certificate obtained: March 2001  
 PRTR-controlled substances: Bisphenol A epoxy resin (liquid), 2.5 tons  
 Products manufactured: AC/DC servo motors

## Technology Center



Location: Ueda Research Park, 812-3 Shimonogo, Ueda City, Nagano  
 Area : 44,908 m<sup>2</sup>  
 Number of employees : 278 名  
 ISO certificate obtained: November 1999  
 PRTR-controlled substances: None  
 Other: A solar power generation and a gas engine cogeneration system adopted

## Aoki Works



Location: 252-5 Oaza Tonodo, Aoki Village, Chiisagata County, Nagano  
 Area: 21,487 m<sup>2</sup>  
 Number of employees: 148  
 ISO certificate obtained: April 1999  
 PRTR-controlled substances: None  
 Products manufactured: Stepping motors

## Midorigaoka Works



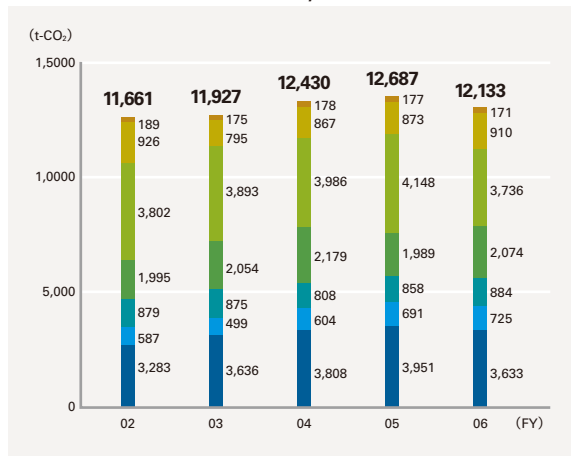
Location: 1-1-7 Midorigaoka, Ueda City, Nagano  
 Area: 33,423 m<sup>2</sup>  
 Number of employees: 279  
 ISO certificate obtained: March 2001  
 PRTR-controlled substances: Styrene, 6.6 tons  
 Products manufactured: AC/DC servo motors and sensors

## Fujiyama Works

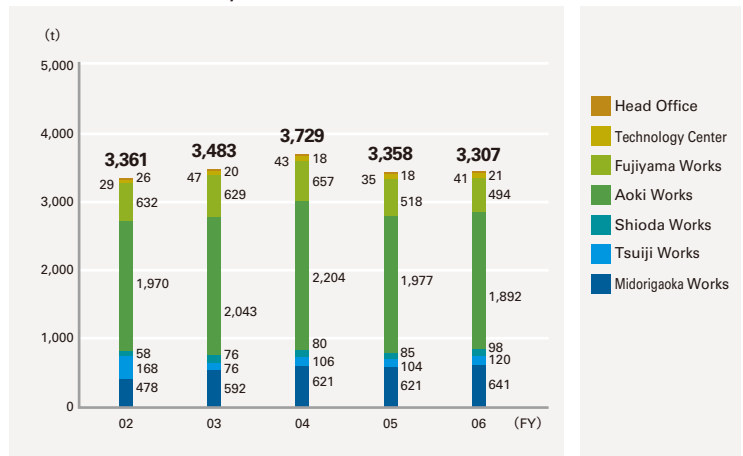


Location: 4016 Fujiyama, Ueda City, Nagano  
 Area: 86,260 m<sup>2</sup>  
 Number of employees: 356  
 ISO certificate obtained: December 1999  
 PRTR-controlled substances: Antimony, 8.7 tons  
 Products manufactured: Cooling fans, UPS' s (uninterruptible power supply devices), power source monitoring systems, power conditioners for solar-electric power generation systems, and emergency self-power generation systems  
 Other: Large-scale static power supply systems adopted to save energy for testing equipment of power supply devices and to reduce exhaust and noises

Amounts of CO<sub>2</sub> emission by Works



Amounts of waste by Works



## General Environmental Manager



**Hideyuki Takahashi**

Sanyo Denki established its environmental management system and obtained the ISO14001 certificate in 1999. The general environmental manager works in the environmental management system under the direction of top management to promote environmental activities at the Head Office and the factories. We aim to help our customers reduce environmental burdens when using our products and to contribute to reducing global environmental burdens by developing highly efficient products, in addition to saving energy and reducing waste at our factories. The Environmental Committee works with environmental managers at factories to organize various specialized subcommittees in order to discuss measures to make continuous improvements for the environment and to take an active part in promoting environmental conservation activities to achieve our goals.

