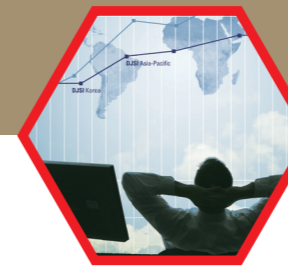


HONAM Petrochemical Corp. Sustainability Report

2011 and Beyond



Sustainability Leader



Mega-Trend Leader



Eco-Friendly Leader



Community Leader



HONAM PETROCHEMICAL
Lotte Tower, 395-67, Sindaebang-2dong, Dongjakgu, Seoul, Korea

To participate in the mobile survey please download the
Smartphone QR Code application and scan the code.



This report is printed on recycled paper with soy bean ink.

2011 Key Issues

Sustainability Leader



Entered DJSI Asia Pacific

HPC(Honam Petrochemical Corporation)was newly included in the Dow Jones Sustainability Asia Pacific Index in 2011, the benchmark offered cooperatively by Dow Jones and SAM (Sustainable Asset Management).



Won the Korea Social Responsibility Grand Prize

HPC was awarded the Korea SR Grand Prize at the 2011 New Quality Convention in recognition for its social responsibility efforts, such as establishing the green management strategy, establishing the GEMS system, and publishing the sustainability report through which it aims for communication with the stakeholders and mutual growth with the partner companies.



Built the Ethical Management Website

With the goal of heightening employees' ethical awareness and improving reliability, the Ethical Management Website was built in 2011 and launched in January 2012, through which employees receive ethical management education every week. Through the website the participation in ethical management education was expanded throughout the company, and the gift return center is in operation to form a consensus among all employees on the value of ethical management.

Eco-Friendly Leader



Yeosu Plant Won the Outstanding Business Award under the Target Management Scheme

HPC's Yeosu Plant actively cooperates with the government's policies. In recognition for completing the integrated greenhouse gas and energy management system, Yeosu Plant received the Outstanding Business Award at the 2011 Greenhouse Gas & Energy Target Management Scheme Awards Ceremony.



Selected as a Leader in the CDP Material Sector

At the 2011 Carbon Disclosure Project Korea Awards, HPC was selected as a leader in the raw material sector for two consecutive years for its achievements in carbon disclosure and mitigating climate change.



Entered the Large-Scale Battery Business

With a view to securing its continued growth in the future, HPC is pursuing the large-scale battery business. Since April 2011, HPC has been conducting joint research with ZBB Energy Corporation based in the United States in CFB (Chemical Flow Battery), which is a large-scale energy storage unit.

Mega-Trend Leader



Operating Income Reached KRW1.66 trillion

In 2011, HPC achieved KRW 1.66 trillion in operating income the largest ever, through a flexible sales strategy based on stable production and fair operations. HPC has also increased the overseas business ratio through the acquisition of Titan Chemicals of Malaysia in 2010.



Launched Business in Uzbekistan

HPC has launched its business in Uzbekistan and is investing in the Surgil project. This project integrates the development of gas field, production of polymer products, construction and operation of the gas chemical plant in the Surgil gas field near the Aral Sea that has been estimated to hold approximately 130 billion cubic meters of natural gas (96 million tons when converted to LNG and 830 million barrels when converted to crude oil).



Korea's Largest Ethylene Production Capacity in 2012

With the expansion of the Yeosu NCC Plant for which construction was completed in May 2012, HPC now has Korea's largest annual ethylene production capacity at 2,1 million tons(Yeosu: 1 million tons, Daesan: 1,1 million tons).

Community Leader



Operated the Mutual Growth Fund

As part of the financial support for its partner companies, HPC raised a mutual growth fund of KRW 50 billion, providing low interest financing for partner SMEs (small and medium enterprises). This fund is not a one-time contribution but an on-going program through which partner companies can get practical financial assistance, and we expect it will be of great help.



Human Resources Management Award

In recognition for establishing a leading management system and nurturing human assets with global competitiveness HPC won the Human Resources Management Award at the 2011 Grand Management Awards hosted by KMAC.



Green Credit Project

As part of its efforts to contribute to mutual growth between large companies and SMEs, HPC has been participating in the Green Credit project since 2011 under the coordination of the Ministry of Knowledge Economy. Through this project, HPC provides financial and technological support for greenhouse gas reduction and receives green credits for the reduction accomplished.

About this Report

This is the fifth report published by Honam Petrochemical Corp. describing its efforts and accomplishments for sustainability management. We hope this report will act as the window of communication between the stakeholders and HPC which strives to advance together with the stakeholders. HPC will continue to publish sustainability reports in the future to come.

Reporting Framework

This report follows the GRI (Global Reporting Initiative) G3.1 guideline and reflects the ISO 26000 social responsibility international standard. In case the data collection criteria is different from the GRI index, or the calculation criteria has changed from that reported in the past, notes have been made in the index.

Reporting Period and Scope

The reporting period of this report corresponds to the fiscal year of 2011, which is January 1st to December 31st, 2011. Major quantitative performances include data from the past three years to help stakeholders' understanding. Major qualitative issues and activities include those in the first half of 2012. The scope of the report covers sustainability management activities in HPC's business sites including the Seoul head office, Daejeon Research Institute, Yeosu Plant and Daesan Plant.

Third Party Assurance

HPC undergoes independent assurance by a third party every year to further enhance the reliability of the information contained in the report and to improve the internal process related to reporting. The third party assurance report is available within this report.

Icons were added in case further information pertinent to the report is available.



Related video



Related website

* This report can be accessed through our website (<http://www.hpc.co.kr>), and is published in Korean and English for the convenience of various stakeholders. The most recent report is the "2010 Sustainability Report" published in September 2011.

Inquiries on the Report

Address: 10F Lotte Tower Building, 395-67 Sindaebang 2-dong, Dongjak-gu, Seoul

Department: Technology Management Team

Tel: 02-829-4181 Fax: 02-840-0309 E-mail: jinhyun@lottelpc.com

Contents

Overview	02 - 11
CEO Message	02
Corporate Summary	04
Global Network	05
2011 Highlights	06
Stakeholder Communication	08
Stakeholder Survey	09
Major Sustainability Management Issues	10
Sustainability Leader	12 - 19
Sustainability Management Vision and Strategy	14
Sustainability Management Structure	15
Corporate Governance	17
Ethical Management	18
Risk Management Response System	19
Mega-Trend Leader	20 - 27
Innovation Management	22
Expansion of Production and Supply Capacity	25
Major Management Performance	26
Eco-Friendly Leader	28 - 43
Low-Carbon Green Management	30
Response to Climate Change	33
Special - Our Efforts to Respond to Risks and Opportunities of Climate Change	36
Environmental Management	38
Product Ecobalance Management	41
Fostering Green-Oriented Culture	43
Community Leader	44 - 57
Mutual Growth	46
Customer Satisfaction	49
A Good Company to Work for	50
Social Contribution	55
GRI G3.1 Index	58
ISO 26000	62
Third Party's Assurance Report	63

CEO Message



“In 2012, we will continue to move forward toward our goal of becoming “Asia’s Top Chemical Company” by enhancing profitability of existing businesses, cultivating high value businesses, and maintaining and developing new growth engines in order to strengthen global competitiveness and achieve sustainable growth.



Dear Stakeholders!

Despite unstable global economic circumstances and slowing demand, HPC accomplished KRW 8.4 trillion in sales and KRW 1 trillion in operating income - its highest record so far - through a flexible sales strategy based on stable production and fair operations. Domestically, with the expansion of the Yeosu NCC (Naphtha Cracking Center), HPC now has Korea’s largest annual ethylene production capacity at over 2,110,000 tons. We have also expanded overseas business with the acquisition of Titan Chemicals in Malaysia in 2010, and completing the automotive material plant in Alabama, U.S. and launching the high-performance plastic plant in Hefei, China in 2011. HPC selected basic chemicals, advanced materials, and developing new megatrend business as its three core businesses. In order to achieve these goals HPC is taking various actions to further secure growth opportunities in newly emerging countries, directly nurture high growth businesses, and secure the fuel for continued growth in the future.

HPC has strived not only for external growth of its business, but also for internal growth in order to grow sustainably. We published the sustainability report every year to report our activities and achievements to our stakeholders in sustainability management and share opinions and solutions on points that need improvement, contributing to building a transparent management environment. We expanded the development of environmentally friendly products and green purchasing as part of our low-carbon, green growth strategy, and as a result of our efforts to conserve energy and reduce greenhouse gas emissions we acquired the GMS (Green Management System) certification from the Ministry of Knowledge Economy, which was the first in the petrochemical industry. In addition, with a view to strengthening cooperative relations with our partner companies, we have raised KRW 87 billion as mutual growth fund as of June 2012 and are channeling these funds toward mutual growth. Moreover, in order to fulfill our responsibilities as a part of the community we have actively undertaken volunteer activities through our regional volunteer groups. As a result of our continued efforts in green management, mutual growth and social contribution, we won the SR (Social Responsibility) Grand Prize and entered the DJSI Asia Pacific in 2011, while being selected a leader in the raw material sector for two consecutive years in the CDP (Carbon Disclosure Project) Korea.

During 2012, while maintaining our vision toward becoming "Asia's Top Chemical Company", we will establish and implement active and detail plans to respond to environmental changes. In particular, we will strengthen our global competitiveness and achieve sustainable growth by actively pursuing strategies to enhance profitability of existing businesses, nurturing high value added businesses, and cultivating new growth engines. By enhancing our efforts to fulfill our social responsibility by each sector such as the environment, mutual cooperation, customer protection, ethics and social contribution, we will earn the trust of our stakeholders, create positive change to the society and contribute to a prosperous future society. We will also listen to the demands of internal and external stakeholders and put efforts in reflecting global standards of social responsibility such as ISO 26000 in our business activities. As a leader of petrochemical industry who has stayed on one road, HPC will fulfill its role in contributing to balanced growth and advancement that takes into account of economic, social and environmental aspects.

We hope for the stakeholders' continued support and trust.

Thank you.

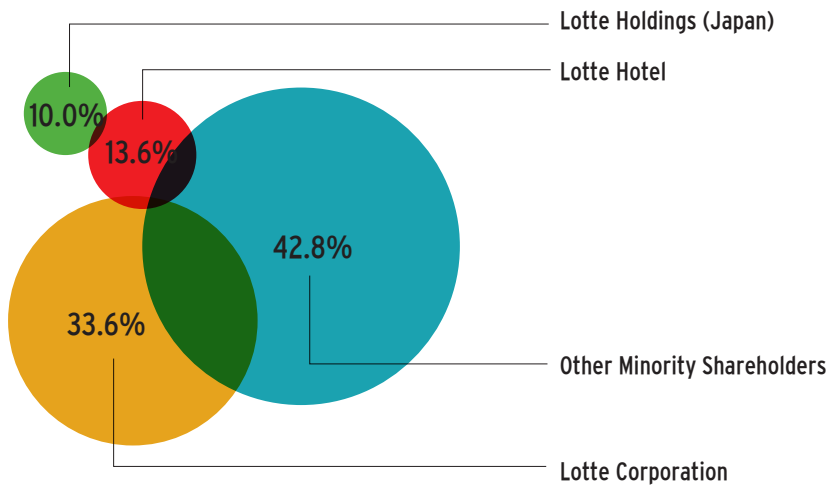
President & CEO **Huh, Soo Young**



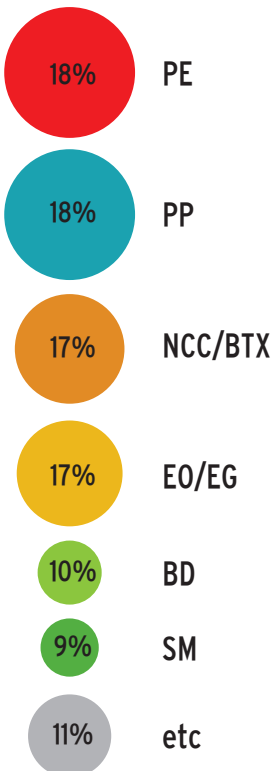
Corporate Summary

Since its foundation in 1976, HPC has focused on developing advanced petrochemical technologies and is the comprehensive petrochemical company that has pioneered the industry's advancement in the Korean market. HPC's products include basic petrochemical products, monomers and synthetic resins. The research institute is strengthening its R&D capabilities for business diversification and improved management efficiency, focusing its resources on process study, fine chemistry, and eco-friendly materials. With the goal of becoming "Asia's Top Chemical Company" with sales of KRW 40 trillion by 2018, HPC persists in its efforts to realize stable profits and contribute to human society.

Shareholders



2011 Sales Amount by Product



History

Early Period - Downstream expansion

- 1976 Founded Honam Petrochemical Corp.
- 1979 Began commercial production
- 1988 Completed construction of the second HDPE plant and second PP plant

Growth Period - Completion of integration and further expansion

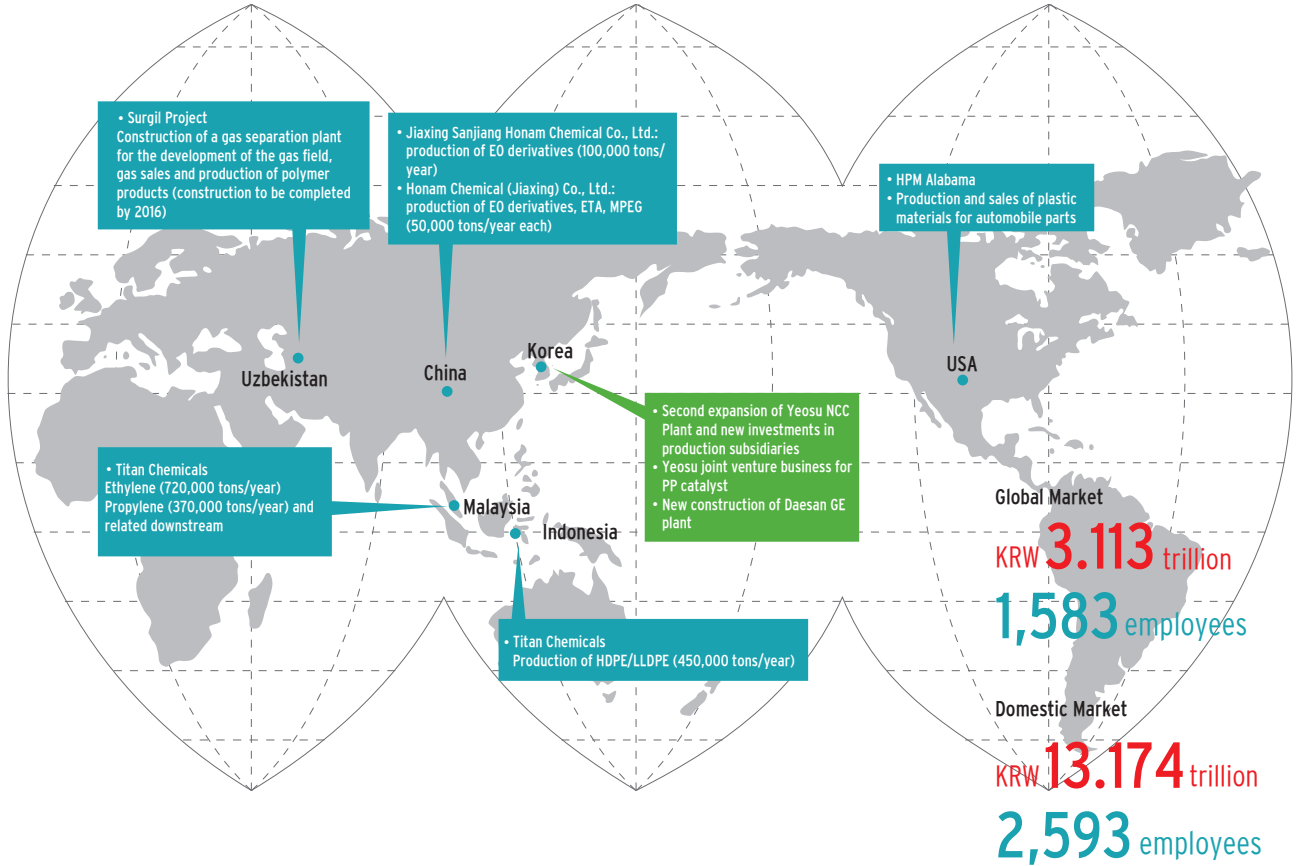
- 1991 Listed on the stock exchange, completed construction of the second MEG plant
- 1992 Completed Naphtha Cracking Center

Maturing Period - M&A, new plant expansion, overseas market

- 2001 Expansion of Yeosu plant
- 2003 Acquired Hyundai Petrochemical Corp. (Lotte Daesan Petrochemical Corp.)
- 2004 Acquired KP Chemical
- 2006 Founded Daesan MMA
Founded Honam Chemical Trading Corp. (China)
Acquired Jiaying Honam Engineering Plastics Co., Ltd. (China)
- 2008 Expanded Lotte Daesan Petrochemical Corp.
- 2009 Merger with Lotte Daesan Petrochemical (Daesan Plant)
Acquired Sambark LFT and Sambark Co.
- 2010 Acquired Titan (Malaysia) and DACC
- 2011 Founded the U.S. subsidiary HPM Alabama Corporation

Global Network

HPC is a global chemical company with an annual capacity of 14 million tons including its subsidiaries. With a view to becoming Asia's top chemical company HPC has been enhancing its global competitiveness, expanding its production capacity by acquiring Titan Chemicals of Malaysia in 2010, and participating in the Surgil project in Uzbekistan



Sales: KRW 1 million Employees: persons

Business sites within Korea	
Head office 8F-11F Lotte Tower, 395-67, Sindaeabang 2-dong, Dongjak-gu, Seoul	340
Yeosu Plant 172 Jungheung-dong, Yeosu-si, Jeollanam-do	3,843,506 721
Daesan Plant 634 Dokgot-ri, Daesan-eup, Seosan-si, Chungcheongnam-do	4,619,978 463
Daeduk Research Institute 24-1 Jang-dong, Yuseong-gu, Daejeon	174

Subsidiaries (Domestic)	
KP Chemical 7F Lotte Tower, 395-67, Sindaeabang 2-dong, Dongjak-gu, Seoul PTA, PET, PX, PIA, etc.	4,640,260 620
Sambark 144-1 Ganyang-ri, Yesan-eup, Yesan-gun, Chuncheongnam-do LFT, WLFT, TPO, etc.	58,126 107
Howtech 133-1 Ganyang-ri, Yesan-eup, Yesan-gun, Chuncheongnam-do EPP	5,858 21
DACC Aerospace 948-13 Dunsan-ri, Bongdong-eup, Wanju-gun, Jeollabuk-do Carbon fiber composites	6,341 147

Subsidiaries (Overseas)	
Titan Chemical Corp Kuala Lumpur, Malaysia Ethylene, PE, PP, etc.	2,768,253 1,396
Jiaxing Honam Engineering Plastics Co., Ltd. Jiaxing City Economic Development Zone, China PP synthetic resins, LFT, EPP, etc.	52,565 125
Honam Chemical Trading (Shanghai) Corp. Shanghai, Beijing, Qingdao, Guangzhou branch Sales of chemical products	292,357 62

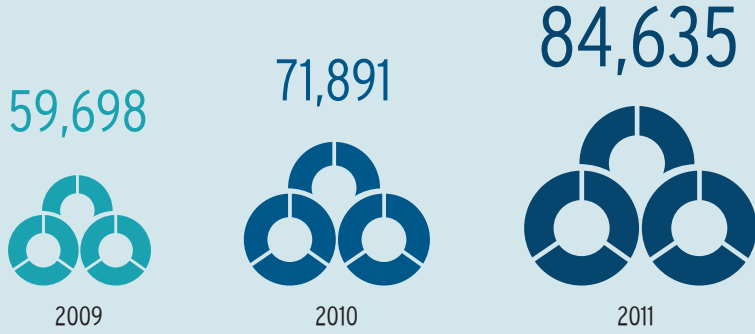
2011 Highlights

In 2011, HPC continued active implementation of sustainability management with a view to becoming Asia's top chemical company. Thanks to continued efforts for developing core capabilities and developing overseas business, HPC achieved its largest sales volume and business performance ever. In addition, in recognition of its efforts in green management and human resources development, HPC was selected as a leader in the raw material sector at CDP Korea, entered the DJSI Asia Pacific and won the Korea SR Grand Prize and Human Resources Management Award.

Economic Performance

HPC expanded the production capacity for major products such as ethyleneglycol, polypropylene and polyethylene securing the largest capacity in Korea, and achieved KRW 8.4 trillion in sales and KRW 1 trillion in operating income.

Sales (Unit: KRW 100 million)



15.1% ↑



EBITDA (Unit: KRW 100 million)



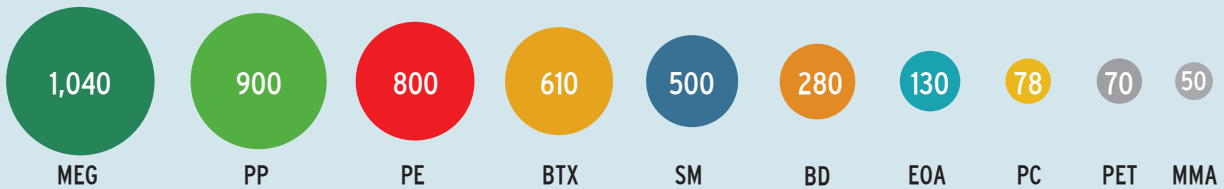
558

Total cash dividend

(Unit: KRW 100 million)

HPC shares the company's profits with its stakeholders

Production capacity by product (Unit: 1,000 tons/year)



	2009	2010	2011
Operating income (KRW 100 million)	7,176	9,039	10,660
EBITDA (KRW 100 million)	9,500	11,052	12,722
Net profit (KRW 100 million)	7,967	7,843	7,486
Total cash dividend (KRW 100 million)	478	558	558
R&D (KRW 1 million)	15,247	22,832	29,206

Environmental Performance

HPC pursues low-carbon, green management throughout its business operations and continues to evaluate and its green management-related activities and performance. We will turn risk to opportunity by reducing greenhouse gas by 30% (compared to emission intensity of 2009) and increasing the ratio of eco-friendly products to 30% of sales.

Environmental investment (Unit: KRW 1 million)

37,412



2009

39,069



2010

54,744



2011

20.0% ↓



Greenhouse gas emission intensity compared to sales volume
(Unit: tCO₂/KRW 100 million)



73.0%

Waste recycling rate
As a green company, we strive to reduce waste discharge and increase recycling rate.

Social Performance

As a member of society, HPC grows together with the stakeholders. We provide a working environment that motivates the employees, and look for opportunities for value creation and mutual growth by maintaining close cooperative relations with customers and supplier companies. We strive to be a warm-hearted corporation that sustains within the community.

Social contribution (Unit: KRW 1 million)

2,800



2009

4,300



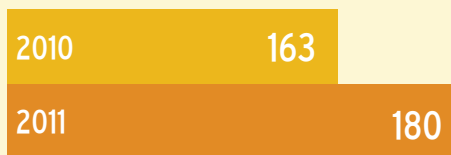
2010

4,700



2011

10.4% ↑



Job benefits (Unit: KRW 100 million)

Ratio of female employees



7.4%

Ratio of disabled employees



1.5%

HPC respects diversity and plans to increase the ratio of female employees and disabled employees

Stakeholder Communication

HPC gathers stakeholders' expectations and requirements on its sustainability management activities through a range of communication channels. In order to gather their opinions, HPC defines stakeholders as all organizations or individuals that directly or indirectly influence management activities, clearly categorizing them as customers, shareholders, employees, partner companies, government and local community and has established a method and channel for communication with each group. In particular, in order to expand stakeholder engagement and a make comprehensive analysis of their opinions, HPC conducts regular surveys on customers, employees, partner companies and the community for their opinions on HPC's sustainability management. When drawing sustainability management strategy, HPC establishes and implements appropriate response strategies on stakeholders' issues of interest in order to enhance stakeholder value.

HPC listens to the rapidly changing market conditions and customers' demands to maximize customer satisfaction through regular customer satisfaction surveys and seminars inviting customers.

Communication Channel

Personal Visits (as necessary)/Customer Satisfaction Survey/Customer Invitation Programs

HPC brings profit and shareholder value through efficient and transparent management and induces active investments.

Communication Channel

Annual General Meeting/Public Announcements/Investment Information Website/Ethical Management Website

HPC ensures optimum working conditions through fair performance compensation and job benefits, and encourages the self-motivated and passionate participation of all the employees.

Communication Channel

Labor-Management Council/Communication Plaza/On-site Operating Committee/Satisfaction Surveys/Intranet/Management Briefing

HPC builds a win-win cooperation relationship that is mutually beneficial by providing fair opportunities and transparent transactions.

Communication Channel

Partner Company Meeting/Technology Cooperation Projects with SMEs/Lotte Academy

HPC observes the law and creates social wealth and jobs through sound management activities, contributing to the people's quality of life.

