

# Social & Environmental Report 2006



FDK Group Social & Environmental Report 2006

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#### From the editor

# From "Environmental Report" to "Social and Environmental Report"

In this issue, the title of the report is renewed as "FDK Group Social and Environmental Report". The report includes some social issues in addition to the environmental protection activities that the previous versions covered.

#### Editorial policy

This FDK Group Social and Environmental Report aims at disclosing activities to realize the sustainable society of the FDK group, to various stakeholders including investors, customers, regional societies, local governments and so on.

To create this report that is easy to understand, we used many graphs, charts, and so on, referring to the "Sustainability Reporting Guidelines 2002" by the GRI, the "Environmental Report Guideline (FY 2003 edition)" by the Ministry of the Environment, etc.

This 2006 edition covers the extended environmental information especially on overseas manufacturing subsidiaries.

This report aims at promoting interactive communications between the FDK group and you. It is scheduled to issue every year to make our best effort to explain you our environmental activities clearly.

We welcome your feedback. Please send us your comments by fax or letter using an enclosed questionnaire.

#### Scope of the Report

#### Reporting period:

Fiscal year 2005 (April 1, 2005 - March 31, 2006)

Please note, some descriptions in this report partially contained some past activities and some plan of fiscal year 2006.

#### Organizations covered:

All three plants in FDK CORPORATION and 13 major subsidiaries.

FDK CORPORATION: Kosai Plant, Sanyo Plant, and

Iwaki Plant · · · 3 Plants

 ${\it Major subsidiaries: (Six subsidiaries in Japan)}$ 

FDK ENERGY CO., LTD.,
FDK MECHATRONICS CO., LTD.,
FDK ENGINEERING CO., LTD.,
FDK LIFETEC CORPORATION,
FUJIDENKA RESEARCH AND
ANALYSIS CENTER CO., LTD.,
and FDK ECOTEC CO., LTD.
(Seven subsidiaries in Overseas)
FUCHI ELECTRONICS CO., LTD.,
PT FDK INDONESIA,
FDK LANKA (PVT) LTD.,
XIAMEN FDK CORPORATION,
SHANGHAI FDK CORPORATION,

SUZHOU FDK CO., LTD., FDK (THAILAND) CO., LTD.

#### Scope of collation:

The scope of the performance data including the global warming prevention, waste reduction and chemical substance elimination was from FDK CORPORATION and its major domestic subsidiaries. The numerical data on overseas manufacturing bases were partially described in "Site Report".

# Message from the President



During the 20th Century, economic activities were expanded to every corner of the world at a breakneck speed. However, this process exposed a variety of social issues, such as the depletion of resources, the destruction of the environment and widening gaps between haves and have-nots. In order to reverse such trends, demands on global society have in recent years been made to change direction towards a sustainable society, in order to recapture a natural environment, and in order to bring back a society that is both healthy and generous in spirit. In order to achieve such a sustainable society, it is incumbent on all companies, regardless of nationality and size, to unite their efforts, and to walk together in a single direction.

Deeply conscious that corporate activities are closely associated with the fortunes of society, and with the surrounding global environment, the FDK Group aims at achieving a sustainable society in which a sensible balance can be maintained between the development of business and environmental preservation. Against such a background, the FDK Group is not only promoting a reduction in environmental loads generated in the course of its business activities, but also proactively contributing to an enhancement of the environment through the business activities of each constituent member of the Group including measures relating to environmental assessment, analysis and consulting, as well as to recycling business activities.

This Social and Environmental Report has been prepared to describe the philosophy and global activities of the FDK Group towards the realization of a sustainable society. This year, an explanation is being offered in rather more detail than in Reports previously published, about the relationship of the FDK Group with society. In the conduct of business throughout the world, as well as complying with the Laws and Regulations of countries where the FDK Group conducts business as a good corporate citizen, the FDK Group aims at contributing to the development of each country by means of respecting the culture and customs prevailing in each country, while at the same time maintaining the highest degree of ethics.

It will give us all considerable satisfaction if this Report helps to raise the level of understanding of people on the philosophy and business activities of our Group. We would, moreover, at any time welcome any frank comments and opinions you may have on our attempts to raise the quality of our social and environmental activities.

Finally, we would much appreciate your continued support and assistance to the FDK Group in future years.

Toshiharu Sugimoto President & CEO FDK Corporation

# Corporate Profile

Company Name: FDK Corporation

[Consolidated Subsidiaries: 15 (Domestic: 4, Overseas:11); Equity Method Investee: 1 (Overseas); Non-consolidated Subsidiaries 4 (Domestic: 3, Overseas 1)]

Head Office : 5-36-11, Shimbashi, Minato-Ku, Tokyo

President & CEO: Toshiharu Sugimoto

Foundation: February 1, 1950

Capital : 22,756 million yen

Sales : 118,109 million yen (consolidated sales in FY 2005)

57,984 million yen (non-consolidated sales in FY 2005) Electronics device business: 94,339 million yen (79.9%)

Battery business: 23,715 million yen (20.1%)

(Incl. overseas sales of 69,776 million yen or 59.1% of the total consolidated sales)

**Employees** : Consolidated: 13,784 Non-consolidated: 1,389

\*\* The above corporate profile indicates the data as of the end of March 2006.

Kosai Plant

#### Consolidated subsidiaries

#### **Production companies**

	FDK Mechatronics Co., Ltd.					
Japan	FDK Lifetec Corporation					
Japan	FDK Energy Co., Ltd.					
	FDK Engineering Co., Ltd.					
	PT FDK Indonesia (Indonesia)					
	Fuchi Electronics Co., Ltd. (Taiwan)					
	Xiamen FDK Corporation (China)					
Overseas	Shanghai FDK Corporation (China)					
	Suzhou FDK Co., Ltd. (China)					
	FDK (Thailand) Co., Ltd. (Thailand)					
	FDK Lanka (PVT) Ltd. (Sri Lanka)					

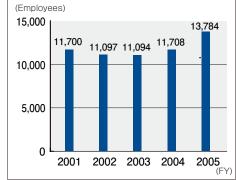
#### Sales companies

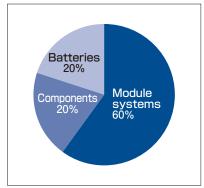
	FDK America Inc. (USA)
Overseas	FDK Singapore PTE. Ltd. (Singapore)
Overseas	FDK Hong Kong Ltd. (China)
	FDK Electronics GmbH (Germany)

#### Consolidated sales

# (Million yen) 140,000 120,000 100,613 102,668 100,441 100,000 40,000 20,000 0 2001 2002 2003 2004 2005 (FY)

#### Number of employees in consolidated basis Breakdown of Sales by Division in FY 2005





**Major Product Lines** : FDK mainly manufactures and sells materials and parts for electronics-related products, batteries and their applied products.

Business Category		Major Products
	Modular Systems	Timing control board for LCD  LCD backlight inverter module point-of-load DC-DC converters
Electronic Business	Components	LCD backlight inverter transformer Multilayer products Multilayer chip power inductors
		Piezoelectric products  GPS antennas  Stepper motors
Battery Business	Batteries	Alkaline batteries  Lithium batteries (Coin-shape)  LED flashlights

# **Management and Organizational Structure**

#### Management Direction and Corporate Governance

The FDK Group will contribute to further advancement of electronics industries by developing and providing electronic products and batteries, and will perform social responsibilities, in order to be a trusted, good corporate citizen.

# FDK Group Management Direction

The FDK Group makes it its mission to realize abundant electronic society by developing and providing electronic parts and batteries of quality that satisfies customers. For this purpose, the FDK Group provides high quality products of high utility value to the customers all over the world by fully utilizing our own material, circuit and high density packaging technologies nourished for years and by integrating the efforts and enthusiasm of all employees in the Group. Aiming at being recognized as a key device supplier of highly advanced electronic products, the FDK Group will endeavor to contribute to the development of technologies and environmental protection. In addition, the FDK Group will further enhance its corporate value through timely and accurately responding to changes of its business environment and an effective utilization of its corporate resources by promoting production innovation activities to build a firm and stable management foundation, as well as managing the company in compliance with the relevant laws and regulations.

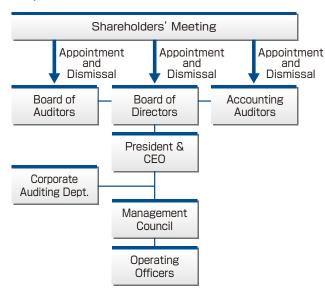
# Corporate Governance

The FDK Group aims at speedy and accurate decision-making as well as highly transparent and efficient corporate management, through which it will strengthen its corporate governance.

#### Our Basic Attitudes toward Corporate Governance

The FDK Group believes that well-established corporate governance will enhance the healthiness and the fairness and transparency of a company and increase the value of our shareholders. Standing on the idea, the FDK Group's organizational structure is revised as necessary to improve the quality of the organization and to implement necessary measures and policies. In addition, the Group is committed proactively to disclosing its corporate information to ensure transparent and socially just corporate management. For example, its corporate information is disclosed in a timely manner, and its financial statements are available on the Internet.

#### Corporate Governance Structure



#### Measures for Ensuring Corporate Governance

The FDK Group separates management administration functions and business operation functions. Since June 2002, an operating officer system has been put into effect. Currently the Group's board of directors consists of four directors including one external board member. The small-in-size board of directors ensures a prompt decision making process. The board of directors meeting is held once a month where important corporate management matters are decided and operations of business are monitored and supervised. There are 3 director and operating officers and 9 operating officers in office.

The Management Council is convened once a month to decide on business matters. As decisions on important business matters require a resolution at the meeting of board of directors, the Council is in principle held one week before the meeting of board of directors to facilitate its process.

There are 4 corporate auditors, and 2 out of them are 'outside corporate auditors' stipulated in Article 2, Paragraph 16 of the corporate law. The corporate auditors attend the meeting of board of directors, Management Council and other committees held from time to time. In addition to it, their role includes business report hearings from directors. All of these effectively ensure the conduct of business in compliance to corporate governance by closely monitoring the business activities of the directors. The auditor's meeting is held every 3 months in principle, where each auditor makes a report on how he/she monitors the business of the FDK Group.

The effectiveness and efficiency of their auditing activities are ensured by maintaining close communication among accounting auditors, corporate auditors and Corporate Auditing Dept. through exchanging information and opinions among them from time to time.

# Compliance

In order to fulfill its social accountability as a company, the FDK Group designated the 'FDK Group Corporate Conduct Guidelines' in October 2000 to show its policy to comply with the relevant laws and regulations. Since then, the FDK Group has been conducting its business by abiding by it to gain trust of consumers and suppliers. The guideline is distributed to all employees including directors, and is

displayed at all workplaces to remind our employees of the importance of observing laws and regulations as well as maintaining good corporate ethics.

Every time a law or a regulation are modified or newly established, an in-house explanatory meeting is held to keep our employees informed of the latest legal information and to ensure that they act in compliance to the laws and regulations. The information is also distributed on our intranet as well.

As a part of the activities, an explanatory meeting was held in May, October and December of FY2005 to update the legal information on personal data protection, export control and subcontractor trading, respectively.

In FY2006, the FDK Group will establish an internal control system to prevent any cases of compliance violation from happening and further ensure compliance in operating activities.

For this purpose, 'Basic policy for internal control' was approved by the board of directors in May this year. The policy describes establishment of a system complying with Issue No.6, Paragraph 4 of Article 362 of the corporate law and Article 100 of the enforcement regulation of corporate law, and improvement of a system to ensure appropriate business conduct of a corporation. Based on the policy, the FDK Group further reinforces its corporate governance and compliance.

FDK possesses personal data of users and customers obtained mainly in a form of customer information and others through consultation from users of our batteries. Please refer to 'Information Security and Protection of Personal Data' on P9.

#### FDK Group Corporate Conduct Guidelines

#### 1. Customer Satisfaction

 We supply safe and high quality products and services for the needs of customers.

#### 2. Environmental Consciousness

 We promote resource saving, energy saving and make an ongoing effort to protect the global environment.

#### 3. Contribute to Society

- We, as a good corporate citizen, actively contribute to society.
- We respect the culture and customs of every country in the world with the global perspective and contribute to the development of the region.

#### 4. Fair Trade

- We have sensible course of business behavior, and conduct fair and free competition.
- We communicate widely with the society and disclose our corporate information justly and timely.

#### 5. Compliance with Law

 We act with sense of ethics and comply with laws and social codes.

# Environmental Management and Environmental Protection Activities

In order to pass the irreplaceable global environment to the next generation, the FDK Group thrives to preserve the environment under the corporate philosophy of 'FDK Group Loves Nature for the Future of the Earth' Recognizing deeply that a corporate activity is closely related to the entire environment of our planet as well as to the activities of the local community, the FDK endeavors to co-exist with the society and to be a company widely-trusted by the society.

The FDK Group sets the following items as priority issues in conducting business activities including development, design and manufacturing of various electronic parts, dry batteries and machines.

- (1) To promote development of eco-friendly products
- (2) To facilitate reduction and recycling of wastes
- (3) To encourage energy-saving activities
- (4) To control chemical substances appropriately
- (5) To promote green procurement
- (6) To contribute to the environmental protection of the society and the local community

# **Management and Organizational Structure**

#### Management Direction and Corporate Governance

# Risk Management

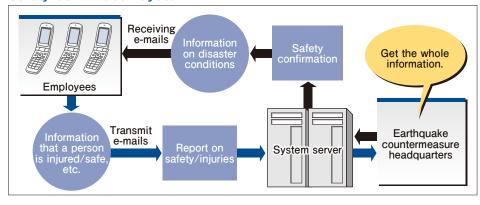
The FDK Group strengthens its risk management by comprehending possible business risks and implementing risk alleviation measures.

# Risk Management System

The FDK Group listed its business risks and determined the corresponding section. Members are currently working for compiling a 'Risk management manual' and an 'Disaster response manual.' FDK's Kosai Plant is located in Tokai Region where Tokai earthquake would occur at any time. In order to ensure the plant continuing our production activity and rehabilitating from damages smoothly, a business continuity plan (BCP) is currently under formation.

In addition, the FDK prepares for any unexpected emergencies that may occur in and out of Japan. In order to minimize damages, a 'Risk Management Office' by the president will be established where damage information is collected and analyzed to decide measures immediately.

#### Safety Confirmation System



# Actions against Natural Disasters

The FDK Group is also prepared for unforeseeable natural disasters including Tokai and Tonankai earthquakes that could happen in the future. These are the biggest potential threat to its conduct of business in Japan. The FDK Group revised its risk management organization to quickly respond to such natural disasters including those could happen in overseas.

The revised risk management organization includes a close communication network among FDK Group companies and reinforces the function of the Risk Management Office to ensure that necessary measures are taken in the case of emergency.

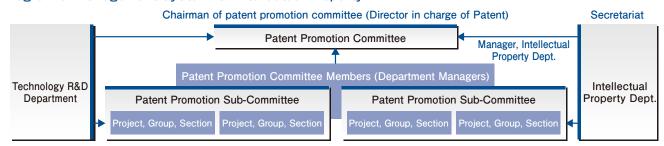
Kosai Plant is situated in the era where Tokai earthquake could happen at any time. As such, the plant concluded a disaster cooperation agreement with Kosai City so that any emergency

can be promptly communicated to the local community should it happen, and rehabilitation and other necessary measures can be taken in cooperation with the local citizens. In emergency situations, the plant's fire brigade is dispatched to the disaster area for fire fighting, first-aid and rescue purposes. In addition to this, the plant plans to test a safety confirmation system using a mobile phone as early as possible.

# Protection of Intellectual Properties

In order to secure a unique and unshakable position in the industry, the FDK Group is committed to creating and protecting intellectual properties. Actually, Intellectual Property Dept. plans and proposes a company-wide intellectual property strategy which is then operated and controlled across divisions. A regular in-house workshop trains engineers to provide the latest information on intellectual properties. Any infringement of patents owned by a third party could cause tremendous losses and damages to the company. The FDK Group is committed to implementing various measures to prevent patent infringement from occurring and to protect our own patents as time to time.

