

## For the Environment

The Asahi Holdings Group complies in good faith with the demands of its customers and society in order to fulfill its responsibilities as a sensible corporate group.

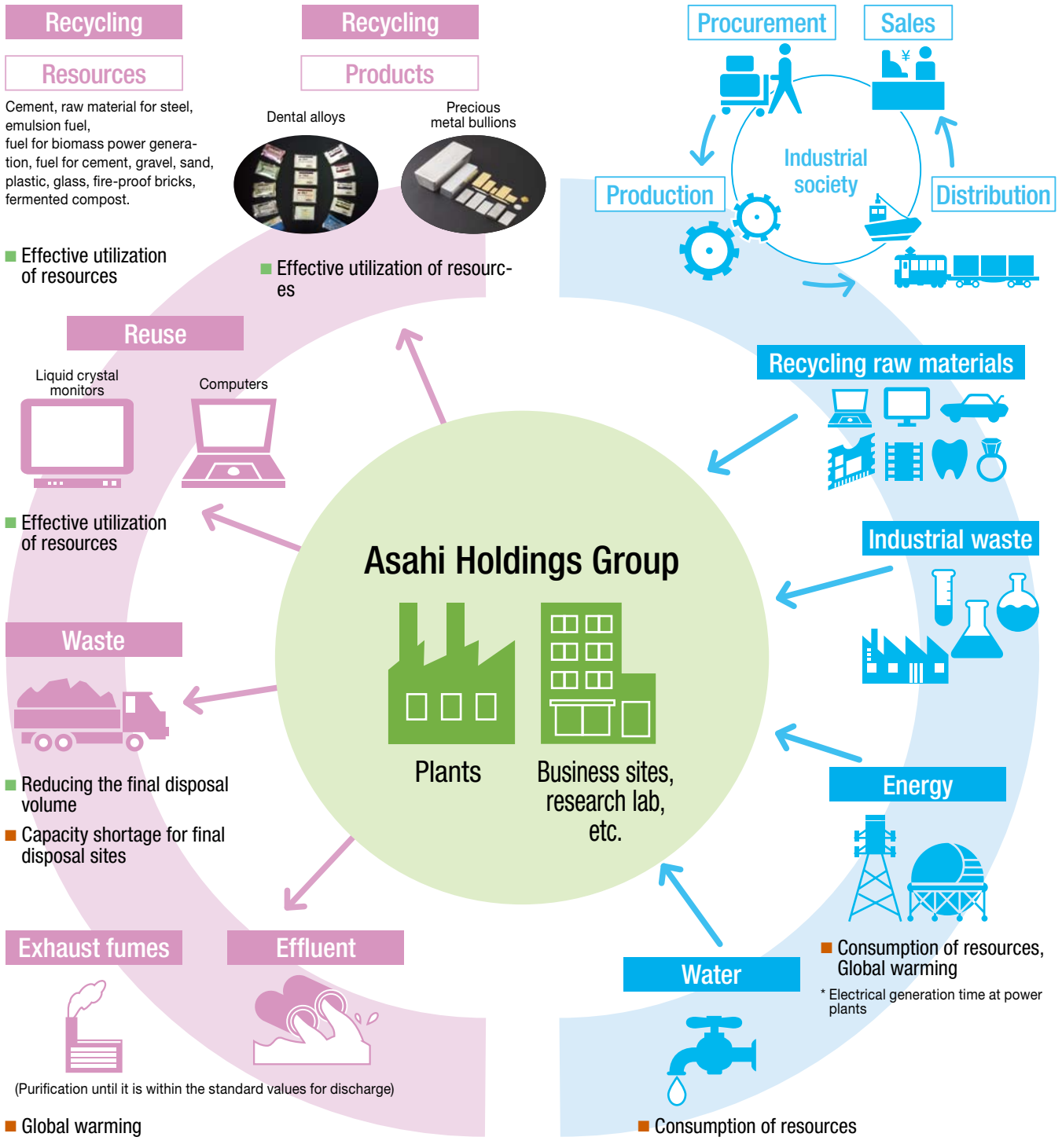
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# ENVIRONMENTAL IMPACT RESULTING FROM BUSINESS ACTIVITIES

We are expanding business activities on the recycling of precious metals and environmental preservation, thereby contributing to the protection of the earth's environment

**<Legend>**  
→ OUTPUT    → INPUT    ■ Envisioned positive environmental impacts    ■ Envisioned negative environmental impacts



## Environmental Performance

The energy, resources (water), chemicals, and etc, used in our environmental preservation, precious and rare metal recycling business activities are listed as "INPUT" data, while the environmental burdens given off from performing business activities with the substances are listed as "OUTPUT" data.

