SUSTAINABLE EXCELLENCE

2012 HYOSUNG Sustainability Report

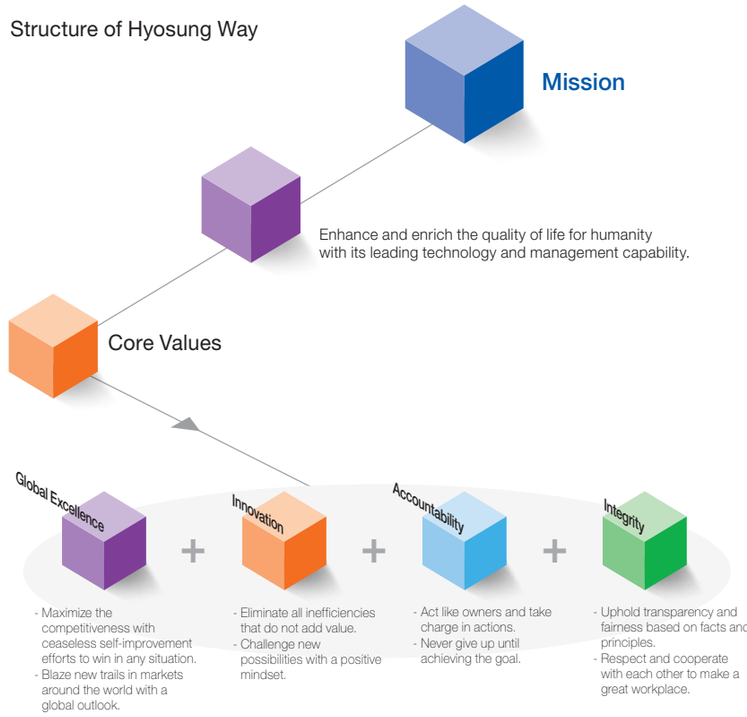
HYOSUNG

Hyosung Way

This has arrived for Hyosung to be a top-notch company excelling on the global stage.

To this end, every employee at Hyosung worldwide are committed to do their utmost to turn dreams into reality.

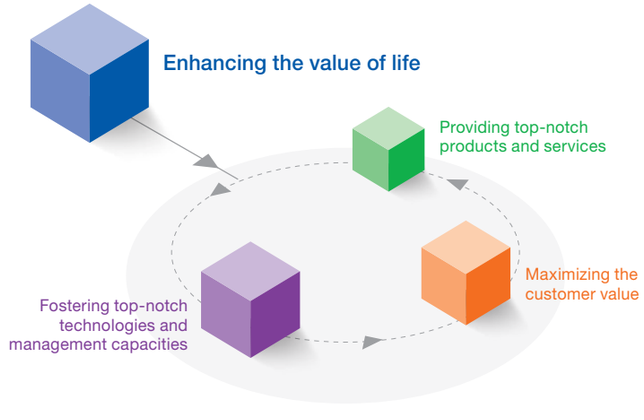
Structure of Hyosung Way



Mission

Hyosung is committed to enhancing and enriching the quality of life for humanity with its leading technology and management capability.

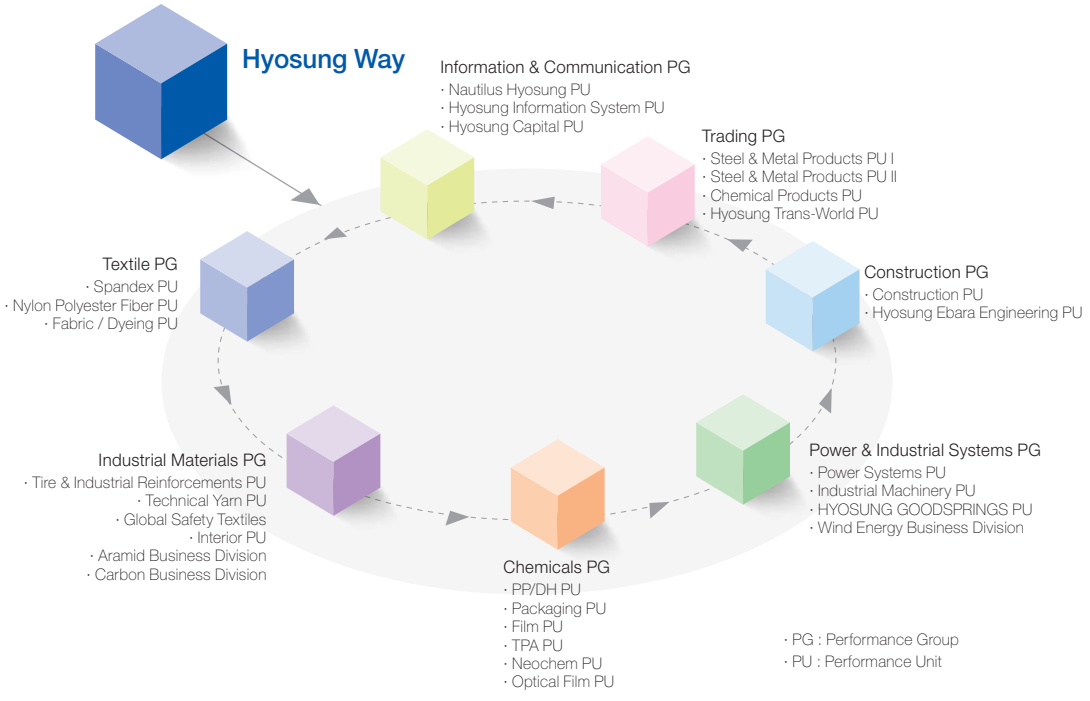
The rationale for Hyosung is to provide products and services that maximize customer value and enhance the value of life for the mankind by enabling ‘top-notch talents’ to exert ‘top-notch technologies’ and ‘management capacities’.




Trading PG
Trading PG
Industrial Materials PG
Industrial Materials PG
Power & Industrial Systems PG
Power & Industrial Systems PG
Construction PG
Construction PG
Information & Communication PG
Information & Communication PG
Textile PG
Textile PG
Chemicals PG
Chemicals PG

Hyosung Way-based Organization

Hyosung is making a leap forward as a global top-notch enterprise through technological prowess and services in the fields of textiles, industrial materials, chemicals, power & industrial systems, construction, trading, and information & communication driven by the management philosophy of Hyosung Way.



Contents

CEO's Message

"I will bestow my utmost efforts for sustainable development."

Greetings to distinguished stakeholders,

I would like to extend my heartfelt gratitude to all of you that support Hyosung at all times. It is a great joy to greet you with Hyosung's first Sustainability Report.

Marking our anniversary this year since its foundation in 1966, we have driven the economic growth of Korea, carrying on the history of challenge and achievement in different fields encompassing textiles, industrial materials, chemicals, power & industrial systems, construction, trading, information and communication.

All of us at Hyosung strive to fulfill the mission of Hyosung Way, that is, 'to lead a better life for mankind driven by top-notch technologies and management capacities' with commitment and a sense of pride. By doing so, we do our utmost to create a world where members share happiness and joy in a safe and convenient environment.

In order to achieve the goal, we will implement sustainable management to fulfill economic, environmental and social responsibilities, and therefore, actively initiate the following tasks this year:

We will serve as a company that is at the forefront of solving environmental problems.

Our passion for the reduction of emissions, energy saving and protection of the eco-system will never vanish in a bid to lead the efforts to settle environmental setbacks. In addition, we will ensure that eco-friendly management will become a new growth engine for Hyosung through New Renewable Energy projects and development of recycling products.

We will implement Win-Win growth and management in full swing.

We will abide by the regulations for Win-Win growth with partner companies, and extend benefits for financial and technological support for such companies.

We will practice ethical management based on principle-based management.

We will take the lead in practicing ethical management by complying with principles of fair competition based on principles-based management which we have steadily implemented and devise a guideline to act out principle-based management, which will serve as a code of conduct for our at Hyosung.

We will fulfill social responsibilities through continuous social contribution activities.

We will do our best with a genuine heart to become an enterprise that fulfills social responsibilities by continuously carrying out social contribution activities for the disadvantaged.

Distinguished stakeholders,

Hyosung is ready to gain a greater trust and love from diverse stakeholders including shareholders, customers and partner companies by publishing this Sustainability Report.

I would like to thank you for your consistent interest and support and Hyosung will become an enterprise that strengthens communication as well as obtain opinions from you and continues to grow.

I sincerely request your great interest and encouragement.

Thank you.

May 2013
Hyosung Corporation
Vice Chairman **Sang-Woon Lee**

Global Network

Hyosung has a global network consisting of 39 manufacturing entities, 9 trading entities, and 18 trading offices, totaling to over 70 operation centers globally, including the US, Asia, and Europe; through which we are pursuing "Value Management through Global Excellence."

As of December 31, 2012

JIAXING (China)


GUANGDONG (China)

NANTONG (China)

ZHUHAI (China)


MAULBURG (Germany)


HANNER (Germany)


BISSEN (Luxemburg)


COLMAR-BERG (Luxemburg)


Czestochowa (Poland)


SIGHISOARA (Romania)

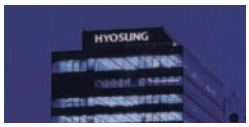

DURBAN (South Africa)


ISTANBUL (Turkey)

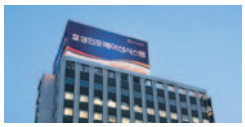

Rayong (Thailand)

HOCHIMINH (Vietnam)

Domestic Sites



HQ (Seoul)


Cheongdam Office (Seoul)


Bangbae Office (Seoul)


Hyosung R&D Business Labs. (Anyang)


NEW YORK (U.S.A)

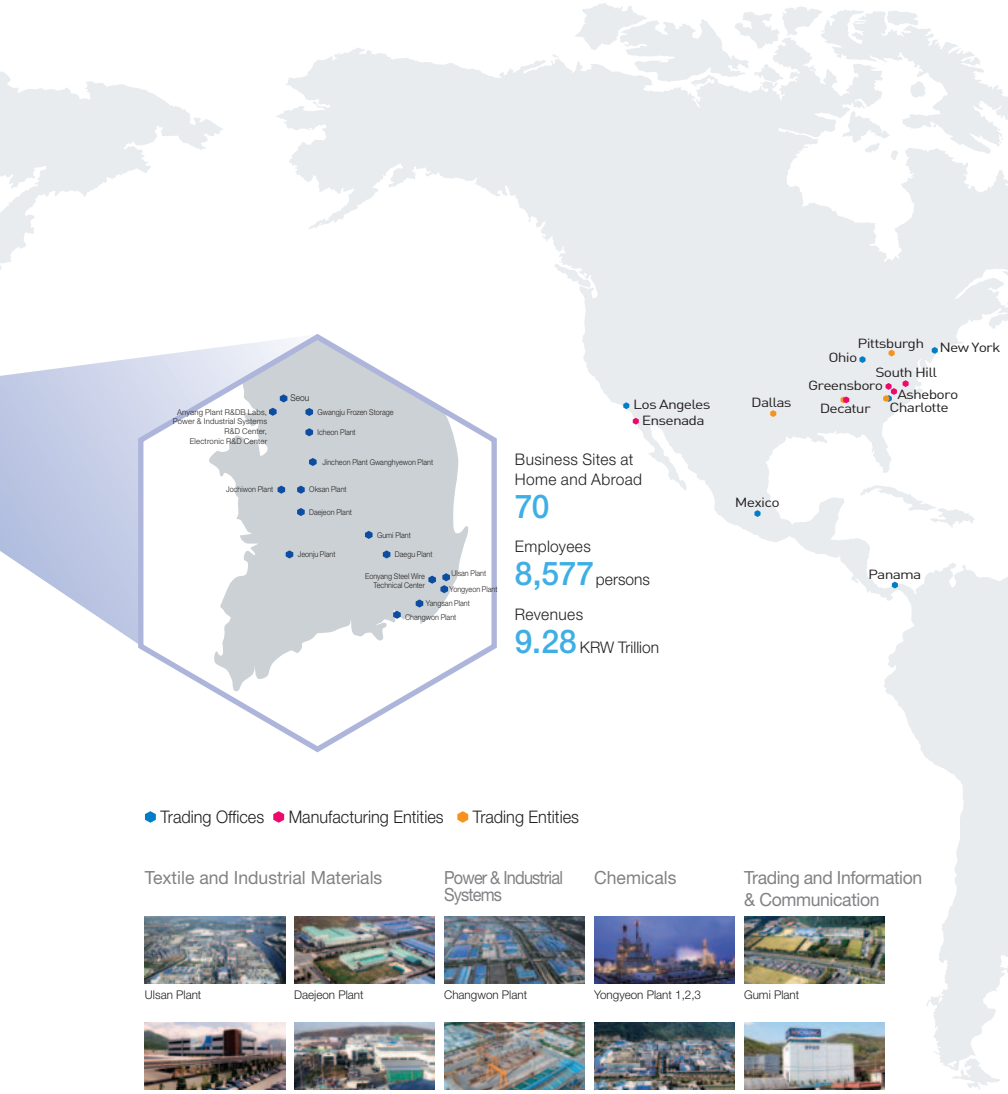

PITTSBURGH (U.S.A)


DALLAS (U.S.A)


ASHEBORO (U.S.A)


South Hill (U.S.A)


DECATUR (U.S.A)



Business Sites at Home and Abroad
70

Employees
8,577 persons

Revenues
9.28 KRW Trillion

● Trading Offices ● Manufacturing Entities ● Trading Entities

Textile and Industrial Materials

Ulsan Plant

Daejeon Plant

Gumi Plant

Daegu Plant


Anyang Plant


Jeonju Plant


Eonyang Plant

Power & Industrial Systems

Changwon Plant

Jochiwon Plant


Changwon Plant of HYOSUNG GOODSPRINGS

Chemicals

Yongyeon Plant 1,2,3

Gumi Plant


Gwanghyewon Planta

Trading and Information & Communication

Gumi Plant

Gwangju Frozen Storage


ENSENADA (Mexico)


SANTA CATARINA (Brazil)

Business Areas

Hyosung is growing into a global leader with its excellent technologies and services in the business sectors of textiles, industrial materials, chemicals, power & industrial systems, construction, trading, and information & communication. We are seeking for sustainable growth in each field through the development of new products, eco-friendly products, efficiency in processes, high-quality products, customer satisfaction activities and quality assurance.

Guided by our management philosophy of "Global Excellence," we endeavor to provide higher value for our stakeholders at home and abroad, while generating financial achievements through sustainable management in the economy, society and environment.

Textiles

Hyosung touts a comprehensive textile brand lineup including Creora, Aerocool, and Askin – the largest in scale and highest in quality. Specifically, Hyosung's textile products include "creora®," a spandex brand chosen by world-renowned lingerie, swimsuit, and nylon makers. We produce and supply nylon, polyester yarns, fabric, and dyed products.

Industrial Materials

Hyosung produces industrial yarn used in all industrial fields including automobile manufacturing, civil construction, agriculture, military, transportation and sports. We are leading the global market based upon our No.1 global products, that is, tire cords, automotive seatbelt yarns, and airbag fabric.

Chemicals

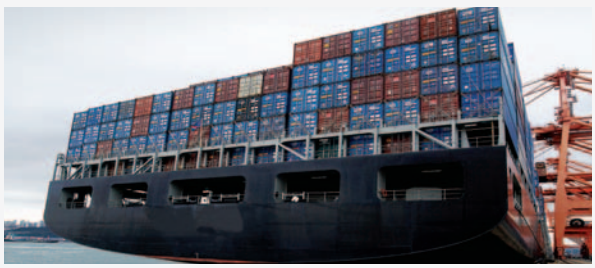
Hyosung manufactures a variety of chemical products including TPA exported to Asia, Europe, and the Middle East as well as various chemical products such as PP, films, Fluorine gas, and PET bottle.

Power & Industrial Systems

As a world-class manufacturer and exporter of heavy electrical equipment to the Americas, Middle East, Europe and Asia Hyosung Power & Industrial Systems produces core products in industrial energy generation including transformers, circuit breakers, and electric subassembly units as well as electric motors, gearbozes, generators and industrial pump production which drives the Korean economy.

Construction

We are participating in a variety of fields in the construction industry covering residential development, redevelopment & reconstruction, business & commercial facility development, civil & environmental engineering, SOC, and construction materials. We are managing our business ecologically to ensure the coexistence of man and nature by consistently pursuing R&D and investment efforts in water treatment, waste disposal, and air pollution prevention facilities.



Trading

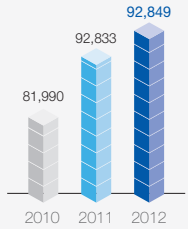
Our Trading Performance Group connects corporations and consumers through our distribution and logistics business centered on steel and metal products and the chemical industry. With a global network across 50 countries including China, Taiwan, Southeast Asia, Europe, and South America, our marketing services are based on accurate information in the international market.

Information & Communication

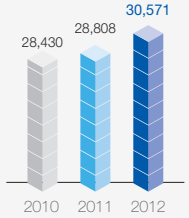
Having led Korea's IT infrastructure and financial service automation, our Information & Communication Performance Group is providing automated financial devices, mid- and large-sized data storage systems, software solutions, and IT services leading the advanced information age.

Creation and Contribution of Economic Value

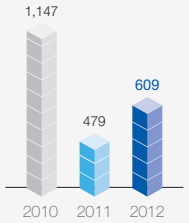
Sales Volume (Unit: KRW 100 Million)



Total Stockholders' Equity (Unit: KRW 100 Million)



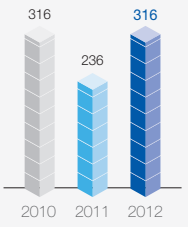
Corporate Income Tax Paid (Unit: KRW 100 Million)



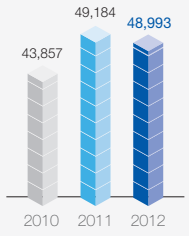
Hyosung Corporation

Sustainable Growth Engine

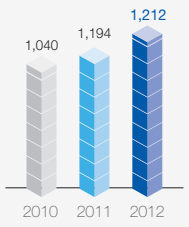
No. of Patents Applied and Issued [1] (Unit: No. of Cases)



Production Volume [2] (Unit: KRW 100 Million)



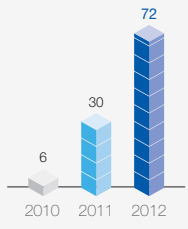
R&D Expenses [3] (Unit: KRW 100 Million)



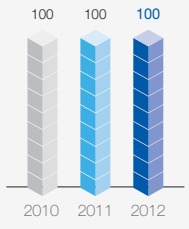
[1] No. of patents applied and registered as of December 31, 2012 for Hyosung R&D Business Labs., Power & Industrial Systems R&D Center and Steel Wire Technical Center
[2] For Hyosung Corporation (total for textile, industrial materials, chemicals and power & industrial systems)
[3] For Hyosung Corporation

Partners for Win-Win Growth

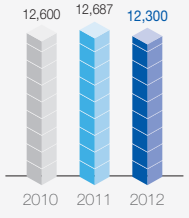
No. of Training Hours per Employee (Unit: Hour/Person)



Return Rate after Taking a Maternity Leave (Unit: %)



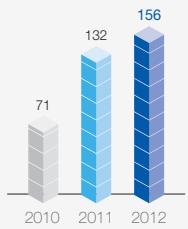
Total No. of Hours of Employees' Social Contribution (Unit: Hour)



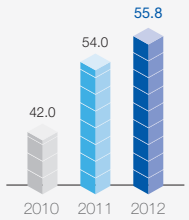
Hyosung Corporation

Establishing a System for Green Management

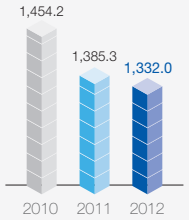
Amount of Investment in the Environment [1] (Unit: KRW 100 Million)



Waste Recycling Rate [2] (Unit: %)



GHG Emissions [3] (Unit: 1,000 tCO_2e)



[1] Waste treatment cost, education/training cost, environmental certification acquisition cost, depreciation of the related equipment, maintenance, materials management, labor cost, etc.
[2] Volume of recycled waste/Total waste emissions X 100
[3] GHG emissions upon the third-party verification

Governance

Composition and Management of the Board of Directors

Composition of the Board of Directors

As Hyosung's highest decision-making body, the Board of Directors strives to realize improvement in governance and transparency in corporate management. The Board of Directors consists of 10 Directors, that is, 4 Inside Directors and 6 Outside Directors in compliance with the Corporate Governance Standards and the Articles of Association. Information on individual career backgrounds of Inside and Outside Directors, and activities of the Board are disclosed on the website.

Independence of the Board of Directors

Outside Directors consist of experts capable of providing expertise and making independent resolutions when critical decisions are made related to corporate management and administration of business affairs. In order to fully utilize the expertise of Outside Directors and fulfill the roles of checks and balances for the management, the Board of Directors strives for securing independence and professionalism. Moreover, a majority of Directors in the Board are Outside Directors to secure independence of the Board and comply with the relevant laws.

Board of Directors

Type	Name	Job Title	Affiliated Committees
4 Inside Directors	Suck-Rai Cho	Chairman and Chief Executive Officer	
	Sang-Woon Lee	Vice Chairman and Chief Executive Officer / Chair of the Board of Directors	Administration Committees, Director Candidate Recommendation and Evaluation Committees
	Hyun-Joon Cho	President	Administration Committees
	Yoon-Taik Chung	President	Administration Committees
6 Outside Directors	Ki-Eun Bae	Chairman of Hwajin Industry	Audit Committee, Director Candidate Recommendation and Evaluation Committees
	Sang-Hee Kim	Attorney-at-Law, Kim Sang Hee Law Office	Audit Committee, Director Candidate Recommendation and Evaluation Committees
	Min-Koo Han	Professor, Electirical Engineering Seoul National University	Director Candidate Recommendation and Evaluation Committees
	Young-Won Ha	Professor, Business Administration Sogang University	Audit Committee
	Byung-Doo Sohn	Executive director of Korea Institute of S&T Evaluation and Planning	
	Byung-Ju Lee	Advisor for Bae, Kim & Lee LLC	

* As of the end of March, 2013

Board of Directors Committees

Hyosung strengthens the functions of checking and supervising the management of the Board of Directors by regularly organizing its meetings and operating individual committees, while being committed to solidifying the soundness of governance.

There are 3 committees under the Board of Directors, that is, Administration Committees, Audit Committee and Director Candidate Recommendation and Evaluation Committees. Outside Directors are recommended at the Director Candidate Recommendation and Evaluation Committees consisting of over 3 Outside Directors, and appointment of recommended Directors at the shareholders' meetings is transparently and legitimately decided.

Committees under the Board of Directors

Titles of Committees	Roles	Composition
Administration Committees	Deciding on main business management matters through regular meetings	3 Inside Directors
Audit Committee	Authority to audit business of the Company. Authority to request reports on the status of the businesses of the company and to investigate the status of properties of the company	3 Outside Directors
Director Candidate Recommendation and Evaluation Committees	Recommendation of outside director and auditor candidates	3 Outside Directors 1 Inside Directors

*Committees under the Board of Directors (As of the end of March, 2013)

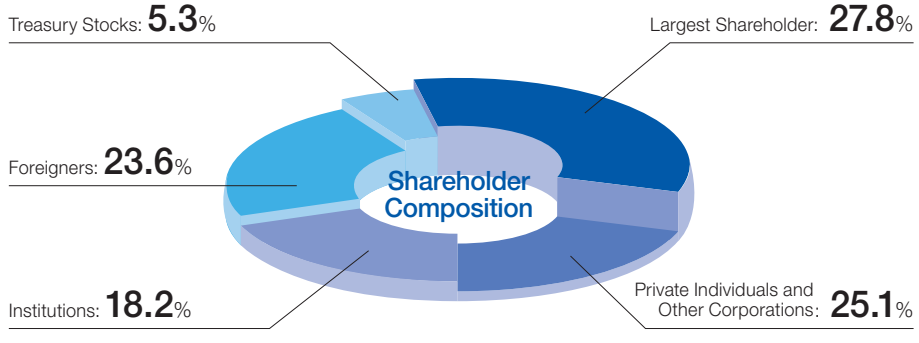
Activities and Evaluation of the Board of Directors

Hyosung conducts evaluation on Directors' expertise related to Hyosung's business and technologies and whether the Board of Directors is engaged in activities or not, with the results of the evaluation discussed at the Board meetings. Remuneration for the Board are offered fairly and transparently through the resolutions of the general meeting of shareholders based on these evaluation results.

Status and Ownership Structure of Shareholders

The number of stocks issued by Hyosung as of the end of March 2013 is 35,117,455(common stocks for all the stocks issued), and the shareholders consist of the largest shareholders, private and institutional investors and foreign investors.

Shareholder Composition



Status of Stocks Issued

	End-2010	End-2011	End-2012
Total No. of Stocks to be Issued	150 million common stocks, 50 million Different Classes of Shares	150 million common stocks, 50 million Different Classes of Shares	150 million common stocks, 50 million Different Classes of Shares
Price per share	KRW 5,000	KRW 5,000	KRW 5,000
No. of Stocks Issued	35,117,455 common stocks	35,117,455 common stocks	35,117,455 common stocks
Changes in Shareholders' Equity	KRW 175,587 million	KRW 175,587 million	KRW 175,587 million

Risk Management

Operation of Risk Management

Hyosung defines risks to encompass market uncertainties and risks and crises at home and abroad, and conducts risk management activities preemptively. Risk-related information is conveyed to all divisions and staff for constant risk management throughout management activities. In order to discover if tasks were handled in compliance with Hyosung Way, the related content is written in internal documents in order to reflect the decision making for business operations.

Financial Risk Management

Risk is managed according to risk management policies to manage diverse finance risk factors that might influence management activities. The financial risk management units are the Financial Strategy Team and the Trade Finance Team which are in charge of ex/import operations and F/X management.

Financial risks are managed through performance analysis such as fluctuations of exchange risks for risky assets as well as prediction of market risks in order to secure security for financial structures and manage risks properly. Moreover, efforts are underway to secure financial soundness through prediction, management, analysis, reporting and response for market risks.

Definitions of Risk Types

Classification	Description
Financial Risks	Risks that might influence the financial status e.g. liquidity, interest rate, stock prices and changes in exchange rate
Operational Risks	Risks in operation due to inappropriate usage of labor, and errors in work or systems
Legal Risks	Risks resulting from obscurity in contracts, lack of understanding of provisions in contracts or lawsuits
Catastrophe Disaster Risks	Risks that might occur due to accidents from environmental pollution, accidents due to breakdown of facilities on business sites and occurrence of disasters
Reputational Risks	Risks of the corporate image being tarnished due to false reports or negative communication
Ethical Risks	Ethical risks in unfair transactions or illegal transactions that might occur in transactions of inside and outside stakeholders including staff and partner companies
Security Risks	Risks of cyber terrorism from outside or the possible loss of information due to the leakage of internal data

Non-Financial Risk Management

Various non-financial risk factors are preemptively managed by the relevant divisions. Each division conducts measuring, evaluation, reporting and management of risks, and strives to prevent reoccurrence of risks through feedback.

Each division conducts risk control and response through such systematic activities. Issues that might occur due to contractual risks such as obscurity of contract terms, violation of business-related laws and lawsuits are managed and controlled by the Legal Affairs Team.

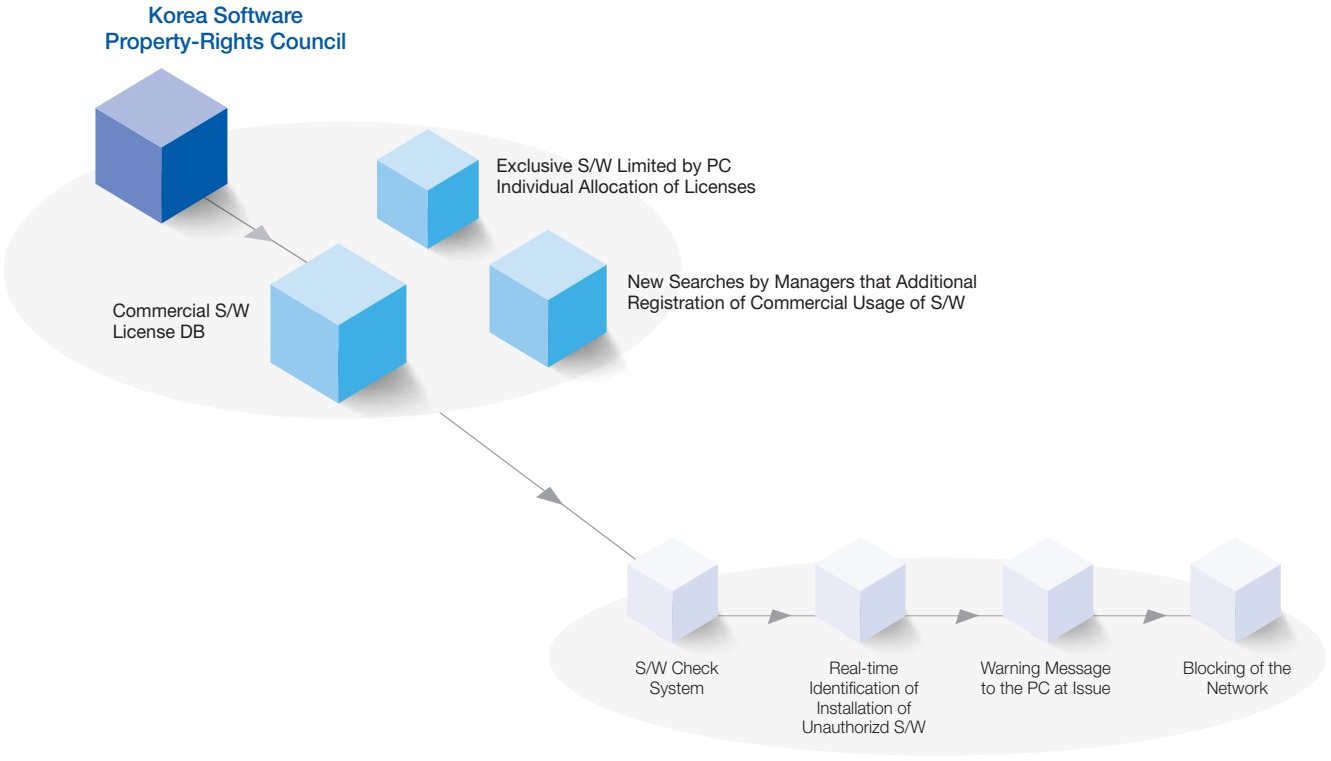
The Communication Team and Media PR Team identify and appropriately respond to reputational risks, whereby Hyosung's corporate reputation or trust might be tarnished, while doing the utmost to prevent risks in advance. In order to prevent unfair transactions and risks of corruption and irregularities, the Win-Win Planning Team, Audit Team and Compliance & Risk Management Team conduct training for different divisions for risk management.

Management of Information Security Risks

Information security has recently been heavily emphasized in threefold – managerial, physical and technological security to strengthen the security system. Intrusion from outside factors, and breach of information are addressed in different steps including prevention, threat detection, monitoring and tracking so that online and offline security management can be complemented and improved for stronger information security.

Moreover, software compliance activities are conducted company-wide to make appropriate responses to intellectual property rights issues. For instance, we adopted S/W check systems and related license DB, and constantly carried out S/W checks for in-house PCs so that staff can have a higher awareness about the importance of IPR.

Software Compliance Scheme



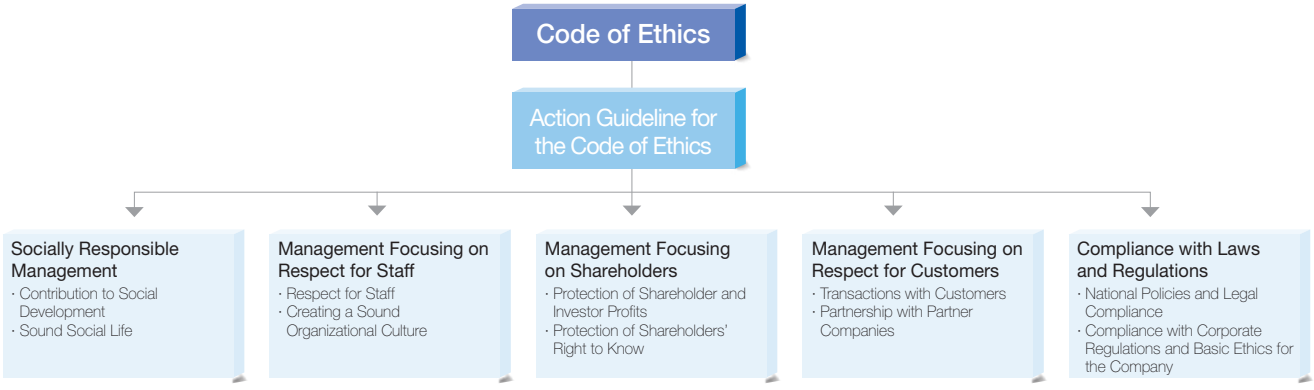
*S/W : Software

Ethical Management

Ethical Management

Hyosung has implemented the 'Code of Ethics' for the purpose of transparent management based on honesty and trust, and we are committed to leading a clean corporate culture throughout the management sector including accounting, HR and purchasing. The Code of Ethics and its detailed Action Guidelines prescribe standards and rules with respect to the five key aspects for all employees to follow in decision-making and ethical conduct. The main goal of the Code of Ethics is to set forth the fundamental guidelines for ethical management and raise awareness regarding ethical `management for all members of Hyosung while providing practical guidelines through the Action Guideline for the Code of Ethics.

Code of Ethics and the Action Guideline for the Code of Ethics



Ethical Management Guideline

We encourage our members to actively participate in ethical management through continuous education on principles of ethical management and importance of compliance with the Monopoly Regulation and Fair Trade Act and Win-Win growth with partner companies. To this end, we devised the Ethical Management Guidelines (8 major codes of actions), which prescribe do's and don'ts for our members in conducting daily business operations and also define what constitutes proscribed unethical acts, while providing specific examples, exceptions to the rules, and instructions on how to handle specific situations.