Communication Channel

Public Hearings/Forums/Conferences/Participation in National Projects/Joint Cooperative Programs

HPC undertakes social responsibility activities through various communication channels and maintains constructive relations with local NGOs.

Communication Channel

Sisterhood Ties/Meeting With Local Residents/Environmental Cleanup Activities/Social Contribution Activities



Affiliation with Organizations (as of 2011)		
<ul style="list-style-type: none"> Federation of Korean Industries Korea Employers Federation Korea Industrial Technology Association Korea Petrochemical Industry Association Korea Tax Association Seoul Chamber of Commerce & Industry Association Korea International Trade Association Korea Polymer Society of Korea Korea Management Association Korea Listed Companies Association Korea Productivity Center Korea-Japan Economic Association 	<ul style="list-style-type: none"> Federation of Korean Industries (Korea Economic Research Institute) Korea Surfactant and Adhesive Industry Cooperative Korean Institute of Chemical Engineers Korean Union of Chemical Science and Technology Societies Korea Fair Competition Federation Incorporated Association Korea Engineering Club Seosan/Yeosu Chamber of Commerce & Industry Asia Business Council EPCA (European Petrochemical Association) Korea Customs Logistics Association 	<ul style="list-style-type: none"> Korea Environmental Preservation Association Korea Gas Safety Corporation Korea Fire Safety Association Korea Electric Engineers Association The National Academy of Engineering of Korea Korea Business Council for Sustainable Development Korea Radioisotope Association Korea Association of Professional Safety Engineers Korea Chemicals Management Association Korea Personnel Improvement Associate

Stakeholder Survey

In order to understand internal and external stakeholders' expectations and requirements on sustainability management, HPC conducted an online survey from May 9th to May 20th in 2012 to gather their opinion and interest on HPC's sustainability management activities. This survey asked key internal and external stakeholders their evaluation of HPC's activities and the perceived level of importance regarding three areas (economic sustainability, social sustainability and environmental sustainability), as well as major issues.

Stakeholders' Evaluation of HPC's Sustainability Management Activities

Internal Stakeholders					External Stakeholders					
Very insufficient	Insufficient	Average	Sufficient	Very sufficient		Very insufficient	Insufficient	Average	Sufficient	Very sufficient
0.0%	1.2%	8.9%	49.8%	40.1%	Economic performance	0.0%	0.4%	8.2%	49.4%	42.0%
0.2%	2.4%	19.2%	42.4%	30.8%	Governance	0.4%	1.2%	19.3%	48.6%	30.5%
0.7%	1.0%	20.4%	51.4%	26.4%	Environment	0.8%	0.8%	23.5%	47.3%	27.6%
0.0%	5.5%	26.2%	43.8%	24.5%	Fair operations	2.5%	6.2%	20.2%	41.6%	29.6%
0.5%	7.9%	30.5%	42.5%	18.5%	Human rights	1.2%	4.1%	25.5%	45.3%	23.9%
1.0%	8.2%	33.9%	38.0%	19.0%	Labor	0.5%	2.5%	26.3%	46.5%	24.3%
0.4%	1.4%	21.6%	51.7%	24.5%	Customers (Partner companies)	2.1%	3.3%	15.6%	49.4%	29.6%
1.2%	9.4%	29.8%	38.2%	21.4%	Community	1.2%	2.5%	28.0%	42.8%	25.5%

External Stakeholders Survey Results

At the survey conducted on external stakeholders, the order of their interest in sustainability management activities by sector was: environment (89.7 points) > society (86.0 points) > economy (85.9 points), and the overall rate of interest on HPC's sustainability management activities was 87.2 points (scale of 100). While interest in the three areas of sustainability management was relatively even, their interest in "economic and social sustainability management activities" was lower than that in "environment-related sustainability management activities."

External Stakeholders Survey Results

	(Unit: points)
1. Mutual growth with partner companies	92.7
2. Energy conservation, recycling and reuse of resources	92.3
3. Preventing environmental pollution	91.6
4. Fair trade with partner companies	91.3
5. Reducing greenhouse gas emissions	89.7

	(Unit: points)
Overall	87.2
Environment	89.7
Society	86.0
Economy	85.9

Top Issues by Stakeholder Group (Unit: points)

Mutual growth with partner companies	91.1	Preventing environmental pollution	93.8	
Preventing environmental pollution	90.9	Mutual growth with partner companies	93.7	Energy conservation, recycling and reuse of resources
Product responsibility	90.4	Ethical management	92.1	Fair trade with partner companies
Ethical management	89.6	Fair trade with partner companies	92.1	Mutual growth with partner companies
Energy conservation, recycling and reuse of resources	88.9	Protecting the ecosystem	91.5	Impact on local community (residents' health and safety)
Customer companies' top issues		Partner companies' top issues		Local community's top issues

Internal Stakeholders Survey Results

At the survey conducted on internal stakeholders, the overall rate of interest on HPC's sustainability management activities was 86.5 points (scale of 100) and the order of their interest in sustainability management activities by sector was: environment (88.0 points) > economy (85.9 points) > society (85.5 points). Among the three areas of sustainability management, employees' interest in "environment-related sustainability activities" was higher than that in "economic and social sustainability management activities."

Internal Stakeholders Survey Results

	(Unit: points)
1. Technology/product development	91.1
2. Employees' health and safety	91.1
3. Preventing environmental pollution	90.8
4. Ethical management	90.7
5. Respect for human rights	89.2

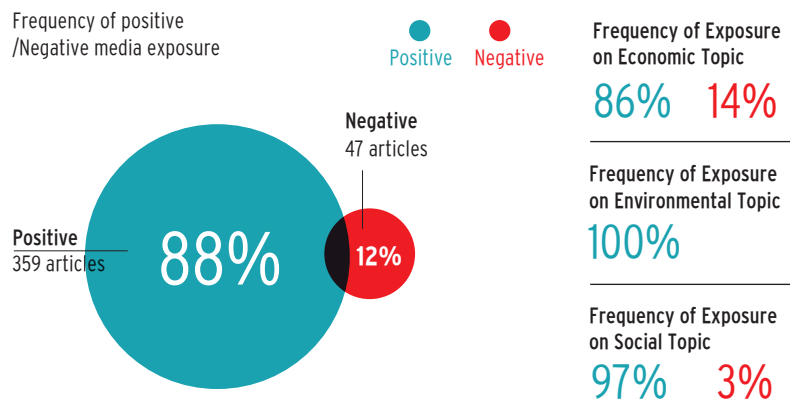
	(Unit: points)
Overall	86.5
Environment	88.0
Economy	85.9
Society	85.5

Major Sustainability Management Issues

Materiality Analysis

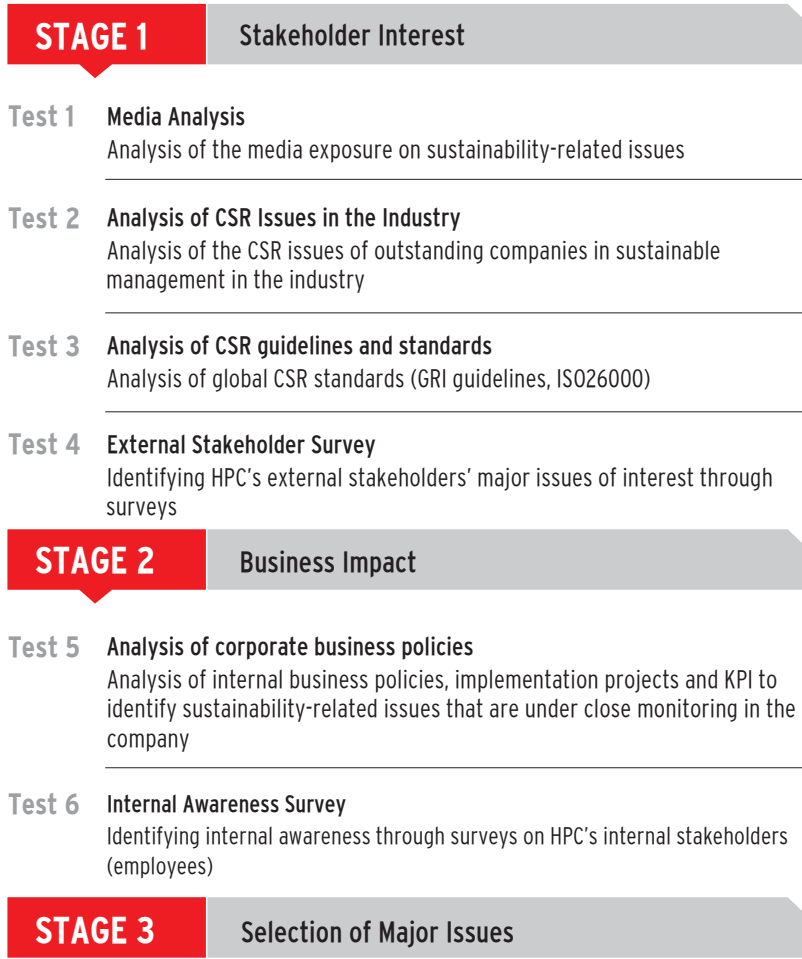
Every year, HPC conducts a materiality analysis to understand stakeholders' expectations and requirements on sustainability management, and to reflect them in the decision-making process. Materiality analysis is a process of analyzing sustainability management issues identified by internal and external stakeholders in terms of stakeholder interest and impact on the company, and prioritizing them accordingly. Through the materiality analysis, HPC not only selects the topics to be reported in the sustainability report, but also identifies risk elements by each factor in order to implement sustainability management in the stakeholders' perspective.

Media Analysis



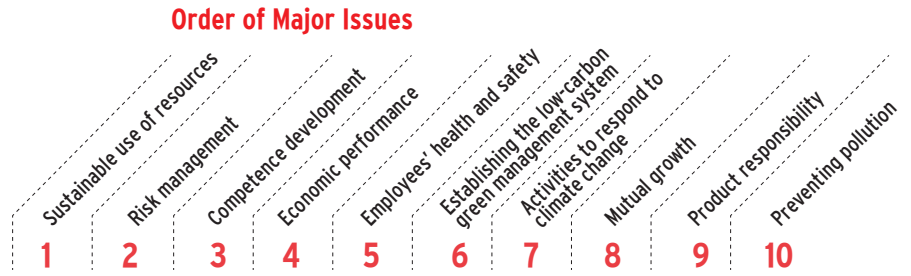
Materiality Analysis Process

In order to undertake the materiality analysis, HPC identified major issues related to sustainability management by investigating various data such as media analysis, industry benchmarking, CSR guideline & standards analysis, and corporate business policies. The issues thus identified were put to stakeholder surveys and internal evaluation to identify HPC's major sustainability management issues taking into account of stakeholders' interest and potential impact on the company.



Materiality Analysis Results

According to HPC's materiality analysis on sustainability issues, 10 issues including employees' health and safety, low-carbon green management, response to climate change and mutual growth are the major concern to the stakeholders as well as being perceived to have high impact on HPC.

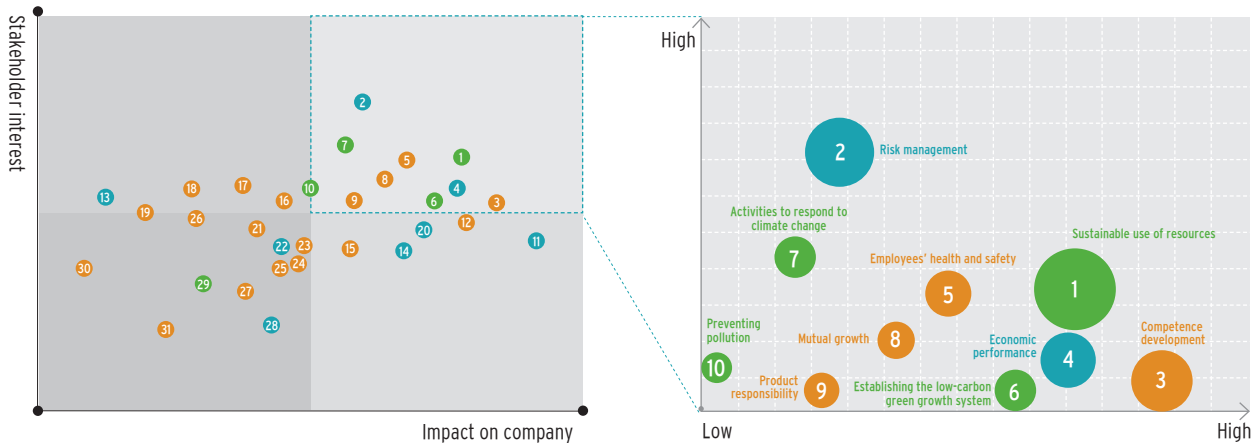


Major Sustainability Management Issues in 2011

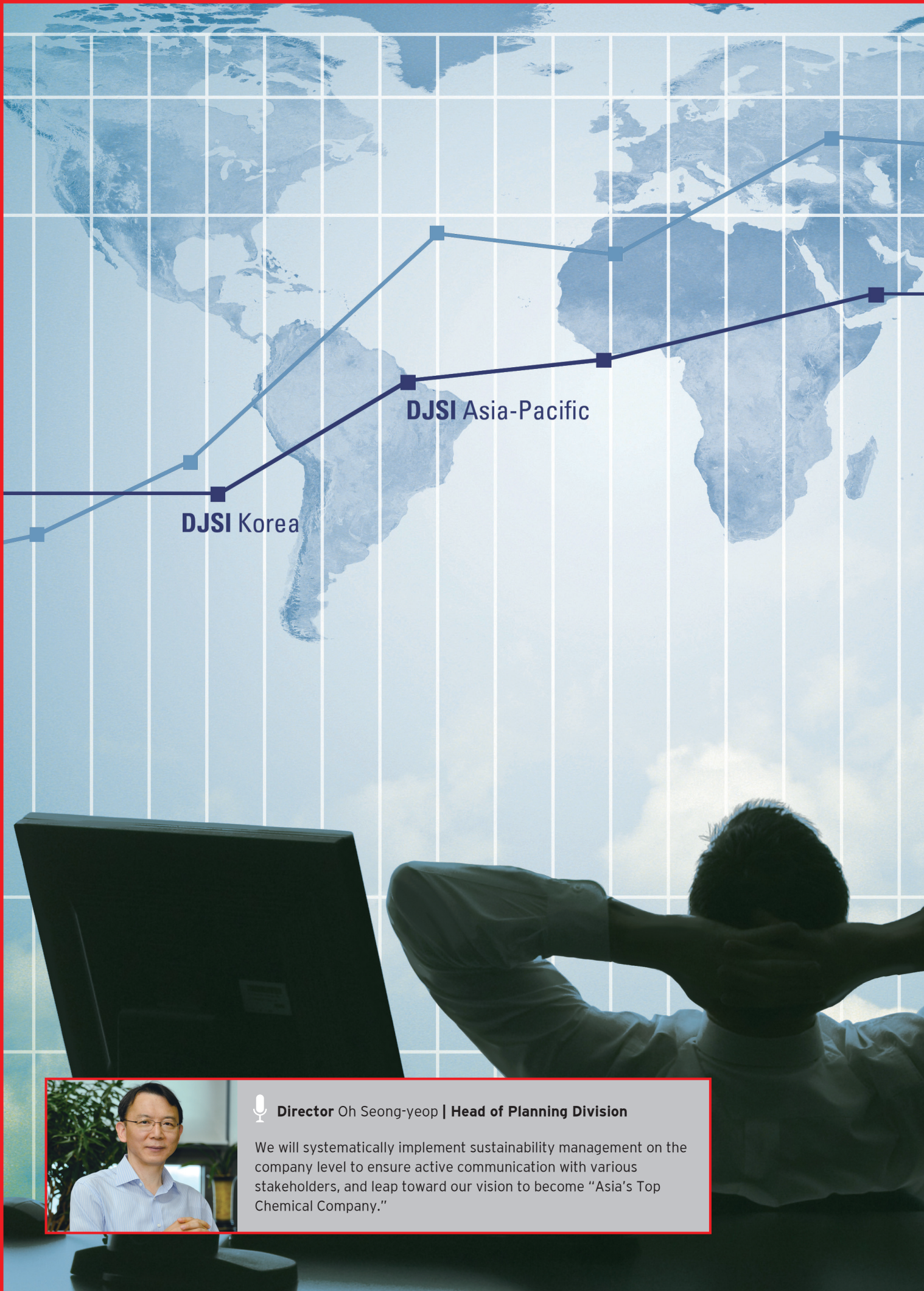
HPC's major sustainability management issues of the year 2011 are evenly spread out in the economic, environmental and social sectors. In particular, as a high energy consumption industry the issues of risk management, responding to climate change and low-carbon green management are of particular importance, while mutual cooperation between large companies and small & medium partner companies and mutual growth received high level of interest as well. HPC will identify its response status on the major issues and continue to actively improve its sustainability management activities.

- 1 Sustainable use of resources
- 2 Risk management
- 3 Competence development
- 4 Economic performance
- 5 Employees' health and safety
- 6 Establishing the low-carbon green management system
- 7 Activities to respond to climate change
- 8 Mutual growth
- 9 Product responsibility
- 10 Preventing pollution
- 11 Technology/product development
- 12 Labor-management relations
- 13 Management in general
- 14 Reputation
- 15 Improvement of working condition
- 16 Establishing the human rights management system
- 17 Stakeholder engagement
- 18 Consumer (customer company) health and safety
- 19 Impact on local community
- 20 Governance
- 21 Preventing human rights abuse
- 22 Business environment
- 23 Ethical management
- 24 Social contribution
- 25 Consumer (customer company) communication
- 26 Fair competition
- 27 Diversity and equal opportunity
- 28 Marketing
- 29 Protecting the ecosystem
- 30 Responsible participation in politics
- 31 Protecting consumer (customer company)'s privacy

● Economy ● Environment ● Society



	Major Issue	Description	Page
Economy	Economic performance	Strategic expansion of overseas business and the prospect of diversification of HPC's business model in order to achieve KRW 40 trillion in 2018.	P 22~27
	Risk management	The possibility of HPC's exposure to risk and their impact caused by uncertain internal and external business environment	P 19
Environment	Establishing low-carbon, green management system	Establishing a strategy and system in order to implement across-the-board low-carbon green management that encompasses manufacturing to corporate green culture	P 30~32
	Activities to respond to climate change	Establishing and implementing a response scheme by analyzing the risks and opportunities associated with climate change	P 33~37
	Preventing pollution	Efforts and accomplishments to control and prevent the output of pollutants during production processes	P 38~40
	Sustainable use of resources	The energy efficiency and conservation status to minimize environmental impact, and sustainable use of resources and production	P 38,40,42
Society	Employees' health and safety	Activities and accomplishments in improving the working condition and level of health and safety/ Considering the nature of the chemical industry	P 41,53
	Competence development	Developing and offering various training programs to develop human resources and core human assets	P 51
	Mutual growth	Support activities and performance for win-win cooperation with partner companies	P 46~48
	Product liability	Quality control and improvement activities that cover production, A/S and recall, while observing product-related regulations	P 42,49



DJSI Korea

DJSI Asia-Pacific



 **Director Oh Seong-yeop | Head of Planning Division**

We will systematically implement sustainability management on the company level to ensure active communication with various stakeholders, and leap toward our vision to become "Asia's Top Chemical Company."

Leader of Sustainability Management

HPC opens a new road to sustainability management through systematic strategies and implementation.

DJSI World

SR Winner

Won the Korea SR Grand Prize



Ethics Website

Built the ethical management website



DJSI Asia-Pacific

Newly entered the DJSI Asia-Pacific

Strategy

Through close cooperation between departments in economic, social and environmental sectors, HPC practices sustainability management at the company level, and designates departments for each focus area, who identify and define implementation activities by each focus area.

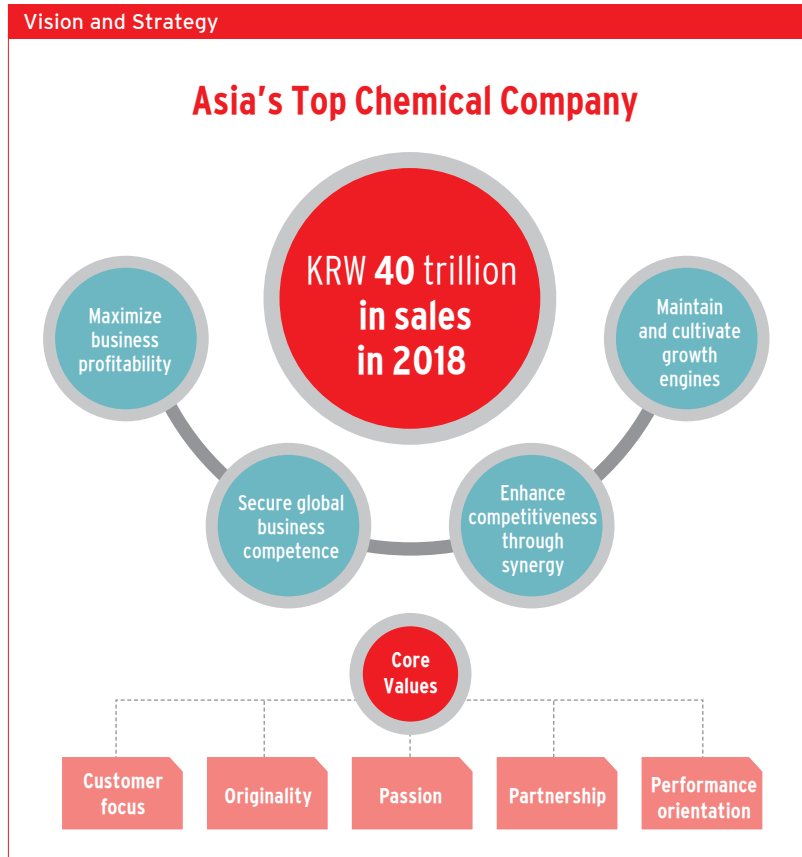
Implementation activities

- **Strengthening the execution capacity of sustainability management:** Built and expanded the sustainability performance evaluation system.
- **Internalization of ethical management:** Introduced and settled the reward system and ethics suggestion program to promote the ethical management system.
- **Enhancing risk management competence:** Built and operated an integrated risk management process that includes risk factor measurement, control, and response.

Sustainability Management Vision and Strategy

Vision and Strategy

As a leader of petrochemical industry who has stayed on one path, HPC pursues long-term sustainable growth. To achieve this goal, we will accomplish our vision of becoming "Asia's Top Chemical Company" by achieving KRW 40 trillion in sales by 2018. We will make core values such as customer focus, originality, passion, partnership and performance orientation our management principles, earn the trust of stakeholders, and contribute to positive changes to society and a prosperous future.



Sustainability Management Implementation Direction

HPC activities are designed for a balanced growth and advancement in the economic, social and environmental aspects by establishing implementation directions for each area based on the stakeholders' requirements. In addition, HPC has selected 5 focus areas - enhancing core competence, management by wandering around, human resources cultivation, green management and brand management - as its management policy in order to contribute to society by creating stakeholder value.

Management Policy				
Enhancing Core Competence	Management by Wandering Around	Human Resources Cultivation	Green Management	Brand Management
Focus our competence on what we can do best to secure competitiveness in focus businesses and expand to related businesses	Continue to listen to the voices of the customers, employees, partner companies and community, and reflect them in our business strategy	Employ outstanding human assets and cultivate them into the best human resources in the industry and global human assets who will lead future growth	Through energy conservation and innovation, contribute to the sustainable growth of society and fulfill our responsibilities to the environment by supplying eco-friendly products	Ensure our products provide the best customer satisfaction and trust, so that our company and our products will become the global premium brand

Sustainability Management Structure

Implementing Organization

HPC implements sustainability management through an efficient integration system of the overall management process and organization. In particular, HPC practices corporate-wide sustainability management through close cooperation between departments in economic, social and environmental areas. HPC designated organizations for each focus area, clearly identifying and defining implementation tasks to be undertaken in each area.

Implementation Method

HPC installed an internal education program to spread sustainability management such as ethical management, information security, customer privacy and fair trading. HPC mandates all employees to participate in the pledge for ethical management, conducts basic training on information security as well as in-depth training pertinent to the job description. In addition, environmental education programs are offered to enhance employees' awareness on low-carbon green management.

HPC establishes detailed implementation tasks in accordance with its sustainability management policy, shares the vision throughout the company, upon which all employees are actively pursuing sustainability management in their daily work. For each implementation area, HPC has selected KPIs for each relevant department to be used for their performance evaluation. HPC regularly monitors sustainability-related KPI and draws improvement methods from them, strengthening the execution capacity on the company level. In addition, although sustainability management performance is not quantitatively included in the executives' performance evaluation indicators, starting with the CEO, all the executives participate in implementing sustainability management activities.

