

Toward a Sustainable Future

Environmental Report 2008

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Toward a Sustainable Future



To Our Valued Shareholders and Customers,

Hyundai Heavy Industries Co. Ltd. (HHI), as a global leader in heavy industries, has made a continuous effort to minimize environmental pollution and maximize resources and energy conservation to help provide a higher quality of life and a more sustainable future. HHI has also focused on the development of state-of-the-art environmental technologies such as air pollution control, waste treatment, water treatment, and alternative energies.

We assess environmental performance through our own environmental performance evaluation method, HEPEM (HHI Environmental Performance Evaluation Method).

As a result, HHI's environmental performance results of 2007 show a 55% increase over the base year 1998.

As a global leader in heavy industries, we put every effort into achieving environmentally friendly work practices, recognizing that the environment is a key factor in global competitiveness and in sustaining a higher standard of living.



Min Keh - sik
Vice Chairman & CEO / CTO



Choi Kil - seon
President & CEO

Company Overview

Company	HYUNDAI HEAVY INDUSTRIES Co., LTD.
CEO	Vice Chairman Min Keh-sik, President Choi Kil-seon
Work force	Number of employees: 24830
Land area	Yard Capacity: 5940000m ²
Establishment Date	1972.3.23
Address	1, Jeonha-Dong, Dong-GU, Ulsan, Korea 682-792

Business divisons	Divison	Major Products
	Shipbuilding Divison	Containership, LNG-LPG Carrier, Tanker, PC
	Offshore & Engineering Divison	Floating units(FPSO, FSO), Fixed Platforms (Jacket / Pile, Module), Subsea pipeline
	Industrial Plant & Engineering Divison	Oil&Gas Facilities, Power Plant
	Engine & Machinery Divison	Diesel Engines, Propeller, Diesel Power plant
	Electro Electric Systems Divison	Transformers, Circuit Breakers, Switchgears
	Construction Equipment Divison	Excavators, Wheel Loaders, Forklifts

Sales	Divison	Sales (unit: billion won)	Portion(%)
	Shipbuilding Divison	7557	49.1
	Offshore & Engineering Divison	2222	14.4
	Industrial Plant & Engineering Divison	1017	6.6
	Engine & Machinery Divison	1646	10.7
	Electro Electric Systems Divison	1453	9.4
	Construction Equipment Divison	1512	9.8
	Total	15407	100

Environmental Management

- EHS Policy
- Environmental Vision & Strategies
- Environmental Management System and Organization
- Environmental Emergency Response System
- Environmental Audits and Inspections
- Environmental Education and Training
- Environmental Investments
- Environmental Performance Evaluation (EPE)

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Hyundai Heavy Industries always
thinks environment and practices
action first.

Environmental Management



EHS Policy

HHL has established the following EHS policy to help create a sustainable future.

EHS Policy

Hyundai Heavy Industries Co., Ltd. (HHL) aims to become a world top heavy industries company to embody happy and rich lives of mankind by recognizing environment, health and safety as management priority through respect to mankind. We, at HHL, do hereby declare to sustain our performance and development of HSE policies to all parties concerned as follows:

Positioning of Corporate Identity as Eco-friendly Company

- Continuous development of environmental pollution prevention and conservation technologies
- Positive observance of domestic and international laws, conventions and regulations

Achievement of Accident-free Workplace

- Promotion of safety practice programs to prevent accidents
- Strict observance of work standards and regulations

Promotion of All Employees' Health Maintenance

- Active campaign of health programs against diseases
- Continuous improvements to create healthy and agreeable working environments

Environmental Vision and Strategies

HHI has established the following environmental strategies to help effect its environmental vision.

Environmental Vision

To be among the leading environmentally friendly companies



Environmental management strategy

1. Compliance with international environmental laws
2. Waste and emission minimization

Detailed items are as follows

- Regular evaluation of the Environmental Management System (EMS)
- Minimizing waste and maximizing recycling rates
- Developing environmentally friendly products
- The adequate control of all environmental facilities in HHI
- Adhering to all environmental laws and regulations
- Engaging in environmental preservation activities

We recognize that the environment is a key factor in improving our competitiveness and sustaining higher living standards within our community. We will put our utmost effort into fulfilling our environmental management strategy so that we can move toward a more sustainable future.

Environmental Management System and Organization

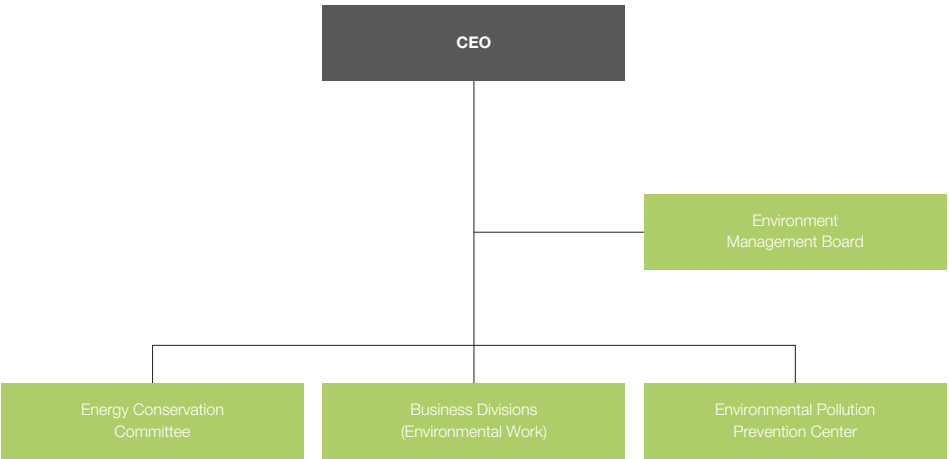
Since 1995 we have had an environmental management system that meets ISO 14001 standards. Three levels of environmental management standards have been formulated: a manual, procedures and sub-procedures.

We have obtained ISO 14001 certification which guarantees the clarity and objectivity of the EMS (Environmental Management System). Our HSE (Health, Safety and Environment) management systems are part of an integrated management system and have received OHSAS 18001 certification.

Environmental Management System Organization

To help ensure greater efficiency in environmental management our environmental organization consists of an “Environmental Management Board,” which is under the charge of the Chief Executive Officer and the Chief Environment Officer. The organization is connected to each business division.

The “Environmental Pollution Prevention Center” was created prevent and cope with environmental accidents. The “Energy Conservation Committee” was established to conserve energy. These two organizations play important roles in HHI’s environmental management activities.