Promotion and Reporting of Ethical Management

In order to achieve the aforementioned ethical management in practice, we undertake various activities to strengthen corporate ethics and raise awareness among our members, which include the following: our company website's sections on the Code of Ethics and the Action Guideline for the Code of Ethics; periodic announcements and encouragements addressed to our members to promote ethical management and designation of the Ethical Management Day. For instance, Hyosung's Power & Industrial Systems Performance Group operates "Help-Line" whereby violations of ethical management can be reported upon their occurrence. Reporting can be done via e-mail, telephone, in writing, or in-person interviews, and the identity of whistleblowers is always protected. Once violation cases are identified through reviews, the cases are resolved through meetings with the persons concerned and hearing before the Disciplinary Committee.

Expansion of Ethical Management

As it has been our goal to solidify and increase our commitment to ethical management, we have adopted various measures to achieve that goal, particularly since 2007. Efforts are underway to strengthen ethical management among partner companies as well as our members at Hyosung on multiple fronts: the Audit Team audits corruption cases of staff and whistleblowing cases; the Legal Team hosts various ethics training sessions and seminars; and the Win-Win planning Team expands ethical management to partner companies. By adopting the Compliance Program, we plan to strengthen compliance management by stipulating the Compliance Standard into the corporate culture, and appointing compliance officers, thus bolstering compliance management to a greater extent.

Interview of an Executive of the Legal Affairs Team

We ensure that our members can comply with laws and regulations through ethical management, and engage in business activities in a transparent and fair manner. Moreover, various divisions strive for staff's ethical management and expansion of the Compliance Program. We exert all our efforts to execute compliance management for staff and partner companies by requesting a pledge of ethics and by compensation for whistleblowers who report violations. We plan to initiate corporate management that is more transparent and trustworthy by expanding ethical management activities.

Stakeholder Classification and Communication Channels

Our communication activities with each stakeholder group flourish in diverse business fields. Each business division identifies major interests of stakeholders and makes active responses by utilizing direct and indirect methods.

Staff

The number of staff at Hyosung is 8,577 (as of end-2012) that are driving forces for the sustainable growth and development of Hyosung. We seek to share our corporate visions, contribute to corporate growth by developing and strengthening individual capacities, and realize corporate goals driven by compensation for fair evaluation.

Communication Channels

- Bulletin Board for Staff
- HR Board
- Junior Board
- Intranet, etc.

Customers

Our customers consist of corporate customers such as companies and local governments that purchase our products and use our services, and private customers. We seek to enhance the quality of service of products and services offered through management activities, including strengthening the product quality and securing stability, while pursuing mutual growth through activities to raise the customer value.

Communication Channels

- Company Website
- Customer Satisfaction Survey
- Various Exhibitions
- Management Disclosure Scheme, etc.

Partner Companies

Our partner companies include all those that supply raw materials and other materials, or provide special services, and are in transactions with us. We seek to facilitate business relationships by offering raw materials and services, seek for profit-making through fair transactions, and expect for forming partnerships for Win-Win growth with partner companies.

Communication Channels

- Seminars with Partner Companies
- Exchanges for Performance Sharing
- System to Support Technology Cycles
- Portals of Partner Companies, etc.
- Exhibitions Taking Part Jointly with Customer Companies

Shareholders and Investors

Our shareholders and investors making investment in Hyosung refer to individual and institutional investors that own the stocks or bonds issued by Hyosung. We expect to generate profits in a sound manner as Hyosung grows through investment based on our long-term growth potentials.

Communication Channels

- Corporate IR Activities
- Management Disclosure System
- Board of Directors, Shareholders' Meeting
- Business Report, etc.

Other Stakeholders

Our stakeholders include the communities including Seoul where Hyosung's HQ is located, and those where business sites are located, governments that propose legal standards on policies and activities that companies must abide by, various NGOs and media organizations. We seek to contribute to the regional economy through job creation and procurement, and expect for development and corporate responsibilities through Hyosung's active community engagement.

Communication Channels

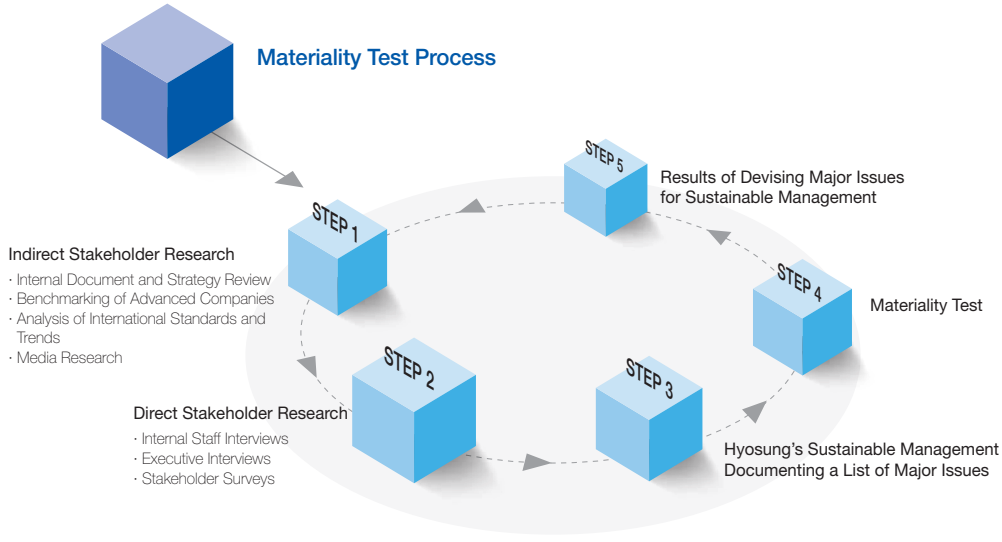
- Corporate IR Activities
- Management Disclosure System
- Board of Directors
- Shareholders' Meeting
- Business Report, etc.

Evaluation of Materiality and Issue Reporting

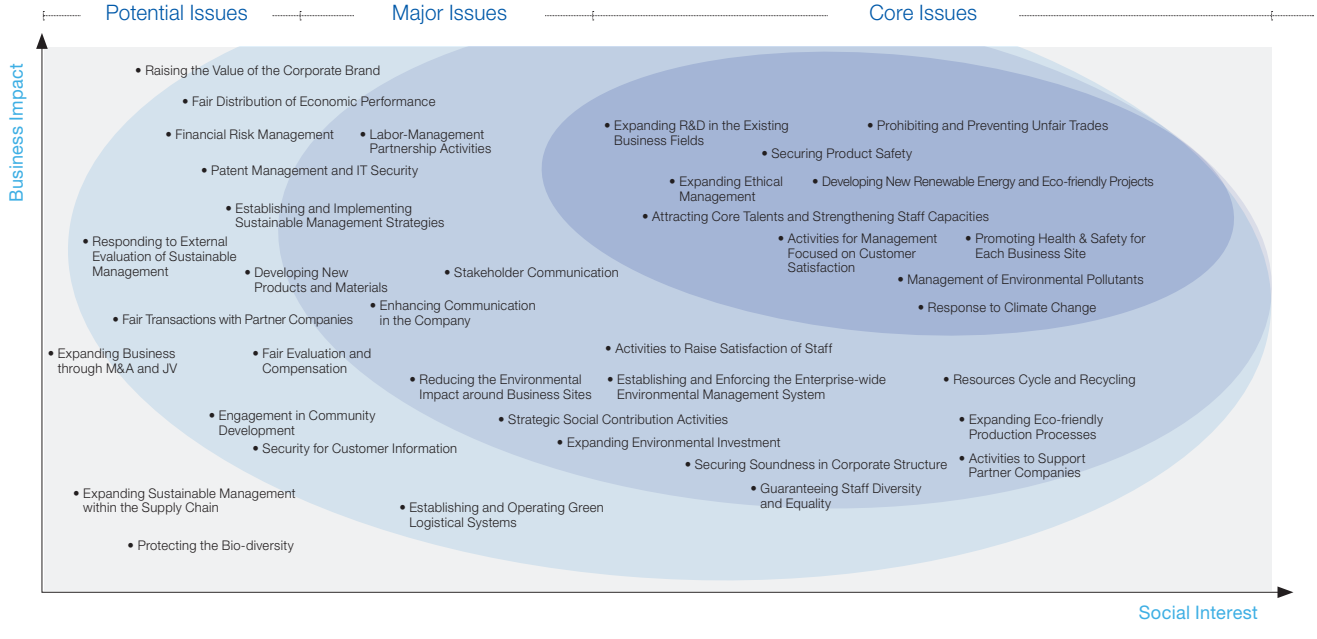
Evaluation of Materiality

We established a major issue list according to the process through the 'Materiality Test' to evaluate the materiality of issues on sustainable management.

The issues devised had their materiality evaluated based on the following: a) their impact on the business and internal strategic policies; and b) common issues in the industry, acts and interests of stakeholders and the impact and interest of the society. Methods for the materiality test complied with the Five-Part Materiality Test under the AA1000SES, the standard for stakeholder engagement.



Results of Evaluating Materiality for Sustainable Management

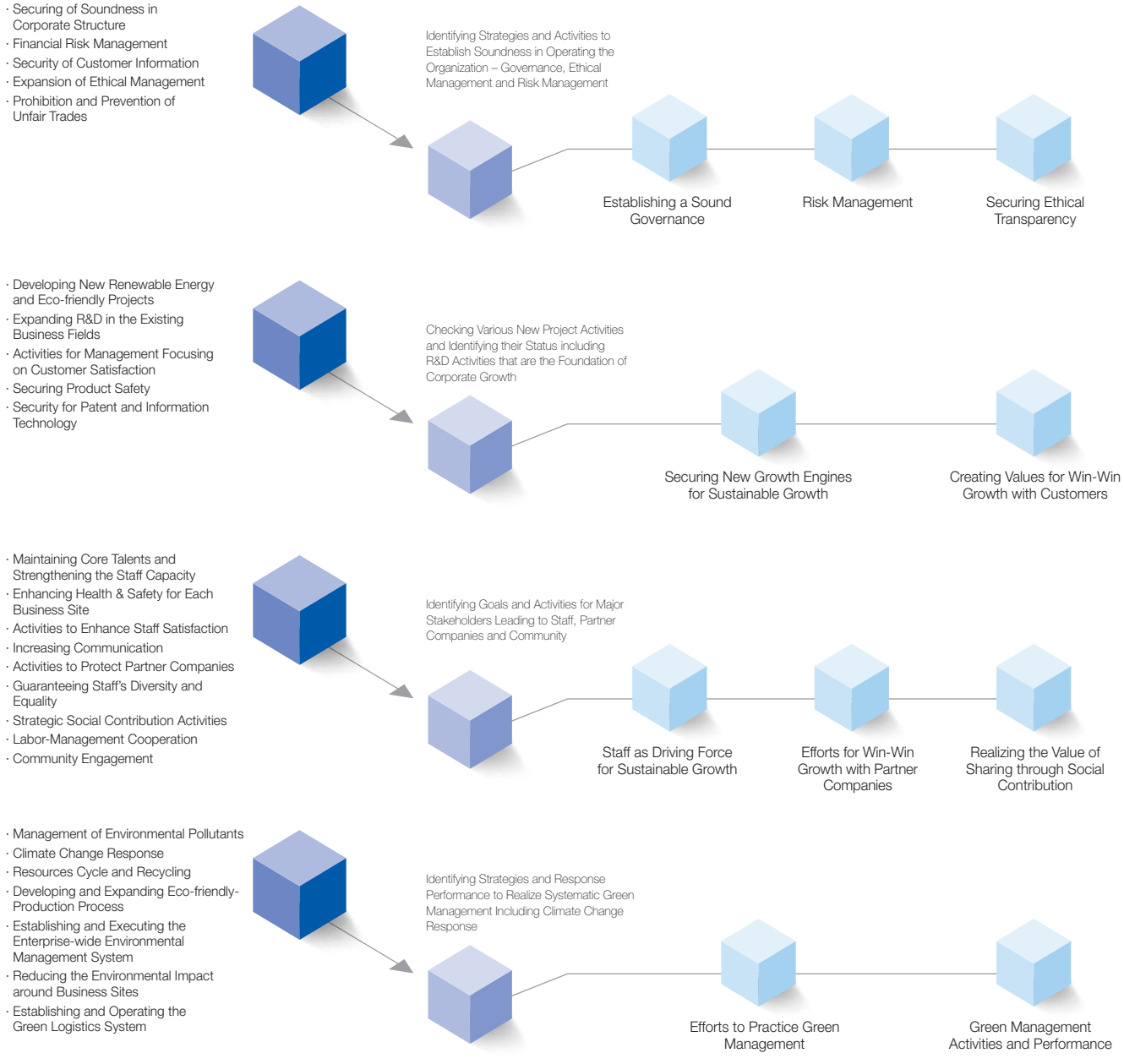


Reporting of Issues on Sustainable Management

Issues devised through the materiality test process are evaluated according to the business impact and social interest, and are classified into core issues, major issues and potential issues according to the level of materiality. We classified the issues on sustainable management according to their features – economic, social and environmental.

We reported on sustainable management activities in the economic, social and environmental sectors enterprise-wide that have been carried according to Hyosung's strategies and goals, and specifically documented specific performance of each business site under such strategic directions for each business sector.

Results of Evaluating Major Issues on Sustainable Management



Hyosung's Sustainability Sectors

Sustainable Growth Engines

Partners for Win-Win Management

Establishing a Green Management System

We believe that sustainable management we seek for is to cater to expectations and demands of diverse stakeholders, and fulfill economic, social, and environmental responsibilities.

We secure new growth engines through sustainable products and technologies, thus fulfilling economic responsibilities. In addition, staff can grow along with the organization, and we seek for a balanced growth with community, which is the rationale for Hyosung as well as with partner companies.

Moreover, green management activities are systematically implemented for response to climate change and environmental protection whose importance is ever growing.

Sustainable Growth Engines

· Securing New Growth Engines for Sustainable Growth
· Creating Values for Win-Win Growth with Customers

Establishing a Green Management System

· Striving to Practice Green Management
· Activities and Performance of Green Management

Partners for Win-Win Management

· Staff as Drivers for Sustainable Growth
· Striving for Win-Win Growth with Partner Companies
· Realizing the Value of Sharing through Social Contribution

1. Sustainable Growth Engines
Disclosures on Management Approach

1 Commitment

We strive to implement sustainable growth by conducting R&D endlessly to lead the global market and secure product competitiveness.

2 Governance

We do the utmost to secure expertise in research and raise technological prowess by forming research centers including Hyosung R&D Business Labs., Power & Industrial Systems R&D Center, Electronic Communication Research Center and Steel Wire Technical Center.

3 Progress in 2012

Hyosung develops and commercializes the products of high quality and high function in each business sector with the R&D Committee. Hyosung decides directions of the R&D strategies and raise the efficiency of R&D by holding the R&D Committee, attended by the top management.

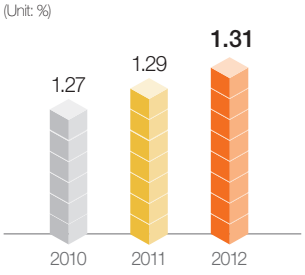
4 Goal

Our aim is to secure technologies in new renewable energy sectors such as wind energy, solar energy and fuel cells. Also, we are focusing on leading the global market by developing eco-friendly products and products of high functions and efficiency.

Hyosung's 2012 Sustainable Management Performance Data

R&D Cost Against Revenues

(Unit: %)



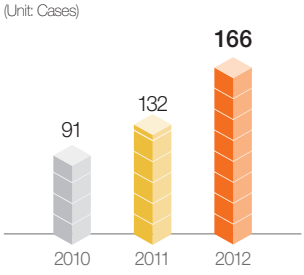
1.31 %

Ratio of R&D Cost to Revenues in the Year

We strive to realize sustainable growth by securing new growth engines, while expanding and strengthening investment in R&D on end.

No. of Patents Registered

(Unit: Cases)



166 Cases

No. of Patents Registered as of December 31, 2012 for Hyosung R&D Business Labs., Power & Industrial Systems R&D Center and Steel Wire Technical Center

We own and expand intellectual property rights including technologies of generic, new and green through endless R&D within Hyosung R&D Business Labs., Steel Wire Technical Center and Power & Industrial Systems R&D Center.

Securing New Growth Engines for Sustainable Growth

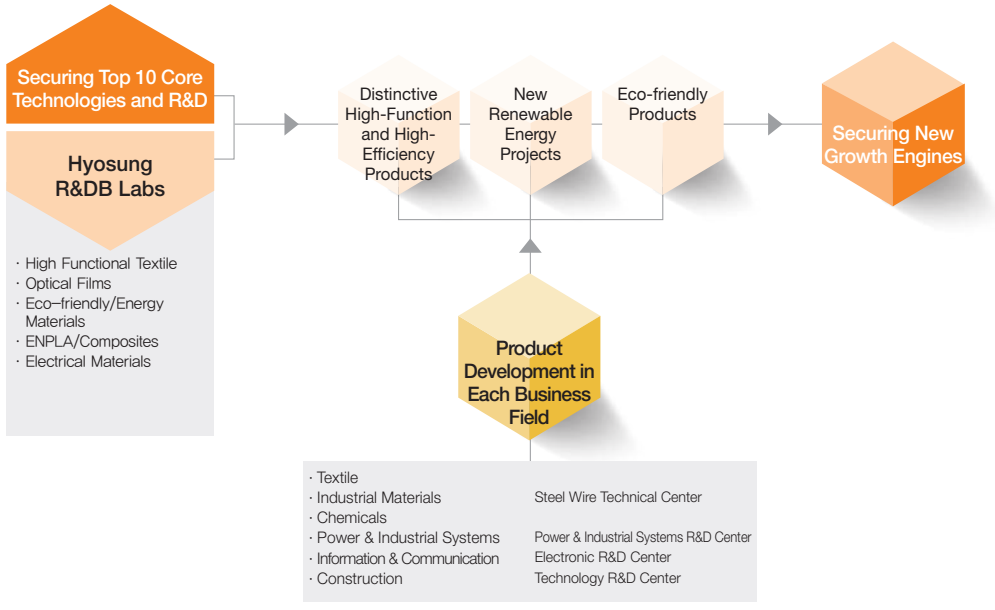
Striving to Secure New Growth Engines

We have continuously conducted R&D upon our launch of Korea's first private R&D center.

Hyosung R&D Business Labs. set a strategic direction for the future, which is called 'Vision 2020'.

We established the growth engines for the future based on 5 major product categories–high functional textile, optical films, eco-friendly/energy materials, ENPLA/composites and electronic materials. We set 10 core technologies and integrated them into 5 research groups in order to secure R&D efficiency. Meanwhile, directions for R&D and decision makings are made by the R&D Committee attended by top management. Each business sector produces differentiated products of high function and efficiency and we strive to secure new growth engines by expanding new renewable energy projects and producing eco-friendly products.

System to Secure New Growth Engines



R&D Committee

We do the utmost to conduct efficient and professional R&D by launching the R&D Committee in 2006. It is held twice a year regularly and attended by top management; include the CEO, COO, CTO, and the leaders of PG/PU in each business sector. They raise the efficiency of R&D by deliberating, adjusting and deciding on strategies, performance and investment on R&D.

Roles and Performance of Hyosung R&D Business Labs.

Roles of Hyosung R&D Business Labs.

Hyosung R&D Business Labs. was established in 1971 as the first private research lab in Korea. It has expanded research areas to the raw materials and products of chemical and new materials based on the R&D technical skills in synthetic textiles, the driving force for the industrial growth in Korea. By doing so, efforts are underway to secure sustainable growth engines of Hyosung.

Research of Hyosung R&D Business Labs.

Hyosung R&D Business Labs. strives to secure research technologies for new promising business serving as the foundation for corporate growth, and commercialize them in an early stage by developing new products and processes.

In 2011, we reorganized into 5 research groups based on 10 core technologies, that is, textile, polymerization, films, functional materials and electronic materials.

We are focusing on strengthening the existing business fields and creating new businesses.

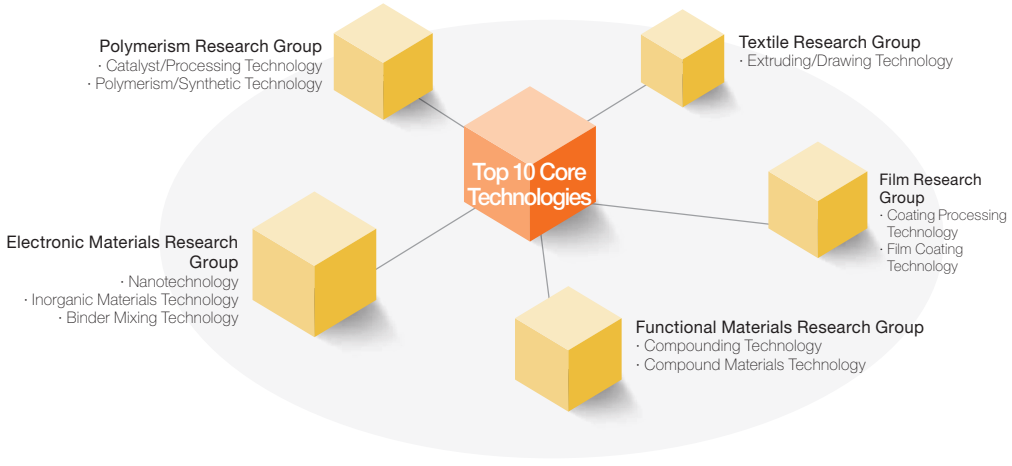
Performance and Plans of Hyosung R&D Business Labs.

Hyosung R&D Business Labs. enhances its R&D activities in order to secure its 10 core technologies and 80 patents were registered in 2012 as a result.

In addition, several renowned awards were acquired including the Silver Prize at Korea Technology Awards, the Jang Yeong Sil Award and the National Green Tech Award.

We plan to put more efforts on R&D.

Top 10 Core Technologies



Interview of the President of Hyosung R&D Business Labs.

Hyosung R&D Business Labs. put in place the Vision 2020 to become the “Technology Leader that Creates the Future with No.1 Technology” and established and initiates medium-and long-term strategies to achieve the goal. Hyosung sustainability development’s foundation lies with Challenges & Innovation. Also, our R&D department is consistently making breakthroughs in technology preparing for the future of industry needs.

New Renewable Energy Projects

Wind Energy Business Division

We developed 750kW and 2MW-class wind generation systems based on technological know-how accumulated in the existing business fields, including power transmission/distribution equipment, power generators and industrial gearboxes. As a result, we paved the way to make a big success in the commercialization by being certified by DEWIOCC, the German wind power generator certifier in 2009. Moreover, we are passionately engaged in R&D for wind power generation as a leading institution for a national policy project (of the Ministry of Trade, Industry and Energy) for developing 5MW turbines for marine operations.

Certificate for Wind Turbine System(HS90)

Jeju Gimnyeong Test-bed Complex

Fuel Cell System

We develop fuel cells that can generate both electric power and heat energy through a chemical reaction process of city gas. We have taken part in the fuel cell monitoring project led by Korea Gas Corporation since 2008, and pushed R&D harder by participating in pilot projects for byproduct hydrogen and hydrogen towns led by the Ministry of Trade, Industry and Energy since 2012.

Fuel Cell System

Compressed Fuel Refueling Systems

Putting top priority on the future environment, we strive to develop eco-friendly compressed fuel refueling systems that are optimal under various loading conditions thanks to our in-house technologies. We supply top-notch recharging systems based on technologies and know-how built up in the fields of industrial machinery and electricity. LNG and CNG package machinery and control unit are exclusively designed, manufactured and managed in an ex-post manner. Moreover, we provide total solutions of hydrogen recharge systems, a next-generation alternative fuel against depletion of fossil fuels and global warming.

CNG Recharge System

Smart Grid (Intelligent Power Grid System)

We are actively engaged in the 'smart grid' project, an intelligent power grid system that optimizes energy efficiency by exchanging information in real time among power suppliers and consumers by applying IT to power technologies. Having supplied 50MVA STATCOM, a smart grid product to Korea Electric Power Corporation for the first time in 2010, we are engaged in projects on PV inverters, electric vehicle rechargers and ESS. We achieved the "IR52 Jang Young-Sil" Awards in 2011 by developing 100MVA STATCOM, which was highly acclaimed as the Electronic/Electric Product of the Year by the Korean Institue of Power Electronics for its 800kW PCS to store electric power. Plans are underway to develop technologies and products on end on par with those of global advanced players.

Smart Grid System

*PV : Photovoltaic

EV Motor Business

We have developed motors for Hyundai Motor's BlueOn, creating Korea's first ever EV, since 2009, and also developed motors for Kia Motors' EV Ray in the mid-2010, and have mass produced and supplied the motors since 2011. Moreover, steady development of new products and acqusition of related technologies are underway to offer optimized products to customers.

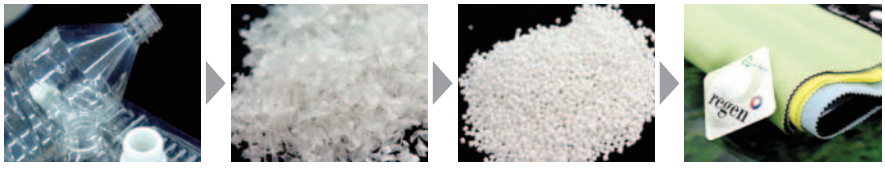
Passenger Car Where EV Motors are Applied

Development of Eco-friendly Products

Recycled Polyester Yarn Regen

We have developed "Regen™," an eco-friendly textile material recycled from PET bottles. Extracting useful ingredients from PET bottles and applying the recycling technology, Regen has been GRS-certified by Control Union, an environmental certification organization, as well as JEA-certified in Japan. It has also earned an Eco-Mark.

Regen Production Process



Collecting and Classifying Reproductive Raw Materials Such as PET Bottles and Nets

Grinding into Fixed Sizes After Removing Impurities

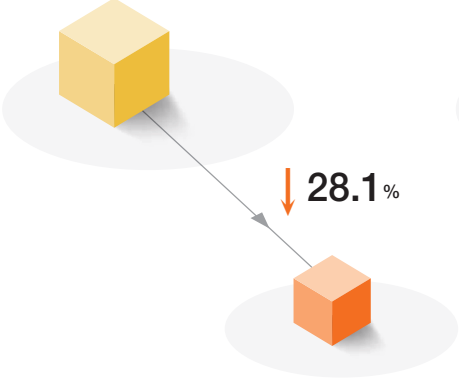
Reproducing into Plastic Chips after the Process of Melting or Disintegration

Production of 'Regen', a Recycled Textile From Produced Plastic Chips

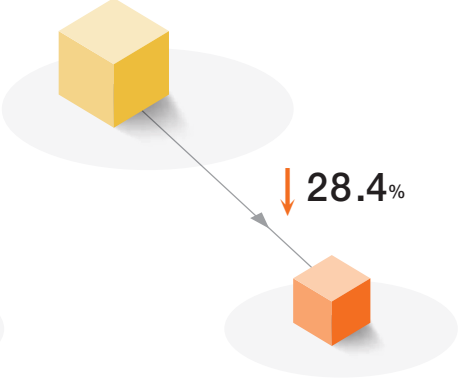
Mipan Regen, Recycled Nylon Fiber

We developed 'Mipan Regen', recycled nylon fiber with eco-friendly technologies whereby fishing net waste is refined and heated, and manufactured into fiber again. 'Mipan Regen' maintains the quality of the existing nylon, and reduces the consumption of resources by 27% and GHG emissions by 28% compared to the existing nylon fiber.

Amount of Reduction in Consumption of Resources for Mipan Regen



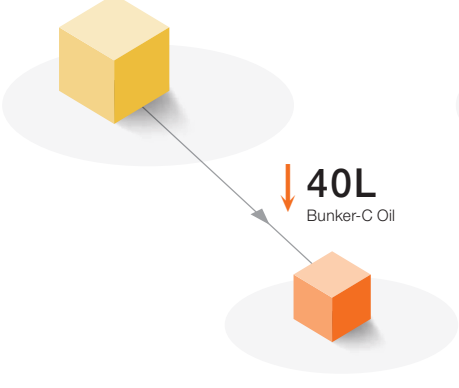
Amount of Reduction of CO_2 for Mipan Regen



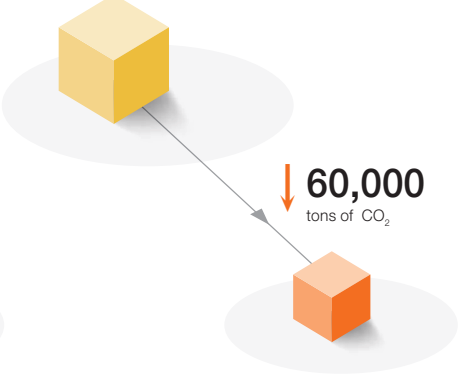
Eco-friendly Yarn

Hyosung's creora® eco is an eco-friendly product which has a simpler processing and can be produced at a lower temperature level than conventional spandex. In processing fabrics of 10,000yds, 40L Bunker-C Oil can be saved by lowering the temperature by 15°C. 'Prizma' which can be dyed at a low temperature reduces emissions of CO_2 of over 60,000 tons a year by saving fuel.

Amount of Reduction in Consumption of Fuel for creora® Eco



Amount of Reduction of CO_2 for Prizma



In processing fabrics of 10,000yds, 40L Bunker-C Oil can be saved by lowering the temperature by 15°C.

Value Creation for Win-Win Growth with Customers

Encouraging Customers to Strengthen Business Competitiveness

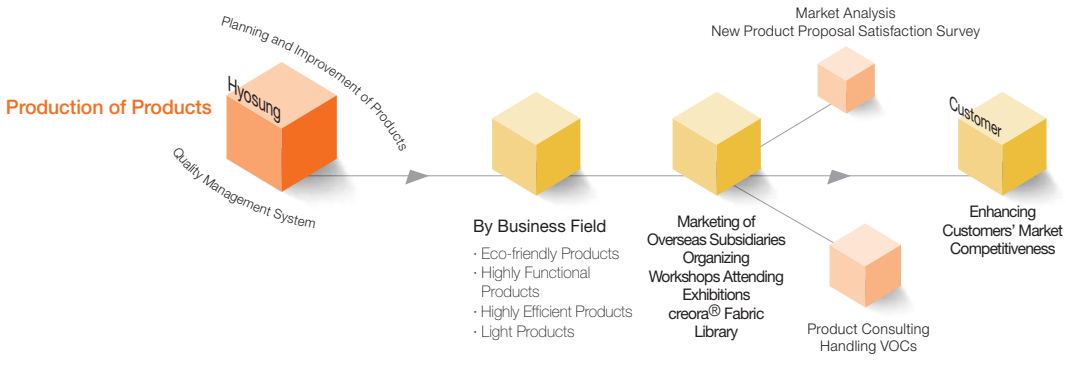
Customer Insight Marketing

We provide customized consulting services to customers through marketing of overseas subsidiaries, organizing workshops and participating in exhibitions. This enables customers to plan and launch new products, thus raising their market competitiveness. Spandex PU introduces related products through 'creora® Fabric Library' located in major cities worldwide including Seoul, Milan and Hong Kong. We also operate the Global Technical Service Team supporting customers in fabric development and ex-post management, and conduct one-on-one customized consulting with customers by regularly holding 'creora® Workshop.' We attend exhibitions at home and abroad with corporate clients, and jointly operate exhibition booths. By doing so, we support our corporate clients with consulting and sales, thus boosting loyalty among customers using our yarns. We also offer opportunities for corporate clients to identify customer needs and trends, and expand new sales channels.

Enhancing Customer Satisfaction

Customer satisfaction surveys are conducted regularly to enhance customer satisfaction, while visits to customers are frequently made to provide high-quality services promptly to resolve customer complaints, thus maintaining quality and trust. Customer complaints are identified through technical guidance and periodic visits for customers' product usage, which are, in turn, reflected in designing and production processes to make improvement. For quality assurance, we collect and analyze various quality information and come up with major quality issues, which lead to devising and initiating plans for problem shooting.

System to Strengthen Customers' Market Competitiveness



Maintaining and Managing Global Product Quality

Quality Management

Stringent product quality management is underway for products offered in each business field as we attempt to acquire international certification for our products.

'Swan Tile Carpet' of Interior PU touts its unique quality excellence, which has been verified by the environmental mark certification and KS certification in the field of tile carpets where strict quality control is required as we try to lead the commercial carpet market.

Moreover, Interior PU acquired ISO 9001 and TS 16949 certifications by establishing our exclusive quality management systems, striving to maintain and manage highest quality for products.

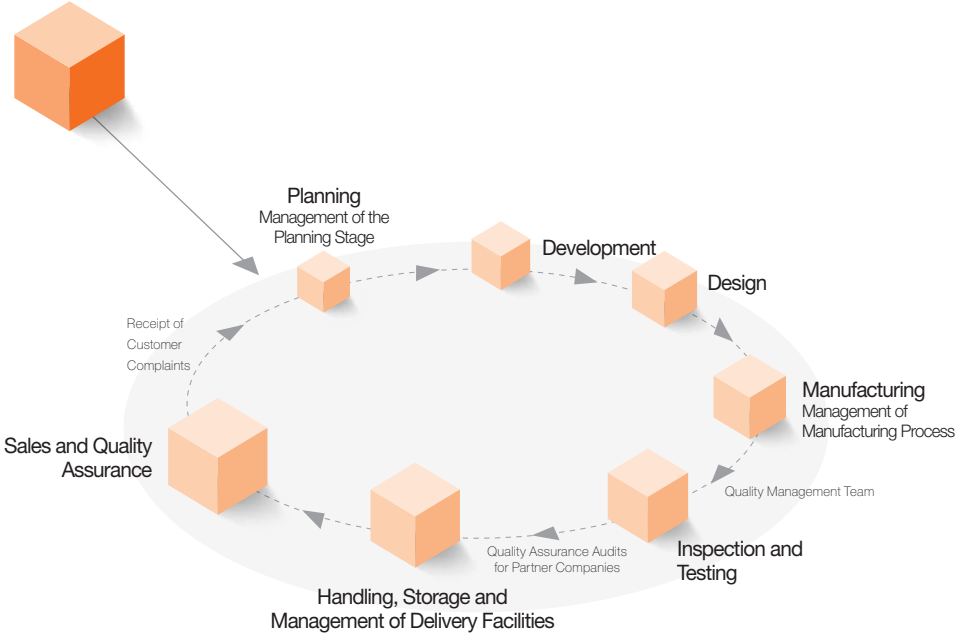
ISO 9001

TS 16949

Quality Assurance

Hyosung's Power & Industrial Systems stipulates and activates provisions on quality assurance in all stages ranging from product planning to sales, thus guaranteeing product quality and enhancing management efficiency.
Anything that might cause failures in quality assurance in production stages of products (acquiring orders, planning, development, design, manufacturing, inspection, repair, shipment, etc.) is removed in advance.
Moreover, we check out quality systems, specifications, contractual terms and appropriateness of quality control activities thereof through quality assurance audits in order to identify, correct and prevent the inappropriate.
Of particular note, efforts are underway to maintain quality by expanding quality assurance audits to our partner companies.