The volume of CO<sub>2</sub> emission has been decreased by reviewing the production efficiency and the disposal process, while we have expanded our business through M&A and have launched new business projects.

### INPUT

	Unit	FY2007	FY2008	FY2009	FY2010	FY2011
Electricity	MWh	18,942	23,167	21,674	24,097	23,816
Heavy oil	kL	2,433	2,406	1,466	1,465	1,192
Kerosene	kL	569	547	379	440	440
Light oil	kL	2,746	2,852	2,965	3,216	3,200
Gasoline	kL	704	804	848	899	914
Urban gas	1,000 m <sup>3</sup>	700	684	527	64	27
LPG	t	15	18	17	20	22
Water	1,000 m <sup>3</sup>	253	366	345	378	364
Chemical, etc.	t	21,336	17,347	13,293	13,189	14,191

### OUTPUT

	Unit	FY2007	FY2008	FY2009	FY2010	FY2011
CO <sub>2</sub> emissions	t	25,233	28,050	24,327	24,798	23,683
Effluent*	1,000 m <sup>3</sup>	250	245	208	246	251
Waste	t	24,848	20,886	16,644	16,249	17,719

\*Purified until it is within the standard values for discharge.

## Environmental Accounting

For the promotion of environmental management, we have introduced environmental accounting starting in FY2005 and publicly disclose costs related to environmental protection. These are prepared in line with the Environmental Accounting Guidelines of the Ministry of the Environment.

### ● FY2011 Environmental Preservation Costs

(Unit: million yen)

	Category	Major Initiatives	Expenses	Investments
1. Cost within business areas	(1)Cost of preventing pollution	Control and maintenance of gas emission facilities, water drainage, and etc.	416.80	127.12
	(2)Cost of protecting the earth's environment	Energy conservation activities (power-saving, improvement of fuel-efficiency for vehicles, and etc.)	12.22	4.23
	(3) Cost of recycling resources	Entrustment of industrial waste treatment	831.28	13.50
2. Cost of upstream and downstream		—	0.00	0.00
3. Cost of management activities		<ul style="list-style-type: none"> <li>● SO14001 management activities</li> <li>● Disclosure cost of environmental information</li> </ul>	107.18	6.37
4. Cost of research and development		<ul style="list-style-type: none"> <li>● Improving efficiency for the precious metal refining process</li> <li>● Decreasing the volume of landfill disposal</li> </ul>	70.43	0.00
5. Cost of social activities		Clean up activities in the neighboring communities	3.95	0.00
6. Cost of handling environmental damages		—	0.12	0.00
Total		—	1,441.98	151.22

# GLOBAL WARMING PREVENTION EFFORTS

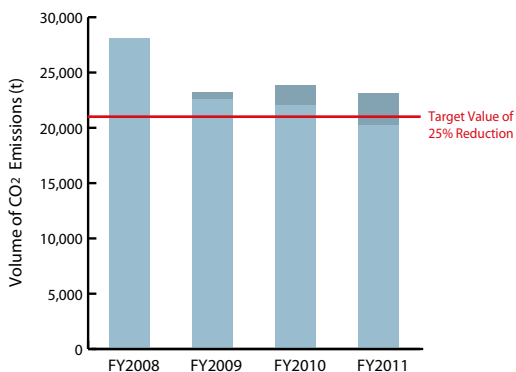
**Target: Cutting GHG\* emissions by more than 25% by 2020 from a 2008 base of 100**

\* Energy source CO<sub>2</sub> determined in the Global Warming Countermeasures Law

## Major Actions

- ① Effective use of waste (alternative use for fossil fuels)
- ② Renewal to energy efficient equipment, facilities and buildings
- ③ Effective use of waste heat from incinerators
- ④ Expansion of use of waste fuels

### ● Greenhouse Gas Emissions (Energy sources : production, transportation and offices, etc.)

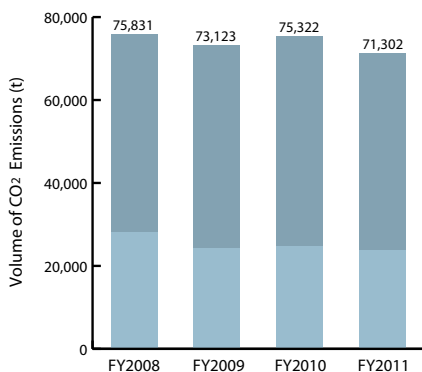


Regarding energy origin CO<sub>2</sub>, we have worked proactively towards the continuous improvement of incinerator operation method and energy savings.