- 1 2
- 1

ISO 14001 Certificate March 1997 DNV-QA
- 2

OHSAS 18001 Certificate May 2001 DNV-QA

Environmental Management

- EHS Policy
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- Environmental Performance Evaluation (EPE)

Environmental Emergency Response System

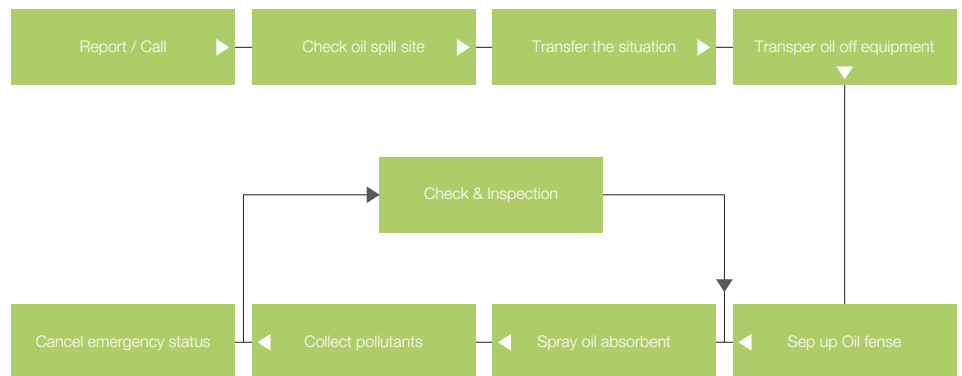
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HHI regularly carries out environmental emergency response training to ensure a prompt response in case of an environmental emergency. Through regular training, each department practices responding to different environmental emergencies.

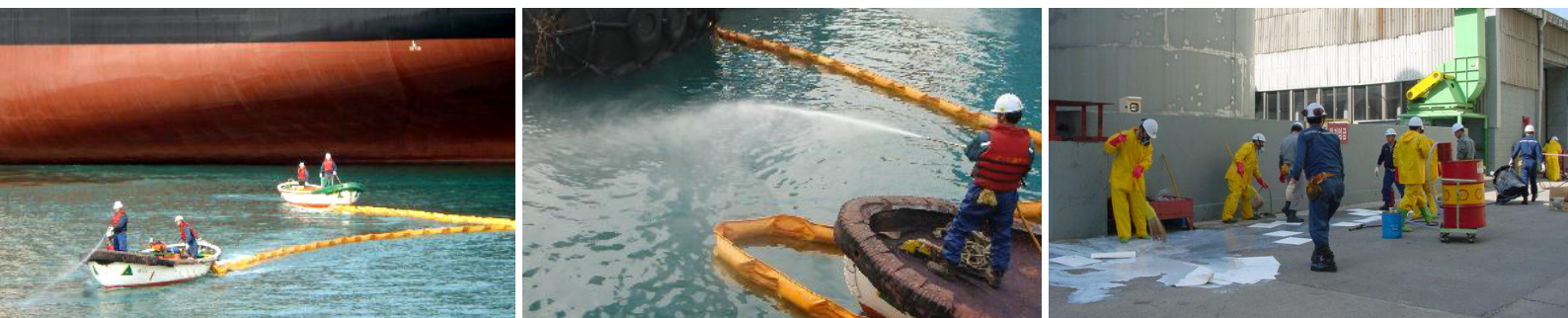
We use employee feedback to discover weak points and problems in the training scenarios, then try to correct or improve those weak points.

HHI is located near the sea, so preventing pollution to that sea has always been a priority. We have strict rules about the operation of offshore facilities and ships. We have safeguards against the disposal of oil, hazardous chemicals, waste in the sea.

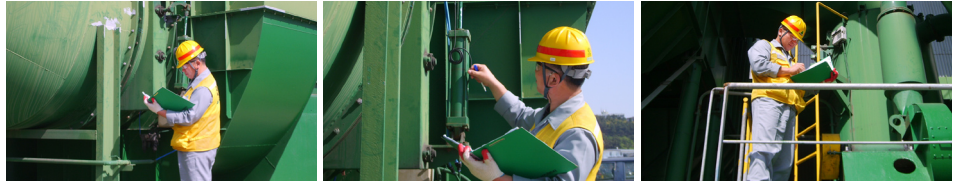
Emergency measures of oil spill flow chart



Environmental Emergency Response Training



Environmental Audits and Inspections



Internal Audit Results

(Unit: No. of nonconformity /
No. of auditee departments)

1998	4.8
2004	0.32
2005	0.38
2006	0.4
2007	0.53

We perform internal environmental audits twice a year to prevent environmental problems and potential environmental hazards and to also improve the environmental management system. To maintain ISO 14001 certification and to evaluate our environmental management system objectively, we undergo periodic audits or renewal audits from a certification body every year.

Regular environmental inspections have been implemented by the line organization and safety section after integration of the Safety and Environmental organizations. As a result of periodic external audits from certification bodies, the number of nonconformities per auditor workday in 2007 showed a 74% decrease from 1998.

These improvements are due to efficiently implementing our environmental management system and the full cooperation of our employees.

External Periodic Audit Results

(Unit: No. of nonconformity /
No. of external auditor mandays)

1998	1.94
2004	0.39
2005	0.7
2006	0.72
2007	0.5

Internal Audit Results

1998	2004	2005	2006	2007
4.8	0.32	0.38	0.4	0.53

Unit: No. of nonconformity / No. of auditee departments

External Periodic Audit Results

1998	2004	2005	2006	2007
1.94	0.39	0.7	0.72	0.5

Unit: No. of nonconformity / No. of external auditor mandays

Number of Nonconformities

(Unit: No. of Nonconformity)

1998	378
2004	29
2005	34
2006	38
2007	31

Number of Nonconformities

1998	2004	2005	2006	2007
378	29	34	38	31

Unit: No. of Nonconformity

Environmental Management

- EHS Policy
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Environmental Education and Training

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To raise the environmental awareness of employees and to alter their responsibilities with regard to the environment, we provide various environmental education and training programs. HHI will focus on specialized education and training programs, such as LCA (Life Cycle Assessment) and DfE (Design for Environment), to provide environmental specialists.