Sustainability Management Implementation Structure					
Management Policy	Enhancing Core Competence	Management by Wandering Around	Human Resources Cultivation	Green Management	Brand Management
Departments in charge	<ul style="list-style-type: none"> • Production Team • R&D Institute • New Business Team • New Growth Driving Team 	<ul style="list-style-type: none"> • Polymer Planning Team • HR Support Team • External Cooperation Team • Global Operations Team • General Affairs Team 	<ul style="list-style-type: none"> • HR Team 	<ul style="list-style-type: none"> • Technology Management Team • Energy TFT • Environment and Safety Team • R&D Institute • Production Innovation Team 	<ul style="list-style-type: none"> • Sales Team • R&D Institute • External Cooperation Team • Strategic Management Team
Detailed Tasks	<ul style="list-style-type: none"> • Enhance productivity • Strengthen research infrastructure • Drive global businesses • Continue to identify and pursue megatrend new businesses 	<ul style="list-style-type: none"> • Improve business process through operation diagnosis • Social contribution activities • Support subsidiaries' operations improvements 	<ul style="list-style-type: none"> • Establish HR system with global standards • Secure global assets and nurture their competence • Secure outstanding researchers and nurture their competence 	<ul style="list-style-type: none"> • Reduce energy use and greenhouse gas emissions • Supply eco-friendly products • Green business management • Smart innovation activities 	<ul style="list-style-type: none"> • Realize customer satisfaction • Develop megatrend pioneering products • Acquire patents

External Recognition

Entered the SRI (Socially Responsible Investment) Index

HPC entered the SRI Index selected by the Korea Exchange in 2011, in recognition as a sustainable company. The SRI Index includes outstanding 70 companies selected from all listed stocks of companies based on market capitalization, trade amount and sustainability management activities.

New Entry into the DJSI Asia Pacific

In 2011, HPC was newly included in the DJSI Asia Pacific selected by SAM (Sustainable Asset Management) and Dow Jones. Only the top 20% of all 600 companies evaluated in the Asia-Pacific region can be included in the Index. In 2011, 24 new corporations were included and 10 excluded, whereby a total of 156 companies were listed in the Index. In addition, HPC was included in the DJSI Korea for three consecutive years.

Won the Raw Material Leader Award at CDP (Carbon Disclosure Project) Korea

In recognition of its contribution to carbon disclosure and response to climate change, HPC was selected as a leader in the raw material sector in 2011, for two consecutive years. The CDP is a global initiative lead by global financial investment institutions regarding the climate change issue, where major listed companies are requested to disclose their carbon management information, and the data collected is used when making climate-change related investments. At CDP Korea, 200 listed companies' carbon disclosure information and performances in 2011 were evaluated for selecting the award winning companies.

Won the Korea Social Responsibility Grand Prize

HPC was awarded the Korea SR Grand Prize at the 2011 New Quality Convention. The award is recognition of HPC's achievements such as establishing the green management strategy, establishing the GEMS(Greenhouse gas and Energy Management System), communicating with the stakeholders through publishing the sustainability report, the statement for labor-management harmony, GWP activities, and mutual growth with the partner companies.



New Entry into the DJSI Asia Pacific



Won the Korea Social Responsibility Grand Prize



Awards Won in the Sustainability Management Area in 2011

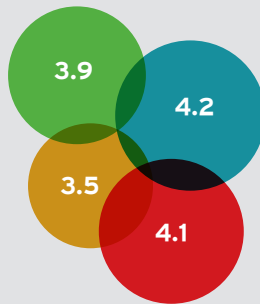
- Korea Labor-Management Cooperation Award
- Korea Social Responsibility Grand Prize
- National Volunteer Festival Excellence Award
- Labor-Management Culture Award
- Incheon Award (Industrial Technology Sector)
- Grand Prize at 2011 Labor-Management Culture
- 2011 Grand Management Award (Human Resources Management)
- Grand Prize at 2011 Workplace Innovation Awards
- Grand Prize at Resource Recirculation Leader Award
- Outstanding Business Award at the Greenhouse Gas & Energy Target Management Scheme Awards
- Outstanding Green Management Company
- New entry in the DJSI (Dow Jones Sustainability Index) Asia Pacific
- Raw Material Leader at the CDP (Carbon Disclosure Project) Korea

Corporate Governance

Stakeholder Survey

HPC strives for transparent governance

- Customer companies ● Partner companies
- Community ● Employees



Rating
Very good (5 points) ————— Very bad (1 point)

Composition and Operation of the Board of Directors

HPC practices transparent management through the composition and operation of an independent board of directors, and realizes sustainable development by maximizing corporate and stakeholder value. HPC's board of directors is the final decision-making body in economic, social and environmental issues and is comprised of 7 directors, 4 of whom are independent outside directors. As the BOD makes decisions in important matters related to fundamental management policies and operations according to relevant laws and company bylaws, the CEO chairs the board for efficient operation as he is deemed to best understand the company's overall business status. The remuneration limit for the executives is set at the annual general meeting, and the amount and method of payment to each individual is entrusted to the CEO depending on the company's economic, social and environmental performance and individual performance. Conflict of interests is prevented by prohibiting executives who have vested interests in a particular agenda from voting. Regarding matters that require the board's decision, employees can request the board's approval after going through the Labor-Management Council. In 2011 the board of director meeting was held 6 times where 18 agendas including the nomination of the CEO, and follow-up schedule after the acquisition of Titan Chemicals of Malaysia were discussed.

CEO	Shin Dongbin: male, chairman Huh Soo Young: male, president and CEO
Board director	Choi Taehyeon(sales): male, head of HPC Monomer Business Division
Outside directors	Jo Seungshik (legal): male, former senior prosecutor of the Supreme Prosecutor's Office Jeong Haewang (banking): male, former director general of the Bank of Korea Economic Research Institute Geum Dongwha (finance): male, former chairman of KIST Kim Gyeongha (Products): male, former head of Products Division, Lotte Shopping

Audit Committee

HPC's audit committee not only conducts post factum audits on the operations of the directors but also devotes itself to blocking off corruption and conflict by focusing on preventive audits, fostering a bright and sound organization culture. The audit committee is comprised of 3 outside directors, all of whom are nominated at the annual general meeting and whose terms are in turn decided according to the company by-laws to ensure their independence. The audit committee convenes at least once every 3 months according to the rules of the committee.

Protecting Shareholders' Rights

HPC operates the "public posting control system," making accurate and quick postings on regular reports such as the annual, semi-annual and quarterly reports as well as important business issues in order to uphold the shareholders' right to know. According to related laws and company bylaws, minority shareholders holding more than a certain number of shares can propose an agenda that a director or Board of Directors has a vested interest in to be made an item at the annual general meeting. In addition, they can exercise their minority shareholder rights such as request for reading the company's book of accounts, demand for extraordinary general meeting or the dismissal of directors.

Ethical Management

Ethical Management Roadmap by Phase



 Ethical management website
ethics.lottechem.com/main.asp

Sinmungo operating performance (in Articles)

Total **14**



Implementation Structure

HPC practices ethical management to ensure transparency and to fulfill its social and ethical obligations. The Ethics Office was installed to foster ethical management and a transparent corporate culture. Not stopping at just introducing ethical management, HPC took another step forward by establishing a phased ethical management roadmap to building a system for the evaluation and compensation of ethical management practices.

Implementation Activities

Since 2009, all the employees write up an ethical management self-pledge, which is a program introduced to encourage employees' participation and to spread the clear principles and standards of the code of ethics. HPC designates the national holiday seasons as ethical management enforcement period and sends a letter on ethical management to the partner companies in the name of the CEO. In 2011, the ethical management letter was sent to 275 companies during the lunar New Year's holiday and to 699 companies during Chuseok (Korean harvest festival). In addition, a cyber education program on anti-corruption and ethical management is provided to all employees every week. As of the end of 2011, HPC operates a staff of 127 security personnel to protect human and material assets in the head office and other business locations. In particular, security personnel who are in charge of protecting human rights of business partners and visitors receive regular training on safety prevention and customer response procedures. Meanwhile, in order to collect suggestions and complaints from internal and external stakeholders HPC operates a complaints board at its homepage. The cases received are relayed to relevant departments so that quick action may be taken. In 2011 the ethical management website was built, through which the gift return center is under operation.

Compliance Program

HPC introduced the compliance program in 2006, to voluntarily comply with fair trade legislation in business operations and to prevent unfair trading. The fair trade handbook was published and distributed to be utilized as a job manual, and point-of-contact departments receive regular education on law revisions. In addition, internal assessments are conducted on HPC's main business divisions, and through our internal inspection system, fair trade experts conduct prior inspections throughout the company's operations such as new businesses, sales and purchasing to eliminate the possibility of breach of law. Moreover the board of directors appoints a compliance program supervisor to monitor whether fair trade regulations are being observed who reports the results to the board twice a year. Such compliance practices have been expanded to the subsidiaries as well. In 2011 there were no cases of non-compliance of fair trade regulations or fines imposed on HPC.

CP Performance in 2011

Fair trade training program for subsidiaries	- Workshop lectures for sales personnel, fair trade education for employees dispatched to subsidiaries - The obligation of public postings, investment restrictions and debt guarantee of companies that are members of large group corporations - Obligation to report subject to the Fair Trade Act - Obligation to report to the Fair Trade Commission on current status of holding stocks
Fair trade theory education - fair trade manual for subsidiaries	- Obligations under the Fair Trade Act of companies that are members of large group corporations - Types of unfair trading - Prohibition of tie-in sales - Obligations of companies who have newly joined the group as subsidiaries - Subcontracting regulations
Requirement of fair trade compliance pledge	- Sales departments are required to submit a fair trade compliance pledge - Distribution of public notice manual and training for subsidiaries
Review of fair trade issues	- Supporting new subsidiaries' innovation of their fair trade supervising department - Distribution of fair trade compliance guidelines to overseas subsidiaries - Inspection of other fair trade issues (48 times)

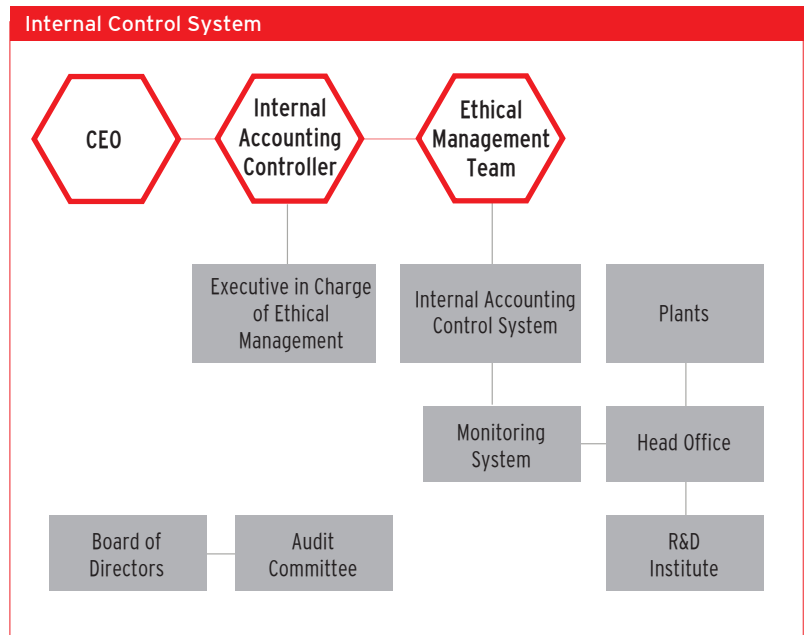
Risk Management Response System

Risk Management System

With deepening internal and external uncertainty and increasing possibility of exposure to risks and their effects, HPC is enhancing its risk management competence as a strategy against potential business risks. HPC launched the CMT (Crisis Management Team) which is comprised of the CEO, external experts and risk management supervisors of each team such as the Strategic Management Team, Legal Team, General Support Team and the Production Team, and operates the Management Committee and Emergency Response Committee. For an integrated management of measurement, control and response to serious business risks, a control process was established in order to enhance risk response capacity at the company level.

Internal Control System

HPC operates an internal control system such as the internal accounting rule to efficiently control regulations and systems. Management and related departments analyze the work process to identify risks that may seriously affect HPC's operations and reliability and inspect whether the internal control for that risk factor is functioning properly. The inspection results are reported to the BOD and Audit Committee, which then undergo evaluation and verification from the Audit Committee and external auditors. After regular and nonscheduled special audits conducted by the Ethical Management Team in 2011, no case of violation of internal control or corruption was found. Through the internal control system, HPC assures compliance with business related laws, the effectiveness and efficiency of corporate management, as well as the reliability of its financial reports





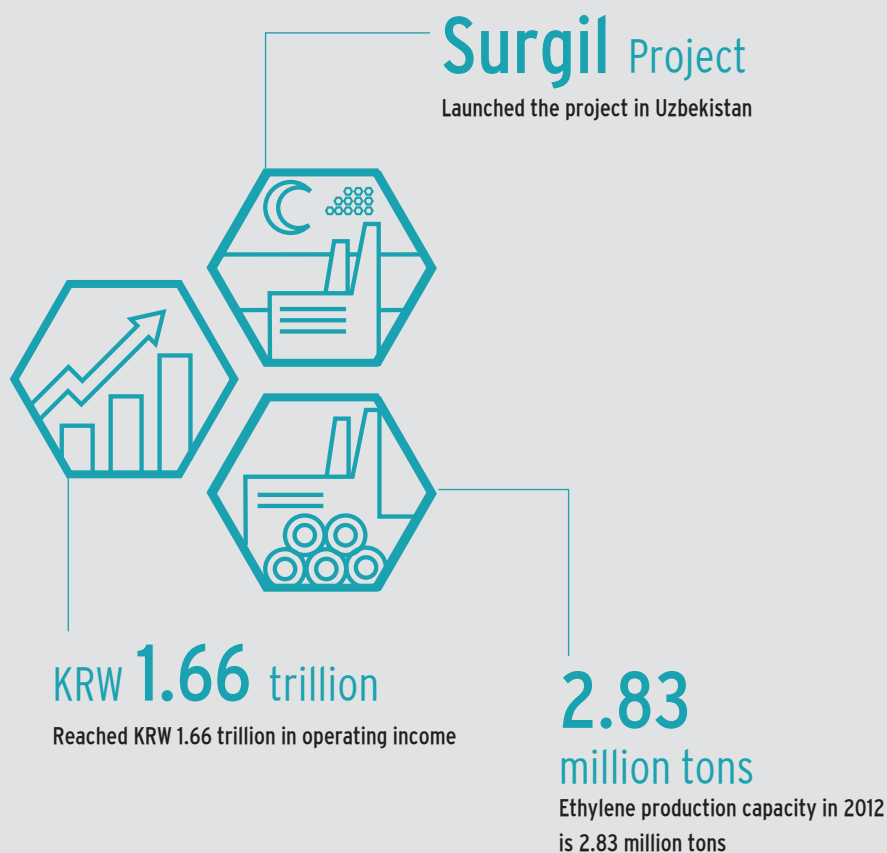
Manager Hwang Daeshik | New Growth Driving Team

HPC is steadily approaching its goal of reaching KRW 40 trillion in sales by 2018. The largest ever operating income achieved in 2011 is the result of the hard work of all the members at HPC. We are enhancing our core competence by developing new growth engines and expanding to the overseas market. I look forward to HPC's future as the leader of the global market.



Leader of Future Change

We are realizing our dream of becoming Asia's top chemical company through creative business and technology



Strategy

With the vision of becoming "Asia's Top Chemical Company" and reaching KRW 40 trillion in sales by 2018, HPC is pursuing new growth opportunities in emerging countries, focusing on expanding high growth businesses and securing continued growth in the future.

Implementation activities

- **3 core businesses:** basic chemicals, advanced materials, new megatrend business
- **Enhancing R&D competence:** continued investments and support for research and development
- **New technology development:** focus R&D on advanced materials to develop high value added products

Innovation Management

PR movie SBS CNBC 'KOREA REPORT'
www.hpc.co.kr/06_Prcenter/movie.asp

Three Core Businesses

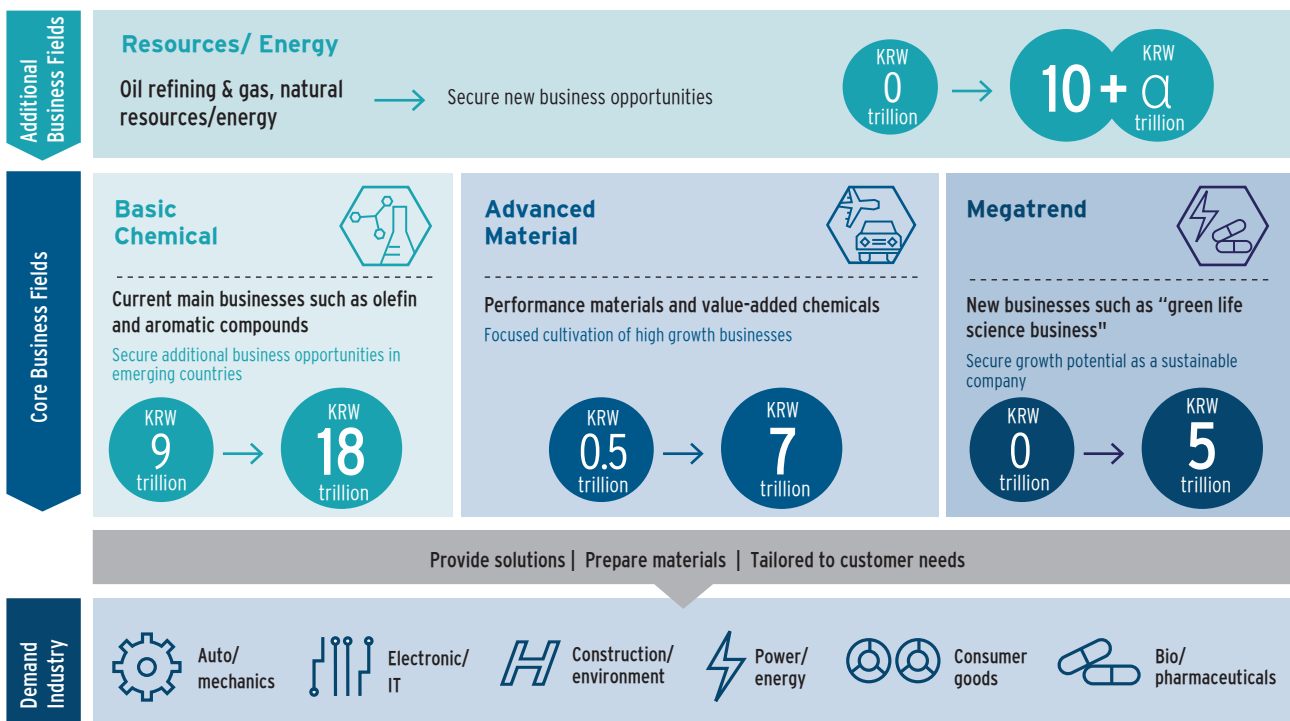
With the vision of becoming "Asia's Top Chemical Company" and reaching KRW 40 trillion in sales by 2018, HPC is diversifying its business model through strategic expansion of overseas businesses and cultivating future new businesses. With this goal in mind, HPC defined its three core businesses as basic chemicals, advanced materials, and new megatrend business. Through these three core businesses, HPC plans to expand the ratio of overseas business by enhancing the cost competitiveness of its existing businesses, expanding business to new emerging markets, and securing technological competence for the advanced material business.

Enhancing Global Competitiveness of Basic Chemical

In May 2012, HPC completed the expansion construction of the NCC (Naphtha Cracking Center) at its Yeosu Plant, reaching the largest annual ethylene production capacity in Korea at 2.11 million tons. Meanwhile, in order to meet the exponential increased demand in China for polypropylene (PP) that is used in automobiles and home appliances, we expanded China's PP compounding production capacity to 25,000 tons. In addition, we plan to construct a compounding plant in Beijing that will produce 15,000 tons of ABS (acrylonitrile butadiene styrene), MMA (methyl methacrylate) and PP compound. HPC will continue to expand the ratio of overseas production of basic chemicals, through which it will enter newly emerging markets such as Indonesia, India and Africa.

Commercializing Technology of Advanced Materials

In order to aggressively develop advanced materials that have high added value, HPC is constructing an EO (ethylene oxide) plant with 100,000 tons capacity through a joint venture with China Sanjiang Fine Chemicals. Using the EO produced, HPC will independently construct an ETA(ethanolamine) plant. Meanwhile, HPC is also developing lightweight plastic automobile parts, focusing on low-pollution & lightweight automotive parts and substitute materials for steel and glass, while enhancing its technological competence in compounding resin business and EP (engineering plastic).



Major Performance Materials

LFT (Long Fiber Thermoplastic) LFT is used for high strength, lightweight material for automobiles and home appliances. LFT is a composite material which can be injection-molded, and the web-formed long fiber greatly enhances rigidity and shock resistance.

PP nanocomposites PP nanocomposites is an eco-friendly plastic that is used for internal and external lightweight auto parts for which HPC is currently preparing commercialization. The nanoclay that is a nano-material used in PP nanocomposites makes it light yet strong, which contributes to improved car mileage owing to lighter auto parts.

LOTTMER (Lotte + Elastomer) LOTTMER is a non-toxic thermoplastic elastomer that can replace PVC and applied to automobiles, construction, medical equipment and household items. It shows thermo-setting cross-linked elastomer properties at room temperature but melts when heat is applied which can be easily processed with thermoforming machines and is a non-toxic, eco-friendly and recyclable product.

Carbon composites Carbon composite is a lightweight material of the future that has strength and elasticity 4 times greater than steel and weighs less than 50% of aluminum. Carbon composites are used in aircraft parts, wind turbine blades and automobile parts.

Fostering Megatrend New Businesses

In order to ensure its continued growth in the future, HPC is pursuing a range of megatrend businesses. Since April 2011, HPC has been conducting joint research with ZBB Energy Corporation based in the United States in CFB (Chemical Flow Battery), which is a large-scale energy storage unit. With the goal of developing the "third generation zinc-bromine chemical flow battery (V3. Zn-Br CFB)" with 500kWh capacity ready for commercialization by 2012, HPC plans to conduct a verification project linking with renewable energy for a business plausibility analysis. The zinc-bromine CFB is suitable for large-scale storage owing to the stability and price competitiveness, and HPC plans to achieve KRW 400 billion ~ KRW 500 billion in the chemical battery business by 2015 through continued improvement of the business plausibility.

Lightweight Automobile Parts

LFT WLFT

LFT(Long Fiber Thermoplastics)

SUPRAN is a high polymer that is reinforced with the web-formed long fiber made by the patented technology of Sambark LFT, which has outstanding rigidity and shock resistance, and are mostly used to replace metals.

WLFT(Woven Long Fiber Thermoplastics)

It is a composite that combines WFT and LFT and has outstanding mechanical strength and resistance to cold and heat.

Interior material for front side of cars

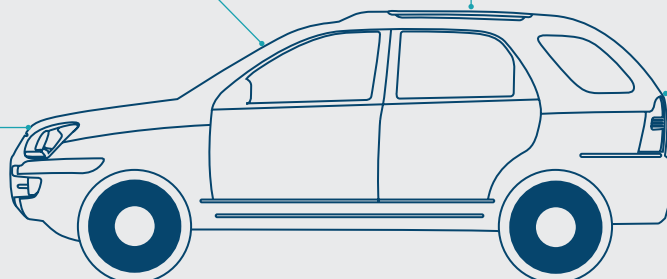
- Arm Rest Core
- Door Plate Module(DPM)
- Knee Bolster
- I/P Air Bag Part
- Pedal Module
- Noise Shield
- Center Console

Car roof

- Roof Mold
- Sun Roof Frame
- Drip Rail

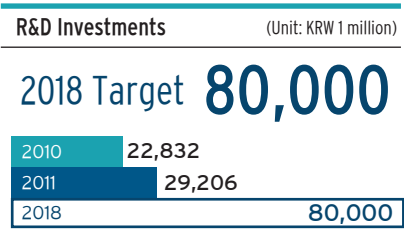
Head part of cars

- Water Deflector
- Battery Tray
- Fan Shroud
- Front End Module(FEM)
- Engine Cover
- Junction Box

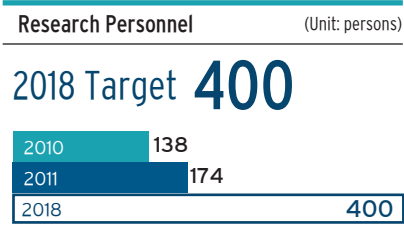


Interior and exterior material for backside of cars

- Seat Back
- Seat Pan
- Bumper Beam(2.5mile)
- Bumper Beam(IHS)
- Luggage Board
- Load Floor



* Received KRW 2.39 billion in subsidy for 16 R&D projects including eco-friendly synthetic lumber and developing doors and windows using the synthetic lumber.



Enhancing R&D Competencies

HPC continues to invest and support R&D in new technologies to enhance its competitiveness. Daeduk Research Institute is an accredited testing laboratory with an analysis system that gained permission to use the ILAC-MRA Mark from ILAC in 2005, and is the think tank of HPC that focuses on developing new technologies. Daeduk Research Institute enhances its cutting-edge technology development and R&D competencies not only through independent R&D but also by undertaking government projects and joint research with external institutes with task-specific expertise. Daeduk Research Institute plans to expand the number of researchers from 174 to 400 by 2018 and increase R&D investment from KRW 29 billion to KRW 80 billion. In addition, a new research wing with 12,000m² total floor area is currently under construction.