Consequently, the volume of GHG emissions in our business sites decreased by 27.8% and achieved our objectives (only targeted the available sites at the time of FY2008).

- GHG emission volume for reduction target
- GHG emission volume in relation to increases in our number of business sites

### ● Greenhouse Gas Emissions (Net emissions\*: production, transportation and offices, etc.)



The volume of greenhouse gas emission has declined by 5.4% year-over-year due mainly to decommission of facility equipments from a standpoint of efficiency operations, attributing to the CO<sub>2</sub> volume reduction, while the number of the business sites has increased in FY2011 because of our business expansion.

- Net Emission of Non Energy Source CO<sub>2</sub>
- Net Emission of Energy Source CO<sub>2</sub>

\* Calculation of Greenhouse Gas Emission Volume (comply with Law Concerning the Promotion of the Measures to Cope with Global Warming)  
 [Energy Origin CO<sub>2</sub>]=[CO<sub>2</sub> released in connection with use of electricity and fossil fuels]  
 [Net Emissions]=[Energy Origin CO<sub>2</sub>]+ [CO<sub>2</sub> released in connection with incineration of industrial waste]

### ● Actions to deal with summer power shortages

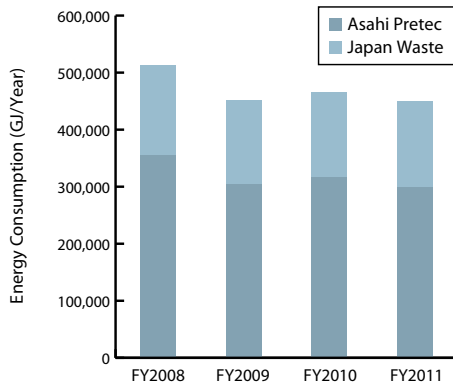


Goya(bitter gourd) green curtain at the Technical Research Center

Green goya (bitter melon) curtains, heat shield window films, heat shield roof paints, heat insulating materials for attics, LED lights and efficient lightings were installed in all locations. In addition, adequate room temperatures (28°C) were maintained to save electricity, simultaneous facility operation was avoided and operating hours were adjusted to suppress peak power usage, in order to meet the electricity saving requirements to address summer power shortages.

# ENERGY-SAVING EFFORTS

## ● Energy Consumption (production, transportation and offices, etc.)

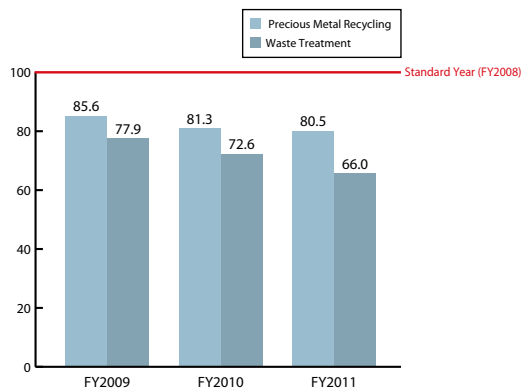


With regards to Fuel consumption, by replacing a part of fuel with waste energy for waste incinerator energy-saving operations, decreased by 4.7% year to year.

Regarding electricity consumption, decreased 1.2% year to year by taking electricity reduction measures such as introduction of lightning equipment with high efficiency and eco-friendly air conditioning, and application of heat shield coating material to the roof at each site.

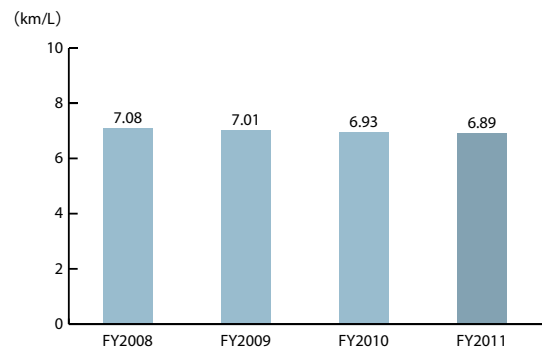
Decreased energy consumption volume by 3.2% in total at all sites year to year.

## ● Changes in Specific Energy Consumption compared to FY2008 (Asahi Pretec)



## ● Vehicle Fuel Consumption (Asahi Pretec)

In FY2011, Fuel Consumption is the same as the previous year. We promote the eco-friendly drive by introducing digital tachometer graph, and work proactively towards improving transport efficiency by reviewing the collection routes.