Quality Assurance System



2. A Partner for Win-Win Growth
Disclosures on Management Approach

1 Commitment

We do the utmost in corporate social responsibilities through endless efforts to establish balanced relationships with stakeholders including staff, partner companies and community.

2 Governance

The HR Team and HR Development Center are in full charge of recruiting and training staff, while the Win-Win Planning Team unfolds various activities for Win-Win growth. The Communication Team, meanwhile, takes leadership in collaboration among different business sites for social contribution activities.

3 Progress in 2012

One of the biggest achievements in staff training in 2012 was the successful landing of learning systems in each PU to enhance practical skills on sites. We also formed the Win-Win Planning Team for Win-Win growth for partner companies.

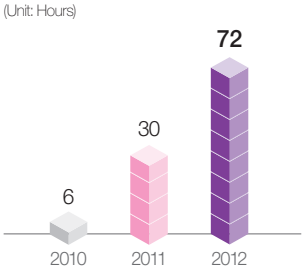
4 Goal

We seek to foster staff under our goal to recruit and develop talents according to Hyosung Way. We aim for successful implementation of performance sharing systems for Win-Win growth with partner companies, and incorporation of Win-Win growth regulations into corporate bylaws.

Hyosung's 2012 Sustainability Performance Data

No. of Hours of Training per Staff

(Unit: Hours)



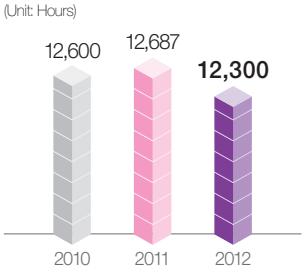
72 Hours

* Impossible to identify on-site training as the figure is merely based on training courses led by the HR Development Center in 2010
* No. of hours of training increased due to the addition of on-site training hours, ad-hoc-based training and assignment-based training since 2011.

We make utmost efforts to enhance on-site job skills and leadership to continuously raise staff's capacities.

Total No. of Hours of Social Contribution for Staff

(Unit: Hours)



12,300 Hours

We operate volunteer groups voluntarily formed by staff, which are up and running in each business site as well as HQ.

Staff as a Driving Force for Sustainable Growth

Principle-based Talent Recruitment

We are fully aware that each and every staff member is an asset for Hyosung, and continue to search for talents that will lead the future. Fair opportunities are offered to every applicant so that talents from different backgrounds can exert their creativity and utmost capacities under our support and encouragement.

Principles of Management Focusing on Respect for Staff

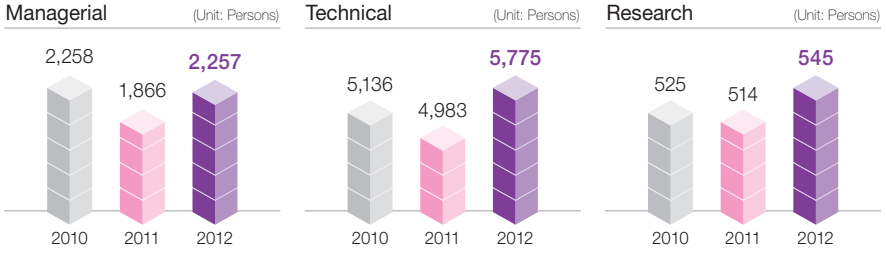
Our top priority in all forms of HR management as talents are recruited, conduct business and get promoted is management focusing on the respect for staff. There is no unreasonable discrimination related to candidates' academic background, race, gender, age or religion. This principle of management focusing on respect for respect is one of the most important management principles, which is disclosed through the Code of Ethics, and the relevant Action Guideline is in place for staff to practice. Moreover, regular training takes place to prevent sexual harassment and discrimination at work.

Talent Recruitment

We seek to recruit global talents that can actively contribute to Hyosung Way, Hyosung's core value into practice. The biggest competitiveness of Hyosung that holds a pioneering status in the diverse business fields in the market originates from the acquisition of excellent talents. Specifically, we strive to recruit such talents through regular recruitment, recruitment on demand, recruiting on campus and various other recruitment programs. As for staff working on business sites and not the ones in charge of administrative, clerical and supportive works, appropriate talents are recruited befitting each task through a fair and transparent process.

Status of Staff by Job

* Technicians include clerical workers on business sites among the classifications of clerical, research and technical positions.



Interview of an Executive Director in Charge of HR

We believe that the bottom line for a company is talents and technologies, and since technologies come from talents, talents are the most important asset. Creating a decent workplace is as significant as selection and development of talents, so to this end, we try to put in place a campaign to 'Make a Decent Workplace' and strengthen the HR development system according to our medium and long-term vision. We ensure that staff generate a high performance in a workplace they like, receive fair rewards for their performance, and mature through their work at Hyosung.

Fostering HR through Training on Value Sharing and Capacity Building

In a bid to develop excellent HR, a fundamental competitiveness to become a top-notch enterprise, we conduct systematic and diversified training programs befitting the features of each business field besides training on core values and practical skill courses. Staff training is divided into three parts according to each objective – basic training (sharing of core values), training to develop leaders and professional training.

Basic Training (Sharing of Core Values)

We conduct the Shared Value Program (SVP) for each tier of staff so that they can fully understand and embody corporate management philosophies and bylaws to utilize them as their work criteria. Annually, those who are promoted learn about practicing and applying core values, and conducting tier-specific roles.

Training to Develop Leaders

Under a goal to foster key entrepreneurs and leaders, we conduct the Business Leadership Course (BLC), the Team Leadership Course (TLC) and the Self Leadership Course (SLC). The Training to Develop Leaders serves as the basis for Hyosung's leadership pipeline by developing tier-specific key leaders who fulfill their roles.

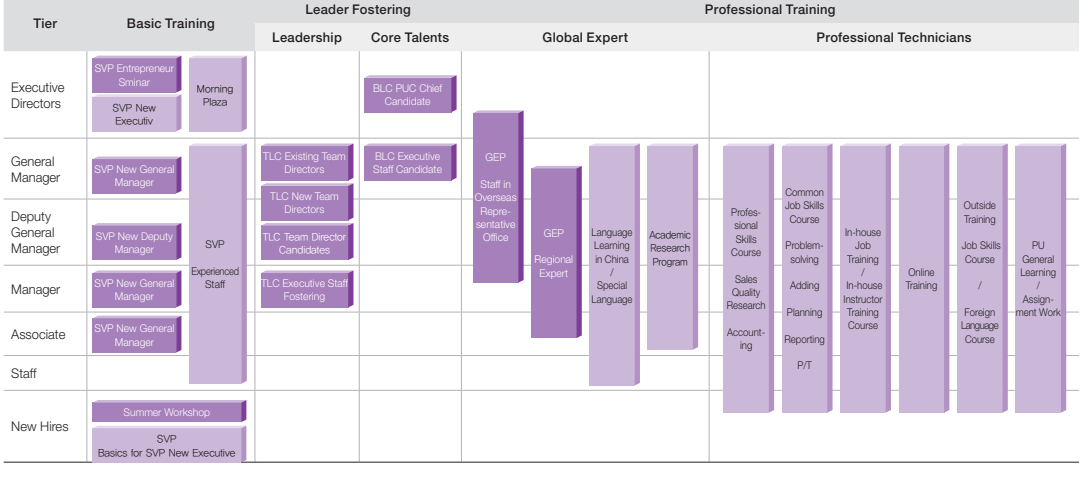
Team Leadership Course (TLC)

All new team Directos at Hyosung support team members to generate performance and are equipped with leadership to establish a sound corporate culture through preliminary learning, coaching, practice and follow-up course according to the clear roadmap of TLC developed under Hyosung's exclusive leadership training model.

Business Leadership Course (BLC)

We conduct the BLC to strategically foster next-generation key entrepreneurs that comprehensively understand corporate management. Selected executive candidates end up understanding the overall picture of management through the five-month training, and being capable of suggesting ideas and solutions to make improvement on enterprise-wide issues as genuine leaders. They can also bolster problem shooting skills, innovativeness and execution skills.

Hyosung's Talent Training System



Professional Training

We conduct on-the-job professional job training to strengthen global core capacities.

We foster staff in overseas representative offices and regional experts through the Global Expert Program (GEP), and implement the academic training program to foster talents of excellence by sponsoring the degree acquisition in R&D and MBA.

Moreover, we seek to enhance staff's capacities needed to carry out actual tasks by offering job-specific systematic training. Training to foster experts includes training on sectoral jobs, common capacities and job competencies by in-house staff, on top of schemes on PU Onsite Learning and Assignment Work.

Fostering Staff in Overseas Representative Offices and Regional Experts under the Global Expert Program (GEP)

In order to foster international experts through training on job skills required for work and global core capacities, we conduct intensive foreign language training and local adaptation training to develope capacities prior to the secondment abroad.

Assignment Work Scheme

The Assignment Work Scheme is a scheme to enhance staff's work performance capacities by imposing tasks about knowledge, information and skills needed to work with team members, thus enabling them to research on their tasks.

Once the tasks they voluntarily mastered pass a threshold at the presentation session on a quarterly basis, the results are shared through PU Onsite Learning and HR Conference, thus contributing to strengthening staff's learning capacities and motivating them to learn further.

PU Onsite Learning Scheme

Each business division selects topics and assignments necessary in performing their duties on their own, considering the features of their work and the circumstances, and learns and shares them under the PU Onsite Learning Scheme, which is most actively implemented enterprise-wide.

Each staff deeply learns one topic once a week and applies what they learnt in their work immediately, which significantly contributes to enhancing their capacities.

Some results of the learning are presented as excellent cases at the bi-annually held HR Conference, thus boosts the overall atmosphere for training.

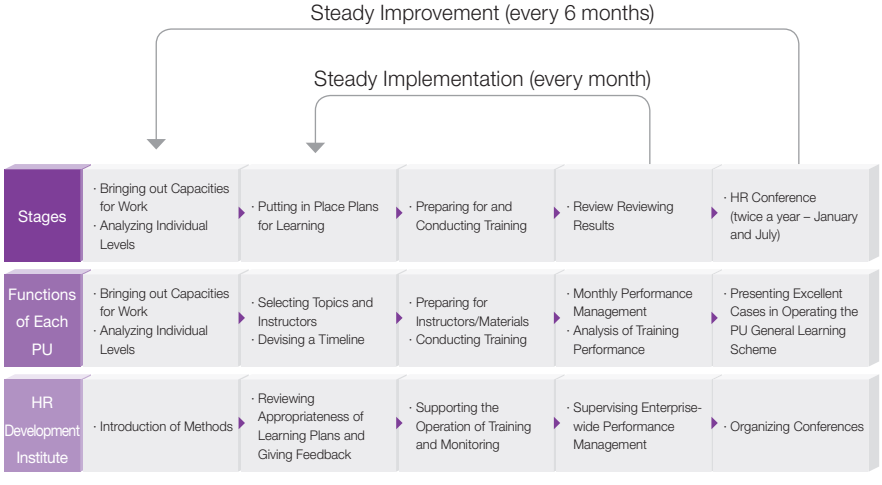
Performance of PU Onsite Learning

(Unit: No. of Times/No. of People)

Type	2011	2012
No. of Training	980	9,629
No. of Participants	10,520	132,368

*These courses will be available from August, 2011.

Process of PU Onsite Learning



Staff Evaluation and Compensation as Motivators

Fair Evaluation and Compensation

We clearly define necessary capacities based on staff's capacity-driven evaluation and conduct evaluation based on objective criteria, through which we seek to enhance individual and organizational capacities.

Moreover, differential compensation based on evaluation of results achieved as well as organizational goals fulfilled is intended to motivate staff to achieve their goals. We provide competitive compensation to staff through fair evaluation based on objective evaluation criteria.

Evaluation-based Motivation

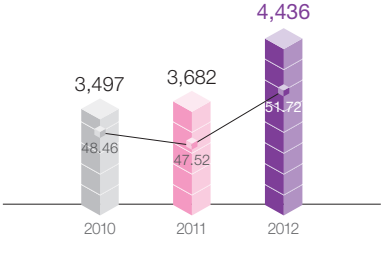
In a bid to encourage staff to develop their diverse capacities, their performance evaluation items include not only HR evaluation, but also foreign language skills and scores for courses they took so that they can develop their capacities voluntarily.

Moreover, once they acquire the prerequisites to be promoted in an early stage such as HR evaluation, foreign language skill and scores for courses they took, they are onto a fast tract regardless of the number of years of work required to be promoted. As such, HR development and evaluation-based performance are linked for sustainable growth of staff along with fair evaluation and compensation – a way to motivate staff to enhance their capacities and work better.

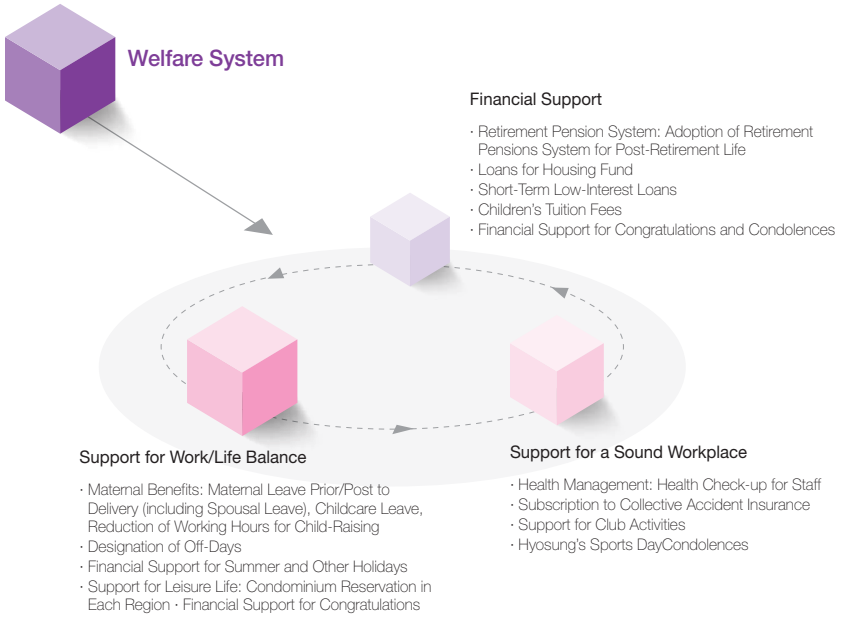
Welfare of Staff

In order to create a decent working environment, we conduct diverse welfare systems besides the four major welfare and service schemes. By developing and providing such a variety of schemes, we strive on multiple fronts to raise their satisfaction and guarantee a work/life balance.

Ratio of Executives Subject to Performance Evaluation (Unit: No. of People, %)



Status of Operation of the Welfare System



Communication-Driven Corporate Culture

We ensure a sound work life by operating an ombudsman bulletin board for staff and HR Counseling Center. With our active communication through the Junior Board and blogs, we received the Grand Prize in the Group Sector at the 2012 Korea Blog Awards organized by the Korea Blog Business Association. By acquiring the 'Korea Clean Contents Movement Prize' at the Corporate Newsletter Section of the '2012 Korea Communications Award', we could shed light on the value of our newsletter that contributes to enhancing in-house communication.

HR Counseling Center

HR Counseling Center, as a body under an executive in charge of HR, is a channel whereby staff can freely report on various work or HR-related complaints to the executive. Confidentiality of the submitted problems and complaints is strictly kept, which are eased through counseling and support of the HR manager. Besides, for staff thinking about leaving the company due to the work or interpersonal relationships, active counseling and opportunities to shift job positions are offered to lower the turnover rate among staff.

Junior Board

Hyosung's 'Junior Board' was formed to enhance corporate innovation and communication with the presence of staff, associate and managers at the Corporate Administration Cente. Through the weekly meetings, discussions on various issues needed for the organization and staff are covered on business, people, culture and the like, and the results are reported to the management so that corporate innovation can be initiated. The Junior Board contributes to making a practical difference and raising satisfaction among staff within the organization by holding various events: 'Campaign to Make Beautiful Hyosung People' to enhance the health of staff; 'Smart Working Time' for higher work efficiency; and 'Refresh Day.'

Labor-Management Relations of Win-Win Growth

We hold quarterly meetings led by the Labor Management Council at the company headquarters and each business site. The Council discusses on staff's welfare, complaints and suggestions on each site. In compliance with Article 17 on Collective Agreement, critical matters for management are to be notified to the labor union promptly. Moreover, each business site publishes periodic newsletters, and shares the status of corporate management with staff on sites, thus forming trust among staff towards the Company.

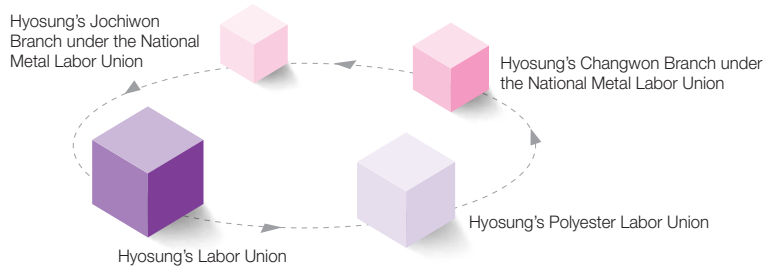
Moreover, although each site has a department with a different name, the department is in charge of labor-management management, which strives to enhance labor-management capacities and communication on sites. Through regular meetings of the Industrial Health and Safety Committee and taskforce team meetings, staff's health and safety and labor-management networking on each site are induced.

Ratio of Staff Subject to Collective Bargaining

(Unit: No. of People/%)

Type	2011	2012
No. of Staff Subject to Collective Bargaining	3,113	3,209
No. of Staff Subscribed	1,853	1,893
Collective Subscription Rate	59.5	59.0

Status of Operation of the Labor Uniona

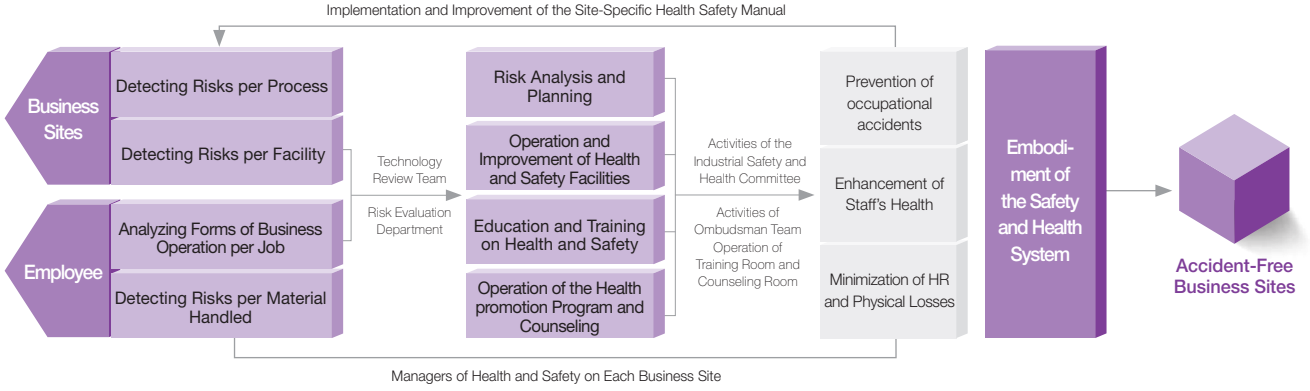


Creating a Safe Workplace and Guaranteeing Employee's Safety

Staff's Health and Safety System

Business sites of Hyosung strive to enhance staff's health, while establishing and initiating health and safety management systems, thus making the sites accident free, according to the health and safety manual.

Health and Safety System



Risk Analysis and Safety Facility Management

Business sites at Hyosung detect risks for each process, facility, work and materials handled while establishing and implementing safety and health facilities based on risk-specific analysis and results. Risk improvement activities are underway by operating the Technology Review Team and Risk Evaluation Team.

Health and Safety Training and Operating the Health promotion Program

For staff in plants on Hyosung's business sites, training is provided to enhance their health and safety. Moreover, operation and management of the Health promotion Program on anti-smoking and prevention of obesity leads to improving staff's overall health. In addition physical therapy rooms and training rooms are available, patients with Musculoskeletal disorder are treated, and noise-induced hearing loss is managed through the hearing preservation program.

Operation of the Committee and Expansion of Health and Safety for Partner Companies

Business sites in Hyosung operate the Industrial Safety and Health Committee consisting of labormanagement representatives. The Committee identifies problems in workplaces and matter for improvement, and manages the problem-solving status, thus improving the working environment and securing the health and safety for staff. Moreover, we continue to monitor whether or not those in Hyosung and partner companies have secure health and safety. Through regular labor-management joint inspection, safety facilities are complemented and the safety awareness among staff is boosted. The Changwon Plant and Gumi Plant established and implement the 'Health and Safety Driven Cooperation Program' jointly with partner companies, thus enhancing the level of health and safety in business sites through risk assessment for partner companies and technical support, and preventing industrial disasters. As a result, we acquired Grade A in the evaluation from the Busan Local Ministry of Employment and the Labor and Daegu Local Ministry of Employment and Labor. We will continue to enhance health and safety levels for partner companies down the road.

Embodiment of a Safe Management System

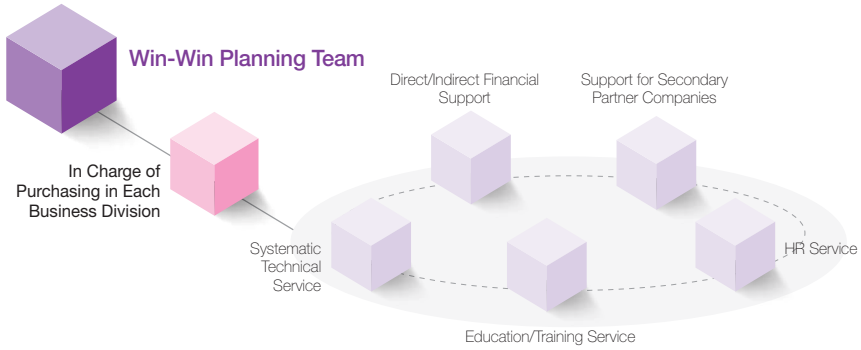
We strive to embody a safe management system by creating safe workplaces and enhancing awareness regarding safety management among staff. Moreover, plans are underway to eradicate sever disasters through organic cooperation among the Industrial Safety and Health Committee, EHS Team and partner companies, and pursue safety of employee.

Efforts for Win-Win Growth with Partner Companies

Promotion of Win-Win Growth

Along with activities to improve awareness about Win-Win growth with partner companies, we implement the performance sharing system under the leadership of the Win-Win Growth Promotion Team and enacts the Win-Win Growth Compliance Regulations (4 Guidelines). In order to embody such a growth, the related performance is reflected upon evaluating the performance of purchasing executives. Through such practical activities, various efforts are underway to support partner companies that grow together with Hyosung. Moreover, tireless endeavors are poured in to expand ethical management by legislating ethical bylaws to prevent unfair trade, operating a center to report on unfair trade and signing a pledge to comply with the Code of Ethics. In a bid to lay the foundation for transparent trade with partner companies, webpage and e-purchasing systems are available exclusively for partner companies. The Advanced Planning System is there to help balancing efficient production, supply and demand.

System for Win-Win Growth with Partner Companies



Regulations on Compliance of Win-Win Growth

We voluntarily signed agreements with partner companies to promise Win-Win growth as well as compliance with related laws on fair trade. By doing so, we could maintain seamless partnerships with such companies, and raised awareness about win-win growth internally. To this end, corporate regulations were stipulated and incorporated which reflect '4 Guidelines for Win-Win Cooperation among Large Enterprises and SMEs', and documented a working manual for the relevant specifics within each division.

Interview of an Executive at the Win-Win Planning Team

We not only comply with law and order on fair trade whose significance has become higher throughout the society, but also create an environment for fair trade with partner companies. Various activities are underway including using locally produced goods, support for quality and technology development such as cost reduction, holding exhibitions, waging joint marketing and supporting training. Of particular note, we enhance our technological competitiveness by jointly conducting R&D and sharing performances with partner companies and extending cooperation to enhance technologies and quality. We plan to make tireless efforts to create and share higher values by adopting Win-Win growth with partners.

Performance Sharing System

The performance sharing system has been systematically adopted and run in order to develop competitiveness of partner companies and share performance. Specifically, we formed a task force for performance sharing to create a manual for performance creation models and processes.

We seek to strengthen partnerships by operating various incentive programs and sharing project plans with partner companies over the long haul. For instance, we can extend support for developing assignments for performance sharing, and expand sales and share cost reduction performance for such projects.

Plans for the Performance Sharing System

Types of Assignment/Task	Assignment Goals	Types of Performance Sharing
Cost Reduction	Developing alternative products, improving production schemes, enhancing quality, etc.	Cash rewards, joint patents, long-term contract
Domestic Development	Developing products equivalent to or better than the foreign products, reducing cost	Sales rewards, joint patents, long-term contract
Development of New Technologies	Reducing purchasing cost through development of new technologies	Sales rewards, joint patents
Government's R&D	Developing products and reducing purchasing cost	Sales rewards, joint patents, support for development
Joint Search for Sales Channels	Overseas marketing for jointly developed products	Support for global marketing and exhibitions

Various Activities to Support Partner Companies

Financial Support

We extend financial support for primary partner companies as well as excellent companies among partner companies.

When there is a need for funds such as technological development and facility investment, we sign an agreement with financial institutions to support partner companies. As such, we actively extend financial support by devising measures for financial support.

Technical Support

We seek to enhance the product quality through stronger capacities of partner companies by exploring and fostering technologies that partner companies poses. To this end, we formed and operate counseling networks for technical support for partner companies, while developing joint technologies with them.

We actively encourage partner companies to register patents so that they could protect the technologies they hold in the technological development stage. We also initiate Win-Win growth by conducting periodic support for technology circulation and strengthening technological support and development.

Performance of Financial and Technical Support for Partner Companies in 2012

Type	No. of Cases	Amount (KRW Million)
Free-of-Charge Support to Encourage Production	-	1,100
Support for R&D Under Purchasing Conditions	15 Cases	2,100
Technical Suupport for Joint Development of Core Components	20 Cases	2,590
Joint Patents with Partner Companies	2 Cases	1
Total	37 Cases	5,791

Educational and Training Support

We contribute to enhancing competitiveness of partner companies by offering opportunities to take part in online and offline programs of Hyosung in order to develop capacities of CEOs and staff of these companies.

In particular, we conduct training on quality and safety management techniques for over 4,000 CEOs and related managers of partner companies, and actively implement autonomous safety consulting, thus significantly contributing to strengthening safety of business sites and improving quality for partner companies.

HR Support

By dispatching experts of Hyosung to partner companies to enhance their management capacities, we extend support for their process, quality and safety training. For 137 partner companies, specialized workforce was dispatched for about 248 times, which provides guidance on processes, quality, risk assessment and improvement-based production efficiency. We strive to enhance their competitiveness through support technology circulation through specialized workforce twice a year.

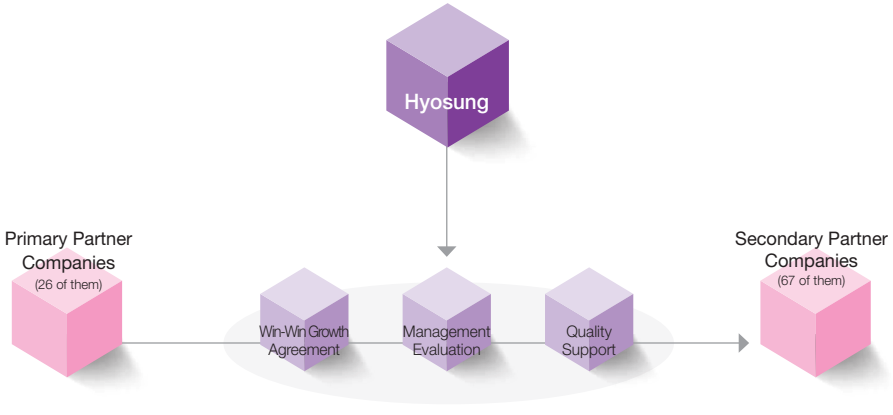
Performance of HR, Education/Training Support for Partner Companies in 2012

Type	No. of Companies Participating	No. of Times and Staff
Training on Quality and Safety	348	4,397 staff
HR Support	137	248 times
External Training for SMEs	33	58 staff
Support for Overseas Study	14	14 staff
Total	532 companies	4,717 staff

Support for Secondary Partner Companies

We extend support so that active Win-Win growth activities for primary partner companies could be spread to the secondary ones. To this end, we induce the two parties to sign an agreement on win-win growth, and initiate management evaluation, and quality and technical support so that secondary players could enhance their technological prowess and quality.

Activities to Support Secondary Partner Companies

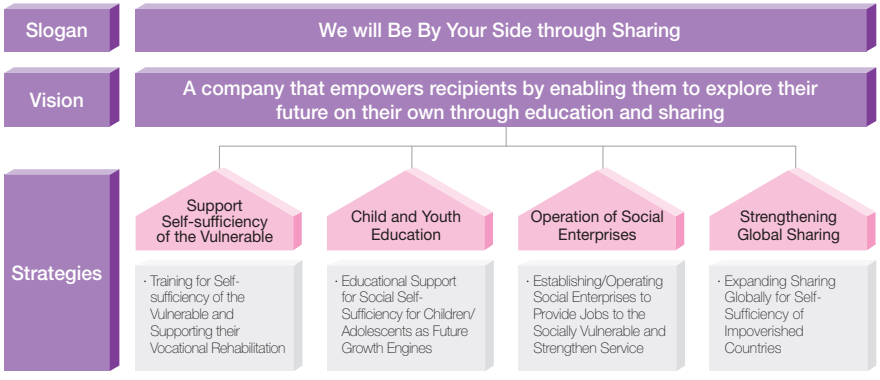


Practicing the Value of Sharing through Social Contribution

Social Contribution Strategies and System

Under Hyosung's slogan, "We will Be By Your Side through Sharing", we set our medium and long-term strategies based on our vision to become 'a company that empowers recipients by enabling them to explore their future on their own through education and sharing.' Our social contribution activities are in different forms beyond uniformity: volunteering clubs voluntarily participated by staff; Mecenat activities; education for youths; free medical support for foreign regions; and transfer of appropriate technologies abroad. Hyosung's social contribution activities are according to four strategies, that is, support for the socially vulnerable, training for children and youths, operation of socially responsible companies and global sharing. The Communication Team systematically implements social contribution activities, and each business unit practices community-focused social contribution.

Social Contribution Strategies and System



Plans for Social Contribution

Support for the Socially Vulnerable

Support for the Disabled Program

Hyosung's Cello Ensemble 'Nalgae(Wings)' seeks to convey hopes through cultural activities by organizing a musical band consisting of children and adolescents with development disabilities, conducting training on cello music and holding concerts. Moreover, we opened Purumae Child Rehabilitation Center by sponsoring rehabilitation treatment of disabled children from low-income families, we support treatment fees for rehabilitation of children with cerebral palsy and intellectual disabilities.

Social Enterprise Support Program


Support for the Disabled Program

Support for Mecenat Culture

We sponsor various cultural, art and sports activities through Mecenat activities. We are a global sponsor for 'Silk Road Ensemble with Yo-Yo Ma.' We ensured that impoverished future musicians could experience Yo-Yo Ma, a world-renowned musician and learn from him about how to play the musical instrument. Participating organizations included the 'Busan Youth House Orchestra' in 2010 and 'Sejong Ggumnamu Harmony Orchestra' in 2012. We opened the Toyota Store once a month in Gangnam to serve as a cultural space to organize various concerts and art exhibitions so that more people can enjoy culture. By sponsoring the 'Areum Jigi Foundation', we do the utmost to spread the Korean traditional culture. Our passion to make our world more beautiful flourishes and is bursting through sponsorship of cultural and sport activities such as 'Share the Dream,' Hong Myung Bo's charity football match with Hyosung.

Sponsorship of 'Silk Road Ensemble with Yo-Yo Ma'


Sponsorship of a Charity Football Match with Hong Myung Bo

Participation of Staff

Staff at Hyosung have formed volunteering clubs on a voluntary basis and conduct charity work on a monthly basis. Such clubs are formed at the company headquarters and each business site for active charity work. Most of the volunteering activities are driven by their participation–volunteering at centers for children with disabilities, preparing and sharing kimchi with the needy, volunteering at emergency sites and donating blood. Moreover, we offer helping hands for the needy through matching grants. Staff participation-based contribution to communities are also active especially at each business site. Under the One Company One Village campaign of forging a sisterhood relationship with a village, we offer help during harvesting seasons and purchase produce from the village. We also protect the environment under the One Company One Mountain and the One Company One River campaign. We visit Changdeokgung Palace every month to clean the area, and act as environmental and cultural activists in training children on culture.

Child and Youth Education

In order to realize corporate social responsibilities for the next generation, we passionately support child and youth education. The Ministry of Education, Science and Technology is playing a leading role in fostering talents in the field of engineering and science by signing an MOU to facilitate the donation for education. Through business-academia cooperation with high schools, we offer opportunities of internships for high school students and employment of excellent students. Moreover, we sponsor the 'Hope Sharing School', send books to sisterhood schools and offer scholarships to foreign students. As such, we strive to foster future leaders through education. Each business site signed a sister relationship with a school in its region to send book, provide scholarships and run the Junior Engineering Class. Moreover, business-academia cooperation takes place for students in the science and engineering department in major universities, and Hyosung's staff take part as instructors to foster talents, such as our child and youth education activities have always been passionate and energetic.

Prevention of School Violence

Staff's Participation in Volunteering

Supporting Social Enterprises

We conduct various activities to support the socially vulnerable including a program to support social enterprises, educating and treating children with disabilities and support neglected senior citizens. It is to bring hope to the neglected and realize the value of sharing throughout society. In 2013, we plan to establish and operate social enterprises for job creation for the socially vulnerable and social services.