New Technology R&D

Based on its accumulated experience and knowledge, HPC is focusing its R&D on basic chemicals, advanced materials and megatrend research in tandem with the strategy to cultivate its three core businesses. HPC puts particular effort in advanced materials to develop high value-added products such as automobile materials, renewable energy related materials, electric and electronic materials, and eco-friendly materials. Owing to active R&D in new technologies, HPC applied for 53 patents and registered 17 in 2011.

Patent Application and Related Sales Performance			
	2009	2010	2011
Patent application (cases)	41	35	53
Patent registration (cases)	8	18	17
Sales of patented products (KRW 100 million)	2,907	3,733	5,584
Sales volume of patented products (1,000 MT)	232	275	322


Field of Research

Basic Chemical




- Research in polymer process / catalyst
- Polymer processing technology
- Basic chemical research

Advanced Material



- Automobile materials
- Renewable energy materials
- Electric and electronic materials
- Construction materials
- High value added chemicals

Megatrend



- Energy storage
- Biochemistry
- Water treatment

Expansion of Production and Supply Capacity

Expanded Yeosu Plant's Production Capacity

The ethylene production facility's capacity increased by 290% compared to 1990 when it was constructed, and annual production capacity has increased to 1 million tons.

760 → 1,000 thousand tons
Ethylene

For the first time in Korea, the new PE production facility was built on our own technology and increased the production capacity by approximately 80% to 680,000 tons.

380 → 680 thousand tons
Polyethylene

For the first time in Korea, the new PP production facility was built on our own technology and increased the production capacity to 700,000 tons.

400 → 700 thousand tons
Polypropylene

5 Consecutive Years of Zero Injury

The ethylene factory at Yeosu Plant reached 2,500 days of non-stop operation, while Daesan Plant was the first single plant having annually produced 1 million tons of ethylene for two consecutive years.

Increasing Production Capacity

HPC is investing in new production facilities that contribute to the products' growth both in quality and quantity and enhance global competitiveness. HPC invested KRW 520 billion in Yeosu Plant over two years to expand ethylene PE (polyethylene) and PP (polypropylene) production facilities. Thus Yeosu Plant's annual ethylene production capacity increased from 760,000 tons to 1 million tons, polyethylene from 380,000 tons to 680,000 tons, and polypropylene from 400,000 tons to 700,000 tons. In particular, the ethylene plant's capacity is now 290% of that in 1990 when it was constructed. HPC has Korea's largest production capacity with 2.11 million tons of ethylene (2.83 million tons if Malaysian subsidiary Titan Chemical's capacity is added), 1.1 million tons of polyethylene, and 1.2 million tons of polypropylene. HPC built the PE and PP plants with its own technology from design to construction for the first time in Korea, and will utilize this know-how in its overseas businesses in Uzbekistan and Indonesia.

Securing Raw Materials Supply

The recent construction of large-scale polyethylene production complexes in the Middle East that use cheap ethane produced from the region is a big threat to the world's petrochemical market. HPC is thus actively driving overseas resources development projects to secure low-cost raw materials to enhance price competitiveness and a stable production of high value-added petrochemical products. In particular, the Surgil project integrates the development of gas field, production of polymer products, construction and operation of the gas chemical plant in the Surgil gas field near the Aral Sea that has been estimated to hold approximately 130 billion cubic meters of natural gas (96 million tons when converted to LNG and 830 million barrels when converted to crude oil). HPC holds 24.5% of shares and is participating as the representative of the Korean consortium. When commercial operation of the Surgil complex begins, HPC will produce 400,000 tons of ethylene at the natural gas and ethylene crackers, 360,000 tons of HDPE (high density polyethylene), and 80,000 tons of PP (polypropylene) annually. In addition, the products and byproducts produced at the complex will be sold in Uzbekistan, Western Europe, CIS, and China, providing an opportunity to expand HPC's overseas market.

Stable Process Control

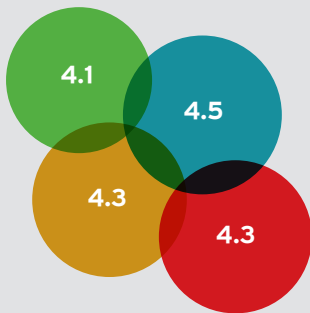
HPC has implemented the PRIME activity that was designed for process improvement based on employees' suggestion since 2005 to increase plant operation rate and enhance facility safety. HPC has also implemented the TPM (Total Productive Management) activity for facilities maintenance, improving working conditions and reducing costs. As a result, Yeosu Plant and Daesan Plant are making new records in production capacity, non-stop operation hours and injury-free man hours that have never been seen in the petrochemical industry. In 2011, both plants achieved 5 consecutive years of zero injury. In particular, Yeosu Plant reached 2,500 days of non-stop operation, while Daesan plant was the first single plant having annually produced 1 million tons of ethylene for two consecutive years.

Major Economic Performance

Stakeholder Survey

HPC continues to grow and advance through creating economic value

- Customer companies
- Partner companies
- Community
- Employees



Rating
Very good (5 points) ————— Very bad (1 point)

HPC raised KRW 50 billion as mutual growth fund, and provided financial assistance to 58 partner companies in 2011.

58 companies

Direct Economic Effect

HPC realizes continued growth through a range of management innovations such as identifying new businesses, R&D investments, and entering new markets. The economic value created through such business activities is shared with various stakeholders such as shareholders, employees, partner companies and the community. HPC achieved KRW 8,464 billion in sales, and the economic value distributed to the stakeholders increased by 12% compared to the previous year, at a total of KRW 6,391 billion.

Indirect Economic Effect

Contribution to Domestic Industry Development

Today, petrochemical industry is not only a key industry domestically; it is a material business that enables the advancement of information technology, nano and biotechnology possible. Petrochemical industry has led Korea's industrial development and greatly contributed to the country's economic growth as well. Nowadays petrochemical industry is the fifth largest industry in the world; domestically, it ranks fourth in production capacity following the automobile, steel and semiconductor industries. HPC will continue to expand R&D investments in new technology development to contribute to the domestic advancement of cutting-edge technology and fulfill its role as a bridge industry.

Job Creation for Local Communities

Over a period of two years until 2012, HPC expanded the NCC (Naphtha Cracking Center), polyethylene and polypropylene production facilities at Yeosu Plant. HPC signed an MOU with Yeosu City regarding plant expansion and gave local priority in recruiting construction workers, which brought an annual employment effect of 100,000 jobs during construction and 36 new employments. After construction is completed HPC plans to recruit 50 new employees to operate the facilities. HPC will continue to contribute to local advancement and create jobs through cooperation with the local community.

Economic & Financial Assistance to Partner Companies

HPC raised KRW 50 billion as mutual growth fund, and provided financial assistance to 58 partner companies in 2011. In addition, HPC provides a range of technical assistance to partner companies who lack expertise or competence. The support activities include joint R&D in production technology with the research institute and product commercialization through marketing support.

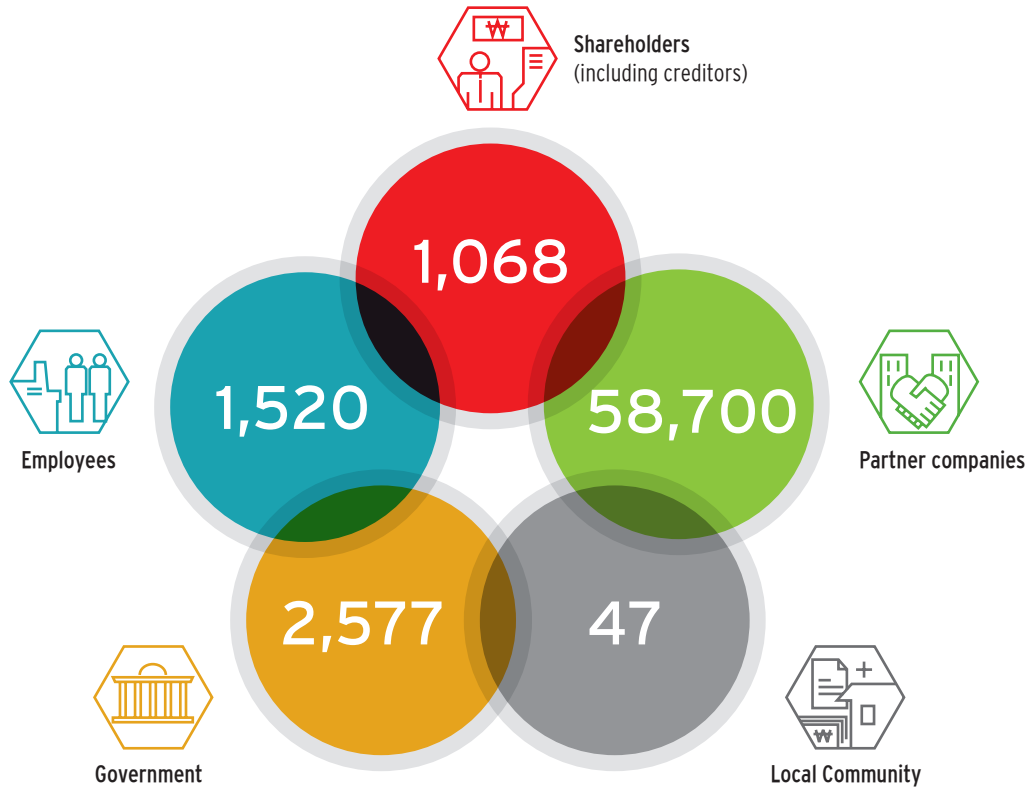
Assistance for the Underprivileged

HPC provides learning opportunities to the children in underprivileged groups in cooperation with the local children's center, and supports the operation of the children's study room. HPC will strive to provide generous support to the underprivileged groups and neighbors through various methods.

Condensed Income Statement		(Unit: KRW 100 million)	
	2009	2010	2011
Sales	59,698	71,891	84,635
Operating Income	7,176	9,039	10,660
Ordinary Profits	8,533	10,178	10,064
Net Profit	7,967	7,843	7,486
EBITDA	9,500	11,052	12,722

* Data on 2009 and 2010 are non-consolidated financial statements prepared according to K-GAAP, and 2011 is a separate financial statement prepared according to K-IFRS.

Distribution of Economic Performance in 2011 (Unit: KRW 100 million)



Economic Performance Distribution		(Unit: KRW 100 million)		
		2009	2010	2011
Shareholders and creditors	Total cash dividends	478	558	558
	Interest	526	499	510
Employees	Salary	1,155	1,224	1,243
	Retirement allowance	106	130	97
	Job benefits	160	163	180
Partner companies	Raw material purchase	39,866	51,755	58,500
	Service payment**	138	166	200
Local Community	Donations	28	43	47
Government	Corporate taxes	566	2,335	2,577
Total		43,005	56,873	63,912

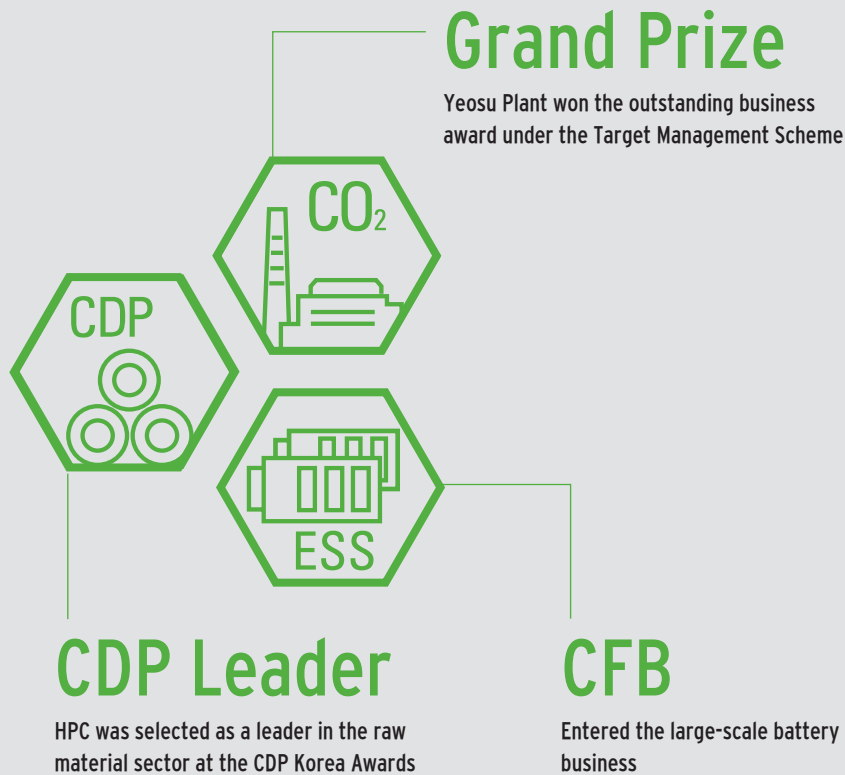
* Data on 2009 and 2010 are non-consolidated financial statements prepared according to K-GAAP, and 2011 is a separate financial statement prepared according to K-IFRS.
 ** Service payment is the total of the head office and production division

Condensed Statement of Financial Position		(Unit: KRW 100 million)		
		2009	2010	2011
Total assets		56,774	69,866	82,791
Current assets		23,065	18,749	25,189
Non-current assets		33,709	51,117	57,602
Total liabilities		19,522	25,312	31,888
Current liabilities		11,156	13,198	15,972
Non-current liabilities		8,366	12,114	15,916
Total equities		37,252	44,554	50,903

* Data on 2009 and 2010 are non-consolidated financial statements prepared according to K-GAAP, and 2011 is a separate financial statement prepared according to K-IFRS.

Green Growth Leader

We prepare for green tomorrow of the earth and humanity through pioneering low-carbon, green management



Strategy

HPC established a green management strategy direction to implement green management corporate-wide and manages systematically through operating GEMS (Greenhouse gas & Energy Management System).

Implementation activities

- **Green Management Target:** Reduce the 2018 greenhouse gas emission intensity by 30% compared to 2009, and achieve 30% of sales in eco-friendly products among total sales by 2018.
- **Response to Climate Change:** Built and implemented a climate change response system, built and operated GEMS and carried out various greenhouse gas reduction activities.
- **Green Management Culture:** Internalized green management throughout the company and expanded participation in protecting and improving the local environment.



Assistant Manager Kim Somi | Technology Management Team

HPC pursues low-carbon, green management based on the company's green management vision of becoming "Asia's Top Chemical Company" that aims for "harmony between nature and mankind." HPC built the green management system and conducts environmental performance evaluations to manage its green management performance. We will establish a response system to address climate change which is the core issue of the global environment, and become a pioneering eco-friendly enterprise by conducting various activities to reduce greenhouse gases and save energy.

Low-Carbon, Green Management



Designated Yeosu Plant(2010) and Daesan Plant(2011) as Green Company

Vision and Strategy for Green Management

HPC pursues low-carbon, green management in a range of operations such as production and green corporate culture, based on the company's vision of becoming "Asia's Top Chemical Company" that aims for "harmony between nature and mankind." The implementing organizations are; the Management Committee chaired by the CEO that decides the implementation direction for green management; and the Technology Committee that draws implementation plans to respond to climate change for each plant. In addition, HPC defined 4 strategy directions - improving the green process, securing new growth engines, advancing our green infrastructure, and building a green corporate culture - and established and implemented detail tasks based on the 4 directions. HPC also built the GEMS (Greenhouse Gas & Energy Management System) to implement systematic green management throughout the corporate. Daesan Plant was selected as an outstanding business site at the "Model Case Briefing for Green Management" hosted by the Ministry of Environment held in December 2011.

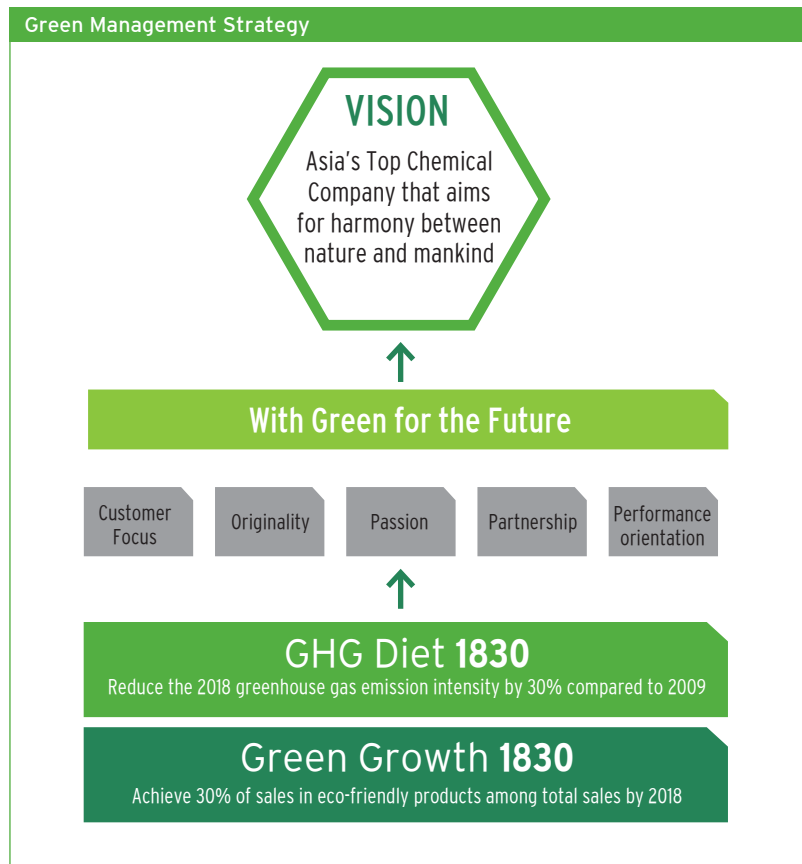


Awards related to Eco-Friendly management

Model Case Briefing for Green Management
→ **Outstanding business site**

Carbon Disclosure Project
→ **Leader in the raw material sector**

Grand Prize at Resource Recycling Leader Award
→ **Minister of Environment's Citation**

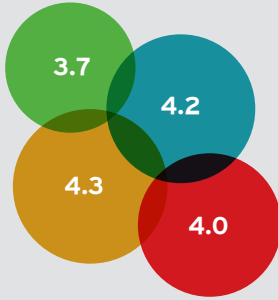


Green Management Strategy			
Improving green process	Securing new growth engines	Advancing our green infrastructure	Building a green corporate culture
<ul style="list-style-type: none"> - Increase resources and energy efficiency - Reduce greenhouse gas and pollutant emission - Expand green purchasing 	<ul style="list-style-type: none"> - Enter the green support business - Develop green products and technologies - Commercialize emissions trading 	<ul style="list-style-type: none"> - Establish green management structure - Build and maintain an IT management system - Monitor and evaluate performance 	<ul style="list-style-type: none"> - Foster communication - Strengthen social and ethical responsibility - Respond to internal & external regulations and policies - Strengthen green brand

Stakeholder Survey

HPC implements green management and precedes in responding to climate change

- Customer companies ● Partner companies
- Community ● Employees



Rating
Very good (5 points) ————— Very bad (1 point)



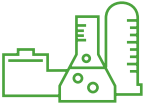
Green Management System

HPC established green management system in order to efficiently manage environmental factors in introducing and implementing the low-carbon, green growth regime. Through the green management system HPC established a structure for the efficient use of resources & energy and minimizing greenhouse gas & pollutants emissions, and regularly monitoring its mid-to-long-term improvement activities.

At the “Green Management System Certification Scheme Launching Ceremony” hosted by the Ministry of Knowledge Economy held in November 2011, HPC acquired the GMS (Green Management System) certification for the first time in petrochemical industry. The GMS Certification Scheme is a policy based on the Framework Act on Low Carbon, Green Growth in order to support Korean companies’ voluntary green management activities that include resources, energy and greenhouse gas management.

External Certification for Green Management System

After first acquiring the ISO 9001 (quality management system) certification in 1995, HPC acquired the ISO 14001 certification (environmental management system), ISO/TS 16949 (automobile quality management system), OHSAS 18001 and KOSHA 18001 (occupational health and safety management system), and KSI 7001/KSI 7002 (green management system), as part of its efforts to establish green management system that meets global standards. Every year, HPC inspects its management system through internal and external inspection, and improvement points identified through such inspection are reflected in the green management strategy.

Certifications			
	Certification	Certifying Institution	Remarks
Yeosu Plant 	ISO 14001	KFQ	Environmental management system
	OHSAS 18001	KFQ	Occupational health and safety management system
	KOSHA 18001	Korea Occupational Health and Safety Agency	Occupational health and safety management system
	ISO 9001	KFQ	Quality management system
	ISO/TS 16949	KFQ	Automobile quality management system
	KSI 7001/KSI 7002	KFQ	Green management system
Daesan Plant 	ISO 14001	KFQ	Environmental management system
	OHSAS 18001	KFQ	Occupational health and safety management system
	ISO 9001	KFQ	Quality management system
	KOSHA 18001	Korea Occupational Health and Safety Agency	Occupational health and safety management system
	KSI 7001/KSI 7002	KFQ	Green management system
Daeduk Research Institute 	KOLAS	Korea Laboratory Accreditation Scheme	Accreditation as testing and inspection institute
	ISO 14001	KFQ	Environmental management system
	ISO 9001	KFQ	Quality management system
	ISO/TS 16949	KFQ	Automobile quality management system
	KSI 7001/KSI 7002	KFQ	Green management system

Environmental Performance Evaluation

HPC conducts environmental performance evaluation to quantify green management performances and accomplish its core projects. Based on the results of the environmental performance evaluation conducted at each business location, outstanding departments are rewarded and the results are reflected in the MBO.

Structure of the Environmental Performance Evaluation Index			
Index	Index details	Scope of evaluation	
Internal	MPI	Environmental Management System	Compliance of environmental management system according to ISO requirement
		Compliance	Fulfillment of basic responsibilities by performing environmental regulations
		Eco - friendly management method	Enhancement of corporate value and internal competencies through the introduction of advanced management methodologies
		Relation with the community	Fulfillment of social responsibilities through community development and good relations with the residents
	OPI	Input	Improvement activities for efficient usage of raw materials, energy and cost reduction
		Output	Efforts and performances in pollutant discharge reduction and production of eco-friendly products
External	ECI	Pollution status of surrounding areas	Establish pollutant control targets by assessing the pollution status of the surrounding areas

*MPI (Management Performance Index) OPI (Operational Performance Index), ECI (Environmental Conditions Index)

Environmental Performance Evaluation Results								
Index	Criterion		Yeosu Plant			Daesan Plant		
			2009	2010	2011	2009	2010	2011
Internal	MPI	50.0	51.2	58.4	62.8	50.4	54.0	56.0
	OPI	40.0	61.0	51.5	63.0	73.5	64.0	58.0
External	ECI	10.0	9.6	10.1	10.8	10.2	10.6	10.4
Environmental Performance Evaluation		100.0	121.8	120.0	136.6	134.1	128.6	124.4

*The environmental performance evaluation is the degree of improvement against the performance of 2004 put at 100 points.

*The Daesan Plant's performance results have decreased due to regular maintenance that resulted in increased waste and wastewater discharge compared to production volume.

Annual Green Purchasing Expenses

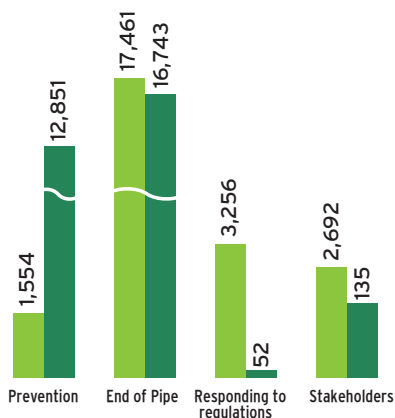
(Unit: KRW 1 million)



Environmental Investment by Cost in 2011

(Unit: KRW 1 million)

■ Yeosu Plant ■ Daesan Plant



Environmental Expenditures and Investments

HPC introduced environmental accounting to categorize environmental investments by cost and understand the trend of the investment, reflecting them in the business plan for the following year. Environmental cost was calculated based on the prevention and end of pipe costs, stakeholder activities costs, and responding to regulations and restoration activities. The total environmental cost in 2011 was KRW 54,744 million. In addition, HPC established the green purchasing rule and puts its efforts in expanding green purchasing items through market research and finding eco-friendly product suppliers. In 2011, the total green purchasing cost was KRW 3,050 million, and purchased recycled and eco-friendly MRO supplies as well as energy efficient certified PCs.