#### Diagram of Management System for Intellectual Property



# Social performance

#### With the Society

In order to perform its due social accountability as a corporate citizen, the FDK Group is committed to establishing a close relationship of trust with its shareholders, customers and other stakeholders, and thrives to bring a sustainable and abundant society come true while achieving development of the company and society as a whole.

#### Communication with Shareholders and Investors

The FDK Group values on the relationship of trust with its shareholders and investors. For this purpose, it will disclose corporate information in a timely, legal and appropriate manner to enhance transparency of corporate management. By doing so, the FDK Group tries to augment its corporate value and obtain high evaluation from the society.

# Establishment of Corporate Communication Office

The FDK Group set up Corporate Communication Office in April 2001 to improve the quality of information provided to its shareholders and investors. In addition to the conventional disclosure of information at the right time, the office aims at facilitate understanding of the FDK Group by its shareholders and investors through issuing a news bulletin in order to promptly, comprehensively and accurately disclose corporate information to them. The information disclosed by the news bulletin may include product development, establishment of offices and other relevant information. By disclosing relevant corporate information, the office works for enhancing the company's corporate values.

#### Information Disclosure

Recognizing that accurate and timely disclosure of corporate information to shareholders, investors and securities analysts is the basics for keeping the security market in strong condition, the FDK Group is committed to disclosing information in accordance to the timely information disclosure rule of the Tokyo Stock Exchange Market and to issue it in both English and Japanese versions as a rule to facilitate information provision to stakeholders in overseas

# Communicating with Shareholders and Investors

The FDK Group is committed to disseminating its corporate information to the investors and the society through various IR activities such as accepting interviews from various institutional investors, securities analysts and mass media, making a visit to overseas investors, utilizing the company's website, issuing a news release to mass media.

For our shareholders and investors, an 'interim financial statement' and a 'business report' are sent out after mid-term and year-end financial settlements. The statement and report are uploaded promptly on the company's website. By doing so, a fair information disclosure is ensured to our shareholders and investors.

In our website, business performances, the latest information on business performance and products, a financial settlement flash report, a business report and other information are disclosed and accessible by public.

The FDK Group will enhance its IR activities taking into consideration various comments, inquiries and opinions given to us through our website, by phone and by fax, as well as other findings obtained through conducting interviews.

# Relationship with Customers

Under the belief of customer satisfaction first, the FDK Group is committed to manufacturing products that can comply with the requirements of customers. Utilizing the technology nourished for more than 50 years of FDK's history, combined by electronic materials such as ferrites and ceramics FDK excels at as well as the latest technologies, the FDK Group continues to respond to the requirements of customers.

# Communication with Customers

In order to strengthen two-way communication with customers all over the world, a website has been in operation since 2003. The website is open to customers for making product-specific inquiries and provides simple and easy-to-understand product information.

A customer center is also open to customers who inquire about Fujitsu batteries, which are consumer products, to deepen the relationship of trust with our customers. The opinions and comments received by the center are accumulated and fed back to future product development processes for improvement in order to provide better products and services to our customers.

#### Fujitsu Battery Customer Center System



# Social performance With the Society

# Securing of Product Quality and Safety

In order to respond to the requirements of our customers, the FDK Group values on product quality in the manufacturing activities. Quality and safety of products manufactured by the FDK Group are assured by Quality Assurance Div. in cooperation with each department and site, in order to meet the level that customers require. As a part of the quality and safety assurance activities, quality management system is set up and operated at each site to maintain and improve the product quality at each phase from research, designing, manufacturing, distribution and to sales and service. All of the sites of the FDK Group are certified as ISO9000 (international management system) compliant.

More precisely, all FDK Group sites are instructed to observe the followings.

- To reflect quality requirements of customers
- To secure safety of products
- To comply with relevant laws and regulations
- To prevent occurrence and recurrence of quality problems

Among them, the safety of products is proactively addressed by establishing the 'FDK Product Safety Charter.' Should a quality problem happen in our products and services provided to our customers, or should the occurrence of a problem is expected, the information will be promptly communicated to all the departments and sections and confirmed and examined at the Management Council to minimize the damage.

The history of quality problems are appropriately reflected to the assessment and confirmation items in product design stages to prevent a recurrence of them. These activities are appropriately put into practice in the quality management system.

#### **Product Safety Promotion Chart**



As to the designated chemical substances, the control and management of them are addressed in the company's quality management system in cooperation with 'the Committee for Products Containing Hazardous Chemical Substances.'

# Information Security and Protection of Personal Data

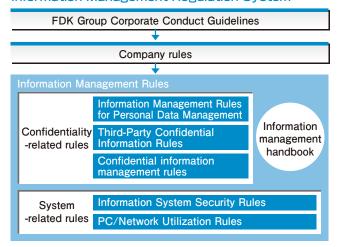
The FDK Group promotes appropriate use of information and prevention of information leakage by establishing 6 in-house rules such as 'Information Management Rules' established in December 1999 and 'Information Management Rules for Personal Data

Management' established in February 2003.

We also establish 'Policy for Protection of Personal Data' that describes how personal information is protected and publish it on the website. In order to ensure appropriate operation of these regulations and policies, an 'Information Management Handbook' is distributed to all employees to raise awareness of the importance of protecting personal information.

In FY2005, the FDK Group updated the personal information-related regulations to meet the requirement of the 'Act on the Protection of Personal Information' enforced on April 1, 2005. In order to prevent leakage of information from PCs, all PCs are password-protected, and a software to encode data stored in the hardware is installed in the PCs to be taken out of the company.

#### Information Management Regulation System



# Fair Trade Practices

The FDK Group practices fair, impartial and free procurement activities in accordance with the relevant laws and places our business partners as partners for enhancing corporate values with each other as well as for co-existence and co-prosperity. All procurement activities of the FDK Group are done in accordance with the procurement management rules in order to execute the clear criteria and procedure of all procurement activities.

#### Cooperation with Business Partners in Procurement

The FDK Group addresses reduction of hazardous chemical substances used in its products and development of green products. These should require cooperation of our business partners. For this purpose, the FDK Group is strengthening cooperation with the business partners in green procurement and supply chain management activities to fulfill the social accountability.

#### **Green Procurement**

In order to provide eco-friendly products, the FDK Group will promote green procurement of raw materials, parts and packaging materials used for the products. Please refer to P18 for the details of the environmental managing system on the side of business partners.

#### **Basic Attitudes for Procurement**

- (1) To ensure providing safe and quality products under the principle of co-existence and co-prosperity with the business partners
- (2) To thoroughly understand the basic environmental protection policy stipulated in the FDK Environmental Charter and to procure items that contribute to the reduction of environmental burdens
- (3) To select business partners using fair criteria to promote fair and lawful procurement activities
- (4) To thoroughly understand and follow procurement-related laws and regulations and to conduct businesses respecting the laws and regulations as well as social norms

# With our Employees

The FDK Group develops skilled workers that can support the management of the company as the main actors of its corporate activities. It also aims at establishing safe workplaces free of any disasters for the health of employees and becoming a company that can enjoy trust of the public.

# Personnel System

One of the basic philosophies of the FDK Group is to 'establish a corporate climate where each employee is proactively involved in working.' The basic concept in the company's personnel system includes 'to respect people who values on creativity and innovation and who dare to challenge everything enthusiastically' and 'to proactively get involved in raising business performances of the company to connect them to the growth and happiness of the company and its employees.'

In FY2000, the FDK Group updated the personnel evaluation system, job class system and other basic personnel management systems. Since then, the company has proactively promoted the following activities: to encourage all employees to take part in the realization of the management target autonomously and independently; to align vectors of all employees to the policies and targets of the organization; to conduct fair personnel evaluation and treatment that are acceptable to all employees.

Sustainable Improvement,
Sense of Achievement of Better Tomorrow,
Self-Confidence, Pride and Joy of Life to All

# Education and Training System

The FDK Group provides various education and training systems to employees such as orientations to the new recruits, mass training sessions to each layer of employees and skill and specialized trainings for the acquisition of technical knowledge and skills. In 2001, an e-Learning system was introduced for the employees to study at their convenience, and has been in operation on the company's intranet. The e-Learning includes basic course such as product knowledge, language and basic PC handling. The FDK Group also opens correspondence education courses, where approx. 130 courses including business skills, languages, liberal cultures, hobbies, health and other broad study areas. The correspondence education courses are half-a-year courses open to the employees and their family members.

# Safety and Health Management

The FDK Group promotes various activities so that all employees can work healthfully and safely. As to the safety, the 'Central Health and Safety Committee' is held with the participation of the representatives of the company and the labor union where policies relating to the safety and health of the company as a whole are decided, disaster preventions, confirmations of conditions of disasters, if happened, and measures against the disasters are implemented. The safety and health at the level of each office are ensured by conducting a safety and health patrols, holding 'Health and Safety Committees' in accordance with the company policies.

# Pregnancy, Child Care and Nursing Needs

The FDK Group provides its employees with various assistances including annual paid holiday, paid leave accumulation system, maternity leave and shorter working hours, nursing leave and shorter working hours, so that they can make family and working compatible. The accumulative paid holidays can be taken for long time leave due to illness and other reasons.

The employees can also take special holidays to take part in voluntary activities as a part of contribution to the society.

# Mental Health

Health Management Office is responsible for regular medical check-ups and providing health maintenance and promotion guidance for the employees. An industrial physician is stationed in the health consultations to grasp and understand the health conditions of employees. Should an employee be found as having health problems, the industrial physician, the Personnel Department and management are in cooperation with each other to take appropriate measures for the employee.

# Social performance

#### Social Contributing Activity

As a global citizen, the FDK Group is committed to social contribution activities and enhancing communication with the local communities, in a hope for sustainable protection of the 'beautiful global environment.'

# The 3rd Volunteer Activity of Well Digging in Cambodia

'The 3rd volunteer activity of well digging in Cambodia' was held from January 28 to February 4, 2006 sponsored by the Shizuoka district council of Japanese Electrical Electronic & Information Unions. There are sporadic distributions of villages outside of major cities in Cambodia where sanitary conditions are

far from satisfactory. In such villages there is a serious problem of shortage in potable water. From FDK, one employee participated as a leader of the voluntary group and dug two wells.



Well installation in Cambodia

# The Lake Hamana Cleaning Operation

'The Lake Hamana Cleaning Operation' is held in the region surrounding Lake Hamana in Shizuoka Prefecture on the first Sunday of June every year. This event is hosted by a civilian group named 'Lake Hamana Purification Group' aiming at handing over Lake Hamana with abundant fishery resources to the next generation in pure and beautiful conditions. FDK partici-

pates in this event jointly with the labor union. Though the Operation was cancelled in 2004 due to the bad weather, in 2005, total 58 people in the Kosai and Hosoe regions took part in the event and cleaned the lake.



At the shore of Enshu Nada Sea

# Japanese Archipelago Cleaning Campaign

The annual event is held in early September every year sponsored by Japan Electrical Electronic & Information Union. In 2005, it was held on September 3 in Sanyo Region of Yamaguchi Prefecture hosted by Yamaguchi Sanyo Onoda Region Local Council and people took part in the cleaning activities around the Port of Habu in Sanyo Onoda City. From FDK, 23 employees

participated. On the same day, similar event was held in Kosai Region sponsored by Shizuoka Kosai Region Council of Japan Electrical Electronic & Information Union and the participants including 15 from FDK cleaned the Shirasuka Beach in Kosai City.



People working for cleaning the Port of Habu area in Sanyo Onoda City

# Recyclable Wastes Collection Volunteer Activities

FDK offices in Kosai Region in Shizuoka Prefecture, Sanyo in Yamaguchi Prefecture, Iwaki in Fukushima Prefecture and all branches and sub-offices related to sales nationwide collect 'aluminum pull-tabs,' 'used stamps,' 'used prepaid cards,' and 'foreign coins' to routinely donate them to social welfare councils

and voluntary organizations of the respective region. This year total 60 kg of aluminum pull-tabs were donated.



At Kosai City Social Welfare Council

# FDK Private Exhibition in Summer, 2005

The event was held on August 30, 2005 at the Plaza Hall of Kasumigaseki Building and attracted a lot of visitors there. Not only new products and technology information, but also our environmental activities such as 'environmental protection,' 'environmental solution businesses' and other activities undertaken

were shown and explained.



FDK Private Exhibition in Summer,

# Official Sponsorship of Kawasaki Frontale

Kawasaki is hometown to the Kawasaki Frontale soccer team, which joined Japan's professional J-League in 1999. The team has been contributing to the development of professional soccer, training young local athletes and encouraging sporting culture. The FDK Group supports the activities of Kawasaki Frontale.



©KAWASAKI FRONTALE 2006

# Environmental Activity Flash Report for FY2005

#### Super Green Product Born

The FDK Group has been taking actions aiming at providing 'Super Green Products' by the end of 2006. The 'Super Green Products' are a category of green products incorporating such environmental elements as energy saving,  $3R^*$  (Reduce, Reuse, Recycle) design and removal of hazardous substances. Among them, the 'Super Green Products' are expected to be the top runners of the green products in terms of 'the first of its kind in the world,' 'the smallest in the world,' 'the smallest in

Japan' and 'the smallest in the industry.' The efforts of the FDK Group have been fruitful in producing supersmall layered power inductor 'MIPF2520D series.' This is the smallest of its kind in the industry by reducing about 40% of volume compared to the conventional products. (See P19)

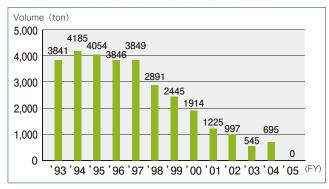


MIPF2520D Series

# Zero Emission of Wastes\* Achieved throughout the Year

Zero emission of waste at domestic production sites was achieved at the end of FY2004. Following FY2004, 'Zero Waste Emission Guideline' was continuously applied in FY2005 and zero emission of wastes throughout the year was successfully achieved for the first time. (See P26)

#### Shift of Incinerated and Landfilled Wastes



# Newly established Taichung Plant of Fuchi Electronics Co., Ltd. Certified as ISO14001\* Compliant

Taichung Plant of Fuchi Electronics Co., Ltd., established in China in April 2005 was successfully certified as an ISO14001 (2004 ver-

sion) compliant plant in July 2005 together with its Taoyuan Plant. This marks that the environmental management system was set up at all of the FDK Group's production sites in and out of Japan in 2005. (See P17)



Taichung Plant of Fuchi Electronics Co., Ltd.

# Launch of 'Route Delivery System' of physical distribution throughout Japan

The FDK Group has made efforts to shift from the conventional one-way delivery system to a route delivery system to deliver or pick up products and materials from business partners to FDK, and then from FDK to customers by making the rounds of multiple sites. This can reduce lead-time of delivering products to customers and the volume of work-in-process items. In addition, the total distance of travel can be reduced and hence the volume

of CO<sub>2</sub> emission can be minimized as well. In FY2005, the route delivery system started in all of major FDK sites nationwide so that the system can cover all and every route to and from FDK and business partners/ customers in Japan. (See P24)



Nationwide Development of Route Delivery System

# Fuchi Electronics Won a Safety-and-Health Model Award

For the past decade, no labor-related disasters have been reported in Fuchi Electronics. In addition, Taichung and

Taoyuan plants of the company were certified under the OHSAS 18001 (Labor Safety and Health Management System) in FY2005. Recognized of such successful records, Fuchi Electronics won the Award from the Industrial Development Bureau, Ministry of Economic Affairs for setting up a model of labor safety and health in the plants. (See P36)



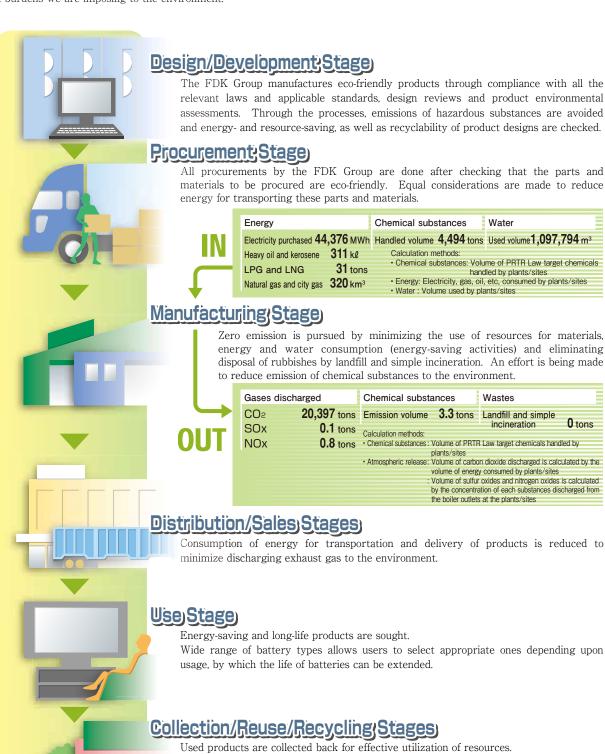
Plaque of Safety-and-Health Model Award

- \* 3R stands for Reduce (emission of waste), Reuse (as marketable product or parts) and Recycle (as raw material or heat energy).
- \* Zero emission of wastes means a continuous and persistent effort to eliminate emission of industrial wastes and chemical substances to the environment.
- \* ISO 14001 is the international standard for management of environment requiring establishment of an environmental management system and continuous improvement of environmental activities.