Major internal Environmental Education and Training

Education

- Fundamental course for all employees
- ISO 14000 coordinator course
- Environmental course for contractors
- Internal auditor course
- Environmental facility operator course
- Environmental course for executives

Training

- Oil spill contingency drill
- Sea pollution contingency drill
- Hazardous chemical spill contingency drill
- Incinerator abnormal operation drill
- Fire drill

Internal Environmental Education / Training (Unit: MH)

1998		28,154
2004		35,000
2005		38,000
2006		40,000
2007		39,000

Internal Environmental Education / Training

1998	2004	2005	2006	2007
28157	35000	38000	40000	39000

Unit: MH

External Environmental Education / Training

1998	2004	2005	2006	2007
25	79	80	80	75

Unit: MD

External Environmental Education / Training (Unit: MD)

1998		25
2004		79
2005		80
2006		80
2007		75



Environmental Education

Environmental Investments

HHI controls environmental costs through its environmental management.

Environmental investment costs in 2007 show a 184% increase when compared to 1998.

To evaluate environmental investment cost, the following categories were set up and calculated.

We continue to protect the environment through effective investments and the analysis of environmental costs, which known as the 'Green Accounting' method.

Categories	Items
Pollution Prevention Cost	<ul style="list-style-type: none">· Pollution prevention equipment operation cost· Sampling / analysis cost· Treatment cost by contractors· Repair cost
Env. Burden Reduction Cost	<ul style="list-style-type: none">· Resources reduction cost· Environmental improvement investment cost· R&D cost
Env. Risk Management Cost	<ul style="list-style-type: none">· Education / training cost· ISO 14001 certification cost· Fine/penalty cost· Pollution remediation cost
Social Cost	<ul style="list-style-type: none">· Annual report publication cost· Environment preservation activity cost· Afforestation cost

Environmental Cost Increase

2004	2005	2006	2007
194	225	168	184

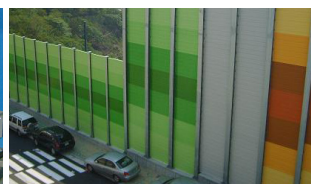
unit : Increases rate compared to 2001(%)

Environmental Cost Increase

(Unit: Increased rate compared to 2001%)

2004	194
2005	225
2006	168
2007	184

Environmental Investments



Environmental Performance Evaluation

We have developed our own environmental performance evaluation method HEPPEM (HHI Environmental Performance Evaluation Method).

HEPEM takes into consideration the main characteristics of heavy industry businesses and evaluates environmental performance using an EPE method applicable to HHI's environmental aspects.

To evaluate operational performance quantitatively, operational indicators are derived from the total amount of steel used per year with consideration of the characteristics of the heavy industries.

The average performance results of 2007 show a 55% increase over the base year 1998.

















Structure of HEPPEM

Categories	Subcategories	Number of Indicators	Remarks
Management Performance	<ul style="list-style-type: none"> · EMS and Conformity · Organization Management · Environmental Cost · Stakeholders Relationship 	23	
Operational Performance	<ul style="list-style-type: none"> · Resources and Energy Consumption · Air Emission · Wastewater Discharge · Waste Generation 	20	Basic Units
Environmental Condition	<ul style="list-style-type: none"> · Atmosphere Air Quality · Inshore Seawater Quality 	9	

Result of Environmental Performance Evaluation

	2004	2005	2006	2007
Management Performance	196	211	195	202
Operational Performance	135	137	146	142
Environmental Condition	123	126	127	120
Average	151	162	157	155

Unit: Increase or decrease compared to 100 points at the base year 1998

Management Performance	Operational Performance	Environmental Condition	Average
2004  196	2004  135	2004  123	2004  151
2005  211	2005  137	2005  126	2005  162
2006  195	2006  146	2006  127	2006  157
2007  202	2007  142	2007  120	2007  155

Management Performance

To measure environmental management performance, 23 performance indicators were created across 4 categories: 1) EMS (environmental management system) and conformity, 2) organization management, 3) environmental cost, and 4) stakeholders relationship.

The average environmental management performance in 2007 showed a 102% increase compared to 1998. We strengthened internal environmental auditing programs and reduced environmental accidents by continual prevention activities. As a result, performance in the “EMS and Conformity” category in 2007 was 69% higher than in the base year of 1998. Performance in the ‘Stakeholders Relationship’ category in 2007 showed a 135% increase over 1998 due to an increase in environmental conservation activities and a reduction in civil petitions.

Result of Management Performance Evaluation

	2004	2005	2006	2007
EMS and Conformity	175	171	168	169
Organization Management	141	152	159	118
Environmental Cost	294	325	268	284
Stakeholders Relationship	169	197	185	235
Average	196	211	195	202

Unit: Increase or decrease compared to 100 points at the base year 1998

EMS and Conformity	Organization Management	Environmental Cost	Stakeholders Relationship	Average
2004 <div></div> 175	2004 <div></div> 141	2004 <div></div> 294	2004 <div></div> 169	2004 <div></div> 196
2005 <div></div> 171	2005 <div></div> 152	2005 <div></div> 325	2005 <div></div> 197	2005 <div></div> 211
2006 <div></div> 168	2006 <div></div> 159	2006 <div></div> 268	2006 <div></div> 185	2006 <div></div> 195
2007 <div></div> 169	2007 <div></div> 118	2007 <div></div> 284	2007 <div></div> 235	2007 <div></div> 202

Operational Performance

To measure environmental operational performance, 20 performance indicators were created across 4 categories: 1) resource and energy use, 2) air emission management, 3) wastewater management, and 4) waste management. Average performance in 2007 showed a 42% increase over the base year of 1998. Especially performance in the “Air Emission Management” category increased 72% due to clean fuel use and efficient air pollution control.

Result of Operational Performance Evaluation

	2004	2005	2006	2007
Resource and Energy use	127	125	131	132

Environmental Management

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Air emission Management	176	173	172	172
Wastewater Management	136	135	162	165
Wastes Management	100	116	120	100
Average	135	137	146	142

Unit: Increase or decrease compared to 100 points at the base year 1998

Resource and Energy use	Air emission Management	Wastewater Management	Wastes Management	Average
2004  127	2004  176	2004  136	2004  100	2004  135
2005  125	2005  173	2005  135	2005  116	2005  137
2006  131	2006  172	2006  162	2006  120	2006  146
2007  132	2007  172	2007  165	2007  100	2007  142

Environmental Condition

To evaluate environmental conditions, 9 environmental condition indicators were used. Inshore seawater quality and local atmosphere air quality were the main categories evaluated. The average environmental condition of the local region for 2007 showed a 20% increase compared to the base year of 1998. Seawater samples from 9 points throughout the HHI grounds are sampled and analyzed biannually to monitor onshore ecology. We will continue to monitor the environmental quality of the local area and continue our efforts to improve environmental conditions.