## Head Office



**Head Office  
Environmental Manager  
Fukuichi Tamegai**

In addition to providing support for improving the sales ratio of eco-products and for local environmental activities, the Head Office prioritizes measures to save energy and reduce waste and copier paper consumption.

- Improvement in the sales ratio of eco-products
- Proper temperature management for air conditioning
- Improvement in the sorting of waste and the recycling rate
- Volunteer activities for cleaning areas around the Head Office

We will continue to promote environmental activities at the Head Office and all our sales offices and branches.

## Technology Center



**Technology Center  
Environmental Manager  
Hideyuki Takahashi**

The Technology Center, which is engaged in designing and developing products, is committed to promoting eco-designs and developing products that are free of hazardous chemicals. To promote the development of products designed for the environment, we certified 12 new products as "eco-products" in fiscal 2006. To achieve our goal of developing products that are free of hazardous chemicals, we have nearly completed the installation of equipment required to meet the RoHS standards for our target products. We have also worked to reduce the consumption of electricity, LPG and copier paper as well as the amount of waste, and cleaned areas around the Ueda Research Park for the local community. We will continue to develop eco-design products and work to save energy and improve efficiency in order to help customers reduce environmental burdens when using our products.

## Tsuiji Works



**Tsuiji Works  
Environmental Manager  
Yuji Kojima**

The Tsuiji Works is promoting activities to save energy, reduce waste and reduce hazardous substances.

- Reduction in power consumption (operation of compressors using timers and monitoring and repairing of air leaks)
- Reduction in the consumption of A fuel heavy oil (monitoring of air-conditioning temperatures and use of partition curtains)
- Reduction in the consumption of copier paper
- Reduction of waste (returning packages and containers to suppliers)
- Volunteer activities for cleaning areas around the factory

## Midorigaoka Works



**Midorigaoka Works  
Environmental Manager  
Masahiro Koyama**

The Midorigaoka Works focused primarily on saving power consumption and reducing the amount of waste.

- Saving power consumption by reducing the idle operation of bulky equipment, such as large-scale local ventilation fans
- Reuse of wooden pallets and cardboard boxes
- Volunteer activities for cleaning surrounding areas (cleaning areas around the factory once a month and cleaning surrounding areas twice a year)

## Aoki Works



**Aoki Works  
Environmental Manager  
Katsuya Kodaira**

The Aoki Works is promoting activities to reduce LPG consumption and improve the recycling rate.

- Reduction in power consumption
- Reduction in LPG consumption
- Reduction of waste and improvement in the recycling rate
- Reduction in the consumption of copier paper
- Volunteer activities for cleaning areas around the factory

## Shioda Works



**Shioda Works  
Environmental Manager  
Norio Arai**

The Shioda Works is promoting activities to save energy, reduce waste, and eliminate hazardous substances from the manufacturing processes.

- Reduction in power consumption (planned operation of air conditioners by using timers and checking room temperatures, and a reduction in the operation time of production lines by improving the operation rate)
- Reduction in the consumption of A fuel heavy oil (planned operation of boilers using timers)
- Reduction in the consumption of copier paper (use of projectors and reuse of the backs of printed paper)
- Thorough sorting of waste materials
- Use of lead-free surface mount soldering
- Volunteer activities for cleaning areas around the factory

## Fujiyama Works



**Fujiyama Works  
Environmental Manager  
Hirohisa Yamazak**

The Fujiyama Works is promoting activities to save energy, eliminate hazardous substances from manufacturing processes, reduce waste, and achieve zero-emission.