#### **Operating Activities and Environmental Burdens**

The FDK Group continues its efforts in understanding and reducing environmental burdens generated by its operating activities throughout the lifecycle of products.

We recognize that our business activities including R&D, design, production and sales generate environmental burdens by using resources such as parts and materials and consuming scarce resources including energies and water. We, therefore, will continue decreasing of such environmental burdens generated through the life cycle of products from using, transporting and disposing of them, by grasping how much burdens we are imposing to the environment.



Collection, reuse, recycle

981 tons

94.4 %

Collected volume

Resource reuse and recycling rate

#### **Environmental Accounting**

Costs and effects of environmental protection measures are grasped, shared and used for identifying potential problems.

In order to grasp the cost and effect of the environmental protection activities in a quantitative manner, FDK Group has introduced an environmental accounting system and has been disclosing the data to the public since 2001. We aim at associating the data to our environmental management system and promoting more efficient environmental activities.

#### Basic Data for Environmental Accounting in FY 2005

#### **Accounting Period**

April 1, 2005 to March 31, 2006

#### Scope of Data Collation

Plants of FDK Corporation in Japan

(incl. FDK Engineering Co., Ltd. and FDK Energy Co., Ltd.)

#### Calculation Standards for Environmental Protection Costs

- Method of depreciation cost collation Calculated using the straight-line method for a use life of five years
- Rules for apportioning mixed costs Only the portion related to environmental protection is counted.
- · Labor cost Labor costs incurred in the scope of data collation are included in the environmental accounting.

#### Calculation Standards for Effects of Environmental Protection Measures

- · Scope of economic effect It includes actual and estimated effects on environmental protection activities.
- · Accounting period for calculating investment effects Accounting period of actual effects is set to five years same as the depreciation period.

# Environmental Accounting in FY2005

#### **Environmental Cost**

Thanks to the successful reduction of wastes, the cost for disposing and treating them were reduced. At the same time, pollution prevention activities, once outsourced, was switched to in-house activities, by which, ongoing operation costs of all environmental protection facilities were successfully reduced. The completion of the depreciation periods for environmental protection facilities set up in the past enabled us to save the amount of depreciations.

On the other hand, there were some increase of labor costs regarding developing eco-friendly products and green procurement for complying with RoHS\*. After taking all of them in consideration, the amount of environment-related cost incurred in FY2005 was 369 million yen, down by 1% over the previous year.

#### **Economic Effects**

Due to the reduced ongoing operation costs of all environmental protection facilities, the ratio of monetary contributions for environmental protection activities to the added-values obtained from production activities (or putative effects) decreased.

On the other hand, increased use of ECO-DB, a database on substances placing burden on the environment, lifted up the effect of reducing man-hours for tabulation. Due to the increase in contribution by selling eco-friendly products, the putative effects were raised. As a result, the overall economic effects of our environmental protection activities came to 416 million yen, or 2% up over the previous year.

\*RoHS stands for Restriction of the use of certain Hazardous Substance in electrical and electric equipment.

#### **Environmental Accounting Result in** FY 2005

(Unit: million yen)

Items		ems	Scope	Result				
		Pollution prevention costs	Costs incurred to prevent air pollution and water contamination (fees for water treatment facilities) and other activities	55				
	Costs in	Environmental protection costs	Costs of energy-saving measures, as well as costs of global warming reduction measures	54				
	operations	Costs of resources recycling	Costs incurred for waste reduction and disposal, as well as for water conservation, rainwater usage and other measures aimed at efficient resources usage					
	Upstream/downstream costs		Costs of lowering the environmental burden imposed upstream and downstream by manufacturing and service activities (costs ncurred for recycling/reuse of waste products and packaging, ireen Procurement, etc.)					
Costs	Management costs  R&D and solutions business costs		Management related environmental protection costs including personnel expenses for environmental promotion activities and costs associated with acquiring and maintaining 15014001 certification, measuring the environmental burden, greenification programs, environmental reporting and environmental ubulicity					
			Environmental protection costs for R&D activities and costs of environmental solutions business activities (Green Product/environmental technology design and development costs, environmental solutions business costs, others)	51				
	Social activities costs		Environmental protection costs stemming from participation in social activities, such as participation in organizations concerned with environmental protection					
	Environr	nental restoration costs	Costs of environmental restoration operations (eliminating soil and groundwater contamination, environmental compensation, etc.)	0				
			Total	369				
	Effects	Pollution prevention effects	Savings from avoidance of operating losses stemming from failure to observe(*1), environmental laws and regulations as well as contribution by environmental protection activities to value added in manufacturing(*2)	27				
	on business operations	Environmental protection effects	Cost savings from reductions in electricity, oil and 101 gas consumption	107				
		Resource recycling effects	Cost savings from reduction and effective use of waste	78				
cts	Upstream	downstream effects	Sales value of recycled and reused products	19				
Effects	Management effects		Efficiency enhancement through ISO14001 system implementa- tion, effects of employee training, corporate image enhancement from environment-related publicity					
	R&D/so	olutions business effects	Contribution to sales made by Green Products, other Ecofriendly products and the environmental solutions business	41				
	Environr	mental restoration effects	Savings of compensation payments to residents for groundwater and soil contamination (*3)	0				
			Total	416				

- Value of avoidance of operating losses: (Added value)/(Days of operation)×(Estimated days lost)
- Value contributed by environmental protection activities:

  (Added value)×(Ongoing operating costs of all environmental protection facilities)/(Total cost generated)

  Value of avoidance of compensation payments to residents: Estimated savings assuming that risks were able to be averted.

As of FY 2004, FDK Group calculated its environmental accounting separately from that of Fujitsu Corporation. However, the calculation is made in accordance with Fujitsu Group's Environmental Accounting Guideline 2003, in order to maintain the data consistency.

Cost Unit: million yer				
Denvesiation	Investment in FY 2005	3		
Depreciation	Past investment	63		
	303			
Tota	369			

Substantial effects	Init: million yer 204		
Putative effects	212		
Total for effects	416		

Substantial effects include profits generated by saving public utility consumption and selling of recyclable

Putative effects mean profits assumed as economically effective under a certain definition.

(Environmental protection effects against the added values obtained from our production activities)

#### Shift of costs and effects



#### **Operating Activities and Environmental Burdens**

We established the "FDK Group Environmental Policy", and we are promoting environmental protection activities based on the Environmental action plan, through out the entire FDK Group.

# FDK Group Environmental Policy

FDK Group considers it necessary to address environmental protection as a part of its corporate activities. This includes prevention of global warming, reduction of wastes and thorough control over hazardous chemical substances, all of which should be implemented not only based on laws and regulations of central and regional governments of Japan, but also based on the wider global perspectives. This must be a shared idea among other companies toward the sublime proposition of realizing the sustainable society. In addition to its own activities, FDK Group is decided to promote environmental protection in cooperation with Fujitsu Ltd. and adapt an environmental policy, a fundamental for environmental activities of Fujitsu Ltd. The "FDK Environmental Policy" is the essence of the group's environmental activities, aiming at promoting robust environmental protection activities through a synergy effect of voluntary reduction of environmental burdens and cooperative actions with Fujitsu Ltd.

#### Philosophy

The FDK Group recognizes that environmental protection is a vitally important business issue. By utilizing our technological expertise in the IT industry and our creative talents, we seek to contribute to the promotion of sustainable development. In addition, while observing all environmental regulations in our business operations, we are actively pursuing environmental protection activities on our own initiative. Through our individual and collective actions, we will continuously strive to safeguard a rich natural environment for future generations.

# Slogan

FDK Group Loves Nature for the Future of the Earth

# Principles

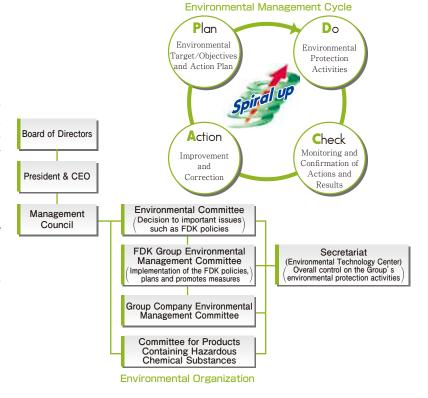
- 1 We strive to reduce the environmental impact of our products throughout the product life cycle.
- 2 We are committed to conserving energy and natural resources, and practice a 3R approach (Reduce, Reuse, Recycle) to create best-of-breed eco-friendly products.
- 3 We seek to reduce risks to human health and the environment from the use of harmful chemical substances or waste.
- 4 Through our IT products and solutions, we help customers reduce the environmental impact of their activities and improve environmental efficiency.
- 5 We disclose environment-related information on our business activities, products and services, and we utilize the resulting feedback to critique ourselves in order to further improve our environmental programs.
- 6 We encourage our employees to work to improve the environment, bearing in mind the impact of their business activities and their civic responsibilities.

# Organizational Structure

Important issues such as policies on environmental activities are discussed in the 'Environmental Committee.' The resolutions made by the committee will then be implemented after approval by the 'Management Council.' Detailed action plans including policies and measures are decided at the "Plant Environmental Management Committee" established at the environmental management system level based on ISO14001.

The plans are implemented by repeating the cycle of PDCA (Plan, Do, Check and Action) for continuous improvement to achieve "spiral up."

Hazardous chemical substances contained in products are managed at the "Committee for Products Containing Hazardous Chemical Substances," a newly established internal organization in October 2004, to eliminate use of hazardous substances and appropriate control of them. (See page 22 for further information.)



# Environmental Action Plan

In order to set detailed target for put the 'Environmental Policy' into practice, the FDK Group revises its 'Environmental Action Plan' once in three years. The FY 2005 is in the middle of the 'Third Environmental Action Plan (FY 2004 – 2006)'. Some of the plan has been achieved in the form of providing Super Green Products and reduction of energy consumption and CO<sub>2</sub> emission. The FDK Group will further pay its entire efforts to achieve the plan fully for the remaining periods of the plan.

#### Achievements of the Third Environmental Action Plan (FY 2004 - 2006)

Items	Action Plan	Progress (as of the end of FY 2005)
Reinforcement of environmental management	To establish own frameworks of environmental management in all the Group's affiliates and subsidiaries, which are based on the environmental management system (EMS), by the end of FY 2005  • EMS to be introduced in the entire corporate structure of FDK in Japan including its head office and sales offices.	After examining various types of EMS, Eco-Stage System was chosen as the most appropriate system for FDK's Head Office and Sales Offices. A declaration to kick-off installation of the system was made both by the Head Office and Sales Offices and it is currently in the investigation stage of the current conditions at each site. (See page 17 for further information.)
Green procurement	Promotion of EMS to suppliers  To encourage business partners in Japan with no EMS to intro duce it.  The scope of EMS include those certified by a third party certification-organization such as ISO14001, EMAS, Eco-Action 21, Eco-Stage,local environmental management system equivalent to them, Fujitsu Group Environmental Management System (FJEMS), FDK Group Environmental Management System (equivalent to FJEMS), and other EMS systems unique to each business partner approved by FDK.	As of FY2004, 22 suppliers including those newly started business transactions with the FDK Group established the environmental management system. The figure was jumped to 88 in FY2005. Among them total 20 suppliers introduced FDKEMS. (See page 18 for further information.)
Environmentally	Provision of Super-Green Products by the end of FY 2006  "Super Green Products" are the advanced form of green products incorporating such properties as energy saving, 3R (Reduce, Reuse, Recycle)-based design, and elimination of hazardous chemical substances. They are forerunners having the "world's 1st" world's smallest" nation's first" industry's first" nation's smallest" and "industry's smallest" characteristics, which are intended to be released by the end of FY 2006.	Total 31 themes have been extracted as the target for developing Super Green Products. Among them, small-size chip inductor 'MIPF2520D Series' was recognized as the first super green product for the FDK Group. The mass-production started in February 2006. (See page 19 for further information.)
Environmentally compatible products	To eliminate use of hazardous substances designated by Fujitsu Group in manufacturing products by the end of FY 2005, except for those designated by RoHS whose elimination target is the end of December 2004  • Use of hazardous substances listed in 31 categories of Fujitsu Group's list will be totally eliminated by the end of FY 2005.  • For products shipped to Europe and covered under the RoHS Directive, use of mercury, hexavalent chromium compounds, PBB and PBDE will be totally eliminated by the end of December 2004.	Use of prohibited chemical substances out of the hazardous substances designated by the Fujitsu Group was totally eliminated. As to the substances to be totally eliminated, those designated by RoHS were successfully eliminated from all products directed to Europe to which the customers required us to use substitution substances in lieu of them. However, some products not required so by the customers due to quality concerns were delivered with such substances designated by RoHS. (See page 22 for further information.)
Measures against	Energy consumption and emission of CO₂ reduced at the end of FY 2006 by 15% of those in FY 2000  • The scope of these reductions includes FDK's plants and offices in Japan.	As to energy consumption, the volume of CO <sub>2</sub> emission was successfully reduced by 62% of the actual emission made in FY2000. (53,998 ton-CO <sub>2</sub> in FY2000 was reduced to 20,397 ton-CO <sub>2</sub> in FY2005.) (See page 23 for further information.)
global warming	Contribution to the reduction of greenhouse gas emission • Reduction of CO <sub>2</sub> emission is promoted through improvement of logistics, recycled use of products and packaging materials, and development and purchase of energy-saving products.	Revision of delivery truck route to shorten the travel distance of a truck and use of returnable containers (TP trays) to enhance the truck loading efficiency were addressed.  (See page 24 for further information.)
Promotion of green factory	Discharge of chemical substances under the Pollutant Release and Transfer Register (PRTR) reduced at the end of FY 2006 by 15% of those discharged in FY 2001  • The scope of the reductions includes FDK plants and offices in Japan.	The emission of the designated chemical substances was successfully reduced by 41% of those actually emitted in FY2001, but was an increase by 87% over the previous fiscal year. (5.5 ton in FY2001 → 3.3 ton in FY2005) (See page 25 for further information.)
	Generation of wastes reduced at the end of FY 2006 by 3% of those generated in FY 2003  • The scope of reductions includes FDK plants and offices in Japan.  • Zero emission of wastes will be achieved by the end of FY 2004 ahead of the target shown in the "Second Environmental Action Plan" by 1 year.	Generation of waste was reduced by 24% over that in FY 2003. (2,081 ton in FY 2003 → 1,590 ton in FY 2005) The zero emission of wastes achieved in the end of FY2004 was continued in FY2005 as well. (See page 26 for further information.)

#### **Reinforcement of Environmental Management**

Recognizing that proactive commitment to environment in addition to the efforts of environmental protection and observing relevant laws and regulations should be included in the management of a company, the FDK Group is determined to further promote its environmental management.

# Establishment of the Framework of Environmental Management based on the Environmental Management System (EMS)

The FDK Group is committed to introducing the Environmental Management System as the foundation of its efforts of environmental management. The system has been introduced and established to its production sites. In the future, all the FDK Group entities including non-production sites will be placed under the scope of it.

#### Targets of the Third Environmental Action Plan

To establish own frameworks of environmental management in all the Group's affiliates and subsidiaries, which are based on the environmental management system (EMS), by the end of FY 2005

· EMS to be introduced in the entire corporate structure of FDK in Japan including its head office and sales offices.