Result of Operational Performance Evaluation

	2004	2005	2006	2007
Atmosphere Air Quality	138	145	145	130
Inshore Seawater Quality	107	106	109	110
Average	123	126	127	120

Unit: Increase or decrease compared to 100 points at the base year 1998

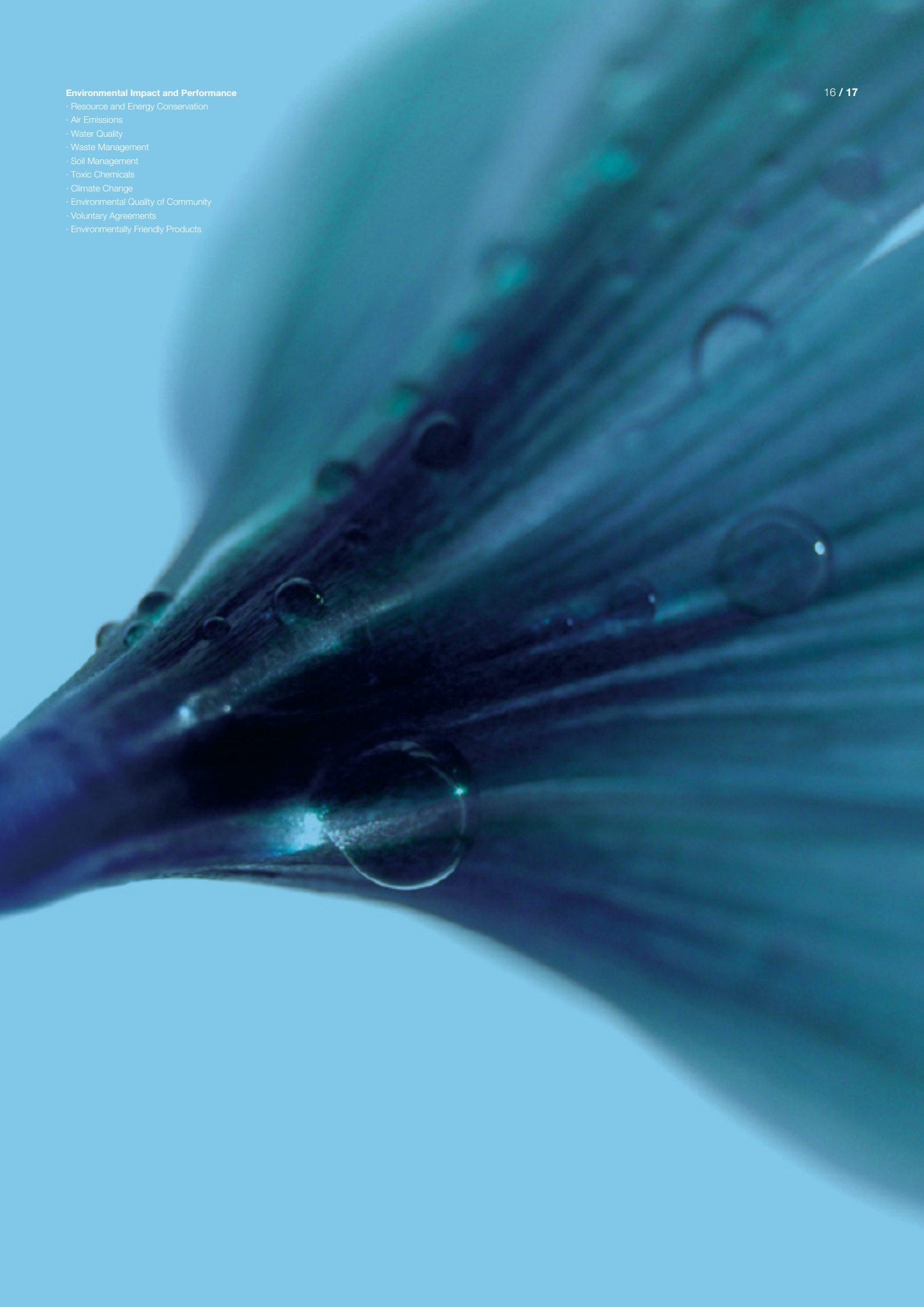
Atmosphere Air Quality	Inshore Seawater Quality	Average
2004  138	2004  107	2004  123
2005  145	2005  106	2005  126
2006  145	2006  109	2006  127
2007  130	2007  110	2007  120

Hyundai Heavy Industries always
efforts to minimize our environmental
traces during business

Environmental Impact and Performances

Environmental Impact and Performance

- Resource and Energy Conservation
- Air Emissions
- Water Quality
- Waste Management
- Soil Management
- Toxic Chemicals
- Climate Change
- Environmental Quality of Community
- Voluntary Agreements
- Environmentally Friendly Products



Resource and Energy Conservation

Energy Use

(Unit: TOE / Yr)



HHI has been changing the focus of its environmental operations from a “controlling-end-of-pipe” approach to a “reduction-at-the-source” approach that resource and energy saving.

Water use and steel use has gradually decreased, but total energy use has increased due to increased business and the installation of new energy-consuming facilities. We will decrease energy use per basic unit through improved manufacturing processes and efficiency. Because oil creates more air pollutants and greenhouse gas than LNG, LNG use has gradually increased and oil use has gradually decreased.

Energy Use of Basic Unit

(Unit: TOE / SU)



Energy Use

2004	2005	2006	2007
328741	215576	252551	245228

unit: TOE / Yr

Energy Use of Basic Unit

2004	2005	2006	2007
0.180	0.106	0.112	0.117

unit: TOE / SU

Water Use

(Unit: Ton / Yr)



Water Use

2004	2005	2006	2007
4132171	4350132	4049584	4102169

unit: Ton / Yr

· Resource and Energy Conservation

- Air Emissions
- Water Quality
- Waste Management
- Soil Management
- Toxic Chemicals
- Climate Change
- Environmental Quality of Community
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- Environmentally Friendly Products

Water Use of Basic Unit

2004	2005	2006	2007
2.029	1.932	1.934	1.959

unit: Ton / Su

Steel Use

2004	2005	2006	2007
1826339	2036998	2251100	2094079

unit: Ton / Yr

Water Use of Basic Unit

(Unit: Ton / Su)

2004	2.029
2005	1.932
2006	1.934
2007	1.959

Steel Use of Basic Unit

2004	2005	2006	2007
0.2	0.193	0.179	0.135

unit: Ton / Sales (million won)