We present business start-up funds to social enterprises and extend help to such enterprises in the growth phase in a bid to spread the value of love and happiness. We run a 'Hyosung's Program to Support the Growth of Youth Social Venture Enterprises' in partnership with the Work Together Foundation, extend management consulting to social enterprises and transfer management know-how to them through networking.

Outline of Hyosung's Program to Support the Growth of Youth Social Venture Enterprises

Name of Companies	Description
God of Study	Providing mentoring and study content to the socially vulnerable youths
Delight	Selling low-price hearing aids that low-income people can afford
Cizion	Implementing technologies to reduce malicious replies through communication technologies
Eco Femme	Developing immigrant women from Africa as instructors on culture
Obang Playground	Preventing women's career breaks and creating jobs for re-employment
Communication Woody	Supporting NGOs and the socially vulnerable throgh planning on corporate marketing
Touch for Good	Upcycling by recycling banners, advertisement boards on subways and waste tires
Tree Planet	Once users plant a tree through their smartphone game, an NGO plants their tree in real life
Polang Polang	Protecting companion animals to prevent animal abuse and abandonment and extending animal psychological counseling

Global Social Contribution Activities

We not only support self-sufficiency of local residents in the developing world, but also conduct global social contribution activities especially in Vietnam for the socially vulnerable lacking in appropriate medical benefits. For instance, we have the 'Blue Challenger', a college student volunteer group abroad and 'Smile Voluntary Service Expedition', a free-of-charge medical treatment program in Vietnam. Through such social contribution activities, we enhance image of beautiful Hyosungians that actively conduct social contribution at home and abroad.

Smile Voluntary Service Expedition

The Smile Voluntary Service Expedition is one of Hyosung's activities to practice global sharing as a free medical volunteering activity in conjunction with global corporations. Free medical services are provided to local residents in impoverished regions in Vietnam. Dentistry, Oriental herbal medicine, internal medicine and ob/gyn treatment and disease prevention are available. More and more local residents can receive the treatment every year with the participation of local Vietnamese students as volunteer interpreters who receive scholarships from Hyosung as well as active participation of local staff in Vietnam.

Moreover, health check-up for children in nurseries and impoverished children near Dong Nai Province where our subsidiary is located and surgical treatment is offered by visiting facilities for the disabled and nursing homes. As such, we extend our love for the socially vulnerable, while providing medical services for them lacking in medical benefits.

Table for Two

We conduct the 'Table for Two' for children whose lives are claimed by poverty. 'Table for Two' is specially available at the headquarters' company dining room whereby KRW 200 is accumulated for each meal if a staff order the 'Table for Two' menu, a low-calorie health diet. With the existing lunch price of one person, one can buy meals for two people, and the menu is healthy for staff. The program with such a significance will continue to be available.

Table for Two

Blue Challenger

The Blue Challenger is a program that supports practical self-sufficiency of local residents by providing appropriate technologies to developing countries like Vietnam and Cambodia. It is a social contribution activity that we carry out along with overseas volunteer groups of college students and international aid NGOs. The Blue Challenger, Korea's first-of-its social charity activity where 'appropriate technologies' have been applied and whose activities have flourished since 2011, is differentiated in that college student volunteers with appropriate technologies and experts with such technologies participate together.

* Appropriate Technology: It is to use simple technologies without a large capital. It is a technology for people in impoverished countries that cannot afford to use new technologies

3. Establishing the Green Management System

Disclosures on Management Approach

1 Commitment

Enterprise-wide environmental management and reduction activities are underway as we strive to create a clean and safe environment while responding to global regulations in advance.

2 Governance

The Green Management Team supervises enterprise-wide green management tasks. The GHG and Energy Management Team in each plant conducts energy management and reduction activities. Moreover, the Environmental Safety Team strives for environmental management and health and safety promotion for staff.

3 Progress in 2012

We initiate green management enterprise-wide by launching the Green Management Team at the Corporate Strategy Center in 2012. Activities are underway to set the Vision 2020 and designate specific missions.

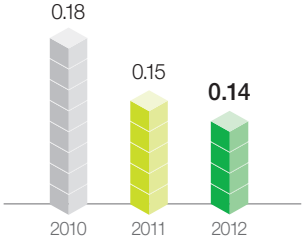
4 Goal

By reducing enterprise-wide GHG reduction and energy saving, we strive to achieve a goal of reducing GHG by 30% vis-à-vis BAU by 2020. Moreover, we do the utmost to minimize the environmental impact by reducing waste and the discharge of water and air pollutants.

Hyosung's Sustainability Performance Data for 2012

GHG Emissions against Revenues

(Unit: tCO_2eq, KRW Million)



0.14

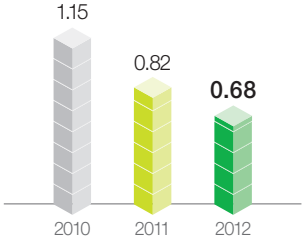
tCO_2eq / KRW Million

As for 16 plants' GHG emissions and the HQ's direct and indirect GHG emissions against revenues (data on third-party verification GHG emissions)

We continue to reduce GHG emissions through enterprise-wide green management, and as a result, we could reduce GHG emissions of 5.5% compared to 2011.

Amount of Energy Consumption against Revenues

(Unit: GJ,KRW Million)



0.68

GJ / KRW Million

As for 16 plants' and the HQ's direct energy consumption against revenues

Each plant at Hyosung strives to make energy usage efficient through facility replacement and process improvement. As a result, energy consumption was reduced by 16.5% compared to the previous year.

Green Management Practices

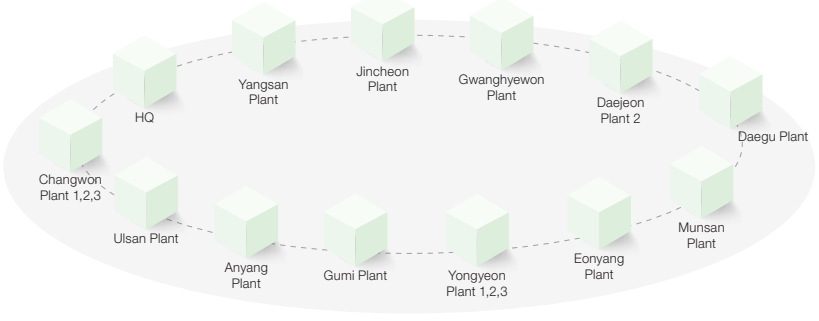
Establishing the Enterprise-wide Green Management System

We initiate enterprise-wide green management by launching the Green Management Team at the Corporate Strategy Center. The Green Management Team supervises enterprise-wide green management tasks, and conducts activities to reduce as well as manage GHG Emissions and energy consumptions at the HQ and all domestic plants. The GHG and Energy Management Team in 16 plants (Ulsan, Changwon, Yongyeon, Gumi, etc.) and HQ manage the energy consumption in plants. Activities are underway to save energy and respond to the government's GHG and energy regulations. Moreover, the Environmental Safety Team manages environmental, fire and workplace safety in plants, and is engaged in tasks to promote the health and safety of staff.

Hyosung's Green Management Vision

We established the 'Green Management Vision 2020' where by GHG emissions are reduced by 30% vis-à-vis the BAU (Business As Usual for GHG emissions) by 2020 based on the average GHG source unit from 2007 through 2009. Accordingly, activities are underway under specific missions: taking the leadership role in responding to climate change; laying the foundation for green management; establishing image as a green company; strengthening green projects; expanding green purchasing; and creating new growth engines.

Units in Charge of Green Management and their Roles



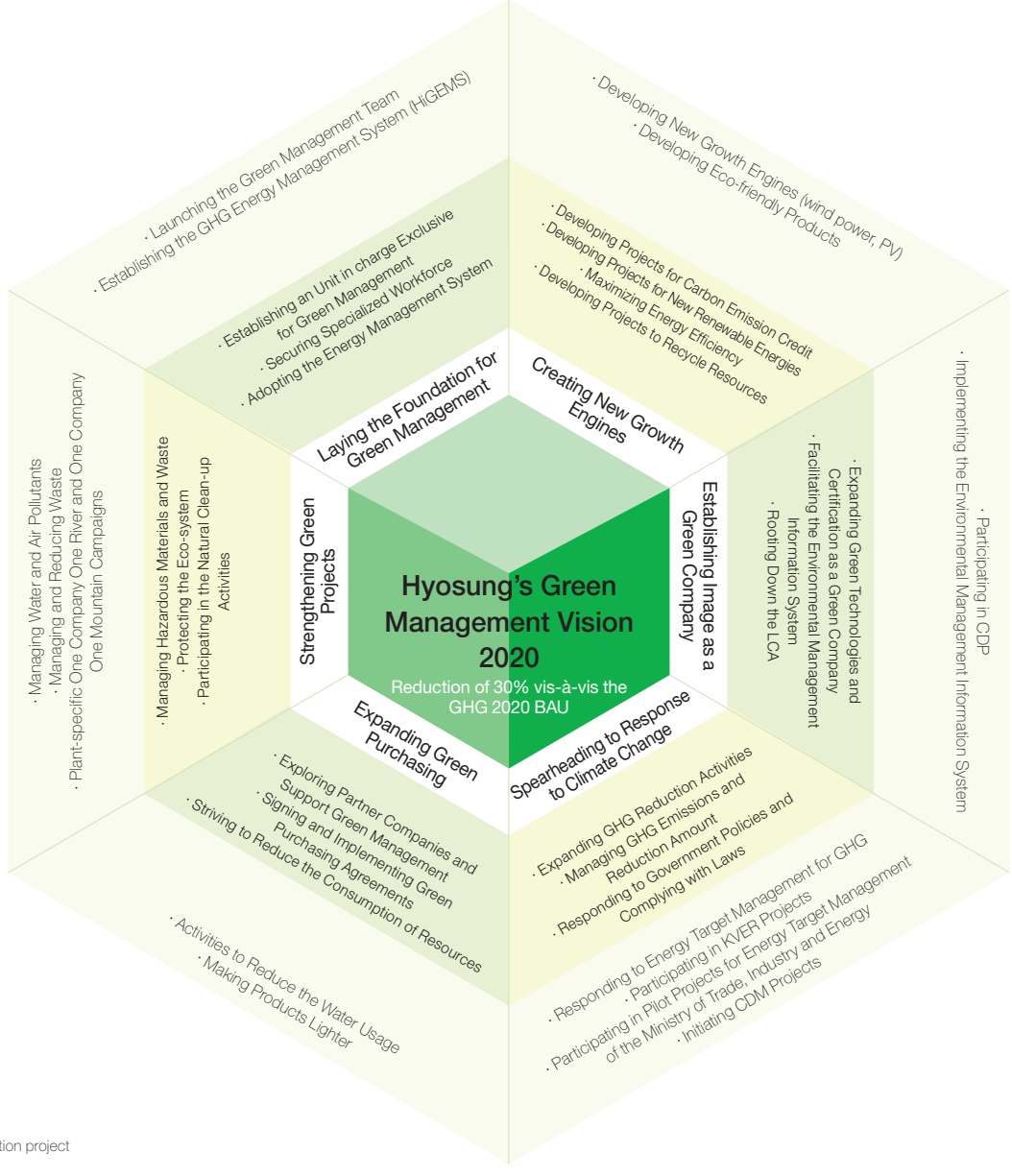
The scope of reporting for Hyosung's 2012 Sustainability Report excludes the data for 'sites of small quantity generation' of GHG emissions of less than 3,000 tCO_2 and energy consumption of 55TJ according to 'Guidelines on GHG, Energy Target Management'.

The Green Management Team manages green management and initiates related activities for all domestic sites of Hyosung including 17 sites (Changwon, Ulsan, etc), Oksan Plant, Jeonju Plant, Guro Plant, Icheon Plant, Hongcheon Plant and Gwangju Frozen Storage.

Vision and Activities of Green Management

We seek to expand green technologies and certification as a green company, and establish the Life Cycle Management evaluation for all products. Reductions in GHG and energy consumption are made to spearhead responding to climate change, and we encourage partner companies to expand green management. Moreover, we are actively engaged in government policies and projects such as the GHG and Energy Target Management System(TMS) and pilot projects for the TMS. Further details on site-specific green management activities are covered in the Environmental Performance section among the Sustainability Performance in this report.

Vision and Activities of Green Management



BAU : Business As Usual
GHG : Green House Gas
CDP : Carbon Disclosure Project
CDM : Clean Development Mechanism
KVER : Korea Voluntary Emission reduction project

Green Management Activities and Performance

Laying the Foundation for Green Management

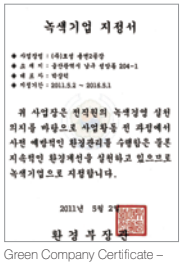
Hyosung's headquarters and domestic plants manage energy and GHG emissions, and conduct individual reduction activities, and initiate the adoption of the enterprise-wide energy management systems. In a bid for staff to embody green management in each plant as well as raise awareness of green management, training on climate change and the environment takes place by inviting professional instructors on a quarterly basis for staff in charge of green management at the headquarters and plants. Moreover, climate change workshops are held for managers in each plant every year where excellent cases are shared and major issues are discussed and decided upon.

Creation of New Growth Engines

Enterprise-wide activities to reduce GHG emissions and energy usage are managed in a database, and efforts are underway to secure early-action GHG reductions. We are engaged in a pilot project of the Emission Trading (ET) of the Ministry of Trade, Industry and Energy for two straight years in preparation for the Carbon Emission Trade which will be adopted by 2015 in Korea. As a result of performance evaluation in 2011, Hyosung was designated as an excellent company and received the government incentives of KRW 7 million. We plan to carry on investment and research to take a leading role in the ET project.
We expand investment in new renewable energies such as wind energy, PV and fuel cells, and the usage of alternative energies, and produce recycled products. To this end, the R&D Committee, Hyosung R&D Business Labs., Power & Industrial Systems Research Center and Steel Wire Technical Center formed R&D systems, striving to secure new growth engines in conjunction with projects.

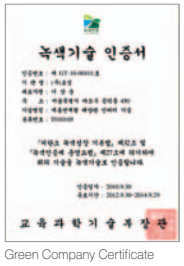
Establishing Image as a Green Company

We have disclosed GHG information through the Carbon Disclosure Project (CDP) annually since 2010, and transparently report on environmental pollutants discharged from our plants in compliance with the Environmental Management Information System. Moreover, steady investment has been made to be designated as a green company and acquire certification for green technologies. The Life Cycle Assessment (LCA) is underway for the environmental impact in all our business operations.

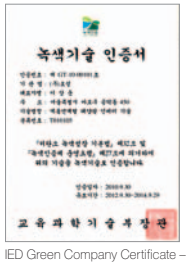


Green Company Certificate – Yongyeon Plant 1

Green Company Certificate – Yongyeon Plant 2



Green Company Certificate – On-grid PV Inverter Technology



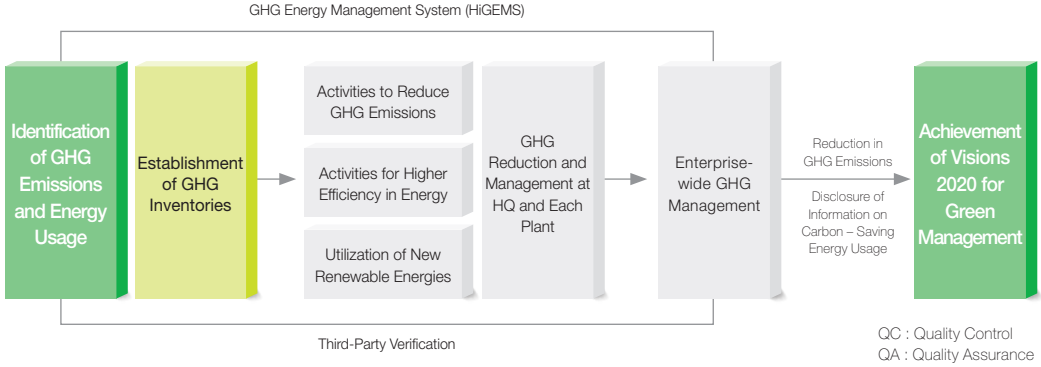
IED Green Company Certificate – Digital Transformation System

Taking the Lead in Response to Climate Change

We formed GHG inventories by calculating GHG emissions in each sector in 2010 to respond to climate change. 'QA/QC Operating Manual' is available to raise trust towards Hyosung at home and abroad and manage emissions steadily.

GHG emissions from major facilities are monitored and managed through GHG management systems. Efforts are underway to enhance data accuracy and reliability through the third-party verification on an annual basis.

Response System to Climate Change



Enterprise-wide Activities to Respond to Climate Change

We strive to effectively respond to climate change and environmental regulations at home and abroad and minimize financial risks thereof. As a result, we could reduce GHG of approximately 150,000 tCO2 and have them certified as early-action GHG reductions through Korea Voluntary Emission Reduction (KVER) of the Ministry of Trade, Industry and Energy and pilot projects for Energy Target Management. We also carry out activities to reduce GHG through CDM projects and adoption of new and renewable energies.

GHG Reduction Activities and Performance

In a bid to reduce the environmental damage resulting from GHG and implement the Basic Act on Low Carbon Green Growth, we are engaged in activities to reduce GHG in each production facility. Plants in Ulsan, Gumi and Yongyeon signed a voluntary agreement with Korea Energy Management Corporation, and continues to adopt eco-friendly facilities and replace the existing fuel consuming facilities with high-efficiency ones. As a result, we could reduce GHG emissions of approximately 30,000 tons in Ulsan Plant and Yongyeon Plant. Our passion to reduce GHG emissions will continue on.

Status of Recognition for Early-Action GHG Reductions

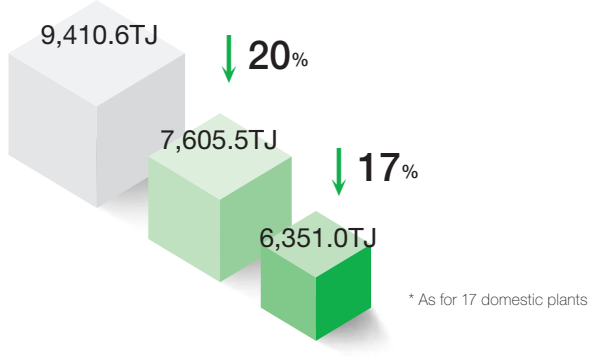
Business Site	Reduction Project Type	Reduction Project Period	Description
Ulsan Plant	KVER (2009-1-07-058)	2009. 1. 1.~2011. 12. 31.	Reduction of fuel by adopting excess steam of Dongbu HiTek
Yongyeon Plant No.1	KVER (2008-1-07-037)	2008. 1. 1.~ 2011. 12. 31.	Reduction of GHG converting the method of operating propylene compressors for DH process from steam into electricity
Yongyeon Plant 2	KVER (2009-1-07-034)	2008. 7. 1.~ 2011. 06. 30.	Replacement of self-produced steam using B-C oil with outside steam from public waste incinerator.
Gumi Plant 1	Pilot projects of the Ministry of Trade, Industry and Energy	2010. 1. 1.~ 2011. 12. 31.	Recognition for voluntary reduction by participating in pilot projects for Energy Target Management of the Ministry of Trade, Industry and Energy

Saving Energy Consumption

We continue to make investment and conduct activities to reduce the energy especially at the headquarters and domestic plants of Hyosung. Staff in each plant initiate energy saving activities, and inducing higher efficiency in energy usage by replacing energy facilities into high-efficiency ones and improving the old ones.

As a result, the direct energy consumption in 2012 dropped 16.5% to 6,351.0 TJ, and continuous efforts will be underway to reduce the energy consumption.

Enterprise-wide Direct Energy Consumption



Expansion of Green Purchase

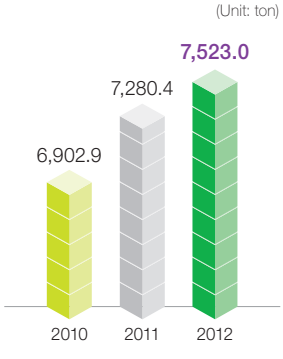
Saving the Resources Consumption

We strive to save resources consumed in each plant and make an efficient usage of resources. We manage the site-specific water consumptions, and establish re-usage facilities and process to ensure that the water can be recycled for usage.

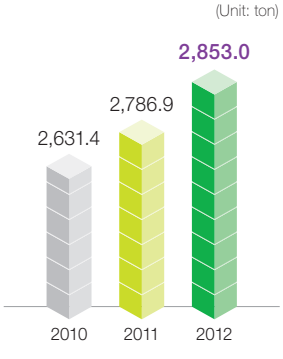
Reductions are made in waste water occurring from the production stage and waste amount occurring in treating waste by reducing the water usage. Changwon Plant established and operates facilities to reuse scrap iron and core scraps on business sites, so about 60% of the raw materials used in processes are used as recyclable raw materials, thus reducing the consumption of resources.

Gumi Plant, for instance, put in place facilities and processes to regenerate bulks, sheets and films so that they can be used as raw materials, and saves the consumption of resources by using 35% of raw materials as recycled chips.

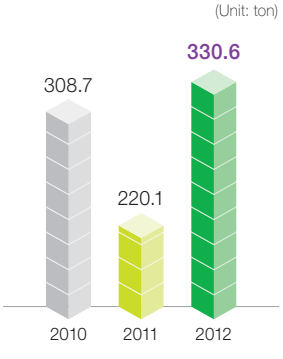
Amount of Usage of PET Recycle Chip



Amount of Usage of NYLON Recycle Chip



Amount of Usage of PET-Chip(Polyester-Chip)

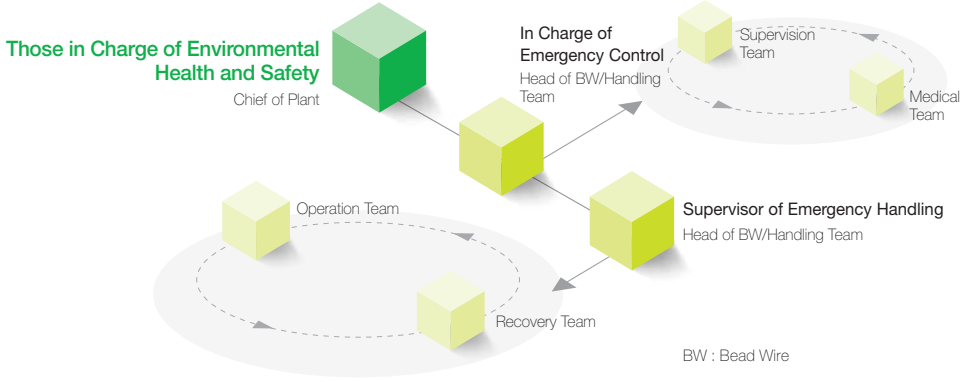


Strengthening the Management of Green Projects

Management of Hazardous Materials and Prevention of Leakage

We form a plant-specific task force to manage hazardous materials and conduct related activities. Safety devises are equipped and installed around the storage space of hazardous materials within plants, and efforts are underway to prevent accidents such as leakage through periodic reviews. Moreover, we put in place response systems with scenarios against emergencies, and formed networks with relevant departments and institutions. Periodic training is available for staff. We plan to continuously manage hazardous materials to prevent environmental accidents, and make prompt responses to accidents, thus minimizing the environmental impact. For Eonyang Plant, we strive to prevent accidents and minimize damage by installing the recovery facilities and oil separators, and establishing oil control equipment and fences based on the investigation and analysis of possible flows of major pollutants when accidents occur. This will enable us to minimize the damage as well as prevent accidents.

System Chart for Hazardous Materials Management at Eonyang Plant



Type	Staff Involved	Roles
Contact Team	Chief of BW/ Handling Team	Promptly contacting the Emergency Manager/Supervisor/Supervision Team/Team Process Operation Team
Recovery Team	Teams in Shift of BW/Handling Team	Preventing the spread of leakage upon emergencies where hazardous materials are leaked such as waste water and waste HCl, controlling/recovering the leaked/transferring to waste water treatment plants using counteragents, water, absorbent paper and booms
Operation Team	Unit Chief of BW/ Handling Team	Taking measures against leakage such as closing valves in the leakeage process and using pumps Recovering the leaked by supporting the Recovery Team after taking machinery actions
Supervision/ Medical Team	Staff of BW/ Handling Team	Supervising such as taking actions to prevent the spread and shutting of movement paths, transfering patients and moving forward

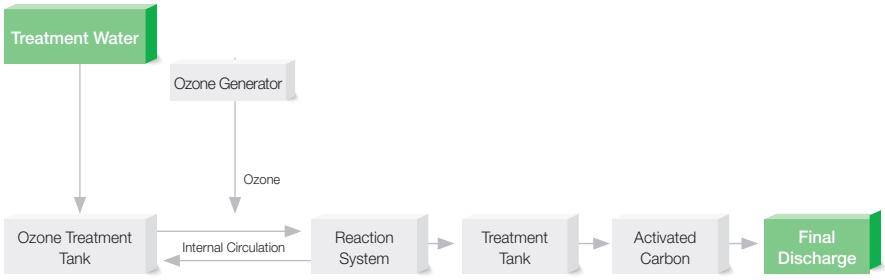
Waste Management

Each plant at Hyosung enhances waste treatment processes by considering features and ingredients of waste to reduce the amount of waste generated from the production process and to minimize the environmental impact. This enables improvement of the waste treatment process and higher recycling rates. Through process improvement, technology development and higher efficiency in technology, we seek to reduce waste emissions and increase recycling rates, thus minimizing the environmental impact. Yongyeon Plant, for example, systematically manages waste by legislating and improving treatment methods depending on waste type, and conducts separated discharge training for staff and partner companies so that waste can be discharged in compliance with laws. We have expanded our investment for waste treatment technology development. Recently, we have developed and commercialized technologies that reduce hazardous materials such as dioxins that might occur in waste incineration and utilize heat energy that might occur in incinerating waste.

Water Pollution Management

Each plant at Hyosung systematically manages water pollutants discharged from it, and conducts regular water quality inspection. Moreover, obsolete water pollution prevention facilities are replaced and improved and management is at the optimum level in order to discharge waste water at low concentration levels by removing high-density water pollutants. Gumi Plant, meanwhile, has made steady efforts to treat 1,4-dioxane, a minuscule amount of hazardous materials discharged from the polymerization process of polyester which has been an environmental issue since 2004. As a result, we maintain the level of 0.3ppm (versus the legally permissible level of 4ppm), and we plan to secure stable and high-efficiency treatment technologies for the future.

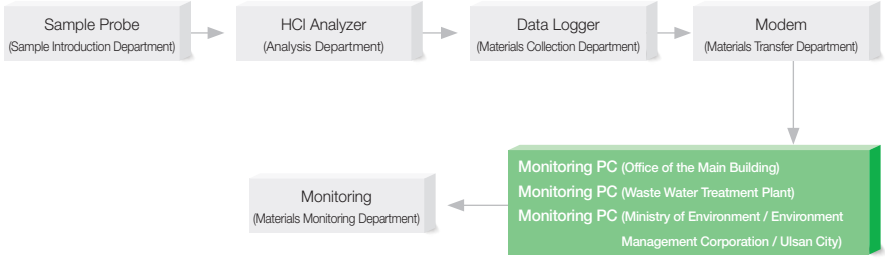
1,4-Dioxane Treatment Process



Air Pollution Management

We set our in-house air quality standard(HCl) which is more stringent that the emission standard of the Ministry of Environment, and strives to minimize air pollutants generated in the process of production to comply with the internal standard. To this end, we replaced air pollution prevention facilities with highly efficient ones in plants, while putting in utmost efforts for their efficient operation. We operate preventive facilities against air pollution in the process of emitting air pollutants, and manage and run Tele-Monitoring System (TMS) to reduce the amount of air pollutants and odor-causing materials.

TMS for Air Control at Eonyang Plant



Campaigns for Eco-system Protection and Natural Clean-up

Each plant at Hyosung conducts regular environmental clean-up campaigns of different types: 'One Company One River,' 'One Company One Park' and 'One Company One Mountain.' The aim is to protect the eco-system and the environment around each plant. Diverse environmental protection activities unfold in cooperation with institutions and associations located in the areas where our business sites reside. Changwon Plant conducts a monthly environmental clean-up to protect rivers including Namcheon and Wanamcheon in Changwon, and plants trees to create a green zone in the plant. Meanwhile, Ulsan Plant not only cleans up Taehwa River under the campaign of 'One Company One River' around the river, but also removes exotic weeds.

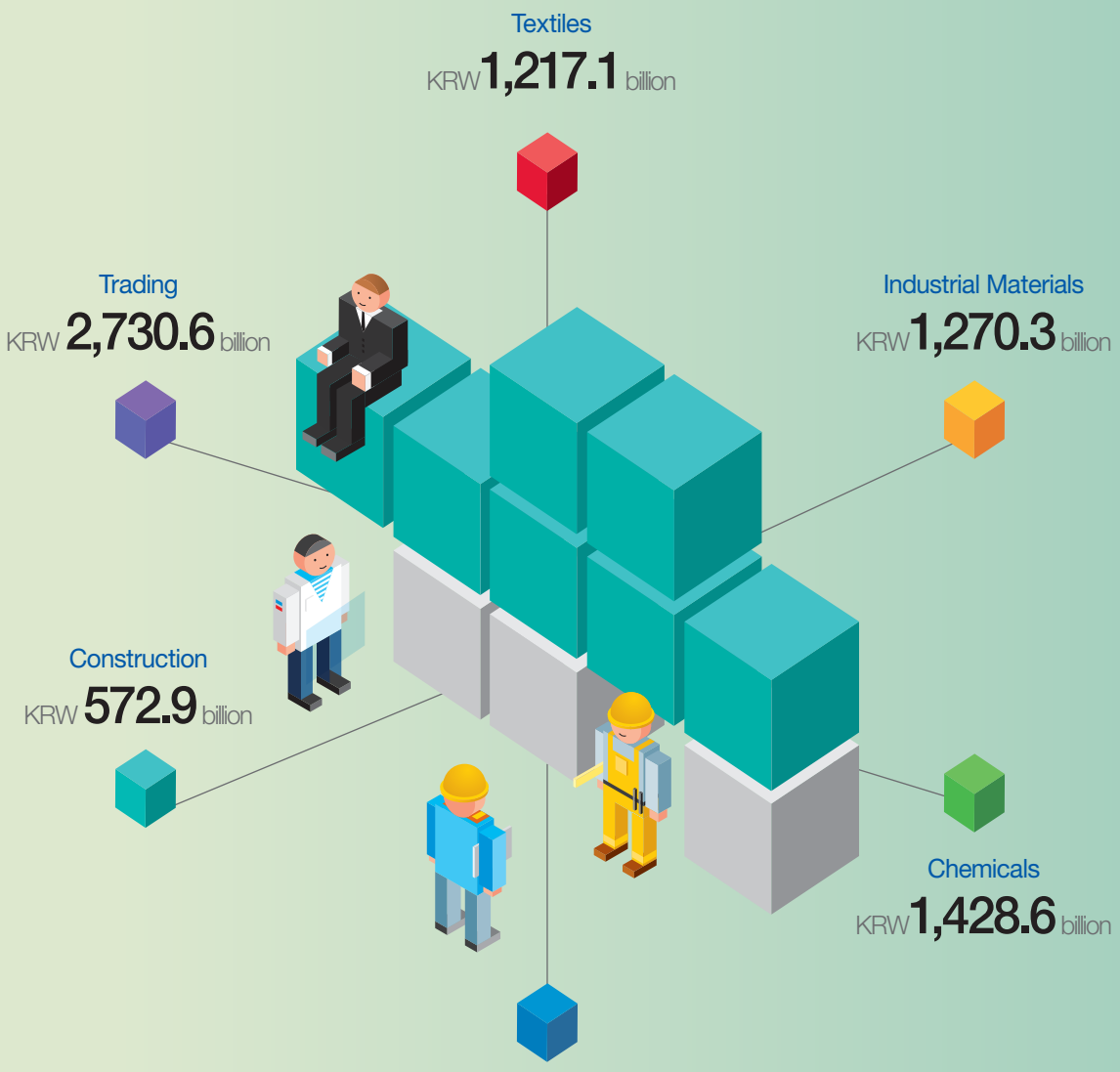
Hyosung Way
Key to Value Creation

We supply diverse product portfolios including textile yarn, materials for tires and safety belts, power transmission and distribution facilities for power supply, PET bottles and various packaging materials.

Moreover, we seek to contribute to making lives of diverse stakeholders including customers more enriching and affluent through development of and investment in new renewable energies, state-of-the-art materials and eco-friendly technologies.

Sales Records for Each Business Sector

As of Hyosung Corporation in 2012



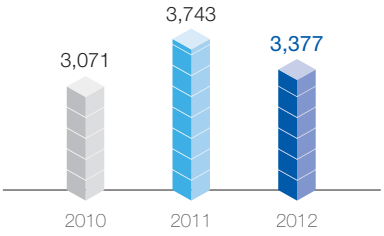
Hyosung Way – Key to Value Creation: Textile

Textile

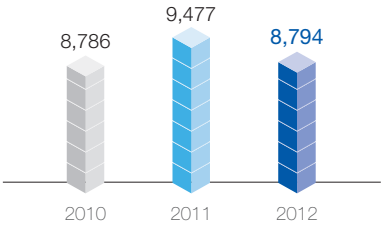
The Textile Performance Group produces spandex, that is, high value-added and highly functional yarn, polyester yarn and nylon fiber. Spandex establishes a global network by forming increasing production facilities in Europe, China and Asia and establishing production facilities in Latin America. For polyester fiber and nylon fiber, we focus on producing and selling profitable and distinctive products in strengthening market competitiveness.

