

Environmental Management

Basic Environmental Policy and Structure

We have established the “Basic Environmental Policy,” shown below, by which all our employees contribute to the preservation of our global environment. This basic policy applies to all our activities.



Cherry blossoms at Yasutomi Park

○ Environmental Objective

We aim at contributing through business to the preservation of the global environment and to the realization of a meaningful lifestyle under our motto, **“Treasure technology, human life, and the earth.”**

○ Guidelines

- All Takuma Group companies will recognize the importance of maintaining a balance between preservation of the environment and business activities.
- Continuously develop activities to preserve the environment that comply with applicable environmental laws and ordinances, and ensure environmental control and assessment systems conform to international environmental standards.
- Promote development of improved technologies and products for society that preserve the environment.
- Address resource conservation, energy efficiency, recycling, and minimization of waste generated by all business activities.

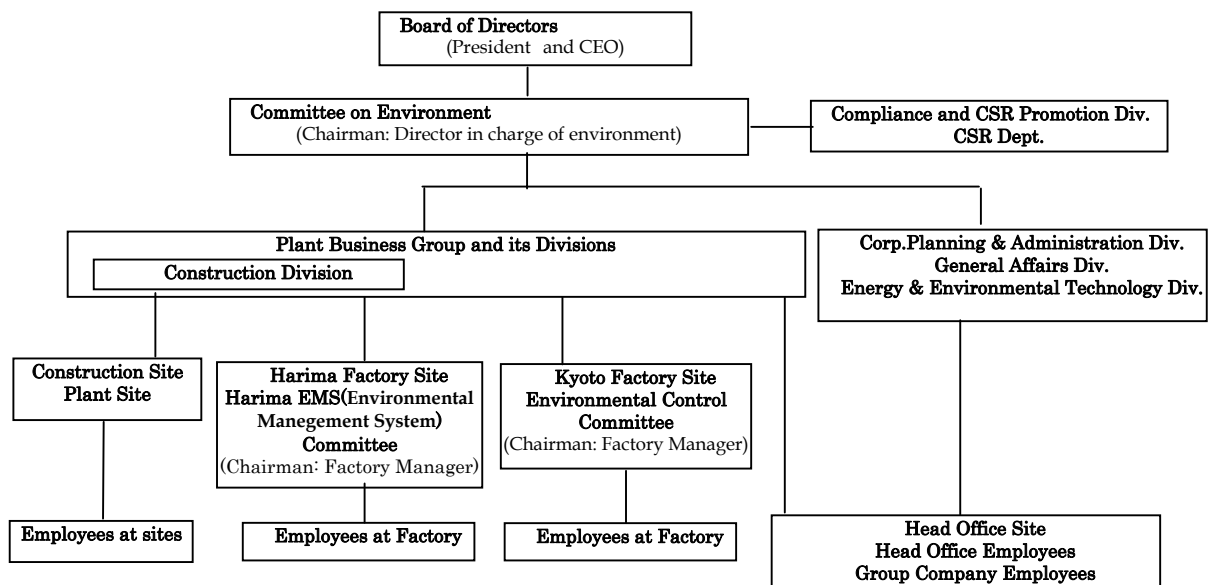
- Improve employee awareness and understanding about the importance of preserving the environment through environmental education and internal promotional activities.
- Provide the community with information on the activities of Takuma to preserve the environment.

This basic policy of ours on the environment is announced to all our business units and to the outside world.

○ Structure for Environmental Conservation

Decisions concerning the environmental conservation policy of the company are discussed by the Committee on the Environment, chaired by the director in charge, and voted on, if necessary, by the board of directors. The policy and guidelines thus determined will be announced to all employees through their general managers and through the Environmental control committee of each factory.

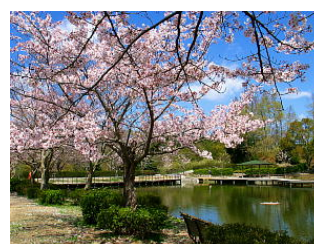
○ Structure for Environmental Management



Environmental Management

Environmental Management System

Both Harima and Kyoto Factories, our manufacturing bases, have acquired the ISO14001 certification, and each has formed its own Environmental Management Committee to implement the company policy and directions decided by the Committee on the Environment according to the environmental management system (EMS).



Cherry blossoms at Okusuma Park

- **Harima Factory Site**

Shinhamma, Arai-cho, Takasago, Hyogo prefecture
 Certification No. JQA-EM0313 (ISO14001: 2004/JISQ14001: 2004)
 (Certification date: 01/08/1999; Renewal date: 01/08/2005;
 Expiry date: 01/07/2008)

Certified business units: Harima Factory, Research Center Energy & Environmental Technology Division, Experiment Center.