#### **EMS** at Production Sites

All production sites of the FDK Group are now certified as ISO14001 (2004 version) (international standard of environmental management) compliant including Taichung Plant of Fuchi Electronics Co., Ltd., opened in April 2005. The FDK Group is determined to direct its efforts from now onward for reducing environmental loads generated in all of its plants, including implementation of global warming prevention measures and reduction of wastes, provision of eco-friendly products and other environmental protection activities outside of the FDK Group's plants.

### EMS at Non-Production Sites

In FY2005, we worked for preparation of introducing the Eco Stage\* which we determined it as most fit for introducing the environmental management system to our domestic non-production sites in FY2004. More precisely, a preliminary inspection was made to each non-production site for introducing the system and a kick-off declaration by the Secretariat. The EMS will start from the FDKEMS, our own environmental management system that is more familiar to us than the Eco Stage, with adding required control items. Then the level will be gradually enhanced to EMS. In the coming years, the FDK Group is determined to carry out environmental protection activities by integrating the entire efforts through introduction of EMS to its non-production sites.

# Environmental Education and Training

The environmental education and training at all production sites of the FDK Group consist of two: general education to all employees including global environmental issues, and professional education at each site to each person in charge of waste management and separation, internal audit, emergency response measures and other fields of specialty.

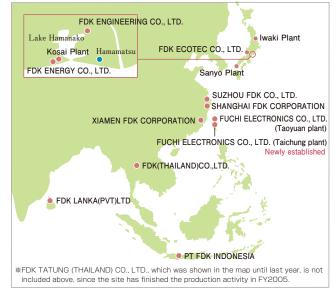
In FY2005, an education session was given to all employees and their families on how to reduce carbon dioxide at all the FDK sites in Japan. This was done in connection with the 'Team Minus 6% Campaign' for preventing global warming.

\*Eco Stage is an environmental management assessment and support system directed to SMEs provided by Eco Stage Institute to support establishing their environmental management system and its operation, through which their corporate management can be improved as well.

#### ISO Certification at FDK Group Production Sites

	Kosai Plant	
apan	Date of acquisition Date of renewal Scope of certification	October, 1998 October, 2004 FDK CORPORATION: Kosai Plant, Sanyo Plant FDK ENERGY CO., LTD., FDK ENGINEERING CO., LTD., FDK MECHATRONICS CO., LTD., FDK LIFETEC CORPORATION, FUJIDENKA RESEARCH AND ANALYSIS CENTER CO., LTD., and FDK ECOTEC CO., LTD.  Development and design of various electronic parts, batteries, and machines, and environmental businesses
7	lwaki Plant	
	Date of acquisition Date of renewal Scope of certification	January, 1998 July, 2004 FDK CORPORATION: Iwaki Plant, FDK LIFETEC CORPORATION: Iwaki branch office Development, design and manufacturing of electronic parts relating to telecommunication equipment

ıry)	Subsidiaries	Country	Date of Acquisition
sidiary)	XIAMEN FDK CORPORATION	China	January 1999
gns	FUCHI ELECTRONICS CO., LTD. (Taoyuan plant)	Taiwan	February 2000
(Consolidated	FUCHI ELECTRONICS CO., LTD. (Taichung plant)	Taiwan	July 2005
	SHANGHAI FDK CORPORATION	China	December 2000
O)	FDK LANKA (PVT) LTD.	Sri Lanka	February 2003
as	PT FDK INDONESIA	Indonesia	June 2003
Overseas	FDK (THAILAND) CO., LTD.	Thailand	June 2003
00	SUZHOU FDK CO., LTD.	China	December 2004



#### **Promotion of Green Procurement**

In order to provide eco-friendly products to our customers, the FDK Group promotes green procurement of raw materials, parts and packaging materials.

# Promotion of Establishing Environmental Management System in Business Partners

Believing that, in order to produce eco-friendly products, the materials used for them should be eco-friendly as well, the material function of the FDK Group promotes green procurement. In this process, the following two conditions are set in selecting suppliers and products to purchase: (i) the business partner has established and is operating environmental management system such as ISO14001, (ii) no hazardous chemicals designated by the FDK Group are contained in raw materials and parts. Items satisfying both of the two conditions are taken as a priority to purchase by the FDK Group.

#### **Targets of the Third Environmental Action Plan**

#### Promotion of EMS to suppliers

- · To encourage suppliers in Japan with no EMS to introduce it.
- The scope of EMS include those certified by a third party certification organization such as ISO14001, EMAS, Eco-Action 21, Eco-Stage, local environmental management system equivalent to them, Fujitsu Group Environmental Management System (FJEMS), FDK Group Environmental Management System (equivalent to FJEMS), and other EMS systems unique to each supplier approved by FDK.

#### **Procedures and Actions**

In the third Environmental Action Plan, the scope of requiring setup of the environmental management system was expanded to distributors (trade companies) as well as to manufacturing companies. This is due to the belief that trade companies should know the importance of the environmental management system because they purchase items from manufacturing companies and are in a position to provide instruction and guidance to their manufacturing companies. For suppliers which feel it difficult to establish the environmental management system, a simple management system, FDKEMS is provided to them for observation in two stages. The FDKEMS contains basic requirements of ISO14001. For users of FDKEMS, the FDK Group requires them to upgrade it in the future to an environmental management system certified by a third party certification entity.

Procurement of 'raw materials and parts that are free from hazardous chemical substances designated by the FDK Group' is promoted in a procedure shown in 'Approaches to Totally Eliminate Hazardous Substances in Products.' See P22 for the details.

#### **EMS Requirement Level**

	Requirement					
on Plan	lan	lan	LevelV	Requirements exceeded those required by ISO14001 Eco-Stage 3 to 5	ganization	
Environmental Action	al Action Plan	LevelIV	Requirements covered those required by ISO14001 (Mutual certification with Eco-Action 21 available) ISO14001, Eco-Action 21, Eco-Stage 2, KES Step 2 and Michinoku EMS	a third party certification organization		
ind Environ	Third Environmental	LevelII	Requirements under ISO14001 to be simplified. (Mutual certification with Eco-Action 21 not available) Eco-Stage 1 and KES Step 1	nird party o		
The Second		LevelI	Basic requirements of PDCA under ISO14001 FJEMS and FDKEMS Step 2	ified by a th		
	The	Level I	Minimum requirement for basic PDCA for environmental improvement FDKEMS Step 1	EMS certified by		

#### **Outline of Green Procurement**

Green Procurement by the FDK Group

II

Establishment and operation of ISO14001 or other environmental management systems

+

Raw materials and parts free of hazardous chemical substances designated by the FDK Group

# Green Procurement

In FY2005, a series of green procurement explanation meetings was held following to the previous year to communicate our business partners with the idea and process of our green procurement to ask their cooperation to it. As a result, 88 business partners established their environmental management system.

Among them, two business partners introduced the FDKEMS. We will continue our efforts to establish the environmental management system to our business partners and support establishment of FDKEMS.



Explanation Meeting to Business Partners (Kosai Plant)

# Green Procurement of Office Supplies

Though it is not included in the Third Environmental Action Plan, the FDK Group is committed to procuring green office supplies with an Eco-Mark that certifies that the product considers energy-saving, recyclability, resource-saving, elimination of hazardousness and easiness for disposal.

#### **Production of Environmental Measures on Products**

The FDK Group is committed to offering eco-friendly and energy-saving products free of hazardous chemical substances through the entire life cycle of them from development and design stages to disposal of them.

# Offering Super-Green Products with the Top Environmental Elements

In the Third Environmental Action Plan, the FDK Group is involved in development and provision of super-green products with top environmental elements, one step forward of the conventional green products.

#### Targets of the Third Environmental Action Plan

#### Provision of Super-Green Products by the end of FY 2006

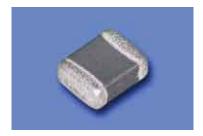
• "Super Green Products" are the advanced form of green products incorporating such properties as energy saving, 3R (Reduce, Reuse, Recycle)-based design, and elimination of hazardous chemical substances. They are forerunners having the "world's first", "world's smallest", "nation's first", "industry's first", "nation's smallest" and "industry's smallest" characteristics, which are intended to be released by the end of FY 2006.

# Super-Green Products

In FY2005, the FDK Group was committed to producing supergreen products by extracting 11 themes. As a result, the first super-green product was born: ultra small multilayer power inductor, 'MIPF 2520D Series.' The inductor is the top runner product in the world with its size reduced by 40% in volume compared to the conventional eco-friendly products of similar type. The FDK Group will continue its efforts so that more super-green products can be delivered to our customers.

#### Applications:

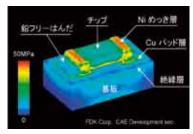
The ultra small multilayer power inductor is used as a part of a DC-DC converter used in mobile phones, digital cameras and other electronic products.



MIPF2520D Series, the first super-green product

#### Quality Assessment Simulation for Lead-Free Solder using CAE\*

As lead-free solder doesn't contain lead, one of the hazardous substances, its physical properties are different from conventional solders. Due to this reason, it is essential to select appropriate materials and design and manufacture parts in a way suitable for using lead-free solders. Believing that disclosure of physical properties of the lead-free solders and 'analyze' them are the best way to realize using lead-free solders, the FDK Group develops and uses a unique simulation technology. The technology incorporates the unique know-how of the FDK Group nourished through manufacturing and the latest study results.



A result of temperature cycle analysis of a chip using lead-free solders (Mises Stress Analysis)

#### **Positioning of Super-Green Products**

Super-Green Products
(Products with top runner eco-friendliness rating)

Green Products
(Products with enhanced environmental consideration)

Eco-Friendly Products

# **Eco-Friendly Product Assessment Category** (Large Category)

#### Products

- Hazardousness (including hazardous chemical substances)
- Resource-saving and recycle-oriented design
- Reusability as resources
- Easiness for decomposition
- Energy-saving
- Easiness for disposal by disassembly

#### Packaging Materials

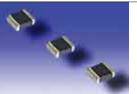
- Resource-saving and recycle-oriented design
- Reusability
- Using materials

#### Others

- Disclosure of information
- Eco-friendliness

# Major Eco-Friendly Products Developed in FY2005

#### Ultra Small Multilayer Power Inductor 'MIPF2016D Series'



#### **Application**

Core parts for a converter circuit of small-sized electronic parts used for mobile phones, etc.

#### **Features**

As an ultra small multilayer power inductor applying multi-layer technology and an improved version of the MIPF2520D Series, the MIPF2016D Series is smaller by 40% in volume compared to their predecessors while keeping the same performance. The small in size is applicable as electronic parts of the third generation mobile phones that incorporate advanced functions of one segment broadcasting and GPS.

#### **Eco-Friendliness**

Due to the small-in-size by 40% in volume compared to their predecessor inductors, the MIPF2520D Series contribute to small-in-size and light-in-weight mobile phones. No lead-containing solders are used or required in manufacturing and mounting them.

#### Voice from the Developer

A revised internal structure is embedded in the inductor using the CAE technology and know-how nourished so far. In addition, the balance of magnetic paths is optimized. Due to them, the requirements for small-in-size and

maintenance of high efficiency are realized at the same time.



Daisuke Matsubayashi Advanced Technology Lab. Technology R&D Div.

#### Ultra Small Multilayer Chip Low Pass Filter 'AMF1005L Series'



#### Application

Various high frequency module and other circuits of a mobile phone to eliminate high frequency noises

#### Features

In addition to optimization of multi-layer pattern using computer simulation, the products are developed using dielectric material technology, low temperature sintering technology and multi-layer printing technology. The products are the world-smallest low pass filter of  $1.0 \text{mm} \times 0.5 \text{mm} \times 0.3 \text{mm}$ .

#### **Eco-Friendliness**

Free of lead, the products are in compliance with EU's RoHS Directive. While maintaining the features, the products are smaller in volume by 80% than the conventional products. The chip size is the smallest of its kind in the world. Due to these features, volume of raw materials, power consumption and wastes are also minimized.

#### Voice from the Developer

Computer simulation is utilized in designing to minimize the environmental loads and to avoid manufacturing of mock-ups unnecessarily. The products will respond to space-saving and energy-saving requirements.



Satoshi Higuchi Project R Dept. Technology R&D Division.

#### Non-Insulation Type DC-DC Converter Model 8A



#### Application

Power supply to various electronic components such as servers

#### **Features**

This is a DC-DC converter that can set the output voltage at any voltage from  $0.75\mathrm{V}$  to  $5.5\mathrm{V}$ . After the revision of a circuit design, higher conversion efficiency has been realized in the product. Optimization of implementation design has enabled releasing and discharging heat quite efficiently. Due to this, high output properties are realized under the operation temperature of  $85^{\circ}$ C. This product is the same size as Model  $5\mathrm{A}$ , one class below Model  $8\mathrm{A}$ , it can output the current of up to  $8\mathrm{A}$ , and is applicable to a large current usage without a need of changing mounting area and shape of pins at the site of customers.

#### **Eco-Friendliness**

Due to its high conversion efficiency, the power consumption can be reduced by approx. 3% compared to the conventional products. The size of this product is smaller by approx. 30% over the conventional products. It is also in compliance with EU's RoHS Directive enforced in July 2006.

#### Voice from the Developer

In the development of a standard DC-DC converter, there was a requirement of maintaining the same board area as other conventional converter, while achieving higher conversion efficiency. We repeated a number of trials and errors to achieve the requirements. At the same time, manufacturing easiness was one of the scopes in developing the product. We

have been paying efforts to make our development as a model of developing other standard products.



Masahiro Yamabe MS-FIRE Project Module System Div.

#### **Production of Environmental Measures on Products**

#### True Random Number (Physical Random Number) Generation IC 'RPG100B'



#### **Application**

Generation of random number and encryption of information for network security, e-commerce, identification, lottery, game, simulation, graphics, wireless LAN, computer and mobile devices

#### Features

With a random number generation circuit and an amplifier embedded in the main body, the product is used to generate true random number utilizing thermal noise emitted inside the semiconductor. High quality random numbers that can highly withstand external noises can be generated by differential operation of two independent circuits of thermal noise source for generating random numbers. Though the product has a serial bit random number output and parallel bit random number verification circuit, the size is very small, 5mm×5mm.

#### **Eco-Friendliness**

Compared to the conventional ICs of RPG100, the performance is the same, but the size is smaller by 69% in terms of actual implementation space. This can save the space of both inside and outside of the device in which the IC is mounted. Of course, the product complies with EU's RoHS Directive.

#### Voice from the Developer

The RPG100 can output unforeseeable uniform random numbers at a high speed and withstand fluctuation of power supply and temperature, external noise and other environmental factors. I believe the product will be one of the key parts for security systems that will respond to a higher security requirements expected in the future, and amusement devices. An encryption

module using the RPG 100 is under development in cooperation with other universities such as Tsukuba University.



Hiroyasu Yamamoto Technology Development Dept. Module System Div.

#### GPS Antenna 'DA-1S22N Series'



#### Application

Antenna for a GPS receiver of small-size electronic devices such as mobile phones and PDAs

#### **Features**

Though its small-in-size and use of highly dielectric materials, the product realizes very high accuracy utilizing an adjustment technology using laser trimming.

#### **Eco-Friendliness**

Compared to a GPS antenna for ordinary automobile navigation system, the product is smaller in volume by 40%. No lead is used.

#### Voice from the Developer

Generally speaking, in order to make a smaller antenna, some functions should be sacrificed. In order to keep the functional loss at a minimum, an adjustment technology was developed using

laser trimming to realize various functions of an antenna kept at high speed highly accurate. Our efforts have resulted in development of a highly functional antenna at an affordable price.



Mitsuru Sato Technology Development Dept. 2 CelamicComponent Div.

#### Alkaline Batteries 'G, D and R. Series'



#### Application

Devices requiring high output power such as digital cameras and PDAs, electric lights and clocks and other wider applications.

Three types of batteries are available for optimized applications.

#### **Features**

The G series are for wide range of applications that requires high performance, while the D series are the best for digital equipment requiring large volume of current. The R series are regular type alkaline batteries for remote controllers and electric lights.