## ● Electricity saving assessment by a consulting firm

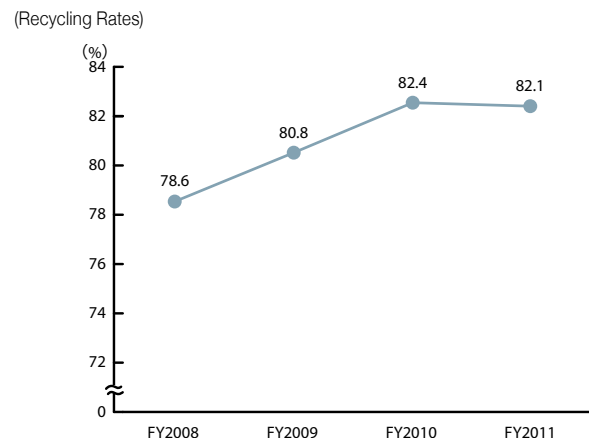
The power consumption of operating equipment/facilities and operating hours at the large scale Amagasaki Plant of the Hanshin Business Office were investigated. The consultants provided effective advice and guidance by presenting other electricity saving measures and energy saving alternative equipment.

Based on their assessment, we will study more efficient ways to operate for the future and incorporate the results in the facilities investment plan.



## ● Efforts for improvement of Recycling Rates

Each company has promoted and addressed "Zero Emission", resulting in the decrease of wastes for recycling. Against this backdrop, we have pushed ahead with the recycling of various kinds of wastes, which has led to the ratio of recycling 82.1% in FY2011.



# REDUCTION OF ENVIRONMENTAL BURDEN THROUGH BUSINESS ACTIVITIES

## Results of Our Group's Environmental Burden Reduction (FY2011)

We evaluated the major businesses and tasks of the company group to see how much of the environmental burden in the society as a whole has been reduced through our business activities. As the subjects of evaluation, we make calculations in regard to (1) the reduction volume of natural resources, (2) the volume of recycling, (3) the volume of controlled greenhouse gas emissions and (4) the effects of reduction of final disposal in the two business divisions - precious metal recycling and environmental preservation.

Business process	Precious Metal Recycling	Environmental Preservation							
		Treatment of effluent	Construction waste recycling	Recycling of glass and fire-proof bricks	Treatment by incineration	Fermenting and composting	Fuel production for energy generation	Freon detoxification treatment	IT equipment recycling
Reduction of environmental burden									
Saving exhaustible natural resources	●		●	●	●		●		
Recycling		●	●	●		●	●		●
Reduction of greenhouse gases	●							●	
Minimization of the final disposal volume			◆	●	●	●	●		◆

Results of reducing the final disposal volume: Covers the quantity by which the volume of waste brought to us (excluding waste oil, waste acids, and waste alkalis) is reduced (the quantity that could avoid controlled landfill disposal) as a result of going through our waste treatment process.

●: Calculated by weight  
◆: Not targeted for numerical evaluation

## Results of Saving Exhaustible Natural Resources

Through recycling all kinds of raw materials, we are cutting back on the amount of natural resources (precious metals, non-ferrous metal ores, gravel, sand, agalmatolite, quartz sand, plaster, forests, etc.) that are being mined or felled, thus contributing to the protection of the global environment.

### Precious Metal Ores (Precious Metal Recycling)



Recycling materials containing a lot of precious and rare metals contributes to saving mineral resources, such as precious metal ores.

**3,137.6 Kt/year**

### Gravel (Construction Waste Recycling)



Materials such as sand, gravel and backfill soil are recycled from construction wastes like concrete waste.

**13.2 Kt/year**

### Fossil Fuels (Effective Use of Waste)



By making effective use of waste heat energy (waste oil and plastics, etc.) in an incinerator, fuels (fossil fuels) required for incineration can be reduced.

**13.1 Kt/year**

### Timber (Construction Waste Recycling)



Wood chips made from wooden construction waste are used as a carbon-neutral fuel in place of fossil fuels.

**6.6 Kt/year**

# Recycling (including reuse products)

A variety of industrial wastes are recycled into raw materials and are mainly used to produce the following recycled/reused products:

Wastes used are shown in parentheses “()”.

**Glass cullet**  
(bottles, waste glass sheets)



94.2 Kt /year

**Fermented compost**  
(Food wastes, organic sludge)



12.4 Kt /year

**Gravel, crushed stone**  
(construction materials)



13.2 Kt /year

**Wood chips**  
(Construction scrap wood)



6.6 Kt /year

**Non-ferrous metals materials**  
(Liquid waste containing metals)



4.5 Kt /year

**Refractory brick paving materials**  
(Furnace waste materials)



4.2 Kt /year

**Scrap metals**  
(Construction metal scrap, OA equipment)



1.9 Kt /year

**Fuels/raw materials for cement**  
(Plastic waste, waste oil/liquid waste, wood chips, sludge)



4.1 Kt /year

**Clay waste**



4.1 Kt /year

**Emulsion fuels**



1.7 Kt /year

## Results of Reducing Greenhouse Gases

133.6 Kt /year

We are making contributions to help reduce greenhouse gas emission through business activities such as the collection of precious metals, glass, fire-proof bricks and CFCs.

