

# 2006 Environmental & Social Report



# 2006 Environmental and Social Report Featured Articles

"To become a company friendly to people and the environment, we have started with what we can do." Niigata Subaru, Co. Ltd. **p.13** 



# **Editorial Policy**

- This report has been issued to introduce the environmental and social achievements of Fuji Heavy Industries Ltd. (FHI) and its domestic and overseas affiliated companies in order to set the stage for communication with stakeholders including our customers, shareholders, partner companies, local communities and employees. We have included feature articles on special activities conducted in fiscal 2005 and separately placed environmental and Social Report." For better objectivity, we arranged for a third party to examine our Environmental and Social Report. We will continue to work to make this report accurate and easy to understand.
- Period covered

This report covers our achievements and activities in fiscal 2005 (April 2005 through March 2006; for overseas affiliated companies: January through December 2005) and some activities from prior fiscal years and others conducted just before the issuance of this report.

•Guidelines referenced

"Environmental Report Guidelines (2003)" by the Ministry of the Environment
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TEL 03-3347-2036 FAX 03-3347-2530 Contents of our Web site and the "Supplementary Volume for Data Related to the

2006 Environmental and Social Report" http://www.fhi.co.jp/

# Contents of the "Supplementary Volume for Data Related to the 2006 Environmental and Social Report"

Data	Coverage and details
Corporate Overview	Fuji Heavy Industries Ltd., its domestic and overseas affiliate companies
Chronology of FHI's Environmental and Social Activities	Chronology of FHI's environmental and social activities
Financial Data	Most recent five year trends in FHI's sales, ordinary income, sales volume, paid-in capital, number of employees, capital investment and Research and Development costs
Environmental Management Report	FHI's system for promoting environmental conservation activities, voluntary environmental plans, environmental accounting (for FHI, its Japanese and overseas affiliated companies [reference value for trial]), number of employees who have acquired official certifications, number of company-owned cars, etc
Product Data	Data on the products released by FHI in fiscal 2005
Plant Site Data	Environmental and social activities and compliance with environment-related laws and regulations, etc. at Gunma Manufacturing Division, Industrial Products Company, Utsunomiya Manufacturing Division and Tokyo Office
Affiliated Companies Site Data	Fuji Robin Industries Ltd., Yusoki Kogyo K.K., Fuji Machinery Co., Ltd., Ichitan Co. Ltd., Kiryu Industrial Co., Ltd. and Subaru Logistics Co., Ltd.

#### Range of the report

Focusing mainly on the activities of the Automotive Business Unit, which generate considerable environmental impact, we introduce the activities of the Aerospace Company, the Industrial Products Company, and other divisions having to do with environmental equipment and devices. We also introduce the activities of six manufacturing and distribution companies participating in FHI's Domestic Affiliated Company Subcommittee and five overseas companies participating in the North American Environmental Committee, all of which are considered to impact the environment substantially.

#### Companies Covered in the Report

Fuji Heavy Industries Ltd. (Main manufacturing facilities)

Subaru Automotive Business < Gunma Manufacturing Division (Gunma prefecture), Tokyo Office (Mitaka city) >

Aerospace Company < Utsunomiya Manufacturing Division (Utsunomiya City, Tochigi prefecture, Handa city, Aichi prefecture) >

Industrial Products Company < Saitama Manufacturing Division \*(Kitamoto city, Saitama Prefecture) >

Eco Technologies Company < Utsunomiya Manufacturing Division (Utsunomiya City, Tochigi prefecture) >

\* For the sake of convenience, in this report, the production sites of the Aerospace Company and Eco Technologies Company are referred to as the Utsunomiya Manufacturing Division and the Industrial Products Company as the Saitama Manufacturing Division. Also, in order to make the coverage of the report clear, we use the following definitions:

"All manufacturing plants" is a collective term referring to the Gunma Manufacturing Division, the Utsunomiya Manufacturing Division (Aerospace Company and Eco Technologies Company), the Saitama Manufacturing Division (Industrial Products Company) and the Tokyo Office.

"Company-wide" is a collective term for FHI which includes the Head Office area (Tokyo and Saitama City, Saitama Prefecture), the Subaru Test & Development Center (Tochigi Prefecture), the Subaru Parts Distribution Center (Gunma Prefecture) and "all manufacturing plants" mentioned above. (However, welfare facilities such as the bachelor's dormitory, company housing, training facilities and test courses in Hokkaido are excluded.)

#### Domestic Affiliated Companies (Members of Domestic Affiliated Company Subcommittee)

Fuji Robin Industries Ltd. (Numazu City, Shizuoka Prefecture) Yusoki Kogyo K.K. (Handa City, Aichi Prefecture) Fuji Machinery Co., Ltd. (Maebashi City, Gunma Prefecture) Ichitan Co., Ltd. (Ota City, Gunma Prefecture) Kiryu Industrial Co., Ltd. (Kiryu City, Gunma Prefecture) Subaru Logistics Co., Ltd. (Ota City, Gunma Prefecture)

#### Overseas Affiliated Companies (members of North American Environmental Committee)

SIA:Subaru of Indiana Automotive, Inc.(Lafayette, Indiana) SOA: Subaru of America, Inc. (Cherry Hill, New Jersey) SCI:Subaru Canada, Inc. (Mississauga, Ontario) SRD:Subaru Research & Development, Inc.(Ann Arbor, Michigan) RMI:Robin Manufacturing U.S.A., Inc.(Hudson, Wisconsin)

We introduce the activities of other affiliate companies in addition to those of the above companies in this report under the heading "Topics."



Large-Scale Wind Turbine System "SUBARU 80/2.0" p.9

# Corporate Overview (As of March 31, 2006)

Name	Fuji Heavy Industries Ltd.
Established	July 15, 1953
Paid-in capital	153.7 billion yen (as of March 31, 2006)
Employees	(Consolidated) 26,115 (as of March 31, 2006)
	(Non-consolidated) 13,111 (as of March 31, 2006)
Head Office	Subaru building, 7-2 Nishi-shinjuku 1-chome, Shinjuku-ku,
	Tokyo 160-8316 Japan
	TEL: 03-3347 for every division
	(dial information 03-3347-2111)
Sales	(Consolidated)
	1476.4 billion yen (for the fiscal year ended March 31, 2006)
	(Non-consolidated)
	976.1 billion yen (for the fiscal year ended March 31, 2006)
Ordinary Income	(Consolidated)
	46.8 billion yen (for the fiscal year ended March 31, 2006)
	(Non-consolidated)
	41.4 billion yen (for the fiscal year ended March 31, 2006)
Number of Cons	olidated Subsidiary
	(Domestic) 49, (Overseas) 19
Number of Affilia	ated Company
	(Domestic) 10, (Overseas) 1

Net sales breakdown by division



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Iluo Umi

President and CEO Fuji Heavy Industries Ltd.

My name is Ikuo Mori. I assumed the office of President and CEO on June 27, 2006. I am pleased to have this opportunity to offer some brief introductory remarks on the occasion of the issuance of the 2006 Fuji Heavy Industries Environmental and Social Report.

First, I would like to express my appreciation for your interest in this report. In light of the recent trend which has seen the idea of CSR (corporate social responsibility) universally advanced, we at Fuji Heavy Industries, by establishing our CSR Policies in fiscal 2004, acknowledged that CSR is fundamental to our business activities. We believe that our mission is to contribute to society as a good corporate citizen by actively conducting a variety of activities with respect to our customers, products, the environment, legal compliance and social contributions based on our CSR Policies.

In order to grow as a company with a strong and appealing presence, I believe that it is essential for us to become a company, through our CSR Policies, worthy of the enduring trust of all members of society including our stakeholders. In keeping with this end, we will actively conduct the following activities.

First, we will alter our corporate culture to develop a customer oriented culture in order to meet customer demands and expectations. It has been observed that in some respects, we have attached too much importance to technologies, but we will change this tendency so that we can pursue, create

**Top Message** 

and provide products valuable to customers by further taking their viewpoints into account. In support of this idea, we at the Subaru Group will work together to become a company able to satisfy customers in all respects including products, quality

Next, as a transportation manufacturer, we will actively conduct activities with consideration of the environment and society by clearly acknowledging the repercussions of our business activities on the environment and the motorized society.

and service.

While numerous environmental problems such as global warming have been occurring, we at the Subaru Group believe that we will not be able to survive, to say nothing of grow, if we do not become fully aware of our impact on the environment and if we do not discharge our responsibilities for environmental problems. By recognizing the environmental impact of all our processes including the design and development of Subaru products, procurement of materials and components, logistics, customer product usage and recycling, we will continue to create new voluntary plans to meet our challenges and make all our processes "clean."

We will also actively conduct research and business activities to realize traffic safety for all parties connected to Subaru, including passengers and pedestrians, and to ensure the safety of the motorized society by fully considering the impact

automobiles have on society. Our products such as the Legacy "SI-DRIVE," which fuses driving performance, safety and environmental performance at a high level by taking advantage of the unique advanced technologies accumulated from our experience as an aircraft manufacturer, and the Stella, a new mini car with class leading environmental performance and user-friendliness, are examples of such efforts. We hope that as many customers as possible will drive these vehicles and appreciate our attentiveness to these matters.

We have incorporated your comments and opinions into the 2006 Environmental and Social Report and by reviewing the contents of our previous reports tried to make this report more accessible so that more people who use Subaru products can understand our environmental and social activities. We have separately disclosed on our Web site detailed information concerning our achievements in environmental and social activities.

We hope that as many people as possible will read this report, and hope to receive your frank opinions about the Subaru Group's activities.

August 2006



#### Subaru Environment Logo

In June 2005, we created the Subaru Group's environment logo. The environment logo has a leaf at the center, with "green earth" and "blue sky" to represent the globe. Into this logo, we incorporated our determination to actively work on providing products that are friendly to the earth, society, and people, which is stated in the FHI Environmental Policy

Subaru participates "Team Minus 6%" - national campaign to help prevent warming

# Corporate philosophy

#### Corporate philosophy

The manufacturing principles of Fuji Heavy Industries Ltd. are built on the tradition of aircraft manufacture established by Nakajima Aircraft, the predecessor of FHI. The DNA of our company consists of *pursuit of the best performance*, the fundamental concepts for designing aircraft, *a concentrated, lean package* to materialize it, and *thorough implementation of safe operations* 

under all environments. While maintaining an emphasis on these principles, we will strive to develop new values and actively work on environmental problems and compliance issues while treasuring our tradition, so that FHI will be able to provide customers and other stakeholders with more satisfaction and reliance, and subsequently coexist in harmony with society.

- 1. We will strive to create advanced technology on an ongoing basis and provide consumers with distinctive products with the highest level of quality and customers satisfaction.
- 2. We will aim to continuously promote harmony between people, society, and the environment while contributing to the prosperity of society.
- We will look to the future with a global perspective and aim to foster a vibrant, progressive company.

#### We Aim to Become What We Want to Be

We have been striving to move into our ideal picture of a company with a strong, appealing presence and develop new values. To achieve the goals, FHI reviewed the two-year plan from fiscal 2005 of the mid-term business plan, Fuji Dynamic Revolution 1 (from fiscal 2002), formulated the Revised FDR-1, and started new approaches. In accordance with Revision FDR-1, we aim to improve Subaru's brand value in order to increase profitability and, at the same time, strive to provide all customers with pleasure and

a sense of security when driving any car by integrating a higher level of Safety and Environment into Driving. It is our dream and desire to establish a Subaru brand loved and supported by customers all around the world and become a model company where employees work with pride. With these in mind, we will carry our activities forward steadily and make the most of our premium values in every business area, including automobiles, as a company which continues to evolve for the future.

#### **Corporate Code of Conduct**

FHI set down a corporate code of conduct to comply with laws and regulations and to fulfill its social responsibilities, based on our corporate philosophy. We will continue to strive to become a company loved by all and contribute to making society more affluent by respecting individuals and the corporate code of conduct and acting on the same sense of values.

- 1. We will develop and provide creative products and services while paying sufficient attention to the environment and safety.
- 2. We will respect the rights and characteristics of individuals.
- 3. We will promote harmony with society and contribute to the prosperity of society.
- 4. We will meet social norms and act honestly and fairly.
- 5. We will maintain global perspective and aim to be in harmony with international society.

# CSR (Corporate Social Responsibility)

### FHI's philosophy concerning CSR

FHI believes that the Corporate Philosophy is the CSR policy, or in other words, acknowledging that CSR is a reflection of our corporate philosophy and fundamental to our business activities.

### **CSR** Activities

FHI has been actively working on a variety of issues, including corporate governance, environment, compliance and social service action as its contribution to the society.



# Subaru's Capabilities

Technologies to make dreams come true (Subaru Automotive Business)

# Clean energy vehicle Birth of the SUBARU <sup>®</sup>I

Subaru believes that it is important for us as automaker not only to develop attractive cars but also to contribute to the environment and society by utilizing our accumulated technologies. Introducing the SUBARU "R1e", a next generation EV<sup>\*1</sup>, which we are developing with Tokyo Electric Power Co., Inc., is to realize an era in which environmentally friendly cars are commonplace.

[Electric Vehicle for Business Use Jointly Developed with Tokyo Electric Power Co., Inc.] The SUBARU "R1e"

### Subaru's New Proposal — The SUBARU "R1e" Electric Vehicle -

In June 2006, we completed a prototype of the electric vehicle which we have been developing jointly with Tokyo Electric Power Co., Inc. (TEPCO) since the fall of 2005, and introduced this vehicle to serve for business use at TEPCO. This vehicle, with a top speed of 100 km/h, has improved on the R1, utilizing thin, high-performance lithium-ion batteries capable of running approximately 80 km on a single charge. We designed and manufactured the vehicle and TEPCO developed a high-speed charger.

Diagram of the internal mechanism o the Electric Vehicle B1e

# Realizing the Era of Clean Energy Vehicles — Development of Secondary Batteries (Chargeable Batteries)

It is now possible to produce electric power from renewable energy sources with less environmental impact, such as solar, wind, water and geothermal power, but the challenge is how to store the electricity. If electricity could be stored, the uses of electricity will greatly change, for example, night time electricity could be effectively utilized and electricity could be stored onboard vehicles. Based on this idea, we have worked on the development of secondary batteries which store electricity.

In May 2002, FHI established NEC Lamilion Energy, Ltd. (NLE)\*<sup>2</sup>, jointly with NEC Corporation (NEC) as a planning and development company for automotive manganese lithium-ion battery packs. At NLE, we worked on the development of secondary batteries for hybrid vehicles, electric vehicles, and fuel cell electric vehicles, with the result that we successfully developed long-life batteries, based on the high-

performance fuel cells developed for hybrid vehicles and electric vehicles, good for ten years or approximately 240,000 km. This type is called the NLE lithium-ion battery.

# Superior characteristics of the NLE lithium-ion battery developed using the technology to laminated manganese lithium-ion battery packs

- ① High-power
- ② Superior mountability
- ③ Quick charging
- 4 Long life and high safety
- ⑤ Low cost



NLE lithium-ion battery mounted on the "R1e."

<sup>\*1:</sup> EV: Electric Vehicle

<sup>\*2 :</sup> In March 2006, we terminated our joint venture at NLE following the successful development of the prototype.

Plug outlet

(AC100V)



#### Never Give Up on Dreams — Kazumasa Arai

The most remarkable feature of our SUBARU R1e is its newly developed NLE lithium-ion long life batteries, which last approximately 10 years and can be quickly charged (15 minutes).

In addition, when these batteries are used in electric vehicles, the motor can generate the necessary torque on starting up to accelerate from a stop as quickly as a gasoline-powered vehicle, achieving a delightful Subaru-like driving performance.

We advanced the development of the "R1e" based on the "R1", a mini car already available in the market, in order to keep costs as low as possible.

There are still many challenges to be met such as finding an ideal way to mount the batteries, necessary to distribute and reduce the car's weight, as well as setting the price. However, we will first work to popularize this car for business use aiming to release it to the market at a reasonable price in the near future.

100V

Plug

Ш

Kazumasa Arai Manager, Core Technology R&D Group, SUBARU Technical Research Center

# Characteristics of the SUBARU "R1e"

The Subaru "R1e" has an ideal charging system because it generally takes about eight hours<sup>\*3</sup> to charge and can be charged from a household power outlet which makes it possible to draw electricity at night time when electricity prices are lower. It takes only 15 minutes<sup>\*4</sup> to get an 80% charge of the battery with a high-speed charger. The R1e offers both practical performance and driving performance with a top speed of 100 km/h and

acceleration and braking equivalent to that of gasoline vehicles.

Moreover, cruising distance is approximately 80 km with fully (100%) charged batteries. This is an environmentally friendly car with no gas emissions such as carbon dioxide (CO<sub>2</sub>).



#### Column

Exhibited at the 39th Tokyo Motor Show 2005 - Passenger Cars and Motor Cycles

The "R1e", an R1-based electric vehicle, was placed in the Clean Energy Test Ride event at the 39th Tokyo Motor Show, which was held at the Makuhari Messe from October 19 through November 6, 2005, and more than 500 visitors in total experienced Subaru's latest technology.



At the Test Ride course. "The driving noise is considerably less than gasoline-powered vehicles and acceleration is superior."

Visitors looking over the mechanism and features of the car.

\*3: When fully (100%) charging the battery using the onboard charger (single-phase 100 V).

\*4 : When the battery is 80% charged using a stationary power supply (three-phase 200 V)

Featured article

Let Us Bring Clean Energy to Your Town (Eco Technologies Company)

Prototype of a Large-Scale Wind Turbin System, SUBARU 80/2.0," Completed

# Large-Scale Wind Turbine System, "SUBARU 80/2.0"

On December 25, 2005, the prototype "SUBARU 80/2.0," a 2000-kW class, large-scale wind turbine system, developed in three years by Eco Technologies Company, was erected and began demonstration testing, in Hasaki, Kamisu City, Ibaraki Prefecture. This three-bladed wind turbine system, which has a 2000 kW rated power output, has variable pitch controls and is 62 meters in height from the ground to the center of the rotor. The rotor, which has a diameter of 80 meters, can generate electricity from a wind velocity as low as three meters per second. The generator was developed by Hitachi, Ltd., our joint development partner.

CARD THE



# Superior Characteristics of the SUBARU 80/2.0

- 1. Downwind-type turbine with high power generation capacity The main feature of this wind turbine system is its downwind-type turbine with the rotor placed on the leeward of the tower in order to fully utilize the energy of wind blowing up from mountains and hilly areas. Also this design is safe and strong because the load placed on the main mechanism by typhoons and turbulent wind is reduced by weather cock stability characteristics.
- 2. Designed to withstand large typhoons and thunderstorms As a countermeasure against the extremely strong winter thunderstorms which occur in the areas along the Sea of Japan, this system was built to lightning-resistance specifications stricter than international standards.
- 3. Easier installation is possible by transporting disassembled parts partially Because the large and heavy parts can be disassembled into smaller components, the system can be introduced in areas where it used to be difficult to install 2000-kW class systems, further contributing to the popularization of wind turbine generator systems.





# Please Watch for Subaru's Wind Turbine System — Toru Nagao

In response to increasing market demands for large-scale wind energy, we developed the wind turbine system by integrating our top technologies. When I first saw the huge, 80 meter diameter turbine slowly start to rotate in the wind, I was deeply impressed.

This system will be commercialized in the near future following verification testing of the prototype. Please watch for Subaru's wind turbine system.



**Featured article** 

Toru Nagao Project General Manager, Wind Turbine Project, Eco-Technologies Company

#### Wind Noise Has Been Minimized — Hiroshi Kato



Project Manager, Wind Turbine Project, Eco-Technologies Company We have directly tackled the challenges of a large-scale wind turbine system, including how to improve durability in Japan's unique weather conditions which include typhoons and thunder storms, and how to transport and install parts easily at low cost. We were able to make the wind noise of the downwind-type system, which was a concern, quieter than that of the upwind-type system by utilizing the results of our many years of research.

### Unique and Outstanding Subaru Design - Yoshinobu Noborisaka

Subaru's small-scale wind turbine system, now on the market, has been favorably evaluated by customers for its superior design allowing it to blend in with the landscape. Similarly, the design of the recently developed large-scale wind turbine system will be yet more sophisticated by the time of its release.

Wind energy generation can easily convey an image of environmental friendliness, but we still think it is of the utmost importance to consider the environmental effects of manufacturing and transporting the system and to gain the trust and understanding of local residents where the system is installed, before proceeding with development.