#### **Eco-Friendliness**

All of the three types are the modified version of the previous types in terms of the shape of anode zinc particles and chemical composition of battery electrolyte to enhance the efficiency. Our internal test revealed that the life of the batteries are extended by approx. 30% for G series, approx. 40% for D series and approx. 10% for R series compared to their conventional batteries. Hence, the resources can be effectively utilized.

#### Voice from the Developer

The digital alkaline battery 'D series' is a high rate dry battery which performance is greater by approx. 40% over the conventional batteries when it is used to a device requiring a large current such as digital cameras . Its discharging performance is among the highest in the world.

Besides the improved shape of anode zinc particles and cathode materials, optimized

chemical composition of battery electrolyte is achieved. As a result, a large current pulse discharging performance has been raised and hence, it is best suit for use in digital equipment.



Hidenori Tsuzuki Technical Dept. FDK Energy Co., Ltd.

# Approaches to Totally Eliminate Hazardous Substances in Products

In order to strengthen its efforts in totally eliminating use of hazardous substances in manufacturing products, the FDK Group set up 'Committee for Products Containing Hazardous Chemical Substances' in October 2004, and continue its activities toward realizing it. The activity includes compliance to EU's RoHS Directives, requiring submission of a hazardous chemical substances non-use certificate from our suppliers, and establishment of supplier control system.

#### Targets of the Third Environmental Action Plan

To eliminate use of hazardous substances designated by Fujitsu Group in manufacturing products by the end of FY 2005, except for those designated by RoHS whose elimination target is the end of December 2004

- · Use of hazardous substances listed in 31 categories of Fujitsu Group's list will be totally eliminated by the end of FY 2005.
- · For products shipped to Europe and covered under the RoHS Directive, use of mercury, hexavalent chromium compounds, PBB and PBDE will be totally eliminated by the end of December 2004.

# Hazardous Substances Elimination Activity and Result

In conducting our research on chemical substances contained in procured items, the scope of hazardous substances was reduced from 1403 to 518 in line with the industrial trend. The reason for the reduction is to accelerate the speed and increasing the accuracy of the research activities to reduce workloads relating to them. The activities were accompanied by collection of documents including a declaration of non-use of hazardous substances to understand which substances are included in each procured item. Items found as containing hazardous substances as a result of our research were shifted to those don't contain them. For the items that the business partner didn't reply to our survey sheet or others which inclusion of hazardous chemical substances were highly likely, we inspected them by ourselves using an 'X-ray fluorescent spectrometer.'

As to our in-process control, with a view of any products as defective in terms of the quality assurance system (ISO9001), if they contain hazardous chemical substances, a product quality control system was established and has been in operation.

At the same time, 'FDK Product RoHS Directive Compliance Information' is uploaded on our webpage so that both our customers and employees can understand the conditions by making an access to it.



An X-ray fluorescent spectrometer introduced in Kosai Plant



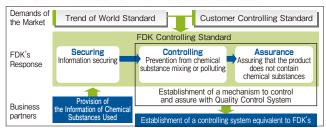
'FDK Product RoHS Directive Compliance Information' webpage

# How to Control Hazardous Chemical Substances

As a result of our activities, all chemical substances prohibited among the designated hazardous chemical substances by Fujitsu were successfully eliminated from our products. As to the chemical substances required to be totally eliminated under the RoHS Directives, they were totally eliminated from all products shipped to Europe including those that substitutions were requested by the customers, except for some, for which substitutions were not available due to the reasons of reliability assurance.

For the items which substitutions were not available, we will further examine how to do so and take necessary measures for it. As to the materials such as plating materials, which inclusion of chemical substances prohibited by the RoHS Directive is suspected, we will measure them in-house to confirm no such substances are included in any of them.

#### **Control Process for Banned Substances**



#### Hazardous Substances Designated by Fujitsu Group

#### Banned Substances: Substances prohibited for use in products (27) •Polychlorinated biphenyls (PCBs) Specified amines Polychlorinated nanhthalenes (Those which contact to skin directly and for a long time only) (with 3 or more chlorine atoms) ·Azo dyes and azo pigments that generate $\bullet Asbestoses$ specified amines •CFCs (Those which contact to skin directly and for a long time only) •Specified halons Chlordanes •Carbon tetrachloride Ozone •DDT depleting •111-Trichloroethane Aldrin substances Endrin Bromochloromethane •Methyl bromide Dieldrin HBFCs Hexachlorobenzene Polybrominated biphenyls (PBBs) N.N'-ditolyl-p-phenylenediamine, ·Polybrominated diphenyl ethers (PBDEs) N-tolyl-N'-xylyl-p-phenylenediamine •Short-chained chlorinated paraffins and N.N'-dixvlvl-p-phenylenediamine (carbon chain length 10-13) 2.4.6-tri-tert-butylphenol •Bis (tri-n-butyltin) oxide (TBTO) Toxaphene Mirex $\bullet$ Tributyl tins (TBTs), Triphenyl tins (TPTs)

#### Substances to be totally abolished: Substances banned for use in products (4)

- •Cadmium and its compounds
- •Hexavalent chromium compounds
- $\bullet Lead$  and its compounds
- •Mercury and its compounds

#### **Global Warming Prevention Measures**

The FDK Group is committed to various activities for prevention of global warming including energy-saving measures, development of energy-saving products, improvement of logistics and promotion of recycled use.

# Energy-Saving Measures

In order to prevent global warming while protecting limited energy resources, it is essential to reduce the volume of energy used. The FDK Group is committed to reducing use of energy mainly by introduction of energy-saving system such as a co-generation system and by improving operation and control of existing facilities and equipment.

#### Targets of the Third Environmental Action Plan

Energy consumption and emission of CO2 reduced at the end of FY 2006 by 15% of those in FY 2000

· The scope of these reductions includes FDK's plants and offices in Japan.

# Energy-Saving Activities

In FY2005, the FDK Group continued its energy-saving activities including modification of control and operating method of facilities and equipment. In addition to it was a measure against air compressors, monitoring of system capacities, and an analysis and measures against the balance of energy demands among buildings. As a result, the volume of carbon dioxide discharged came to 20,397 ton, a reduction of 3% over the previous FY and by 62% against the reduction target in our Third Environmental Action Plan of 15% against the level of carbon dioxide emission volume in 2000. This means the target in the Plan was cleared more than the satisfactory level. The major contributors of this successful achievement of the target is our continued energysaving activities combined by a shift of production of ferrites that consume a lot of energy by sintering furnaces to that of electronic modules, along with our business structural reform processes

All of domestic offices and plants of the FDK Group have already achieved as of now the target of the Kyoto Protocol, 'to reduce discharge volume of greenhouse-effect gasses by 6% over that in 1990.' However, the FDK Group will further take efforts in reducing carbon dioxide emission through improvement of facilities and their control and operation methods, and reduction of air-conditioning charges.

No greenhouse-effect gases other than carbon dioxide are emitted from any plants and offices of the FDK Group.

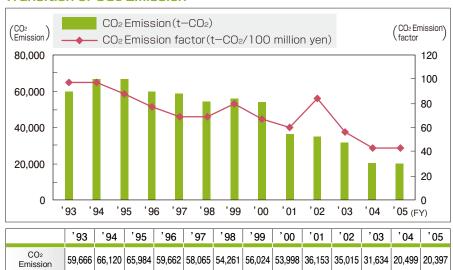
#### Major Energy-Saving Activities in FY2005

- An energy-saving type air compressor introduced to Kosai Plant
- Excessive compressors stopped at Iwaki Plant due to a revision of air supply distribution volume to each building
- Economized use of air compressor at FDK Energy Co., Ltd. due to pressure loss prevention measures inside the compressed air pipes
- Reduced power consumption by changing from an air compressor to a roots blower at Kosei Plant
- Excessive facilities stopped by an appropriate distribution of cooling capacities of the cooling tower at Iwaki Plant
- Introduction of inverter fluorescent lights at Iwaki Plant

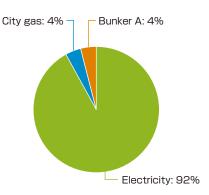


Introduction of an energy-saving type compressor (Kosai Plant)

#### Transition of CO<sub>2</sub> Emission



#### **Energy Type**



Breakdown of CO<sub>2</sub> Emission Volume: 20,397 ton

# CO<sub>2</sub> Reduction Activities through Improvement of Logistics

The FDK Group's CO<sub>2</sub> reduction activities cover procurements of parts and raw materials and transportation, use, disposal and recycle of products.

#### **Targets of the Third Environmental Action Plan**

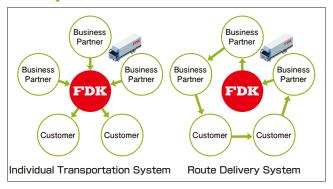
Contribution to the reduction of greenhouse gas emission

· Reduction of CO<sub>2</sub> emission is promoted through improvement of logistics, recycled use of products and packaging materials, and development and purchase of energy-saving products.

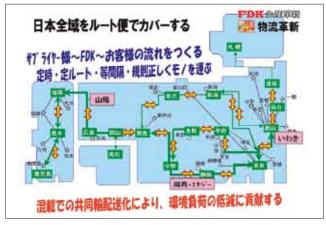
# CO2 Reduction using Route Delivery System

The FDK Group has made efforts to shift from the conventional individual transportation system to a route delivery system in Kosai Plant and Iwaki Plant to deliver or pick up products and materials from business partners to FDK, and then from FDK to customers by making the rounds of multiple sites. This can reduce lead-time of delivering products to customers and the volume of work-in-process items. In addition, the total distance of travel can be reduced and hence the volume of CO<sub>2</sub> emission can be minimized as well. In FY2005, the route delivery system started in all of major FDK sites nationwide such as FDK Energy Co., Ltd. and Sanyo Plant of FDK Corporation, so that the system can cover all and every route to and from FDK and business partners/customers in Japan.

#### **Delivery Routes**



#### Application of route delivery system nationwide



#### Improvement of Loading Efficiency for Truck Transportation and Recycled Use of Packaging and Packing Materials

The FDK Group promotes use of returnable containers (TP Tray) for recycled use of packaging and packing materials, and application of Kanban System\* that produces necessary items just in time as they are needed, by using the returnable container.

As to packaging and packing materials, loading efficiency of a truck will be enhanced by their resource- and space-saving designs to reduce discharge of carbon dioxide during truck transportation.



A returnable container (TP Tray)

# CO2 Reduction by Demolishing Osuga Plant

The former Osuga Plant building was demolished from October to December 2005. In the dismantling process, wastes generated from the dismantling works were recycled as much as possible in accordance to the Law Concerning Recycling of Materials from Construction Work (or Construction Waste Recycling Law). Wherever possible, wastes were directed for recycled use in the site. Concrete wastes, the largest waste in volume, were crushed using a crusher and reused as crushed stones for ground leveling. This eliminated use of damp trucks for carrying out

concrete wastes of approx. 1,350 ton from the site and transporting recycled crushed stones into the site. The carbon dioxide and energy reduced and saved was equivalent to 300 damp trucks.



Demolishing works of the former Osuga Plant

<sup>\*</sup>Kanban System: In the Toyota Production System, a communication tool called Kanban is used realizing 'a later process takes what is needed from an earlier process in a course of just-in-time production.

#### **Promotion of Green Factories**

The FDK Group pursues green factories where protection of the environment is well considered including reduction of wastes and chemical substances, prevention of contamination to air, water and soil, and avoiding noises and vibrations.

# Reduction of Discharging Chemical Substances

The FDK Group sets out and operates 'Chemical Substances Handling Regulation' to restrict emission of chemical substances from its plants in order to reduce environmental load. It also controls chemical substances appropriately. At the level of plants, types and volumes of chemicals used or discharged to air and watersheds as well as the amount of chemicals contained in wastes that are disposed outside of each plant are measured. Through such activities, the FDK Group as a whole is committed to achieving its environmental targets continuously. At the same time, the accuracy of the measurement and substitution to items that don' t contain hazardous chemicals are pursued.

#### **Targets of the Third Environmental Action Plan**

Discharge of chemical substances under the Pollutant Release and Transfer Register (PRTR) reduced at the end of FY 2006 by 15% of those discharged in FY 2001

· The scope of the reductions includes FDK plants and offices in Japan.

# Reduction of PRTR-Controlled Substance Emission

In FY2005, the chemical discharged from the domestic plants of FDK was toluene only, amounting to 3.26 ton which was increased by 87% over the previous fiscal year. In terms of the target of the Third Environmental Action Plan, it was a reduction by 41% over the actual volume of the chemical released in FY2001 i.e. 5.5 ton.

The major reason for the increase is the growth of module products. Besides the manufacturing of the products, toluene is used as flushing solution of products, jigs and facilities. A part of the toluene used in the plants is released to air in a form of vapor.

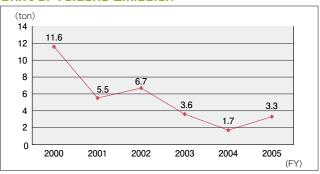
The FDK Group will continue its efforts in searching for substituting agents and confirming the performance of them in order to gradually shift from toluene.

The PRTR Law requires notification to the authority of designated chemical substances handled 1 ton or more a year. The FDK Group controls those handled 0.1 ton or above.

# PRTR Tabulation Result for FY2005

In FY2005, the volume of poly (oxyethylene) octylphenyl ether used for the year came to more than that in FY2004 for strengthening flushing of battery cans. During the same year, use of nickel increased due to the expanded production of multilayer products.

#### **Shift of Toluene Emission**



#### Total Chemical Substances Handled in FDK Group Plants in Japan (100kg or more)

Unit: ton(FY2005)

		Discharged		Volume of transfer			
Chemical substances	Handling volume	To the air	To the watershed	Discharged to sewerage	Contained in wastes	Consumption volume	Recycled
Manganese and its compounds	4,473.52	0.00	0.00	30.22	0.00	4,443.30	0.00
Toluene	5.69	3.26	0.00	2.43	0.00	0.00	0.00
Lead and its compounds	5.66	0.00	0.00	1.36	0.00	3.95	0.35
Bisphenol A epoxy resin	5.53	0.00	0.00	0.01	0.00	5.52	0.00
Poly (oxyethylene) octylphenyl ether	0.97	0.00	0.00	0.97	0.00	0.00	0.00
Boron and its compounds	0.96	0.00	0.00	0.001	0.00	0.96	0.00
Silver and its water soluble compounds	0.80	0.00	0.00	0.00	0.00	0.36	0.44
Nickel compound	0.51	0.00	0.00	0.03	0.00	0.48	0.00
Di-n-butyl phthalate	0.45	0.00	0.00	0.02	0.00	0.43	0.00

# Zero Emission of Wastes (Measures to Waste Reduction)

The FDK Group is committed to restrict generation of wastes through 3R (Reduce, Reuse, Recycle). Wastes generated from the plants are separated and recycled in order to reduce loads to the global environment. FDK Ecotec Co., Ltd., one of the group companies, collects information-related devices such as PCs and separates waste plastic, glass and metal from them for recycled use of them, through which it is committed to a business for formation of the recycling-based society. (See page 31)

#### Targets of the Third Environmental Action Plan

Generation of wastes reduced at the end of FY 2006 by 3% of those generated in FY 2003

- · The scope of reductions includes FDK plants and offices in Japan.
- · Zero emission of wastes will be achieved by the end of FY 2004 ahead of the target shown in the "Second Environmental Action Plan" by 1 year.

#### Waste Reduction Activities

In FY2005, the FDK Group continued its activities of using returnable carton in lieu of packaging materials and promoted recycled use of raw materials in processes and plastic vessels in the office. Due to these activities, the waste generated was successfully retained to 1,590 ton, down by 12% over the previous fiscal year.

# Achievement of Zero Emission

The target of 'zero emission' was successfully achieved in FY2004. The zero emission activities were continued in FY2005 as well in accordance to the 'Zero Emission Guideline.' Thanks to these efforts, 'wastes disposed by landfill' were totally eliminated throughout FY2005, for the first time. Major activities included recycled use of sludge into road bed and cement materials, separation of plastic wastes more strictly for reuse purposes, reusing of shredded papers for packaging materials, and magazines and newspapers recycled as raw materials for paper.