Oil Use

2004	2005	2006	2007
21186	20734	23072	25604

unit: KL / Yr

Oil Use of Basic Unit

2004	2005	2006	2007
2.32	1.96	1.83	1.65

unit: L / Sales (million won)

Steel Use

(Unit: Ton / Yr)

2004	1826339
2005	2036998
2006	2251100
2007	2094079

Steel Use of Basic Unit

(Unit: Ton / Sales (million won))

2004	0.2
2005	0.193
2006	0.179
2007	0.135

Oil Use

(Unit: KL / Yr)

2004	21186
2005	20734
2006	23072
2007	25604

Oil Use of Basic Unit

(Unit: L / Sales (million won))

2004	2.32
2005	1.96
2006	1.83
2007	1.65

Air Emissions

Dust Emission

(Unit: g / Yr)

1998	108468000
2004	56265800
2005	91752000
2006	97642000
2007	76291000

To protect air quality, HHI uses suitable air pollution control equipment. We have set our own environmental air emission standards, which are 50% stricter than the legal requirements. Most air pollutants are dust and VOCs from the blasting shop and painting shop. SOx emissions have largely decreased due to increased LNG use.



Airpollution Control Equipment

Air pollution control equipment

HHI operates 265 air pollution control units in its yard. Air pollution control equipment includes Bag-Filter, Scrubber, A/C Tower, RTO, Electric precipitator and SCR. We reduce air pollutants through various methods and regularly check the equipment to optimize operations.

NOx Emission

(Unit: g / Yr)

1998	66524000
2004	41142970
2005	47948920
2006	51927150
2007	53418150

Installation of an RTO Facility

HHI installed an RTO (Regenerative Thermal Oxidizer) facility in 2007, at a cost of 200 million won, to treat THC emissions. The facility's VOCs removal efficiency is greater than 99 percent, so THC emissions have decreased dramatically. The facility reuses rate of heat combustion more than 95 percent, largely decreasing fuel consumption. We will install more RTO facilities to further improve air quality.

SOx Emission

(Unit: g / Yr)

1998	47403000
2004	8218525
2005	346590
2006	336250
2007	348080

* THC - Total Hydro Carbon

* RTO (Regenerative Thermal Oxidizer) - This facility incinerates VOCs gas on burning points that was decomposed H₂ and CO₂

Dust Emission

1998	2004	2005	2006	2007
108468000	56265800	91752000	97642000	76291000

unit: g / Yr

NOx Emission

1998	2004	2005	2006	2007
66524000	41142970	47948920	51927150	53418150

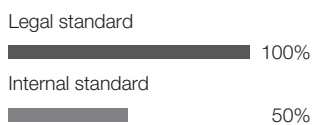
unit: g / Yr

SOx Emission

1998	2004	2005	2006	2007
47403000	8218525	346590	336250	348080

unit: g / Yr

Reinforcement of Internal Air Emission Standard



Environmental Impact and Performance

- Resource and Energy Conservation
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Water Quality

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HHI treats factory wastewater in wastewater treatment facilities operated by the yard or by technical wastewater treatment companies. Sewage is sent to a sewage treatment plant. HHI continually reduces wastewater through wastewater reuse and improved production processes.

Wastewater Treatment

HHI operates 4 wastewater treatment facilities within its yard that use physical and chemical method. HHI water pollutant standards are 50% stricter than legal requirements. We ensure that our wastewater treatment facilities are properly maintained for optimal operation. We also carry out water analysis twice a month to monitor effluent discharges.

Sewage Treatment

HHI began construction of 'Vacuum Sewerage System' in 2005 for sewage generated in the yard. This system is scheduled for completion in 2008. The construction cost is 16 billion Won, and the system will use the QVA-VAC technique. When complete, all sewage will be sent to the Bangeojin sewage treatment plant.

Wastewater Discharge

(Unit: m³ / Yr)

2004	34509.1
2005	40036
2006	40045
2007	29070.4

Wastewater Discharge

2004	2005	2006	2007
34509.1	40036	40045	29070.4

unit: m³ / Yr

COD in Effluents

(Unit: mg / L)

2004	32.935
2005	31.485
2006	25.8675
2007	21.5025

COD in Effluents

2004	2005	2006	2007
32.935	31.485	25.8675	21.5025

unit: mg / L

SS in Effluents

2004	2005	2006	2007
7.9325	8.08	5.5025	3.365

unit: mg / L

SS in Effluents

(Unit: mg / L)

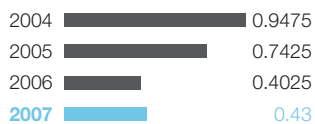
2004	7.9325
2005	8.08
2006	5.5025
2007	3.365



Wastewater Treatment Facilities

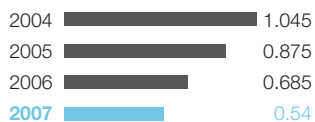
Fe in Effluents

(Unit: mg / L)



Zn in Effluents

(Unit: mg / L)



T-P in Effluents

(Unit: mg / L)



T-N in Effluents

(Unit: mg / L)



Fe in Effluents

2004	2005	2006	2007
0.9475	0.7425	0.4025	0.43

unit: mg / L

Zn in Effluents

2004	2005	2006	2007
1.045	0.875	0.685	0.54

unit: mg / L

T-P in Effluents

2004	2005	2006	2007
0.5975	0.275	0.3275	0.55

unit: mg / L

T-N in Effluents

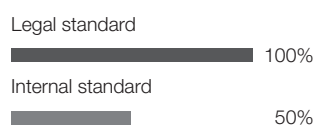
2004	2005	2006	2007
1.045	0.875	0.685	0.54

unit: mg / L

Vacum Sewerage System



Reinforcement of Internal Wastewater Concentration Standard



Environmental Impact and Performance

- Resource and Energy Conservation
- Air Emissions
- Water Quality
- **Waste Management**
- Soil Management
- Toxic Chemicals
- Climate Change
- Environmental Quality of Community
- Voluntary Agreements
- Environmentally Friendly Products



Waste Incineration Plant

Waste Management

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HHI has been attempting to reduce waste generation and improve its recycling rate by operating a resource recycling shop and waste incineration plant. We will continue to reduce resource use and improve our waste recycling rate.

Waste Recycling

HHI has established an eco-friendly separate collection system at waste generation places. We carry out a primary separate collection in the product process and secondary separate collection in the resource recycling shop. We recycle 100 percent of recyclable waste, such as oxidized steel from the cutting process, cast-iron waste from the casting shop and slugs from the propeller shop, through separate collection.