Major Performance

Revenues (domestic) (Unit: KRW 100 Million)



Revenues (export) (Unit: KRW 100 Million)

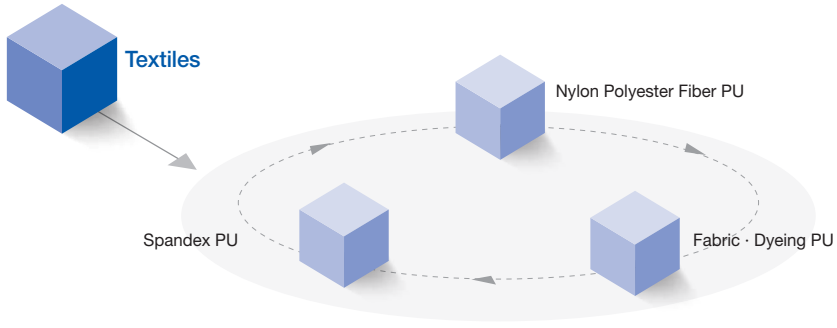


*As for Hyosung Corporation

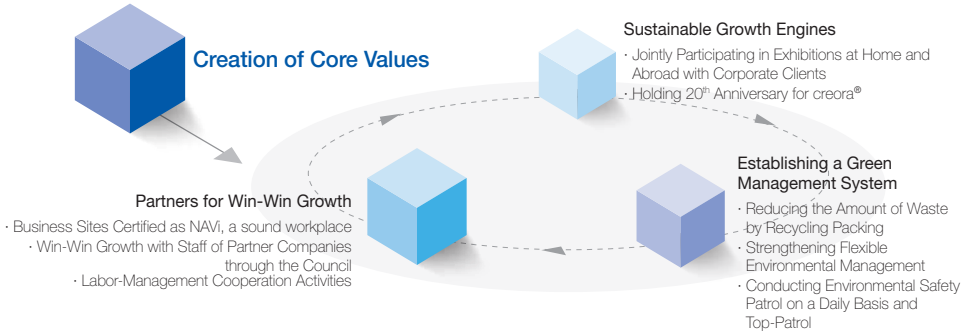
Major Business Performance

No.1 in market share in the global spandex market (world's No.1 product designated by the Korean government)
Development of the world's first fibers recycled from fishing net waste
Development of the world's first microfibers
Development of Regen™, yarn recycled from PET bottles

Organization Chart for Textiles Hyosung Corporation



Hyosung Way – Key to Value Creation



Spandex PU

The Spandex PU grew into a spandex maker with the No.1 global market share driven by exclusive production technologies, R&D and global marketing from the point of spandex production in 1992. creora®, a spandex brand, continues to develop new products catering to customer needs, thus leading the textile industry in Korea. Efforts are underway for consistent growth by increasing the number of business sites in China to expand sales.

Interview of an Executive at Spandex PU

We continue to conduct R&D to strengthen product quality and technological competitiveness. Efficiency in production processes is achieved and energy consumption is reduced by replacing or improving the existing facilities. Production lines in Turkey, China and Brazil have been established and expanded to bolster responsiveness to demand and raise product reliability among customers. Moreover, raw materials are recycled to reduce the amount of waste generated, and the usage of catalysts is reduced for eco-friendly production

Nylon Polyester Fiber PU

The Nylon Polyester Fiber PU produces a variety of highly functional yarns that incorporate our 40-year history in the industry, including TOPLON, which is used to manufacture sophisticated lingerie, sportswear, and industrial materials. We focus on developing state-of-the-art materials that encourage customers to have stronger business competitiveness by developing the world's first micro fiber using direct spinning. We strive for sustainable growth by developing differentiated products such as solution-dyed yarns, edge-split yarns and fine-deniers, and expanding their sales.

Interview of an Executive at Nylon Polyester Fiber PU

We do the utmost to achieve sustainable growth by differentiating our products based on quantitative growth through expansion of production capabilities and technological competitiveness. GHG emissions are reduced by using a smaller amount of energy in the production stage compared to the previous processes by enabling processes at a low temperature and streamlining the production processes. We plan to position ourselves as a global leader by securing competitiveness in technological competitiveness and developing eco-friendly products and processes.

Fabric·Dyeing PU

The Fabric·Dyeing PU established a series of production systems including yarn production, fabric weaving, dyeing, and post-processing focuses on developing highly functional and hi-tech products for customers. The unit's main products include garment fabric, workwear fabric, and non-garment fabric. Our production capacities have been intensified by establishing and operating production facilities that can produce a million yard of 2way spandex fabric a month that requires cutting edge technologies as well as dyeing processing facilities to cover a 2.5 million yard a month.

Interview of an Executive at Fabric·Dyeing PU

The Fabric·Dyeing PU strives to secure new growth engines by expanding the business scope to workwear and medical wear from the existing fashion business. We also reduce waste and the usage of raw materials by replacing the disposable fabric with polyester. We plan to continuously create new values such as environmental values and health & safety for customers along with offering the existing products.

Sustainable Growth Engines

Jointly Participating in Exhibitions at Home and Abroad with Corporate Customers

In the textile sector, we jointly run an exhibition booth with corporate customers in exhibitions at home and abroad which we both take part in. By doing so, we support our customers in their counseling and sales, and seek to raise the loyalty of customers that use our yarns. This also enables them to identify market needs and trends and gives them opportunities to expand new sales channels. Such a joint participation helps us to enhance our corporate awareness in the global market while promoting our products and introducing our brand. At the same time, we seek to strengthen our ties with corporate customers and secure sustainable growth engines.

Holding creora®'s 20-year Anniversary

The Spandex PU makes consistent efforts to provide diverse products of high quality catering to customer needs amid the expansion of global spandex market. Marking the 20th anniversary of creora®, our exclusive brand, we held its anniversary event at the Paris Mode City Interfilière exhibition, the world's largest lingerie and swim suit exhibition in Paris, France in July 2012. We did marketing, introduction of new products and consulting services for customers from all over the world including Europe, Americas and China.

Paris Mode City Interfilière Exhibition

1992~2012 Anniversary of creora 20th

creora®'s 20-year Anniversary Emblem

A Partner for Win-Win Growth

NAVI-certified Business Sites as Sound Workplaces

The Gumi Plant manages its business sites to ensure a safe and decent work environment for staff. Annual general health check-ups and comprehensive check-ups are available for staff to enhance their health status so that they can prevent any diseases and manage their health. Health counseling takes place and those with diseases are specially taken care of upon the visit of appointed medical officers twice a month. Moreover, an anti-smoking program is available for smokers in conjunction with a medical center. Thanks to such health enhancement activities for staff, the site was designated as 'NAVI certified site as a sound workplace' by the Gumi City Government, which sponsors the fees for certification of the safety & health management system.

Win-Win Growth with Staff of Partner Companies through the Council

The Gumi Plant operates a labor-management council for the Nylon Polyester Fiber PU, Spandex PU and Film PU, respectively. The periodic Labor-Management Council meeting is held once every quarter to listen to staff's complaints, improve the environment and enhance working conditions. Moreover, the Industrial Safety and Health Committee meeting is held every quarter with the presence of heads of business sites, head of the committee, safety managers and health managers so that a stable labor-management relationship is guaranteed. During the meetings, discussions are underway to enhance working conditions for staff, and by conducting council meetings with partner companies on health and safety on a monthly basis, we seek for win-win growth with staff of these companies.

Partner Company Council

Sound Workplace NAVI Certification and the Ceremony

Establishing the Green Management System

Reducing the Amount of Waste Generated by Recycling Packaging Materials

The Gumi Plant uses recycled packaging materials, and packing materials made out of regenerated synthetic fiber, thus reducing the amount of waste generated. Monthly visits are made to customers to recover the Pallet & Pad, and we seek to increase the recovery rate by actively requesting for their cooperation.

Strengthening Autonomous Environmental Management Activities

The Gumi Plant makes improvement in fixing potential problems through autonomous environmental management activities by checking out environmental prevention facilities and on-site environmental management status. The autonomous checking system whereby a company conducts autonomous inspection on environmental facilities and manages them instead of regular inspection was allowed to be taken at Hyosung by North Gyeongsang Provincial Government in 2006. Since it was re-designated in 2009, the Gumi site's autonomous environmental management activities have been recognized by the local government for five years until 2014.

Conducing Daily Environmental Safety Patrol and Top-Patrol

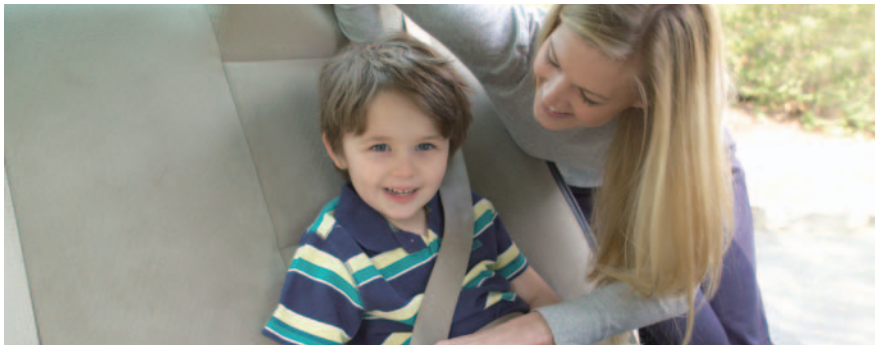
We check out hazardous material storage tanks, dangerous material storage tanks and outdoor storages to prevent environmental safety accidents. Through the daily environmental safety patrol activities, we induce staff's interest, explore potential risks of sites and take corresponding actions to prevent environmental accidents. Meanwhile, top-patrol has begun since 2007, and potential risks are explored and improved upon site inspection of team directors and the related parties under the supervision of the head of plants over 12 times every year, thus striving to emphasizing environmental safety, raising awareness about fire safety and preventing disasters.

Daily Environmental Safety Patrol Activities

Top-Patrol Activities

Hyosung Way – Key to Value Creation: Industrial Materials

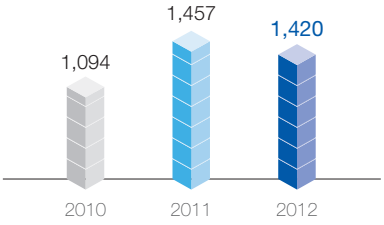
Industrial Materials



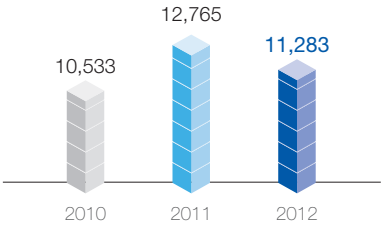
The Industrial Materials Performance Group produces industrial textiles used in different applications in all industries ranging from automobile, civil engineering, agriculture, military, transportation and sports. We are seeking to lead the global market based upon our global No.1 products – tire cords, automotive seatbelt yarns, and airbag fabric.

Major Performance

Revenues (domestic) (Unit: KRW 100 Million)



Revenues (export) (Unit: KRW 100 Million)



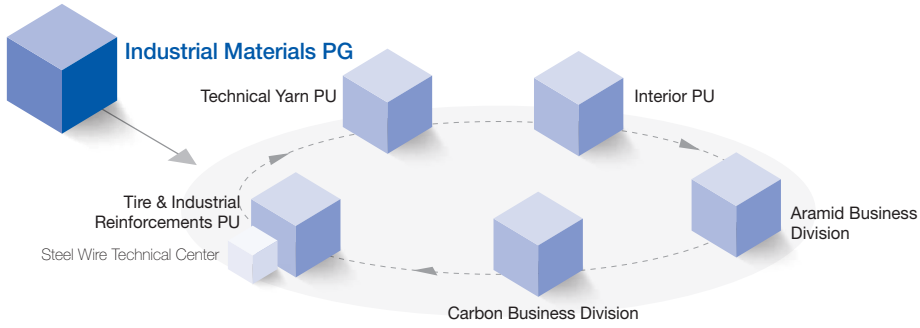
*As for Hyosung Corporation

Major Business Performance

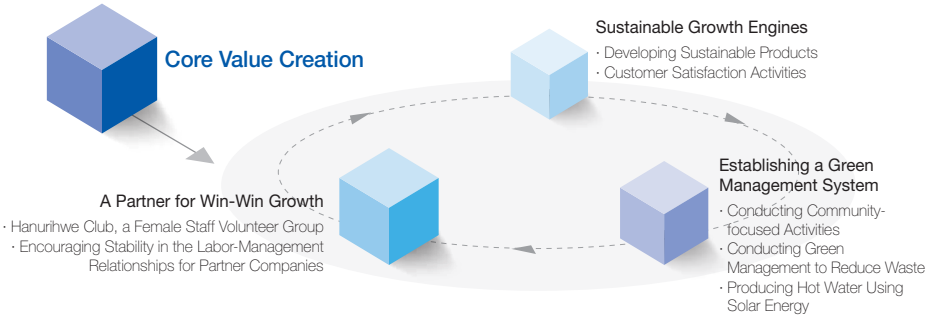
- Polyester tire cords with No.1 global market share (supplying over 40% of the world's passenger car tires)
- Seatbelt yarns and the airbag fabric with No.1 global market share
- Rolls, tile, automotive carpets with No.1 domestic market share
- Succeeded in developing high performance carbon fiber for the first time in Korea

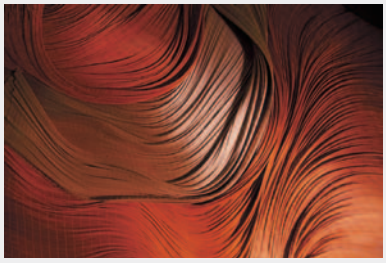
Organization Chart for Industrial Materials

Hyosung Corporation, excluding subsidiaries and affiliates



Hyosung Way – Key to Value Creation





Tire & Industrial Reinforcements PU

The Tire & Industrial Reinforcements PU is the world's only tire reinforcements maker that supplies all varieties of tire reinforcements covering fiber tire cords as well as steel cords, bead wires and chafers, and garnered customers trust accordingly. The Tire & Industrial Reinforcements PU concluded a long-term supply contract with global customers such as Michelin and Goodyear as the best quality product producer, hinting at its highly recognized technological prowess, through which a stable basis was formed. Besides the business sites in Ulsan and Eonyang, we have local production facilities in China, Thailand, U.S., Brazil and Luxembourg to supply products stably and serve our global customers in a timely manner.

Interview of an Executive at Tire & Industrial Reinforcements PU

The Tire & Industrial Reinforcements PU has strengthened brand value by maintaining product uniformity and differentiated product quality, and we are seeking to preemptively satisfy customer needs through stability in supply and new product development capabilities. In 2012, we produced ultra tensile products of steel cords for truck bus, and developed rayon-like polyester that can replace the costly rayon cords. We try to reduce cost for high-cost products and raise the competitiveness in product quality, while improving quality steadily and developing eco-friendly processes. As such, we will enhance our global competitiveness by jointly initiating new product development and product launch with customers so that we could all grow and mature together.

Technical Yarn PU

The Technical Yarn PU has the No.1 market share of seatbelt yarn globally as well as the No.1 market share of technical yarn in Korea. The Technical Yarn PU supplies a variety of optimized yarns used in various industrial fields such as broad woven coated fabrics for roofing and tarpaulin, automotive seatbelts, threads for sewing machines and threads for fishing nets, etc. We are also expanding our local sales and supply structure to meet our customers' needs throughout the world as well as provide proactive and differentiated services, so we have secured manufacturing and logistical centers in the U.S., China and Vietnam.

Interview of an Executive at Technical Yarn PU

The Technical Yarn PU established a vision to become 'global No.1 company in textile for car OSS and market leader in the industrial textile market,' and strive to develop differentiated products steadily and acquire competitiveness in quality. In 2012, we made a new jump by expanding overseas plants (increase in China and establishment in Vietnam), and plan to strive to become a reliable partner for customers based on excellent quality.

Interior PU

The Interior PU is Korea's only commercial carpet manufacturer with independent production facilities from yarn to finished products. Since the business launch in 1983, we have maintained the top rank in commercial and automative carpet field. We paved the way in supplying differentiated products by successful developing square hollow yarn for the first time in Korea. In particular, our major product, "Swan Tile Carpet," leads the commercial carpet market with its unique quality excellence, which has been verified by the environmental mark certification and KS certification in the field of tile carpets where strict quality control is required. Furthermore, the unit produces many kinds of carpet yarns as well as automative carpets and "Swan Mats" made of highly durable yarn as part of the diverse lineup as Korea's first top-notch total carpet maker. Moreover, our overseas expansion has been initiated by advancing to the U.S. market in full swing with the launch of a automative carpet plant in Decatur in the U.S.

Interview of an Executive at Interior PU

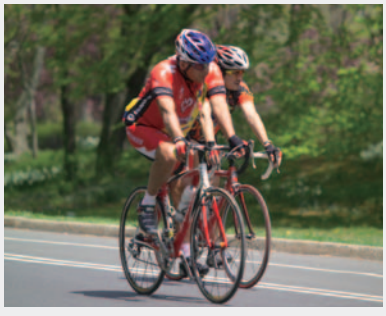
The Interior PU continues to conduct R&D for new materials and products to produce eco-friendly and differentiated products for commercial carpets, and make automative carpets lighter. We recorded the record-high sales in 2012, and the portion of sales of differentiated products such as square hollow yarn products and soft touch products. We plan to strengthen sales in the architecture market, enhance the noise absorption of car mats, develop new products to make them lighter and expand our sales abroad including the U.S., Japan, China and Europe.

Aramid Business Division

Hyosung's independently developed aramid yarn which started to be commercially produced in 2009 as the core material for bulletproof vests, helmets, and vehicles and for optical cables, hoses, and belts (for automobiles and industrial purposes) among other industrial applications. Boasting five times the strength of steel and fire-retardant quality without the use of a flame retardant, the highly functional yarn touts a higher usage and demand. We plan to be equipped with the production capacity of 5,000 tons per year to respond to a greater demand.

Interview of an Executive at Aramid Business Division

The vision of Aramid Business Division is to secure technological competitiveness for yarns, thus establishing a status as solution provider with the supply capacity of 5,000 tons. To this end, we develop large-capacity production technologies in polymerization and new technologies in the protection sector. Moreover, we strive to apply spinning in multi-end channels, develop high-speed spinning technologies and secure waste material recycling technologies. We plan to expand our business scope based on core competencies and establish a uniform production system, thus achieving sustainable growth.



Carbon Business Division

Carbon fiber is getting more attention as a core material for weight reduction. Consisting of more than 90% of carbon element, carbon fiber as a state-of-the-art material is 10 times stronger than steel while its density is only a quarter of steel. Hyosung's high-performance carbon fiber developed for the first time in Korea is a core grade product accounting for over 50% of the global demand. It is widely applicable in various industrial fields, sports and aviation. We are mass-producing carbon fiber at a carbon fiber plant in Jeonju which has garnered a great spotlight in the community as it was designated as one of the 'Top 10 Projects Designated by Jeonju City' in 2012.

Interview of an Executive at Carbon Business Division

The Carbon Business Division is expected to secure a production structure that can broadly replace metal through quality and productivity enhancement. We also strive to secure cost competitiveness by advancing the quality to the top level. Korea's first-of-its-kind development of high-performance carbon fiber was achieved in 2012. We plan to pour in utmost efforts to secure the top-notch technology in the fiber sector and develop into the world's top-notch carbon fiber maker through globalization.

Steel Wire Technical Center

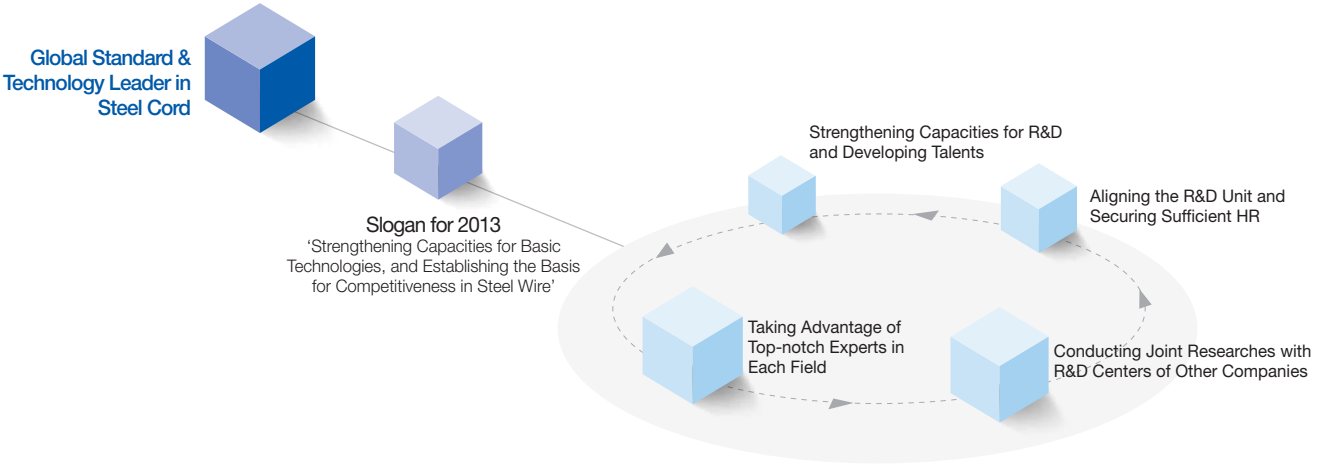
The Steel Wire Technical Center was established in 1986 to strengthen capacities for basic technologies and pave the way to set in place the basis for competitiveness. The Center strives to ensure that Hyosung's steel wire products gain the world's top-notch competitiveness in quality and cost competitiveness. Major research sectors include the basic research on metal structure mechanisms, research on products to develop high-performance steel cords, and research on high-quality and low-energy facilities to secure quality and cost competitiveness.

Sustainable Growth Engines

Development of Sustainable Products

The Steel Wire Technical Center does the utmost for Hyosung to become a global leader in steel cords by systematically establishing the core base technologies and conducting innovative researches. We have secured technologies to manufacture new structures and experts in chemical engineering, electricity/electronics, and conduct joint researches with R&D centers of corporate customers, partner companies and companies in the same industry. Efforts are underway to foster professional researchers and process experts by forming an organic unit between production sites and researchers. Hyosung's Global Site R&D Center was established to stabilize the increase in construction of overseas plants and support technologies thereof.

Strategies of the Steel Wire Technical Center



Customer Satisfaction Activities

The Industrial Materials PG established a customer management system to identify customer needs and promptly handle VOC, conducting organic communication between the Quality Assurance Team and Sales Team for quality management. Over once a month, VOC is regularly collected and visits to customers are made, thus raising customer satisfaction. Causes for complaints submitted via VOC are identified and analyzed, and problems are promptly resolved by checking them out with departments in charge. Moreover, problems are minimized by describing them in details to customers. For products where improvement has been made, whether or not improvement has been made and compliance with measures to prevent the reoccurrence are continuously identified and evaluated.

Customer Satisfaction Activities

VOC	Identification of the Status for C&C	Investigation of the Cause and Analysis	C&C Treatment	Implementation of Measures to Improve C&C	Enhancement of Customer Satisfaction
· Requesting for visits when issues arise on the quality of products by customers · Reporting on the occurrence of quality problem for customers	· Investigating the status quo · Identifying problems · Identifying requests for improvement and the details · Bringing in the products at issue	· Investigating the production record/shipment record/ production process · Identifying causes through sample analysis	· Identifying customer satisfaction · Identifying measures to prevent problems in production process	· Communication by Sharing Outcome · Preventing the reoccurrence of problems and making improvement · Sharing cases of making improvement in compliance.	· Identification of customer satisfaction on improvement activities · Making steady improvement and conducting quality evaluation

VOC(Voice of Customer)
Customer opinions transferred through formal communication means or informally transferred, including C&C-related information and customer needs

C&C(Complaint & Claim)
Customer complaints on problems occuring in product usage

A Partner for Win-Win Growth

Hanurihwe Club, a Female Staff Volunteer Group

The Eonyang Plant carries out diverse social contribution activities to share values with the community, especially voluntarily conducting charity work for the socially vulnerable. Hanurihwe Club, a Female Staff Volunteer Group, at the Plant conducts clean-up activities by annually, visiting welfare facilities, childcare centers and nursing homes. They also help the elderly finding difficulties in moving around and patients with taking a bath and having a meal, providing them with daily necessities like rice and kimchi.

Stabilizing the Labor-Management Relationship of Partner Companies

The Ulsan Plant conducts seamless communication between the Company and staff to establish a labor-management culture that creates new values beyond mutual trust and cooperation. Moreover, weekly council meetings are held by forming councils of partner companies on business sites besides improving the labor-management relationships among staff. We strive to stabilize the labor-management relations of partner companies by organizing management seminars for partner companies twice a year.

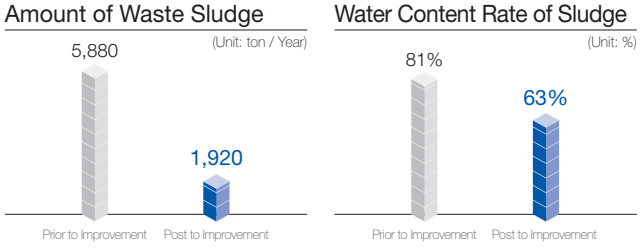
Establishing a Green Management System

Conducting Community Engagement Activities

The Eonyang Plant does the utmost to minimize the environmental impact to prevent problems for local residents around the plant by installing the soundproof walls to prevent noise, firewalls against scattering dirt and anti-air pollution facilities. Moreover, we have supplied residential water for free from the initial step of establishing a business site for local residents, and forged the One Company One Village campaign. As such, we have continuously maintained ties with local residents.

Green Management by Reducing Waste

The Eonyang Plant treats waste by reducing it over 80% compared to the legally permissible level for environmental pollutants, adopting evaporators and using high-efficiency dehydrators, thus reducing waste sludge. As a result, the Plant received the Prize of Excellence at the 2011 Ulsan Environmental Award. Our excellence was also recognized by presenting this technology at an environmental meeting of the 7th Organization for the East Asia Economic Development held in Qingdao, China in June 2012.



Environmental Meeting of the 7th Organization for the East Asia Economic Development

Production of Hot Water Using Solar Energy

The Ulsan Plant uses hot water utilizing new renewable energies. Energy collecting tanks are installed by installing solar collectors for five zones in the Plant. As such, energy consumption is saved by utilizing new renewable energies.

Solar Collectors of the Ulsan Plant

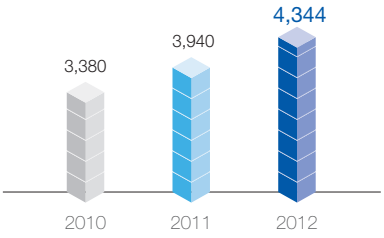
Hyosung Way – Key to Value Creation: Chemicals

Chemicals

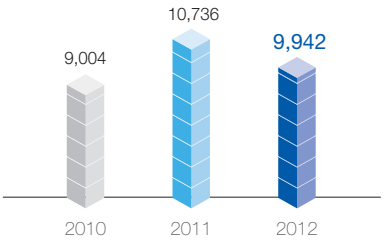
The Chemicals Performance Group manufactures a variety of chemical products including PP exported to Asia, Europe, and Middle East as well as various chemical products such as TPA, films, fluorine gas, and PET bottle boasting No.1 market share in Korea.

Major Performance

Revenues (domestic) (Unit: KRW 100 Million)



Revenues (export) (Unit: KRW 100 Million)



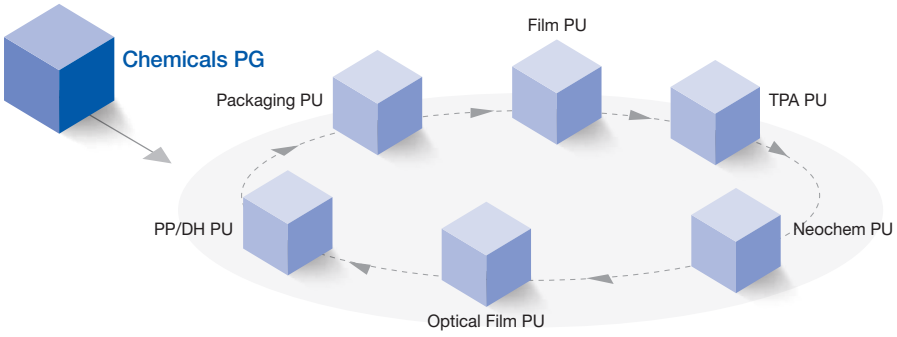
*As for Hyosung Corporation

Major Business Performance

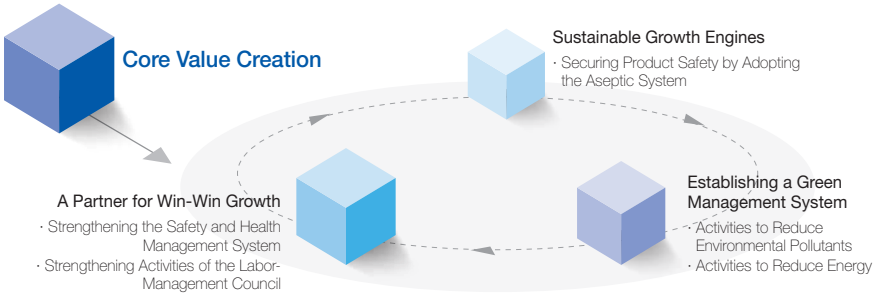
- No.1 in the Global Market for Grade for PPR Pipes
- No.1 in the Domestic Market in PET Bottle Production
- Production of Aseptic Drink Products

Organization for the Chemicals PG

Hyosung Corporation



Hyosung Way – Key to Value Creation



PP/DH PU

The PP/DH PU produces and supplies polypropylene(PP), whose raw material, propylene, is internally supplied using the high-tech propane dehydrogenation(DH) process, covering the full value chain from raw materials to finished products, and securing a stable supply of high-purity propylene. Moreover, the portion of sales for specialized products has been expanded such as PPR through market diversification, and profitability is sought after by developing new products.

Interview of an Executive at PP/DH PU

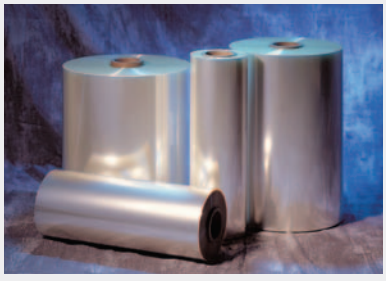
The PP/DH PU continues to develop differentiated products of Polypropylene Random Copolymer(PPR), and develops products for different usages and materials which could become next-generation PPR. In 2012, we enhanced competitiveness through enhancement in production capabilities for PP products and increase in facilities for hydrogen refinement. Despite the aggravated economic slowdown, we could maintain the market share for PPR and expanded the sales of products for special films. We plan to strengthen R&D and production capabilities to become a global player that provides top-notch high value-added products.

Packaging PU

The Packaging PU that adopted and produced PET bottles for the first time in Korea does the utmost to create top values under the vision to become 'a company that provides top-notch packaging products and services and garner due recognition for it.' As a result of consistent R&D, we acquired quality certification from global customers as well as from the FDA. We provide PET bottles to Korea's major beverage makers as No.1 market leader. Moreover, we are equipped with production and sales network systems to make prompt responses to customer needs especially on business sites in Daejeon, Jincheon, Yangsan and Gwanghwewon.

Interview of an Executive at Packaging PU

The Packaging PU strives to expand market dominance by expanding the aseptic business which began as a new business, while exploring new opportunities amid the expansion of demand in Southeast Asia as well as expansion in the market share in the domestic market. We acquired the FSSC certification as well as HACCP certification in response to social demands for food safety, and we plan to make endless efforts for production of safe products.

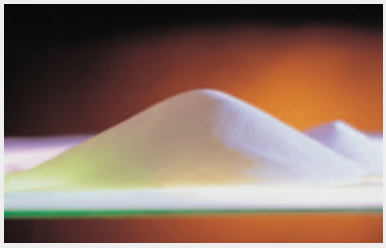


Film PU

The Film PU's Filmore strives to contribute to creating added values for customers by providing highest quality films to customers as the slogan goes, 'Fill With More Values.' Based on the technological competitiveness and know-how gained by advancing into the nylon and polyester fiber industry for the first time, we internally develop and supply nylon as the raw material of films and polyester polymers. We seek to achieve sustainable growth as a global film maker responding to diverse needs at home and abroad beyond the packaging usage to optical and industrial PET film line expansion, which is used as an electronic material for new growth.

Interview of an Executive at Film PU

The Film PU expands the market share by making an early entry into the optical market for high-quality electronics materials, securing differentiated quality competitiveness and adding new lineups. Production of products catering to market trends in industrial film production is being focused on. We make prompt responses to customer demands through customized quality in the packing film sector. Moreover, we plan to position ourselves as a global leader by securing new growth engines. This will be achieved by producing high-quality products and adding optical and industrial film lines.



TPA PU

The TPA PU strives to supply the highest-quality high-purity TPA based on experiences in chemical technologies accumulated in the chemical textile industry. TPA is not only used as the main material for highly functional polyester fiber but also used as the raw material for various industrial and residential materials such as tire cords, PET bottles and polyester films. Corporate competitiveness on polyester is enhanced with the supply of high-quality raw materials. Tireless efforts take place to develop residential materials driven by this competitiveness.

Interview of an Executive at TPA PU

We produce high-purity TPA equipped with strong cost competitiveness based on seasoned technological prowess and steady efforts to improve processes. Moreover, we serve as a global business player that has secured the sales market in different regions based on our tireless challenging spirit towards the global market. Competitiveness is maximized through expanded production capabilities as a medium-and long-term growth strategy, and higher added values are provided to customers, thus further expanding the business scope to those where sustainability is guaranteed.

Neochem PU

Nitrogen Trifluoride(NF_3 gas) produced at the Neochem PU is a commercialized product by developing the manufacturing process through Hyosung's exclusive research, using specialized gas for industrial purposes used for semiconductors, LCD and solar cells. The mass production began in 2007 when the business site was completed, and driven by continuous increases of facilities, additional production lines are available. We plan to develop diverse products to become a specialized producer of specialized gas for electronic materials.

Interview of an Executive at Neochem PU

The Neochem PU strives to realize high quality for products and their stable supply by developing and improving the production processes. Moreover, waste raw materials are recycled as raw materials, and as a total solution supplier, we diversify our business scope by producing diverse types of gasses using F_2. Tireless efforts are underway to achieve sustainable growth by establishing medium-and long-term strategies to respond to customer needs, while securing technological competitiveness and stably supplying products.

Optical Film PU

The Optical Film PU produces the TAC(Tri-Acetyl Cellulose) Film for polarizers used in LCDs. The TAC film is an electronic material for displays protecting the PVA polarizing film. We constructed a TAC film business site in Ulsan in 2009, and has the annual capacity of 50 million m2 TAC films. We contribute to the industrial development of LCD by domestically producing TAC films, and strive to implement sustainable growth by exploring overseas market as well as consistent R&D.

Interview of an Executive at Optical Film PU

The Optical Film PU conducts diversification of production of products and of customers, expanding the business scope to markets of home and abroad. Productivity of the TAC film is enhanced with higher productivity of the existing production facilities and addition of new facilities. As we conduct TAC coating and PET coating business, we strive to expand our market beyond polarizing films to films for BLU. We seek to position ourselves as a global leader by expanding our business to high value-added TAC films beyond the plain TAC film business.