#### Recycling of Various Wastes

- Sludge: Raw materials for cements and road bed materials
- Waste plastics: Raw materials for plastics and fuels of blast furnaces
- Waste acids and alkalis: Neutralizing agents
- Waste oils: Oils and combustion improvers
- Waste paper: Paper, buffer materials and thermal recycle purposes
- Metal slag: Raw materials for steel
- Plant residues (food wastes): Fertilizers

#### Zero Emission of Wastes in FDK Group

#### Definition:

Zero emission is defined as utilizing all wastes generated in the group effectively to eliminate disposal of them by incineration and landfill.

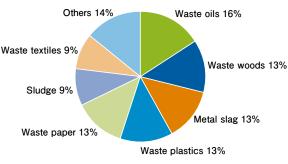
#### Wastes:

Sludge, waste acids, waste alkali, waste plastics, waste oil, metal slag, glass, ceramics, dusts, waste wood chips, waste paper, waste textile, animal and plant residues (food wastes) and sludge in septic tanks

#### Volume of Wastes and Recycling Ratio



#### **Wastes by Type**



Breakdown of Recycled Wastes (1,590 tons)

#### **Promotion of Green Factories**

#### Environmental Protection Measures to Plants

In order to prevent soil, underground water and air pollutions, the FDK Group is involved in various environmental protection activities. Environmental limits are voluntarily set for effluents, vibration and noise which are stricter than those set by the authorities, and the measurement data are periodically notified to the authority.

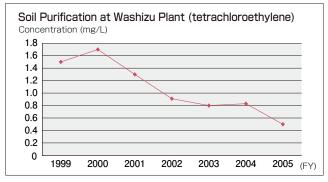
# Soils and Underground Water

The FDK Group conducted a series of investigations for soil and underground water contamination in 1998 and 1999 to investigate how they are contaminated by volatile organic compounds. The results at the four plants of Washizu, Sanyo, Hosoe and Osuga where soil and underground contaminations were found in the investigations in October 1999, were voluntarily disclosed to the public and works for removing contaminations are going on. In 2002, Hosoe Plant was totally purified.

In 2004, the former Osuga Plant site was reinvestigated to check the condition of the soil in accordance to the Soil Contamination Countermeasures Law, and the healthiness of the soil was confirmed. For other plants, we will continue purifying soil and underground water using an air stripping method, while checking the effects regularly.

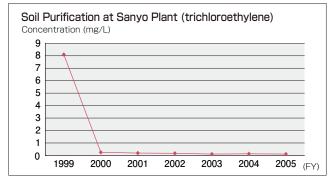
#### Washizu Plant

Major contaminants	Volume of contaminants in underground water before starting purification	Current volume of contaminants in underground water	Environmental limit	
Tetrachloroethylene	1.5 mg/L (Oct. 1999)	0.5 mg/L (June 2005)	0.01 mg/L	



#### Sanyo Plant

Major contaminants	Volume of contaminants in underground water before starting purification	Current volume of contaminants in underground water	Environmental limit	
Trichloroethylene	8.1 mg/L (Oct. 1999)	0.11mg/L(Oct. 2005)	0.03mg/L	



# Emergency Drills

Due to an existing risk of Tokai earthquake, Kosai Plant in Shizuoka Prefecture conducts an earthquake and disaster prevention drill every year. In addition to an evacuation drill, a rescue drill and a fire extinguishing drill, the emergency drill assumes occurrence of environmental pollutions out of the plant premises. In FY2005, an emergency response drill was held under the assumption of an oil leakage from the compressor room.



A drill for prevention of oil leakage from the compressor

# Storage and Control of PCB

The volume of storage of PCB in FY2005 was notified to each governor of the prefecture according to the Law Concerning Special Measures Against PCB Waste. At the FDK Group, PCB are appropriately stored and controlled by accurately recording the volume to a ledger. In the future, they are controlled and treated appropriately as designated.

#### Total Volume of PCB Retained by the FDK Group in Japan

Item	Volume (pcs)		
Capacitor	5		
Transformer	1		
Fluorescent light stabilizer	22		



Storage of PCB at Iwaki Plant

# Asbestos

After the case of 'health damages caused by asbestos' was covered by the mass media on June 30, 2005, the FDK Group investigated the condition of asbestos use in all of its plants in Japan and confirmed that asbestos were used at none of them.

As to the building demolition works of the former Osuga Plant from October to December 2005, though no asbestos were found sprayed at the building, asbestos were found to its building materials such as slates. The FDK Group instructed the workers to

take necessary measures to prevent asbestos dusts from scattering and to protect the health of workers there.



Demolition works of the former Osuga Plant No.2

# Prevention of Discharging Dioxins

All existing incinerators in FDK's domestic plants have been not in use since 2001 to prevent generation of dioxins.

# Compliance

In FY2005, no cases of non-compliance to environment-related laws and environmental accidents were reported in the FDK Group.

# Effluent Analysis Result

FDK's Kosai Plant is situated near Lake Hamana. Effluents from the plant are strictly controlled than 'water quality criteria of Lake Hamana.'

#### Kosai Plant (Plant that has been specially designated in accordance with antipollution laws)

		Control limit	Voluntary limit	Actual value
Chemical substances	Unit	(Japan)	(FDK)	(max.)
PH (Hydrogen- ion concentration)	_	5.8~8.6	6.0~8.4	7.6~7.9
COD (Chemical Oxygen Demand)	mg/l	160	15	9.9
BOD (Biochemical Oxygen Demand)	mg/l	160	15	11
SS (Suspended Solids)	mg/l	200	20	1.3
N-hexane extract	mg/l	5	3	<0.5
Copper	mg/l	3	0.5	<0.05
Zinc	mg/l	5	0.5	0.05
Soluble iron	mg/l	10	3	<0.3
Soluble manganese	mg/l	10	3	<0.1
Nitrogen	mg/l	120	40	17
Total phosphorous	mg/l	16	5	3.7
Nickel	mg/l	_	0.5	<0.05
Lead	mg/l	0.1	0.05	<0.01
Boron and its compound	mg/l	10	5	<0.1
Ammonia, ammonium compound, nitrites and nitric compound	mg/l	100	100	9.0

The following substances were found as significantly below the voluntary standards and official detection limits: benzene, fluorine, arsenic, trichloroethylene, tetrachloroethylene, 1-1-1-trichloroethane, total mercury, carbon tetrachloride and cadmium.

#### **Environmental Solution Activities**

The FDK Group is committed to environmental solution businesses such as environmental analysis and investigations as well as promotion of recycled use of resources.

# Business Activities of Fujidenka Research and Analysis Center Co., Ltd.

The company has been involved in total environmental analysis and research business for more than 30 successful years. Utilizing the analysis technology and environmental research technologies nourished for a long time of periods, the company contributes to environmental preservation for companies and the local area. Cooperating with other diversified research institutes and local governments, it is

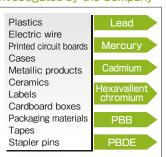


involved in planning and proposal of various solution businesses, as well as environmental service businesses including environmental educations and consultations. It also advances to the world after obtaining the ISO17025 certification.

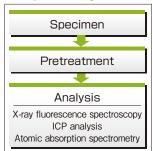
#### Investigation of Hazardous Substances Relating to Green Procurement

In order to manufacture eco-friendly products in compliance to EU's RoHS and ELV Directives, it is essential that parts and raw materials procured for products shouldn't contain hazardous substances. For this purpose, a system should be established so that hazardous substances contained in various metallic and ceramic products are correctly and speedily analyzed. Fujidenka contributes to the requirements for green procurement by setting up such a system.

#### Examples of Items Investigated by the Company

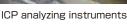


#### **Example of Analysis Flow**



#### Analyzing instruments







X-ray fluorescence spectrometer

# Measurement of Asbestos

Fujidenka conducts asbestos measurement as an entity of work environment measurement. After a partial amendment of 'Air Pollution Control Law' in March 2006, it is mandatorily required to confirm existence of asbestos and notify to the authorities for starting demolishing of a building that use of asbestos are suspected. At the same time, much stricter regulatory criteria is now applied to the demolishing works. In order to respond to the requirement of the amended Air Pollution Control Law, the FDK Group will strengthen asbestos analyzing instruments and measure and analyze asbestos contained in construction materials and air.

#### Measurement of Formaldehyde and Scattering of VOCs

A case of 'sick house syndrome' has been one of the social problems, recently. It is said that the syndrome is caused by chemical substances discharged from construction materials, furniture and home electric appliances. Fujidenka provides a service of measuring sick house syndrome substances discharged from such materials and items using a chamber method as well as those existing in houses and offices.

#### Examples of Contaminants Existing in a Building

Compound	Typical origin		
Formaldehyde	Plywood, adhesive agents for wall paper and picture		
Acetaldehyde	Adhesive agents and antiseptic materials (substances originated from alcohol decomposition – cause of a hangover)		
Toluene	Paints and adhesive agents for construction use		
Xylene	Paints and adhesive agents for construction use		
Ethyl benzene	Adhesive agents and paints		
Di-n-butyl phthalate	Paints, pigments, adhesive agents and antiseptic materials		

#### **Examples of Measurement**



VOC measurement in a house and an office



Measurement of VOCs emitted from large-sized equipment (home electric appliances and PCs)



Measurement of VOCs emitted from small-sized equipment (electronic parts, printed circuit boards and materials)



A microscope for asbestos investigation A microscopic picture of amosite



# Comprehensive Investigation and Measures for Soil and Underground Water Contaminations

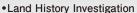
After enforcement of Soil Contamination Countermeasures Law in February 2003, soil investigation has been mandatorily required in abolishing designated facilities in which hazardous substances were handled. The needs for soil contamination investigation have been on the rise for such occasions as land appraisal for real estate transactions. Fujidenka provides (i) initial documentary investigation, (ii) on-site investigation (overall and detailed) and (iii) assessment and purification measures based on the investigation on soil and underground water contamination by volatile organic compounds, heavy metals and agricultural chemicals.

#### Contamination Investigation and Measures (Outlines)

#### Contamination Investigation

# Phase I (Documentary Investigation)

Possibility of contamination is investigated from the history of the land use.



- a. Old maps and air photos
- b. Collection of land registry book
- c. Interviews
- Investigation of the Peripheral Areas
- a. Underground water contamination
- b. Investigation of geography around the area, etc.
- c. Investigation of the history of use of the peripheral area

#### Phase II (Overall and Detailed Investigations)

Conditions of soil contamination are investigated.

- Soil gas sampling
- Surface investigation for heavy metals, etc.
- Surface investigation for agricultural chemicals, etc.
- Boring exploration
- Underground water investigation
- •Simulation analysis

#### Measures against Contamination

#### Phase III (Purification Measures)

Soils and underground water is purified using the best possible methods based on the investigation results.

- Soil vapor extraction (SVE)
- Air stripping
- Biological decomposition
- Iron powder reduction
- · Reaction-type water retaining wall
- Removal by digging
- Others



Investigation by air photos



Sampling of soil gases



Soil gas analysis



Boring exploration



Removal by digging



Purification system installation works

# Environmental Investigation and Consultation

Fujidenka provides environmental investigation and measurement services of plants, facilities and the local environment in order to respond to the diversified needs of environmental investigation, such as water quality. The services provided by Fujidenka include consultation, environmental protection equipment design, construction and maintenance.

#### Water quality analysis

Effluents from factories, sewages, river water, lake water, sea water, underground water and their bottom sediments

#### Air quality analysis

Air circulation investigation of sludge, waste acid suspension particles, nitroxide, sulfur oxides, hazardous contaminants, volatile organic compounds and dioxins and effluent gas measurement



Water quality survey of Lake Hamana

#### Malodorous substance analysis

Concentration analysis of designated malodorous substances such as ammonia and hydrogen sulfide, and odor index concentration survey

#### Noise and vibration investigation

Measurement of noise and vibration level and frequency analysis as well as simulation of road transportation, construction works and factories

# Environmental protection facility design, construction and maintenance

Design, construction and maintenance work of environmental protection facilities

# Environmental assessment

Environmental assessment for construction of garbage incineration facilities, waste disposal plants and various plants



Noise and vibration measurement at the boundary of a construction site

#### Business lines:

Environmental analysis and measurement, Environmental assessment (Analysis of air, water, noise, vibration, odor and soil contamination level, and measurement of work environment) Investigation and removal of soil and underground water contaminants Material analysis and reliability tests, calibration of measuring devices Measurement of sick house causing substances and VOC emission measurement Environmental protection facility design, construction and maintenance

#### Fujidenka Research and Analysis Center Co., Ltd.

Foundation: January 24, 1976

Capital: 20 million yen (wholly-owned by FDK corporation)

President & CEO: Takeo Maeda

Head Office: 2281, Washizu, Kosai City, Shizuoka Prefecture

Tel.053--576-0841 Fax.053-576-5258

Employees: 50

#### **Environmental Solution Activities**

# Business Activities of FDK Ecotec Co., Ltd.

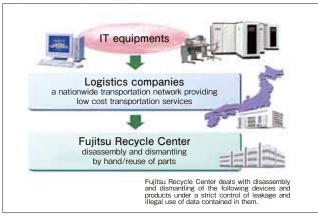
Incorporated in 1997, FDK Ecotec Co., Ltd. is committed to recycling of PCs and other information-related devices to contribute to the realization of recycle-oriented society. In 2002, the company obtained the certification of ISO14001 ahead of other companies in the industry, and since then, it has been proactively involved in environmental protection and prevention of depleting resources to bring the

society come true. Since FY2003, FDK Ecotec has been continuing zero emission in handling office automation equipment.

### As a core site of Fujitsu Recycle Center

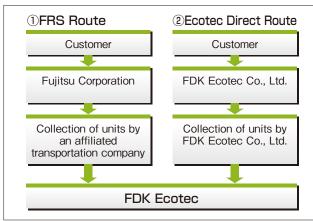
FDK Ecotec handles used PC and other information-related equipment generated from 13 prefectures in Tokai, Hokuriku and Kinki regions as the Chubu Recycle Center of Fujitsu Recycle Center (FRS). It accepts collection of waste devices through the Ecotec Direct Route, and provides an integrated services to customers from collection to disposal of units.

#### **Fujitsu Recycling System**



FRS handles recycling of information communication equipment regardless of manufacturers. Disposal of fixed assets are also handled.

# Flow of Disposal from Acceptance of Request for Collection



# Flow of Reuse and Recycle

After collection of used devices, FDK Ecotec manually decompose and separate materials to a level that can be recycled and reused.



# Measures to Prevent Leakage of Information

After collecting PCs and recording media, the data contained in them are all deleted safely according to the guideline on deletion of data on hard disks of personal computers before disposal and transfer by Japan Electronics and Information Technology Indus-

tries Association (JEITA) in order to prevent leakage if confidential information of companies and individuals. Special deletion software developed by Fujitsu Corporation is used for deleting data. The software complies with various deletion standards applied by Department of Defense and National Security Agency in the U.S.

Besides this, data destruction kit for compact disks and physical destruction system for hard disks developed by the company are used as well. The company also provides data destruction services of tapes, IC cards, semiconductor memories and other storage media. A data destruction certificate is issued on demand.



HDD data deletion system



HDD destruction system



CD destruction system

# Promotion of Recycling

#### **Efforts for Increasing Recycling Ratio**

Disassembling of a used parts to just a level of parts composed of more than one materials is not sufficient for recycling of materials. Such parts are separated to a level of plastic, metal and

other single materials in the company so that they can be reused for other products. Plastics, in particular, are decomposed to a level of vinyl chloride and polyurethane resin for reuse purposes. Waste plastics are crushed using a crusher.



A plastic crusher

#### Expansion of the Scope of Recyclable Products

FDK Ecotec accepts used fluorescent lights which are crushed using a special crusher. A melting machine is used for recycling

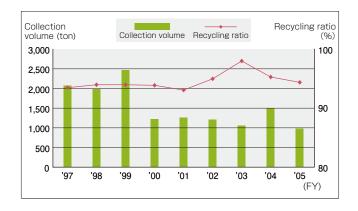
foam polystyrene. The company plans to introduce a magnet tape destruction machine so that it can accept magnet tapes for recycling.