Yoshinobu Noborisaka Manager, Wind Turbine Project, Eco-Technologies Company



# Brief Development History of Subaru Wind Turbine System 1996

The development of wind turbine systems at Subaru began when some young aerospace engineers, who were interested in environmental issues, got together and started research in their free time motivated by the questions, "What can we leave for our children?" and "Is there any new business we can initiate by utilizing aerospace technologies?" We conducted joint research with the Mechanical Engineering Laboratory, the Agency of Industrial Science and Technology (currently the National Institute of Advanced Industrial Science and Technology, an independent administrative agency) to study blades for new wind power generation systems and control, establishing new basic technologies in the process.

#### 1999

We were delegated by NEDO\*1 to conduct research and development for the national project, "Development of Advanced Wind Turbine Systems for Remote Islands." For this project, we developed a superior wind turbine system (100 kW) with world leading performance and functions. This system is now available on the market as the SUBARU 22/100.

#### 2000

In November, we announced the "Subaru Small- Wind Turbine System" (Subaru 15/14 (40 kW). This effective wind generation system, which has a beautiful Subaru style design and quietness suitable for cities and parks, has been employed for private use and university research and has been favorably received by many customers as a symbol of environmentally friendly energy.

#### 2005

In December, we installed Subaru 80/2.0, a large-scale wind turbine system (2000 kW) in Kamisu City, Ibaraki Prefecture and began demonstration operations.



# Subaru Small Wind Turbine System

The Subaru 15/40 received 2001 and 2002 Good Design Prizes and fiscal 2001 NEF Prize (Agency of Natural Resources and Energy Director-General Prize).

# Things That

Subaru Eco Class Delivery Service: "Let's Protect Our Valuable Earth!" (Gunma Manufacturing Division)

Eco Class Delivery Service

Children are very interested

in experiment result



Questionnaire surveys returned from elementary school students and teachers

Subaru's environmental efforts being exhibited at the Recycling Lab



The Subaru Visitor Center, opened in 2003

# Subaru Eco Class Delivery Service for Elementary School Students

The Subaru Eco Class Delivery Service is a community-based environmental education program, which Gunma Manufacturing Division has been conducting since fiscal 2004. The main characteristic of this program is the combination of educational visits (Subaru plant tours) with eco classes by FHI staff visiting schools (Subaru Environmental Exchange Circle).

# We Would Like to Provide More Opportunities for Children to Learn About Our Environmental Efforts

The Recycling Lab where we introduce Subaru's environmental activities was established at the Subaru Visitor Center which opened in July 2003 at the Yajima Plant of the Gunma Manufacturing Division. This Lab is open to visitors for plant tours and shows the processes involved in manufacturing automobiles. Approximately 92,385 people, mainly elementary school students, visited this lab in fiscal 2005.

Based on our wish to provide opportunities to elementary school students who visit the plant to learn more about our environmental activities and increase their awareness of environmental issues, we offer the Eco Class Delivery Service (16 schools in fiscal 2004 and 22 schools in fiscal 2005) in collaboration with Ota City, our local municipality, and the local board of education, both of which are advancing the ISO<sup>\*1</sup> process for schools.

# The Theme of the Eco Class Delivery Service is "Let's Protect Our Valuable Earth!"

With the theme "Let's Protect Our Valuable Earth!", we achieve our educational goal of developing children's environmental awareness using a film screening, an experiment simulating global warming using a flask and carbon dioxide, and a quiz in the Eco classes so that students think about what they can and have to do to protect the environment now and in the future and then take action. Each class takes 45 minutes. The children's environmental awareness is always very high and our classes are always favorably received.

<sup>\* 1 :</sup> ISO stands for International Organization for Standardization. ISO issues a variety of international certifications including the ISO14001 for environmental management systems and the ISO9001 for company quality control systems.







Kazuyo Tsuchiya Environment & Safety Policy Planning Dept Gunma Manufacturing Division



Toshiyuki Kawano



Seiji Mogi



Katsuhiro Hori Secretariat of Subaru Environmental Exchange Circle, General Administration Dept.



Kiyoshi Hoshino, Environment & Safety Policy Planning Dept.

#### Achievements of Subaru Eco Class Delivery Service in fiscal 2005

Elementary school (22)	Date	Attendees
Komagata	June 7	54
Niragawanishi	June 28	65
Torinogo	July 8	42
Niragawa	Sept. 2	66
Housenminami	Sept. 5	20
Asahi	Sept. 8	114
Josai	Sept. 22	97
Chuo	Sept .27	64
Kuai	Sept .30	94
Hosen	Oct .4	97
Otahigashi	Oct .5	44
Ikushina	Oct .6	149
Kyuhaku	Oct.13	119
Sawano	Oct.18	84
Minami	Oct. 21	85
Godo	Oct.26	107
Sawanochuo	Oct.31	69
Serada	Nov. 4	47
Ojima	Nov. 8	109
Morita	Nov.11	91
Hosenhigashi	Nov. 15	79
Ota	Nov. 21	75
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# Subaru and Local Communities Should Tackle Environmental Issues Together —Our wish and the opportunity were granted — Kazuyo Tsuchiya

This activity came about when we started thinking about what we could do to contribute to the local community. We would like to express our appreciation to Ota City, which gave us the opportunity to develop our ideas by listening to us and helping us. At the Ota City Board of Education, we learned that local schools have conducted "School ISO" activities.

Subaru Eco Class Delivery Service was born from our wish to visit and help local residents in return for their frequent visits to our Visitor Center, and our desire to help children understand the importance of the global environment. We have only one opportunity to meet each school student and for only 45 minutes at that. However, the children listened with interest to our enthusiastic discussion of the environment. I am always thankful that we started this activity.

Learning about the environmental activities conducted at schools through the Eco Class Delivery Service was helpful for us. Subaru and local communities should tackle environmental issues together. We would like to actively continue environmentally friendly business activities by exploring the ways we can take care of the future global environment with the children who will lead our future.

### We Want to Improve the Educational Content - Toshiyuki Kawano

Regrettably, we could not complete our discussion during classes due to time constraints. We would like to review the contents and make the key points clearer.

We Want to Communicate Our Activities Related to Automobiles and Environmental Issues — Seiji Mogi I think it is important for us to understand more about the impact of automobiles on the environment and our own environmental activities, and to communicate these to children who love automobiles.

# We Want to Train More Instructors - Katsuhiro Hori

I feel that our relationship with local residents is becoming much better as a result of the Subaru Eco Class Delivery Service. Because we are facing some problems such as a shortage of instructors for the increasing number of schools we visit, we plan to focus on training more instructors.

We Want Our Eco Class Delivery Service to Become a Grass-Roots Activity — Kiyoshi Hoshino In order to enhance the contents of our education program, we have to understand more about school programs and actual school situations. It is important for us to have a clear idea of what we really want to communicate to children. Also, I think our challenge is to improve the program so that we can combine the Subaru Plant Tours and the Eco Classes more effectively. Subaru Eco Class Delivery Service began in fiscal 2004 thanks to the cooperation of Ota City and the people involved. We will expand this service outside the city hoping that it spreads and becomes a grass-roots activity in neighboring communities.

### Column

Subaru Environmental Exchange Circle Received the 15th Energy Publicity Activities and Facilities Award

On March 25, 2006, Subaru Environmental Exchange Circle received the Information Center for Energy and Environment Education Chairman Incentive Award at the Energy Education Fair 2006 held at the Science Museum (Tokyo) as a superior example of an activity conducted in cooperation with the local community.



At the awards ceremony. Staff of the Subaru Environmental Exchange Circle ; Hori, Hoshino and Tsuchiya (from left to right)

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Subaru Our educational materials on display

# Coexistence of Nature, Cars and People To become a company friendly to people and the environment, we have started with what we can do.\*1

Fuji Heavy Industries has been conducting environmental activities together with Subaru dealerships<sup>\*2</sup> to build environmentally friendly dealerships. Here we introduce Niigata Subaru, Co. Ltd<sup>\*3</sup> which acquired ISO14001 certification (Environmental Management System) in June 2005 and has been actively pursuing environmental activities.



 Location
 Headquarter: 2307 Yamada, Nigata City

 Established
 Established
 October 16, 1958

 Paid-in capital
 150 million yen
 Employees
 362 (as of July 1, 2005)

 Description of business : Sales and maintenance service of all models of Subaru vehicles and Industrial Products
 Solary vehicles and Industrial Products

Head Office
 Head Office, Kurosaki Branch
 Service Center
 Niigata Ebigase branch
 Shibata branch
 Toyosaka Vehicle Center
 Toyosaka Parts Center
 Toyosaka Parts Center

Toyosaka Parts Center
 Environmental Department, Industrial Vehicle Section



# Aiming for Coexistence of Nature, Cars and People

Although automobiles are very useful for everyday life, they have significantly impacted the environment. Niigata Prefecture, where Niigata Subaru, Co. Ltd. is located, is a productive land with bountiful nature, but at the same time, the society is automobile oriented and the highway network is well developed. Treating the environment with the utmost respect, all of us at Niigata Subaru with the support of local residents have been conducting activities based on ISO14001 (Environmental Management System: EMS) starting with the things within our capabilities.

# Advancing Activities with Realistic Goals by Involving All Employees



Tsutomu Suzuki Part-Time Auditor

Since the kickoff of ISO14001 in the summer of 2004 until the present day, our activities have not necessarily gone smoothly. We visited the Subaru Teams, companies with advanced programs, government offices, audit institutes and other related organizations many times to learn about EMS. Then, we set a policy under which we could first conduct activities with realistic goals. In addition to working on EMS, which is a matter of course for achieving corporate social responsibility, we set this as our primary goal at the same time aiming to cultivate human resources by carefully managing our targets in order to establish a firm foundation for our activities.

# Achievement of EMS (Environmental Management System) ···· Effects of Internal Audit

We established the audit team with board members and executive officers as the core. This team of auditors has been able to understand in detail the activities of other divisions and gain a broader vision of in-house organization.



Masao Naito, Director, Sales & Marketing Division, conducting internal audit



A cut-off valve based on an employee's idea placed on the oily water separating tank



Satoru Saito Director, General Manager, Sales & Marketing Division

\*1: This catch phrase was selected from among employee suggestions in the EMS establishment process of specifying business activities causing environmental impact.

- \*2 : Subaru dealerships: There are 48 member companies in the Japan Subaru Automobile Sales Association (as of July 2006).
- \*3 : The environmental activities of Niigata Subaru, Co. Ltd. are also disclosed on the Web site: http://www.niigata-SUBARU.co.jp/env/environment.html





Cleaning activities conducted once a month around the dealership.



earthquake, Niigata Subaru has lent two Samber trucks to the Nippon Foundation (volunteer organization) which has been assisting in the afflicted area. These trucks have been fully utilized for transport in the district by volunteers from across Japan.

# Japan's First Organic Show Room Constructed With No Harmful Atopy-Inducing Building Materials — Shibata Dealership

Recently, illnesses such as atopy have been linked to harmful VOC substances\*1 contained in building materials. The Shibata Dealership is Japan's first organic show room for automobiles constructed with materials that have no harmful substances. Maintaining the dealership is very difficult because there



Shibata Dealership: Acquired ISO14001 certification by a registrar in June 2006

Column

# **Interview with President Ikeda**



Show room: The surroundings are redolent with nature.

are restrictions such as no smoking and no waxing. However, the dealership received favorable evaluation from our customers as "a store friendly to people and the environment," resulting in an increase in the number of shop visitors of more than 20%. Please feel free to visit the Shibata Dealership.



Kid's room: Everything is made from natural materials



Masuo Ikarashi Shibata Dealer Store Manager

Shuichi Ikeda President

We are keenly aware of the strong need to incorporate environmental factors such as resource conservation, low pollution and recycling into all stages of our business in addition to providing the level of driving performance and safety which Subaru is known for.

We will advance our activities based on the conviction that engaging in environmentally friendly activities is fundamentally linked to the successful expansion of our business and essential to becoming a company which moves and delights people and which is moved and delighted in return.

As a Subaru dealership that serves all regions in the prefecture, Niigata Subaru's responsibility is to become "a general hospital for the customers' life with Subaru cars while holding the network of local residents in high regard and cultivating good relationships with customers through the provision of automotive products. We will utilize EMS as a tool to realize our goals. Please watch for our future activities.

Featured article

# Environmental Management

FHI started the Environmental Action Project in 1990 and has since taken advanced measures to protect the environment in various stages of its corporate activities. Currently, we are working harder toward achievement of the goals specified in the FHI Environmental Conservation Program (Fiscal 2002 — 2006) (Voluntary Plan for the Environment<sup>\*1</sup>) by reducing the environmental burden.

# **Environmental Policy**

FHI believes that responding to the problems of the global environment is one of the important tasks of management. Based on its corporate philosophy, FHI has established an Environmental Policy, a policy for carrying out environmental conservation. FHI has also established guidelines for specific actions — the Operating Criteria for Environmental Conservation in order to promote the Policy. Involving all of the employees, FHI is moving its activities forward.

#### Environmental Policy (Established in April 1998)

FHI recognizes the integral relationship between the environment and its business activities and strives to provide products that are friendly to the earth, society, and people. FHI is protecting the environment to ensure our future.

#### **Operating Criteria for Environmental Conservation**

#### Operating Criteria for Environmental Conservation

- FHI is committed to environmental conservation and gives consideration to environmental impacts at every step of product development, design, manufacture, sales, service, and disposal.
- 2) FHI observes relevant laws, regulations and agreements with communities and industries, while also promoting voluntary activities in accordance with its own environmental objectives and targets as determined by the Company.
- FHI recognizes the importance of continual improvement and efforts to prevent pollution and encourages every employee to act with self-awareness and responsibility.
- FHI endeavors to raise environmental consciousness by providing educational opportunities for its employees according to their job status and job description.
- 5) FHI regularly performs audits and inspections to improve its environmental conservation activities.
- FHI is committed to interacting within the community and engaging in joint activities to further environmental conservation.

# **Corporate Activities and Environmental Impacts**

FHI is a transportation manufacturer focusing on automobiles. Automobiles, which are a convenient and comfortable form of transportation, are now indispensable for living in a modern society. On the other hand, however, automobiles require limited global resources as materials and fuels. Consequently, they emit CO<sub>2</sub>, which causes global warming, as well as other air pollutants. We believe that automobiles make life more pleasant and reflect an affluent society but fully understand that automobiles have such disadvantages, as well as advantages. With these in mind, we must work hard for a better future. FHI accepts the task of conserving both the global environment and the benefits of automobiles by considering the environmental impacts and reducing the environmental burden through the lifecycle of development, production, use, disposal, and recycling of automobiles.

#### Overall Environmental Burden Concerning FHI's Automotive Business



\* 1 : For the details of Environmental Voluntary Plan, please refer to Supplementary Volume for Data Related to the 2006 Environmental & Social Report on our website (http://www.fhi.co.jp).

\*2 : For the FHI Corporate Environment Committee, please refer to the Supplementary Volume for Data Related to the 2006 Environmental & Social Report on our website.

# New Voluntary Plan for the Environment

The New Voluntary Plan for the Environment, "FHI Environmental Conservation Program (fiscal 2002 to 2006)", finalized and announced by FHI in June 2002, is designed to enable FHI to contribute to society by making all our processes clean and by offering our customers greener products through a system of environmentally clean plants, logistics networks, and dealers. The plan is based on the fundamental principle that for a company to have a strong and appealing presence and achieve sustainable growth it is necessary to live in harmony with society and reduce environmental impact.

Along with our efforts to achieve the targets set for fiscal 2006, we created the Fourth Voluntary Plan for the Environment, "FHI Environmental Conservation Program (fiscal 2007 to 2011)" (see p.20).

### Organization

We established the Corporate Environment Committee<sup>\*2</sup> to realize the Environmental Policy, the Operating Criteria for Environmental Conservation and the New Voluntary Plan for the Environment. The Committee is chaired by the officer in charge of the environment and administered by representatives from all business sites. At the Committee meeting held in May 2006, the progress of the New Voluntary Plan for the Environment was confirmed and there was discussion of the Fourth Voluntary Plan for the Environment (see p.20), the new activity plan.

# Overview of FHI's Environmental Performance in Fiscal 2005

Our main environmental performance statistics for fiscal 2005 are shown in the graphs. We reduced emissions of CO<sub>2</sub> and chemical substances. Moreover, we maintained zero emissions<sup>\*3</sup> of waste materials. Activities conducted at locations other than manufacturing plants include such efforts as the recycling of all sales promotional material in the Head Office area (Tokyo and Saitama Prefecture).



Trends in Amount of Waste Materials Generated at All Manufacturing Plants



#### Trends in Amount of CO<sub>2</sub> Emitted<sup>\*4</sup> at All Manufacturing Plants

Amount of CO<sub>2</sub> emitted Energy consumption per production (fiscal 1990 = 100) (ton-CO2) 300.000 00.0 90.0 80.0 70.0 200,000 60.0 50.0 40.0 100.000 30.0 20.0 10.0 0.0 1990 2002 2003 2004 2005 Fiscal vea

#### Trends in Amount of Chemical Substances subject to the PRTR Law at All Manufacturing Plants



Trends in Amount of Landfilled Waste at All Manufacturing Plants



ye ∗Here we had errors in the amount of waste materials directly landfilled for each year as reported of page 33 of our 2005 environmental and social report. Please refer to the corrected value in this graph

#### Trends in Volume of Water Used at All Manufacturing Plants



#### Trends in VOC Emissions at Automotive BU



\*3: FHI's definition of zero emissions is that the total amount of landfill waste (waste materials directly landfilled + waste materials treated intermediately by external companies) is less than or equal to 1% of the total amount of waste materials excluding scrap metal (industrial waste + industrial waste subject to special control + general waste from business operations). We have already achieved and are maintaining zero emissions at all manufacturing plants.

\*4 : CO<sub>2</sub> conversion factor used for discharge: Electricity [0.3813 ton - CO<sub>2</sub>/Mwh], heavy oil [2.6977 ton - CO<sub>2</sub>/KL], kerosene [2.5284 ton - CO<sub>2</sub>/KL], diesel oil [2.6444ton - CO<sub>2</sub>/KL], manufactured gas [2.3539 ton - CO<sub>2</sub>/Thousands Nm<sup>3</sup>] Source: Japan Automobile Manufacturers Association, Inc. Some data in the report uses our original conversion factor.

# Environmental Management System

FHI acquired ISO14001 certification in all of its main businesses<sup>\*1</sup>. In Japan, a non-manufacturing affiliate company, Subaru Kosan K.K., acquired ISO14001 certification in March '06. Also our overseas affiliated company, SRD (Subaru Research & development, inc.) acquired certification in December 2005. Domestic Subaru dealers, Osaka Subaru, Co. Ltd. and Niigata Subaru, Co. Ltd. also acquired certification. As a result, five domestic dealers have now acquired the certification in the Subaru team.

# **Environmental Audits**

FHI implements checks from different aspects to see whether we are progressing as planned and how our activities are going on to achieve the goals set in our Environmental Voluntary Plan.

#### Environmental Auditing System



# Environmental Performance Assessment System

We introduced the Environmental Performance Assessment System in fiscal 2002. After each business site and specialized committee implements self-assessment, the officer in charge of the environment visits each business site to conduct an interview (or an audit) about the progress of activities. The interview coordinates our activities through the confirmation of achievements and identification of the measures that need to be taken. In fiscal 2005, we reviewed some assessment methods to make the system more logical and effective. The assessment results are shown in the following chart. Challenges we need to meet include the consideration of the environmental impact of the parts procurement processes and production processes, the disclosure of environmental information and the improvement of communication with stakeholders

#### Fiscal 2005 Environmental Performance Assessment





The officer in charge of the environment conducted audit at site (at the right edge)

### **Environmental Risk Assessment**

We have been implementing Environmental Risk Assessment since fiscal 2001 under our original assessment criteria for facilities where grease, fuels and chemical materials are used and stored for the research and development and production processes. The assessment quantifies the risk level numerically and we are improving facilities with high figures in terms of equipment and management in order to reduce potential risks.

In fiscal 2005, we carried out risk assessment mainly at divisions responsible for construction in order to prevent spillage at the sites and to eliminate totally any complaints or violations of voluntary standards by preparing documents explaining the standards, providing education and improving the guidance given to external companies.

#### **Environmental Accounting**

We introduced Environmental Accounting in fiscal 2000 and have been reviewing the result calculation methods since fiscal 2005. (Please refer to the Supplementary Volume for Data Related to the 2006 Environmental and Social Report on our Web site for an overview of the calculation methods and accounting criteria that underwent review.) Our (nonconsolidated) environmental cost in fiscal 2005 was ¥15.6 billion which was ¥2.4 billion (13.5%) less than the previous year. This was due to cost reductions as a result of enhanced efficiency in research and development. On the other hand, economic effects totaled ¥1.8 billion which is almost the same as the previous year. This was mainly because materials of value were sold, the usage of paint and solvent was reduced and energy costs were decreased. With fewer costs compared to the previous year, the environmental burden was further reduced by maintaining landfilled waste at zero level and reducing energy consumption in all manufacturing plants.