Certified activities: Design, development and manufacture of boilers and products for environmental plants and issuing of certificates of analyses and measurements.

Group company: Kankyo Sol-Tech (issuing of certificates of analysis and measurements.)

- **Kyoto Factory Site**

Kuze Tonoshiro-cho, Minami Ward, Kyoto
 Certification No. JQA-EM0253 (ISO14001: 2004/JISQ14001: 2004)
 (Certification date: 11/20/1998; Renewal date: 11/20/2004);
 Expiry date: 11/19/2007

Certified business unit: Kyoto Factory

Certified activities: Design, development and manufacture of small-scale through-flow boiler, vacuum-type water heaters, oil heating-medium boilers, absorption water-cooler/heaters and the accessories.

Group company: Nippon Thermoener



Environmental Management System Registration Card

○ Environmental Audit

- **Internal environmental audit**

An internal auditor of a business unit examines annually whether environmental control is being carried out according to the ISO14001 management system.

- **External environmental audit**

An environmental audit by a third party (ISO14001 Management System Annual Check) is conducted every year, and a renewal environmental management test (ISO14001 Environmental Management System Renewal Test) once every three years for improvement and advancement. The transfer to ISO14001:2004 was completed in the fiscal year 2005.



Scene from an external audit

○ Compliance with Laws & Regulations

Harima and Kyoto Factories comply with legal and other requirements concerning the environment, according to the EMS (Environment Management System). The requirements are updated by those in charge at the factories and by the office of the Committee on the Environment that receives the latest news of changes in laws and regulations.

The list of staff with official qualifications to handle environmental matters is shown below.

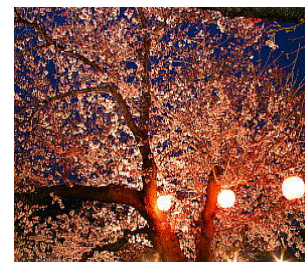
Environmental Measurer	11
Energy Manager	30
Pollution Control Manager	97

Environmental Management

Examples of Environmental Accounting

The costs of environmental preservation include those within the operational sites, upstream and downstream, control activities, research and development, community activities and damage to the environment. We conduct research and development of equipment for environmental protection that accounts for the majority of our environment-related expenditures. Some of these R&D examples are presented below.

In 2005, as in 2004, we carried out the “Let’s Save Energy in Our Office This Summer” campaign in our Head office building.



Cherry blossoms at night at Oji Park

○ Research and Development

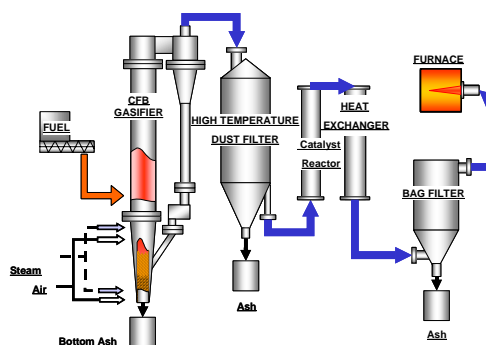
The changing world demands that we establish technologies that contribute toward a recycling-oriented society. Manufacturers of equipment must respond to this demand in time by anticipating such trends. We have combined our own creativity with our long experience in developing new businesses and projects. Our research and development, originally aimed at developing new boilers,

has expanded into wider areas, including energy, quality of life and the global environment.

	FY 2005
R & D Cost (million Yen)	1,068

○ Examples of R & D on Environment

- Plasma melting furnace
- Surface melting furnace
- Pyrolysis Gasifying and melting plant
- High temperature dust filter
- New stoker type furnace
- Circulating fluidized bed boiler
- Thermal fluid simulation technology
- High performance dry type exhaust gas treating system
- Biomass gasification system
- Energy recovery from SHOCHU residue by alkaline pretreatment-hydrogen-methane fermentation
- Wastewater treatment using micro-bubbles
- Laser measurement of gas flow inside MSW incineration furnace
- Denitrification using the Anammox method
- Tar-reforming technology
- Demonstration test of denitrification by Unifuro sand filter
- Quick measuring of dioxins (ELISA method)
- Sewage sludge condensation by drum screen



Biomass gasification process flow



Demonstration plant for energy recovery from SHOCHU residue by alkaline pretreatment-hydrogen-methane fermentation

○ “Let’s save energy in our office this summer” campaign

Period: 06/13 through 09/23/2005

Items included: Raising air conditioner thermostat setting (basic room temperature: 28°C); encouraging casual dress; use of window blinds, etc.

Result: This campaign began in 2003.

Greenhouse gas (CO₂) emissions in 2005 were reduced by 600t-CO₂ from the level of 2002, when there was no campaign.

This amounts to roughly 32% of annual greenhouse gas (CO₂) emissions from the head office building.