

# 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)

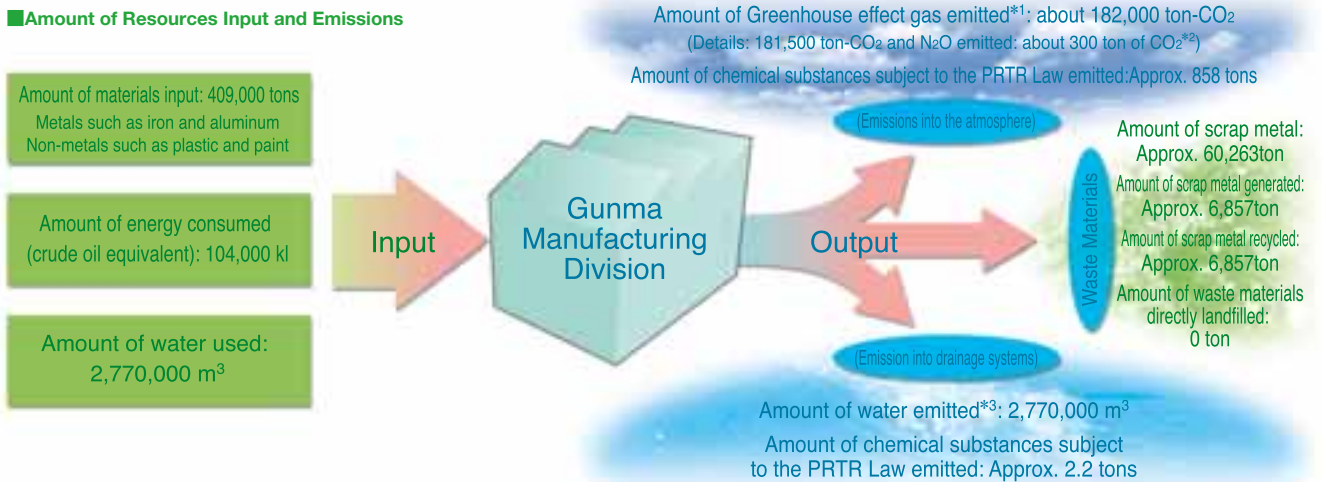


Location	Ota-city, Isesaki-city and Oizumi machi, Gunma
Products manufactured	Automobiles (Legacy, Impreza, Forester, Stella, R1, R2, Pleo and Sambar models), service and maintenance parts for automobiles
Number of units manufactured	466,527 (14,650 units decreased compared to the previous year)
Number 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.

### Amount of Resources Input and Emissions

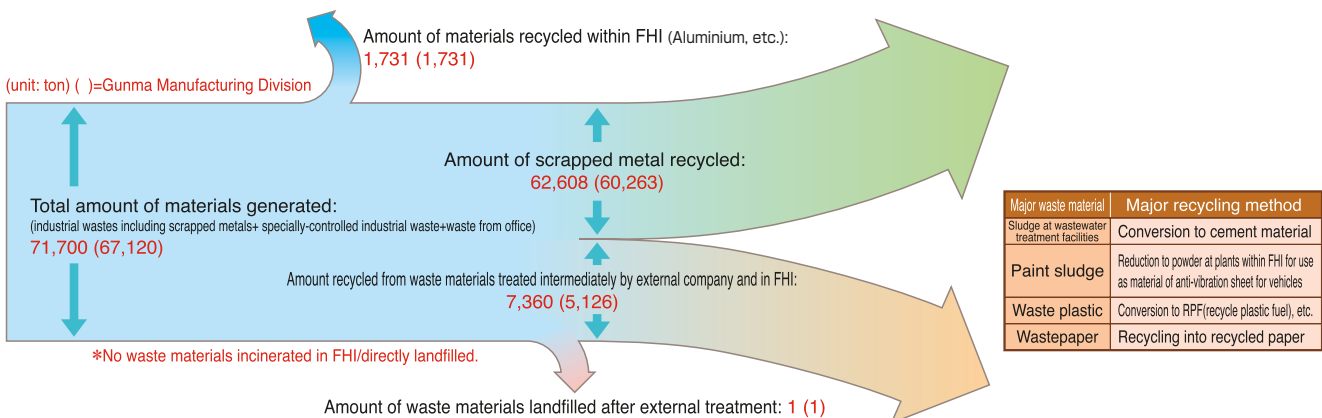


## Reduction of Waste Materials

### 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\*4 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



\*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

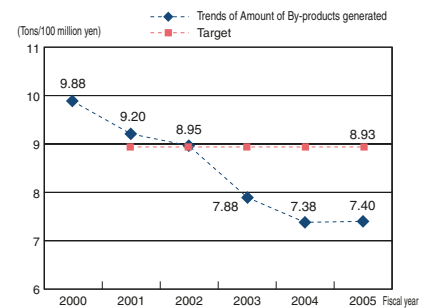
FHI has been making continuous efforts to curb the generation of waste materials and recycle any waste material generated, and has achieved and maintained a level of zero waste materials landfilled at all its manufacturing plants since fiscal 2004.

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-CO<sub>2</sub>\*<sup>1</sup> 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 Utsunomiya Manufacturing Division and the Head Office area, participated in the Kanto Conference.



The Energy Conservation Case Study Presentation held in the Gunma region

## 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.

\* 1 : The reduction of CO<sub>2</sub> emissions from in-house power generation by cogeneration systems is calculated based on a value equivalent to 0.653 ton-CO<sub>2</sub> emitted at a thermal power plant.

## 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.

### 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.

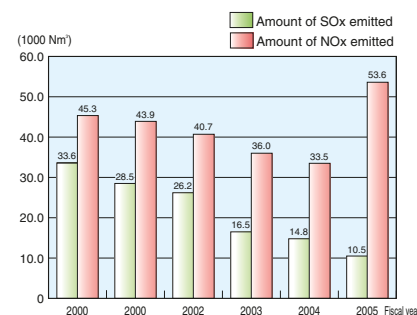
### Eco Technologies Company

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.

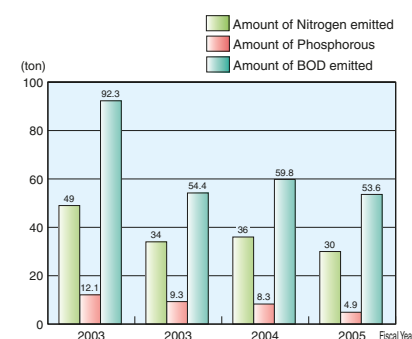
### Green Purchasing

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.

■ 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 Aerospace Company



At general meeting of suppliers, then SEVP Suzuki explained green procurement

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