* Waste Manifest System

HHI continually monitors every stage from waste generation to final waste disposal, in realtime over the internet via its 'Waste Manifest System'. This ensures that all waste is lawfully and transparently disposed of. The system was developed by the Korea Environment and Resources Corporation.

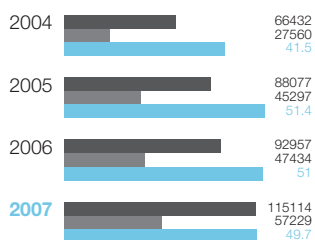
Waste Incineration Plant

HHI has operated its own waste incineration plant since 1996. We incinerate company waste and local community waste.

Incineration type	Stoker Type
Incineration facility	Incinerator(200Ton/day ×2 machines) Waste heat boiler (29.5Ton/hour× 2 machines) Turbine generator (1,100kw/hour ×2 machines)
Air pollution control equipments	Electric precipitator, Scrubber, SCR
Wastewater treatment plant	Physical and Chemical Method
Stack	100M

- Nonhazardous waste generation (ton / Yr)
- Nonhazardous waste recycling (ton / Yr)
- Nonhazardous waste recycling rate (%)

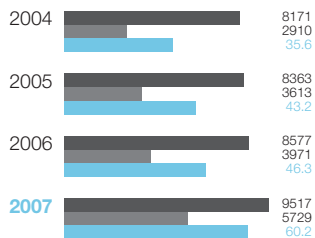
Nonhazardous Waste



Nonhazardous Waste

	2004	2005	2006	2007
Nonhazardous waste generation unit: ton / Yr	66432	88077	92957	115114
Nonhazardous waste recycling unit: ton / Yr	27560	45297	47434	57229
Nonhazardous waste recycling rate unit: %	41.5	51.4	51	49.7

Hazardous Waste



■ Hazardous waste generation (ton / Yr)
 ■ Hazardous waste recycling (ton / Yr)
 ■ Hazardous waste recycling rate (%)

Hazardous Waste

	2004	2005	2006	2007
Hazardous waste generation	8171	8363	8577	9517
unit: ton / Yr				
Hazardous waste recycling	2910	3613	3971	5729
unit: ton / Yr				
Hazardous waste recycling rate	35.6	43.2	46.3	60.2
unit: %				

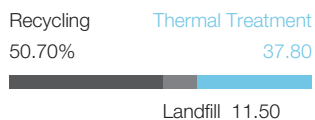
Solid Waste Treatment Measures

Recycling	Landfill	Thermal Treatment
50.70%	11.50%	37.80%

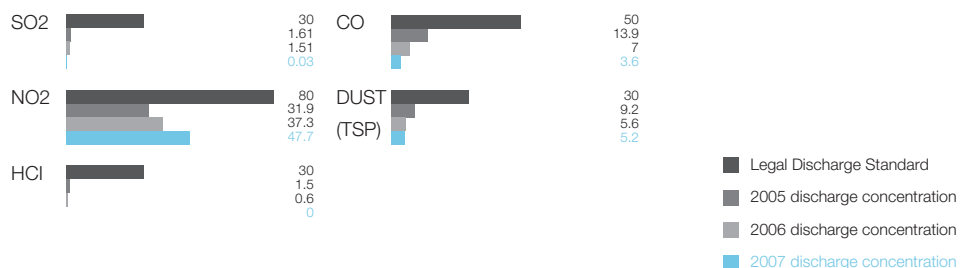
Concentration of incineration plant discharge gas

	SO2	NO2	HCl	CO	DUST(TSP)
Legal Discharge Standard	30	80	30	50	30
2005 Discharge concentration	1.61	31.9	1.5	13.9	9.2
2006 Discharge concentration	1.51	37.3	0.6	7	5.6
2007 Discharge concentration	0.03	47.7	0	3.6	5.2

Solid Waste Treatment Measures



Concentration of incineration plant discharge gas



Environmental Impact and Performance

- Resource and Energy Conservation
- Air Emissions
- Water Quality
- Waste Management
- **Soil Management**
- Toxic Chemicals
- Climate Change
- Environmental Quality of Community
- Voluntary Agreements
- Environmentally Friendly Products

Soil Management

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HHI's soil contamination facility follows strict soil pollution management procedures. The Soil-contamination facility helps prevent tank leakage. HHI uses various soil pollution control equipment, including corrosion inhibitor, drainage and leakage measuring instrument. 62 Soil-contamination facilities are located within the HHI yard. These facilities regularly check for soil pollution by technical measurement institution.



Soil Contamination Facility



Soil Pollution Inspection

Result of Soil pollution inspection (2007)

BTEX detection

Point	Standard(mg / KG)		Total of BTEX detection (mg / KG)
	standard 1	standard 2	
1	80	200	Not Detection (Less than 0.5)
2	80	200	Not Detection (Less than 0.5)
3	80	200	Not Detection (Less than 0.5)

TPH detection

Point	Standard(mg / KG)		Total of TPH detection (mg / KG)
	standard 1	standard 2	
1	2000	5000	Not Detection (Less than 10)
2	2000	5000	Not Detection (Less than 10)
3	2000	5000	Not Detection (Less than 10)
4	2000	5000	Not Detection (Less than 10)
5	2000	5000	Not Detection (Less than 10)
6	2000	5000	Not Detection (Less than 10)
7	2000	5000	Not Detection (Less than 10)

Toxic Chemicals

HHI follows strict procedures with regard to toxic chemicals from storage to use to disposal. HHI conducts periodic inspections of all relevant facilities to prevent chemical spills. HHI has also prepared emergency equipment and procedures in case of a chemical spill. MSDS (Material Safety Data Sheet) for the safe handling of toxic chemicals, are prepared in relevant facilities, and regular training is provided for all personnel involved in the handling of toxic chemicals.

TRI: Toxic Released Inventory

HHI reports to the Korea government regarding the amount of chemicals used and the amount of released chemical via TRI (Toxic Released Inventory). HHI applies TRI to reduce toxic chemical use and to effectively manage its toxic chemicals.