Sustainable Growth Engines

Securing Product Safety by Adopting the Aseptic System

The Packing PU established an integrated production system from raw materials for PET bottles and finished products to stably supply high-quality products. Production and sales network systems are in place to promptly respond to customer needs especially on sites in Daejeon, Jincheon, Yangsan and Gwanghyewon. In 2007, we adopted Korea's first-of-its-kind asceptic system, safely recharging beverages that can be easily rotten in the distirbution process due to low levels of acidity. Moreover, we developed the Asepsys brand to raise awareness of aseptic beverages among consumers. As such, we striveto make the OEM sector for drink recharging as premium as possible.

Aseptic System

A Partner for Win-Win Growth

Strengthening the Safety and Health Management System

The Yongyeon Plant established a system to identify risks for facilities and take actions accordingly by adopting PSM and SMS for all processes. Constant efforts are made to enhance safety and health by acquiring KOSHA 18001 certification and Grade P for PSM. Process safety training is constantly conducted by each team for staff of partner companies as well as those on our business sites, along with training for legal managers, training on environmental safety, training on environmental systems and training on PSM. Moreover, management supervisor training takes place for 16 hours a year.

Strengthening Labor-Management Council Activities

The Yongyeon Plant formed the Labor-Management Council and holds a quarterly council meeting where issues discussed at the Council are addressed. Heads of plants and task forces gather together every month at a meeting to improve the working environment on business sites. Besides addressing labor-management relations among staff at Hyosung, we formed a council with partner companies, and hold council meetings on a monthly basis to identify different needs and make improvement. As such, we strive to practice win-win management with partner companies.

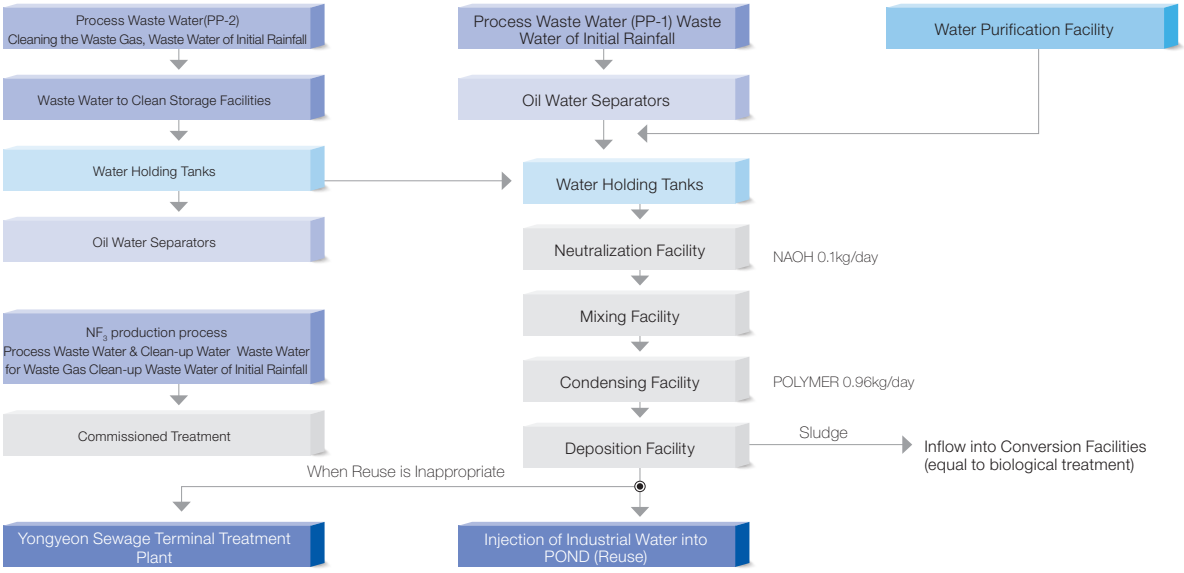
2012 Labor-Management Council Workshop

Establishing a Green Management System

Reduction of Environmental Pollutants

The Yongyeon Plant's waste treatment site treats waste water generated from production facilities for propylene and polypropylene and water treatment facilities in the first phase as it is equipped with physical, chemical and biological treatment facilities. Waste water is purified in the first treatment phase, and over 60% of the waste water is reused, thus reducing the industrial water usage and waste water discharges. Moreover, the Yongyeon Sewage Terminal Treatment Plant conducts the final discharge after second treatment, maintaining BOD, CODMn, SS 10% below the permissible levels to minimize the environmental impact.

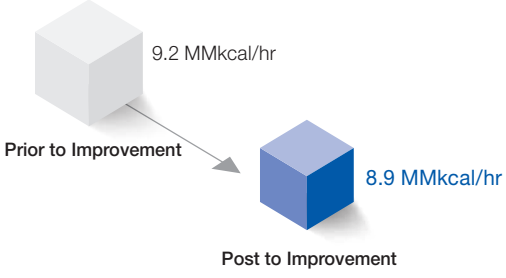
Physical and Chemical Treatment System at Yongyeon Plant



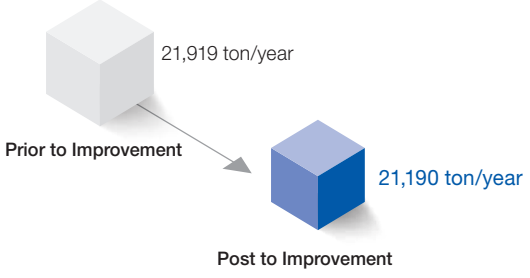
Energy Saving

The Yongyeon Plant conducts various activities in each process to save energy. Inverters are installed on agitators in the PP1 process, and air loss is reduced to save electric power expenses by improving air dryers. In the PP2 process, the pelletizer catalyst is converted, and through the catalyst improvement, products' distribution of molecules increases, saving the consumption of electric power per ton for production. In the dH process, heat exchangers are additionally installed, reducing the amount of steam usage by adopting the depropanizer preheating.

Amount of Energy Consumption



CO_2 Emissions



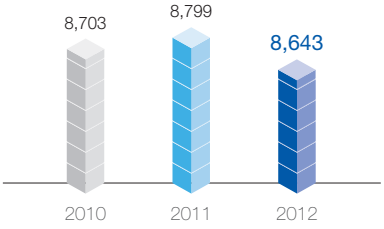
Hyosung Way – Key to Value Creation : Power & Industrial Systems

Power & Industrial Systems

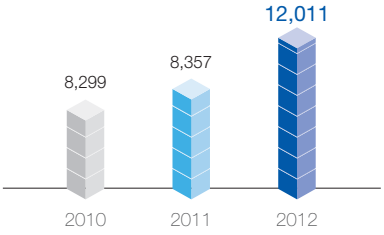
The Power & Industrial Systems Performance Group produces and sells transformers and circuit breakers, which are the core equipment for the national power supply, and motors, gearboxes and industrial equipment that are critical for Korea's infrastructure industry.

Major Performance

Revenues (domestic) (Unit: KRW 100 Million)



Revenues (export) (Unit: KRW 100 Million)



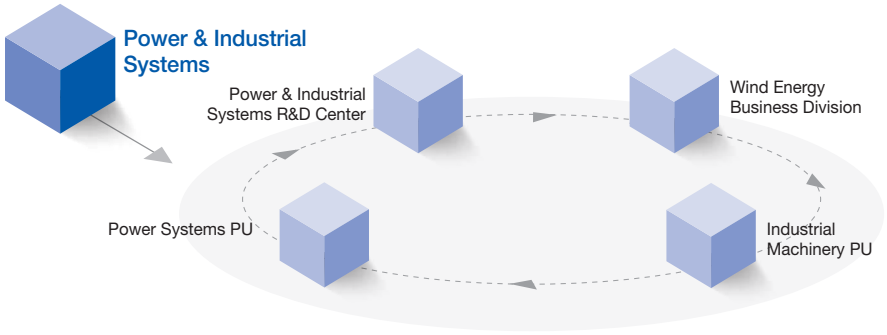
*As for Hyosung Corporation

Major Business Performance

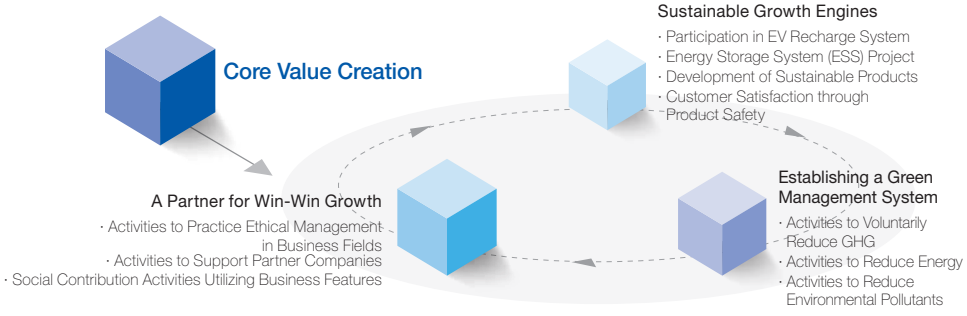
- Korea's first, world's 6th developer of 765kV-class ultra-high voltage transformers
- World's first developer of 800kV-class gas-insulated switchgear (GIS)
- Korea's No.1 electric motor manufacturer

Organization Chart of Power & Industrial Systems

Hyosung Corporation



Hyosung Way – Key to Value Creation



Power Systems PU

Since its launch in 1962, the Power Systems PU has led the transmission/transformation facility projects driven by advanced technologies, while supplying transformers, circuit breakers and electric sub-assemblies as major items. Recently, we are reinforcing our power monitoring and control system and preventive diagnosis system among other power and IT-based power automation business and Smart Grid business areas.

Interview of an Executive at Power Systems PU

Amid fierce competitions as well as increasing market risks, we seek to secure competitiveness and garner growth in the heavy electric equipment business driven by improved product quality, and improved processes throughout the whole production stages. Through core capacity buildup activities in the Power Systems PU, we pave the way for sustainable growth, and create customer value through customer satisfaction activities to cater to diversified customer needs.

Industrial Machinery PU

The Industrial Machinery PU as Korea's No.1 industrial motor manufacturer produces electric motors that are the power source for public facilities and industrial facilities, gearboxes, generators, chemical process equipment and cranes. In particular, we lead the green technology field by providing the power generation system for eco-friendly new energies such as generators for wind energy, high-efficiency electric motors and recharging systems for alternative energies.

Interview of an Executive at Industrial Machinery PU

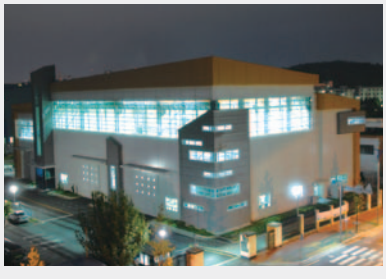
As energy efficiency policies and environmental regulatory conditions toughens, the importance of securing new technologies to save energies and developing highly efficient products has increased. Through continuous development, the Industrial Machinery PU is taking this market change opportunity to be a leader in distributing high-efficiency electric motors and generators, seeking to fulfill corporate social responsibilities by enhancing capacities for developing eco-friendly products.

Wind Energy Business Division

The Wind Energy Business Division started wind business by starting R&D on wind turbine component in the late 1990s at the Power & Industrial Systems R&D Center. The Wind Energy Business Division succeeded in the development and commercialization of the geared-type 750kW and 2MW wind turbines for the first time in Korea, and was internationally certified for its technologies. We are leading the domestic wind power industry by localizing the wind turbine components, and taking part in the government's local distribution projects and joint development projects. We are currently developing 5MW offshore wind turbines on the national project sponsored by Korean g overnment being ready to take a greater leap by advancing to the offshore wind energy market.

Interview of an Executive at Wind Energy Business Division

The demand for renewable energies will continue to rise driven by the spread of efforts to reduce green house gas emission and advocacy to reduce nuclear energy generation. The Wind Energy Business Division that pioneered Korean wind energy industry spearheads in-house development of wind turbines and localization of major components, while contributing to the growth of Korea's renewable energy industry by operating a test-bed as well as commercial wind farms.



Power & Industrial Systems R&D Center

The Power & Industrial Systems R&D Center has developed pivotal technologies in the heavy electric equipment business since its launch in 1978, backing up Hyosung's competitiveness by offering technological prowess, which is the core capacity of Hyosung. The Center is operated dichotomously in Anyang and Changwon, taking the lead in developing and advancing core technology development in the heavy electric equipment, electric power/ electronics, power automation solutions and energy systems.

Sustainable Growth Engines

EV Recharging System Project

The Industrial Machinery PU was selected as a 'recharging system operator' under the 'Electric Vehicle Sharing' program organized by Korea Electric Power Corporation, supplying 26 units of EV recharging systems in Seoul and the metropolitan area. Since the first development of the EV recharging system in 2010, we have supplied 120 recharging systems to the smart grid test-best complex in Jeju which is under the government's national policy project and public agencies nationwide. Since 2012, we have supplied recharging systems for the general public to use. The Industrial Machinery PU not only contributes to distributing and facilitating the EV recharging infrastructure by establishing recharging systems but also seeks to secure technological competitiveness in EV recharging projects.

EV Recharging System and Recharging Device

ESS(Energy Storage System) Project

Energy Storage System(ESS) is a device which stores electricity to a storage medium and uses the stored electricity when it is needed. There are several types of ESS depending on storage medium and recently utilizing secondary batteries, such as Lithium-ion battery and Lead acid battery, are mostly popular.

ESS is applicable to decrease in peak load, ancillary services like frequency regulation and grid integration of renewables. Since ESS can improve stability and efficiency of grid, the necessity of ESS gets higher.

The Power & Industrial Systems Performance Group has actively initiated the ESS business, currently testing MW-class new renewable energy-tied ESS Power Conditioning System(PCS) and PMS(Power Management System(PMS) in the smart grid test-bed complex in Jeju and the substation in Jocheon. In 2012, we have developed the ESS for lowering peak demand of general customer.

Moreover, we plan to install ESS, application of ancillary service, to CLP Power, the largest vertically-integrated electricity generation, transmission and distribution company in Hong Kong by 2013.

Development of Sustainable Products

Research areas in the Power & Industrial Systems R&D Center include the smart grid and motors for EV which are being spotlighted as a next-generation businesses, and green businesses including the PV Power Conditioning System(PCS), wind power PCS and fuel cells. As such, consistent reviews and researches are actively underway on the green businesses. Based on such research performances, we developed 1kw duel cell stacks embedded in residential fuel cells.

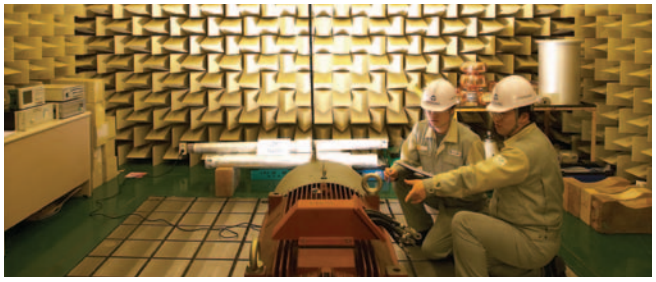
Stacks are core components producing electricity and heat through the electrochemical reaction of hydrogen and oxygen in fuel cell systems. The stack developed this time is an innovative product that can save over 40% of cost compared to the existing products, and can not only save electric and heating charges but also save 1.5 tons of CO_2 per year for each residential fuel cell. The Power & Industrial Systems R&D Center supplies core capacities for product development that can lead smart grid and New Renewable Energy projects driven by technological prowess. Moreover, the Center plays a central role to host the semi-annual Hyosung Technology Innovation Forum.

The forum has been held since 2011 to discuss measures for business-academia cooperation between Hyosung and universities. In the second forum held this year, discussions and presentations were held on Hyosung's essential power & industrial systems technologies including the market and policies for energy storage systems, large-scale ESS power grid application studies, and status and outlook of the ESS business.

Customer Satisfaction by Ensure Product Safety

The Wind Energy Business Division has installed winches (i.e., machinery that can pull up or attract heavy loads using pulleys), with which heavy loads can be carried in freight elevators and nacelles in order to prevent fall offs and collision in approaching nacelles (i.e., devices including generators, gear boxes and control devices) within wind turbines.

Fall-off or collision as risks might occur in using stairs in wind generators in approaching nacelles for maintenance of wind power generators, and worker safety can be harmed in carrying heavy weights. To prevent such risks, freight elevators and winches have been installed in all models so that safety can be secured from application to application in design and installation. We strive to prevent safety accidents while checking devices and facilitating repairs through consistent efforts to secure product safety.



Product Durability Test in an Anechoic Room

Hyosung Technology Innovation Forum

A Partner for Win-Win Growth

Activities to Practice Ethical Management in Business Fields

Hyosung's Power & Industrial Systems Performance Group launched the Compliance & Risk Management Team, which is in charge of ethical management and provides various ethical management training opportunities and hosts seminars on relevant topics. Furthermore, in an effort to raise awareness among members on ethical management, the Compliance & Risk Management Team periodically publishes guidelines on what constitutes violations of ethical management and corrective actions to be taken.

In 2011, the Power & Industrial Systems Performance Group conducted various ethical management training exercises for all members. In 2012, training took place for 226 staff including team directors and executives in each team on ethical management violations, guideline to prevent such violations and the impact of ethical management on the performance of an organization. Ethical management newsletters are periodically sent out to all members of Hyosung for continuous training on this important topic. We also encourage our members to alert the company in the event of ethical management violations by utilizing the help-line services, which were implemented to accomplish and monitor ethical management in practice. As the foregoing demonstrates, we endeavor to facilitate transparent and fair management in all aspects of our operations by implementing the necessary frameworks for ethical management.

Ethical Management Courses

Title	Description
Newsletter and Seminar on the Foreign Corrupt Practices Act of the U.S.	To raise awareness on corrupt behaviors such as bribes taking based on the major content of the Foreign Corrupt Practices Act of the U.S., key targets, penalties for violations and actual case studies, and company-wide distribution of an alert letter to prevent violations.
Newsletter and Seminar on Collusion Cases Abroad	Training session on case studies on international collusion of overseas heavy electric power equipment companies and punishment imposed thereon, and distribution of a newsletter on risk exposure for collusive acts and potential penalties.
Interviews with Team Members to Prevent Sexual Harassments	Interviews conducted with female members in each team and sexual harassment claims assembled, in order to maximize effectiveness of sexual harassment prevention training.
Ethical Management Training	Ethical management training intended for team leaders and executive officers as a follow-up to the 2011 training session. Lectures given by the Compliance & Risk Management Team on the importance of ethical management and foreign case studies, etc.
Newsletters on How to Handle Gifts from Partner Companies on Holidays such as New Year's Day or Thanksgiving Day	Since 2010, we have regularly notified all our members that exchanges of gifts with partner companies on holidays such as New Year's Day or Thanksgiving Holiday are expressly prohibited. Furthermore, the newsletters distributed to our members on this topic provide specific instructions on how to report such prohibited gifts and return them to senders. We have also made repeated requests to partner companies to abstain from sending gifts to our members.

Activities to Support Partner Companies

The Power & Industrial Systems carries out joint purchasing and sell-off of surplus materials through the notification of the e-purchase system, which contributes to securing cost competitiveness for partner companies and realizing profits. For instance, through joint purchases of copper scraps and cold-rolled sheets, partner companies could purchase high-quality raw materials at a low price. Moreover, we could prevent production delays and secure cost competitiveness by selling off the inventories for materials needed for production to partner companies.

We provide customized training to enhance staff's capacity buildup in partner companies as well as enabling them to overcome the management crisis, thus raising win-win cooperation between Hyosung and them, enhancing corporate competitiveness and strengthening partnership. Courses offered are production management, strategy management and technology management. In 2013, the courses will be available not only in Seoul but also in Changwon. We have run a program to benchmark industrial companies in Japan for partner companies every year, thus supporting their innovation capacity buildup through innovation in talents, production and work.

Social Contribution Utilizing Features of the Business

The Power & Industrial Systems implements social contribution utilizing features of the business based on science, technology and research. We signed an MOU with Sudo Electric Technical High School in Seoul designated as a meister high school, striving to develop specialized workers in the energy and power fields. Students selected as such have grown into excellent technicians at the Design Team, Production Technology Team and Quality Management Team on the business site in Changwon. Since 2004, the site has organized 'Junior Engineering Technology Class' for elementary school students to teach them science in an easy and fun manner.

Establishing a Green Management System

Voluntary Reduction of GHG and Energy Saving

The Changwon Plant has expanded the usage of EVs to reduce GHG voluntarily. We purchased 1000cc-class voltage EVs using automobile motors developed by Hyosung for testing and have used them, thus reducing energy consumption and CO_2 emissions. The site in Changwon has replaced the existing LNG-based steam with the waste heat(steam) of incinerators, thus reducing it by 1,520,268m^3 throughout 2012, and also cutting electric consumption by using highly efficient lights.

Activities to reduce electric power resulted in saving 1,346,850KWh per year by replacing the existing old reciprocating air compressors and air dryers with state-of-the-art air compressors and air dryers (1250HP). Plumbing and molding plants and Plants 1 and 3 in Changwon had the lights replaced with efficient ones, thus enhancing the brightness, making a decent work environment, and saving electric power usage. With the light replacement, 458MWh was saved a year, amounting to KRW 174 million a year.

Activities to Reduce Environmental Pollutants

The Changwon Plant operates a ventilation system while improving air pollution prevention facilities to reduce emissions of air pollutants. We stringently check out air pollution and prevention facilities, and reduce the usage of hazardous chemicals. Moreover, emergency networks are underway with waste collecting and treatment companies. We installed oil schemers in three spots for oil-water separation in the final rainfall outlets to prevent leakage accidents. This helped us to receive the Grand Prize in the 2011 Environmental Management Company Award from Changwon City.

A View of the Air Pollution Prevention Facility

Award Ceremony for the Environmental Mangement Company Award

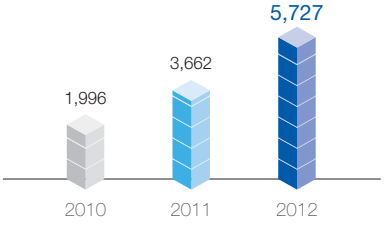
Hyosung Way – Key to Value Creation : Construction

Construction

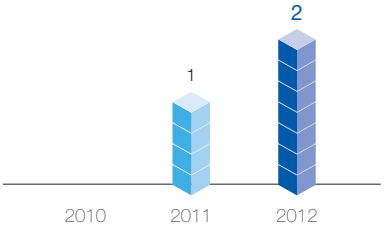
The Construction Performance Group is actively engaged in diverse construction fields driven by seasoned experiences and technological prowess. They include housing projects at home and abroad, redevelopment and reconstruction, business and commercial facilities and civil engineering, environmental and SOC projects. Moreover, technology development is initiated through active researches and investment in various environmental fields such as water treatment, waste treatment and air pollution prevention facilities.

Major Performance

Revenues (domestic) (Unit: KRW 100 Million)



Revenues (export) (Unit: KRW 100 Million)



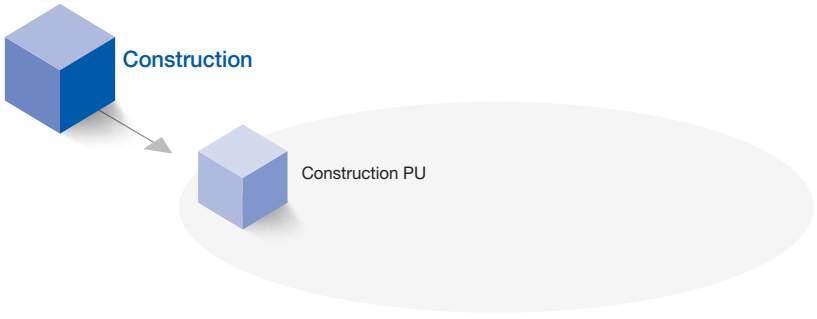
*As for Hyosung Corporation

Major Business Performance

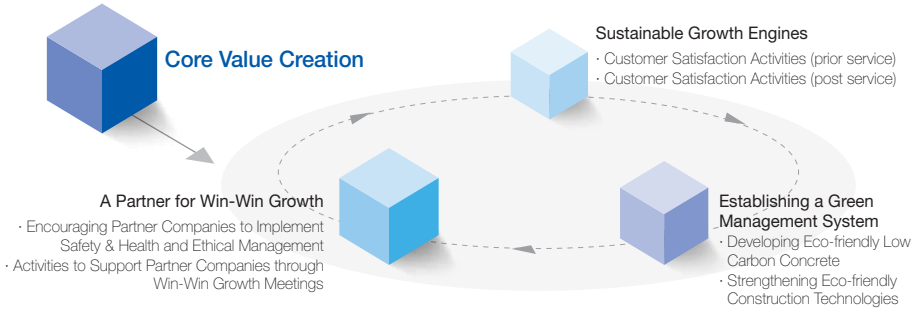
- Adopting Korea's first-of-its-kind town house-type residential culture
- Adopting Korea's first-of-its-kind insulating exterior walls and finish techniques

Organization Chart of Construction

Hyosung Corporation



Hyosung Way – Key to Value Creation



Construction PU

The Construction PU that introduced a new-concept residential culture by adopting villa-type residential buildings for the first time in Korea in the 1970s creates a new spatial culture where the nature and technologies are striking a harmony. Top priority is on customer satisfaction in housing, architecture, industry and materials fields.

We strictly comply with environmental regulations, while initiating projects under firm management principles in four areas: customer management, quality management, environmental management and safety management.

Interview of an Executive at Construction PU

We secure core capacities in the Construction PU through various activities: strengthening prior and post services and expanding the development of green smart construction technologies and of eco-friendly materials technologies. Of particular note, we seek to enhance competitiveness in eco-friendly technology development by developing business competencies in new renewable energies and eco-friendly low carbon concrete materials. Moreover, efforts are underway to strengthen mutual capacity buildup through training on safety, health and the environment along with partner companies in order to secure safety on sites and protect the environment.

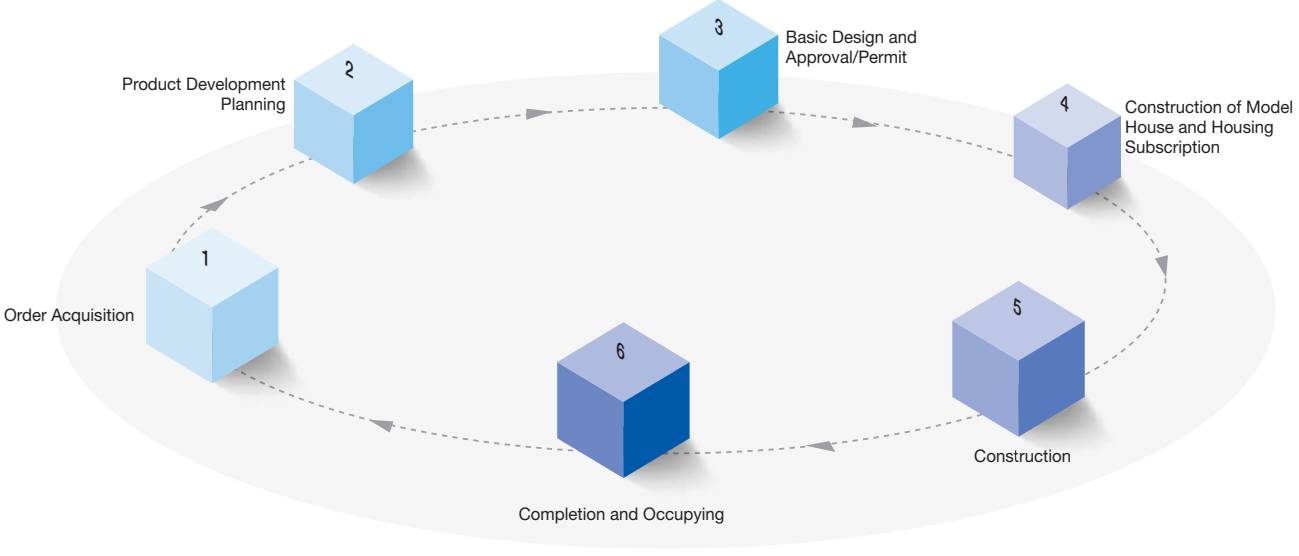
Sustainable Growth Engines

Customer Satisfaction Activities – Prior Service

The Construction PG seeks to cater to sophisticated building functionalities and quality requirements amid higher standards of living and awareness among customers, and provide architectures that can satisfy them. According to a step-specific checklist by dividing construction into six stages from order acquisition to completion, we strive to maximize product value and minimize faults with the active participation of all staff.

Moreover, we try to minimize the reoccurrence of the existing faults by documenting and distributing a booklet on related accidents or faults every year (67 cases in 2010, 56 in 2011 and 63 in 2012).

Six Steps of Service/Product Development and Quality Inspection



Customer Satisfaction Activities – Post Service

In order to satisfy customers after building construction is completed, we collect reports on faults and complaints on buildings from customers through the 'Residents' Prior Review' before they move in. By promptly handling such faults and complaints by conducting intensive maintenance on each business site and by having partner companies become available for possible occurrences of faults. This has led to higher customer satisfaction. In particular, customer opinions are submitted through channels including the bulletin board of Hyosung and phone calls so that customer complaints can be systematically managed under the Customer Satisfaction Management System (CSMS) and problems can be promptly and accurately treated and improved. With the adoption of the 'Happy Call' service, we ensure that improvement can be made through customers' ex-post evaluation on how things got treated.

Inducing Safety and Health and Ethical Management for Partner Companies

The Construction PG applies Hyosung's safety and health regulations to all partner companies, and conducts evaluation on their compliance through the event called 'Day of Safety Checks' held on 4th of every month on each site.

Based on the results of evaluation participated by staff of partner companies and Hyosung, improvements to be made are devised and actions are taken so that they could be applied. The PG is fully aware that ethical management is the core of win-win growth and corporate competitiveness. We document the 'Pledge of Ethical Compliance' where the Code of Ethics is applied. As of 2012, 85 partner companies have signed it and submitted it. Our Code of Ethics provisions are disclosed through our company website.

Activities to Support Partner Companies through Win-Win Growth Meetings

The Construction PG conducted bi-annual meetings with general architecture companies in 2012 where we introduced our status quo and future plan to prestigious architecture offices and engineering companies in Korea and paved the way for win-win growth through information exchange and cooperation. We hope to create an environment for win-win growth through continuous exchanges by holding such seminars. Moreover, we sign and implement 'an agreement on fair trade with sub-contractors and win-win growth with them' with partner companies, aiming to raise mutual competitiveness and win-win growth. As of end-2012, we signed the agreement with 175 partner companies, under which the cash payment rate which stood at 15.1% in 2011 increased to 50% in 2012, while the proceeds payment period was shortened from 45 days in 2011 to 39 days in 2012.

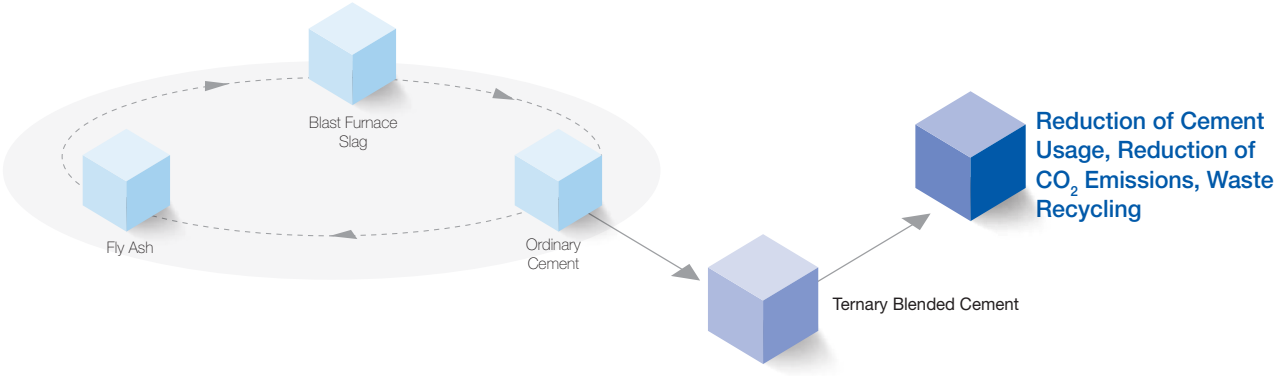
Establishing a Green Management System

Developing Eco-friendly Low Carbon Concrete

The Construction PG strives to reduce the usage of cement as a raw material in construction by developing ternary blended cement of blast furnace slag as a byproduct of steel works, fly ash as a byproduct of a thermal power plant and ordinary cement. By recycling byproduct materials generated from steel works and power plants, it is expected to cut cost by reducing environmental pollutants and cement consumption.

Expected results by developing eco-friendly low carbon concrete technologies include reduction of 35% in the detectable amount of hexa-valence chromium vis-à-vis 100% in the past, and maximum 50% reduction of carbon emissions. Moreover, durability can be boosted with the reduction of heat of hydration by 20% due to the features of low-heat emitting products, which results in reduction in cracks. We seek to implement green management through green construction technologies driven by green technology development capacities.