\* 1 : Details of FHI's ISO14001 certification and assessments by the Assessment and Registration Organizations in fiscal 2005 are shown in the Supplementary Volume for Data Related to the 2006 Environmental & Social Report on our Web site.

Environmental case study presentations (Saitama Manufacturing Division)

# **Environmental Education and Enlightenment**

In fiscal 2004, FHI prepared company-wide unified textbooks for environmental education. FHI has continued educating different levels of employees, ranging from new recruits to those receiving promotions by acquiring certification. In addition, we are trying to carry out instructive activities according to the plan, including emergency drilling based on the Environmental Management System (EMS), environmental campaign months, Operations Improvement Case Study Presentation and educational support to business partners.

# **Environmental Communication**

FHI has arranged contact channels to maintain communication with local residents in each business area, and distributed environmental information in a variety of ways. In the Subaru Visitor Center in the Yajima Plant of the Gunma Manufacturing Division, we have a recycling lab to introduce our approaches to tackle environmental issues. In fiscal 2005, 92,385 visitors visited the Center. (elementary schoolchildren: 77,962 from 914 schools, general visitors: 14,693) FHI also participates in Environmental Management Forum sponsored by Nikkei Business Publications.

vironmental case study presentations (Utsunomiya Manufacturing Division)

#### Cases Where Requirements Stipulated in Environment-Related Laws Were Exceeded, Environmental Incidents and Claims

The number of cases which exceeded the requirements stipulated in environment-related laws (including cases which exceeded voluntary standards and administrative guidelines), environmental incidents and environment-related claims in fiscal 2005 are shown in the following table along with their details and our responses. We are advancing preventative measures by conducting investigation of causes, taking countermeasures, enhancing the education of divisions in charge and related parties and improving the environmental inspection process.

#### Fiscal 2005 Number and Details\*1 of Cases Which Exceeded the Requirements stipulated in Environment-Related Laws

Manufacturing plant	Number of cases	Details	Major corrective measures
Gunma	Cases which exceeded the voluntary standards: 3 (water pollution)	Total of three cases related to water pollution including phosphorus	We reviewed the standard for operating management of the effluent treatment
Manufacturing Division		in plant discharge water exceeding the voluntary standards	facility and took countermeasures by establishing a sterilization facility
Utsunomiya	Cases which exceeded the stipulated requirements : 1 (water pollution)	One of the sink outlets at the Handa Plant in Aichi Prefecture had	We took countermeasures to prevent the cause of the problem,
Manufacturing Division		BOD and COD* <sup>2</sup> in amounts exceeding the values stipulated in laws	which was the discharge of water from a construction site
Saitama	Cases which exceeded voluntary standards:1 (water pollution)	BOD levels in a sewer exceeded voluntary standards	We checked the facility and improved the management
Manufacturing Division	Cases which exceeded the stipulated requirements:1 (Noise)	Noise levels at five noise measurement/monitoring locations exceeded the stipulated requirements	We have taken countermeasures by reporting the matter to the relevant governing body

In addition to the above cases, a failure to report in accordance with the Pollution Control Agreement with the local community occurred at the Gunma Manufacturing Division, but we have dealt with this case by reviewing reporting procedures.

# Fiscal 2005 Number of Environmental Incidents and Details

Manufacturing plant	Number of cases	Details of main incidents (no direct external impact was observed.)	Main countermeasures
Gunma Manufacturing Division	10	A forklift hit a fire hydrant resulting in the effluence of a foam extinguishing agent Due to breakage of fuel hose of a delivery vehicle, fuel was discharged over an in-plant road.	Conducted training for workers, built fences to protect fire hydrants Asked delivery companies to conduct thorough education of workers including pre-driving checking procedures
Utsunomiya Manufacturing Division	4	Grease was discharged from an air-conditioner. Fuel was discharged from an air frame undergoing testing	Reviewed operating procedures and enhanced the environmental inspection tours
Tokyo Office	1	Grease was discharged from vehicle parts undergoing testing	Conducted thorough education of employees and reviewed the manual for test procedures

Fiscal 2005 Number of Environment-Related Claims and Details				
Manufacturing plant	Number of cases	Details of claims	Main countermeasures	
Gunma Manufacturing Division	1	We received a claim from neighboring residents regarding noise from facility demolition work	We have tried to reduce noise by conducting Environmental Risk Assessment before work and using low noise heavy machinery and shielding	
Utsunomiya Manufacturing Division	3	We received a claim from neighboring residents regarding noise from a water harmer for steam pipeworks We received a claim from neighboring residents regarding noise from a trial flight. Other: 1	We modified the steam pipeworks as an emergency remedy. We plan to move the steam pipeworks in fiscal 2006	
Tokyo Office	1	We received a claim from neighboring residents regarding noise from loading trucks in the early morning	We changed the loading time and informed the employees involved of the need for quiet	

#### Mediums to Transmit Environmental Information



Environmental & Social Reports\*3



Environmental information for each car model\*3



Environmental & Social Report prepared by each Manufacturing Division (from the left: Gunma, Utsunomiya, Tokyo)

\* 1 : For the Number of Cases Which Exceeded the Requirements Stipulated in Environment-Related Laws in fiscal 2003, 2004 and 2005, please see the Supplementary Volume for Data Related to the 2006 Environmental & Social Report on our Web site.
\* 2 : BOD (Biological Oxygen Demand), which is the amount of oxygen (biochemical oxygen demand) consumed when organic matter in water is broken down by microorganisms, is one of the typical indices to measure organic pollutants in river.
COD (Chemical Oxygen Demand), which is the amount of oxidizing reagent, consumed when organic matter in water is broken down by oxidizing reagents and converted to oxygen demand), is one of the typical indices to measure organic pollutants in seawater and fresh water.

\*3 : For the past FHI Environmental and Social Reports and the environmental information for each car model, please refer to our Web site: http://www.fhi.co.jp/

# **Overall Achievements under the Fiscal 2005 and Fiscal 2006 Plans**

#### Environmental Management

Fisca		
Goals	Achievements	FISCAI 2006 goals
Promote the establishment of environmental management systems (EMS)	IT Systems Dept. of the Omiya Office acquired ISO14001 certification (extending the scope of certification in the head office area)	Continuous improvement at business sites which have established environmental management systems (EMS)
Further improve information in the 2005 Environmental and Social Report (environmental achievements in fiscal 2004)	Enhanced the Social Report by, for example, creating and announcing CSR (corporate social responsibility) and placing it in the 2005 Environmental and Social Report (detailing environmental achievements in fiscal 2004)	We will continue to make improvements to enhance the readability and visual appeal of the 2006 Environmental and Social Report (detailing environmental achievements in fiscal 2005)

#### Development Stage and Products

Catalan	Fiscal 2005		<b>F</b> ire 1 0000 Ir
Category	Goals	Achievements	FISCAI 2006 goals
Fuel economy	Continue fuel economy improvement for every full model change and annual model change Satisfy fiscal 2010 fuel economy standards earlier by fiscal 2006	Met fiscal 2010 fuel economy standards in three ranks out of five for passenger vehicles and in six ranks out of six for mini-sized trucks	Continue improving fuel economy for every full model change and annual model change Satisfy fiscal 2010 fuel economy standards for all vehicle weight categories by fiscal 2006
Exhaust emissions	Aim to have the exhaust emissions of 80% of passenger cars sold be either 50% or 75% reduced beyond 2005 standards by the end of 2006. Out of this 80% figure, half should be vehicles with emissions reduced 75% beyond 2005 standards	Introduced low emission vehicles, the "R1 & R2 NA" with exhaust emissions reduced 75% beyond 2005 standards and "Sambar NA", with exhaust emissions reduced 50% beyond 2005 standards	To have the exhaust emissions of 80% of passenger cars sold be either 50% or 75% reduced beyond 2005 standards by the end of 2006. Out of this 80% figure, half should be vehicles with emissions reduced 75% beyond 2005 standards
Noise	Further reduce all noise levels of the automobile	Developed low-noise power units, intake and exhaust systems and tires during Subaru's annual vehicle improvement period	Reduce the levels of all types of automobile-related noise for further reduction of environmental noise
Clean energy vehicles *CNGVs=Com- pressed Natural Gas Vehicles	Hybrid vehicles: Continue development work aiming at limited introduction of hybrid vehicles to the market in fiscal 2007 Natural gas vehicles (CNGVs): Continue market expansion of the new "Legacy B4 CNG"	Hybrid vehicles     The plan suspended due to the review of product portfolio and planning     Natural gas vehicles:     Continued imarket expansion of the new Legacy- based CNGV	Natural gas vehicles (CNGVs): Continue market expansion

#### Production Stage

Catalan		Fisca	Fiscal 2006 goals	
Calegory	Goals			
Waste reduction	Control amount of waste generated Maintain zero level of landfilled waste		Reduced by 9.1% the total amount of waste generated compared to the previous year Maintained the level of landfilled waste at zero	Reduce amount of waste generated. Maintain the level of landfilled waste at zero
Energy conservation	<ul> <li>Work to accomplish the energy consumption per production goal (28% reduction compared with the fiscal 1990 level by fiscal 2006)</li> <li>Work to accomplish the CO<sub>2</sub> discharge reduction goal (6% reduction compared with the fiscal 1990 level by fiscal 2006)</li> </ul>		Improved energy consumption per production by 35.7% from the previous year Reduced CO <sub>2</sub> discharges by 16% compared with the fiscal 1990 level	<ul> <li>Work to accomplish the energy consumption per production goal (28% reduction compared with the fiscal 1990 level by fiscal 2006)</li> <li>Work to accomplish the Co<sub>2</sub> discharge reduction goal (6% reduction compared with the fiscal 1990 level by fiscal 2006)</li> </ul>
Reduction of sub- stances with envir- onmental impact	Work to accomplish the paint VOC reduction goal (45g/m <sup>2</sup> or less by fiscal 2006)		Reduced generation of paint VOC (per unit area) to 46.2g/m <sup>2</sup> , a 57.6% reduction compared with the fiscal 1995 level	Work to accomplish the paint VOC reduction goal (45g/m <sup>2</sup> or less by fiscal 2006)
Green procurement	Automotive Business Unit	Establish EMS at 97% or more of the suppliers	98.7% of the suppliers (304 out of 308) established EMS	Encourage suppliers to establish EMS
	Industrial Products Company	Maintain EMS established at all suppliers Proceed with reduction of substances with environmental impact	Maintained the EMS established at all suppliers (102/102 companies). Conducted investigation into substances with environmental impact used for generator parts, conducted data collection and created a reduction plan	Maintain EMS established at all suppliers
	Aerospace Company	Encourage suppliers to establish EMS	61.9% of suppliers (44/71 companies) established EMS. Enhanced the identification, reduction and prohibition of substances with environmental impact in accordance with the procurement guidelines	Encourage suppliers to establish EMS
	Eco Technologies Company	Encourage suppliers to establish EMS	81.6% of the suppliers (40/ 49) established EMS. Completed survey of substances with environmental impact.	Encourage suppliers to establish EMS
	Green Procurement	Try to achieve 100% eco product purchasing of consumable office supplies in the Head Office area	Achieved 100% eco product purchasing of consumable office supplies (approx. 1500 items)	Continue

#### Recycling

Cotogony	Fiscal	Fiscal 2006 goals	
Category	Goals Achievements		
Improvement of recycling efficiency	Continuously incorporate technologies developed for easier dismantling and higher recycling efficiency into vehicles under development Continuously promote study of practical applications of ELVs* <sup>1</sup> recycling	Applied newly developed technologies to some components in new mini cars.     Devised a chassis structure and an infrastructure-based harness dismantling     method which leaves less wiring harness after dismantling	Continue to incorporate technologies to facilitate dismantling and increase recycling efficiency into vehicles under development · Continue to proceed with studies of the practical applications of EU/s [End-of-Uile Vehicles] ecycling
Recycling volume	Increase the number of used bumpers collected from the market	Increased the number of bumpers collected	Increase the number of used bumpers collected from the market
Reduction of substances with environmental impact	<ul> <li>Promote development of alternative technology for parts containing lead that will be subject to the EU directive from 2006 and continue to study further reduction of lead usage</li> <li>Promote measures for the voluntary action program under the "Goals for Reduction of Substances with Environmental impact in New Model Vecholices" by the Japan Automobile Manufacturers Association(JAMA)</li> <li>Further promote development and adoption of alternative technology for hexavatent chromium</li> </ul>	<ul> <li>Hexavalent chromium Created an integrated list of subject parts and advanced the replacement of parts with substitutes</li> </ul>	Promote development of alternative technology for parts containing lead that will be subject to the EU directive from 2006 and continue to study further reduction of lead usage Promote measures for the voluntary action program under the "Goals for Reduction of Substances with Environmental impact in New Model Vechicles" by the Japan Automobile Manufacturers Association(JAMA) Purther promote development and adoption of alternative technology for heravalent chromium
Sales and services	Continuously promote responses to the ELVs Recycling Law	Investigated ELV handling procedures at Subaru dealerships	Continuously promote responses to the ELVs Recycling Law
Logistics			

	Finant 2006 gools		
Goals	Achievements	Fiscal 2006 goals	
Promote logistics efficiency, and control generation of waste · Further streamline transportation of completed vehicles · Control generation of packing material waste	(Transportation of completed vehicles) Increased the number of vehicles transported jointly with other companies     (Reduction of packing material waste) Improved the packing specifications for large packing boxes for domestic customers. Also improved packing materials for knock down parts for overseas	Promote logistics efficiency, and control generation of waste	

\*1 : ELVs : End of Life Vehicles

# The Fourth Voluntary Plan for the Environment

FHI advanced voluntary activities for the environment with plans in 1993, 1996 and 2002. We created the Fourth Voluntary Plan for the Environment for fiscal 2007 to 2011.

In this plan, in addition to setting higher environmental conservation goals, we set targets to make contributions to society through our products by offering our customers greener products through a system of environmentally clean plants, logistics networks and dealers and by carrying out appropriate environmental activities including compliance with laws, regulations and agreements and cooperation with the automotive industry.

It is our policy that these targets are shared by group companies as well as FHI in order that Subaru Group can actively work towards the continuous improvement of environmental issues.

#### FHI Environmental Conservation Program (Fiscal 2007 through Fiscal 2011)

Items		Goals and actions			
Curbing global warming		Aim to reduce CO <sub>2</sub> emissions by 15% from manufacturing plants compared to the fiscal 1990 level by fiscal 2010			
	Control and reduction of substances with environmental impact at manufacturing plants	Continue reducing emissions of chemical substances listed in the Pollutant Release and Transfer Register (PRTR) Reduce Volatile Organic Compound (VOC) emissions (g/m <sup>2</sup> ) in vehicle production lines by 30% compared to the fiscal 2000 level by the end of fiscal 2010 Reduce environmental risks through Environmental Risk Assessment and totally eliminate the occurrence of incidents, claims and cases where voluntary standards are exceeded			
Clean Plants	Reducing wastes generated at manufacturing plants	<ul> <li>Reduce the amount of waste materials by controlling sources of waste including increasing yield ratio, reducing removal stock, increasing coating efficiency and improving packaging</li> <li>Continue zero emissions (zero levels of landfilled waste both directly and indirectly)</li> </ul>			
	Saving water resources	♦ Aim to reduce amount of water used at manufacturing plants by 45% compared to the fiscal 1990 level by fiscal 2011			
	Green Procurement Activities	<ul> <li>Request domestic and overseas suppliers to reduce substances with environmental impact and to establish an environmental management system (EMS). The following are the targets for establishing EMS</li> <li>Automotive Business Unit, Eco Technologies Company and Aerospace Company: Aiming to complete establishment of the system</li> <li>Industrial Products Company: Maintain the completed system</li> <li>To reduce substances with environmental impact, adhere to the schedule of laws, regulations and agreements such as the EU directive</li> </ul>			
	Improving fuel economy*1	<ul> <li>Continue to improve fuel economy for every full model change and annual model change</li> <li>Increase models that achieve fiscal 2010 fuel economy standards for all weight ranks</li> </ul>			
	Cleaner exhaust emissions*1	Improve on technology which has already achieved a 75% reduction on the 2005 standard for exhaust emissions in order to further reduce exhaust emissions and promote the use of low exhaust emission vehicles			
	Developing products using clean energy	<ul> <li>Hybrid vehicles: Develop a new hybrid system in collaboration with new alliance partner*1</li> <li>Natural gas vehicles: Continue market expansion of CNGVs*1</li> <li>Electric vehicles: Develop vehicles for launch on the market in addition to business use*1</li> <li>Continue development of wind turbine systems and market expansion*2</li> <li>Expand market for applied products which use LPG/CNG engines*3</li> </ul>			
Greener Products	Increase recyclability*1	♦ Improve design to increase recyclability in new models to achieve a recycling rate of 95% in 2015			
	Reduction of substances with environmental impact	<ul> <li>Enhance management of substances with environmental impact and further reduce the use of such substances.</li> <li>Reduce in-room VOC in accordance with the Voluntary Activity Plan of the JAMA*1</li> </ul>			
	Reducing exterior noise*1	> Promote development of technology to reduce noise that is compatible with both fuel economy improvement and exhaust emissions reduction			
	Curbing global warming regarding air conditioning refrigerants*1	<ul> <li>Promote further reduction in the amount of refrigerant (HFC134a) per vehicle</li> <li>Advance the development of air conditioner with low GWP refrigerant</li> </ul>			
	Research on traffic environments*1	$\diamond$ Work further on Intelligent Transport Systems (ITS) that realize a safe and comfortable motorized society			
	Development of environment-related products and environment-related businesses*2	<ul> <li>Advance environment-related businesses such as development of refuse collection vehicles and environmental equipment and devices.</li> <li>Advance robot-related businesses for conservation of power, labor and energy</li> </ul>			
Clean logistics	Reducing the environmental burden caused by logistics	<ul> <li>Be certain of meeting the Revised Energy Saving Law</li> <li>Try to reduce energy used per production unit by 5% compared to fiscal 2006 by the end of fiscal 2011</li> <li>Try to reduce substances with environmental impact by promoting reuse of packaging materials and returnable boxes</li> </ul>			
Clean dealers	Promoting environmental conservation activities at dealers	<ul> <li>Support environmental conservation activities by dealers</li> <li>Promote recycling and proper disposal during the distribution and disposal stages</li> <li>Collect and destroy specific chlorofluorocarbons (CFC12), collect CFC12's substitute (HFC134a)</li> <li>Collect and dispose of airbags, and collect warning flares</li> <li>Continue to collect used bumpers</li> <li>Continue to comply with the ELVs Recycling Law</li> </ul>			
Improved Environmental Management	Implementing Social Contribution Activities	<ul> <li>Continue to participate in environmental events, communicate with local residents at FHI plants, and deal with visitors to factory tour</li> <li>Continue to participate in cleaning and tree-planting activities in the area around each plants</li> <li>Offer support and cooperation to environmental activity groups</li> </ul>			
	Disclosing environment-related information	<ul> <li>Continue to publish environmental reports, and aim at releasing timely environmental information through publicity channels from time to time</li> <li>Improve and upgrade the contents of environmental reports (e.g., compliance with guidelines, and reports including group businesses)</li> </ul>			
	Implementing environmental education and education campaigns	<ul> <li>Incorporate environmental education into the company education system and put it into practice</li> <li>Implement educational campaigns through company newsletters and various media</li> <li>Continue to implement lectures and EMS operations improvement case study presentations at worksites</li> </ul>			
	Establishment of an environmental management system	<ul> <li>Continue to improve the environmental management system at all business sites certified with ISO14001</li> <li>Strengthen the liaison with affiliated companies, and continue establishing consolidated environmental management systems</li> </ul>			

\*1 : Automotive Business Unit \*2: Eco Technologies \*3: Multi-purpose engines

# Efforts of the Automotive Business Unit

Subaru's Capabilities... We Are Dedicated to Providing Each Individual Customer with the Best Automobile Experience Possible Subaru's Development Philosophy: To develop products which give customers an exciting drive by synthesizing driving performance, safety and environmental friendliness at a high level.

Subaru is continuing to develop products combining world class performance, safety and environmental friendliness at a high level to achieve "a prosperous society where automobiles, people, society and the environment are in harmony". To this end, we use our unique advanced technology to realize the principles of safety and rationality that forms Subaru's design philosophy as an aircraft manufacturer while considering the environment at all stages of our business.