### ● Gold

Amount of CO<sub>2</sub> emitted from mine production



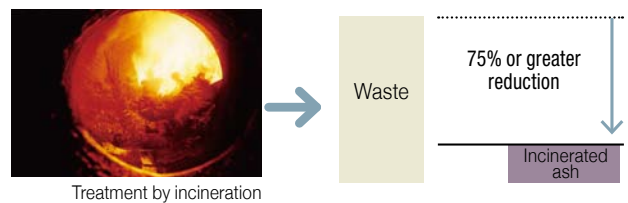
Amount of CO<sub>2</sub> emitted from our company's recycling production



## Results of Minimizing the Final Disposal Volume

Waste reduction volume: 25.3 Kt /year

The final disposal volume (landfill disposal) can be reduced by incinerating waste.



# ENVIRONMENTAL MANAGEMENT

## Environmental Policies

We will contribute to the environmental preservation of the earth and establish a sound material-cycle society through the company's businesses on recycling of precious and rare metals and industrial waste treatment.

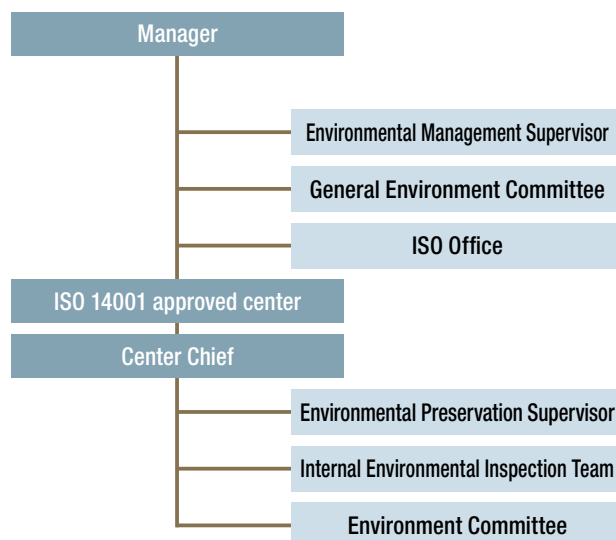
- (1) In all business activities we will strive to conserve resources and energy and reduce, reuse, and recycle waste to minimize the environmental burden.
- (2) We will promote the recycling of resources of precious and rare metals to achieve a more effective use of the limited resources of the earth.
- (3) We will adequately and safely perform our operations for the collection, transportation, and treatment of industrial waste to prevent environmental pollution.
- (4) We will prioritize a harmonious coexistence with nature and regional communities. We will strictly follow the relevant environmental laws and regulations and other requirements which we recognize.
- (5) We will establish environmental objectives and targets and periodically review them to continue improving our activities.
- (6) We will educate all our employees and increase their environmental awareness as members of the community, promote their understanding of environmental preservation activities, and participate in such activities.

These environmental policies shall be conveyed to all of our employees and all those working for the company and announced to the public as our commitment.

## Environmental Management Promotion System

Our "Company-wide Environmental Purpose/Goal (annual plan)" is devised based on the Environmental Policy that establishes our environmental preservation philosophy.

With this established, the business offices which have acquired ISO 14001 approval, set the "Center Environmental Purpose/Goal (annual plan)" and implement environmental preservation activities closely related to their business tasks. Furthermore, the Environment Committee of each center abides by the regulations set by the environmental law, revises plans and examines environmental education, etc. and provides reports to the management. While the ISO Office controls the environmental management system (EMS), an environmental preservation supervisor is assigned for each business office as an aim to implement thorough promotion of environmental activities.



## ISO14001 Approval

Our group companies have ISO certifications in 13 companies (23 locations) including Asahi Pretec and Japan Waste.

Asahi Pretec has acquired ten locations including six large scale sites, and Japan Waste and Sansho has acquired two companies and four locations.



ISO14001 Authentication Certificate

## ISO14001 Environmental Audits

Regular inspections are carried out on the state of compliance with specifications by an external examining authority for ISO14001 activities. Moreover, internal environmental audits are conducted at least once a year at business sites in order to ensure that EMS is being properly administered.



Regular external audit