Chemical Use

	2004	2005	2006	2007
Ton / year	20226	21333	22666	27546
Ton / sale	22.13	20.18	17.99	17.88

(ten billion won)

■ Unit: Ton / year
■ Unit: Ton / sale(ten billion won)

Chemical Use

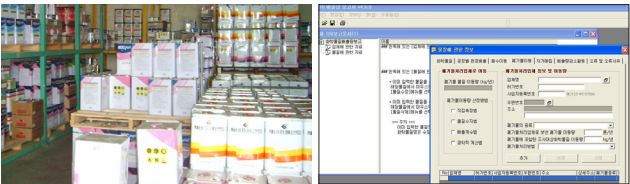
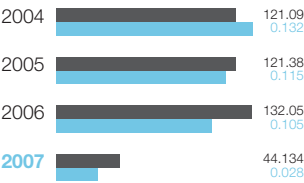


Hazardous Chemical Use

	2004	2005	2006	2007
Ton / year	121.09	121.38	132.05	44.134
Ton / sale	0.132	0.115	0.105	0.028

(ten billion won)

Hazardous Chemical Use



- 1 2
- 1

Paint Storage Facility
- 2

TRI(Toxic Released Inventory)

Environmental Impact and Performance

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Climate Change

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Climate change is a global priority and HHI is doing its part to help prevent climate change. Because Korea is the sixth leading country in greenhouse gas emissions, at a rate that is increasing faster than any other country in the OECD, Korea is expected to reduce greenhouse gas emissions during the second commitment period (2013-2017). For these reasons, HHI calculates its greenhouse gas emissions and then controls those emissions. To reduce greenhouse gas emissions, HHI participates in a “Voluntary Agreement for Energy Saving and Greenhouse Gas Reduction” with the Korea Energy Management Corporation. HHI will continue to reduce greenhouse gas emissions through improved manufacturing processes and reduction of energy use.

Greenhouse Gas Emissions

(Unit: tCO₂e / Year)



Greenhouse Gas Emissions

2006	2007
696223	743746

unit: tCO₂e / Year

Greenhouse Gas Emissions (Basic unit)

2006	2007
483	553

unit: tCO₂e / Sales(ten billion won)

Greenhouse Gas Emissions (Basic unit)

(Unit: tCO₂e / Sales(ten billion won))



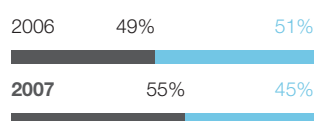
Greenhouse Gas emission factors distribution

	2006	2007
scope-1	49%	55%
scope-2	51%	45%

scope-1: Stationary combustion, Mobile combustion, Emissions of process

scope-2: Purchasing electricity, Purchasing Steam

Greenhouse Gas emission factors distribution



■ scope-1: Stationary combustion, Mobile combustion, Emissions of process

■ scope-2: Purchasing electricity, Purchasing Steam

Environmental Quality of Community

HHI is located in Bangeojin, Ulsan, along the southeast coast of Korea, and we make every effort to protect the local environment. Monitoring results show that seawater quality has been maintained and that the local air quality has been gradually improving. To prevent sea pollution, HHI has divided the adjacent sea into 14 areas for “Sea Pollution Prevention Management” HHI has been implementing continual emergency contingency drills and prevention activities in case of potential sea and air pollution emergencies.



Average DO of Seawater

(Unit: mg / L)



Average Bacterial Density in Seawater

(Unit: MPN / 100mL)



Average SS in Seawater

(Unit: mg / L)



Average SOx Concentration in the Local Atmosphere

(Unit: PPM)



Average DO of Seawater

2004	2005	2006	2007
8.79	9	8.5	8.3

unit: mg / L

Average Bacterial Density in Seawater

2004	2005	2006	2007
273	260	255	290

unit: MPN / 100mL

Average SS in Seawater

2004	2005	2006	2007
5.1	5.2	5.1	6

unit: mg / L

Average SOx Concentration in the Local Atmosphere

2004	2005	2006	2007
0.006	0.006	0.006	0.008

unit: PPM

Environmental Impact and Performance

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- [Environmental Quality of Community](#)
- Voluntary Agreements
- Environmentally Friendly Products

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Average NOx Concentration in the Local Atmosphere

2004	2005	2006	2007
0.012	0.012	0.012	0.012

unit: PPM

Average O3 Concentration in the Local Atmosphere

2004	2005	2006	2007
0.015	0.014	0.014	0.015

unit: PPM

Average NOx Concentration in the Local Atmosphere

(Unit: PPM)

2004	0.012
2005	0.012
2006	0.012
2007	0.012

Average O3 Concentration in the Local Atmosphere

(Unit: PPM)

2004	0.015
2005	0.014
2006	0.014
2007	0.015

Environmental Quality of Community

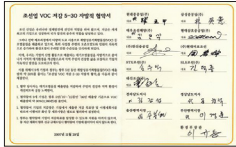


Voluntary Agreements

HHI has made several voluntary agreements regarding positive environmental management.

Voluntary agreement to reduce VOC by 5-30 percent in the shipbuilding industry

A lot of paint is used during the shipbuilding process, so VOC (Volatile Organic Compounds) are discharged into the atmosphere. HHI has entered a "Voluntary agreement to reduce VOC by 5-30 percent in the shipbuilding industry" with the Ministry of Environment and 8 Shipbuilding companies in November of 2007. This agreement will help create a cleaner environment and improve local residents's health. According to the voluntary agreement, HHI will invest 120 billion won to install air pollution control equipment, eco-paint development, install spray pumps. HHI will reduce VOC emissions by 30.1% by 2011 (base year 2006).



1
2

- 1
Voluntary agreement to reduce VOC by 5-30 percent in the shipbuilding industry
- 2
Voluntary Green Purchasing Agreement

Voluntary Green Purchasing Agreement

HHI recognizes that green purchasing is an important part of pursuing environmentally sustainable growth. So HHI entered a "Voluntary Green Purchasing Agreement" with the Ministry of Environment on Dec. 13, 2006, and created guideline for systematic green purchasing management since April of 2006. HHI now follows this agreement to purchases eco-materials and eco-componenets. HHI will continually increase its percentage of green eco-materials and eco-componenets. And HHI will build Green Supply Chain.

Result of Green Purchasing

section	2006		2007	
	items	amounts (million won)	items	amounts (million won)
Environmental labelling product	12	501	12	800
Non harmful product	62	10,806	62	34,800
The others	-	-	19	1,500
Total	74	11,307	93	37,100



Voluntary Agreement to Conserve Energy and Reduce Greenhouse Gas Emissions

Voluntary Agreement to Conserve Energy and Reduce Greenhouse Gas Emissions

To reduce greenhouse gas emissions and environmental pollution through energy conservation and pollution control, the Korean government has established voluntary agreement programs. HHI reviewed the effectiveness of the voluntary agreement programs and decided to participate in them to improve corporate competitiveness and help the global environment. HHI entered into a voluntary agreement with the Korean Ministry of Commerce, Industry and Energy on September 6, 2000. The agreement was renewed on May 6, 2005. In order to fulfill the agreement, HHI has spent approximately 3.7 billion won to install energy efficiency equipment and facilities.