# FHI's Fundamental Philosophy for Manufacturing Automobiles

Subaru's goal is to manufacture high performance automobiles which are "safe, comfortable, and pleasurable to drive."

The Legacy, Impreza and Forester, which have fused the necessary elements of performance, comfort, safety and environmental friendliness at a high level by adopting the Subaru Boxer, Subaru's unique horizontally-opposed engines, and Symmetrical AWD; the Subaru R1 and R2, which together have raised the bar in terms of automobile

# Subaru's Originality [SUBARU BOXER]

The horizontally-opposed engine is a rarity anywhere in the world. Subaru believes that this engine is an ideal power unit. The engine has symmetrically arranged pistons whereby the momentum of each piston is counterbalanced by the movement of the corresponding piston on the opposite side. For this reason, the engine offers superior rotational balance for quick response and a smooth feel right to the top of its rpm range. The engine is also lightweight and compact. Its low profile when mounted lowers a vehicle's center of gravity, enabling freer cornering. Offering not only high performance, but also ideal for vehicle balance, the horizontally-opposed engine is truly a Subaru original that achieves our goal of top performance without waste.



6 cylinder piston

driving and environmental performance by realizing the best fuel economy and efficiency in their class; the Samber, optimized to provide superb functionality for everyday life; and the Stella, our newest mini car....All our automobiles embody our long-held and successful design philosophy as an aircraft manufacturer.

In order that each individual customer may share the happiness of automobile ownership, we will continue to develop and provide products

#### "SYMMETRICAL AWD"

Subaru, in its quest to provide pleasurable driving, continues to stick to four-wheel drives (4WDs) as its core driving system, and has enhanced the potency of the drive system by using a unique 4WD layout consisting of the horizontallyopposed engine and a symmetrical power train. The superior weight balance, thanks to the low profile of the horizontally-opposed engine, and the layout, which arranges heavy items such as the engine and transmission around the center of the vehicle, together maximize 4WD performance providing superb driving performance even under difficult conditions. The simple layout allows for a linear response when steering, provides comfortable and safe driving at high speed thanks to high forward stability, and retains stability even in poor weather, together making for an ideal arrangement of suspension and body frame and contributing to an overall increase in vehicle performance. Symmetrical AWD (All Wheel Drive) is the realization of Subaru's aspirations for 4WDs, an ideal which defies description.



Powertrain

combining performance, safety and environmental friendliness at a high level.

#### Subaru's Development Philosophy



#### "A Body Combining Lightness and High Rigidity"

High body rigidity is necessary for improving collision safety performance and comfort. However, if the vehicle weight increases as a result of the increased rigidity, acceleration performance and fuel economy will decline and braking performance and running stability will also be negatively affected. In order to synthesize the competing elements of lightness and high rigidity at a high level and realize a superior balance of safety, environmental performance and comfort, we at Subaru have been working to develop the chassis by bringing together our advanced technologies. We use numerous materials contributing to weight reduction and high rigidity, such as aluminum, for the front hood and rear gate, and tailored blanks, in which specially arranged high tension steel sheets and other kinds of steel sheets are welded and press formed, and construct a highly rigid body/chassis with a simple design. Weight reduction and engine efficiency provide both a pleasurable driving experience and fuel economy. High rigidity allows for collision safety and secure running stability. To realize ideal performance by resolving the apparent contradiction of "lightness and high rigidity," we at Subaru will continue to work to overcome any challenges.



The new ring-shaped reinforcement structure

We at Subaru are always working to develop high performance automobiles that provide customers with safety, comfort and pleasure while driving by combining our unique technologies. Developing safe automobiles, contributing to traffic safety, developing user-friendly and environmentally friendly automobiles — Subaru always works with the development of an automobile-oriented society and the future of automobile manufacturing in mind.

# **Development of Safe Automobiles**

#### **Fundamental Philosophy**

In order to realize a prosperous society where automobiles, people, society and the environment are in harmony, Subaru is dedicated to pursuing excellent environmental and safety performance as far as possible and also to providing each customer with an exciting drive.

Subaru has been making advances in high-performance AWD that provides drivers with a safe, comfortable and pleasurable drive on any road. In accordance with our belief that optimizing performance will lead to safety, Subaru has been focusing on development of sophisticated active safety technologies to prevent accidents, as well as passive safety technologies to ensure safety in the event of an accident. Through these advanced technologies, we will continue to provide safety, security and an exciting drive to customers.

### **Efforts to Create Safe Automobiles**

#### • Technologies for Driving and Safety

Active safety is technology that prevents accidents from occurring by improving automobile's basic functions, driving, cornering and stopping; and by utilizing advanced safety systems.

We at Subaru believe that the best way to provide safety is through accident prevention and we are conducting research and development on state-of-the-art safe automobiles that support drivers by recognizing in advance the various risk factors that lead to accidents. We are researching and developing technologies which optimally and comprehensively assist drivers' judgment and driving by combining Subaru's core forward image-recognition technology using stereo cameras with information and communications technologies in order to reach a high standard of recognition and identification of a wide variety of traffic conditions in front of the driver.

#### Philosophy of Subaru's Intelligent Vehicle Development

We at Subaru are actively working to develop Intelligent Vehicles based on the principle of, "Safety regardless of conditions," to provide safety, security and an exciting drive to customers through innovative and advanced safety systems.

#### Collision Safety Technology

We have succeeded in securing a cabin (survival space) safe against collision





from all directions by adopting the new ring-shaped reinforcement structure to create an original lightweight, high-strength, safe body for our automobiles including the Legacy and mini cars. We utilize simulations to develop collision safety technologies, conduct car-to-car collision tests in a variety of conditions and thoroughly test components for seat belts and air bags in order to deliver completely safe automobiles. We believe that the purpose of passive safety is not only to secure passenger safety but also to minimize harm throughout the entire society. In order to advance such technologies, we are striving to develop automobiles under the safety principle of "Compatibility" (or mutual safety), which fully considers the protection of the automobiles, motorcycles and pedestrians with which drivers may collide.

This safety principle has also been applied to the Stella, Subaru's newest mini car. Its new ring-shaped reinforcement structure has a frame structure with the same height as a passenger car, to guarantee a high degree of safety in a collision with such vehicles. Moreover, the Stella has safety superior to other passenger cars as a result of our efforts to increase the safety of this next generation mini car by incorporating advanced pedestrian protection, a seat structure which reduces whiplash injuries as a standard feature, high tensile steel and the tailored blank construction method for high rigidity and weight reduction.



#### Subaru safety — Future Vehicle Image



# **Contributions to Traffic Safety**

# Utilization of ITS<sup>\*1</sup> Technologies

In the near future, automobiles will be able to share external information by connecting to a network. Subaru is advancing the development of an automobile information management system to realize a safer and more convenient society through the utilization of ITS technologies.

This system will help prevent breakdowns and be able to forecast deterioration of components by remotely monitoring the condition of an automobile while running. It also becomes possible to take early action even when a failure occurs. We have applied this technology to electric vehicles and now are conducting verification testing. By optimally managing deterioration of components and practical performance, which used to be problems for electric vehicles, we are able to support customers so that they can use electric vehicles with confidence. We are aiming to harmonize with society with respect to both safety and the environment.

Moreover, we are actively striving to develop technologies for the utilization of probe information system, by means of which automobiles will act as one of many sensors in the community. Utilizing the characteristics of Subaru products which have been widely used in snow-covered terrain, we have actively joined the working group on verification testing for information collection pertaining to icy road surfaces at the Internet ITS Consortium. Together with research institutes such as universities, we are aiming to prevent accidents on icy road surfaces by studying methods to detect such surfaces using wheel speed information, GPS information and ABS operation information collected as probe information and creating the Hiyari Hatto\* maps based on such information. We will broadcast our findings to the community through the Internet ITS Consortium.

#### Information management system





Experimental test at the Internet ITS Consortium

\*Hiyari Hatto : Please refer to p.48, footnote \*2.

### **Making User-Friendly Automobiles**

#### **About the TransCare Series**

FHI has been manufacturing and selling vehicles in a series called TransCare, vehicles for the disabled, since 1982. TransCare, a word coined from "Transportation" and "Care," was registered as a trademark for Subaru's vehicles for the disabled in 1977. Subaru is now focusing its efforts on developing laborsaving devices that can be easily used by both caregivers and care-receivers.

#### **Outline of Vehicles for the Disabled**

Subaru offers a wide selection of TransCare automobiles, from mini-car

Subaru R1, R2 and wagon Sambar, to the Legacy, a standard-sized car for enjoying long-range drives. TransCare Wing Seat<sup>\*2</sup> version is available for all models. Also, in response to the increasing demand for wheelchair accessible vehicles, our Sambar mini car offers an electrically operated wheelchair lifter<sup>\*3</sup> that allows for loading and unloading of passengers in wheelchairs. We also offer a type equipped with a stretcher<sup>\*4</sup>, which allows for loading and unloading of passengers who are lying down.

#### Sales Results of TransCare Series

With the aim of sharing the happiness of living with cars with all people, Subaru develops and distributes vehicles for the disabled so that disabled and aged people can enjoy a safe, comfortable ride.

Furthermore, we have been working on the expansion of the software for the sales of the vehicles for the disabled, promoting the acquisition of the certification of Service Care Attendant for Sales since 2004.

Sales Results of Subaru TransCare Series (Units)						
	2000	2001	2002	2003	2004	2005
Standard (Small) cars	13	32	63	103	88	130
Mini cars	397	469	475	401	464	427
Total units delivered	410	501	537	504	552	557



Subaru R2 with TransCare Wing Seat (with R option)



Samber TransCare with an electrically operated wheelchair lifter

\*1: ITS is the next generation intelligent transport system \*2: Wing seats: Rotating front and left rear seats to allow for easy loading and unloading of passengers. We placed importance on interior comfort and we installed an electric seat sliding system on the Legacy and R2. \*3: This is the only mini car to adopt the Side-lifting System. This lifter is electrically operated, providing passenger security and safety by loading and unloading from the side of the car, instead of from the roadway. \*4: The car is equipped with a stretcher with wheels to carry patients in a prone position. This is the only mini car equipped with a stretcher.

Our corporate philosophy regarding Subaru's customers and products: Customer satisfaction is our first priority; we provide the highest quality products and services, as well as contributing to improvement in the economy and society.

Subaru established the Subaru Call Center to provide customer service and developed an in-house quality assurance system based on the above philosophy. The Subaru Customer Center consists of a Customer Relations Department where we receive questions and suggestions from customers, a CS Promotion Section for ensuring a high level of customer satisfaction, Domestic and Overseas Service Departments where we develop a variety of service plans to ensure comfortable driving for our customers, and the Subaru Academy, which serves to provide education for domestic and overseas Subaru dealers.

# **Customer Relations Department**

Subaru established the Subaru Customer Center (operated by the Customer Relations Department) as a point of contact for customer inquiries, requests for assistance, demands and suggestions. Since communication is exchanged mainly by means of telephone and e-mail, we ensure quick, on-target responses to inquiries and requests for assistance

# **CS Promotion Section**

We at the Subaru team, which includes dealers and all the divisions and departments within the company, aim to provide the highest level of satisfaction to our customers in each area. We incorporate the customers' opinions we receive through dealers and Subaru customer questionnaires into products, quality and sales via the related divisions and departments.

#### Fiscal 2005 Results of Activities

Unfortunately, FHI was ranked last in successive years, 2004 and 2005, in the JD Power Sales Satisfaction Study. By taking these results to heart, we have been conducting the following activities in order to significantly improve customer satisfaction by accelerating quality improvement in customer relations: 1) We modified our customer satisfaction survey method in order to seriously listen to customers' opinions

# **Service Department**

Subaru has adopted the Subaru Fureai Followup Program<sup>\*1</sup> as our service system to ensure customers have a safe, secure and comfortable experience with their cars, with coverage lasting from the delivery of the car to the third-year compulsory inspection. Subaru also holds nationwide service skill competitions in an effort to improve the technical skills of dealers' service technicians.

#### **Approach to Product Recalls**

Our efforts to improve the quality of Subaru products based on information from customers all over the world contributes to product improvement and to the further refinement of the Subaru brand. Quality information about Subaru automobiles is collected from global dealers through our dedicated Internet network as well as from our customers based on our action policy of promptness, sincerity and attentive listening.

In fiscal 2005, we dealt with approximately 59,000 (99.7% compared to the previous year) requests for assistance from customers. We feed the invaluable opinions, demands and suggestions from customers back to the relevant departments/divisions to increase customer satisfaction by improving quality, developing products and improving sales and services.

We believe that customers' voices represent their expectations of Subaru. Therefore, we would like to continue to serve and give satisfaction to our customers through good communication with each and every one of them.

immediately after purchasing Subaru products, to reflect the opinions by improving dealership facilities and customer relations and to achieve the highest level of customer satisfaction in each area. 2) We formed the Customer Service Quality Improvement Project with approximately 35 managerclass employees from Subaru Japan Sales & Marketing Div., Subaru Parts & Accessories Div. and Subaru Customer Center in Japan and had this team work on improving, based on the customer's perspective, new car dealerships by visiting the dealerships across Japan. 3) We instituted "the mystery shopper" (undercover shopping) survey across Japan, conducted by a third party, in order to increase customer satisfaction by better understanding the customer's viewpoint.

In addition, we issue "COMPASS," Subaru's customer

by fax and telephone. Based on the information collected and investigations of vehicles and parts, we determine and announce recalls as follows: (1) Our number one priority is to provide

- customers with peace of mind owning Subaru cars. We determine whether or not problems warrant product recalls in accordance with domestic and overseas laws and regulations.
- (2) Product recall announcements are made to customers through newspapers, direct mail and the FHI Web site (http://www.fni.co.jp/).

We had four recalls<sup>\*2</sup> (three for Subaru automobiles and one for refuse collection vehicles) in fiscal 2005. We sent direct mail apologizing to customers and informing them about no-charge repair services and placed the recall announcements on the Web site. service magazine for all dealerships, every other month six times a year, in order to raise the awareness of the dealership personnel who directly serve customers and to share case studies regarding customer service at other dealerships so that ideas may be implemented at all dealerships.



"COMPASS," customer service magazine for dealerships

# Subaru Academy

In order to enhance our global sales network, FHI opened Subaru Academy in January 2005 at the Subaru Training Center, an educational facility located in Hachioji, Tokyo. The Academy provides a two-level of educational programs that systematically trains personnel from recruits to management.

The Business School of Management accepts dealer management and managers in sales and service from Japan and overseas, with the aim of strengthening the sales efficiency of the entire Subaru group.

The Training School accepts employees from sales, parts, customer service, and technicians to improve their skills and abilities to comply with customer expectations.

In fiscal year 2005, the Academy accepted about 10,000 trainees.

\*2 : We place recall announcements on FHI's Web site: http://www.fhi.co.jp/

<sup>\*1:</sup> The Subaru Fureai Follow-up Program is an after sales service provided by Subaru dealers across Japan to support our customers. It includes such benefits as "Free maintenance service for one month after registration."

# Creating Clean Automobiles: Development Stage and Products

The R1 and R2, Subaru's mini cars, underwent Minor changes in November 2005 to realize enhanced emission performance in addition to strong, smooth performance and fuel economy (exhaust emissions from the naturally aspirated engine reduced by 75% compared to the Japanese exhaust emissions standard of 2005). Also, the Subaru Legacy, which underwent Minor changes in May 2006, significantly improved its environmental performance with regards to fuel economy and emission performance. Moreover, the Legacy, which has the SI-DRIVE mounted, allows drivers the pleasure of creating their own driving style.

# **Fuel Economy**

Automobiles emit carbon dioxide (CO<sub>2</sub>) proportional to the amount of fuel consumed. By improving fuel economy, CO<sub>2</sub> will be reduced resulting in the better conservation of limited energy resources and the prevention of global warming. Subaru, while utilizing the advantages of AWD and high power engines, has been working to improve fuel economy by developing technologies that make engines more fuel efficient, reduce transfer loss in the drivetrain and reduce vehicle weight and running resistance, and we are in the process of introducing vehicles which meet the Japanese fiscal 2010 Fuel Economy Standards, the target for gasoline vehicles.

# Engine Improvement Legacy

• Both the intake efficiency and combustion were improved by adopting a intelligent-Active Valve Lift System (i-AVLS) on naturally aspirated engines (2.5 l)



4-1 Same length, constant pulsation exhaust system Legacy 2.5L SOHC Engine

# Enhanced Efficiency of the Drivetrain Legacy

• Transfer loss in the drivetrain was reduced by adopting a low-friction type hydraulic clutch to 5AT.

# Legacy SI-DRIVE SI-DRIVE (SUBARU INTELLIGENT DRIVE)

 SI-DRIVE is a system which, by comprehensively controlling the engine, transmission, meters and control switches, allows drivers to switch among three selectable modes depending on preference and driving style. For example, the "Intelligent" mode, improves upon the conventional ECO mode by regulating control units and effectively controlling engine torque output (soft mode) which, together with finely-tuned shifts and lock-up control in the automatic transmission, helps maintain low fuel consumption. The "Intelligent" mode also ensures fuel economy with the ECO gauge which promotes ECO driving (fuel-efficient driving).

#### SI-DRIVE control system (Image)



SI-DRIVE selector Multi information display ECO gage

#### Image showing acceleration characteristics at each controrl mode



#### Foot pressure on the Accelerator

# Trends in Improvement of the Average Fuel Economy by Equivalent Inertia Weight

In an effort to meet the fiscal 2010 fuel economy standards, we achieved the target in three out of the five ranks of equivalent inertia weight for gasoline passenger cars. In gasoline mini-sized trucks, we succeeded in attaining the target in all applicable ranks of the equivalent inertia weight.

#### Trends in Average Fuel Economy by Equivalent Inertia Weight (Gasoline Passenger Cars)



Fiscal year

#### Trends in Average Fuel Economy (Gasoline Mini-sized MT Trucks)



#### Trends in Average Fuel Economy (Gasoline Mini-sized AT Trucks)



# Trends in Improvement of Attainment Rates for Fiscal 2010 Fuel Economy Standards

Trends in Attainment Rates for Fiscal 2010 Fuel Economy Standards (Gasoline Passenger Cars)



# **Exhaust Emissions**

Substances such as carbon monoxide (CO), hydrocarbons (HC), and nitrogen oxides (NOx), which are emitted from automobiles, are one of the causes of air pollution in metropolitan areas where there is intensive motor traffic. In order to improve the state of the air, Subaru is gradually launching low emission vehicles (certified by the Ministry of Land, Infrastructure and Transport) that meet standards stricter than the regulations.

#### Application Status of Low Emission Vehicle

Vehicles with naturally aspirated (NA) engines reached the "\$\phi\_\$\phi\_\$\phi\_\$\phi\_\$" level, with exhaust emissions reduced by 75% compared to the 2005 standards as a result of the revision of the catalzyer layout in the R1 and R2, to which Minor changes were made in fiscal 2005. Also, the Legacy with NA engine (excluding the 2.0 l model), to which Minor changes were made in May 2006, reached the "\$\phi\_\$\phi\_\$\phi\_\$" level with exhaust emissions reduced by 75% compared to the 2005 standards, and the turbo Legacy reached the "\$\phi\_\$\phi\_\$" level, with exhaust emissions reduced by 50% compared to the 2005 standards.

#### **Exhaust Emissions Measures in the Legacy**

● NA models (2.5 ℓ and 3.0 ℓ) reached the "☆☆☆☆" level, with exhaust emissions reduced by 75% compared to the 2005 standard as a result of adopting a new intelligent-Active Valve Lift System (i-AVLS)\*<sup>1</sup> (for 2.5 ℓ vehicles) and revising the exhaust system and catalyzer layout (for 2.5 ℓ and 3.0 ℓ vehicles).

● Turbo models (2.0 ℓ) reached the "☆☆☆" level, with exhaust emissions reduced by 50% compared to the 2005 standard by adopting new tumble generated valves, which improve combustion, and a secondary air system<sup>\*2</sup>, which combusts unburned gases.

\*1 : intelligent-Active Valve Lift System (i-AVLS)









#### Exhaust Emissions Measures in the R1 and R2

• The engines for the R1 and R2 reached the "☆☆ ☆☆" level, with exhaust emissions reduced by 75% compared to the 2005 standards as a result of revising the catalyzer layout and the fuel and ignition control settings for when the engine is cold.

#### **Exhaust Emissions Measures in Samber**

● The SOHC-NA engine for the vehicle code VB clean and TB clean reached the "☆☆☆" level, with exhaust emissions reduced by 50% compared to the 2005 standards. In order to reduce exhaust emissions (HC in particular) when the engine is cold, we used a finer-cell catalyst, reviewed the composition of noble metals in the catalyst, and adopted the Double O<sub>2</sub> sensor system to improve the accuracy of oxygen concentration measurement in exhaust emissions.