A fluorescent light crusher

# Volume of Collection and Recycling Ratio

FDK Ecotec has committed to enlarging its service area and types of device handled by it to increase the volume of collecting waste devices. In FY2005, the company collected 981 ton of waste devices and the recycling ratio was 94.4%. Compared to the previous year, the number of waste devices remained unchanged, however, in terms of weight, due to the miniaturization of each system and lowered unit prices, the collection volume was decreased by approx. 30%.



#### Licenses

- Collection and transportation of industrial wastes: License No. 2100053003 (Gifu Prefecture)
- The range of collection and transportation:
   All areas of the following prefectures: Gifu, Aichi, Mie, Shizuoka and Shiga
- Intermediate treatment of industrial wastes:
   License No. 2120053003 (Gifu Prefecture)
- Types of industrial wastes authorized to treat:
   Waste plastics, metal chips, waste glass and ceramics, concrete chips (excluding those generated by new construction or refurbishment of buildings)

#### FDK Ecotec Co., Ltd.

Foundation: March 10, 1997

Capital: 30 million yen (wholly-owned by FDK corporation)

President & CEO: Masanori Nakazawa

Address: Headquarters: 2281, Washizu, Kosai City, Sizuoka Prefecture

Gifu Office: 478, Tsuchikura, Hirata-Cho, Kaizu City, Gifu Prefecture

Tel.0584-66-0322 Fax.0584-66-4791

Employee: 23

# Site Report

This chapter shows the outline and environmental protection activities of manufacturing plants of FDK Group.

#### Kosai Plant

Started operation in June 1963

Address 2281, Washizu, Kosai City, Shizuoka Prefecture 431-0495

Tel 053-576-2151

Production items DC-DC converter, microwave components, power inductors, HF multi-layer chips and toners

Situated on the western part of Shizuoka Prefecture, Kosai Plant is a center of research, development and administration of the FDK Group. In the vicinity of the plant are beautiful Lake Hamana and Enshunada Beach, famous for egglaying of sea turtles. The plant is surrounded by beautiful nature. The environment-related activity of the plant includes setting up and proposal of the FDK Group Environmental Policy and Action Plan, designation of rules for the FDK Group as a whole and promotion of actions. In other words, Kosai Plant is the leading entity of other plants to put various activities into practice.

- 1. The plant has been involved in developing products free of hazardous substances in order to comply with EU's RoHS Directive, and other rules. More recently, it is committed to developing super-green products which have top-environmental characteristics.
- The plant planned and disseminated measures and action plans for reduction of carbon dioxide emission and wastes into the Group companies.

3. In order to comply with ISO14001 (2004 version), the plant hosted in-house seminars to update the information and explain points to note to the employees. At the same time, the plant disseminates education and awareness regarding environmental protection and amendment of rules, laws and regulations through its intranet.

The plant is determined to integrate the efforts of all employees for global environmental protection activities, aiming at realizing the sustainable society.



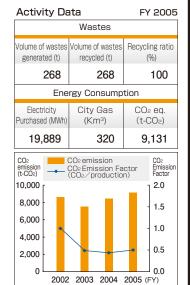
Masaji Tamakoshi Environmental Technology Section Environmental Technology Center



Fire Fighting Drill (Earthquake Disaster Prevention Drill)



Cleaning Campaign around the Plant



CO<sub>2</sub> emission

Employees 556

Site area 45,878m²

#### Sanyo Plant

Started operation in January 1970

Address 5-Ku, Honmachi, Sanyo-Onoda City, Yamaguchi Prefecture, 757-8585

Tel 0836-72-1311

Production items Inverter modules and piezoceramic parts

Sanyo Plant is situated in Asa, north of Sanyo Onoda City in Yamaguchi Prefecture. Asa is famous at the old tale of 'Asa-no-Netaro' which is said to be an origin of the old tale of 'Sannen-Netaro' that is found every corner of Japan. The plant is now in the process of making a shift from a ferrite mass production factory to an electronic parts mass production factory, using its skill of material development and application technologies.

The environment-related activities of this plant include:

- 1. Promotion of environmental measures to products:
  - (1) Compliance to EU's RoHS Directive
  - (2) Facilitating control on products containing chemical substances
- 2. Prevention of global warming: Reduction of  $CO_2$  generation
- 3. Promotion of green factory:
  - (1) Reduction of waste generation

(2) Continuing zero emission.

As to the reduction of waste generation, the plant will strengthen the activity based on 'efficient use of resources' and 'production using minimum required volume of resources' as the two major targets.

In the future, the plant will use the cycle of PDCA and integrate the efforts of the entire

workers toward environmental protection activities for 'people', 'local community' and 'the Earth.'



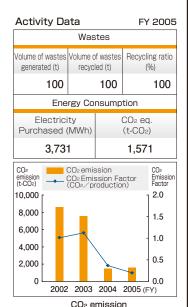
Sanyo Plant Administration Section Environmental Technology Center



Cherry blossom trees around Sanyo Plant



around the Plant



#### Iwaki Plant

Started operation in April 2002 (by merging former Iwaki Electronics which was established in December 1966.)

Address 1, Kamanomae, Joban-kamiyunagaya-machi, Iwaki City, Fukushima Prefecture 972-8322

Employees 426 Site area 107,008m²

Tel 0246-43-4161

Production items Hybrid modules, VCOs and timing controller board

Situated to the southwest corner of Fukushima Prefecture and faced with the Pacific Ocean to the east, Iwaki Plant is blessed with mild climate throughout the year. It never snows in the area. As a mass production plant of inverter modules and VCOs, the plant proactively promotes environmental management activities.

- 1. Development of Eco-Friendly Products
  The plant conducts environmental assessment to all products at their design and planning stage, based on the FDK's scheme for controlling products containing chemical substances. They are delivered to customers after implementing the assessment and verification. Possibilities of halogen free production are examined in the plant for responding to the future requirements, and research and development relating to it are conducted.
- 2. Energy-Saving Measures

  The plant successfully minimized increase
  of energy consumption due to increase

in production volume after switching to energysaving type air conditioners to its production line and employment of highly efficient lighting equipment.

#### 3. Minimization of Wastes

From the onset of mass production of inverter modules, the plant has been using returnable

containers to transport parts from business partners to the plant. This has contributed to reduce generation of cardboard box wastes.



lakeshi Shio lwaki Plant Administration Section Environmental Technology Center



Cherry blossom trees at the gate of the plant



In-house environmental education

#### FDK Engineering Co., Ltd.

Started operation in September 1990 (by separation of machinery business function of FDK; Former Hosoe Plant started operation in November 1963) Employees 64

Address 281, Hirooka, Hosoe-Cho, Hamamatsu City, Shizuoka Prefecture 431-1302 Site area 15,957m²

Tel 053-522-5280

Business lines Design, manufacture and sales of various manufacturing facilities

As a manufacturer of production facilities for companies, FDK Engineering Co., Ltd. delivers more than 90% of its products to auto makers. Many of them are occupied by production facilities for improving fuel efficiency or reliability. Its customers are highly environmental-conscious. The company's activities are mainly consisting of the followings:-

- Eco-friendly design of facilities
   To miniaturize the facility to save materials and power consumption as much as possible
- 2. Reduction of greenhouse-effect gasses
  To reduce power consumption
- 3. Zero emission

Business partners are requested to deliver products without packages. If this is not possible, they are requested to take the packages back to them after delivering products. All drawings are shredded for recycled use after they are used.

The company is actively involved in friendship activities with the local community.

- a. Cleaning campaigns in cooperation with local residents (once a year)
- b. Participation to the 'Himesama Dochu' event (Every year four

employees or so are participated in the event.)



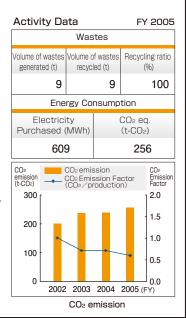
Keigo Yamaoka Equipment Development Dept



People working for adjustment of a facility



Cleaning campaign around the plant



# **Site Report**

#### FDK Energy Co., Ltd.

Started operation in August 2002 (by separating battery function of FDK. The former Washizu Plant started its operation in February 1950.) Employees 167

Address 614, Washizu, Kosai City, Shizuoka Prefecture 431-0431 Site area 39,395m²

Tel 053-576-2111

Business lines Manufacturing and sales of alkaline batteries and lithium batteries

Situated in Kosei City along the west bank of the beautiful Lake Hamana, FDK Energy Co., Ltd. is surrounded with nature and is a center of technical development and manufacturing of alkali batteries and lithium batteries.

The company was involved in mainly reducing energy consumption and wastes as its environmental activities throughout FY2005 while in the circumstances of increasing production volume year by year. For the former, packaging processes were integrated to one place under its production innovation activities and energy consumption was successfully reduced. Though the increase of production came to 6%, the increase of energy consumption was retained to just 2%. For the latter, residual sludge was successfully reduced thanks to an improved performance of biological treatment facility. Decreased in-process defect ratio contributed to reduced waste batteries. In FY2005, the volume of waste was reduced by 32 ton over the target. As to its efforts for eco-friendly products, an inspection and confirmation was made to each

supplier of raw materials in order to respond to the requirements of FDK Group's criteria for controlling products containing chemical substances.

In FY2006, Digital Alkali Battery D-Series will be released in addition to the conventional Wide Range Alkali Battery G-Series. The D-Series batteries are developed for digital equipment use and the power is

larger by 40% than the conventional G-Series batteries. This has enabled increased replacement cycle of batteries and resource saving can be promoted further.



Yoshinori Sakata Safety & Environment



Trees in front of the main gate



ISO14001 signage

#### **Activity Data** FY 2005 Wastes Recycling ratio Volume of wastes Volume of wastes generated (t) recycled (t) (%) 100 **Energy Consumption** Electricity Bunker A CO2 ea. Purchased (MWh (Kl) (t-CO<sub>2</sub>) 9,900 115 4.490 CO2 emission (t-CO2) 6.000 2.0 5,000 1.5 4,000 1.0 3,000 2,000

2002 2003 2004 2005 (FY)

CO2 emission

Site area Included in Kosai Plant

0.5

0.0

#### FDK Mechatronics Co., Ltd.

Started operation in	November 1989
Address	2281, Washizu, Kosai City, Shizuoka Prefecture 431-0431
Tel	053-575-3011
Business lines	Manufacturing and sales of stepper motors

FDK Mechatronics designs and manufactures stepper motors, doing businesses to make a plant a mass production plant and promoting and controlling motor businesses in general.

Its environmental management activities mainly include eco-friendly product design and actions for preventing global warming.

# 1. Product Environmental Measures In order to totally eliminate ha

In order to totally eliminate hazardous substances designated by the Fujitsu Group, actions have been directed to switch to parts that don't contain lead and hexavalent chromium, two substances typically used for manufacturing motors. As a result, as of the end of March 2006, these two chemical substances were totally eliminated from all parts designated by customers.

2. Prevention of Global Warming
In order to reduce energy consumption

and CO<sub>2</sub> emission, volume of inventory assets was reduced to save storage space and minimize dead stocks. In the process, energy saving was sought from manufacturing to control.

As a result, as of the end of March 2006, the inventory assets in the world was successfully reduced by approx. 10% over the previous quarter.



Hideki Nibe Engineering Support Dept.



Lead-free line of FDK Tatung (Thailand) Co., Ltd.



Regular meeting for products containing chemical substances

#### **Activity Data**

Employees 49

1,000

Volumes of waste, energy consumption and CO<sub>2</sub> emission are included in the data of Kosai Plant.

#### FDK Lifetec Corporation

Started operation in May 1971 Employees 63 Site area Included in Kosai Plant

Address 2281, Washizu, Kosai City, Shizuoka Prefecture 431-0431 Tel 053-576-3121

Business lines Sales of foods, maintenance of gardens, assembly and processing of electric communication equipment, printing of business card, etc., operation and management of canteens, cafeterias and kiosks, food dispensing services, nonlife insurance and life insurance agent

Established in May 1971 as an outsourcing company of welfare function of Fuji Denki Kagaku, the former company of FDK Corporation, FDK Lifetec has expanded its business to sales of products developed for internal use. It has three offices. Sanvo Branch Office and Iwaki Branch in addition to the head office in Kosai City.

Its environmental protection activity includes environmental management system operations complying with ISO14001 as one of the plant of FDK Corporation. More precisely it is involved in recycling of leftover food generated by its canteen into fertilizer using a leftover food processing machine and carbon dioxide reduction activities by reducing power consumption, in addition to raising awareness of the employees for social contribution and environmental improvement. As there has been observed a growing demand of Japanese tea due to the growing health trend of people, tea leaves produced in Shizuoka Prefecture are powderized using a

unique method and provided as 'Run-Run Sabo

In the future, the company will thrive itself to contribute to healthier life of people and to the society as a provider of health, welfare, environmental management and culture. At the same time, it will

also integrate the efforts of the entire company to improve welfare of employees of the FDK Group.



Tetsuta Aono **Business Promotion Dept** 





Recycle box

#### **Activity Data**

Data relating to reduction of wastes, energy consumption and CO2 emission in the head office. Sanyo Branch Office and Iwaki Branch are included in those for Kosai Plant Sanvo Plant and Iwaki Plant respectively.







'Run-Run Sabo' Series

### ■ Fuchi Electronics Co., Ltd.〈Taiwan〉

Started operation in January 1981 Employees 1,046 Address No. 355, Section 2, Nankan Road, Rutsu Shan, Tao Yuan, Taiwan Site area 3,235m² +886-3-322-2124

Business lines Manufacturing and sales of hybrid module and inverter unit

Started operation in 1981, Fuchi Electronics successfully obtained an ISO14001 certification in January 1990 and continues its efforts for maintenance and improvement of the environmental management system. Under the condition of growing demand from its customers for green products for preserving the global environment, the company has been involved in development and production of lead-free green products since 1991. In 1992, it established a green product supply system with business partners and has been working for obtaining customer satisfactions by continuously improving and strictly implementing the system. Fuchi Electronics will continue its efforts for further improving the system operations.

In FY2005, CO2 emission was increased due to an increase in production volume, compared to FY2004, however, the efforts for improving its production processes were successful in reducing basic unit of it. Fuchi Electronics will continue its efforts for 'business innovation'

while trying to reduce energy consumption and wastes. Fuchi's philosophy of 'To adore the nature' is the foundation of the company for sustainable development. Fuchi Electronics believes that consideration to the nature and to respond to the demand of the society are the basics for development of the company.

We will continue our efforts in providing products that respond to the change of the society and protecting the global environment as a corporate and global citizen.



Emergency drill



Lin Wen Hua Quality Assurance Dept.



model award

Activity Data FY 2005 Wastes					
Volume o genera			of waste cled (t)	es Rec	ycling ratio (%)
409		164		ı	40
	Ene	rgy Co	nsum	ption	
	ectric ased			CO2 (t-C	
6,114			4,218		
CO2 emission (t-CO2)	_	002 emi 002 Emi (002 / p	ssion	Factor ion)	CO <sub>2</sub> Emission Factor
4,000	-				
3,000	-				1.5
2,000		<b>\</b>			1.0
1,000	-				0.5

# Site Report

#### ■ PT FDK Indonesia (Indonesia)

Started operation in August 1989 Address Kawasan Industri MM2100, Blok MM-1 Jatiwangi Cikarang Barat, Bekasi 17520 Jawa Barat, Indonesia Tel +62-21-89982111

Business lines Manufacturing and sales of alkaline batteries and lithium batteries

After obtaining a certification of ISO14001 (1996 version) in June 2003, PT FDK Indonesia completed upgrading the certification to ISO14001 (2004 version) in April 2006. The company is thriving for various environmental protection activities to reduce loads that impact on the environment

The activities include elimination of hazardous chemical substances, waste water treatment. energy-saving (mainly electricity consumption), reduction and separation of wastes, monitoring and measurement of waste gasses released to air and tree planting activities. As to the reduction of power consumption and waste, reduction targets are set in it environmental management plan which is promoted under a regular monitoring. In FY2005, the increased production of lithium batteries caused an increase of CO2 emission. Wastes are collected by a consigned waste processing company for uplifting the recycling ratio. On the other hand, effluents are treated by a waste treatment facility installed in

the company and monitored and measured every month. The result of the measurements is reported to other companies in the same industrial complex as well as the Indonesian Government periodically. For new recruits, environmental management system

educations are provided. The company is determined to continue observing environmental laws and regulations as well as requirements to reduce environmental loads by integrating the efforts of the entire employees.