Eco-friendly Low Carbon Concrete Technology Mechanism



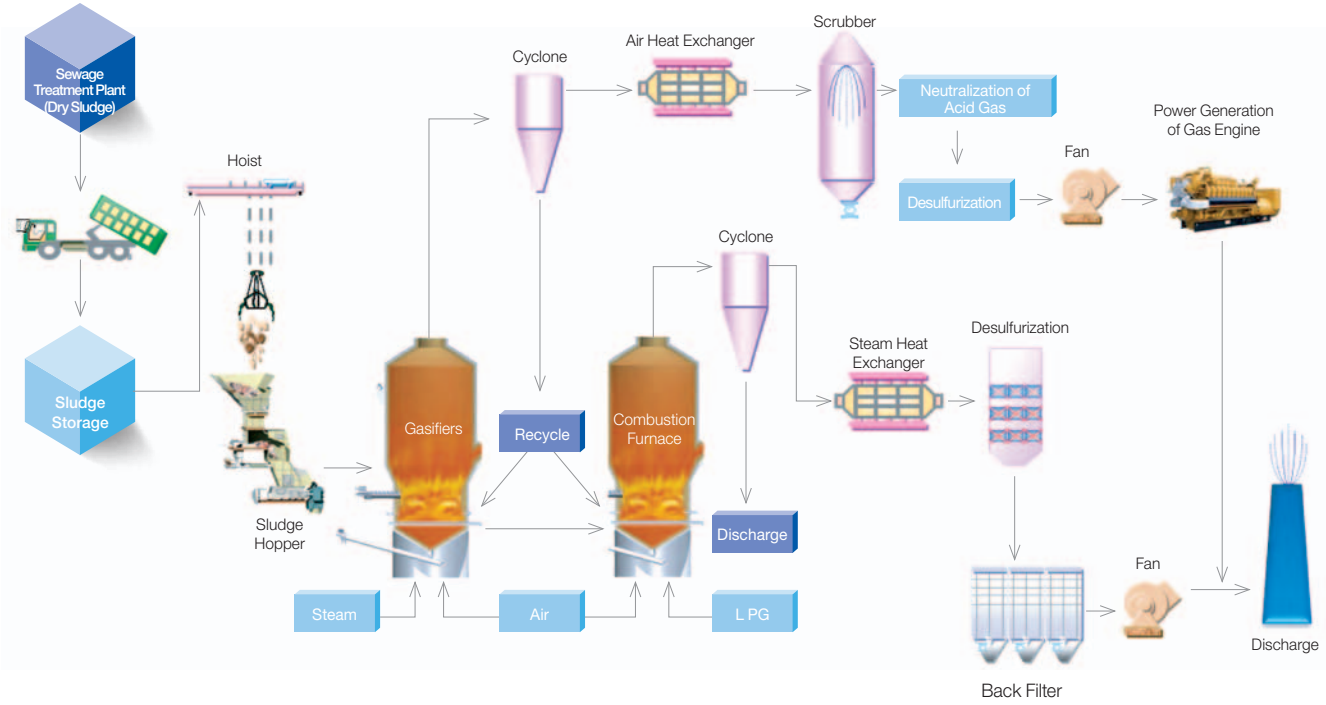
Strengthening Eco-friendly Construction Technologies

The Construction Performance Group developed the gasification system for sewage sludge generated in treating sewage by taking part in the Eco-Star Waste Resources Energy Project, one of the government's national policy projects. We seek to optimize the configuration of syngas while maximizing the gas heat emissions, aiming to convert waste resources into energy by securing technologies to gasify sewage sludge and to develop technologies to turn chemical materials into synthetic raw materials.

We convert the materials generated through gasification of sewage sludge into clean fuel through the technologies, and develop techniques to turn chemical materials into synthetic raw materials and refine them. Moreover, we raise the odds of recycling sewage sludge by evaluating the processing features of residue and their environmental impact.

This process has increased the efficiency in energy recovery as an oxidizer pre-heating system for waste heat. Over the long haul, we plan to reduce the energy consumption by developing gasification systems that are scaled up to be applied to business sites, and consistently implement process development and commercialization to minimize the occurrence of secondary pollutants.

Sewage Sludge Gasification System Chart



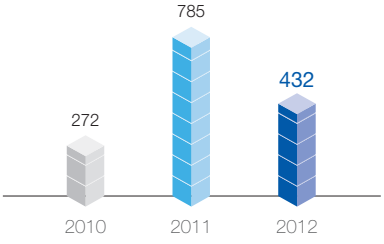
Hyosung Way – Key to Value Creation: Trading

Trading

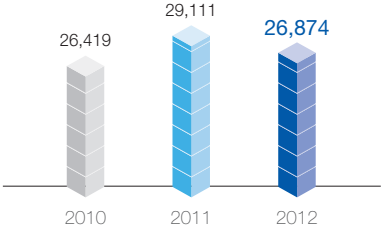
The Trading Performance Group is engaged in business fields covering distribution and logistics with a strong focus on steel and chemicals. Based on 50 global networks with our overseas branches, we have provided marketing services on the globe, thus achieving sustainable growth by exerting our capacities through years of trading experiences.

Major Performance

Revenues (domestic) (Unit: KRW 100 Million)



Revenues (export) (Unit: KRW 100 Million)



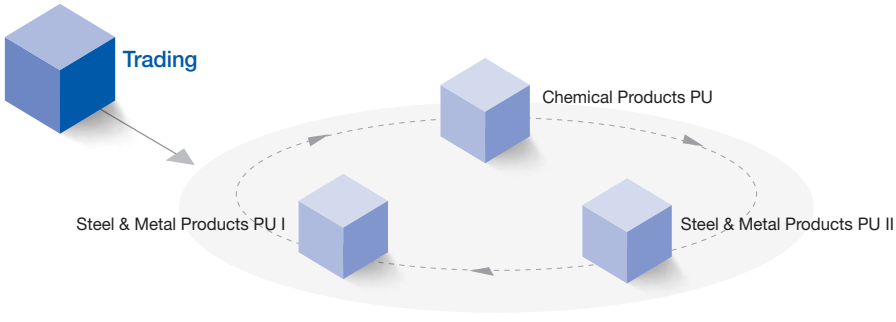
*As for Hyosung Corporation

Major Business Performance

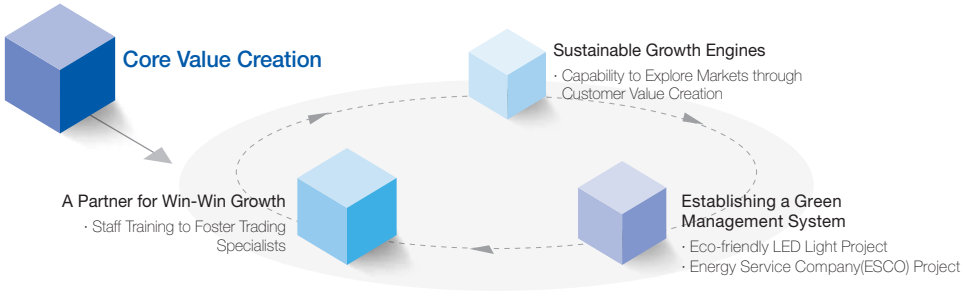
- Trading Volume of USD 2.5 Billion
- Exploring New Markets Including Latin America, Africa and CIS (Commonwealth of Independent States)
- Diversifying the Trading Structure by Facilitating Trilateral Trades
  (Expansion of Sourcing of Products from China and the Middle East)

Organization Chart of Trading

Hyosung Corporation



Hyosung Way – Key to Value Creation



Steel & Metal Products PU I

We provide total solutions to our customers including raw materials and processing facilities that related to carbon flat products produced by major steelmakers. We are achieving continuous growth by having steel technology experts at Hyosung's headquarter and overseas branches who offer top-notch services to the customers.

Interview of an Executive at Steel & Metal Products PU I

The Trading Performance Group, a general trading company which succeeded Hyosung Industry established in 1957, emanates vigorous business performance by trading professionals, outstanding data collection capabilities and strong trust from customers. The Steel & Metal Products PU I seeks to expand the sales of steel products such as hot-rolled coils, cold-rolled coils and surface treated steel products in emerging markets through capturing trading opportunities which has been increasing due to the rise of the steel demand in Southeast Asia and Latin America and elevated steel supply at home and abroad.

Steel & Metal Products PU II

The Steel & Metal Products PU II that exports products of major steelmakers in Korea exports various steel products including stainless products and construction materials for structures to all over the world. Sustainable growth is achieved by facilitating integrated trade with third countries for products with the participation of steel-related experts.

Interview of an Executive at Steel & Metal Products PU II

Despite fiercer competitions in the global market, the biggest strength of the Trading PG was being capable of exploring new markets by utilizing global networks. The Steel & Metal Products PU II has advantages in Taiwan and Southeast Asia, and is expected to expand investment and sales in the market by exploring new markets in Europe and Americas. Moreover, we enhance customer value through consistent exploration of customer needs.

Chemical Products PU

The Chemical Products PU exports various chemical products all over the world ranging from basic raw materials and precision chemistry products, while striving to cater to diversified customer needs driven by global networks.

Interview of an Executive at Chemical Products PU

The core growth driver of the Trading PG is the dynamic force as a world trader equipped with expertise capacities and making foray all over the world. The core of customer value creation was expertise on local regions, deep knowledge on products we treated, on-site capacities and passion. Our endeavors to endlessly create a new market as well as our global networks formed for a long period of time are the driving force in exploring emerging markets in Africa and the Latin America, based on which sustainable growth can be achieved.

Sustainable Growth Engines

Capability to Explore Markets through Customer Value Creation

The Trading Performance Group spearheads exploring new markets while establishing trading hubs in different parts of the world. Being equipped with 25 global networks worldwide, we continue to bolster the networks while providing products and services reflecting the needs of producers and customers.

We seek to explore and develop new markets to provide greater customer values to customers in production and purchasing. Moreover, we try to foster local specialists by providing opportunities in training and dispatch so that staff can actively learn the local culture including language, customs and institutions. Active advancement to emerging markets is underway to the Latin America and Africa driven by customer satisfaction and customer value creation activities.

Status of Market Entry Worldwide

Europe	Asia	Latin America	Africa
Steel	Steel	Steel	Raw Materials for Fiber
Raw Materials for Fiber	Fertilizer	Precision Chemistry	Synthetic Resin
Precision Chemistry	Synthetic Resin	Synthetic Resin	
Synthetic Resin			

A Partner for Win-Win Growth

Staff Training to Foster Trading Specialists

The Trading Performance Group conducts training on trading practicum and capacity building in trading for new hires and seasoned staff to foster next-generation trading specialists. The courses include the Practicum for Trade Business and Key Points in Ex/Import Procedures.

For courses on developing new markets and corporate customers, market-specific survey and exclusive competitiveness buildup strategies are concurrently conducted to enhance the training effects. Moreover, success cases among new development cases are shared to make the business operations more efficient.

We provide opportunities for staff to grow into trading specialists in the Trading Performance Group as we offer systematic practicum for trade and expertise enhancement courses at the Trade Academy. Considering the features of the PG specialized in steel and chemical products, intensive courses are offered to enhance understanding of these fields, thus boosting staff's expertise.

For product training, in-depth training is offered by inviting managers in production, research and marketing on steel and chemical products as instructors in order to enhance staff's understanding of such products. We contribute to raising customer satisfaction by strengthening staff's expertise in the PG through capacity building training.

Trading Specialists Training

Capacity Buildup Training

Establishing a Green Management System

Eco-friendly LED Lighting Business

The Trading Performance Group exports LED lights to Asia, Americas, Europe and Japan. LED lights have various advantages that can replace the existing lights including fluorescent, incandescent and halogen lights, etc. The LED light business which reduces emissions of CO_2 and hazardous materials through energy saving contributes to economic growth and job creation as a new growth engine.

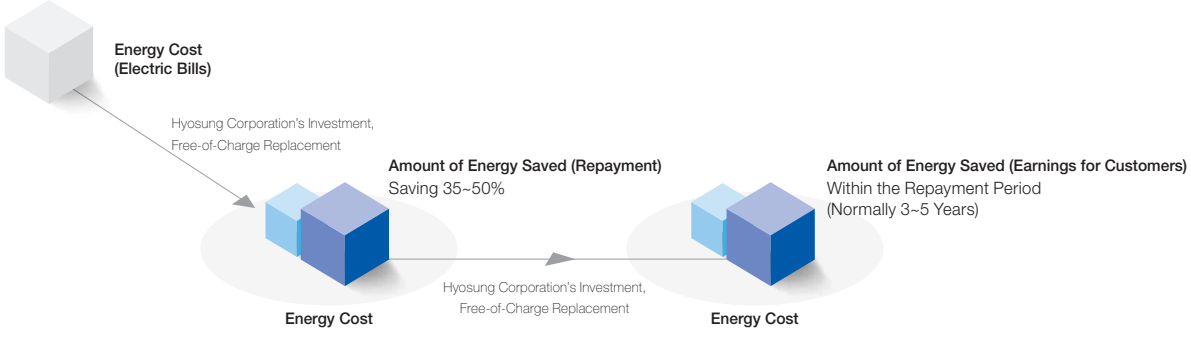
Advantages of LED Lights

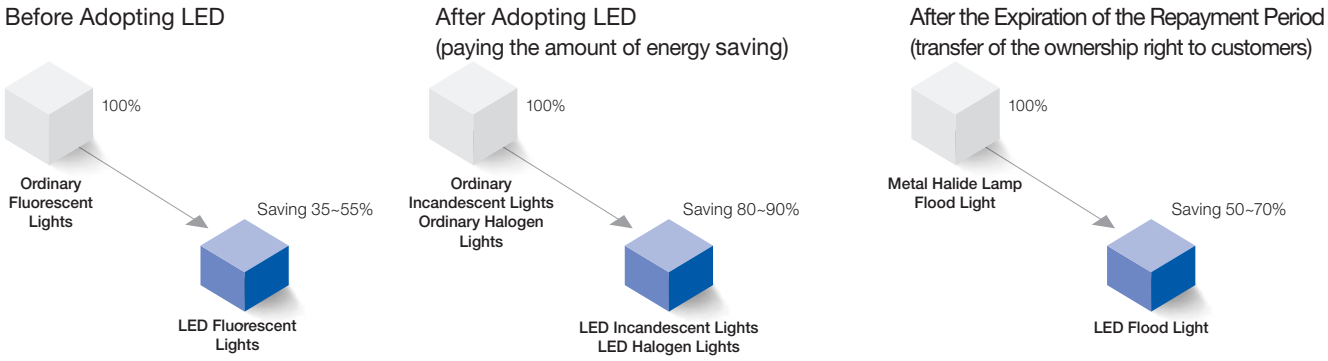
Saving Electric Energy	Long Life	Reduced CO_2 Emissions	No Discharge of Hazardous Waves	No Emission of Hazardous Materials
Reduced power consumption: 75% saved vis-à-vis incandescent lights, 40% saved vis-à-vis fluorescent lights	Usable up to 50,000 hours: Maintenance cost reduced in replacing the existing lights	Reducing 0.47kg of CO_2 per 1KWh of power consumption	Providing a pleasant lighting environment with lights where ultraviolet rays and infrared lights are not included	Reducing waste treatment cost by not using mercury and gas for discharge

Energy Service Company(ESCO) Project

The Trading Performance Group conducts ESCO business in Korea. The ESCO is an acronym for 'Energy Service Company.' The project that Hyosung initiates is a service to replace the existing lights (including fluorescent, incandescent and halogen lights, etc.) with eco-friendly high-efficiency LED lights, and to substitute the initial investments with the amount of money from energy saving after the replacement. As a total solution provider of LED-based diverse and highly sophisticated energy saving services, we plan to actively conduct ESCO projects that will bring about energy saving and cost reduction.

Outline of ESCO Project





Appendix

Sustainable Management Data

Economic Performance

Sales Performance and Financial Conditions

(Unit: KRW Million)

Items	2010	2011	2012	Remarks
Revenues	8,198,966	9,283,305	9,283,305	Hyosung Corporation
Sales Cost	6,973,066	8,255,816	8,255,816	
Gross Profit on Sales	1,225,900	1,027,489	1,027,489	
Sales Earnings	510,732	285,058	285,058	
Corporate Income Tax Expense	114,789	47,952	47,952	
Total Assets	7,661,869	8,507,120	8,507,120	
Total Liabilities	4,818,821	5,626,344	5,626,344	
Total Stockholders' Equity	2,843,047	2,880,775	2,880,775	

Receipt of Government Subsidies

(Unit: KRW Million)

Items	2010	2011	2012	Remarks
R&D Subsidies	7,152	19,706	13,267	Hyosung R&D Business Labs., Fabric · Dyeing PU, Wind Energy Business Division.

Local Purchasing Policies, Practices and Ratio in Major Business Sites

(Unit: KRW Million, %)

Items	2010	2011	2012	Remarks
Expenses in Purchasing Total Goods/Equipment and Using Total Suppliers	1,900,528	2,564,976	2,618,794	Purchasing Amount of Spandex PU, Nylon Polyester Fiber PU, Power & Industrial Systems PG, PP/DH PU, Packaging PU, TPA PU, Neochem PU, Optical Film PU, Construction PG (Bongdeok-dong Apartment in Daegu, Bugae Apartment in Incheon, Sosabeol Apartment in Pyeongtaek)
Expenses in Purchasing Domestic Goods/Equipment and Using Local Suppliers	1,519,538	2,106,414	2,311,362	
Local Purchasing Ratio	80	82	88	

Social Performance

Current Employment Status

(Unit: Person, %)

Items		2010	2011	2012	Remarks
Total	-	7,216	7,749	8,577	Hyosung Corporation, As of December 31, 2012
Type of Employment	Regular	7,135	7,625	7,871	
	Non-regular	228	294	312	
Gender	Male	6,598	7,043	7,791	
	Female	618	706	786	
Job Type	Clerical	1,866	2,258	2,257	
	Technical	4,983	5,136	5,775	
	Research	514	525	545	
Employment of New Hires		506	418	295	
No. of the Disabled Employed		171	165	165	
No. of Turnovers		253	367	260	
Turnover Rate		3.51	4.74	3.03	

Education, Training and Evaluation

(Unit: Case, KRW 1,000, Hours, Person, %)

Items	2010	2011	2012	Remarks
No. of Cases for Education	432	1,256	9,917	Including the number of cases for PU-specific general learning since 2012
Total Education and Training Fees	7,041,464	6,716,354	5,500,000	
Education and Training Fees per Person	1,547	1,326	1,126	
Total Hours of Training for Employees	27,412	151,950	351,792	
Per-head Education Hours	6	30	72	
Number of Employees Subject to Performance Assessment	3,497	3,682	4,436	Those subject to evaluation refer to all clerical staff, that is, those employed during the period of performance evaluation. The category of new hires excludes those employed after October 2, and seasoned hires exclude those who have worked less than six months as of December 31.
Rate of Performance Assessment	48.46	47.52	51.72	

Employee Welfare

(Unit: KRW, KRW Million, Person, %)

Items	2010	2011	2012	Remarks
Basic Wages for New Employees	2,718,000	2,800,000	2,884,000	No difference in basic wages between new male and female employees as they receive the same amoun.
Average Basic Wages	3,750,000	3,843,000	3,959,000	
Rate of New Employees' Wages Compared to the Legally Allowed Minimum Wages	343	336	326	
Pension Management Fees	-	-	1,671	Pension Extension Starting on January 1, 2011
No. of Pension Subscribers	-	7,249	7,576	
No. of Pension Subscribers	-	99	150	
Return Rate after Taking a Maternity Leave	100	100	100	Female
Retention Rate of over 13 Months after Returning to Work	100	94.74	100	Female

Rate of Employees Subject to Collective Bargaining

(Unit: Person, %)

Items	2010	2011	2012	Remarks
No. of Employees Subject to Collective Bargaining	1,732	3,113	3,209	
No. of Subscribed Employees	-	1,853	1,893	
Collective Bargaining Rate	-	59.5	59.0	

Ethical Training and Actions against Corruption and Human Rights Violations

(Unit: Case, Hour, Person)

Items		2010	2011	2012	Remarks
No. of Ethical Management Training		-	16	6	As for Power & Industrial Systems (including training for new employees and on sexual harassment)
Hours of Ethical Management Training		-	32	8	
No. of Employees Trained		-	2,268	395	
Reporting of Corruption and Irregularities		18	11	19	
Follow-up Measures		18	11	9	
Gender Discrimination (including sexual harassment)		0	0	2	
No. of Discrimination Cases		0	0	0	
No. of Human Rights-related Complaints	Raising Complaints	-	-	2	No. of cases of sexual harassment in Power & Industrial Systems
	Responses	-	-	2	
	Resolution	-	-	2	

Unfair Transaction Behaviors and Fair Transaction Activities

(Unit: Case)

Items	2010	2011	2012	Remarks
No. of Legal Actions for Unfair Transaction Behaviors	3	1	0	
No. of Legal Actions for Monopolies	0	0	0	
No. of Training on Fair Transaction Laws	1	1	1	
No. of Prior Reviews on Fair Transactions	170 (No. of Contracts Reviewed)	533 (Contractual Reviews + Legal Consultation)	608 (Contractual Reviews + Legal Consultation)	General Reviews for Each Case of Legal Consultation and Contractual Review

Penalties Imposed Due to Legal and Regulatory Violations and No. of Non-monetary Constraints

(Unit: Case, KRW)

Items	2010	2011	2012	Remarks
No. of Monetary Constraints	None	None	1	(Violation of the Foreign Exchange Violation Act) No. of cases not reported to the Bank of Korea where advances have been paid to foreign companies for over one year
Penalties	-	-	5,000,000	
No. of Non-monetary Constraints	None	None	-	
Cases Filed through the Dispute Settlement Means	None	None	-	

Community Engagement

(Unit: KRW, No. of Cases, Person, Hours)

Items		2010	2011	2012	Remarks
Investment in Social Contribution (by sector or major program)	Total	2,591,000,000	2,447,000,000	2,016,000,000	
	Training	194,000,000	202,000,000	185,000,000	
	Welfare	1,702,000,000	1,580,000,000	1,831,000,000	
	Emergency Rescue	695,000,000	665,000,000	-	
Investment in Social Contribution (by Type)	Cash	2,440,500,000	2,253,000,000	1,850,300,000	
	Cash Equivalents	143,000,000	189,000,000	162,300,000	
	Management Expenses	7,500,000	5,000,000	3,400,000	
Participation in Social Contribution	No. of Social Contribution Programs	21	23	27	
	No. of Employees Participating in Social Contribution	4,200	4,229	4,100	
	Hours of Total Employees Participating in Social Contribution	12,600	12,687	12,300	

Rates of Injury per Plant

Plant Name	Year	No. of Workers	No. of the Injured per Year	Rates of Injury(%)
Changwon1,2,3 Plant	**2012**	**3,081**	**11**	**0.36**
	2011	2,708	13	0.48
	2010	2,325	15	0.65
Ulsan Plant	**2012**	**850**	**2**	**0.24**
	2011	836	4	0.48
	2010	828	5	0.60
Anyang Plant	**2012**	**98**	**0**	**0**
	2011	102	1	0.98
	2010	106	1	0.94
Gumi Plant	**2012**	**427**	**1**	**0.23**
	2011	420	1	0.24
	2010	405	1	0.25
Yongyeon1 Plant	**2012**	**182**	**2**	**1.10**
	2011	156	0	0
	2010	149	0	0
Yongyeon2 Plant	**2012**	**76**	**1**	**1.32**
	2011	72	0	0
	2010	73	0	0
Yongyeon3 Plant	**2012**	**166**	**0**	**0**
	2011	104	0	0
	2010	57	0	0
Eonyang Plant	**2012**	**378**	**2**	**0.53**
	2011	410	1	0.24
	2010	411	2	0.49
Munsan Plant	**2012**	**83**	**1**	**1.20**
	2011	86	0	0
	2010	86	0	0
Daegu Plant	**2012**	**145**	**1**	**0.69**
	2011	140	1	0.71
	2010	136	1	0.74
Daejeon2 Plant	**2012**	**77**	**0**	**0**
	2011	71	1	1.41
	2010	77	1	1.30
Gwanghyewon Plant	**2012**	**74**	**2**	**2.70**
	2011	67	5	7.46
	2010	67	12	17.91
Jincheon Plant	**2012**	**61**	**3**	**4.92**
	2011	61	0	0
	2010	61	0	0
Yangsan Plant	**2012**	**55**	**0**	**0**
	2011	57	0	0
	2010	57	0	0

Environmental Performance

Raw Materials Usage Amount

(Unit: ton)

	Items	2010	2011	2012	Remarks
Textile	TPA(Terephtalic Acid)	269,894.0	298,769.0	314,005.0	
	EG(Ethylen Glycol)	48,099.0	63,595.0	76,039.0	
	Caprolactam	123,887.0	130,295.0	125,727.0	
	Caustic soda(compounded)	601.7	630.4	625.8	
	Hydro $Na_2S_2O_4$(compounded)	55.5	50.2	52.4	
	Synolon Black LSF ECO liq.(dyed)	60.0	45.8	44.4	
Industrial Materials	PET-Chip(Polyester-Chip)	136,217.4	148,942.5	128,059.4	
	Nylon-Chip	11,096,154.0	11,434,503.0	11,375,332.0	
	Wire Rod	117,215.0	113,411.0	99,920.0	
	Brassed Wire	19,333.0	18,000.0	17,270.0	
Chemicals	PX(Paraxylene)	283,113.0	283,400.0	266,049.0	
	TAC	880.0	971.0	2,600.0	
	Propylene	305,442.0	298,513.0	340,875.0	
Power & Industrial Systems	Metal plates	14,100.0	14,000.0	13,415.0	
	Copper wire	11,443.0	13,424.0	11,330.0	
	Electric metal plates	27,000.0	29,000.0	27,000.0	
	Steel(pig iron)	10,000.0	10,700.0	10,151.0	
	Silicon steel plates	19,000.0	20,249.0	20,000.0	
Construction	Rebar	20,951.4	13,856.7	23,079.2	
	Ready mix concrete	483,568.2	578,998.0	294,600.5	
	Cement	11,555.7	23,794.5	7,737.9	

Regenerative Raw Materials/Utilization Rate of Raw Materials

(Unit: ton, %)

Items	2010	2011	2012	Remarks
Recycling Amount of Steel(pig iron)	6,000.0	6,500.0	6,001.0	
Total Steel(pig iron)	41,790.0	46,109.0	44,276.0	
Amount of Usage of Steel(pig iron) Regenerative Raw Material/ Total Amount of Raw Material Usage	14.4	14.1	13.6	
Recycling Amount of REGEN	1,548.9	1,117.7	1,269.0	
Total REGEN	107,561.9	122,819.5	130,633.0	
Amount of Usage of REGEN Regenerative Raw Material/Total Amount of Raw Material Usage	1.4	0.9	1.0	
Recycling Amount of PET Recycle Chip	6,902.9	7,280.4	7,523.0	
Recycling Amount of NYLON Recycle Chip	2,631.4	2,786.9	2,853.0	
Total PET, NYLON	28,605.6	28,700.5	28,014.0	
Amount of Usage of PET, NYLON/Total Amount of Raw Material Usage	33.3	35.1	37	
Recycling Amount of PET-Chip(Polyester-Chip)	308.7	220.1	330.6	
Total PET-Chip(Polyester-Chip)	28,851.5	26,703.5	26,274.4	
Amount of Usage of PET-Chip(Polyester-Chip) /Total Amount of Raw Material Usage	1.1	0.8	1.3	

Regeneration Rate of Products Sold and Related Packaging Materials

(Unit: %)

Items	2010	2011	2012	Remarks
Rate of Regenerating Packaging Materials(yarn paper joining tube)	13.9	12.4	12.6	
Rate of Regenerating Packaging Materials(yarn pallet)	65.5	61.8	72.6	
Rate of Regenerating Packaging Materials(yarn EPS PAD)	63.1	62.6	60.9	
Rate of Regenerating Packaging Materials(film pallet)	29.4	25.6	25.0	
Rate of Regenerating Packaging Materials(film pad)	16.1	21.7	21.2	

Total Water Intake Amount per Supply Source

(Unit: ton)

Items	2010	2011	2012	Remarks
Amount of Usage in Water Supply Facilities	21,680,569.9	20,995,999.7	20,313,964.6	
Amount of Usage of Underground Water	357,702.0	397,738.0	350,811.0	
Amount of Usage of Surface Water	3,536,383.0	3,270,217.0	3,155,712.0	
Industrial Water	2,230,398.8	2,269,299.5	2,193,509.9	
River	381,486.0	555,962.0	91,426.0	
Others	323,578.0	327,088.0	435,062.0	
Total Amount of Annual Usage	28,510,117.7	27,816,304.2	26,540,485.6	

Water Recycling Rate

(Unit: ton, %)

Items	2010	2011	2012	Remarks
Recycled Water	8,770,210.0	8,370,156.0	8,656,320.0	
Rate of Recycling	30.8	30.1	32.6	

Activities to Reduce the Usage of Resources per Plant (Water, Raw Materials, etc.)

Plant	Major Activities	Improvement Effects
Changwon Plant(1,2,3)	· Using 60% of raw materials used for casting process as scrap iron internally generated, or core scrap	· Reducing the usage of resources through recycling of raw materials
Ulsan Plant	· Recovering and using industrial water by using the wastewater reclamation and reusing system	· Reducing the cost for industial water and other types of water
Anyang Plant	· Recycling blowdown water of water purification facilities · Using water treated in M-Project · Reducing the latex spread	· Saving water by increasing the amount of recycling · Reducing water in reclaiming DI water and soft water · Reducing the resources consumption by cutting loss
Gumi Plant	· Regenerating bulk, sheet, film, etc. and using them as raw materials · Using 35% of total raw materials as recycle chips	· Cutting the consumption of resouces through recycling of raw materials · Cutting the consumption of resources through the usage of reclaimed raw materials
Yongyeon Plant(1,2,3)	· Putting DE-408, 402A/B Cooling Water Line over the ground · Complementing the inside of the DH process reactor · Improving PX scrubber, increasing PX recovery rate	· Making the usage of raw materials efficient · Increasing the recycling rate for raw materials
Eonyang Plant	· Reusing effluent and discharge water as scrubber washing water and process cooling water (700 tons/day)	· Saving the amount of water usage through recycling
Daegu Plant	· Reducing 50% of gas usage by being supplied with steam from local incinerators	· Saving resources consumption and cutting cost by saving gas consumption
Daejeon2 Plant	· Producing PFM by using recycle chips	· Reducing resources consumption by recycling raw materials
Gwanghyewon Plant	· Increasing the reusage rate by applying concentrated R/O reuse treatment systems · Reducing the tap water fees by adding cooling tower circulation water by re-treating recycling device(electrolysis). · water by using discharge water in effluent treatment facilities as medicine necessities	· Making the usage of raw materials efficient · Saving the amount of water usage through recycling
Jincheon Plant	· Producing PFM by using recycle chip · Reducing electricity consumption by installing circuit breakers for catapult heat exchange	· Cutting consumption of resources by recycling raw materials
Yangsan Plant	· Recycling 120 tons of raw materials and using them in 2012	· Cutting consumption of resources by recycling raw materials

Amount of Direct/Indirect Energy Usage

(Unit: TJ)

Items		2010	2011	2012	Remarks
Amount of Direct Energy Usage	Diesel	35.6	34.2	36.4	· Amount of Energy Usage upon Third Party Verification for 16 Plants and HQ
	Lamp Oil	2.2	2.4	0.8	
	LNG	2,916.1	3,053.1	3,870.8	
	Gasoline	11.8	13.2	13.1	
	Propane	6.5	7.1	5.1	
	B-C Oil	4,571.6	2,814.9	604.8	
	Off Gas	1,863.4	1,676.4	1,815.1	
	Fuel Oil No.2	0.5	0.3	0.6	
	Methane Gas	-	-	1.4	
	LPG	2.8	3.8	7.4	
	Total Amount of Direct Energy	9,410.6	7,605.5	6,355.6	
Amount of Indirect Energy Usage	Electricity	16,899.5	17,715.9	19,283.9	
	Steam	1,281.5	2,049.4	2,196.9	
	Total Amount of Indirect Energy	18,181.0	19,765.3	21,480.8	

Energy Saved and Production/Savings for New Renewable Sources of Energy

(Unit: TJ, KRW Million)

Items	2010	2011	2012	Remarks
Amount of Direct/Indirect Energy Saving	62.6	170.0	200.8	
Amount of PV Energy Production	-	-	1.9	
Amount of Saving through the Indirect Energy Saving Project	742	140	146	

Direct/Indirect GHG Emissions

(Unit: tCO_2e)

Items		2010	2011	2012	Remarks
Scope 1 Total Emissions of Direct GHG	Stationary Combustion	565,256.7	435,559.6	321,922.2	· Total GHG Emissions upon Third Party Verification for 16 Plants and HQ · Reasons for Increases in Discharges from Processes in 2012: Discharge Source from a New Process was Detected during Verification
	Mobile Combustion	3,504.0	3,572.9	3,717.3	
	Waste (Sewage/Effluent)	1,134.8	1,532.5	3,717.3	
	Discharges from Processes	2,215.5	2,420.6	24,905.9	
	Total Emissions of Direct GHG	572,111.0	443,085.6	353,097.2	
Scope 2 Total Emissions of Indirect GHG	Electricity	875,488.6	917,782.1	936,574.0	
	Steam	6,581.2	24,413.0	42,286.0	
	Total Emissions of Indirect GHG	882,069.8	942,195.0	978,860.0	

GHG Reduction Project and Performance

(Unit: tCO_2e)

Items	2010	2011	2012	Remarks
Performance of GHG Reduction	31,237.8	29,950.3	6,111.7	
Performance of Electricity Usage Reduction		27.2	97.0	

Activities to Reduce Energy Usage per Plant

Plant	Major Activities	
Changwon Plant(1,2,3)	· Using waste heat(steam) from incinerators · Replacing Air-Comp/Dryer	· Replacing far infrared ray electric heaters for dryers · Adopting eco-friendly vehicles
Ulsan Plant	· Installing water heaters using solar heat collectors · Converting from B-C oil for heat medium boilers into LNG fuel · Improving S/D AHU operation at Yarn Production Team · Reducing steam for heat rising for cold air by supplying 'down' in winter with cold air temperature of B/L AHU	· Medical Team 2 improving T/U AHU operation methods · Replacing Turbo Comp · Replacing refrigerators for Medical Team 2 · Recycling the fuel gas from anaerobic fire extinguishing facilities as boiler fuel
Anyang Plant	· Converting boiler fuel (from B-C oil → LNG) · Recovering steam condensed water from fume/flames process	· Installing Air Dryer Auto Trap
Gumi Plant	· Minimizing heat loss from polymerization · Converting heat medium boiler fuel	· Using steam utilizing incinerators' waste heat · Recycling fuel gas of effluent treatment facilities
Yongyeon Plant(1,2,3)	· Streamlining energy of DH and utilities · Establishing systems to adopt 3K steam · Complementing 154KV power distirbution and high-pressure electrostatic	· Establishing high-efficiency steam systems · Installing heat exchanges for recovering waste heat from effluent during processes · Additionally installing heat exchangers
Eonyang Plant	· Recycling waste heat by installing waste heat recovery boilers · Increasing efficiency of compressors by adopting package aircon	· Operating electronic fork lifts and shuttle buses · Removing chyle for bun facilities
Daegu Plant	· Recycling waste heat by using waste heat recovery equipment in each facility	
Daejeon Plant 2	· Installing heat exchangers for injection dryers · Improving high-pressure compressor management methods (enhancing loading rate)	· Installing and operating AHU fan and pump inverters · Reducing peak by installing demand controllers
Gwanghyewon Plant	· Installing remote control panels for utility facilities in blow rooms · Installing open-ended heat exchangers	· Installing underground water supply lines to reduce air conditioning in summer and steam in winter · Installing heat exchangers for injection chip dryers
Jincheon Plant	· Improving high-pressure compressor management methods · Remodelling cooling tower gearboxes (inverter control)	· Installing heat exchangers for injection chip · Controlling AHU fan inverters
Yangsan Plant	· Installing heat exchangers for injection chip dryers · Reducing the temperature of intake valves for high pressure compressor air · Reducing peak by installing demand controllers	· Installing and operating AHU fan and pump inverters · Replacing pump motors for cooling water for facilities with high-efficiency motors