- Energy saving (a reduction in the consumption of electricity and A fuel heavy oil for air conditioning). In response to the enactment of the Nagano Prefectural Act for the Prevention of Global Warming, and in order to reduce greenhouse gases, we will propose energy saving measures, present reports to the prefecture, and implement our measures.
- Reduction in the consumption of lead by using lead-free solder
- Reduction of waste (reduction of waste plastics and cardboards) and zero emission
- Volunteer activities for cleaning areas around the factory

## Data on Air Quality, Water Quality and Noise

Technology Center	Item	Regulatory standard	Voluntary standard	Actual value
Air Quality Laws and ordinances for air pollution prevention	Smoke and soot (g/m <sup>3</sup> N)		Exempted	
	Nox (ppm)	150	130	65
		600	550	9.4
	Sox (m <sup>3</sup> N/h)		Exempted	
Water Quality Laws, ordinances and agreements for water pollution prevention	PH (pH)	5.8 ~ 8.6	—	6.6 ~ 7.2
	BOD (mg/L)	20	19	15.0
	SS (mg/L)	60	54	10.0
Noise Laws, ordinances and agreements for noise regulation	(dB(A))	55 ~ 65	54 ~ 64	Excluded from measurement

Tsuiji Works	Item	Regulatory standard	Voluntary standard	Actual value
Air Quality Laws and ordinances for air pollution prevention	Smoke and soot (g/m <sup>3</sup> N)	0.30	0.30	0.006
	Nox (ppm)	250	200	68
	Sox (m <sup>3</sup> N/h)	1.7	0.8	0.022
		0.63	0.3	0.0095
Water Quality Laws, ordinances and agreements for water pollution prevention	PH (pH)	5.8 ~ 8.6	—	5.8 ~ 7.2
	BOD (mg/L)	30	28	12.0
	SS (mg/L)	60	54	6.0
Noise Laws, ordinances and agreements for noise regulation	(dB(A))	55 ~ 65	54 ~ 64	Excluded from measurement

Midorigaoka Works	Item	Regulatory standard	Voluntary standard	Actual value
Air Quality Laws and ordinances for air pollution prevention	Smoke and soot (g/m <sup>3</sup> N)	0.30	0.03	0.0058
	Nox (ppm)	250	200	72
		180	130	65
		1.7	0.8	0.013
	Sox (m <sup>3</sup> N/h)	2.1	1.0	0.0088
PH (pH)				
Water Quality Laws, ordinances and agreements for water pollution prevention	BOD (mg/L)		No water disposal tank	
	SS (mg/L)			
	PH (pH)			
Noise Laws, ordinances and agreements for noise regulation	(dB(A))	60 ~ 65	59 ~ 64	47 ~ 63

Aoki Works	Item	Regulatory standard	Voluntary standard	Actual value
Air Quality Laws and ordinances for air pollution prevention	Smoke and soot (g/m <sup>3</sup> N)			
	Nox (ppm)		Exempted	
	Sox (m <sup>3</sup> N/h)			
Water Quality Laws, ordinances and agreements for water pollution prevention	PH (pH)			
	BOD (mg/L)		No water disposal tank	
	SS (mg/L)			
Noise Laws, ordinances and agreements for noise regulation	(dB(A))	65 ~ 70	64 ~ 68	Excluded from measurement

Shioda Works	Item	Regulatory standard	Voluntary standard	Actual value
Air Quality Laws and ordinances for air pollution prevention	Smoke and soot (g/m <sup>3</sup> N)	0.30	0.03	0.0033
	Nox (ppm)	180	130	76
		1.3	0.7	0.018
		2.1	1.0	0.0088
	Water Quality Laws, ordinances and agreements for water pollution prevention	PH (pH)		
BOD (mg/L)			No water disposal tank	
SS (mg/L)				
Noise Laws, ordinances and agreements for noise regulation	(dB(A))	55 ~ 65	54 ~ 64	46 ~ 58

Fujiyama Works	Item	Regulatory standard	Voluntary standard	Actual value
Air Quality Laws and ordinances for air pollution prevention	Smoke and soot (g/m <sup>3</sup> N)	0.30	0.03	0.0043
	Nox (ppm)	180	130	63
	Sox (m <sup>3</sup> N/h)	5.0	2.5	0.043
		PH (pH)	5.8 ~ 8.6	—
Water Quality Laws, ordinances and agreements for water pollution prevention	BOD (mg/L)	50	48	13.0
	SS (mg/L)	60	54	10.0
	Noise Laws, ordinances and agreements for noise regulation	(dB(A))	55 ~ 65	54 ~ 64