#### Trends in Improvement of the Percentages of Low Emission Vehicles

The system to certify low emission vehicles started in April 2000. The percentages of the low emission vehicles shipped as Subaru are as follows.





#### Trends in Percentages of Low Emission Light Trucks



#### **Trends in NOx average**

By launching low emission vehicles which meet the standards represented by the low emission vehicle certification standard into the market, Subaru has been able to reduce the average amount of NOx emitted by Subaru Vehicles every year as shown in the chart below.

#### Trends in NOx Averages of Subaru Vehicles



Notes:

- \*The figures calculated from the regulation values (10 · 15 mode and 11 mode) at the time of shipment.
- \*Going back to fiscal 2000, calculations were made with regulation or conversion values for the new test mode. The new test mode is a combined mode, where the regulation values set individually for the 10 · 15 mode and 11 mode are integrated.
- \*Until fiscal 1999, the figures were calculated from the regulation values for the 10 · 15 mode.

# **Clean Energy Vehicles**

Clean energy vehicles have such features as emitting fewer global warming substances (carbon dioxide) and air pollutants (carbon monoxides, hydrocarbons, nitrogen oxides, etc.) and have less environmental impact than gasoline engine vehicles. However, there are technical problems related to cost and driving distances. Subaru has been developing its unique clean energy vehicles that have the gasoline engine vehicle-level performance and utility. **Development of Secondary Batteries (Chargeable Batteries) for Hybrid Vehicles, Electric Vehicles, and Fuel Cell Electric Vehicles** 

In May 2002, Subaru established NEC Lamilion Energy, Ltd., jointly with NEC Corporation (NEC) and since then has advanced the development of secondary batteries, which could become the world

### Joint Development of Energy-Saving Gasoline Engines by Industry, Academia and Government

Recently, the importance of creating new intellectual properties through industry-academiagovernment collaboration has been gaining recognition. Subaru, together with Chiba University and Nihon University, has been involved in the Energy Use Rationalizing Technology Strategic Development Project organized by the New Energy and Industrial Technology Development Organization of Japan (NEDO) since 2003, and has developed breakthrough technology to improve thermal efficiency by 6 to 11% by avoiding knock with a compression ratio of 14 to 1. In 2005, we designed a new mechanism to smoothly rotate up to high rpm while maintaining this high efficiency and reducing friction and vibration. We have made great strides toward the practical application of this simple and low cost mechanism. We will aim for the realization of a new gasoline engine that emits fewer pollutants yet is as efficient as a diesel engine.

#### Concept of LCA application at the development stage



standard for vehicles, by combining laminated manganese lithium-ion battery cell technology and Subaru's automotive battery packs technology.

As a result, we succeeded in developing a prototype secondary battery for hybrid and electric vehicles, with superior durability of 10 years or 150,000 miles (240,000 km). This prototype has received highly-favorable evaluations from more than 20 domestic and overseas companies such as automakers and electric manufacturers. At the same time, we were able to arrive at our goal of developing practical batteries for mounting on vehicles. Although this partnership with NEC was amicably terminated in March 2006 following the success of the prototype development, in order to advance the development of commercial battery packs for vehicles, we continue to

### LCA Activities

Life Cycle Assessment (LCA) is a method to numerically evaluate the environmental burden over the product lifecycle starting from resource collection and manufacture, to use and finishing at the disposal stage. Recognizing that LCA is a useful tool for evaluating product environmental performance, Subaru has been conducting activities to advance the utilization of LCA. In fiscal 2005, we improved the database and expanded the application range. Spreading the LCA concept through these activities, we will continue to improve the database and study LCA applications to further reduce the environmental burden over the automobile lifecycle.

Main Measures to Reduce Noise



Distribution chart of pass-by noise (passenger cars/Japan)

maintain a cooperative relationship with NEC in the

New Capacitor — Development of

Employing our unique technologies to use

been developing the Lithium-ion Capacitor, a new

capacitor which can directly store almost the same

amount of electrical energy as lead batteries. This

capacitor has high power and superior durability

and for the storage of energy from renewable

and is ideal for the next generation clean ECO cars

sources, such as wind and solar power. We now

see the possibility of replacing lead batteries with

this capacitor and will continue to work towards its

Subaru has been actively working to

reduce the automobile noise generated

from the engine, transmission, air intake

and exhaust, tires and so on, even the

noise from AWD differential system. In

air intake and exhaust system. Also for

other models, Subaru is promoting the

reduction of noise by increasing the

volume of exhaust system and by

adopting larger engine undercover.

fiscal 2005, the noise was further reduced

in the Impreza by significantly reviewing its

practical application and commercialization.

Noise

environmentally friendly materials, Subaru has

field of development and production.

**Lithium-Ion Capacitor** 





\*1: For the CO2 conversion factor used in calculating CO2 emissions, please refer to footnote \*4 on page 16.

- \*2 : FHI independently calculates emissions of other greenhouse gases as well. Emissions in fiscal 2005 were; HFC134a: about 297 ton-CO<sub>2</sub>, CH4: about 79 ton-CO<sub>2</sub>, SF6: 3 ton-CO<sub>2</sub>
  - Emissions are calculated by multiplying the amount emitted by the global warming potential.

# Clean Plants: Efforts in the Production Stage

In fiscal 2004, Subaru successfully achieved a level of zero waste landfilled at all its manufacturing plants. In addition, we reduced man-hours and manufacturing costs by avoiding waste or loss of energy in our operating processes, and promoted measures such as the proactive implementation of natural gas cogeneration systems, as part of efforts to save energy and prevent global warming. Furthermore, through activities aimed at green procurement and green purchasing, we promoted the establishment of EMS at our suppliers.

# Profile of Gunma Manufacturing Division where Subaru vehicles are manufactured



### Gunma Manufacturing Division

(Main Plant, Yajima Plant, Oizumi Plant, Ota North Plant, Isesaki Plant)



 Location
 Ota-city, Isesaki-city and Oizumi machi, Gunma

 Products
 Automobiles (Legacy, Impreza, Forester, Stella, R1, R2, Pleo and Sambar models), service and maintenance parts for automobiles

 Number of units manufactured
 466,527 (14,650 units decreased compared to the previous year)

 Number of employees
 7,642 (As of April 1, 2006)

# **Amount of Resources Input and Total Emissions at Plants**

This figure shows the amount of resources used and emissions in fiscal 2005 at Gunma Manufacturing Division, our main automobile production plant in Japan.



# **Reduction of Waste Materials**

#### Zero landfilled waste material level maintained at all plants!

The Gunma Manufacturing Division shut down its incinerators in December 2000, achieved its goal of zero emissions<sup>\*4</sup> for waste materials in March 2001, and has maintained a level of zero waste materials landfilled ever since. The following figure shows the amount of waste materials generated and treated in fiscal 2005.

#### Outline of Waste Materials Generated and Treated at All Manufacturing Plants and Gunma Manufacturing Division



Environmental Report

- \*3 : Drainage emissions equaled the volume of water used
- \*4 : For the definition of FHI's zero emissions, please refer to footnote \*3 on page 16.

#### Efforts toward Reduction of Waste Materials

FHI has been making continuous efforts to curb the generation of waste materials and recycle any waste material generated, and has achieved and maintained a level of zero waste materials landfilled at all its manufacturing plants since fiscal 2004.

Major activities carried out at the Gunma Manufacturing Division in fiscal 2005 included reduction of the sludge discharged from wastewater treatment facilities by improving treatment methods. Furthermore, efforts were made in the painting process to improve coating efficiency and reduce generation of paint sludge. The result was an 11.5% decrease in the amount of waste material compared with the previous year to 6,857 tons (excluding scrap metal).

As for reductions in the amount of scrap metal in the automotive manufacturing, we have enhanced the weight-saving design of products by changing the quality of primary materials such as iron and aluminum, and improved the yield ratio during the production process in order to minimize the amount of scrap metal generated, improve automobile environmental performance and utilize resources as effectively as possible.

The graph shows the indexes obtained by dividing " the ratio of the amount of by-products (scrap metal and scrap of non-ferrous metals such as aluminum) generated to the amount of products manufactured" by "the value of shipped products". We have been able to reduce the amount of scrap metal generated year on year.

#### Trends of Amount of By-products Generated to Amount of Products Manufactured



### Efforts toward Reduction of Water Consumption

Of a total water consumption of about 3,650,000 m<sup>3</sup> (reduced by 1% compared with the previous year) at all our manufacturing plants in fiscal 2005, the Gunma Manufacturing Division accounted for about 2,770,000 m<sup>3</sup>, marking a reduction of 4.2% compared with the previous year.

The Eco Technologies Company replaced its underground water pipes with aerial pipes, thereby reducing water consumption by 14,000 m<sup>3</sup> per year by implementing strict measures such as checking for leakage from water pipes. We will continue to make every effort to reduce water consumption further.

# **Prevention of Global Warming**

#### **Energy Saving**

The Gunma Manufacturing Division switched its boiler fuel from heavy oil to natural gas as part of efforts to reduce the emission of greenhouse gases. In addition, all departments are improving the energy efficiency of the facilities in their operating processes to avoid waste or loss of energy. We will further accelerate our efforts to save energy, reduce CO<sub>2</sub> emissions, and improve operating processes by reducing man-hours and costs, as well as expanding implementation of cogeneration systems.

The cogeneration system implemented at the Utsunomiya Manufacturing Division in fiscal 2004 has continued to operate soundly, reducing greenhouse gas emissions by about 5,040 ton-CO2\*1 during fiscal 2005. Furthermore, we plan to implement two cogeneration systems in the Oizumi Plant at the Gunma Manufacturing Division in fiscal 2006.

#### Column

#### **Energy Conservation Case Study Presentation**

We hold the Energy Conservation Case Study Presentation every year in the Gunma region. We also actively participate in the Energy Saving Case Symposium Kanto Conference sponsored by the Energy Conservation Center, Japan, for the purpose of reporting outstanding cases in our improvement activities. In fiscal 2005, a total of five groups, three from the Gunma Manufacturing Division and one each from the Utsunomiva Manufacturing Division and the Head Office area, participated in the Kanto Conference



### Reduction of substitute CFC (HFC134a)

To reduce atmospheric emissions of HFC134 used as a coolant from the vehicle manufacturing line, we have continued effort to minimize leakage while pumping and recovering gas in air conditioner. As a result, we have succeeded to reduce emissions by 95% compared to fiscal 1996 levels since fiscal 2003.

### Management of Chemical Substances (the PRTR Law)

FHI uses 17 chemical substances subject to the PRTR Law. Use of such chemicals at all our manufacturing plants totaled 4,095 tons (the Gunma Manufacturing Division accounted for 3,537 tons) in fiscal 2005, achieving a reduction of 4.4% compared with the previous year. The release of these chemicals into the atmosphere and water at all of our manufacturing plants totaled 899 tons, a reduction of 8.6% compared with the previous year. These achievements result from activities such as reducing the amount of paint and thinner used in the vehicle painting process, and improving coating efficiency.

# Storage of Equipment containing PCB

FHI stores PCB appropriately and notifies the authorities of possession of PCB in accordance with the related laws and regulations. Regarding the 104 pieces of equipment (such as transformers and condensers) we store that contain a high concentration of PCB, we have already applied and registered for their disposal with the Japan Environmental Safety Corporation (JESCO) as of March 2006.

# **Reduction of Substances with Environmental Impact**

#### **VOCs Generated in the Painting Process**

In fiscal 2005, we reduced emissions of VOCs per unit of area painted on the vehicle body to 46.2g/m<sup>2</sup> (the previous year's result was 46.4g/m<sup>2</sup>), a reduction in emissions of 57.6% compared with fiscal 1995 levels. The main contributing factors include reduced frequency of paint color changes, and application of low-solvent type paint to the electrophoretic painting used to prevent rust. We will introduce large-scale facilities for collecting purge solvent to improve the thinner collection rate, and continue efforts to enhance the operating rates of such facilities. **Air Pollutants** 

In fiscal 2005, emissions of NOx increased due to several factors, such as the expanded application of in-house power generation associated with cogeneration systems, and the change of boiler fuel from heavy oil to natural gas. However, emissions of Sox decreased. FHI established its own voluntary standards which are even stricter than the relevant legal standards (in principle, 80% of the levels stipulated by the relevant laws and regulations or lower). Periodical measurement results show that our voluntary standards are satisfactory at all locations measured.

#### Water Pollutants

Trends in the amount of nitrogen, phosphorous and BOD discharged into water at all our manufacturing plants are as shown in the graph. In fiscal 2005, three cases were reported at the Gunma Manufacturing Division, where the results of periodical measurements exceeded the values set by our voluntary standards (one case related to our wastewater treatment facilities, one to water-purifier tanks, and one other case). We have taken countermeasures such as adjusting the amount of chemical put into water, reviewing the operation and management procedures of related equipment, and improving facilities. We will continue to carry out strict management, and promote systematic improvement in our facilities.

### **Green Procurement Activities**

#### **Automotive Business Unit**

We held an explanatory meeting for our domestic suppliers in May 2005 to explain FHI's main action themes and to discuss suppliers' progress, including our assistance to suppliers in respect to IMDS\*1 data input, and activities in response to the requirements of the EU Directive. As for suppliers of SIA, we held an explanatory meeting at SIA in September 2005, concerning our efforts towards the investigation of substances with environmental impact. For EMS (Environmental Management System) establishment, we visited suppliers setting up their own EMS to confirm progress, and assisted them in establishing their EMS. By March 2006, 304 out of a total of 308 domestic and overseas suppliers have completed establishing EMS. **Industrial Products Company** 

In fiscal 2005, we had all 102 suppliers at which an EMS had already been established use a check-list to conduct self-inspections and audits, in order to ensure that their established EMS was operating at 100%. In addition, in an effort towards reducing substances with environmental impact contained in the parts of power generators we have calculated the relevant data and prepared a reduction program. We will continue our efforts to maintain EMS at 100%, and reduce substances with environmental impact.

#### Trends in Amount of NOx and SOx Emitted at All Manufacturing Plants



Amount of Nitrogen, Phosphorous and BOD Emitted at All Manufacturing Plants





Environmental tour executed at a supplier conducted by Aeros



eting of suppliers, then SEVP Suzuki explained green procurement

#### **Aerospace Company**

In April 2005, we held an explanatory meeting for our suppliers concerning the Green Procurement Guidelines, and started actual green procurement activities for packaging materials and others. In addition, we conducted environmental tours at seven suppliers, as part of our activities to assist our suppliers in establishing their EMS. 44 out of 71 suppliers have completed establishing EMS by the end of March 2006.

### **Eco Technologies Company**

In May 2005, we held a general meeting of suppliers giving explanations of our fiscal year policy and green procurement activities, to keep our 41 suppliers (as of May 2005) well-informed. 40 out of 49 suppliers had completed establishing EMS by the end of March 2006. **Green Purchasing** 

In fiscal 2005, the ratio of environmentally friendly products (about 1,500 items) purchased in the Head Office area reached 100%, following the example of the Gunma region the previous year.

# Logistics, Sales and Service Activities

Subaru has joined forces with its affiliate, Subaru Logistics Co., Ltd., to improve transportation efficiency, to reduce packaging materials, and to promote recycling, as well as to reduce the environmental burden in all areas of logistics. In fiscal 2005, the organization within the entire company was strengthened to respond to the revision of the Law concerning the Rational Use of Energy, and activities were started to further reduce the environmental burden and transportation costs.

Furthermore, Subaru is promoting its environmental activities in partnership with its dealers, and executed environmental compliance inspections at all domestic Subaru dealers in fiscal 2005.

# **Activities to Prevent Global Warming**

### Reduction of the Environmental Burden in Transporting Completed Automobiles

# (Efforts by Subaru Logistics Co., Ltd.)

When the loading ratio of a car carrier increases and the number of car carrier trips decreases, then the environmental burden of transporting completed cars can be reduced. Subaru Logistics Co., Ltd. promotes joint transportation of completed cars with other companies in the same trade. In fiscal 2005, the total number of cars carried by joint transportation (commissioned to other companies/our company) was 35,754 units, an increase of about 16% compared with the previous year. In addition, CO<sub>2</sub> emissions associated with transporting cars to domestic Subaru dealers were reduced by 8.7% compared with the previous year. Furthermore, Subaru Logistics Co., Ltd. encourages its affiliated transportation companies to mount idling-stop equipment and digital tachographs on their car carriers, and continues to carry out activities aimed at improving drivers' eco-driving awareness.



Note: Here we had errors in the volume of joint transportation for each year as reported on page 44 of our 2005 Environmental & Social Report. Please refer to the corrected value in this graph.

# Activities to Contribute to Recycling Society

#### Reduction of the Environmental Burden in Supplying Service Parts

#### (Efforts by Subaru Parts Center)

Subaru Parts Center has been making efforts to minimize the amount of cardboard by using reusable cardboard boxes for service parts transported to domestic Subaru dealers that use our carriers exclusively. Ota PDI (pre-delivery inspection) Center\*1 introduced this practice in fiscal 2004.

Foldable containers have recently been

introduced for service parts transported to the Ota PDI Center, mainly small-size service parts. This is part of our activities to reduce the use of packaging materials, and we expect a reduction in cardboard material of 2,700kg per year. Thus, reductions in both the environmental burden and packaging costs can be achieved.



Returnable cardboard boxes that can be used repeatedly.

#### **Reduction of Packaging Materials for Overseas Knockdown Parts**

#### (Efforts by Subaru Logistics Co., Ltd.) in

At Subaru Logistics Co., Ltd's Parts Distribution Center, where the style of packaging for knockdown parts is designed, efforts are being made to reduce the environmental burden by focusing on the recycling of packaging materials. In the second half of fiscal 2005, we started implementing a program to recycle polystyrene foam used for machined parts, and actually started recycling in March 2006. Recycling of polystyrene foam, which had previously been landfilled locally, is expected to contribute not only to decreasing the environmental burden by reducing the amount of landfill, but also to reducing CO<sub>2</sub> emissions in the chemical products manufacturing process. Subaru Logistics Co., Ltd. expects a reduction of styrene foam of 64 tons annually by recycling about 80% of the polystyrene foam.



Packaging materials returned, cleaned and inspected for re-use

<sup>\*1 :</sup> The Ota PDI Center is a pre-delivery inspection plant for new cars opened in Ota City, Gunma Prefecture in April 1998, where all operations are processed by an integrated online information system. The Center strictly complies with the inspection standards of manufacturers and dealers, and delivers completed cars of a consistently high quality of pre-delivery inspection to Subaru dealers across Japan. (For activities carried out at the Ota PDI Center, please refer to the homepage of Subaru Logistics Co., Ltd. at http://www.subarulogistics.co.ip.)

# **Sales and Service Activities**

### **Environmental Activities of Subaru Dealers**

FHI has joined forces with domestic dealers of Subaru automobiles in the field of environmental activities, too. We have been working on environmental compliance activities together entitled "Subaru Eco Action 21" since December 2003 and Subaru dealers across Japan are participating in our activities. The environmental policy focuses on two mottos: (1) Comply with environmental laws and regulations, and further contributes to the environment in the local community, and (2) Continue to improve environmental management systems to create environmentally-friendly dealers. We first designated model bases among the sales shops of dealers and service workshops, and promoted environmental compliance inspections and improvement at each designated model base. Since the beginning of 2005, such activities have been expanded to all sales bases (shops and service workshops), and "thorough inspections of environmental compliance at sales bases" were launched as voluntary activities at each dealer. Progress at each sales base was confirmed at

the end of March 2006, and step-by-step countermeasures have been taken at sales bases where improvement was required. We continue to assist our dealers with measures such as publishing quarterly magazines reporting updates on activities by our group companies, responses to relevant laws and relevant changes in society. As part of activities to establish an EMS at each dealer, two more companies, Osaka Subaru Co., Ltd. and Niigata Subaru Co., Ltd., obtained ISO14001 Certification in fiscal 2005, bringing the total number of companies that have obtained such Certification to five.



Subaru Eco Action 21 Information

#### Using Reassembled and Used Parts -

FHI and Subaru dealers across Japan are using recycled (that is, reassembled) and used parts. Using reassembled parts such as engines, transmissions and water pumps, was started in collaboration with the related manufacturers in 2004. Using used parts such as exterior panels, lamps and wheels, was started in collaboration with existing used parts network groups.

#### **Collection of the scrapped bumpers**

FHI established an in-house system in 1973 to identify the materials used in plastic parts, ahead of the timetable for industry guidelines for the establishment of such systems. This system is very helpful when the company collects scrapped bumpers to recycle for use in other parts of vehicles. In fiscal 2005, we collected 44,373 scrapped bumpers from all over Japan, which is a 6.5% increase from the previous year (41,658).