Annual Environmental Investment Expenses			
	(Unit: KRW 1 million)		
	2009	2010	2011
Yeosu Plant	17,130	16,840	24,963
Daesan Plant	20,282	22,229	27,716
Total	37,412	39,069	54,744

Environmental Investment by Sector in 2011						
	(Unit: KRW 1 million)					
	Air	Water	Wastes	Soil	Toxic materials	Others
Yeosu Plant	18,395	5,469	668	42	40	349
Daesan Plant	16,083	9,286	1,487	35	28	797

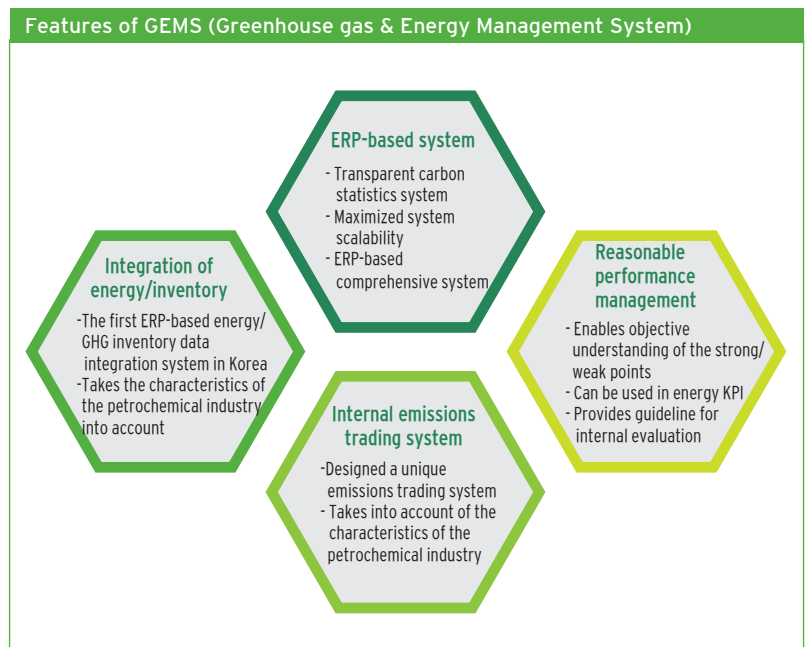
Response to Climate Change

Climate Change Response Structure

With the exposure to regulatory risks such as global climate change regulations, domestic greenhouse gas & energy target management scheme and emissions trading, HPC established and implemented a strategic and proactive climate change response structure. Technology Management Team at HPC's head office analyzes the risks and opportunities brought by climate change, establishes response strategies as well as mid-to-long-term greenhouse gas & energy reduction plans. In addition, Energy TFTs at the Yeosu Plant and Daesan Plant monitor the energy usage & greenhouse gas status to plan and undertake greenhouse gas reduction tasks. Moreover, HPC saw climate change as an opportunity for new businesses such as renewable energy and high energy efficiency products and reflected them in the business strategy. In particular, HPC grasped the opportunity to enter the energy storage business through R&D in the large-scale battery technology.

GEMS (Greenhouse gas & Energy Management System)

For the first time in petrochemical industry, HPC built GEMS, an ERP (Enterprise Resource Planning) based greenhouse gas & energy management system for prior analysis of the risks related to climate change, and utilizes it to identify cost reduction and low carbon green growth opportunities. GEMS is operated as an ERP-based monitoring system, and is an integrated control and management system that analyzes and manages data on greenhouse gas reduction potential, internal emissions trading, inventory, performance management, and compliance with relevant laws on a real time basis.



Lotte Group Petrochemical Subsidiaries' Energy Workshop

In collaboration with Lotte Group's petrochemical affiliates, HPC held two workshops in June and December in 2011 to make policy response directions through sharing the trend of climate change and excellent cases at each company. Seven companies participated, which are HPC, KP Chemical, Daesan MMA, HOWTECH, Sambark, Sambark LFT and DACC Aerospace. At the workshop, participating affiliates shared and discussed model cases of energy conservation, their status in responding to the target management scheme, the current status and outlook on renewable energy, mutual growth with partner companies and the green credit project.

Participation in the Climate Change Network

In the 2011 Carbon Disclosure Project Korea Awards, HPC was selected as a leader in the raw material sector in recognition of its achievements in carbon disclosure and response to climate change. The CDP is a global initiative lead by global financial investment institutions regarding the climate change issue, where major listed companies are requested to disclose their carbon management information, and the data collected is used when making climate-change related investments. In order to meet the government’s low-carbon, green growth policy HPC actively participates in pilot projects through its climate change network with the government in such projects as MRV (Monitoring Reporting Validation) standardization and reduction in the transportation sector. In addition, HPC is an active member of the Climate Change Response Team at the Korea Petrochemical Industry Association in order to contribute to the advancement of the petrochemical industry and joint response to the climate change issue.

Greenhouse Gas Emission Control

With the implementation of the government’s Greenhouse Gas and Energy Target Management Scheme, HPC calculates its energy consumption and greenhouse gas emissions according to government standards. Energy consumption is categorized and managed as direct and indirect consumption; annual consumption plans are established; and energy usage is regularly monitored. Greenhouse gas emissions are monitored on a real-time basis through the GEMS (Greenhouse gas & Energy Management System) that was established in 2010, while external energy inspection and on-site greenhouse gas & energy reduction activities are conducted continuously. In addition, HPC operates an energy TFT at each business site to manage energy usage and the 2-man team in each department inspects the steam/water loss status and electricity conservation status of the air conditioners, heaters and office equipment. In addition, a corporate-wide energy saving campaign is under way that encourages maintaining the office room temperature at 26°C, turning off the lights during lunch break and using personal cups. Due to regular facilities maintenance in 2011 the direct energy usage decreased compared to the previous year, while indirect energy usage at Yeosu Plant increased as the new BD plant began operations.

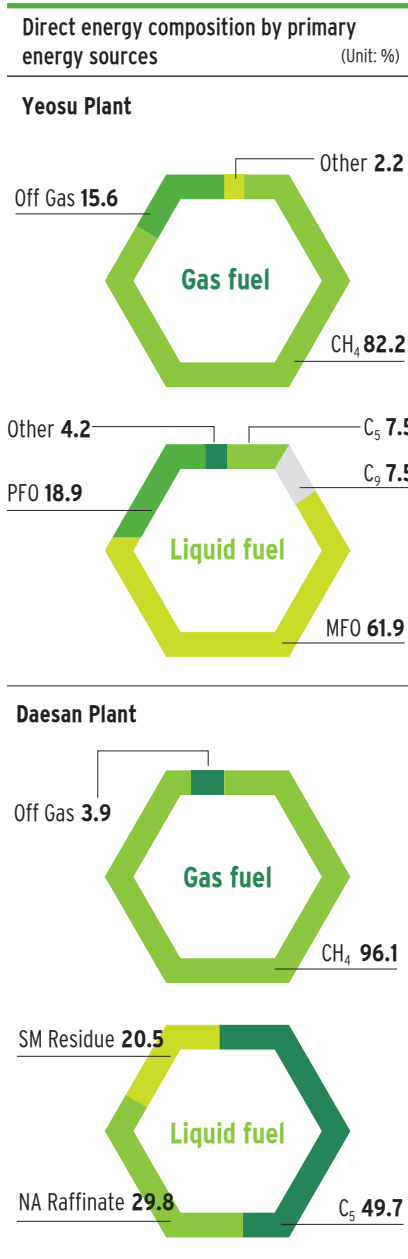
Greenhouse Gas Emission against Sales

Owing to our continued efforts to reduce greenhouse gas emission and energy usage, the greenhouse gas emission against sales has steadily decreased every year. The Greenhouse gas emission per KRW 100 million in sales decreased by 20% from 63.5 tCO₂ in 2010 to 50.8 tCO₂ in 2011.



Energy Consumption (Unit: TJ)						
	Direct energy			Indirect energy		
	2009	2010	2011	2009	2010	2011
Yeosu Plant	30,777	30,398	29,802	4,126	5,074	6,205
Daesan Plant	39,714	38,214	34,322	10,237	11,096	10,159
Total	70,491	68,612	64,124	14,363	16,170	16,364

Greenhouse Gas Emissions				
	Unit	2009	2010	2011
Yeosu Plant				
Total emission	tCO ₂	1,984,452	2,081,835	2,049,066
Emission intensity	tCO ₂ /ton	0.648	0.664	0.661
Daesan Plant				
Total emission	tCO ₂	2,472,300	2,481,892	2,251,113
Emission intensity	tCO ₂ /ton	0.603	0.601	0.596



In 2011, Yeosu Plant's greenhouse gas emission decreased by 2% at 2,049,066 tCO₂, while Daesan Plant's greenhouse gas emission decreased by 10% at 2,251,113 tCO₂. Through continued improvements tailored to the characteristics of each process the greenhouse gas emission intensity has decreased as well compared to the previous year. In recognition of its active cooperation with government policies and establishing the integrated greenhouse gas & energy management system, Yeosu Plant won the group and individual commendation of merit in the 2011 Greenhouse Gas and Energy Target Management Implementation Awards.

	Direct energy consumption by primary energy sources (Unit: TJ)			Indirect energy consumption (Unit: TJ)	
	Stationary combustion		Transportation combustion	Power	Steam
	Gas fuel	Liquid fuel			
Yeosu Plant	24,573	5,228	0.1	4,995	1,210
Daesan Plant	32,996	1,326	0.2	6,050	4,109
Total	57,569	6,554	0.3	11,045	5,319

Other indirect greenhouse gas emissions (Unit: tCO ₂ -eq)		
	Resell of purchased steam	Resell of purchased power
Yeosu Plant	18,909	6,702
Daesan Plant	50,253	19,482
Total	69,162	26,184

Greenhouse Gas Reduction

HPC established its target to reduce greenhouse gas emissions by 30% by 2018 based on emission intensity of 2009. In order to achieve the reduction target, HPC is enhancing the realizability of existing greenhouse gas reduction items and considering ways to apply new technologies to find new reduction items. The reduction achieved through our reduction activities underwent third-party verification and acquired the government's final certification. The total greenhouse gas reduction in 2011 was 358,193 tCO₂ which corresponds to 4,267 TJ when converted to energy.

Participation in Pilot Emissions Trading Project

In order to prepare for the greenhouse gas emissions trading that will be introduced in the near future HPC participated in the "Pilot Emissions Trading Project" hosted by the Ministry of Knowledge Economy in 2011 where a total of 78 enterprises participated. Emissions trading is a plan where the limit amount of greenhouse gas to be emitted is fixed beforehand and issued as emission permits that can be traded between participants in order to effectively achieve the reduction target. Yeosu Plant and Daesan Plant participated in the pilot project to accumulate experience and conduct a feasibility study.

Cases of Greenhouse Gas Reduction Projects in 2011	
	Reduction projects
Yeosu Plant	Project to save electricity by installing hydraulic couplings in 2 pumps in the gasoline fractionator process. Project to reduce greenhouse gas emission by retrieving methane that is vented and used as boiler fuel. Project to reduce greenhouse gas emission by retrieving vented CO ₂ at the EG production process. Project to reduce greenhouse gas emission by turning the steam used in nitrogen oxide (NOx) reducing facility of the gas turbine generator into water, reducing steam usage.
Daesan Plant	Project to reduce fuel usage of the furnace by installing naphtha feed preheater that retrieves the sensible heat of the quench water and quench oil. Project to reduce steam usage by installing a hot separator for retrieving sensible heat of the GHT (gasoline hydro treatment) 2nd stage reactor. Retrieving the dilution/quench flow's sensible heat that is added to control the reaction temperature of the HDA (hydrodealkylation) reactor by installing the heat exchanger. Reduction of steam usage by applying the low SHR (steam to hydrocarbon ratio) catalyst

ENVIRONMENTAL ISSUE

Our Efforts to Respond to the Risks and Opportunities of Climate Change

HPC continues to pursue high efficiency through energy assessment, process improvement, new technologies and optimization system based on its green management vision and strategy. HPC plans to reduce 30% of emission intensity by 2018 compared to 2009 through energy conservation activities and new technology development, and will focus on investing in green growth based on eco-friendly materials and renewable energy, reaching 30% of its total sales in these areas by 2018.

2018 Target
30%↓
Energy Conservation

Energy Conservation Projects and New Technology Development

What activities is HPC undertaking to conserve energy and enhance efficiency?

HPC established a virtuous cycle for energy conservation to save energy and realize high efficiency. HPC undergoes energy assessment conducted by an external energy expert institution and analyzes energy usage every month, while Technology Management Team of the head office, Energy TFT at each plant, Production Team and Technical Support Team personnel meet frequently to find energy conservation items and benchmark other firms' model cases. Energy conservation items are listed in the database upon which investment plans are made, and the investment effectiveness analysis is conducted annually to evaluate the performance. In 2011, the total number of energy conservation cases was 78, investment amount was KRW 22.4 billion, and energy amount saved was KRW 28.1 billion.

What is different in the current energy conservation activities compared to those of the past?

In the past, our energy conservation was mainly limited to simple facilities improvement, but now we are implementing energy conservation more systematically by introducing new high-efficiency technologies and mid-to-long-term planning. We plan to expand these activities to the subsidiaries and partner companies and conduct energy assessments, find conservation items and provide training as well.

Example of applying new technology for energy conservation

Energy conservation by improving SM reaction unit

In 2011, HPC applied the new catalyst and catalyst stabilization technology in the production process for SM (Styrene Monomer) which is the material for Styrofoam and tires, and for the first time in the world, succeeded in commercial operation of SHR (Steam to Hydrocarbon Ratio) of 5:1. The existing dehydrogenation reactor for producing SM's SHR was operated at 6:1 in which for 1 unit of raw materials, steam volume 6 times that of raw materials was serviced. If less steam is serviced the hydrocarbon partial pressure is high resulting in increased coke, the conditions become severe, shortening the life of the catalyst, and because the heat source decreases the reactor entry point's temperature must be higher. We introduced the new catalyst with better performance, changed the material of the pipes and heat feeding boiler to endure the high temperature, and applied the catalyst stabilizing technology, finally reaching SHR of 5:1. By reducing SHR from 6:1 to 5:1, we saved approximately 97,000 tons of steam annually and KRW 6 billion in energy costs.

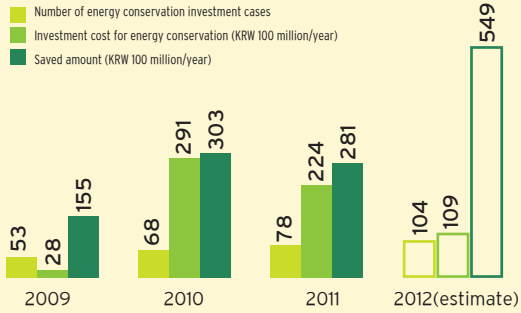
Steam
97,000 ton/year ↓

With the world's firstly adopted SHR 5:1 process operation we have greatly reduced the amount of steam and greenhouse gas.

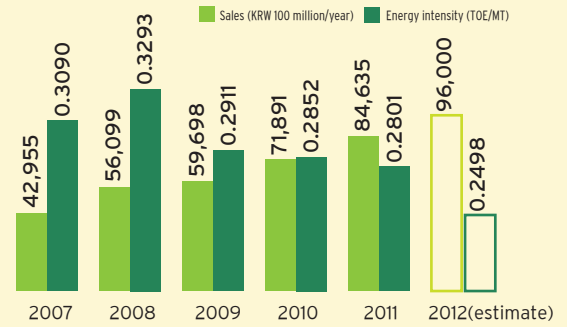


KRW
6 ↓
billion/year

Investment Cost in Energy Conservation and Saved Amount



Energy Reduction Performance



Entry into Large-Scale Energy Storage Battery Business

What is the background for entering renewable energy business?

As the greenhouse gas reduction obligation is kicking into high gear, a shift in the energy paradigm is called for. HPC defined the climate change risk as an opportunity to secure new growth engines for the future, and plans to enter the renewable energy market through R&D in large-scale storage battery.

Why is the development of large-scale storage battery necessary?

Large-scale storage batteries are used for storing large amounts of energy such as industrial facilities and power plants, as well as for power backup for homes, commercial locations and factories. In particular, it is a field with high growth potential because it can store the renewable energy that is produced at solar or wind power plants that are generated erratically.

How has the research on large-scale energy storage battery progressed?

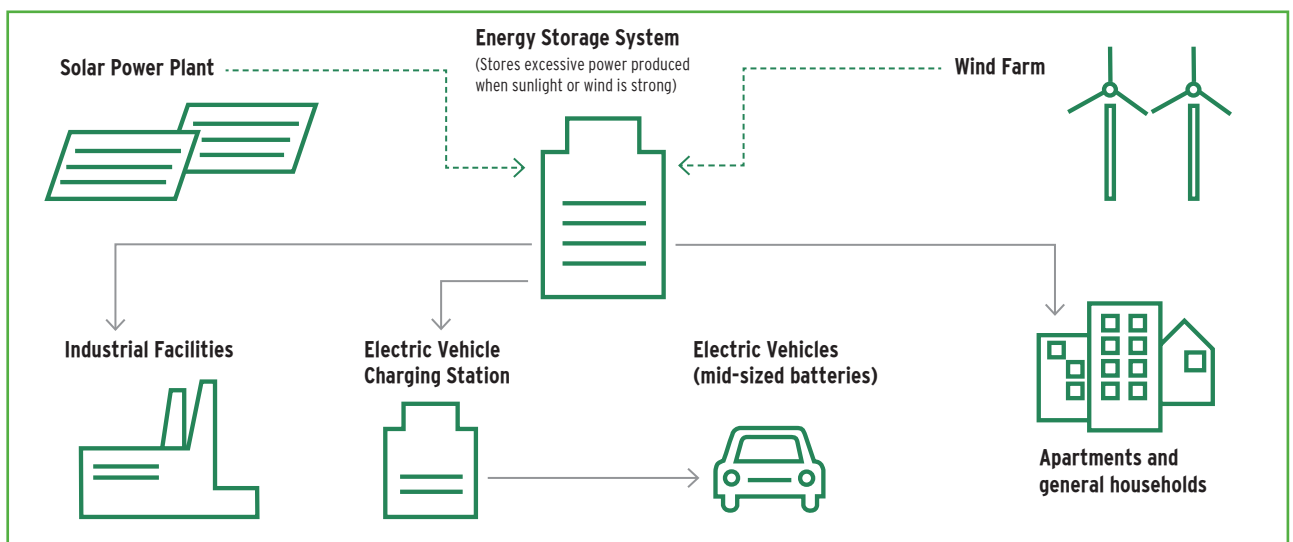
Since the technological joint venture with ZBB Energy in April 2011, we are jointly developing a commercial level 500kWh "3rd generation zinc-bromine chemical flow battery." HPC is the first Korean petrochemical company to start development of the 500kWh large-scale energy storage unit, where it will focus R&D until 2015 for early domination of the KRW 400~500 billion market.

What is the characteristic of the large-scale storage battery that HPC is researching and developing for the first time in Korea?

The zinc-bromine chemical flow battery that HPC is currently developing is known to be better suited for large-scale batteries thanks to its stability and cost competitiveness compared to lithium-ion batteries. In particular, the zinc-bromine flow battery has the comparative advantage in the large-scale energy storage sector such as industrial batteries and renewable energy.

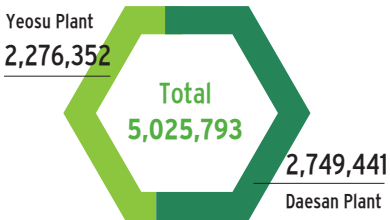
What is the outlook on large-scale energy storage battery business?

Domestically, the large-scale storage batteries can be applied to remote mountainous regions and islands and electric vehicle charging stations, and demand will grow exponentially from 2018 with the spread of the smart grid. Globally as well, with the grid energy storage market comprising over 50% of the total energy market, the large-scale energy storage battery business is expected to grow sixteen-fold by 2020 compared to 2011.

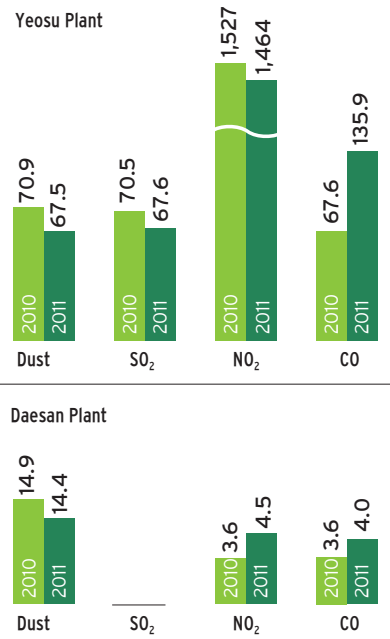


Environmental Management

Naphtha Usage in 2011 (Unit: ton)



Air Pollutant Discharge (Unit: ton/year)



The difference in discharge volume is due to whether there is its own boilers or not

Environmental Management Structure

In order to minimize negative environmental impact occurring during production and processing, HPC installed an organization in charge of environment at each business location and conducts independent inspections and constant monitoring using the TMS (TeleMeasuring System). HPC strictly complies with domestic and international environmental laws, and voluntarily maintains pollutant discharge levels lower than the legally permitted level. There were no fines imposed or violation of environmental law in 2011.

Raw Materials

HPC procures naphtha, the basic material for petrochemical industry from domestic or foreign oil refining firms. Naphtha usage in 2011 was 5,025,793 tons, which has decreased by 11% compared to the previous year due to the short term maintenance at Yeosu Plant's NCC (10 days) and scheduled maintenance at Daesan Plant (30 days). No recycled materials other than naphtha are used at HPC's production processes, and we are implementing a range of production innovation activities to use resources efficiently.

Process Water

HPC manages process water usage at Yeosu Plant and Daesan Plant. Yeosu Plant is supplied from the Juam Dam while Daesan Plant uses water from Daehoji and Bo-ryeong Dam. The total process water usage in 2011 was 25,181,386 tons, which decreased by 3.8% (981,321 tons) due to the scheduled maintenance at Daesan Plant and a range of process water conservation activities. In addition, due to the scheduled maintenance at Daesan Plant, reusing the SM cooling tower blow-down water and effluent except waste water, the volume of the total recycled water decreased by 3.3% at 21,656,368 tons compared to the previous year. HPC plans to systematically manage water usage by introducing the wastewater recycling process, improving the rainwater intake, and building wastewater recycling system.

Process Water Usage (Unit: ton/year)

		2009	2010	2011
Yeosu Plant	Water intake	11,919,824	12,200,855	12,224,945
	Recycled water	10,072,506	10,200,664	10,332,572
Daesan Plant	Water intake	13,760,614	13,961,843	12,956,441
	Recycled water	11,798,015	12,195,389	11,323,796
Total water intake		25,680,438	26,162,698	25,181,386
Total recycled water		21,870,521	22,396,053	21,656,368

*Recycled water = water intake - discharged waste water

Air Pollutants Discharge

HPC applies internal standards that are much stricter than legally permitted levels and operates automated measurement network for systematic management of air pollutants. At Yeosu Plant, an automated measurement network was installed at all the major discharge outlets for 24-hour monitoring. As for Daesan Plant, although it is not a subject for legal monitoring, self-checks are performed regularly. The pollutants generated are treated at the pollution treatment facilities, and pollution control facilities are inspected regularly to reduce pollution. In addition, HPC has reduced the use of ozone-depleting substances regulated by the Montreal Protocol, and substituted R-22 for R-11 which has a lower ozone depleting potential.

usage of ozone depleting substance (R-22)
(Unit: kg/year)

92 ↑



*With the expansion of the Yeosu Plant the R-22 usage has increased in 2011 compared to 2010.

Discharge of Toxic Substances

HPC strictly controls the discharge of toxic substances with detectors and shut-off equipment and conducts regular inspection and evaluation to prevent leakage. There has been no instance of hazardous substance leaks at HPC in 2011. HPC signed the "Voluntary Agreement for Reduction of Chemical Discharge" with the Ministry of Environment and installed the LDAR (Leak Detection and Repair) system with which we implement activities of seeking and sealing leak points. In 2011, toxic substance discharge was reduced by 1.7% compared to the previous year through regular monitoring and improvement activities.

Discharge of Toxic Substances		(Unit: ton/year)		
		2009	2010	2011
Yeosu Plant	Ethylene	5.2	5.5	7.6
	Propylene	4.9	6.5	4.6
	Others (33 kinds)	67.7	66.1	66.7
	Subtotal	77.8	78.1	78.9
Daesan Plan	Ethylene	27.4	17.8	13.7
	Propylene	27.0	24.5	17.1
	Others (22 kinds)	76.2	59.5	67.1
	Subtotal	130.6	101.8	97.9
Total		208.4	179.9	176.8

*The difference in discharge amount between Yeosu and Daesan plants are due to different production volumes.

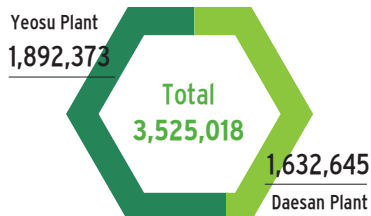
6.9% ↓

With the wastewater treatment process, wastewater discharge volume is declining, and the discharge volume was reduced by 6.9% in 2011 at 3,525,018 tons from 3,766,645 tons in 2010.