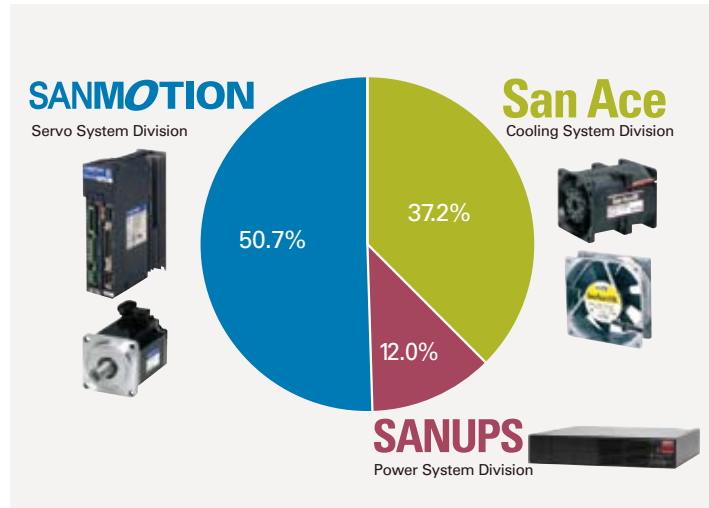
# Business Profile and Company Profile

## Business Profile

Sanyo Denki is working to develop new technologies and products, with the aim of creating “technologies to protect the global environment,” “technologies to ensure human health and safety” and “technologies to exploit new energy sources and save energy.”

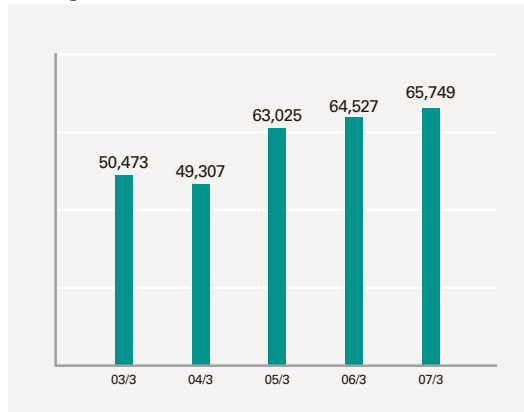
- Cooling System Division  
Development, manufacture and sales of cooling fans and cooling systems
- Power System Division  
Development, manufacture and sales of uninterruptible power supply devices, power conditioners for solar-electric power generation systems, and engine generators
- Servo System Division  
Development, manufacture and sales of servo motors, stepping motors, sensors, drivers, and control systems

Sales Ratio (for fiscal 2006, consolidated)



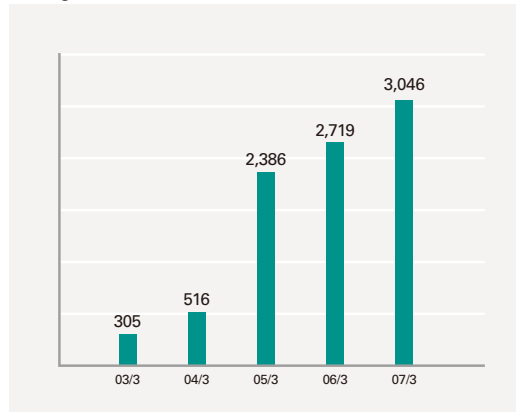
Changes in Sales (Consolidated)

In millions of yen



Changes in Current Net Income (Consolidated)

In millions of yen



## Company Profile

Founded : December 31, 1936

Capital : 9.5 billion yen (as of March 31, 2007)

Sales (consolidated) : 64.5 billion yen (for the period from April 2006 through March 2007)

Number of employees (consolidated) : 2,477 persons (as of March 31, 2007)

■ For inquiries about the Environmental Management Report, please contact

Secretariat of the Environmental Committee,  
Technological Center  
Ueda Research Park, 812-3, Shimonogo, Ueda City, Nagano Prefecture  
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