The scrapped bumpers were recycled for use in other parts of Subaru as shown in the graph below.

#### Parts Produced from Scrapped Bumpers

Models	Parts
R1, R2, Pleo	Universal joint cover, Underfloor cover
Legacy	Under spoiler, Battery pan

Number of the scrapped bumpers collected (Graph)



#### Items that utilize Reassembled Parts

#### Engine, Transmissions, CVT (Continuously Variable Transmission), Alternator, Starter ECU (Engine Control Unit) Water Pump

# **Recycling Activities**

FHI has established the Automotive Recycle System of Subaru (ARSS<sup>\*2</sup>), shown to the right, as part of active efforts to recycle and properly dispose of end-of-life vehicles (ELVs<sup>\*1</sup>), according to the Japanese End-of-Life Vehicles Recycling Law (hereinafter referred to as the ELVs Recycling Law) which came into force on January 1, 2005. The recycling ratio of ASR<sup>\*3</sup> in fiscal 2005 was 70.0%, marking a top position among automobile manufacturers and satisfying the Japanese legal standard required for fiscal 2015. We will continue efforts to keep the recyclability of Subaru automobiles at a constantly high level, as well as aim at further efficiency improvements and low-cost recycling in order to minimize the recycling fee paid by our customers.

# **Out Future Efforts**



# Efforts in the Design Stage to make Recycling Easier

### (1) Emphasis on Design Allows Easy Recycling

In order to utilize limited resources, Subaru has set up the Recycling Design Project Team. It researches easy-to-dismantle parts and vehicles and easily recycled parts structure and materials, gives feedback on the development and design of future vehicles, and makes efforts toward reducing the amount of ASR generated.

#### **1**Recycling Market Research

The team members continuously visit dismantlers, shredding companies, and waste disposers in various parts of Japan to exchange views on the current and future market trends for ELV treatment. The results are used to determine the principles for designing automobiles with due consideration for recycling and extract detailed subjects for future research.

#### 2 Efforts toward the Reduction of ASR

ASR includes a huge variety of materials and chemical substances used for manufacturing automobiles, and these materials consist of a complex mix.

Consequently, the team members completely dismantled, disassembled, and analyzed vehicles to identify the reasons ASR is generated, and then created the ASR Calculation Guideline for calculating the amount of ASR generated from a vehicle. Also the Recycling Design Guideline was reviewed and improved to prevent the generation of ASR. These guidelines are utilized for the development of Subaru automobiles.

#### **3**Efforts to Improve Recyclability

### Advances in Wire Harness Dismantling (Picture 1)

Because a large amount of copper is used in a wire harness, if the wire harnesses can be removed before the ELVs are shredded, the collection and separation of iron and copper will be enhanced and their value in terms of resource recycling will increase. FHI is conducting studies for a harness layout and automobile structure that make it possible to effectively collect more iron and copper and in a shorter time.



Picture 1 : Wire harness dismantling experiment

#### Easier Material Identification (Picture 2)

It is most important that the material of each part can be recognized easily when we recycle. FHI started to identify the type of material on plastic parts in 1973 even before guidelines for the industry were established. Material identifications had been attached on the rear side of each part before, but the position was changed as we believed we could avoid such wasteful actions as "dismantling a part only to realize it was the wrong one" if we could confirm the material type without having to actually dismantle the part. FHI has changed the identification positions on all car models, including the Legacy, R2 and R1.



dismantling the bumpers.

An example of the material indication: (>PP<: PP means polypropylene)



Picture 2 : Example of easier material identification (an example of Subaru R1)

\*2 : ARSS: Automotive Recycle System of SUBARU

\*3 : ASR: Automobile Shredder Residue : Residue after scrapped metals for recycling removed from shredded car body

<sup>\*1 :</sup> ELV: End of Life Vehicles



#### **④Efforts to Improve Proper Disposal**

ELVs Recycling Law also regulates the proper disposal of substances with environmental impact, particularly fluorocarbons (refrigerants for air conditioners) and airbags. Concerning future vehicle development, FHI recognizes the essential need to produce vehicles that can be disposed of more easily. Reduction of Fluorocarbons Used in Air Conditioners

FHI uses a substitute fluorocarbon, HFC134a, for refrigerants in air conditioners, which does no harm to the ozone layer, but which is still believed to accelerate global warming. Active countermeasures include reducing the amount of HFC134a, and minimizing leakage of HFC134a, which can occur while air conditioners are in use. We are also conducting research into substitute refrigerants other than fluorocarbons.

#### Advances in Airbag Disposal

Airbags and pretensioner belts contribute significantly to reducing the shock to drivers and passengers in automobile accidents. On the other hand, the vast majority of automobiles are put out of service with unused airbags. Because automobile manufacturers are asked to dispose of airbags and similar products under the ELVs Recycling Law, we are conducting research into the optimal structure for airbags, including related components, that will make it safer and easier to activate them in automobiles and subsequently dispose of them.

### (2) Reducing Substances with Environmental Impact

We are committed to curtailing our use of substances with environmental impact at an early date, not only to reduce the damage to the global environment, but also to remove the need for complicated recycling equipment and operations for ELV treatment. We think it is necessary to reduce substances with environmental impact; consequently, we are making efforts to promote the recycling of parts and materials.

#### **1**Introduction of IMDS\*1

IMDS (International Material Data System) is an environmental information database system developed by German Automobile Industry Association and other related parties to manage substances with environmental impact and to calculate recyclable ratio. After introducing IMDS in fiscal 2003, Subaru started to research part of Subaru models and in 2005 all models became the subject of research. We will continuously strive to ensure that we will be successful in meeting the requirements on December 2008, when the recyclable ratio becomes a legal requirement in Europe. (2) Reduction in Use of Lead

For compact cars, the amount of lead has already been reduced to less than one-tenth of the 1996 industry average. We will continue these efforts in respect of all our car models.

#### ③Response to the Voluntary Activity Plan of the Japan Automobile Manufacturers Association, Inc.(JAMA)

We have been promoting the reduction of mercury, cadmium, and hexavalent chromium in accordance with the "Substances with an Environmental Impact -Voluntary-activity by the Japan Automobile Manufacturers Association, Inc." (issued by JAMA in December 2002). As a result, we have successfully eliminated the use of mercury (excluding exempted items) and cadmium in all our car models. As for hexavalent chromium, we will continue our efforts towards its "complete elimination", scheduled for December 2007.

### Efforts in the production stage

#### (1) System for Grade Integration of PP Plastic

Previously, a great deal of waste was generated in our materials manufacturing, compounding, and parts mold-processing procedures since we had different grade mixes of PP materials depending upon the parts. In order to keep such waste to a minimum, we promoted the integration of PP grades. Each integrated material for bumpers and interior parts has been applied to most vehicle parts. We are going to further improve efficiency for making plastic materials easier to recycle.





Green parts: Integrated materials are used in these parts.

# (2) Recycling Waste Materials (Paint Sludge)

We found a way to recycle paint sludge from the paint factory. We are recycling paint sludge as anti-vibration materials for vehicle floor panels and as blast furnace reducer. We are also considering recycling it for other uses. As for recycling of paint sludge, our 2002 Environment Report, "Paint Sludge Recycling Plant" (see p.30) explains the process in detail.

#### Amount of Paint Sludge Recycled



to the vehicle body)

### (3) Utilizing Other Industrial Wastes Continuous efforts

FHI will actively utilize recycled materials generated by industries other than the automobile industry. For waste materials generated in manufacturing plants, we are also promoting development of technology so that we can recycle and utilize the waste materials from vehicle manufacturing.

An example of Utilizing Recycled Materials in Model R1 Mini car



\*1 : IMDS stands for 'International Material Data System', and is a system that meets global standards for measuring substances contained in parts, etc., that have an environmental impact.

# Disposal of End-of Life Vehicles (ELVs)

FHI is conducting research and development for the improvement of the recycling processes cooperating with companies that process ELVs. The results of joint development are made public in order to contribute to the realization of a recycling-oriented society.







# Developing Automobile Window Glass Recycling Technology

Most of the automobile shredder residue from ELVs is landfilled, but FHI believes that collecting and recycling window glass of automobiles, which currently accounts for approximately 20% of the shredder residue, will contribute significantly to waste reduction and bring certain advantages.

#### [Advantages of glass recycling]

- ◆ASR generation can be reduced ⇒Of the 3Rs (reduce, reuse, and recycle) of ASR, reduce, which contributes most to decrease waste, is achieved.
- ◆Recovery rate of ELVs can be increased ⇒Promote improvement of the recovery rate (more than 95% in 2015)
- ◆Recyclers' burden can be mitigated
   ⇒By removing glass from ELVs, the press,

shearing, and crushing machines used for ELVs recycling will wear less, thereby reducing maintenance costs

FHI started studying a method for recycling side-door glass into glass wool in January 2000, and developed devices for glass collection, windshield crushing, and inner-film separation, thus establishing collection and reuse technologies for these types of glass into automobile window glass. We worked with 12 dismantlers and three flat glass manufacturers in 2003, and then in 2004 started the cost reduction and infrastructure maintenance required to incorporate collection, recycling and reuse jobs into monthly routines. We will make efforts in the future to organize infrastructures that expand and institutionalize the collection and recycling of glass within the entire automobile industry.

#### Tool Manufacturers

Company Name	Location
Makita Corporation	Anjo City, Aichi
Lobtex Co., Ltd.	Higashi-Osaka City, Osaka

#### Dismantlers

Company Name	Location
Car Steel Co., Ltd	Maebashi City, Gunma
Nagano Automobile Recycling Center Co-op	Tobu Town, Nagano
Ibajihan Recycling Center Co., Ltd.	Minori Town, Ibaraki
Tsuruoka Co., Ltd.	Oyama City, Tochigi
Metal Recycling Co., Ltd.	Kawashima Town, Saitama
Showa Metal	Koshigaya City, Saitama
Keiaisha Co., Ltd.	Yokohama City, Kanagawa
Renaissance Co., Ltd.	Kimitsu City, Chiba
Nippon Auto Recycle Co., Ltd.	Toyama City, Toyama
Sanomaruka Co.	Fujinomiya City, Shizuoka
Shinsei Co., Ltd.	Mihara Town, Osaka
Mitsui Bussan Raw Materials Development Co.	Sakai City, Osaka

#### Windshield Collection Method





#### Side-door Glass Collection Method

Glass is crushed with a hammer and dropped into a dish underneath.



# Activities of Individual Companies : Aerospace Company

FHI can trace its beginnings back to Nakajima Aircraft Co., Ltd., founded in 1917. In the intervening years, we have been able to take the lead in the Japanese aerospace industry by using aircraft production technologies and a spirit of innovation taken from the past, and to continually be involved in the development and production of a wide range of aircraft.

The Aerospace Company actively challenges itself in new fields of technology to grow further and become an internationally-outstanding company. Toward this end, we utilize the creative, cutting-edge technologies we have been cultivating, including development technology for aircraft structures such as the application of composite material to the main wings, as well as advanced system integration technology, in which the IT technology used for one of our main products, unmanned aircraft, and flight control technology are integrated.

# Profile of Aerospace Company



#### Aerospace company



Location

1-1-11, Yonan, Utsunomiya, Tochigi (Main plant) Products manufactured Aircraft, unmanned aircraft, space-related equipment Number of employees Aerospace Company: 2,229

# The History of Aircraft is the History of Structural Weight Reduction

It may be no exaggeration to say that the history of aircraft equals the history of weight reduction in aircraft structures. Since the beginning of aircraft history in 1903, when we flew up in the sky for the first time using

powered aircraft, the materials used for aircraft structures have continued to evolve, becoming even lighter and stronger, changing from wood to aluminum and eventually to composite material. Further weight reduction in aircraft is necessary due to recent rises in oil prices and in response to increasing environmental concerns such as energy-conservation. As a result, aircraft utilizing a large amount of composite material have begun to emerge.

# The Need to Develop a Health Diagnostic System of Aircraft Structures

While composite material contributes to the reduction of the weight of the aircraft, it is extremely difficult to find out to what extent and in what manner the structural

# Finding a Clue in the Human Body

We drew great inspiration from the mechanisms of the human body in developing this system. In the human body, physical disorders are detected by the neural network which runs all over the body, and a person is alerted to a disorder by symptoms such as pain or fever (Figure 1). We have been researching whether the same mechanisms could be applied to aircraft, by which any damage could be diagnosed and the need for repair communicated using sensors installed across the entire structure of an aircraft in a manner equivalent to the human neural network. The Aerospace Company was one of the first companies to undertake research and development for this system\*, and worked to put the system into practical use, taking the view that such technology will become widespread among civil aviation aircraft in the near future.

Outline of the sensor system (Figure 1)



parts of aircraft are damaged or have deteriorated due to material fatigue or structural overload. There has been a strong need to develop a technology by which

# Effects of System Introduction

#### Weight Reduction in Aircraft Structures

If this system is applied to a section of the aircraft such as the tail assembly, for which composite material is used and the design tolerance is severe, the health of the tail structure can be diagnosed and confirmed more easily (Figure 2). Excessive strength can thus be eliminated in the early stage of aircraft design, and the weight of the structure can also be reduced (Figure 3).

#### Image of the sensor system applied to the wing structure (Figure 2)



An ideal image of weight reduction in aircraft structure (Figure 3)

invisible scratches, one of the disadvantages of composite material, can be located easily. Such technology is called a System to Diagnose the Health of Aircraft Structure\*.

#### **Effective Maintenance**

Maintenance of aircraft, such as replacement of parts, which is usually conducted according to the number of accumulated flight hours, can be done more effectively, as this system makes it possible to pinpoint the exact locations in need of repair or replacement.

#### **Enhanced Safety**

Aircraft safety is expected to increase further, as the health of the aircraft can be diagnosed in real time during flight.

Thus, the Aerospace Company actively takes on the challenge of developing a system which will contribute significantly to the reduction of aircraft weight and the creation of structures that consume less energy in the future.

\*: This research is conducted under the Development of Damage Monitoring System for Wing Box Structure of Aircraft, a 5-year program from 2003 to 2007, which was adopted and funded by the Ministry of Economy, Trade and Industry (METI), under the initiative of FHI in cooperation with the R&D Institute of Metals and Composites for Future Industries (RIMCOF).

# Industrial Products Company

Activities of Individual companies

The Industrial Products Company produces about 1 million general-purpose engines per year. These engines are loaded in machines that support our life such as construction and agricultural machinery to establish infrastructures, leisure-related equipment to fulfill our life, snow removal equipment, and engine-equipped generators for harsh environments, which have enjoyed good reputations from our customers. Product development is implemented by repeating demanding tests so that these engines and machines will always work stably under the worst conditions imaginable on the earth, such as severe heat, extreme arctic cold, blistering desert heat, and rough marine applications.

# **Profile of Industrial Products Company**



#### Industrial Products Company

Main Location Number of employees 589

4-410, Asahi, Kitamoto, Saitama

Products manufactured Multi-purpose engines (Robin engines), engine generators, engine pumps

# **EH50-Type Engines**

The EH50PL is a liquid-cooled, 4-cycle single-cylinder SOHC gasoline engine with displacement of 498 (mL) and sold mainly in the North American region as an engine mounted on ATVs\*1 such as the Sportsman manufactured by Polaris Industries, Inc. Since the start of production in 1995, the EH50PL has gained popularity in the market, and is still being produced today. The fuel delivery system has been changed recently from the currently-applied carburetor system to the Electronic Fuel Multi-point Injection System (MPI system), which takes into account the exhaust emission regulations of the EPA (Environmental Protection Agency) in the U.S., which came into force in 2006 Model Year and are scheduled for 2009 Model Year.



ATV/

# Features of EH50-Type Engines

#### 1. Environmentally friendly

The air-fuel ratio has been optimized for all driving conditions through the application of the MPI system. It complies with the current exhaust emission regulations of the EPA and CARB in the U.S. and balances high-level driving comfort with improved fuel consumption. We are also making efforts to reduce substances with environmental impact in these engines, such as hexavalent chromium and lead

#### EH50PL MPI System Engine

### 2. People Friendly

#### Noise Reduction

A noise from the gears inside the engine has been eliminated by optimizing the gear specifications, reducing the noise during idling and improving the acoustics.

#### • Improved Starting Performance

We have worked on improving the starting performance of vehicles and the operability at cold temperatures, while also working on improving the mechanical decompressor (decompression mechanism activated upon starting-up the engine) and eliminating choking through the use of the MPI system.

#### Emission Gas Level(CO) Fuel Economy Level



#### Column

#### Products of Industrial Products Company\*<sup>2</sup> Used in Disaster-Stricken Areas

FHI makes active efforts to provide disaster relief to areas stricken by natural disasters and the like, both in Japan and abroad. One outstanding example is the power generators manufactured by the Industrial Products Company, which are contributing to recovery efforts in areas where electrical lifelines were disconnected. A large number of our power generators are still being used in many areas worldwide.

FHI has donated its power generators and water pumps to several disaster-stricken areas, including the area hit by the Niigata Chuetsu earthquake in 2004, and to those stricken by the Sumatra Earthquake and Tsunami in the Indian Ocean in 2004.



ROBIN power generator playing an active role in a disaster-stricken area

\*1 : ATV stands for all-terrain vehicles, and refers mainly to 4x4 buggy vehicles.

\*2 : For the ROBIN products on which engines produced by the Industrial Products Company are mounted, please refer to FHI's homepage at http://www.fhi.co.ip/robin/index.htm.

# Eco Technologies Company

Eco Technologies Company deals with a variety of products that contribute to creating comfortable living environments and a resource recycling society with an Environmentally-Sound Material Cycle and the recent refuse disposal system for skyscrapers, as well as various vehicles and equipment for waste collection, transport, and recycling. Handling the wind turbine systems to produce clean energy, Eco Technologies Company contributes to conservation of the global environment with its ecological products.

# Profile of Eco Technologies Company



Location Products manufactured

**Eco Technologies Company** 

1-1-11, Yonan, Utsunomiya, Tochigi



Environmental vehicles (Refuse collection vehicles, transporters, detachable container trucks, organic resource separation and collection vehicles), and environmental equipment, such as Wind Turbine System and a Refuse conveyance system for skyscrapers 179 (As of March 31, 2006)

# Waste Collection and Transportation Vehicles

#### New model refuse collection vehicles, Fuji Mighty LP871

The Fuji Mighty LP871 is a model which has become available for the first time on the open market. It was developed under collaboration between FHI and Shin Maywa Industries, Ltd., the two major manufacturers of refuse collection vehicles, and was launched in May 2005. A loading system developed using some of the two companies' most highly evaluated patents is mounted on this model, and its appearance is more sophisticated than ever. For safety, we have established our own voluntary standards, SAFETY 21, which are even stricter than the relevant legal standards. The rear-view eye camera for rearward confirmation and the high mount stop lamp for enhancing the visibility of the vehicle from the rear side are mounted as standard for increased safety. We have been making series of products for 2-ton and 3.5-ton chassis bases since April 2006.

#### New detachable container truck, Power Loader FPL-4A

We launched a detachable container truck (product name, Power Loader), a new model in the 4-ton chassis class in March 2006. The waste container can be attached and removed as shown in the picture, and it is possible to dump the container in order to discharge the waste. Our detachable container trucks have been used at construction sites and waste treatment facilities, and the market has been expanding recently. Containers stationed at several locations can be transported using just one Power Loader, thereby improving transportation efficiency. The Power Loader is a vehicle in compliance with the compatibility requirements of the manufacturing standards issued by the Japan Auto-body Industries Association Inc.

#### Low- Pollution Refuse Collection Vehicles Adopted

63 of our CNG (compressed natural gas) refuse collection vehicles were adopted in fiscal 2005, as well as three hybrid vehicles.