Water Pollutants Discharge

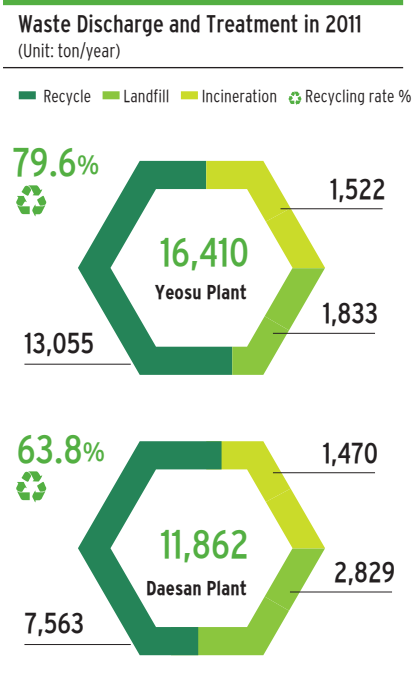
HPC established internal standards that are stricter than legal permission levels for water pollutant discharge, and puts effort in reducing pollutant discharge through regular monitoring. HPC either treats the water to below permitted levels or out-sources the wastewater to ensure no areas are affected by it. The reason for a slightly elevated water pollution level at Yeosu Plant in 2011 is due to the operation of the new plant, and is expected to decrease when the process is optimized. Meanwhile, the wastewater discharge volume is declining by the year owing to our wastewater treatment process, and the discharge volume in 2011 has decreased by 6.9%.

Wastewater discharge volume in 2011
(Unit: ton/year)



Water pollutant concentration level (Unit: ppm)

		Legal limits	2009	2010	2011
Yeosu Plant	COD	300	45	61	65
	BOD	300	30	41	44
	SS	300	31	40	38
Daesan Plan	COD	90	28	22	24
	BOD	80	3	3	2
	SS	80	7	6	7

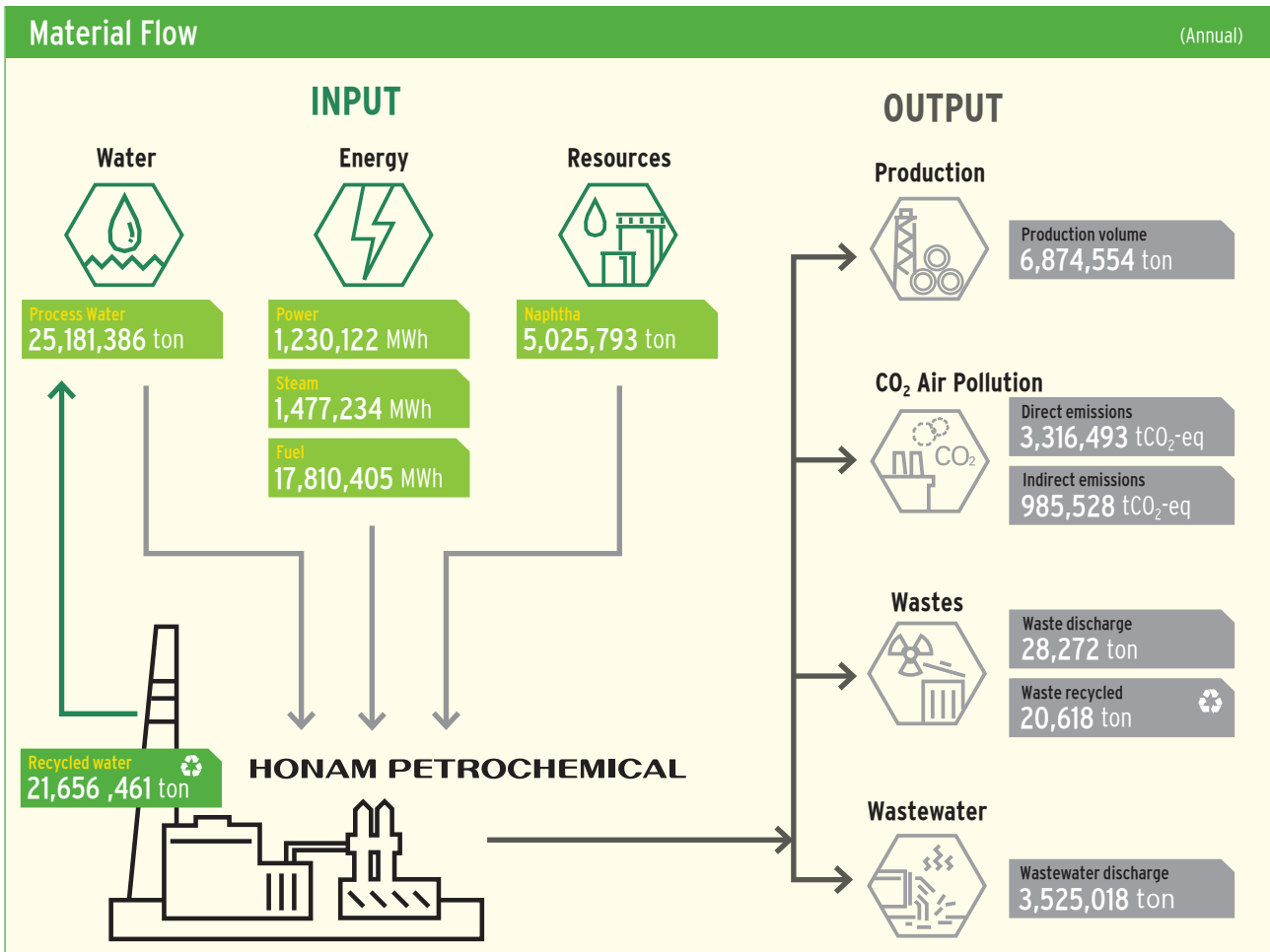


Waste

HPC applies strict internal standards for wastes generated at its business sites, controlling waste generation and expanding reuse of it. HPC operates a waste naming system to identify the location by waste type and its cause, and is strengthening employee training to effectively control and reduce wastes. The waste packing materials inevitably generated are mostly sent to the recycling companies. In recognition of actively implementing green management activities through strict waste control and maximizing recycling, Yeosu Plant won the Ministry of Environment’s award at the Resources Recirculation Leader Awards held in September 2011.

Soil Pollution

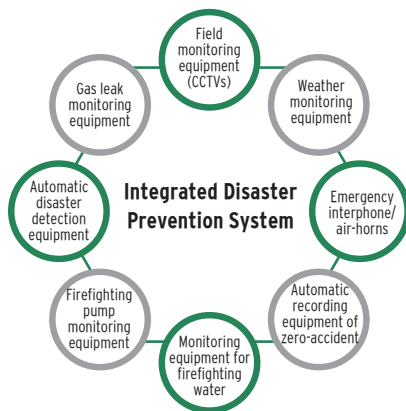
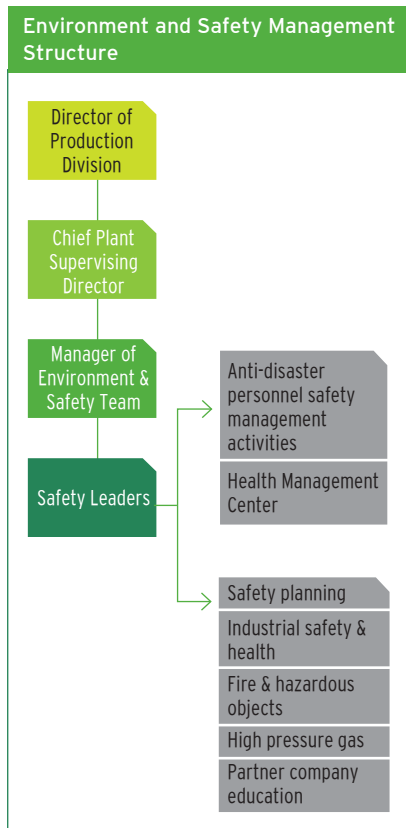
HPC has established an internal soil pollution management guideline and covered all the areas subject to soil contamination with concrete and waterproof treatment so that pollutants may not seep into the soil. For some facilities where potential soil pollution exists, HPC mandates the issuance of an additional environmental statement of work to ensure sufficient prior assessment is conducted.



Product Ecobalance Management



ICCA website
www.icca-chem.org/en/Home/ICCA-initiatives/global-product-strategy/



Korea Responsible Care Council website
www.krcc.or.kr/

Response to Chemical Regulations

With domestic and international chemical regulations getting tight such as EU's REACH, the need to improve chemical control level has heightened as well. HPC actively and systematically responds to the regulations on chemicals through constant monitoring of its products and business locations and through chemical data management.

Participation in the GPS (Global Product Strategy) Pilot Project

Under the GPS, chemical companies voluntarily disclose their information on chemical products to prepare safety assessments of their own accord, and to share the information on handling, hazardousness, and risk control regarding those substances. Currently over 1,400 companies have registered GPS Safety Summary on GPS Portal of ICCA (International Council of Chemical Associations). In 2011, HPC participated in the GPS pilot project to provide global level product safety information and realize product stewardship. In the project HPC provided technical advice, developed a Korean style GPS guideline, and opened a formal GPS education program. In the future, HPC will establish cooperative relations with the government and stakeholders to participate in developing global guidelines and research to find new solutions regarding health and environmental issues.

Environment and Safety Management

HPC operates an independent environment and safety organization under the direct supervision of the chief plant supervising director to prevent accidents and for optimal safety management. In particular, an integrated disaster prevention system was established in 2006 at Yeosu and 2008 at Daesan in order to improve and centralize worn-out and dispersed anti-disaster facilities and secure efficiency, flexibility and reliability of its safety management activities. The fourth day of each month is designated as the "Safety Inspection Day" to foster employees' safety awareness, and each department conducts safety inspection to enhance voluntary environmental safety management. Personnel selected from each division are grouped into an environment and safety inspection team to find and remedy potential dangers. Industrial Safety & Health Committee comprised of the same number of representatives from labor and management meets each quarter to collect field workers' suggestions and reflect them in improvement measures. In addition, the EH&S (Environment Health and Safety) system which all employees use to share information on safety, health and environment is used to provide online education, on-site education using training materials conducted on the department level, and collective training are conducted to enhance environment and safety management competencies. HPC conducts prior safety education for partner company employees as well, and provides support so that they may conduct education programs independently. Yeosu Plant has maintained zero accidents since October 2003, and Daesan from October 2005, and both plants have shown 0% in accident rate, injury rate and occupational disease as of 2011. In particular Yeosu Plant was nominated "Best Safety Management Enterprise" at the 2011 Yeosu Industrial Complex Safety Management Awards Ceremony.

RC (Responsible Care)

HPC established the RC TFT and holds regular workshops and conducts independent self-evaluation, implementing a range of RC-related activities to internalize RC throughout the company and strengthen its environment, safety and health activities. Yeosu Plant and Daesan Plant built an integrated RC operating structure to independently assess the progress in implementing the RC codes which consist of; process safety; safety & health; pollution prevention; community awareness and emergency response; distribution; and product stewardship.

Major Environmentally Friendly Products

PP Polypropylene

The IV bags and blood bags made of PP is an environmentally friendly material that does not leach endocrine disruptors, and has replaced PVC products containing phthalates (materials suspected to be an endocrine disruptor) since October 2007.

PC Polycarbonate

HOPELEX is the product name of HPC's polycarbonate resin, which unlike the previous process does not use phosgene during production, and is an environmentally friendly polycarbonate resin that uses carbon dioxide as material. It is also a product that is produced in a clean and safe process that does not generate waste solvents or wastewater.

LOTTMER

LOTTMER shows the thermosetting cross-linked elastomer properties at room temperature but melts when heat is applied which can be easily processed with thermoforming machines, and is a non-toxic environmentally friendly material that can be recycled. It is the material of the next generation that can replace soft rubber and soft PVC that are used in auto parts, construction material, industrial material, electric and electronic parts, medical supplies and household items.

EPP Expanded Polypropylene

EPP can be produced in various forms, and the product has mechanical properties, thermal resistance, chemical resistance and repeated shock absorption. HOWPOL is the product name of our EPP product developed by HOWTECH which is produced in an eco-friendly process that does not use harmful substances nor discharge any wastewater.

MMA Methyl Methacrylate

MMA is a colorless, transparent liquid that easily polymerizes under light, heat, radiation and peroxides to become methacrylate resin. HPC's MMA process is an eco-friendly process that produces MMA through direct oxidation and esterification of isobutylene extracted from C₄ raffinate instead of the conventional ACH method (that uses acetone cyanohydrins), which reduces waste generated during processing.

As a member of the RC Committee, HPC supports operation of the "SMEs(small and medium enterprises)' Environment, Safety and Health Academy" to help SMEs improve their environment, safety and health management system to large companies' level.

Responsible Care Self-Assessment in 2011		(Scale: points/6 points)		
	Yeosu Plant		Daesan Plant	
	2010	2011	2010	2011
Process safety	4.8	4.8	4.8	4.8
Employees health and safety	4.8	4.8	4.9	4.9
Anti-pollution	4.7	4.7	5.2	5.2
Community awareness and emergency response	4.7	4.7	4.2	4.2
Distribution	4.7	4.7	1.9	3.0
Product stewardship	4.7	4.7	3.1	3.3

LCA (Life Cycle Assessment)

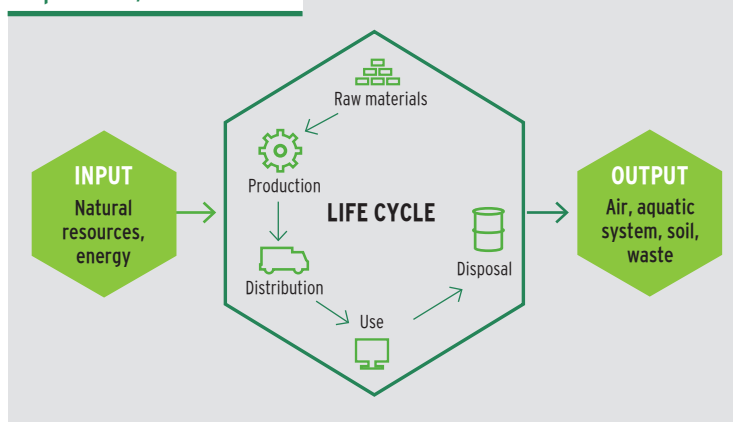
HPC quantifies all the resources, energy and pollutants that are put in or generated throughout the life cycle of its products and analyzes their environmental impact through Life Cycle Assessment. HPC forecasts and analyzes the environmental impact on production activities, assesses the materiality of the environmental impact elements and manages them according to priority. At the beginning stage of plant expansion or a new business the impact on the community is assessed and appropriate measures are taken, while during the design phase eco-design is adopted to prevent environmental or social detriments. In 2011, LCA was conducted on 5 out of 17 products (29%) (Ethylene, Propylene, BTX (benzene, toluene, xylenes)), and we will ameliorate environmental impacts by developing fuel and material optimization technology and systematic response measures.

Developing Green Products

In 2011, HPC announced the green product development policy to foster the development and production of green products and enhance our products' environmental competitiveness. In addition, we will systematically support development of green products that have outstanding eco-friendly qualities such as recycling and pollution reduction by establishing strategies and research plans and expanding green purchasing.

Life Cycle Assessment

Step 1. Life Cycle Assessment



Step 2. Environmental Impact Assessment

- Photochemical smog
- Acidification
- Toxicology
- Ozone depletion
- Eutrophication
- Ecological toxicity
- Resource depletion
- Global warming

Step 3. Utilizing LCA Results

- Product development
- Marketing strategy
- Environmental certification
- Policy establishment

Life Cycle Assessment

Fostering Green-Oriented Culture

Internalizing Green Management

As part of its green management activities, HPC expanded green management campaign such as saving energy at the offices, car free day, and building green office to the whole company level. To save energy at the offices, the lamps have been changed to energy-efficient products, and separated the light switches so that they can be turned off individually. HPC encourages employees to participate in the government's car free day campaign to internalize green habits. In 2011, the car free day was set once every week, and a total of 3,219 cars out of 3,397 participated in the campaign. In addition, hydroponic gardens were installed for natural air filtering, humidification and green interior effect which also contribute to enhancing employees' "green" awareness.

Activities Aimed at Fostering a Green Culture throughout the Company



- Transportation cost reduction
- Fuel consumption reduction
- Greenhouse gas reduction

Reduction Performance in Transportation Sector

Introduced weighing RFID system (Daesan)
Waiting time was reduced by changing to automatic weighing from manual weighing



Changed mode of transportation (Daesan)
Switched from truck to rail for container transportation



Large vehicles (Daesan, Yeosu)
Products are loaded together in big trucks, which decreased the ratio of small trucks



Used nearby ports more frequently (Daesan)
For export containers, switched from Incheon and Pyeongtaek Port to Daesan Port



"Greening" the Transportation Sector

Except vehicles used for business site maintenance and sales support, for-hire vehicles are used to transport all products delivered to external customers. But it was realistically difficult to directly control or manage vehicles used for transporting products, thus making it difficult to measure precisely the energy use and greenhouse gas emissions and to make efforts to reduce them. HPC participated in the government's project to reduce energy use and greenhouse gas emission in the transportation sector, established a plan for reduction in transportation which is now being implemented. We are focusing on reduction in the transportation sector on items we can actually control, such as shifting from small to large vehicles for transporting with large scale, switching from truck to rail through modal shifting, and reducing transportation distance by using nearby ports.

Green Activities for the Community

HPC's employees participate in the monthly campaign to keep the environment sound such as the environmental cleanup in the Museon Mountain in Yeosu, Daesan Myeongji Reservoir and Mangil Mountain. HPC operates a voucher system so that underprivileged groups such as those staying in welfare facilities, children from multicultural families and low-income families can take part in the ecosystem field trip service. The voucher system not only gives them an opportunity to go on an ecosystem field trip; it also helps to support and restore local natural environments that have high environmental value, which will contribute to vitalizing the local economy by boosting the tourism business.

Leader of Communication and Cooperation

We cherish the principle of mutual growth through warm communication and cooperation

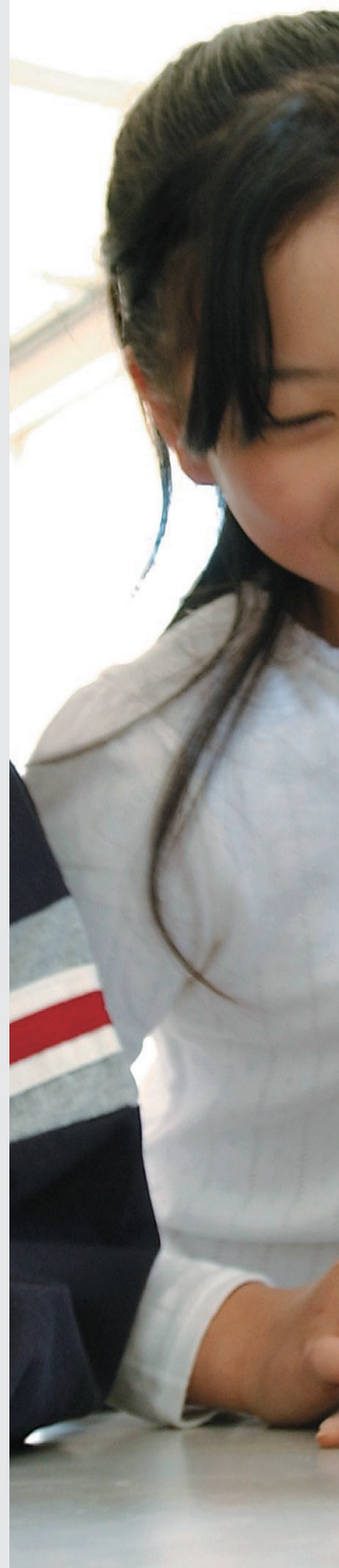


Strategy Direction

HPC set up a system to collect requirements and feedback from various stakeholders such as customers, employees, partner companies and community, and strives to enhance stakeholder value through proactive response.

Implementation Activities

- **Mutual growth with partner companies:** the Office for Mutual Growth was established to develop and run a range of support programs for partner companies
- **Enhancing employees' competencies:** established the human talent cultivation roadmap, provided education programs by rank and job.
- **Expanded corporate-wide social contribution activities:** established the Social Contribution Review Committee as well as relevant organizations at each business location to conduct systematic contribution activities.





 **Manager Jang Juncheol | External Cooperation Team**

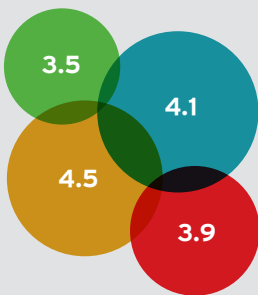
HPC strives for harmony with various stakeholders within the community. Customers, employees, partner companies and the community are very important for HPC in undertaking social contribution activities. HPC does its best to satisfy customers and adheres to win-win cooperation with partner companies. We put our efforts in making a happy workplace for the employees who are HPC's core assets, and to being a warm-hearted neighbor to the community.

Mutual Growth

Stakeholder Survey

HPC aims for mutual growth with partner companies through fair business operations.

- Customer companies ● Partner companies
- Community ● Employees



Rating
Very good (5 points) ————— Very bad (1 point)

Win-Win Cooperation

In 2010, HPC established the Office for Mutual Growth to enhance mutual growth through win-win cooperation. With a view to fostering fair trading practices based on trust and achieving mutual growth with the partner companies by enhancing their competencies, HPC undertakes practical support programs such as complying with fair trade regulations, financial assistance, improving terms of payment, and providing assistance in technology and education.

Selecting Partner Companies

HPC opens all information regarding the criteria, procedures and results of selecting partner companies through its on-line purchasing system. Thus, any company has even opportunities to participate, and the contract is completed through a fair procedure. The selection criteria include compliance with regulations such as anti-corruption and fair trading.

Partnership

HPC conducts regular comprehensive evaluation on the companies that are selected and listed as partner companies to decide whether to continue the partnership. The evaluation criteria include ethical management and environment & safety management. In order to secure stable supply of materials, we manage partner companies' prior risks in connection with the credit evaluation system. In addition, visitation and regular meetings take place to communicate and listen to their difficulties, while the complaints reporting system helps prevent unfair trading. To enhance employees' ethical awareness, we established the code of ethics and offer fair trade education.

Green Credit

HPC participated in the Green Credit Pilot Project in 2011 which aims for mutual growth of large companies and SMEs. Under the project, large companies provide financial and technological assistance to SMEs for reducing greenhouse gases, and part of the reduction performance achieved is transferred as credit to the large companies. In collaboration with Korea Energy Management Corporation, HPC searches for reduction projects applicable to SMEs, provides funds for investing in the project, after which it is registered as the project and gets accreditation. In the future, HPC will transfer the reduction performance into green credits and use them as a result of our greenhouse gas and energy target implementation.

Mutual Growth Fund

HPC operates a mutual growth fund of KRW 50 billion that provides low interest financing to partner companies. HPC's partner companies can get loans that are 2~3% lower than normal market rates. The mutual growth fund is not a one-time event but an ongoing program, and 58 companies have received financial assistance as of the end of 2011. It is expected to be especially helpful in partner companies' fund operations.

Safety Management at Partner Companies

The partner companies' safety meeting is held every month where participants share information on the safety & health status and the enactment/revisions of regulations. HPC operates a safety & health community to enhance communication. As part of its accident prevention activities, HPC conducts regular safety & health inspection jointly with partner companies and reflects the inspection results in the improvement measures.

Fair Trading with Partner Companies

In order to maintain transparent and fair trading practices, HPC operates training programs, compliance pledge ceremony for fair trading and the complaints reporting system. HPC continues its efforts for transparent trading by using the on-line purchasing system as well, and requires partner companies' pledge to comply with the code of ethics.

Technology and Training Assistance

HPC is operating the Hand-in-Hand project, which is a technology cooperation project targeting small and medium client companies. Through this project HPC provides direct support to the client companies such as cooperating with them from the product development stage, or finding new joint projects to work on together. Among the 15 business proposals from client companies in 2011, 7 were selected on which KRW 6.3 billion is invested and HPC is currently working on jointly with them. With a view to enhancing partner companies' competitiveness, HPC selects those that own outstanding technologies for the program that helps them with product development and manufacture, and also provides a range of support activities such as product analysis, dispatching expert, and technology seminars. In addition, the Mutual Growth Academy established in 2010 provides education programs on job skills, business management, and language skills for employees of partner companies.

HPC selects small and medium partner companies that own outstanding technologies or new technology development competencies and provides assistance tailored to their needs.