Environmental Impact and Performance

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- [Voluntary Agreements](#)
- [Environmentally Friendly Products](#)

Environmentally Friendly Products

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HHI is currently developing applications for environmentally friendly technologies, like alternative energy development, noise and vibration control, fuel-economic hull- form designs and low flue gas emission engines.

Solar Power Systems



Solar Power Systems

HHI has been in the solar power system business since 2005, thriving on growing interest in renewable energy. Solar photovoltaic power generation converts solar light to electricity directly via solar cells. Infinite energy is the major advantage of solar photovoltaic power generation, as it involves no fuel costs, no air pollution, and produces no greenhouse gas. HHI exported a \$60 million solar power system to a Spanish customer and constructed a 1.2MW solar power plant in Hae-Nam. HHI has also completed a solar cell/module factory that will produce US\$120 million worth of solar cells and modules per year. This new factory will begin production of 30MW solar cells in April of 2008.

Electric Propulsion LNG Carrier



Electric Propulsion LNG Carrier

HHI delivered a 155,000m³ electric propulsion LNG carrier to the BP group in July of 2007. The ship named 'British Emerald', was awarded the first prize "eco-friendly products" in the BP group's HELIOS contest. 'British Emerald' was the first electric propulsion LNG carrier produced in Korea, and the second produced in the world. This ship improves fuel efficiency by 10 percent and produces 25 percent less CO₂ emissions. The ship saves 40 tons of fuel per day, compared to steam turbine ships, at 20 knots. For these reasons, 'British Emerald' is considered a next-generation LNG carrier and was awarded the first prize from among 1600 eco-friendly products.

HiMSEN Engine (HiMSEN H17 / 24G)



HiMSEN Engine (HiMSEN H17/24G)

HHI has developed Korea's first gas engine [HiMSEN H17/24G] power generator. The engine uses liquefied natural gas increase power efficiency by 43 percent and produce 10 percent less nitrogen oxide emissions. The HiMSEN H17/24G engine is eco-friendly when compared to diesel engines.

Hybrid Bus



Hybrid Bus

HHI and the Daewoo Bus Company have developed the first Hybrid Bus in Korea. HHI was responsible for developing of key components that included the generator, electromotor, and control system. The Hybrid bus improves fuel efficiency by 30 percent and produces 70 percent less air pollution emissions, making it more eco-friendly than diesel buses. HHI plans to produce Hybrid Buses in the latter half of 2008.

Eco-Friendly Forklift Truck '(FOREX)-D'



Eco-Friendly Forklift Truck '(FOREX)-D'

'FOREX-D' has a Cummins engine, which is considered to be an eco-friendly engine. It satisfies EU and American exhaust gas regulations. 'FOREX-D' reduces NO_x emissions by 30 percent and air pollutants such as HC, CO, PM. It also improves fuel efficiency by 10 percent and reduces noise, producing less than 82db.

For a sustainable future,
HHI has remarkably grown with
regional society during 30 years.

Social Relationship

Social Relationship

- Environmental Conservation Activities
- Social Activities



Environmental Conservation Activities

We have implemented various environmental conservation activities such as forest, stream, and sea preservation, and held environmental campaigns to help improve our community.

Volunteers for the Samsung - Hebei Spirit oil spill clean up

HHI sent 320 volunteers to take part in clean up efforts following the massive Samsung-Hebei Spirit oil spill that polluted nearby beaches and ports. HHI donated excavators and wheel loaders to polluted areas and provided adsorbents, oil-fenses and abstersgents.

One company, One region cleaning campaign

The One company, One region cleaning campaign, where HHI cleans local areas, is in its tenth year.

Voluntary Environmental Preservation Activities

Many clubs and associations exist within HHI. These clubs and associations conduct environmental conservation activities at least once a month.

Environmental Conservation Activities



Social Contribution Activities

HHI believes that our business activities should generate not only economic profits but also benefits for society. Throughout our history we have created many social initiatives and programs. HHI has invested more than 300 billion Won to build many infrastructures as roads, libraries, parks, gymnasiums in Ulsan.



Social Contribution Activities

Organ donation campaign

Last september HHI launched an organ donation campaign. As a result, more than 6200 employees (25% of all employees) write organ donation pledges. It was one of the largest organ donation campaigns in Korea, winning an award from the Minister of Health and Welfare.

Top of Mecenat activity company in the Korea

Every year, HHI spends 15 billion Won to support fine arts, including painting, performances and concerts. HHI has been selected the top Mecenat activity company in Korea for 3 straight years (2004-2006)

Sales of Donation

HHI employees donate various articles (25,000 articles) which are sold to employees and local residents. All proceeds from this event are used to make and deliver Kimchi (a Korean food) to those in need.

HHI also conducts several other activities to help improve society.

2007 Locally Social Contribution Activities

Section	Contents	Sum
Social Organization	Well - fare facilities, Handicapped person association, Teenagers guidance clinic etc	391
Sisterhood Relationship	Sister - Village affiliation, Sister - School affiliation	32
Regular Support	Child hunger, Unfortunate neighbors, Hall for the aged, No charge feeding facilities etc	53
Consolatory Visit	Social welfare facility, Military, Police station	22
Total		498

unit: ten million won

Certifications and Awards

2002

Nov. Named top brand value in industry

2003

Apr. Chosen "The best workplace in Korea"

Sep. Awarded first prize "World Class" in the best Korean company contest

Nov. Awarded \$5 Billion Export Tower Award

2004

Sep. Awarded first prize "World Class" in the best Korean company contest

Dec. Awarded "The most credible company in Korea"

Dec. Named "Economic Justice Company"

2005

Sep. Awarded the "World Class" prize in a contest for the best Korean company

Oct. Named "Excellent Workplace"

Nov. Awarded \$7 Billion Export Tower Award

Dec. Awarded first prize in a Korea business contest

2006

May. Named meritorious company of oversea construction

Jul. Awarded "Excellent Workplace"

Jul. Selected management organization excellent company

Sep. Awarded the "World Class" prize in a contest for the best Korean company

Dec. Awarded "The best credible businessman"

2007

Apr. Awarded "39th Korean CEO of the year"

Apr. Selected as "The best workplace in Korea" by Hewitt

Aug. Awarded the "World Class" prize in a contest for the best Korean company

Sep. Named "excellent industrial relations company"

Nov. Awarded \$10 Billion Export Tower Award



Toward a Sustainable Future