#### Specifications of the LP871

Body	4-ton chassis class of each domestic chassis manufacturer
Cargo box capacity	8.6m <sup>3</sup>
Hopper capacity	1.1m <sup>3</sup>
Cargo box dimension	3,155mm x 2,035mm x 1,660mm
Loading method/cycle	Press method loading/approx. 13 sec.
Discharging method/time	Forced discharging/approx. 18 sec.
Design renewal	The body and tailgate come in one piece



New model refuse collection vehicles "Fuji Mighty LP871"





New detachable container truck, Power Loader FPL-4A

Trends of Low-Pollution Refuse Collection Vehicles Adopted



# Technological Licensing of Refuse Collection Vehicle Fuji Mighty to Overseas Companies

The Eco Technologies Company started the technological licensing of its refuse collection vehicle Fuji Mighty to Jiangsu Yueda Special-Purpose Vehicle Co., Ltd. (Jiangsu Province) in China in 2004. In the summer of 2005, local production of the first prototype vehicle was completed. Because China is presently facing growing environmental problems due to its rapid economic progress, improved waste collection and cleaner and more effective transportation is required. Expectations of the technology of Fuji Mighty are growing stronger, as demand for refuse collection vehicles grows across China, especially with large-scale international events such as the Beijing Olympics and Shanghai World Expo to be held in the near future. The Eco Technologies Company will continue to

# Products Contributing to Recycling Society

#### Fuswton, a Refuse Conveyance System for Skyscrapers

In high-rise office buildings that require further recovery of resources, efficient vertical conveyance of refuse has been demanded in recent years, rather than conventional manual conveyance by elevator. Fuswton is a refuse

### **Railroad Memorial Museum**

The Railroad Memorial Museum was established to preserve the history of our railroad cars production after withdrawal from that business. The storage hall stores and exhibits representative cars FHI produced, including the rail bus for the Tarumi Railway manufactured in 1984. The material hall stores the history of wagons in materials by exhibiting photo panels of representative cars and their production processes together with commemorative products, as well as accumulated photos and materials from a line of cars. The Museum, which is open regularly, is utilized as a spot for communication among local residents and retired employees, along with a square having a green in front of the museum as a relaxation space for employees.

### Clean Enterprise\*1

FHI's Clean Enterprise has been working on developing various mobile robot products since 1991. We manufacture and sell cuttingedge elevator-interfaced cleaning robots for energy and labor conservation in building cleaning, outdoor cleaning robots which played



Elevator-interfaced cleaning robots



robot for pharmaceutical companies



Outdoor cleaning robot which played an active role in the Aichi World Expo

develop and sell refuse collection vehicles capable of coping with environmentally-harmful waste not only within Japan but also in Asia, including China.



FHI's technologies being utilized in refuse collection vehicles plaving an active role overseas.

conveyance and sorting system, where refuse input from each floor is left to fall without damage by controlling the speed of the fall with pressure control, and recyclable waste is sorted according to types for efficient resource recovery.



Overview of the Bailroad Memorial Museum



Inside of the Bailroad Memorial Museum

an active role in the Aichi World Expo, as well as an ozone deodorizing and purifying device and waste weighing system for building.

We will continue to provide highly-practical products in the field of service robots, where demand is set to continue growing.



Landmine detection robots and our staff who conducted their verification testing in Croatia

\*1: The Clean Enterprise changed to the Clean Robot Department, Strategy Development Division of the Head Office as of July 1, 2006 following organizational changes.

# Activities of Offices



Location : Shinjuku-ku, Tokyo, and Kita-ku, Saitama City, Saitama Prefecture Business profile : Planning, marketing and sales of Subaru products, and corporate operations



Employees : 564 persons (Shinjuku and Omiya)

#### Head Office (Shinjuku Business Site, Omiya Business Site)

We have been promoting the Eco Office Activities\*1 in the Head Office area, involving all employees in environmental conservation activities, utilizing relevant information disseminated over the intranet, educating employees and periodically implementing EMS self-diagnosis. In fiscal 2005, we achieved our goals in respect of energy consumption in the offices (a reduction of 7.0% compared with the previous year) and paper consumption (a reduction of 14.3% compared with the previous year).

In addition, we reviewed the disposal and ordering methods of sales promotion items, which had previously been landfilled once they became unnecessary, and achieved complete recycling in fiscal 2004.

From fiscal 2006, all employees, including those at the Omiya Business Site, have been promoting EMS activities, focusing on our core business operations that relate to customers and employees.

#### Achievements under the Fiscal 2005 plan

Item	Fiscal 2005 achievement		
Electricity	1.0624 million kwh (7.0% reduction compared to the previous year)		
Paper	23.8ton (14.3% reduction compared to the previous year)		



TÜV

Location : 3-9-6, Osawa, Mitaka, Tokyo Main business: Research and Development. Experiment of automotive engine and transmission. Research and Development of Subaru products Number of employees : 982



#### **Tokyo Office**

The Tokyo Office promotes environmental activities under the theme of its environmental policy, "Provide Clean Power Units", considering how essential operations at each division affect the environment. We achieved zero emissions in September 2003 and have maintained that level ever since. We also conduct emergency drills and fire drills periodically to prepare ourselves for environmental incidents, as oils and chemicals are used for experiments and research at our properties.

As part of activities contributing to local communities, we have been assisting neighboring elementary schools in conducting their social studies classes since fiscal 2004, offering them opportunities for office tours combined with preparatory lectures. In fiscal 2005, we invited 6 elementary schools (about 500 students) to study automobile history and car manufacturing at Subaru, and provided them with opportunities to experience an environmental test room where the air temperature is set at -30°C and an anechoic chamber where sounds do not rebound, as well as design studio tours. The children who participated in these activities were all amazed and gained a deep interest in automobile development, something they would not have experienced in their daily lives. We will continue this assistance.

#### Achievements under the Fiscal 2005 plan

Item	Fiscal 2005 achievement	
Electricity	25.5982 million kwh (3.5% reduction compared to the previous year)	
Paper	5.01 million sheets (10.4% reduction compared to the previous year)	

#### **Topics of Fiscal 2005 activities**



The Operations Improvement Case Study Presentation is held every year to disseminate outstanding cases as examples to other divisions



A bulletin board for separation and disposal at Subaru Parts & Accessories Division in Omiya



Education is implemented over our intranet, and 760 persons, including temporary and part-time employees received e-learning training in fiscal 2005



We participate in social contribution activities as well, donating collected stamps, telephone cards and pull-tabs

# **Topics of Fiscal 2005 activities**



Social studies tour of fifth-grade elementar school students, watching a car being tested



A fire drill assuming a large-scale natural disaster An emergency drill using fire extinguishers



Social studies tour of fifth-grade elementary school students, intrigued by the clay models



\*1: Eco Office Activities are activities such as the organization and arrangement of office-related items, the turning-off of lights during lunchtime, the proper temperature control of air conditioners and the reduction of office paper consumption, in which all employees participate in order to promote environmentally-friendly office operations.

FHI holds meetings of the Domestic Affiliated Company Subcommittee with six of our affiliated companies\*1 (excluding Subaru dealers) that have a significant environmental impact in their manufacturing or transport businesses. In fiscal 2005, we expanded the Environmental Risk Assessment and company-wide Environmental Data Collection System. In addition, Subaru Kosan Co., Ltd.\*<sup>2</sup>, one of our non-manufacturing affiliates, obtained the ISO14001 Environmental Management System Certification in fiscal 2005.

# **Outline of Activities by Subcommittee Members**

Regarding the prevention of global warming, CO<sub>2</sub> emitted by the six companies in fiscal 2005 totaled 28,170 tons (a reduction of 9.7% compared with the previous year). As for reduction in waste material, the six companies achieved a zero level of waste landfilled in total by changing the disposal method and enforcing strict separation before collection.

Concerning environmental accounting\*3, the environmental costs of the six companies totaled 270 million yen (a reduction of 20% compared with the previous year) in fiscal 2005, producing a positive economic effect of 180 million yen (an increase of 10% compared with the previous year).

At Ichitan Co., Ltd., efforts have been made to create effective anti-vibration and sound isolation measures for devices such as press machines, which produce vibration and noise. In February 2006, Ota environmental subcommittee held a meeting concerning noise and vibration control at Ichitan (hosted by Ota Industrial Liaison Council for Environmental Conservation), exchanging opinions with local government and companies in that region and holding plant tours.

Each company periodically implements activities such as cleaning and mowing in their neighboring areas. For example, Fuji Robin Industries, Ltd. cleaned the riverbed of the

Kisegawa River, one of its annual events, in November 2005.



Meeting for noise and vibration control held in February 2006 at Ichita

#### Cases Where Requirements Stipulated in Environment-Related Laws Were Exceeded, Environmental Incidents and Claims

In fiscal 2005, 14 cases were reported where our measurement results exceeded the requirements stipulated by environment-related laws (six cases related to water quality and eight to noise). Concerning the six cases related to plant effluent (PH and SS), we took a countermeasure by improving our facilities and the management of the wastewater treatment facilities. As for noise, there were eight cases where the noise at the borders of our plant properties exceeded the stipulated values. We have been implementing tentative noiseisolating measures, and studying sound-absorbing and noise-isolating measures based on frequency analysis.

With regard to environmental incidents, two cases were reported, including an oil leak from the pipe of a heavy oil tank, and we have been implementing rapid and appropriate emergency measures in response, as well as permanent measures such as facility improvement.

On another note, we received two environment-related claims. One was for the noise associated with forklift trucks operating early in the morning, while the other was for the noise of car engines in an employee parking lot late at night. We have implemented countermeasures, such as reviewing product delivery times and instructing employees to act more quietly.

#### Soil and Underground Water Surveys by Yusoki Kogyo K.K.

Yusoki Kogyo K.K. (Handa City, Aichi Prefecture), following the discontinuance of some of its specific facilities, conducted soil surveys according to the Soil Pollution Countermeasures Law from November 2005 through January 2006. Because soil pollution exceeding the standards stipulated by the law was confirmed, we have filed the case with the Aichi Prefectural government and are implementing countermeasures in compliance with the law. At the locations where soil pollution\*\* was confirmed, we have been removing the pollution by excavating the earth, implementing on-site cleaning and conducting underground water surveys.

#### Column

#### Subaru Kosan Co., Ltd., a Non-Manufacturing Affiliate, Obtained ISO14001 Certification

One of our affiliates, Subaru Kosan Co., Ltd. (located at Shinjuku Subaru, Ebisu Subaru and Omiya Subaru Buildings; President, Takao Saito), which runs businesses such as real estate development, travel agencies and building management, obtained ISO14001 Environmental Management System Certification in March 2006, the first FHI non-manufacturing affiliate company (excluding Subaru dealers) to do so. The company has been improving their operating processes as part of the 5S Activities to establish an EMS. Improvements include the weighing and recycling of waste material produced by each tenant, and the visualization and reduction of energy consumption by each tenant through proper building management. The company has been making efforts to improve its service quality as well, through measures such as the provision of useful information in a timely manner and using their EMS as an important tool to run their businesses properly. Subaru Kosan plans to further improve every service they provide by further promoting EMS activities in the future.













Issued bymonthly (2006 spring edition)

- \*1: Six Manufacturing Affiliated Companies: Fuji Robin Industries Ltd, Yusoki Kogyo K.K., Fuji Machinery Co., Ltd., Ichitan Co., Ltd., Kiryu Industrial Co., Ltd., Subaru Logistics Co., Ltd.
- \*2 : Non-manufacturing Affiliated Companies: Subaru Kosan Co., Ltd., Subaru UI Co., Ltd, Subaru Finance Co., Ltd., Subaru System Service Co., Ltd.

\*3: Details of the Environmental Accounting of Domestic Affiliated Company Subcommittee are shown on our website, Supplementary Volume for Data Related to the 2006 Environmental & Social Report. \*4 : A maximum of 38 times the amount of lead or lead compounds stipulated by legal standards

# Activities of Affiliated Companies - Overseas Companies -

FHI and five affiliated companies in North America have established a committee concerned with the environment (the North American Environmental Committee, NAEC<sup>\*1</sup>) to expand FHI's activities, and utilize the Committee as an opportunity to hear reports on environmental conservation efforts at each company and discuss future environmental activities planned for North America. SRD, a development and research company for Subaru vehicles located in the U.S., obtained ISO14001 Certification in December 2005, thereby establishing the EMS at all five affiliates in North America for all stages of development, manufacturing and sales.

### North American Environmental Committee

North American Environmental Committee (NAEC) is held biannually (in February and August) to report progress in Environmental Mid-Range Plan by FHI and the five respective affiliates and to exchange information regarding examples of environmental improvement activities (Picture 1). In fiscal 2005, we exchanged opinions on the trial implementation of environmental accounting and on how we should logically proceed with the EMS which has already been established at all five companies.



(Picture 1) NAEC held in February 2006 (then SEVP Suzuki in the right)

# Environmental Activities at Each Company Major Topics concerning Activities in 2005

- SRD obtained ISO14001 Certification, thereby completing EMS at all affiliates belonging to the NAEC (Picture 2).
- SIA has continued to maintain a level of zero waste material directly landfilled since May 2004.



(Picture 2) SRD M/s. Habara (center), Kurk (left) and Orikasa (right) with ISO14001 certification



(Picture 5) SCI's returnable/reusable long-engine container

#### **Reduction of Waste Material**

SIA obtained ISO14001 Certification as early as 1998 and since then has actively carried out environmental conservation activities. In particular, it has worked on minimizing consumption of resources, curbing waste generation to reduce the environmental burden as much as possible, implementing proper disposal, and promoting the cyclical use of resources. In May 2004, it successfully achieved a level of zero waste material landfilled for waste created in its manufacturing process, and it maintained that level throughout fiscal 2005. (Of the 14,656 tons of waste material produced in 2005, 0 tons were directly landfilled.)

SOA promoted the separate collection of waste material such as old body panels taken off automobiles at the South Central RDC\*<sup>2</sup>, in cooperation with a local NPO, while creating employment for people with disabilities. As a result, it became possible to recycle scrap metals and styrene foam packaging material, which had previously been landfilled, leading to a reduction in the amount of waste of 4,800kg per year. They will continue to separate and collect waste material, while fully utilizing



(Picture 3) SOA staffs making daily effort to recycle used cans and papers



(Picture 6) SCI's compressor (right) and Waste to Landfill 8yd Bin



(Picture 7) SCI's Recycling/Reusing Packaging Materials Bins

NPOs. In addition, they are making active efforts to recycle used cans and paper as a readily-achievable environmental activity (Picture 3).

RMI has completed a recycling system for gasoline drained from engines after test running, thereby further curbing the generation of waste material (Picture 4).

SCI has been making efforts to recycle cardboard, paper, plastic, glass and hazardous materials. Activities undertaken in fiscal 2005 included the following: (1) adoption of a new returnable/reusable container for engine and transmission (Picture 5); (2) conversion of a compactor previously used to landfill waste into a compressor for recycling paper and cardboard, thereby making paper material recycling possible and reducing disposal costs significantly (Picture 6); (3) The warehouse implemented a program for the reuse of packaging materials from incoming parts shipments by separating them into wood and plastic. Thus, activities to reduce waste material were carried out throughout the entire company.

Employees at SRD use reusable coffee mugs at work as a readily-achievable environmental activity (Picture 8).





(Picture 4) RMI's recycling system for gasoline drained from engines (completed in Dec. '05)



(Picture 8) SRD's Coffee Mugs

\* 1 : NAEC members = SIA: Subaru of Indiana Automotive, Inc.; SOA: Subaru of America, Inc.; RMI: Robin Manufacturing U.S.A, Inc.; SCI: Subaru Canada, Inc.; SRD: Subaru Research & Development, Inc.

#### **Energy Saving Activities**

In 2005, all 270 metal-halide lamps in the warehouse were recently replaced with T-5 fluorescent fixtures at SOA Northwest (Picture 9). The results were a reduction of approx. 12,000 dollars in its power bill per year, as well as a reduction in the emission of greenhouse gases. The new lamps have been favorably received by employees, as they are kind on the eyes and make the workplace environment more comfortable.

SCI has installed motion light sensors in all meeting and rest rooms at the new Head Office building and the Parts Distribution Center which turn lights and other equipment on and off automatically. In addition, each workplace is provided with many windows to let in as much natural light as possible, the reception hall is equipped with skylights (Picture 10) and the wall height at each workplace is set at 4 feet.

RMI has added an automatic lights-out system to its assembly lines so that the lights are always turned



Picture 9) SOA's Lamp replacement projec

off at the end of every work shift.



(Picture 10) SCI Headquarter building has many glass windows to allow much natural light

# **Reduction of Environmental Risk** and Chemical Substances

SIA has changed the type of paint it uses to low-solvent type paint to reduce the amount of air pollutants produced by its painting process. The company will introduce an Electronic MSDS System to logically investigate what chemical substances are actually contained and reduce use of such chemical substances.

SOA has changed the type of boxes it uses for collecting used battery cells to a leak-proof type as a readily-achievable activity, and introduced an environmentally friendly aqueous parts cleaning machine at the South Central RDC (Picture 11).



SOA's leak-proof type battery collection box (left) and environmentally friendly aqueous parts

# cleaning machine (right)

#### **Green Procurement**

The NAEC is also making active efforts regarding green procurement. 81% of their suppliers have already obtained ISO14001 Certification as of fiscal 2005, NAEC will continue to establish EMS and make efforts to reduce chemical substances.

#### **EMS**

SRD obtained ISO14001 Certification in December 2005, thereby establishing the EMS at all five affiliates in North America. FHI and each affiliate will proceed with a study to logically promote the EMS activities. In addition, three more SOA business sites obtained ISO14001 Certification, bringing the total number of SOA's business bases to have obtained such Certification to six (Picture 12).



**Environmental Report** 

#### (Picture 12) SOA's Southwest RDC (Denver) staffs with th acquired ISO14001 certification

### Social Contribution Activities and Commendations at Each Company -

# Support through Fund-Raising Campaigns Support for the Areas Stricken by Hurricane Katrina

SIA and SOA have donated relief money to areas in the southern U.S. stricken by Hurricane Katrina in August 2005. FHI also donated money to those areas through the Japanese Red Cross Society. We wish all people in those areas a quick recovery from the disaster.

SOA is extending financial aid through the SOA Foundation to an internship program established to aid activities in the field of nature reserves. The program is for university and graduate students who are willing to make careers in wild animal recovery and conservation or for environmental education. The company also donated a Subaru Forester to the Vineland field station of the Rutgers University in New Lisbon, New Jersey. The vehicle is being used for their environmental preservation education programs.

RMI has continued to participate in social contribution activities organized by the Hudson Hospital and Hudson County Club, and has extended support to the Japanese school in Minneapolis.

#### Active Participation in Local Clean-up and Charity Activities

SOA employees participated in a beautification activity at a local youth house as part of their voluntary activities on Martin Luther King Jr. Day (Picture 13).

RMI employees are participating in fundraising activities for children with brain tumors (Picture 14).

SCI participated in the clean-up activity around its offices on Earth Day 2005 in cooperation with Mississauga City. SOMI, an affiliate of SCI, participated in the LitterNotProgram of Mississauga City as part of its social contribution activities. The company received a certificate of gratitude from the Mayor of Mississauga City (Picture 15).

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"Ride for Kids" a fundraiser fo





rth Day 2005 in cooperation with Missisauga City / Subaru of Mississauga (SOMI) employees participated in the local Mississauga LitterNot Program

# Social Report

FHI has the philosophy that we must be responsible for not only directly meeting customer needs in our operations by providing products and services but also that we must take responsibility throughout all our corporate activities, which includes compliance with laws and regulations, environmental protection, human rights protection, and consumer protection.

In addition, we think that the economic and social/human aspects of corporate activities cannot be separated, and thus taking social responsibility should be fundamental to our operations. So we would like to be a better corporate citizen who continuously contributes to the sound, sustainable development of our society, which includes customers, local communities, shareholders and investors, affiliate companies stakeholders and employees.

# **CSR (Corporate Social Responsibility) Activities**

We are pursuing our CSR activities with the philosophy that FHI's corporate philosophy and FHI's CSR policy are one and the same. Our CSR activities target a variety of

# **Corporate Governance Policy**

FHI is working to strengthen its corporate governance policies to ensure that it can measure up to the trust and confidence placed in the Company by all its shareholders, customers, and other stakeholders. Since June 1999, FHI has employed an executive officer system that helps clarify responsibilities for operational executive officer system that helps clarify responsibilities for directors and executive officers have been reduced from two years to one. Also, since June 2004, according to the decision of the Board of Directors<sup>+1</sup>, FHI has given responsibility for the nomination of corporate officers to its Executive Nomination Meeting and given responsibility for evaluating performance and determining the remuneration of corporate officers to its Executive Compensation Meeting. All these measures are designed to clarify management decision-making and operational execution functions, increase management transparency, and accelerate management functions.

The Board of Corporate Auditors Meeting consists of four corporate auditors\*', including two outside corporate auditors, and is responsible for receiving reports on important auditing issues and deliberates accordingly. FHI will be taking various measures to further strengthen its internal control systems and auditing systems while also considering whether to recruit outside directors. issues including corporate governance, compliance with laws and regulations, dealing with products and customers, environmental conservation, information disclosure and communication with investors, response to suppliers, management of employees, and contributions to society. In 2005, we established the CSR Committee, and a department in charge of CSR to promote our activities even further.