6.3 KRW billion in cooperative projects

Lotte Academy Programs in 2011	
Period	Feb. ~ Dec.
Education Programs	- Practical Management Planning / Managers' Competency Enhancement / Practical Strategy Planning - Fair Trading / On-Site Quality Management / Basics of Purchasing Management - Introduction to Marketing / Practical Sales Planning / Strategies on Finding and Maintaining New Customers - Basic Course on General Affairs / Introduction to Accounting and Taxes - Powerpoint and Excel / Writing a Proposal, Enhancing Presentation Skills, etc.
Participants	229 persons
Costs	KRW 30.63 million


Management Assistance for Partner Companies

HPC operates the Family Corporations Loan program which is an indirect financial assistance program in cooperation with banks to help partner companies' fund management. In an agreement with a credit guarantee fund trust, HPC contributed KRW 2 billion to help partner companies in their purchasing and sales operations. In addition, HPC abides by the principle of 100% cash payment within 10 days which provides actual help in their fund management.

INTERVIEW

Becoming a true partner with partner companies is what mutual growth means, and it is also a way to fulfill social responsibility.

Spirax Sarco Korea | Jang Wook

 www.spiraxsarco.com/kr/



Spirax Sarco Korea is HPC's partner company that supplies steam and water pipelines and customer satisfaction solutions with expertise in steam and pipeline sector.

Spirax Sarco Korea is deeply interested in the various partner company support programs that HPC is implementing, and participated in the partner companies' meeting and Mutual Growth Academy that HPC's purchasing team hosted to provide practical help to the partner companies.

At the partner companies' meeting we voiced the issues we were facing and were convinced of HPC's genuine effort to increase mutual growth in the sincere faces of the personnel from the purchasing team as they listened to what we had to say. It was a great opportunity for a practical and close cooperation.

The candid briefing on HPC's operation status and constructive suggestions were evidence of their sincerity toward win-win cooperation. At the Mutual Growth Academy, we utilized HPC's human resources development program to assess the current status and future trend for Spirax Sarco, and this became an invaluable guideline in establishing an effective and reasonable management direction, and also helped enhance our employees' competencies.

Spirax Sarco Korea is proud of being HPC's partner company. Based on the efforts HPC has put in until now, we hope they will leap forward as a global corporation that further enhances their brand value based on a strong partnership and by fulfilling their social responsibilities.

Helping SMEs overcome difficulties is the way to win-win

Gwangdong | Jang Iksu



Gwangdong is HPC's partner company that produces and sells boxes and danpla sheet that is used for packing and construction and we are gaining recognition in the industry.

Gwangdong has continued to maintain cooperative relations with HPC. In 2011, we were selected as the target company for the technology cooperation project. HPC would purchase and provide production facility and Gwangdong would repay on a long-term basis without interest. Gwangdong had been facing difficulties caused by insufficient production facilities that led to customer complaints due to late deliveries, which in turn led to employees' low morale. Through the cooperation project our operations have normalized and we are now able to meet delivery deadlines. Furthermore, thanks to customers' trust and satisfaction we were able to open new markets in Korea. HPC's mutual growth support program is meaningful and enables partner companies to overcome the difficulties they are facing which results in mutual growth where both parties benefit.

HPC's technology cooperation program Hand-in-Hand presents new opportunities and possibilities for those SMEs that have outstanding technology but insufficient funds to make new investments. Moreover, I believe this is only possible because of HPC's commitment to cooperating with us, paying attention even to minor details until the assistance is actually carried out.

A large company's sincere effort for mutual growth is very encouraging on the part of small and medium enterprises. If the mutual growth program is to be upgraded further and practical support provided, it will greatly enhance partner companies' competitiveness, which in turn will contribute to HPC's becoming a global corporation. We would like our relationship to be more than a simple business transaction. We would like to join hands with HPC as a friend and partner.

Customer Satisfaction

Customer Satisfaction

Every year, HPC conducts a customer satisfaction survey on product quality, packing, order, distribution, sales operations, after sales management, and product prices, and implements improvement measures to resolve customer dissatisfaction. Customer's dissatisfaction is quickly identified and reflected in quality improvement activities, and the results are used in establishing preventive measures. The customer support department manages the track record of customer complaints beginning from when they first occurred; the measures that were taken to remedy the situation; and the plans to prevent the same complaint from recurring. These records are reported regularly so that customer requests are reflected properly. HPC provides its technology through customer invitation and visitation programs, and it has been found that many customers benefited from these programs in terms of improved productivity and quality. In 2011, the customer satisfaction survey was conducted on 1,080 companies that use HPC's products, where 134 companies gave us their reply (reply rate is 12%). At the satisfaction survey conducted on product quality, packing, order, distribution and sales operations, results show overall improvement in all areas compared to the previous year.

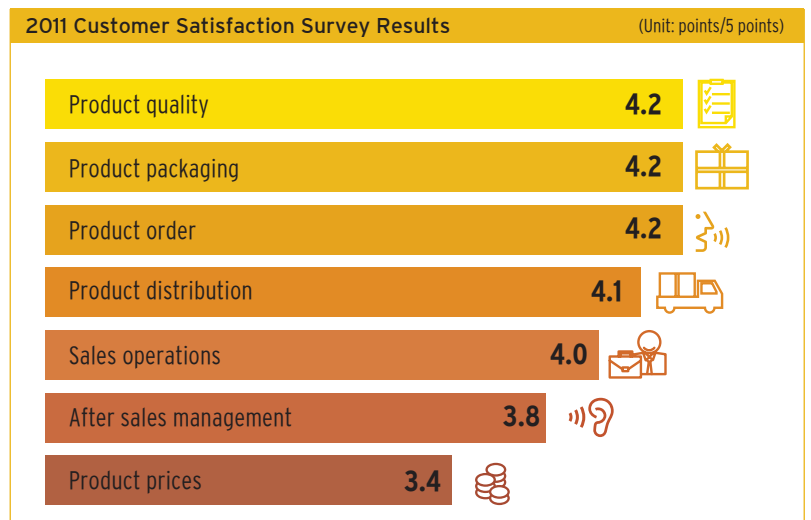
Customer Protection

Protection of Customer Information

HPC established a policy on the management and use of customer information and operates a department for its protection. HPC takes precautionary measures to prevent the loss, theft, leak, falsification or damage to customer information and conducts employee education to heighten awareness on information protection. In 2011, there were no customer complaints received regarding privacy or loss of data.

Activities to Respond to Product Liability (PL)

HPC ensures product safety throughout all the stages from development through to the final stage of customer service. HPC established PL regulations and took up an insurance against product liability in order to respond effectively to PL-related demands from customers. All products are labeled according to the requirement provided by the relevant country's laws to induce proper usage during transportation and handling.



A Good Company to Work For

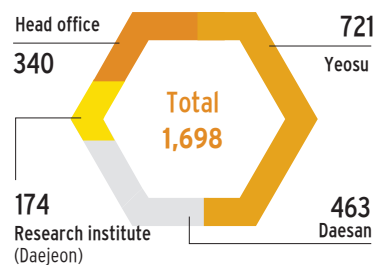
Employment

As of the end of December 2011, 1,698 employees are working at the head office, research institute, Daesan Plant and Yeosu Plant, and the average length of work is 13.7 years. By age group, 691 employees are in their forties comprising the largest portion, while employees in their thirties are increasing steadily as well. HPC recruits regular and contract workers depending on whether the particular competence will continue to be needed. As of the end of December 2011, the number of contract workers decreased slightly at 45. In 2011, HPC recruited 190 new regular and contract employees, of which 20 are females and 78 are from the local area. The number of retirees in 2011 was 83, of which 4 were female (turnover rate 3%), and 79 were male (turnover rate 5%). HPC operates a retirement system for employees who have reached retirement age, allowing them 3 months' leave to prepare for retirement and operates a retirement plan to provide a more stable retirement pension.

According to the code of ethics, HPC does not condone any kind of discrimination based on race, age or gender except performance. As of the end of December 2011 the ratio of disabled employees among regular employees is 1.5% and HPC is putting efforts to employ more disabled persons. In addition, HPC continued to expand and cultivate women employees and as of the end of December 2011, the ratio of female employees increased to 7.4%.

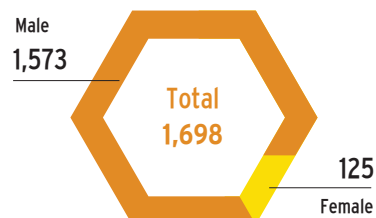
Number of Employees by Region

(Unit: persons)



Number of Employees by Gender

(Unit: persons)



Number of Employees by Region

(Unit: persons)

Head office (Seoul)	Research Institute (Daejeon)	Yeosu Plant	Daesan Plant	Total
340	174	721	463	1,698

Number of Employees by Age Group

(Unit: persons)

	20's	30's	40's	50's	Total
Male	229	422	691	231	1,573
Female	87	38	0	0	125
Total	316	460	691	231	1,698

Number of Employees by Employment Type

(Unit: persons)

	Executives	Regular workers	Contract workers	Total
Male	40	1,509	24	1,573
Female	-	104	21	125
Total	40	1,613	45	1,698

Ratio of Female and Disabled Workers

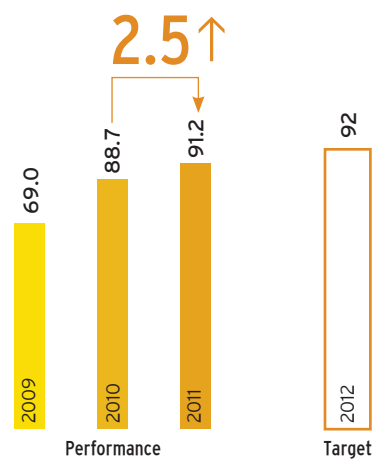
(Unit: %)

	2009	2010	2011
Female	6.5	6.7	7.4
Disabled	1.3	1.8	1.5

Human Resources Development

HPC’s education structure consists of job skills training; general / language training and special training, and a range of training programs are available including external commissioned training, cyber training, language and self-improvement, and preventing sexual harassment. In particular, experts are cultivated through training programs on finance, tax, HR and logistics, while courses according to rank and job skills are offered as well. The annual per capita training hour is 91.2 in 2011 and it is 2.5 hour more than the previous year. Among the training courses, general / language training per capita was highest at 44.7 hours, followed by job skills training at 32.7 hours.

Annual Training Hours Per Capita (Unit: hours)



Training Hours by Course

Curriculum	Total training man hours	Training hours per capita
Level training	19,236	11.2
General, language	75,552	44.7
Job skills	55,823	32.7
Special training	4,402	2.6
Total	155,013	91.2

Cultivating Core Human Talents

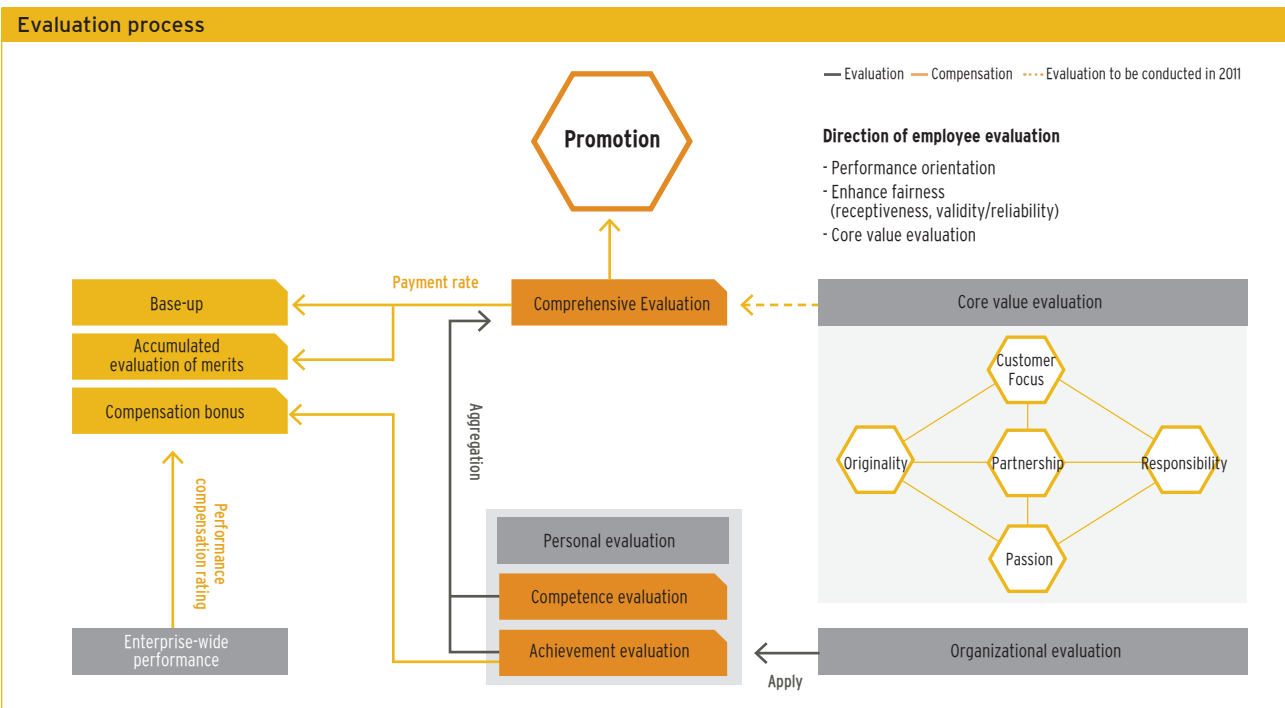
HPC established a roadmap for human talent cultivation to help its employees learn expert knowledge required at the job, and offers a range of programs to cultivate experts. The school program by job post and MBA program is operated to cultivate core human assets so that they may contribute to the company’s competitiveness. At the HR school, strategy school, production management school and finance school, students learn the basic knowledge and recent trends in their respective fields to strengthen job expertise. Since 2006, MBA courses are available for executives and team managers. For manager level employees, a 4-month EMBA program is offered where renowned Korean professors are invited to lecture, while the MBA course to cultivate the next management level is available for directors and managing directors. On the other hand the Global Asset Cultivation Program (language) and Global Asset Overseas Training Program is offered for HPC’s overseas operations, and the person to person coaching program with native speakers helps enhance practical foreign language skills.

Roadmap for Cultivating Human Talents



Evaluation and Compensation

HPC's performance management system consists of team performance evaluation (KPI evaluation) and individual evaluation (MBO + capability). Every year all employees establish goals according to the MBO (management by objective) method and an evaluation and compensation for the performance on these objectives are conducted once or twice a year. The promotion and performance compensation is decided according to the evaluation results which make the employees enhance their achievement and motivated. The individual and team with outstanding performance are rewarded, and the group performance compensation is in operation which pays compensation according to management performance. Same basic wages are paid within the same employee category regardless of gender.



Won the Human Resources Management Award at the 2011 Grand Management Awards



HPC won the Human Resources Management Award at the 2011 Grand Management Awards hosted by KMAC. The award is given after comprehensive evaluation of the company's leadership, human resources management strategy, execution structure and process, human resources management support system, and

management performance. HPC won the award as recognition for its management system of global standards and for focusing on cultivating human assets with global competitiveness.

In particular, school program by job post, global language program, regional expert program and MBA program targeting human assets with high potential are in operation to strengthen their job expertise, global competencies, strategic thinking of corporate conditions, and understanding management know-how. HPC recruits foreign researchers with doctor's degree locally to bring in outstanding individuals, and employees are actively going on to doctorate courses in Korea and abroad. As HPC's business goes global, an internship program for foreign-

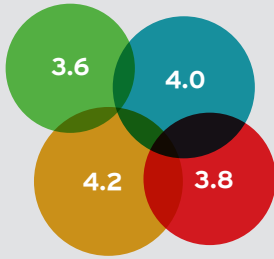
ers studying in Korea will be launched to give them an opportunity to work at our domestic or overseas business locations. The manager qualification system was introduced for intensive training and qualification assessment before promoting them as managers. For those who are promoted, HPC has strengthened the responsibilities, authority, evaluation and compensation.

In addition, with the aim of cultivating human assets with interdisciplinary knowledge through a fusion of engineering and humanities, HPC operates the chemical academy and accounting academy, as well as the subsidiary management supervisor program designed to cultivate managers who are to be sent to the subsidiaries.

Stakeholder Survey

HPC implements human-oriented management

- Customer companies ● Partner companies
- Community ● Employees



Rating
Very good (5 points) ————— Very bad (1 point)

Job Benefits

HPC offers various benefits programs to enhance employees' quality of life such as medical fee support, contract support for group personal accident insurance, tuition support for their sons and daughters, company housing, support for family events (such as weddings or funerals) and vacation expenses, vacation and reward for long-term service, club activities, housing funds and resort membership.

HPC's company housing offers a range of facilities such as the fitness center, indoor swimming pool, event hall (lecture hall) and restaurant where employees can enjoy healthy leisure time with their families. HPC donates PCs to the school where employee's sons and daughters are attending and holds various events such as education camp with dad, various education support, factory tours, and trip to baseball games. HPC also provides the whole tuition for employees' sons and daughters in middle school, high school and university.

In response to the government's policy encouraging childbirth HPC guarantees parental leave and child care leave. The maternity leave does not break the continuity of service so that they get equal treatment in promotions, and all those who wanted to return to work were reinstated.

Parental Leave Status (persons)			
Employees who took parental leave		Employees who returned after parental leave	
Male 0	Female 16	Male 0	Female 6

Health of Employees and their Families

All employees receive regular medical checkups, special checkups and external general checkups. HPC provides medical checkup support for employees' spouses every other year as well. In case family members take up group personal accident insurance, the company provides support for medical bills due to accidents or diseases. Employees can get health counseling and medical service at the health management center open at all HPC business sites. HPC provides personal checkup service and keeps track of health records to help build a healthy workplace. The smoking area permit system was introduced in all the plants and a non-smoking campaign is under way. Every three years a survey is conducted to identify detrimental factors to the musculoskeletal system and the working environment is improved to prevent musculoskeletal system disorders.

Employee Satisfaction Survey on Great Work place (GWP)

Organizational evaluation frame



HPC monitors the organizational culture through annual employee satisfaction surveys and sets the HR direction based on the survey results. The GWP employee satisfaction survey is conducted to understand the status and employees' satisfaction on 4 organizational evaluation areas - leadership, HR issues, constituents' perception and organizational issues. HPC scored 56.5 points at the GWP survey.

Leadership

- Identify types of leadership
- Recognize vision and strategy
- Delegate authority

HR issues

- Procedural fairness / satisfaction with HR management
- Current and future direction of HR management
- Compensation / organization's internal capabilities
- Conditions of a human asset

Constituents' perception

- Immersion in the organization / job satisfaction
- Intent to transfer / estimation of continued service
- Changes to the will to work

Organizational issues

- Communication
- Growth engines / competitiveness
- Overall company atmosphere
- Corporate culture
- GWP (Great Work Place)

Labor-Management Culture

HPC observes labor regulations in Korea and abroad at all of its business locations, prohibits child labor and compulsory labor, and strives to enhance labor-related human rights and welfare of all its employees. Every year two hours' training on anti-sexual harassment is conducted. In 2011, 98% of all constituents received 2 hours of training. In addition, HPC guarantees employees' right of association and collective bargaining, and negotiates with the union on working conditions and employee job benefits every year. Important issues are always discussed with the union. HPC has separate unions at Yeosu Plant and Daesan Plant and maintains a peaceful and constructive relationship by recognizing the company's management rights and union's labor rights, and both parties recognize each other to be in an equal position. In 2011, HPC's Yeosu Plant and Daesan Plant were selected as Outstanding Corporation in Labor-Management Culture (hosted by the Ministry of Labor and Employment), and won the Labor-Management Culture Grand Prize (Minister of Labor and Employment's Prize), as well as the Workplace Innovation Award (Grand Prize), all of which are commendations and recognition for HPC's outstanding labor-management culture. The union membership percentage at Yeosu Plant was 84% and Daesan Plant 92% in 2011, and all union members are treated equally on the results of the collective bargaining.

Labor Union Membership Status		
	Yeosu Plant	Daesan Plant
Established date	1980.5	1995.4
Persons eligible for membership	562 persons	316 persons
Union members	474 persons	291 persons
Union member ratio	84%	92%

Labor-Management Communication Program

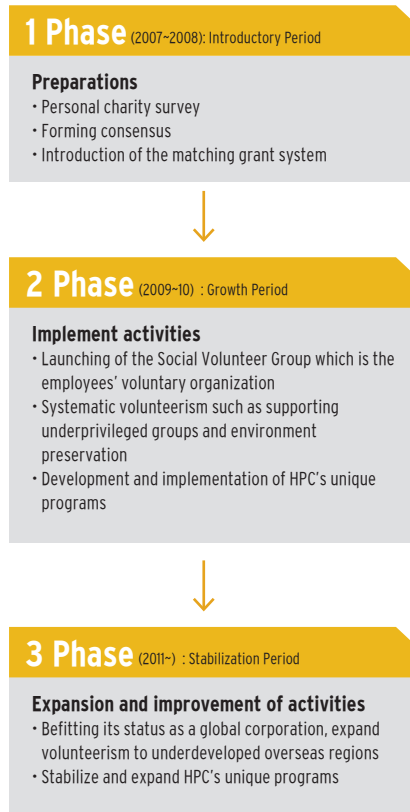
HPC operates a labor-management communication program to foster communication between management and employees and a reasonable, productive labor-management culture. The program aims to listen to the grievances of employees working at the field through the Labor-Management Council, Field Operations Committee and grievance procedure, find a solution and direction for labor-management relations. The grievance procedure covers all aspects of work such as human rights, anti-corruption, anti-discrimination and work improvement. The grievance procedure is linked to ethical management education and anti-sexual harassment training for a more effective operation. HPC built a labor-management communication system by holding regular and non-scheduled meetings such as the communication plaza, labor-management workshop and on-field meetings, through which it is building amicable relations and enhancing competitiveness.



Labor-Management Communication Activities in 2011		
Name of activity	Frequency	Details
Communications plaza	All year round	Through the meeting between management level and employees, they share current business status, teach work know-how and listen to grievances, after which they go out for dining or recreation such as bowling
Labor-management field meeting	As necessary	It is a small group labor-management committee at the department level hosted by the employee communication personnel to listen to the grievance of employees at the field and present solutions (i.e. improving working conditions)
Labor-management workshop	At least once every half year	The union's executive board and the company gather to discuss and share the company's business status and future direction
Management briefing	At least once every half year	Share company's business status and information with all the employees at each business location
Field Operations Committee's field coordinator /employee	Quarterly	Heart-to-heart talks, discuss and solve issues within the department (led by team managers)
Face to face dialogue	As necessary	Managers and leaders listen to grievances and have face to face dialogue with employees
GWP activities	All year round	Company picnic, experiencing production and sales, baseball cheering for Lotte Giants, children's vacation program, club activities

Social Contribution

Mid-to-long-term Social Contribution Strategy



Introduction

Today's society demands corporate activities not only to go beyond seeking its own profits but also to pursue the benefit and interest of the consumers, employees and even the community. Based on its core principles of cherishing people and putting first priority in investing in them, HPC conducts a range of activities to fulfill its social responsibilities.

Vision and Strategy

Under the motto "Warmth & Dream to the Heart," HPC has the contribution vision named Together 50. By establishing optimal social contribution strategies aimed at reaching this vision, HPC implements its sharing activities centering on 3 axes - social welfare, scholarship, and environment culture. In addition, in order to implement corporate-wide social contribution more systematically HPC established the Social Contribution Advisory Committee and support organizations at each business site.

Warmth & Dream to the Heart
To the people with a warm heart, to the future with passion

Together 50

5 billion people

Together with all the 5 billion people on Earth

50%

With a 50% breadth of mind

50%

Let's see and think of the 50%

01. Returning part of profits to society	It is to fulfill our corporate social responsibility
02. Voluntary participation	Makes us feel gratification from social contribution activities
03. Honesty, service, passion	Love volunteering in accordance with Lotte Group's management philosophy.

Corporate-wide Volunteering

HPC seeks to contribute to the advancement of the community by expanding communication with the community and engaging in a range of volunteer activities. At HPC, 14 volunteer groups comprised of employees and their families in the head office, research institute, Yeosu Plant and Daesan Plant practice volunteerism in social welfare, scholarship, and environment culture. The volunteer groups provide economic assistance to elders living alone, welfare facilities for the disabled, children from low-income families and multicultural families. They pay regular visits to bring household necessities, kimchi and charcoal briquettes. In 2011, 1,249 employees participated in volunteer activities and the average volunteer hours per capita were 12.5 hours. In addition, a total of KRW 4.7 billion was donated to be used for helping the neighbors in need and for the community's development.

Matching Grant and Usuri System

HPC introduced the matching grant and Usuri systems to encourage a corporate-wide participation in social contribution and to promote a culture of donation. The matching grant system where the company gives back the same amount an employee has donated, and the Usuri system which deposits amounts below a certain amount from the employees' paychecks are HPC's social contribution program that all the members gladly participate in, and are HPC's representative social contribution activities.

Major Contribution Activities

Supporting local children centers

HPC has been supporting children who are full of hopes and dreams but also need the society's protection through a range of programs such as free lunch, tutoring and cultural experiences. HPC participates in picnics and outings with the children at welfare facilities that have sisterhood ties with the company. In collaboration with the local children's centers that care for children from low-income families, HPC supports activities such as pottery and dying experience, birthday parties and food distribution.