Djatmlko Tanuwidjojo Personnel & GA Dept.



Fire drill



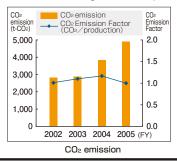
Effluent and sludge treatment facility

#### **Activity Data** FY 2005 Wastes Volume of wastes Volume of wastes Recycling ratio generated (t) recycled (t) 407 **Energy Consumption** Electricity Bunker A Kerosene Light oil CO2 eq. (Kl) (t-CO<sub>2</sub>) (Kℓ) (Kl) 10.565 20 8 148 4,915

Employees 955

Site area 40,000m²

irces outsourced to r is not included as the relevant data was not available. CO₂ emission was calculated using the coefficient used in Japan.



### ■ FDK Lanka (PVT) Ltd.⟨Sri Lanka⟩

Started operation in November 1990 Employees 2,461 Address Ring Road 3. Phase II E.P.Z. Katunavake. Sri Lanka Site area 50.000m² Tel +94-11-225-3492 Business lines Manufacturing and sales of optical devices, magnet heads for FDD and rotary transformers

Started operation in 1990, FDK Lanka (PVT) Ltd. successfully obtained a certification of ISO14001 (1996 version) in 2003, which was upgraded to ISO14001 (2004 version) in February 2006. The company sets the following items as its environmental targets from FY2005 to FY2008 and tries to achieve them within the periods

- 1. To reduce emission of carbon dioxide per unit of production machine by 15%
- 2. To reduce wastes generated per unit of production machine by 5%
- 3. To reduce consumption of chemical substances per unit of production machine by 30%
- 4. To reduce noise level at the boundary of the

Its energy saving activities in FY2005 included use of a highly efficient power stabilizer, redesigning of process layouts to reduce use of air conditioners and lighting equipment. As to waste, the volume of it has been significantly reduced due to its garbage reduction activities taken place in the past 3 years. So the company made its activity one step forward to exploring reuse of garbage and reduction of inputting raw material volume. In order to curtail consumption of hazardous chemical substances, the company is working for complying with EU's RoHS Directive.

Under the slogan of 'FDK Group Loves the Nature for the Future of the Earth,' we are committed to continue our environmental protection activities for handing over beautiful Sri Lanka to the next generation and for the prosperity of FDK Lanka.



FINANCIAL Dept



Ferrite sludge waste water treatment system



Noise prevention of power generators

#### **Activity Data** FY 2005 Wastes Volume of wastes Volume of wastes Recycling ratio generated (t) recycled (t) (%) 455 214 47 Energy Consumption LPG Light oil CO2 eq. Purchased (MWh) (t) (Kl) (t-CO<sub>2</sub>) 11,023 109 3,445 CO<sub>2</sub> emission Emission emissior (t-CO2) CO<sub>2</sub> Emission Factor (CO<sub>2</sub> / production) 6,000 2.0 5,000 1.5 4,000 3.000 1.0 2.000 0.5 1.000

2002 2003 2004 2005 (FY)

CO<sub>2</sub> emission

#### Xiamen FDK Corporation (China)

Started operation in March 1994

Address No. 16, Malong Road, Huli District, Xiamen, Fujian, China

Tel +86-592-603-0576

Business lines Manufacturing and sales of switching power supplies, transformers, hybrid modules, stepper motors and VCOs

After its successful acquisition of a certificate of ISO14001 in January 1999, Xiamen FDK completed the second round of renewal examination in March 2005. During the period, under the environmental policy of 'to observe laws and regulations, to reduce environmental loads through pursuing green production and to continue improving environment,' the entire employees have been committed to reducing environmental loads. In FY2005, the company was committed to the following activities.

- 1. Energy-saving: Power consumption volume was successfully reduced by 10.7% over the previous
- 2. Wastes: The volume of wastes was successfully reduced by 29% over the previous year.
- 3. Hazardous chemical substances: In order to eliminate use of hazardous chemical substances in manufacturing products, a control manual was formed and used. In order to share the examination data among all employees, the company is currently working for making a database.
- 4. Environmental education: A booklet on ISO14001 was given to all new recruits to provide basic knowledge on it. For existing employees, various environmental educations were provided to enhance their knowledge on it. The company designates every April a month of 'reinforcing our environmental activity.' This year, various environment-related events were held

5. Social contribution activity: Every year voluntary activities are held at least once with the participation of employees. This year, guidance on traffic rules and strengthening the sense of protecting environment was given.

Awards: Since FY2001, the company has been given the award of 'garden company' award from Xiamen City every year. This year, the company won an

award from the greenery committee of Huli for its efforts of green planting activities.

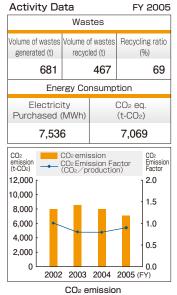
Xiamen FDK is determined to continue its activities based on its environmental policy with the integrated efforts of all the employ-

Voluntary activities





Green activity award from the greenery committee of Huli



Employees 1,753

Site area 26,538m²

# Shanghai FDK Corporation (China)

Started operation in August 1995 Address 499 Dong Qu Road, Songjiang Industrial Zone, Shanghai, China +86-21-5774-2028 Business lines Manufacturing and sales of hybrid modules and coil devices

Established in 1995 in Songjiang Industrial Zone in Shanghai, Shanghai FDK Corporation manufactures electronic parts. After successful acquisition of a certification of ISO14001 in December 2000, it upgraded the certification to ISO14001 (2004 version) in September 2005. The activities of the company during FY2005 includes of the followings.

- 1. Environmental management education to the employees was strengthened. For new recruits, especially, the environmental protection education was included in their general education to raise their understanding of the importance of it.
- 2. As to energy saving, energy reduction plans were communicated to all employees by displaying it on the company bulletin board and other means. At the same time, each employee was encouraged to set and implement his/her own themes. As a result, the energy consumption reduction target was successfully achieved. Due to a shift of ferrite production to Nangjing FDK in October 2004, CO<sub>2</sub> emission volume from the company was

- significantly reduced.
- 3. As a part of its green planting activities, maintenance and growing of trees were done regularly in the plant premises.
- 4. Recycled use of packaging materials was promoted which was successful in reducing the volume of
- 5. In order to further strengthen green procurement,

a green partnership was concluded with the business partners. Shanghai FDK is determined to integrate the efforts of the entire company to promote environmental improvement



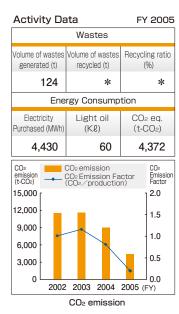
Green planting activities



Shi Hua General Administration Dept



Environmental education



Employees 3,683

Site area 60,309m²

# Site Report

#### Suzhou FDK Co., Ltd. (China)

Started operation in June 2001 Employees 1,559 Address 43 Building Fengqiao Industrial Park 158-88 Huashan Road, Suzhou New District Jiangsu, China Site area 12,500m² Tel +86-512-66619392

Business lines Manufacturing and sales of hybrid modules

Suzhou FDK started the activities of the environmental management system ISO 14001 in the beginning of 2004 and successfully obtained its certification in December the same year. This is due to the efforts of the entire employees, the company believes. In FY2005, the company was committed to the following activities.

- 1. Environmental education was provided to all employees to raise awareness of the environmental protection.
- 2. Energy saving targets were set and addressed enthusiastically.
- 3. Separation of wastes was strictly promoted to raise the recycling ratio.
- 4. Hazardous substances were strictly separated and controlled.
- 5. Measures were taken to reduce noises.
- 6. Education and evacuation drills on safety and fire prevention were provided.
- 7. Hazardous substances control system was

established and operated.

In FY2005, due to an increased production volume, CO2 emission was significantly increased. In FY2006, the company will address reduction of energy consumption and improvement and upgrading of hazardous substance control

system as the priority issues.



Zou Qian ISO Section Quality Control Dept



Fire fighting drill



Fire brigade members

#### **Activity Data** FY 2005 Wastes Volume of wastes Volume of wastes Recycling ratio generated (t) recycled (t) (%) 34 **Energy Consumption** CO2 ea Electricity Purchased (MWh) (t-CO<sub>2</sub>) 6,417 6.020 CO2 emission CO2 Emission Factor (CO2/production) (t-CO2) 2.0 6.000 5,000 1.5 4 000 1.0 3.000 2 000 0.5

2002 2003 2004 2005 (FY)

CO<sub>2</sub> emission

0.0

1,000

0

#### ■ FDK (Thailand) Co., Ltd. (Thailand)

Started operation in December 2001 Employees 553 Address 60/118 Navanakorn Industrial Estate Zone 31 Moo 19. Phaholyothin Road, Tambon Klongnung, Amphur Klongnung, Pathumthani 12120, Thailand Site area 25.180m² Tel +66-2529-4930 Business lines Manufacturing and sales of stepper motors

FDK Tatung (Thailand) Ltd. manufactures stepper motors for office automation equipment and automobiles. The company celebrates the 5th anniversary in December 2006 and has been in business for 17 years including the history of its former company, Fujitsu Thailand. The followings are the environmental policy of FDK Tatung (Thailand).

- 1. We shall observe rules, laws and regulations on environment of the Kingdom of Thailand and of our business partners.
- 2. We shall continue improvement of the environmental management system, prevent pollutions due to our corporate activities, and reduce impacts on water, soil and air by effectively utilizing wastes.
- 3. We shall commit ourselves in maximum use of resources and promotion of energy conservation as well as energy saving.
- 4. We shall raise understanding of the entire employees on environmental protection.

The company successfully acquired a certification of ISO14001 (1996 version) in June 2003, and completed upgrading of it to ISO14001 (2004 version) in June 2006. It further continues its efforts for environmental improvement of the Kingdom of Thailand. The priority environmental action items for  $FY2005\ were\ {\ \ }^{\prime}reduction\ of\ wastes\ by\ uplifting\ the$ recycling ratio' and 'compliance to environment-

related laws and regulations such as EU's RoHS Direc-Thorough separation of garbage contributed us to achieve waste reduction by 25%. As to the RoHS compliance, a series of efforts were directed to set up internal rules and regulations, guidance to business partners and identification and strict control of inventories by the time the Directive was officially applied in July 2006.

FDK Tatung (Thailand) is committed to improving the

environment continuously by integrating the entire efforts of the employees, and will make a leap forward for a success while keeping harmonious existence with the environment.



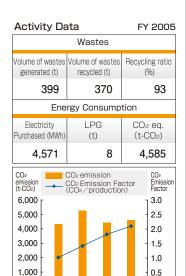
Peerawit Tapabud SM & PARTS ENG Dept.



seminar to business partners



Garbage separation



2002 2003 2004 2005 (FY)

CO<sub>2</sub> emission

0.0

# History of Environmental Activities (fiscal year)

1992 Established the environmental protection preservation division. Introduced mercury-free manganese dry batteries. 1993 Promoted Environmental Education for new employees. Eliminated to use mercury in all layer-built batteries. ■ Eliminated to use designated chlorofluorocarbons(Excluded Iwaki Electronics Co., Ltd.). ■ Established "Environmental Charter" Promoted Environmental Education for mid-careers. ■ Established environmental protection regulations for the FDK group. Developed Environmental Action Plan. Established FDK Environmental Protection Committee. Fully eliminated to use designated CFCs in all plants. Fully eliminated to use of trichloroethane 1996 ■ Established the Environmental Protection Standard Committee. ■ Established the Environmental Protection Standard. ■ Launched activities to acquire ISO14001 certification. Issued the first issue of environmental news. Recruited and selected on the FDK environmental slogan. ■ Established the environmental protection system for ISO14001. 1998 Acquired ISO14001 certifications at five domestic plants. Renamed the environmental protection preservation division as the environmental management division. Acquired ISO14001 certification in Xiamen FDK Corporation as a first plant in overseas. Acquired ISO14001 certifications at additional three plants. Announced the result of soil contamination state investigation. ■ Executed countermeasures on soil contamination 2000 Established the Environmental Action Plan for the second term. Joined "Environmental Management Survey" conducted by Nihon Keizai Shimbun Inc. Received Fujitsu Environmental Contribution Prize. Introduced a cogeneration system at Kosai plant. ■ Changed uniforms to reproductions using recycled fabrics from PET bottles. 2001 Issued the Environmental Report 2001. Ranked 115th in "Environmental Management Survey" conducted by Nihon Keizai Shimbun Inc. Participated in the environmental activities organized by JIFPRO(Japan International Forestry Promotion and Corporation Center). Started operation of PRTR chemical management system. Established in-house reuse systems of OA equipment. ■ Established the "FDK Environmental Policy". Issued the Environmental Report 2002. Acquired ISO14001 certification in two overseas plants and one domestic plant. Renamed the environmental management division as the quality and environment technology center. Ranked 208th in "Environmental Management Survey" conducted by Nihon Keizai Shimbun Inc. Expanded in-house reuse systems of OA equipment. Promoted various company-wide campaigns. Energy conservation campaign Environmental enlightenment campaign Reduction campaign for copy numbers Eco driving and idling stop campaign 2003 Established the Environmental Action Plan for the third term. Posted environmental educational posters of the FDK group drawn by corporate members and their families. Issued the Environmental Report 2003. Ranked 141st in "Environmental Management Survey" conducted by Nihon Keizai Shimbun Inc. Introduced the database system(ECO-DB) of the FDK group on the environmental burden of chemical substances Received Fujitsu Environmental Contribution Prize. Renamed the quality and environment technology center as the environment technology center. Established the Contained Chemical Substances Management Committee. Issued the Environmental Report 2004. Ranked 124th in "Environmental Management Survey" conducted by Nihon Keizai Shimbun Inc. Awarded "the prize for the excellent energy management factory (electric section) in FY2004" by the Chubu Bureau of Economy, Trade and Industry, METI. Acquired ISO14001 certification in all FDK Group plants. Achieved zero waste emissions in all domestic plants. Acquired ISO 14001 certification at Taichong Plant (estabilished in April 2005) of Fuchi Electronics Co., Ltd. Issued Environmental Report 2005 Ranked 205th in the "Environmental Management Survey" conducted by Nihon Keizai Shimbun Inc.

Approved Small-size chip inductor "MIPF 2520DSeries" certificated as a Super-Green Product for the first time at FDK.

# **FDK CORPORATION**

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FDK Group loves Nature for the Future of the Earth



This booklet was made of 100% recycled paper for the cover pages and nonchroline-breached pulp (ECF) for the text, and environment-friendly ink made of soybean oil was used.

#### **Questionnaire for FDK Social & Environmental Report 2006**

Thank you for your taking time in reading our Social & Environmental Report 2006. We would appreciate it if you could spend a few minutes to give your answers to the following questions. After your filling out, please send the sheet back to us via fax.

Your comments and answers will be used for our reference to decide our future actions.

Compared to the particle Much informative	Same		than the previous	-	' <del>=</del> '	I the previous y	ear version
Much informative	Same	Worse	tilali tile previous	year version	r did flot reac	eai versioi	
How did you learn	of the FDK	Social 8	& Environment	al Report 2	006?		
From FDK employee	es and repres	entatives	FDK website		Trade shows	;	
Environmental semi	nar, etc.		Newspapers ar	nd magazines	Others(		)
Please identify you	r business	<b>5.</b>					
Supplier/customer of	f FDK	Govern	nmental officer	Handling environme	Handling environmental issues at a company		
NPOs		Mass r	Mass media		Financial and investment company employ		
Expert on the enviro	nment	Rating	Rating company employee		Resident of the region FDK has plants and off		
Teacher/student		Employ	ee and its family me	ember of FDK	Others( )		
Please name one o	r more art	icles you	ı impressed w	ith.			
(							)
How do you say ab	out FDK's	social &	environmenta	Il activity?			
Very active			Normal		Not active		
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Bad points ]							
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Thank you for your	taking tim	ne. Pleas	se identify you	rself if you	do not mind.		=
Name :		Age:	E	-mail :			
Address:							
Tel:			Fax :				
Occupation :			(Name of your	company :			)

Your answers given in this questionnaire will only be handled for statistic tabulation. We will treat your personal data under strict confidential.