#### Column

# Plant Tour for Individual Shareholders

We invited our shareholders to a plant tour at the Gunma Manufacturing Division on March 4, 2006. It was the third such occasion and this year 97 individual shareholders participated in the event, which allowed them to better understand the status quo and manufacturing activities at FHI, to actively exchange opinions at the Q&A session, and to participate in many other activities as well.



# Compliance

### Fundamental Philosophy Basic Compliance Policy

FHI's basic compliance policy is provided for by the Compliance Regulations as follows.

"We regard corporate compliance as one of the most important tasks for management. We strongly recognize that our company-wide efforts toward regulatory compliance make for a solid management foundation, and therefore, we carry out open and fair corporate activities in compliance with social norms, as well as all laws and regulatory requirements and internal regulations for corporate activities.

#### **Corporate Code of Conduct and Conduct Guidelines**

FHI has established a Corporate Code of Conduct and Conduct Guidelines as the standards to ensure compliance with laws and regulations. These are described in detail in the Compliance Manual, which all officials and employees carry in order to ensure legal and regulatory compliance in their daily actions. **Compliance Declaration** 

In order to maintain strict compliance, it is essential for corporate leaders to declare the stance personally. In May 2003 FHI's then president, Kyoji



Compliance Manual

Takenaka, issued a declaration entitled "Toward further enhancement of company-wide compliance activities." In the message, he declared that he would take the initiative to ensure that he and all officials and employees comply with laws and regulations in order that FHI will continuously grow to become a company that has earned society's trust.



100 Case Studies of Compliance Issues



Internal Compliance Training

\*1 : The Board of Directors Meeting consists of 6 executives. The board of Corporate Auditors Meeting consists of 4 auditors, including two outside corporate auditors, to observe the corporate management objectively (as of May 31, 2006).

\*2: Other than CSR Committee, we have Compliance Committee, Corporate Environment Committee, Recall Committee, and Export Control Committee.

#### **System and Administration**

#### **Compliance Regulations**

FHI established the Compliance Regulations in 2001 after approval of the board of directors. These regulations contain basic compliance policies, which provide for the system, organization, and operational methods related to corporate compliance. FHI's Compliance System/Organization and Administration

A Compliance Committee has been established as a company-wide committee organization to promote corporate compliance. The committee conducts deliberations and discussions, renders determinations, and exchanges information on key compliance issues. Every year, each department devises a compliance implementation plan (compliance program) to enhance corporate compliance and takes the initiative to advance continuous and systematic implementation activities. **Compliance Hotline System** 

FHI established the Compliance Hotline System in February 2003 as an alternative communication route,

#### **Fiscal 2005 Results of Compliance Activities**

#### **Providing Compliance Education and Training Programs**

In fiscal 2005, we offered an educational program of compliance and legal training through a variety of educational courses organized by our legal and personnel and training departments. More than 3,800 officials and employees in our group companies took these courses throughout the year. In addition, as voluntary activities by each department or the affiliated companies, there were workshops on laws and regulations with deep repercussions for each department or those companies and educational activities on compliance, utilizing the booklet titled "100 Case Studies of Compliance Issues" or "Personal Information Protection Handbook for Subaru Dealer Staff" as texts.

#### **Our efforts for Personal Information Protection**

In response to enforcement of the Personal Information Protection Act in April 2005, we enhanced our previous efforts to protect personal information under our codes of conduct by reviewing

providing employees with a direct route to report any problems detected concerning compliance. The Compliance Hotline Desk set up in our company receives reports directly from the employees involved and then investigates and deals with the matter. The name and department of the employee who reports the matter are kept under strict rules of confidentiality, unless the employee agrees otherwise. Due consideration is given to

#### Compliance Hotline



our internal system and regulations and announcing our personal information protection policy (privacy policy). For domestic Subaru dealerships, because they directly handle a large amount of our customers' personal information, we managed to thoroughly overhaul our internal system for each dealer and prepared and made use of the Personal Information Protection Handbook for Subaru Dealer Staff to help each staff member properly understand personal information protection.

#### **Activities toward Group Compliance**

In order to ensure compliance with laws and regulations, not only FHI but also all our group companies must join forces and work in harmony. For this reason, we dispatch compliance training instructors to each of the companies in our group as well as domestic Subaru dealers and also provide handbooks and textbooks in an effort to promote group-wide compliance with laws and regulations. As stated above, we prepared to expand the range

of employees eligible to use the Compliance Hotline System in fiscal 2005 to include employees of our domestic group companies and some employees of domestic Subaru dealers and to upgrade the system so that the Compliance Hotline Desk could handle compliance issues reported by any employee working at any relevant company (operation of the new system started in April 2006). The new system will provide a better self-regulating function than ever before throughout the entire group of companies and dealers, further enhancing group compliance.

ensure that the employee does not suffer any disadvantage

In fiscal 2005, we prepared to expand the range of

employees, employees of domestic group companies and

employees of our suppliers having a long business history

with us, in accordance with the Whistleblower Protection

people eligible to use the system to include temporary

as a result of reporting a compliance problem.

Act which came into effect in April 2006.



Compliance Training at Fuji Machinery Co., Ltd. in January 2006

# Relationship with Employees

FHI is seeking to reinvigorate our corporate culture, focusing on development of a free, openhearted, and proactively creative group that can cope with the latest significant changes to the business environment. Aiming at establishing a highly original, vigorous organization, we approach the development of systems from a wide range of perspectives, including the wages system, career planning programs, training programs, and benefit programs, so that employees can take on a higher level of challenges.

# Employment

#### **Downsizing the Company Structure**

FHI has prepared a five year mid-term management plan, FDR-1, to be applied towards the end of fiscal 2007, and is making efforts in respect of total cost reduction, reinforcement of product planning functions, restructuring of the sales process and network, increasing asset turnover, and organizational reforms. In order to produce meaningful results with the plan and to focus on improvements in our profitearning capacity, organizational revitalization by means of an altered labor structure, and the reinvigoration of our corporate culture through the improvement of the employee mindset, we offered employees voluntary retirement in December 2005, and reduced the number of employees by about 700. The number of FHI's employees\*' was 13,111 as of March 2006. **Employment of People with Disabilities** 

FHI has been working on eliminating discrimination against people with disabilities, or "Normalization\*2". The activities of the Universal Design Project Team, organized at the Gunma Manufacturing Division in 1999, were reported and favorably evaluated at the Third International Conference on Universal Design, held in Rio de Janeiro, Brazil in December 2004. Currently, employment efforts have been developed into efforts to create an attractive corporation where all motivated and competent people are given opportunities to contribute. The proportion of employees with disabilities\*1 throughout FHI was 1.8% as of March 2006.

#### Labor-Management Relations

FHI and the FHI Workers' Union have established a labor-management council for the promotion of smooth business operations and mutual communication. In recent years, labor and management have maintained good relations, and no disputes between labor and management have arisen during the past four years. The number of FHI Workers' Union members\*1 was 12,676 as of July 2005.

#### **Development of Human Resources**

FHI's personnel system aims that each employee is fully aware of his/her mission, capable of making his/her career plan for self-realization independently. The basis of the development of human resources is the On-the Job Training (OJT) in daily operation. We are making effort to create a system to develop individual ability more efficiently and effectively by combining company's support to employee's voluntary self-enlightenment and OJT. New employee performance evaluation system and internal open recruitment system also support our total development of human resources.

### **Benefits Package**

Starting in October 2003, FHI introduced a new cafeteria-style program for the benefits package called My Vision. Our employees enjoy a wide range of options with this program, which is designed to help them with parenting, nursing care, self-development and leisure isSUES. (For an outline of the My Vision program, please refer to page 60 in the 2005 Environmental & Social Report.)





#### Column

#### Handing Down Manufacturing Technologies and Skills

The Gunma Manufacturing Division has been participating in the Skills Competition since 1998, with the purpose of nurturing manufacturing specialists, raising basic skill levels within the entire division, and nurturing competent personnel. 13 employees participated at the 43rd National Skills Competition Championship, Kirara Yamaguchi 2005, held in Yamaguchi Prefecture in October 2005, in five events including lathe turning, die drawing and automobile fabrication, and successfully achieved record-high scores. In addition, the Gunma Manufacturing Division won a gold medal in the database event at the 28th Abilympics, held at the same time. The division will participate in the 2007 Universal World Skills Competition which is scheduled for 2007 in Shizuoka Prefecture.



Prize winners (from the left): Mr. Mori (automobile fabrication), Mr. Anzai (lathe turning Ms. Hagiwara (drafting), Mr. Iwasaki (auto-body painting) and Ms. Idei (drafting)



Mr. Kakiki, winner of the gold medal (for the database event)



Mr. Anzai turning a lathe

\*1 : Please refer to the "Supplementary Volume for Data Related to the 2006 Environmental & Social Report", for the number of FHI employees and new recruits, the composition ratio of male and female employees, the proportion of employees with disabilities, and the number of FHI Workers' Union members. (http://www.fhi.co.jp)

\*2 : Normalization: One of the concepts for a welfare society or preparations to realize the concepts; i.e. socially vulnerable groups, including disabled people and senior citizens, should be given the same living opportunities as those enjoyed by other people.

# Health and Safety

FHI strives to create safe, comfortable workplaces for employees and supports each employee in staying healthy mentally and physically. In addition, we continue to make efforts to prevent traffic accidents as one of our responsibilities as an automobile manufacturer, not only for the sake of our employees but also for the people in local communities.

# Basic Philosophy, Basic Policy and system for implementation

Basic Philosophy of Health and Safety

Health and Safety take priority in any business

Basic Policy of Health and Safety

Aiming for no disasters regarding occupational accidents, traffic accidents, diseases, and fire disasters; all employees recognize the importance of health and safety; improve the equipment, environment, and working methods; and improve management and awareness in order to create safe and comfortable workplaces.

# **Occupational Safety**

FHI has been conducting activities to help raise each employee's safety awareness, improve management of the workplace, and eliminate risks.

To raise awareness, KYT\*<sup>1</sup> and the Hiyari Hatto\*<sup>2</sup> Activity were implemented. To improve management of the workplace, a self-management activity called TSZ\*<sup>3</sup> was introduced at an early stage in each workplace. In addition, in 2000, FHI introduced a unique small-group risk assessment system to improve each employee's safety and to eliminate risks.

FHI also makes efforts to further improve occupational health and safety levels and prevent on-the-job injuries. Towards these ends, we introduced a new risk assessment system to the offices where the Occupational Health and Safety Management System\*<sup>4</sup> had already been implemented, and are constantly working on improving the Management System by internal auditing.

With regard to asbestos-related disease, former employees of the Rolling Stock Department (the business was discontinued in fiscal 2002) qualified for worker's compensation. We will continue to communicate with the government and industry groups, and make the utmost efforts on this issue. FHI does not presently use asbestos for any of its products.

#### **Health Care**

To revitalize our business activities, it is important that employees are always in good physical and mental condition and can use their skills and abilities to the full. To help reduce the amount of employee sick leave, we have been working on the early detection and treatment of disease by adding extra items to the list of legally mandatory diagnostic items. In addition, we take measures to care for employees' mental health according to the four items advised by the government. One example is the Mental Health Counseling Consultation Services we established at all our business sites, where



employees can consult clinical psychotherapists in person. **Traffic Safety** 

FHI makes various efforts at each business site to prevent traffic accidents that could occur in the course of business activities, commuting, and private time. The Tokyo Office held the Safe Motorcycle Driving Classes in cooperation with the Mitaka Police Department and the Metropolitan Police Department's motorcycle policemen team, to provide our employees with basic lectures and driving lessons. In addition, the office held a class where local seniors could experience ABS (Anti-lock braking system) four-wheel vehicles.

The Utsunomiya Manufacturing Division has been implementing the Education with Real-life Experience of Dangerous Accidents since fiscal 2000 using a driving course in Kanuma City, and 1,521 people have taken part in the course to date.

#### Creation of a Comfortable Working Environment

In order to implement the government guidelines for a comfortable workplace, FHI has been systematically working to improve every item addressed by the guidelines, including working environment, working methods, and environmental equipment. Also, in order to create a more comfortable workplace for employees, we have been working on improving lounges, restrooms, and dining halls and adopting universal-access designs in our facilities.

#### Column

Mr. Takayasu Kato, General Manager of the Safety and Health Promotion Division, Toyota Motor Corporation, gave a lecture on Toyota's efforts regarding health and safety, at the 30th Company-wide Health and Safety Congress. He lectured that visualization of human movement, facilities and management contribute not only to preventing on-the-job injuries but also to improving product quality and productivity.

Mr. Kato, the then General Manager of Toyota Motor Corp., giving a lecture



Safe Motorcycle Driving Class (Tokyo Office)



Education with Real-life Experience of Dangerous Accidents (Utsunomiya Manufacturing Division )



An example of improvements in its plant operations at Oizumi Plant Before: Employees used to load and unload heavy items manually

After: They introduced a cyclical transfer carriages to transfer heavy items, eliminating the manual loading and unloading

「安全衛生はマネジメシ

- \*1 : KYT: Training for predicting dangers; K: Kiken (Danger); Y: Yochi (Prediction); T: Training
- \*2 : Hiyari Hatto: Activity to collect cases of near-miss incidents.
- \*3: TSZ: Total Section Zero (related departments and sections make combined efforts to attain zero disasters).

\*4: A system to promote the organized, stable management of health and safety, aiming at creating a workplace with zero disasters and zero danger through a clear set of processes: "planning, implementation, evaluation and improvement."

# Social Involvement

FHI has established a Social Contribution Policy under its CSR policy and is actively promoting social contribution activities.

Social Contribution Policy (Established in March 2005)

We will contribute to the development of science and technology and automobile culture and to the diffusion of road safety. We will contribute to the fostering of human resources who understand the pleasure, importance and preciousness of creative manufacturing. We will contribute to the development of the communities we operate in. We will support each other in contributing to society as good citizens.

# Contributions and Development and Promotion of the Vehicle Culture

FHI participates in several automobile championships at home and abroad, such as the World Rally Championship (WRC) held mainly in Europe, where automotive culture was born, to contribute to the development and promotion of automotive culture. The technologies we have cultivated through such motor sport competitions are utilized in the cars we sell on the open market.

# Backup for Employee Volunteer Activities

The motivation and daily activities of each employee are the foundation on which we implement social contribution activities. At all of our business sites, we collect used postage stamps, prepaid cards, bellmark tokens and pull-tabs, and allow organizations to collect blood donations from our employees at each business site. In addition, we support employees who make efforts in volunteer activities by offering awards using the Employee Commendation System.

Furthermore, in cooperation with the Federation of Fuji Heavy Industry Labor Unions, we continue to hold several events every year, such as a charity show where a drama is enacted in front of people at welfare facilities, and a donation of Subaru TransCare to welfare facilities made possible through the fund-raising of union members.

# **Coexistence with Local Communities**

To coexist in harmony with local communities, employees at each business site actively participate in local events, and hold special events every year. Fuji Heavy Industries Ltd. Health Insurance Society Ota General Hospital, which is operated by the Fuji Heavy Industries Health Insurance Society, plays an important role in maintaining and improving the health of people in local communities, and practices community-oriented medicine.

# Support to Disaster-Stricken Areas

Major natural disasters occurred in 2005 as they did in the previous year. To support the victims of Hurricane Katrina, which struck the southern U.S. in August 2005, FHI donated money through the Japanese Red Cross Society, and SOA and SIA made donations as well. We also donated products such as power generators to areas hit by the Northern Pakistan Earthquake.

# Support for NGOs, Environment-related Funds

In fiscal 2005, we supported or sponsored a total of six events in our efforts to support environmental and social activities such as the promotion of science and technology.

#### Major Events FHI Participated in, Sponsored and Hosted in Fiscal 2005

Division/Office	Events	Cleanup Activities
Gunma Manufacturing Division	Subaru Appreciation Festival was held at the Yajima Plant Friendship and Appreciation Festival for locals and employees' families was held at the Oizumi Plant Supported the Ota City Firework Show Supported the Subaru Cup Baseball Tournament for Children Supported the Joshu Ota Subaru Marathon Participated in the Ota Festival and the Oizumi Festival	Cleanup of Kanayama, Ota City (Organized by the Subaru Community Exchange Association, May, about 1,000 participants) Clean up around the plants
Saitama Manufacturing Division	Summer Evening Festival Participated in the Kitamoto Festival	Clean up around the plants Kitamoto-city Voluntary Cleanup Program (Pikapika Kitamoto Omakase Program) (Total 8 times, 1,130 participants in total)
Utsunomiya Manufacturing Division	Friendship Festival for locals and employees' families The Bon Dance Festival for locals and employees' families Supported local summer festivals	Clean up campaign around the plants (Held in May, 359 participants in total)
Tokyo Office / Headquarter Area	Summer evening festival was held	-



Subaru World Rally Team got the 3rd prize in the 13th WRC Rally Japan of World Rally Championship



FHI intranet has a homepage dedicated to provide volunteering activities to employees



Subaru Friendship Concert



Fuji Heavy Industries Ltd. Health Insurance Society Ota General Hospital



Subaru Cup rubber-ball Baseball Tournament for Children

# Purpose of a Third Party Verification of the Environmental & Social Report

FHI had its Environmental & Social Report verified by a third party, TÜV Rheinland Japan, Ltd., an accredited ISO14001 registrar, for the first time before the publication of the 2006 volume.

The validity\*<sup>1</sup> of our report was assessed regarding the collection, calculation and reporting of important information and environmental data to prepare an accurate, easy-to-understand report where the transparency of information is assured, the completeness\*<sup>2</sup> of important information cited in this report based on the assessment guidelines, as well as the accuracy\*<sup>3</sup> in describing information.

- \*1: Validity of the Report: A criterion to assess whether information damaging to the management and the company has been omitted intentionally, and whether the impartiality of the report (the degree or extent of the effect of such false statements or omitted information on the interested parties making judgment on the status quo of the company) has been compromised through bias in the selection of the information put in the Report.
- \*2 : Completeness of the Report: A criterion to assess whether information has been disclosed properly according to the guidelines cited in the Report.
- \*3 : Accuracy of the Report: A criterion to assess whether the reported data has been measured and calculated accurately.

### Result of the Verification (Comments from TÜV Rheinland Japan)

The verification process had been performed as planned, and it was confirmed that the corrective action requested during the verification has been properly implemented. As a result, the verification team concludes that the processes of data collection, data processing and reporting have been appropriately implemented, and that the report covers and correctly indicates important environmental information based on the Ministry of Environment's "Environmental Reporting Guidelines".

# Looking at the Assessment and Comments

FHI's unique stance and efforts towards environmental conservation, as well as its meticulous activities to prevent pollutions, were evaluated highly through the assessment. On the other hand, we also received several comments suggesting that our report could be improved further. For example, the application ranges of the data attached to some articles were unclear, achievements of FHI in respect to environment-related laws, regulations and voluntary standards were not reported, and the source of the CO<sub>2</sub> conversion factor we used was not provided. Furthermore, FHI's explanation of the efforts for waste material is vague, and it would have been better to clarify how CSR is related to FHI's corporate philosophy, policies, code of conduct, and actions. We take all this advice seriously and we will be more proactive in communication with our stakeholders and continue to improve our activities and the report even further.



About the details of the Verification Statement, please refer to the website of TÜF Rheinland Japan.<Japanese Only> (http://www.tuv.com/id=9105019495&lang=en)



On-site assessment at the Gunma Manufacturing Division and a hearing with the administration office in charge of the assessment.

# **Editor's Note**

We have been issuing our report every year since the Environmental Report was first issued in 2000. The name of the report was changed to the Environmental & Social Report in fiscal 2004, and information on FHI's social activities has been included ever since. We have received advice from our readers on the ways to utilize this report, as well as some comments pointing out that the volume is too thick, or that the data is complicated and unreadable.

We take such advice and comments seriously, and have taken such measures as issuing a supplementary volume to cover detailed data, in an effort to make the report more reader-friendly. In addition, we tried to include more personal information in the report, and introduced as many people as possible involved in the distinguishing activities of FHI and its affiliates. We also strove to disclose information faithfully, and toward this end had the report assessed by a third party.

We hope this report is of some help in communicating with our stakeholders. We would appreciate your opinions and comments on this report and have provided an attached questionnaire for your convenience.

#### August 2006

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#### Front Cover of this Report

The picture on the cover of the 2006 Environmental & Social Report shows the Pleiades star cluster, "Subaru" in Japanese, based on which our six-star mutsuraboshi corporate symbol is designed. We will remain conscious of the environment while providing products and services that contribute to society, as we recognize the need to continue protecting the irreplaceable global environment for future generations. So that all may enjoy this beautiful starry sky forever.

The image of stars was partially processed for the cover use

C Aflo Foto Agency)

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