Spring picnic with children from welfare centers	2011.04.23	Hobongi Volunteer Group
Outing with children from welfare centers	2011.08.24	Hobongi Volunteer Group
Donated PCs to Jungang Children's Center	2011.12.13	Research Support Team
Support for local children's center	4 times in 2011	Hanareum Volunteer Group
Commodities donation for welfare facilities	December 2011	Employees



Improving Residential Environment in Rural Villages

HPC helps improve the residential environment of the rural villages to build a society of coexistence with underprivileged groups. HPC helps with papering, flooring, painting, fumigation, electrical wiring and cleaning.

Sharing love with the community	2011.12.22	
Improving residential environment in rural villages	16 times in 2011	Sharing Love and Happiness and 3 other volunteer groups
Helping farms during busy season	June, November, 2011	Employees



Supporting Multicultural Families

HPC implements support programs to help multicultural families adapt in the Korean society and lead healthy lives as members of society. We try to provide an opportunity to help them adapt in Korea and understand the country by hosting events such as experiencing the Korean culture, making kimchi, and study room support for the children of multicultural families.

Supported study room for children of multicultural families	2011.08.09	New employees' volunteer work
Supported multicultural families	5 times in 2011	Rainbow Volunteer Group
Rice donation for multicultural families	2011.12.15	Employees and union



Supporting the Disabled

Our hearts reach out to those who have disabilities whether due to an accident or from birth, and we provide regular assistance to help them become proud constituents of the society. Volunteer groups provide visitation, kimchi making and cleaning service to support disability organizations in carrying out their activities.

Visitations to help disability organizations	2011.10.26	Hobongi Volunteer Group
Volunteer service at Hope Rehabilitation Center	2011.12.01	Research Team 4, Research Support Team
Visitation to welfare facilities / purchasing goods made at welfare facilities	June 2011	Employees



Environmental Cleanup Activities

Although HPC's impact on the surrounding environment or the local residents is limited we put effort in cleaning and maintaining the mountains and coasts near our business sites to build a clean environment for the community. Our activities include installing birdhouses in the mountains frequented by residents, planting flowers by roads, cleaning hiking trails and coasts.

Cleanup of nearby mountains	12 times in 2011	Geobuki Volunteer Group and 2 other groups
Clean up Coasts	9 times in 2011	Hanultari, Like the First Time Volunteer Group
1 company 1 river cleanup	Every second Thursday of the month	Total of 187 participants between April and December
Clean environment campaign	May, September and November, 2011	Total of 270 participants during the three months
1 company 1 mountain/1 river/1 coast cleanup activity	May/March, June, August/April, July, September	About 120 participants



Other Sharing Activities

HPC undertakes volunteering activities in many places within the community that need a helping hand. HPC provides practical assistance to the community such as fixing old facilities in military camps, employees' blood donation, donating gifts at the end of the year, and continues to monitor places needed help.

00 Division, 95th Regiment, 1st Battalion	December 2011	Fixed air conditioners and heaters, and building interior
"Share the Love" Bazaar	May 2011	Daesan Plant employees
Delivering gifts at the end of the year	December 2011	Sponsoring institution in Seoul
Fumigation of nearby villages	July ~ August 2011	Village near Yeosu Plant



GRI G3.1 Index

● Fully Reported | ● Partially Reported | ○ Not Reported

Profile	Application Level	Page	Notes
Strategy and Analysis			
1.1 Statement from the most senior decision-maker of the organization.	●	2,3	
1.2 Description of key impacts, risks, and opportunities.	●	2, 3, 19, 21-23	
Organizational Profile			
2.1 Name of the organization.	●	4	
2.2 Primary brands, products, and/or services.	●	6, 22-24	
2.3 Operational structure of the organization, including main divisions, operating companies, subsidiaries, and joint ventures.	●	5	
2.4 Location of organization's headquarters.	●	5	
2.5 Number of countries where the organization operates, and names of countries with either major operations or that are specifically relevant to the sustainability issues covered in the report.	●	5	
2.6 Nature of ownership and legal form.	●	4	
2.7 Markets served (including geographic breakdown, sectors served, and types of customers/beneficiaries).	●	5	
2.8 Scale of the reporting organization.	●	5	
2.9 Significant changes during the reporting period regarding size, structure, or ownership.	●	5	
2.10 Awards received in the reporting period.	●	16	
Report Parameters			
3.1 Reporting period (e.g., fiscal/calendar year) for information provided.	●	1	
3.2 Date of most recent previous report (if any).	●	1	
3.3 Reporting cycle (annual, biennial, etc.)	●	1	
3.4 Contact point for questions regarding the report or its contents.	●	1	
3.5 Process for defining report content.	●	10, 11	
3.6 Boundary of the report (e.g., countries, divisions, subsidiaries, leased facilities, joint ventures, suppliers). See GRI Boundary Protocol for further guidance.	●	1	
3.7 State any specific limitations on the scope or boundary of the report (see completeness principle for explanation of scope).	●	1	
3.8 Basis for reporting on joint ventures, subsidiaries, leased facilities, outsourced operations, and other entities that can significantly affect comparability from period to period and/or between organizations.	●	1	
3.9 Data measurement techniques and the bases of calculations, including assumptions and techniques underlying estimations applied to the compilation of the Indicators and other information in the report. Explain any decisions not to apply, or to substantially diverge from, the GRI Indicator Protocols.	●	1	Other contents are provided in the relevant article
3.10 Explanation of the effect of any re-statements of information provided in earlier reports, and the reasons for such re-statements (e.g., mergers/acquisitions, change of base years/periods, nature of business, measurement methods).	●	1	
3.11 Significant changes from previous reporting periods in the scope, boundary, or measurement methods applied in the report.	●	1	
3.12 Table identifying the location of the Standard Disclosures in the report.	●	58	
3.13 Policy and current practice with regard to seeking external assurance for the report.	●	1, 63	
Governance, Commitments, and Engagement			
4.1 Governance structure of the organization, including committees under the highest governance body responsible for specific tasks, such as setting strategy or organizational oversight.	●	4,17	
4.2 Indicate whether the Chair of the highest governance body is also an executive officer.	●	17	
4.3 For organizations that have a unitary board structure, state the number and gender of members of the highest governance body that are independent and/or non-executive members.	●	17	
4.4 Mechanisms for shareholders and employees to provide recommendations or direction to the highest governance body.	●	17	
4.5 Linkage between compensation for members of the highest governance body, senior managers, and executives (including departure arrangements), and the organization's performance (including social and environmental performance).	●	17	
4.6 Processes in place for the highest governance body to ensure conflicts of interest are avoided.	●	17	
4.7 Process for determining the composition, qualifications, and expertise of the members of the highest governance body and its committees, including any consideration of gender and other indicators of diversity.	●	17	
4.8 Internally developed statements of mission or values, codes of conduct, and principles relevant to economic, environmental, and social performance and the status of their implementation.	●	14, 18, 30, 55	

Profile	Application Level	Page	Notes
4.9	Procedures of the highest governance body for overseeing the organization's identification and management of economic, environmental, and social performance, including relevant risks and opportunities, and adherence or compliance with internationally agreed standards, codes of conduct, and principles.	●	17
4.10	Processes for evaluating the highest governance body's own performance, particularly with respect to economic, environmental, and social performance.	●	17
4.11	Explanation of whether and how the precautionary approach or principle is addressed by the organization.	●	30, 31
4.12	Externally developed economic, environmental, and social charters, principles, or other initiatives to which the organization subscribes or endorses.	●	8, 62
4.13	Memberships in associations (such as industry associations) and/or national/international advocacy organizations in which the organization: * Has positions in governance bodies; * Participates in projects or committees; * Provides substantive funding beyond routine membership dues; or * Views membership as strategic.	●	8
4.14	List of stakeholder groups engaged by the organization.	●	8, 9
4.15	Basis for identification and selection of stakeholders with whom to engage.	●	8
4.16	Approaches to stakeholder engagement, including frequency of engagement by type and by stakeholder group.	●	8, 9
4.17	Key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting.	●	11

Disclosures on Management Approach(DMA)	Application Level	Page	Notes
Economic(EC)	●	13-15, 17, 19, 21-27	
Environmental(EN)	●	13- 15, 17, 28, 30-33, 38, 41-43	
Labor Practices and Decent Work(LA)	●	13-15, 17, 47, 53, 54	
Human Rights(HR)	●	13-15, 17, 18, 53-55	
Society(SO)	●	13-15, 17, 18, 47, 55	
Product Responsibility(PR)	●	13-15, 17, 22-24, 28, 30, 41, 49	

Performance Indicators	Application Level	Page	Notes	
Economic (EC)				
Economic performance	EC1	Direct economic value generated and distributed, including revenues, operating costs, employee compensation, donations and other community investments, retained earnings, and payments to capital providers and governments.	●	26, 27
	EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change.	●	33, 36, 37
	EC3	Coverage of the organization's defined benefit plan obligations.	●	27, 50
	EC4	Significant financial assistance received from government.	●	24 8 cases including temporary investment tax credit KRW 25.8 billion
Market presenc	EC5	Range of ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation.	○	-
	EC6	Policy, practices, and proportion of spending on locally-based suppliers at significant locations of operation.	●	46, 47
	EC7	Procedures for local hiring and proportion of senior management hired from the local community at significant locations of operation.	●	50
Indirect economic impacts	EC8	Development and impact of infrastructure investments and services provided primarily for public benefit through commercial, in-kind, or pro bono engagement.	●	56, 57
	EC9	Understanding and describing significant indirect economic impacts, including the extent of impacts.	●	26
Environmental (EN)				
Materials	EN1	Materials used by weight or volume.	●	38
	EN2	Percentage of materials used that are recycled input materials.	●	38
	EN3	Direct energy consumption by primary energy source.	●	35
Energy	EN4	Indirect energy consumption by primary source.	●	35
	EN5	Energy saved due to conservation and efficiency improvements.	●	36, 37
	EN6	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives.	●	23, 37, 42
	EN7	Initiatives to reduce indirect energy consumption and reductions achieved.	●	36, 37, 43
Water	EN8	Total water withdrawal by source.	●	38
	EN9	Water sources significantly affected by withdrawal of water.	●	38
	EN10	Percentage and total volume of water recycled and reused.	●	38

Performance Indicators		Application Level	Page	Notes	
Biodiversity	EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.	●	43	
	EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.	●	43	
	EN13	Habitats protected or restored.	●	43	
	EN14	Strategies, current actions, and future plans for managing impacts on biodiversity.	●	43	
	EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.	○	-	
Emissions, effluents and waste	EN16	Total direct and indirect greenhouse gas emissions by weight.	●	34	
	EN17	Other relevant indirect greenhouse gas emissions by weight.	●	35	
	EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved.	●	35	
	EN19	Emissions of ozone-depleting substances by weight.	●	39	
	EN20	NOx, SOx, and other significant air emissions by type and weight.	●	38	
	EN21	Total water discharge by quality and destination.	●	39	
	EN22	Total weight of waste by type and disposal method.	●	40	
	EN23	Total number and volume of significant spills.	●	39	
	EN24	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally.	○	-	
	EN25	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff.	●	39	
Products and services	EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation.	●	23, 41, 42	
	EN27	Percentage of products sold and their packaging materials that are reclaimed by category.	●	-	Sold products are used at the client company's processes and are partially reclaimed, but it is difficult to quantify and calculate the volume
Compliance	EN28	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations.	●	-	There has been no non-compliance with environmental laws during the reporting period
Transport	EN29	Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce.	●	43	
Overall	EN30	Total environmental protection expenditures and investments by type.	●	32	
Labor Practices and Decent Work (LA)					
Employment	LA1	Total workforce by employment type, employment contract, and region, broken down by gender.	●	50	
	LA2	Total number and rate of new employee hires and employee turnover by age group, gender, and region.	●	50	
	LA3	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by major operations.	●	53	
	LA15	Return to work and retention rates after parental leave, by gender.	●	53	
Labor/management relations	LA4	Percentage of employees covered by collective bargaining agreements.	●	54	
	LA5	Minimum notice period(s) regarding significant operational changes, including whether it is specified in collective agreements.	●	54	
Occupational health and safety	LA6	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs.	●	54	
	LA7	Rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities by region and by gender.	●	53	No injuries have occurred during the reporting period
	LA8	Education, training, counseling, prevention, and risk-control programs in place to assist workforce members, their families, or community members regarding serious diseases.	●	53	
Training and education	LA9	Health and safety topics covered in formal agreements with trade unions.	●	54	
	LA10	Average hours of training per year per employee by gender, and by employee category.	●	51	
	LA11	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings.	●	50, 51	
	LA12	Percentage of employees receiving regular performance and career development reviews, by gender.	●	52	
Diversity and equal opportunity	LA13	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity.	●	50	
Equal remuneration for women and men	LA14	Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation.	●	52	
Human Rights (HR)					
Investment and procurement practices	HR1	Percentage and total number of significant investment agreements and contracts that include clauses incorporating human rights concerns, or that have undergone human rights screening.	●	-	There were no significant overseas investments during 2011, and there is no data on the reporting period

Performance Indicators		Application Level	Page	Notes	
	HR2	Percentage of significant suppliers, contractors and other business partners that have undergone human rights screening, and actions taken.	●	-	There is no screening procedure for this indicator
	HR3	Total hours of employee training on policies and procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained.	●	54	
Non-discrimination	HR4	Total number of incidents of discrimination and corrective actions taken.	●	50, 52, 54	
Freedom of association and collective bargaining	HR5	Operations and significant suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and actions taken to support these rights.	●	54	
Child labor	HR6	Operations and significant suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor.	●	54	
Prevention of forced and compulsory labor	HR7	Operations and significant suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor.	●	54	
Security practices	HR8	Percentage of security personnel trained in the organization's policies or procedures concerning aspects of human rights that are relevant to operations.	●	18	
Indigenous rights	HR9	Total number of incidents of violations involving rights of indigenous people and actions taken.	○	-	
Assessment	HR10	Percentage and total number of operations that have been subject to human rights reviews and/or impact assessments.	●	50-54	
Remediation	HR11	Number of grievances related to human rights filed, addressed and resolved through formal grievance mechanisms.	●	54	
Society (S0)					
	S01	Percentage of operations with implemented local community engagement, impact assessments, and development programs.	●	42, 43, 55-57	
Local communities	S09	Operations with significant potential or actual negative impacts on local communities.	●	38-40, 43	
	S010	Prevention and mitigation measures implemented in operations with significant potential or actual negative impacts on local communities.	●	38-40, 43	
	S02	Percentage and total number of business units analyzed for risks related to corruption.	●	18	
Corruption	S03	Percentage of employees trained in organization's anti-corruption policies and procedures.	●	18	
	S04	Actions taken in response to incidents of corruption.	●	18	
	S05	Public policy positions and participation in public policy development and lobbying.	●	18, 34, 35, 41, 46	
Public policy	S06	Total value of financial and in-kind contributions to political parties, politicians, and related institutions by country.	○	-	
Anti-competitive behavior	S07	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes.	●	18	
Compliance	S08	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations.	●		There was no non-compliance with laws and regulations within the reporting period
Product Responsibility (PR)					
Customer health and safety	PR1	Life cycle stages in which health and safety impacts of products and services are assessed for improvement, and percentage of significant products and services categories subject to such procedures.	●	42	
	PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning health and safety impacts of products and services during their life cycle, by type of outcomes.	●		There was no non-compliance with laws and regulations regarding this indicator during the reporting period.
	PR3	Type of product and service information required by procedures, and percentage of significant products and services subject to such information requirements.	●	41	
Product and service labelling	PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes.	●		There was no non-compliance with laws and regulations regarding this indicator during the reporting period.
	PR5	Practices related to customer satisfaction, including results of surveys measuring customer satisfaction.	●	49	
	PR6	Programs for adherence to laws, standards, and voluntary codes related to marketing communications, including advertising, promotion, and sponsorship.	●	18	
Marketing communications	PR7	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship by type of outcomes.	●		There was no non-compliance with laws and regulations regarding this indicator during the reporting period.
Customer privacy	PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data.	●	49	
Compliance	PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services.	●		There was no non-compliance with laws and regulations regarding this indicator during the reporting period.

ISO 26000

Core subjects	Issues	Page
Organizational governance	Decision-making processes and structures	4
Human rights	Due diligence	54
	Human rights risk situations	54, 56
	Avoidance of complicity	46
	Resolving grievances	54
	Discrimination and vulnerable groups	50, 52, 54, 56, 57
	Civil and political rights	53, 54
	Economic, social and cultural rights	50, 51, 56, 57
	Fundamental principles and rights at work	50-54
Labour practices	Employment and employment relationships	50, 54
	Conditions of work and social protection	27, 52, 53
	Social dialogue	54
	Health and safety at work	53, 54
	Human development and training in the workplace	51
The environment	Prevention of pollution	38-40, 43
	Sustainable resource use	35-38
	Climate change mitigation and adaptation	33-37
	Protection of the environment, biodiversity and restoration of natural habitats	43
Fair operating practices	Anti-corruption	18, 47
	Responsible political involvement	18, 34, 35, 41, 46
	Fair competition	18
	Promoting social responsibility in the value chain	42, 46, 47
	Respect for property rights	-
Consumer issues	Fair marketing, factual and unbiased information and fair contractual practices	18
	Protecting consumers' health and safety	42
	Sustainable consumption	42
	Consumer service, support, and complaint and dispute resolution	N/A
	Consumer data protection and privacy	N/A
	Access to essential services	N/A
	Education and awareness	N/A
Community involvement and development	Community involvement	43, 55-57
	Education and culture	55-57
	Employment creation and skills development	26, 50
	Technology development and access	47
	Wealth and income creation	27
	Health	53, 56, 57
	Social investment	55-57

Third Party's Assurance Report

To the Readers of Honam Petrochemical Corporation 2011 Sustainability Report:

Foreword

Korea Management Association Registration inc (KMAR) has been requested by Honam Petrochemical Corporation (HPC) to verify the contents of its 2011 Sustainability Report (the Report). HPC is responsible for the collection and presentation of information included in the Report. Our responsibility is to carry out assurance engagement on specific information in the assurance scope stipulated below.

Our independence

With the exception of providing third party assurance services, KMAR is not involved in any other HPC business operations that are aimed at making profit in order to avoid any conflicts of interest and to maintain independence.

Assurance scope

HPC describes its efforts and achievements of the sustainability activities in the Report. The assurance process is designed to provide readers with the following information:

- **Assurance of the economic section:**

Reviews whether the financial performance data has been extracted appropriately from HPC's audit reports for 2011 financial statements and public notification data as defined in the performance and conclusion sections of the Report

- **Assurance of the environmental and social section:**

Reviews whether the environmental and social information included in the Report is presented appropriately.

"Appropriately presented" means that the actual data and original information are appropriately reflected in the Report with consistency and reliability. For the economic section, we based our evidence-gathering procedures on reasonable assurance. It is a higher level of assurance than that of the limited assurance in terms of characteristics and the extent of performed tasks.

Assurance standards

KMAR performed a Type 2, high level of assurance using AA1000AS (2008) as an assurance standard. We also used the International Auditing and Assurance Standards Board-issued "International Standard on Assurance Engagements (ISAE 3000): Assurance Engagements other than Audits or Reviews of Historical Financial Information" as additional guidelines.

Assurance process

In order to verify whether the contents of the Report are within an agreed scope of assurance and also verify the reported data and the internal processes for report preparation, KMAR's audit team visited the HPC's headquarter, Yeosu Plant, and Daeduk Research Institute and carried out an assurance engagement as follows:

- Reviewed systems and processes used in producing data
- Assessed internal documents and materials
- Interviewed people in charge of disclosed activities and performances
- Reviewed the GRI G3.1 application level which was used as a reporting framework

Conclusion

Based on the results we have obtained from material reviews, relevant department visits, and interviews, we had several discussions with HPC on the revision of the Report. We reviewed the Report's final version in order to confirm that our recommendations for improvement and our revisions have been reflected. When reviewing the results of the assurance, the assurance team did not find any inappropriate contents related to the compliance with the principle in the Report.

- **Inclusivity**

Inclusivity is the participation of stakeholders in developing and achieving an accountable and strategic response to sustainability.

- HPC is developing and maintaining stakeholder communication channels in various forms and levels in order to make a commitment to be responsible for the stakeholders. The assurance team did not find any critical stakeholder group left out during this procedure.

- **Materiality**

Materiality is determining the relevance and significance of an issue to an organization and its stakeholders. A material issue is an issue that will influence the decisions, actions, and performance of an organization or its stakeholders.

- HPC is determining the materiality of issues found out through stakeholder communication channels through its own materiality evaluation process, and the assurance team did not find any critical issues left out in this process.

- **Responsiveness**

Responsiveness is an organization's response to stakeholder issues that affect its sustainability performance and is realized through decisions, actions, and performance, as well as communication with stakeholders.

- The assurance team did not find any evidence that HPC's counter measures to critical stakeholder issues were inappropriately recorded in the Report.

The assurance result of the reliability of sustainability performance information is as follows:

- **Economic performance**

We compared the Report with HPC's 2011 Financial Statements and found that the financial data presented in the Report has been appropriately derived from 2011 Financial Statements.

- **Environmental and social performance**

We observed that the information found in the environmental and social sections has been appropriately presented. We did not discover any significant errors.

In addition, the assurance team checked that the HPC complied with the GRI G3.1 in preparing the Report, and that the Report fulfills the requirements of GRI application level 'A+'.

Recommendation for improvement

We hope HPC's publication of the Report is actively used as a communication tool with stakeholders and recommend the following for improvements.

- Efforts like as improvement of internal communications on sustainability management performance and procedure documentation should be made to develop the publication process of the sustainability report into more systematic process.
- It is critical to provide stakeholders with specific performance information through the sustainability report for effective communication. The Report covers a wide range of sustainability issues, but more efforts should be made to continually let HPC's commitment for sustainability management be known to stakeholders by providing more specific performance information.

July 5, 2012

CEO Ki Ho Park

K. H. Park



AA1000
Licensed Assurance Provider
000-129

KMAR

Korea Management Association
Registration inc.

Governing Rule for Ethical Management Practice

• Code of Ethics

Based on the corporate philosophy of creating prosperous future, we follow the management principle of customer oriented value creation, harmony between nature and mankind, sustainable development of the corporation, and building a happy corporate culture. We think, judge and act according to the management principle to fulfill our social responsibility, pursue the common interest of stakeholders, the country and mankind, while advancing as a world class company.

• Self Pledge

I incorporate the ethics guideline which is governed by the rule for ethical management practice as the standard of my value judgment in order to establish an ethically clean and transparent corporate atmosphere, and hereby pledge to observe the following:

1. Pursue both company's and personal advancement by establishing ethical values.
2. Contribute to the company actively and creatively with a commitment to transparent management.
3. Protect all the company's tangible and intangible properties above personal gain.
4. Do not partake in giving presents, loans or joint surety.
5. Prohibit rude behavior or sexual harassment to build a bright working atmosphere.
6. Provide equal opportunities to partner companies and bring mutual benefits through transparent transactions.
7. Do not abuse my superior position to make unfair demands or ask for money or treats.
8. Refrain from any action that can bring disadvantage or loss to the company.

Environment, Safety and Health Guideline

HPC, a reliable company that opens the door to the future, commits itself to the following in order to fulfill its responsibilities regarding the environment, safety and health at all the business sites both in Korea and abroad, the partner companies and employees:

- Recognize environment, safety and health as the most important element in management, and give them foremost consideration in all the processes including product development, production, use and disposal.
- Satisfy environment, safety and health standards that go beyond legal requirements.
- Continue to pursue low carbon management including pollution prevention, preserving resources and energy, restraining from using hazardous substances, reducing wastes and protecting global warming.
- Develop training programs on environment, safety and health based on RC activities.
- Communicate with stakeholders such as local residents, customers, shareholders and the government with an open mind about the impact of our production activities on the environment, safety and health to fulfill our social responsibilities.
- Establish targets to achieve the guidelines and continue improvement measures.

Major Awards in 2011

- | | |
|--|---|
| - Grand Prize at 2011 Labor-Management Culture | - Resource Recirculation Leading Corporation Award |
| - 2011 Grand Management Award (Human Resources Management) | - Outstanding Business Award at the Greenhouse Gas & Energy Target Management Scheme Awards |
| - Labor-Management Culture Award | - Incheon Award (Industrial Technology Sector) |
| - Outstanding Green Management Company | - National Volunteer Festival Excellence Award |
| - Designated as Green Corporation | - Korea Labor-Management Cooperation Award |
| - Entered the SRI (Socially Responsible Investment) Index | - Leading Corporation in Raw Material Sector at the CDP (Carbon Disclosure Project) Korea |
| - Best Safety Management Enterprise | - New entry in the DJSI (Dow Jones Sustainability Index) Asia Pacific |
| - Commendation for Preventing of Occupational Accidents and Protecting Workers | - Korea Social Responsibility Grand Prize |
| - 2011 Workplace Innovation Award (Grand Prize) | |
-