Total Emissions of NOx, Sox and Other Major Air Pollutants

(Unit: ton)

Items	2010	2011	2012	Remarks
NOx	568.1	566.0	440.8	
Sox	274.0	214.1	45.2	
VOCs(Volatile Organic Compounds)	0.4	0.4	0.4	
POPs(Persistent Organic Pollutants)	0.2	1.2	0.5	
Particle Matters	69.2	71.6	72.1	
HCl	0.2	0.4	0.3	

Activities to Manage Air Pollutants per Plant Improvement Effects

Plant	Major Activities	Improvement Effects
Changwon Plant(1,2,3)	· Installing prevention facilities in molding sand treatment process and establishing air extraction systems and establishing air extract systems · education Replacing old facilities for malodor and training on establishing noise reduction facilities · Replacing old facilities · Strengthening inspection for air extraction and pollution prevention facilities	· Reducing air pollutant emissions · Improving the environment to reduce malodor and noise · Removing pollutants and raising efficiency
Ulsan Plant	· Monitoring malodor density twice a month by installing and operating malodor prevention facilities · Conducting weekly inspection by the naked eye for air pollution prevention facilities · Improving the performance of performance for air pollution prevention facilities and operating them efficiently · Using clean fuel	· Reducing malodor inducing materials · Preventing environmental accidents · Reducing air pollutants · Reducing SOx, NOx
Anyang Plant	· Replacing B-C oil boilers with LNG boilers · Implementing O/H regularly for prevention facilities · Sending TMS of major emission facilities	· Dramatically reducing SOx · Maintaining the efficiency of prevention facilities
Gumi Plant	· Reviewing preliminary environmental impact reviews for production process facilities and installing and operating environmental pollution prevention facilities · Analyzing the density of malodor causing materials, installing malodor prevention facilities and operating them	· Preventing environmental pollution · Reducing malodor inducing materials
Yongyeon Plant(1,2,3)	· Replacing back filters in the DH catalyst reclamation process · Establishing 7 prevention facilities in PP-1, NF_3 process · Securing Mechanical SEAL UNIT SAPRE in PP-1 process reactor Level 1 through 3 · Remodelling K4303 DRY GAS SEAL in PP-2 process · Securing Flare Stack Pilot Bunner · Gradually reducing volatile organic compounds (VOCs) and malodor emission facilities · Stabilizing processes for harmful air pollutants and investing in process · Replacing old facilities · Securing spares to promptly respond to process errors · Improving the performance of air pollution prevention facilities and operating them efficiently	· Preventing emission of air pollutants deu to corrosion · Preventing VOC leakage · Reducing VOC leakage · Continuously treating VOC · Reducing total emissions of VOC · Expanding the reduction of air pollutants · Making prevention facilities more efficient · Strengthening preparedness against accidents · Removing air pollutants and making the process more efficient
Eonyang Plant	· Installing TMS to minimize emission density of HCl · Complementing topical air extracting devices in processes	· Real-time monitoring of HCl · Strengthening air extracting functions
Daegu Plant	· Improving air pollution prevention facilities and efficiently managing them (monthly monitoring)	· Reducing air pollutant emissions and maximizing the efficiency of prevention facilities

Total Effluent Water Discharges and Water Quality per Final Discharge Spot

(Unit: ton)

Items	2010	2011	2012	Remarks
Total Effluent Discharges	5,808,303	6,052,008	5,464,685	
Total BOD Discharges	36	33	30	
Total COD Discharges	124	114	106	
Total T-P Discharges	10	11	11	
Total T-N Discharges	65	74	62	
Total SS Discharges	40	37	32	

Water Pollutant Management and Improvement Effects in Each Plant

Plant	Major Activities Major Activities	Improvement Effects
Changwon Plant(1,2,3)	· Physio-chemical and biological treatment · In-house analysis on water pollutants of discharge water and breakdown detection	· Water pollutant reduction
Ulsan Plant	· Installing and operating anaerobic fire extinguishing facilities · Real-time remote monitoring of TMS facilities for water quality · Management of particular hazardous materials for water	· Keeping 1,4-dioxane below the legally permissible level · Complying with laws through constant monitoring · Managing below the permissible level
Anyang Plant	· Operating cutting-edge facilities · Regular monitoring of dischaege water quality (once a week)	· Removing T-N · Efficiently operating and managing water through regular monitoring
Gumi Plant	· Oerating 1,4-dioxane treatment facilities	· Improving the water quality of Nakdong River
Yongyeon Plant(1,2,3)	· Replacing old heat exchangers for DH process · Replacing control PLC for effluent treatment and complementing panels · Establishing effluent treatment facilities for NF_3 process · Physio-chemical treatment · Monitoring discharge water and effluent treatment facilities (once a week)	· Prevention of gas leaks · Prevention of the occurrence of abnormal pollutants by stabilizing the operation · Reducing water pollutants by establishing effluent treatment facilites · Complying with laws in discharge through regular monitoring
Eonyang Plant	· Monitoring with TMS facilities for TMS for water quality prior to discharge · Detecting faults by analyzing heavy mretal · Maintaining the dischrage level below 80% of the legally permissible level · Installing and operating evaporation-dryers to shut off ecological poisonous materials · Replacing sand filters with fiber filters	· Management of heavy metal · Toxin removal · Improving SS concentration level from 8mg/L to 2.5mg/L
Daegu Plant	· Physio-chemical and biological treatment · Monitoring discharge water and effluent treatment plants (effluent managers available at all times) · Complementing sludge removing facilities	· Water pollutant reduction
Gwanghyewon Plant	· Removing pollutants by 95% by applying the Membrane Bioreactor (MBR) system	· Water pollutant reduction

Total Waste Emissions per Final Emission Spot

(Unit: ton, %)

Items		2010	2011	2012	Remarks
Total Waste Emissions by Type	Total Liquid Waste Emissions	8,245	8,514	8,753	
	Total Solid Waste Emissions	55,614	62,482	83,030	
	Total Waste Emission	63,858.8	70,996.0	91,782.8	
General Waste (by Treatment Method)	Incineration	4,456	4,129	2,026	
	Reclamation	7,435	6,416	13,115	
	Commissioning	9,785	8,508	27,333	
	Offshore Reclamation	17,173	15,897	14,110	
	Recycling	16,096	26,329	25,492	
	Total	54,945.4	61,279.1	82,075.9	
Designated Waste (by Treatment Method)	Incineration	1,508	1,697	1,377	
	Reclamation	94	70	81	
	Commissioning	1,255	1,355	1,341	
	Offshore Reclamation	-	-	-	
	Recycling	8,589	8,613	8,391	
	Total	11,446.6	11,735.2	11,190.6	
Waste Recycling Rate	Amount of Recycling Waste	23,221.3	32,591.8	33,817.9	
	Total Waste Emissions	54,883.0	61,414.9	60,993.1	
	Waste Recycling Rate	42.3	53.1	55.4	

Waste Management Activities and Improvement Effects by Plant

Plant	Major Activities	Improvement Effects
Changwon Plant(1,2,3)	· As for waste generated from production, collecting it separately, transferring it to intermediary storage spots and establishing in-house collection systems to store waste · Re-separating waste in waste storage spots and making it lighter · Increases in recycling rate by discovering a waste recycling company(recyclable waste: waste timber, waste paper, waste vinyl, waste mould sand, waste activated carbon, waste oil, waste paint, etc.) · Transparently and appropriately treating the whole processes from waste discharge, transfer and treatment throgh online systems for legal treatment of waste	· Increases in recycling waste and higher recycling rate by establishing waste recycling systems · Stable waste treatment and information disclosure
Ulsan Plant	· Final treatment after waste dope cutting and sulfur pre-treatment · Giving feedback on monthly treatment records to divisions that discharged and conducting budget-to-actual analysis · Promotion of ways to collect waste separately and training for partner companies	· Saving the discharge amount by 50% · Reducing the discharge amount through reduction in each division that discharges · Increases in recycling
Anyang Plant	· Reflecting cost per division that discharges · Reducing waste discharged in the Production Business Division · Initiating higher recycling rate by enhancing waste separation	· Contributing to reducing waste · Increases in recycling
Gumi Plant	· Imposing division-specific waste reduction targets and specifically naming each waste · Recycling dope and DMAC among waste generated · Managing through KPI by setting division-specific waste reduction targets	· Waste management made more efficient · Increases in recycling · Waste management made more systematic
Yongyeon Plant(1,2,3)	· Complementing PP-1,2 process silo · Complementing old facilities for automation storage · Recycling and incinerating waste synthetic fiber and waste oil · Stabilizing and solidifying waste insulation materials, waste adsorbent, waste catalyst and dust particles · Recycling after removing impurities in empty drums · Commissioning process sludge discharged from CTA and PTA processes to a recycling company 100% instead of the existign reclamation · Training staff and partner companies on separated discharge of waste	· Prevention of waste generation · Reduction of the waste generated · Appropriate treatment of waste · Recycling equipment · Increases in recycling · Raising awareness among staff on waste recycling
Eonyang Plant	· Installing state-of-the-art membrance filter press instead of the existing conventional belt press	· No usage of chemicals, reducing water content rate
Daegu Plant	· Discharging recyclable products and waste items on a daily basis through a recycling company	· Increases in recycling
Gwanghyewon Plant	· As for waste generated from production, collecting it separately, transferring it to intermediary storage spots and establishing in-house collection systems to store waste · Converting residues from processes into animal feed by converting vegetativ residual waste into feed ingredient · Transparently and appropriately treating the whole processes from waste discharge, transfer and treatment throgh online systems for legal treatment of waste · Minimizing effluent sludge generated through enhanced performance of dehydrators and apporpriate management of concentration hours	· Waste management made more efficient · Increases in recycling
Yangsan Plant	· Reducing the amount commissioned by separately collecting waste (9.3 tons → 6.3 tons in 2011)	· Increases in recycling

Activities to Manage Hazardous Materials per Plant

Plant	Major Activities
Changwon Plant(1,2,3)	· Establishing emergency networks with waste pick-up and treatment companies · Preventing oil leakages by installing oil skimmers in 3 spots in final rainfall outlets · Checking out hazardous material treatment/storage facilities once a week · Installing alarms for hazardous material leakage
Ulsan Plant	· Patrolling and checking out poisonous materials storage/reserve facilities once a week · Placing neutralizing chemical products and disaster prevention equipment for initial responses against leakage · Installing double oil fences in final discharge outlets · Establishing emergency scenarios for poisonous material leakage and conducting emergency drills
Anyang Plant	· Conducting regular inspection for poisonous materials and managing records: Over once a month · Training staff(workers) that use related materials · Thoroughly managing safety protection boxes
Gumi Plant	· Checking out poisonous/dangerous materials storage tanks and outdoor storages through daily environmental patrol · Installing two insulating facilities in final rainfall pipes to shut off the inflow of Nakdong River through rain paths upon leakage accidents
Yongyeon Plant(1,2,3)	· Designing to ensure that upon the leakage of a storage tank, neutralization tanks and sumps are transferred to be flown into a effluent treatment plant for prevention of leakage · Installing emergency anti-disaster boxes for initial responses upon leakage of a small amount · Conducting monthly safety training as well as collective training for staff and partner companies in plants every quarter · Establishing emergency scenarios to prevent the spread of damage upon the leakage of poisonous materials · Conducting annual emergency scenario drills in each team
Eonyang Plant	· Preventing leakage accidents by type for point sources and non-point sources and establishing emergency scenarios · Conducting emergency drills against leakage of pollutants twice a year in each division · Installing recovery facilities and oil separators in areas of potential pollutants · Placing and Managing fire safety equipment and oil fences
Daegu Plant	· Checking out and conducting daily management of poisonous materials storage tanks, dangerous materials storage tanks and outdoor storages upon constant consultation with environmental managers · Ensuring that all hazardous materials in plants can be flown into exclusive effluent treatment plant and discharged after purification
Daejeon2 Plant	· Training staff(workers) that use related materials · Thoroughly managing safety protection boxes · Designating Material Safety Data Sheets (MSDS) on sites and thoroughly managing it
Gwanghyewon Plant	· Preparing against exposure risks by converting all the poisonous (chemicals) materials to be supplied to outside · Preventing oil leakages by installing oil skimmers in 3 spots in final rainfall outlets · Conducting safety checks through daily patrol for environmental safety
Jincheon Plant	· Conducting safety training by inviting instructors from Safety Management Authority every quarter · Designating Material Safety Data Sheets (MSDS) on sites and thoroughly managing it

Penalties and Reserves Upon Violations of Environmental Regulations

(Unit: KRW, Case)

Items	2010	2011	2012	Remarks
Amount of Penalties	-	6,100,000	900,000	
Case	3	5	5	· An order to make improvement was imposed due to excess of Total Phosphorus(T-P) of discharged effluent in 2012 (no penalties, but only dues for excess in discharge equivalent to the excess of pollutants) · Excessive SOx pollution due to the supply of fuel sludge in the lower part of tanks resulting from reduced levels of boiler fuel tanks in 2011

Total Expenses and Investments for Environmental Protection

(Unit: KRW)

Items	2010	2011	2012	Remarks
Waste Treatment Cost	2,641,769,571	2,847,811,156	3,722,602,685	
Education/Training Cost	178,195,000	171,530,000	151,435,000	
Environmnetal Certification Acquisition Cost	33,490,000	26,564,000	31,014,000	
Depreciation of Related Equipment, Maintenance, Materials Management, Labor Cost	1,330,099,163	3,133,984,674	4,680,621,416	
Environmental Organization Supporting Cost	21,614,976	18,392,866	37,602,234	
Natural Conservation Cost	1,345,000	1,345,000	1,445,000	
Environmental Ads, Report Publication Cost	-	14,261,250	2,550,000	
Dues	221,010,035	255,330,464	205,821,239	
Investment Cost to Reduce Environmental Pollutants	907,912,000	1,551,400,000	738,854,000	
Total Emissions Treatment Cost (Effluent Commissioning)	398,745,240	861,088,140	777,583,330	
Environmental Investment Cost	1,286,900,000	11,367,100,000	6,510,930,000	
Sewage Cost	554,240,200	531,999,470	546,027,611	
Activities Cost of Environment-related Associations	247,924,640	261,631,870	254,145,340	
Cost to Make Environmental Complaint Reports on Noise	440,000	440,000	15,000,000	
Compensation for Damages of Agricultural Produce	15,988,489	12,692,338	12,483,783	
Total Cost	7,823,245,825	21,042,438,890	17,660,631,855	

Participation in Campaigns of Eco-system Protection and Natural Clean-up per Plant

Plant	Major Activities	Target Areas	Frequency
Changwon Plant(1,2,3)	· One Company One River Clean-up · Planting trees to create a green complex	Nam Stream Changwon, in the plant near Wanam Stream	Once a month
Ulsan Plant	· One Company One River Clean-up: Eradicating exotic plants and removing garbage	Taehwa River	Once a month
Anyang Plant	· Conducting the green campaign in Anyang through clean-up in Anyang Stream and nearby park	Around Anyang Stream, Hogye Park	Once a month
Gumi Plant	· One Company One Mountain campaign for Cheonsengsan Mountain: Garbage collection, removing fallen leaves in drains	Cheonsengsan Mountain, Gumi	Once a month
Yongyeon Plant(1,2,3)	· One Company One River campaign: Garbage collection, eradicating humulus plants, etc.	Around Taehwa River	Once a month
Eonyang Plant	· Campaigning the One Company One River for Taehwa River	Taehwa River	At All Times
Daegu Plant	· One Company One Park Clean-up: Around Duryu Park three times a year · Conducting environmental clean-up	Dalseo-gu, Daegu	Once every quarter
Gwanghyewon Plant	· Conducting clean-up of Mandi River under the One Company One River campaign	Mandi Stream	At All Times

Awards

Sustainable Growth Engines

No.	Description	Date	Organized by
1	Silver Prize in Korea Technology Awards for developing TAC films for LCD	December 6, 2012	Ministry Of Trade, Industry & Energy
2	Excellence Prize in Korea Technology Awards for developing 72.5kV 40kA GIS	December 6, 2012	Ministry Of Trade, Industry & Energy
3	Jang Young Sil Award for developing high-efficiency platinum catalyst to react to dehydrogenation	November 28, 2012	Minister of Science and Technology

A Partner for Win-Win Growth

No.	Description	Date	Organized by
1	Excellence Prize in the International PR Sector	November 15, 2012	Korea PR Association
2	Chairperson's Prize in Clean Contents Movement Award	November 28, 2012	Korea Business Journalism Association
3	Grand Prize in the 2012 Korea Blog Award in the Group Sector	December 7, 2012	Korea Blog Business Association

Establishing a Green Management System

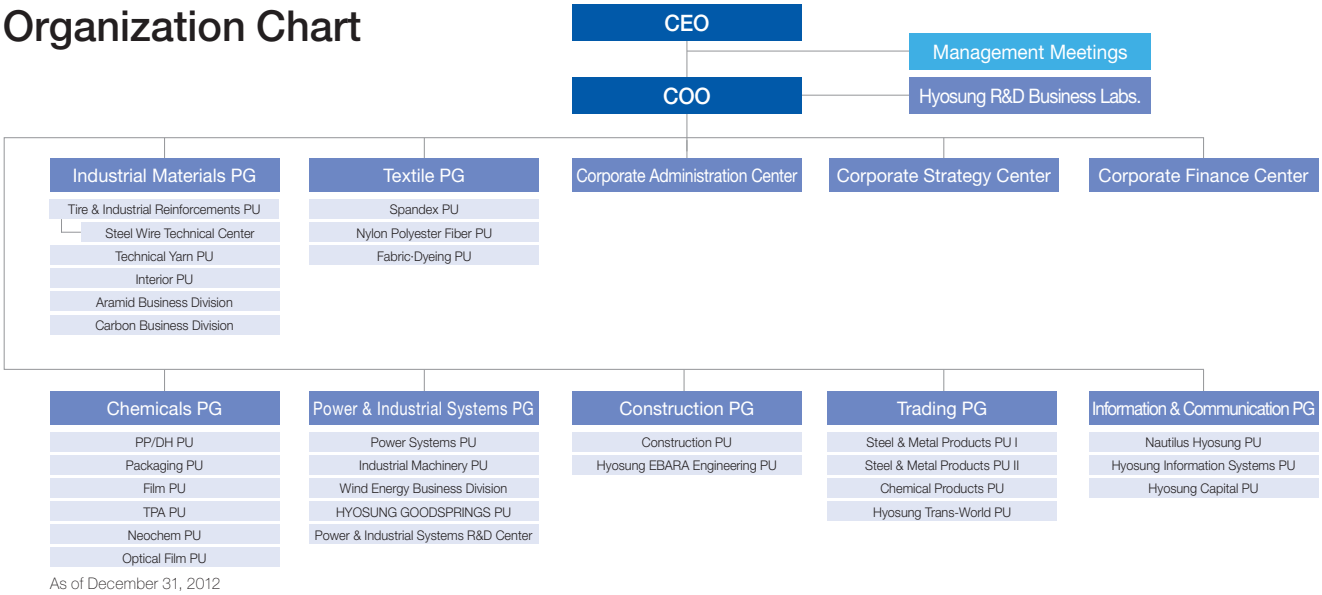
No.	Description	Date	Organized by
1	Green Technology Award of the Year for developing the hollow fiber systems to filter high-flux low-energy water	November 30, 2012	Presidential Committee on Green Growth
2	Grand Prize in the 2012 Ajou Business Construction Award in the complex landscape sector	October 28, 2012	Ajou Business

Membership Status

	Items of Business	Name of Affiliated Associations	Remarks
1	Industrial Materials	Korea Petrochemical Industry Association	
2		International Carbon Festival(Jeonju)	
3	Chemicals	Korea Petrochemical Industry Association	
4		Korea Packaging Association	
5		Korea Semiconductor Industry Association	
6		Korea Display Industry Association	
7	Power & Industrial Systems	Korea Electrical Manufacturers Association	
8		Korea Plant Industries Association	
9		Korea New Renewable Energy Association	
10		Korea Atomic Industrial Forum	
11		Korea Electric Association	
12		Korea Electrical Engineering & Science Research Institute	

	Items of Business	Name of Affiliated Associations	Remarks
13	Power & Industrial Systems	CIGRE Korea	
14		WEC Korea	
15		Korea Association of Machinery Industry	
16		Machinery Financial Cooperative	
17		Korea Wind Energy Industry Association	
18	Construction	Korea Housing Association	
19		Construction Association of Korea	
20		Korea Specialty Construction Association	
21		Construction Outsourcing Association	
22		Korea Remodeling Association	
23	Trading	Korea International Trade Association	

Organization Chart



As of December 31, 2012

GRI G3.1, ISO26000

In order to maintain objectivity and consistency of information, we wrote this Report according to G3.1 version of the Global Reporting Initiative(GRI) Guideline, and indicated ISO26000 so that the relevant information can be easily identified.

●: Reported ◐: N/A Not applicable ○: Partially reported

TBL	Code	GRI Indicators	ISO 26000	Page	Reporting Status	Remarks
Strategy and Analysis	1.1	Top decision-makers (e.g. organization and strategies to report to CEO, chairman or same-level executives, and statement on the relevance of sustainability)	6.2	4,5	●	
	1.2	Description of key impacts, risks, and opportunities		53, 57, 58, 62, 63, 67, 72, 76	●	
Organizational Profile	2.1	Name of the organization.		2	●	
	2.2	Primary brands, products, and/or services		8~9	●	
	2.3	Operational structure of the organization, includingmain divisions, operating companies, subsidiaries, and joint ventures.	6.2	2~3	●	
	2.4	Location of organization's headquarters.		6~7	●	
	2.5	Number of countrieswhere the organization operates, and names of countrieswith eithermajor operations or that are specifically relevant to the sustainability issues covered in the report.		6~7	●	
	2.6	Nature of ownership and legal form.		10~11	●	
	2.7	Markets served (including geographic breakdown, sectors served, and types of customers/ beneficiaries)		6~7	●	
	2.8	Scale of the reporting organization		6~7	●	
	2.9	Significant changes during the reporting period regarding size, structure, or ownership.		10~11	●	
	2.10	Awards received in the reporting period.		89	●	
Report Parameters	3.1	Reporting period (e.g., fiscal/calendar year) for information provided		96	●	
	3.2	Date of most recent previous report (if any)		-	●	Not available since this is the first report
	3.3	Reporting cycle (annual, biennial, etc.)		-	●	Not available since this is the first report
	3.4	Contact point for questions regarding the report or its contents		97	●	
	3.5	Process for defining report content.		15~17	●	
	3.6	Boundary of the report (e.g., countries, divisions, subsidiaries, leased facilities, joint ventures, suppliers).		96	●	
	3.7	State any specific limitations on the scope or boundary of the report		96	●	
	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.		96	●	
	3.9	Datameasurement 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.		96	●	
	3.10	Explanation of the effect of any re-statements of information provided in earlier reports, and the reasons for such re-statement (e.g.,mergers/acquisitions, change of base years/periods, nature of business,measurementmethods).		-	●	Not available since this is the first report
	3.11	Significant changes fromprevious reporting periods in the scope, boundary, ormeasurement methods applied in the report		-	●	Not available since this is the first report
	3.12	Table identifying the location of the Standard Disclosures in the report.		90~92	●	
	3.13	Policy and current practicewith regard to seeking external assurance for the report	7.5.3	94~95	●	
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	6.2	10~11	●	
	4.2	Indicate whether the Chair of the highest governance body is also an executive officer. (for executives, roles in the management and reasons why appointed as the Chair)		10~11	●	
	4.3	For organizations that have a unitary board structure, state the number and gender ofmembers of the highest governance body that are independent and/or non-executive members		10~11	●	
	4.4	Mechanisms for shareholders and employees to provide recommendations or direction to the highest governance body		15	●	
	4.5	Linkage between compensation formembers of the highest governance body, seniormanagers, and executives (including departure arrangements), and the organization's performance (including social and environmental performance)		10~11	◐	
	4.6	Processes in place for the highest governance body to ensure conflicts of interest are avoided		10~11	●	
	4.7	Process for determining the composition, qualifications, and expertise of themembers of the highest governance body and its committees, including any consideration of gender and other indicators of diversity		10~11	●	
	4.8	Internally developed statements ofmission or values, codes of conduct, and principles relevant to economic, environmental, and social performance and the status of their implementation		10~11	●	
	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.		10~11	◐	
	4.10	Processes for evaluating the highest governance body's own performance, particularly with respect to economic, environmental, and social performance		10~11	◐	
	4.11	Explanation ofwhether and howthe precautionary approach or principle is addressed by the organization.		12~13	●	
	4.12	Externally developed economic, environmental, and social charters, principles, or other initiatives towhich the organization subscribes or endorses		89	●	
	4.13	Memberships in associations (such as industry associations and/or national/international advocacy organizations)		89	●	
	4.14	List of stakeholder groups engaged by the organization		15~17	●	
	4.15	Basis for identification and selection of stakeholderswithwhomto engage.		15~17	●	
	4.16	Approaches to stakeholder engagement, including frequency of engagement by type and by stakeholder group		15~17	●	
	4.17	Key topics and concerns that have been raised through stakeholder engagement, and howthe organization has responded to those key topics and concerns, including through its reporting		15~17	●	

TBL	Code	GRI Indicators	ISO 26000	Page	Reporting Status	Remarks
Economic Performance Indicators	EC1	Direct economic value generated and distributed	6.8, 6.8.3, 6.8.7, 6.8.9	9	●	
	EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change	6.5.5	42~43, 46~47	●	
	EC3	Coverage of the organization's defined benefit plan obligations		81	●	
	EC4	Significant financial assistance received fromgovernment		80	◐	
	EC5	Range of ratios of standard entry levelwage by gender compared to localminimumwage at significant locations of operation.	6.4.4, 6.8	81	●	
	EC6	Policy, practices, and proportion of spending on locally-based suppliers at significant locations of operation.	6.6.6, 6.8, 6.8.5, 6.8.7	80	●	
	EC7	Procedures for local hiring and proportion of seniormanagement hired fromthe local community at significant locations of operation	6.8, 6.8.5, 6.8.7	29	●	2012 Report's scope is limited to domestic sites/locations. Sites in each region recruited local applicants first befitting criteria under a given boundary
	EC8	Development and impact of infrastructure investments and services provided primarily for public benefit (including forms of support)	6.3.9, 6.8, 6.8.3, 6.8.4, 6.8.5, 6.8.6, 6.8.7, 6.8.9	38~41	●	
	EC9	Understanding and describing significant indirect economic impacts(including the extent of impacts)	6.3.9, 6.6.6, 6.6.7, 6.7.8, 6.8, 6.8.5, 6.8.6, 6.8.7, 6.8.9	38~41	◐	
Environmental Performance Indicators	EN1	Materials used byweight or volume	6.5, 6.5.4	83	●	
	EN2	Percentage ofmaterials used that are recycled inputmaterials		83	●	
	EN3	Direct energy consumption by primary energy source		84	●	
	EN4	Indirect energy consumption by primary source		84	●	
	EN5	Energy saved due to conservation and efficiency improvements		84	●	
	EN6	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives		23~24	●	
	EN7	Initiatives to reduce indirect energy consumption and reductions achieved		85	●	
	EN8	Total water withdrawal by source		83	●	
	EN9	Water sources significantly affected by withdrawal of water		83	●	
	EN10	Percentage and total volume ofwater recycled and reused		83	●	
	EN11	Location and size of land owned, leased,managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	6.5, 6.5.6,	-	●	There is no business sites in protection areas and bio–diversity zones
	EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas		-	●	There is no business sites in protection areas and bio–diversity zones
	EN13	Habitats protected or restored		-	●	Not Available
	EN14	Strategies, current actions, and future plans formanaging impacts on biodiversity		88	◐	
	EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk		-	●	Not Available
	EN16	Total direct and indirect greenhouse gas emissions	6.5, 6.5.5	84	●	
	EN17	Other relevant indirect greenhouse gas emissions		84	●	
	EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved		85	●	
	EN19	Emissions of ozone-depleting substances	6.5, 6.5.3	-	●	No ozone depleting materials
	EN20	NOx, SOx, and other significant air emissions		85	●	
	EN21	Totalwater discharge by quality and destination		86	●	
	EN22	Totalweight ofwaste by type and disposal method		86	●	
	EN23	Total number and volume of significant spills		-	●	No serious leakage of hazardous materials
	EN24	Weight of transported, imported, exported, or treatedwaste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally		-	●	Not Available
	EN25	Identity, size, protected status, and biodiversity value ofwater bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff	6.5. 6.5.4, 6.5.6	48~49, 60, 71	●	
	EN26	Initiatives tomitigate environmental impacts of products and services, and extent of impact mitigation	6.5, 6.5.4, 6.6.6, 6.7.5	25	●	
	EN27	Percentage of products sold and their packagingmaterials that are reclaimed by category	6.5, 6.5.4, 6.7.5	83	●	
	EN28	Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with environmental laws and regulations	6.5	88	●	
	EN29	Significant environmental impacts of transporting products and other goods andmaterials used for the organization's operations, and transportingmembers of the workforce	6.5, 6.5.4, 6.6.6	-	O	
	EN30	Total environmental protection expenditures and investments	6.5	88	●	
Social Performance Indicators	SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs	6.3.9, 6.8, 6.8.5, 6.8.7, 6.6.7	38~41	◐	
	SO2	Percentage and total number of business units analyzed for risks related to corruption	6.6, 6.6.3	-	◐	No business sites where corruption risks were identified, and the Code of Ethics and the Guideline for Actions were operated to prevent corruption
	SO3	Percentage of employees trained in organization's anti-corruption policies and procedures		81	●	
	SO4	Actions taken in response to incidents of corruption		81	●	
	SO5	Public policy positions and participation in public policy development and lobbying.	6.6, 6.6.4, 6.8.3	14, 44, 67	●	
	SO6	Total value of financial and in-kind contributions to political parties, politicians, and related institutions by country		-	●	No donation to a political party, politicians or related institutions
	SO7	Total number of legal actions for anti-competitive behavior, anti-trust, andmonopoly practices and their outcomes	6.6, 6.6.5, 6.6.7	81	●	
	SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-ompliancewith laws and regulations	6.6, 6.6.7, 6.8.7	81	●	
	SO9	Operations with significant potential or actual negative impacts on local communities.		38~41	●	
	SO10	Prevention andmitigation measures implemented in operationswith significant potential or actual negative impacts on local communities		38~41	●	

TBL	Code	GRI Indicators	ISO 26000	Page	Reporting Status	Remarks
Labor Performance Indicators	LA1	Totalworkforce by employment type, employment contract, and region, broken down by gender	6.4, 6.4.3	80	●	
	LA2	Total number and rate of newemployee hires and employee turnover (by age group, gender, and region)		80	●	
	LA3	Benefits provided to full-time employees that are not provided to temporary or part-time employees (by major operations)	6.4, 6.4.3, 6.4.4	32	●	
	LA4	Percentage of employees covered by collective bargaining agreements	6.4, 6.4.3, 6.4.4, 6.4.5, 6.3.10	33	●	
	LA5	Minimumnotice period(s) regarding significant operational changes, including (whether it is specified in collective agreements)	6.4, 6.4.3, 6.4.4, 6.4.5	33	●	
	LA6	Percentage of totalworkforce represented in formal jointmanagement-worker health and safety committees	6.4, 6.4.6	-	●	Hyosung's each business site (excluding those subject to legal application) have established and operate health and safety committees
	LA7	Rates of injury, occupational diseases, lost days, and absenteeism, and number ofwork-related fatalities (by region and by gender)		82	●	
	LA8	Education, training, counseling, prevention, and risk-control programs in place to assistworkforcemembers, their families, or community members regarding serious diseases	6.4, 6.4.6, 6.8, 6.8.3, 6.8.4, 6.8.8	34, 38~41	●	
	LA9	Health and safety topics covered in formal agreementswith trade unions	6.4, 6.4.6	33~34	●	
	LA10	Average hours of training per year per employee by gender, and by employee category	6.4, 6.4.7	80	●	
	LA11	Programs for skillsmanagement and lifelong learning that support the continued employability of employees and assist theminmanaging career endings	6.4, 6.4.7, 6.8.5	30~31	●	
	LA12	Percentage of employees receiving regular performance and career development reviews, by gender	6.4, 6.4.7	-	●	Those subject to performance assessment are all clerical staff that are in the employment status during the assessment period. For new hires, those that joined the Company after October 2 in the previous year are excluded as well as seasoned hires that have worked less than six months as of December 31
	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	6.3.7, 6.3.10, 6.4, 6.4.3	10~11	●	
	LA14	Ratio of basic salary and remuneration ofwomen tomen by employee category, by significant locations of operation	6.3.7, 6.3.10, 6.4, 6.4.3, 6.4.4	81	●	There is no gender difference in basic wages for new hires.
	LA15	Return rate and retention rate after a maternity leave		81	●	
Human Rights Performance Indicators	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	6.3, 6.3.3, 6.3.5, 6.6.6	-	◐	Efforts are underway to spread sustainability activities including improving workplace conditions, envirionment and labor conditions of partner companies and strengthening ethical management
	HR2	Percentage of significant suppliers, contractors and other business partners that have undergone human rights screening, and actions taken	6.3, 6.3.3, 6.3.5, 6.4.3, 6.6.6	36~37	◐	
	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)	6.3, 6.3.5	81	●	
	HR4	Total number of incidents of discrimination and corrective actions taken	6.3, 6.3.6, 6.3.7, 6.3.10, 6.4.3	81	●	
	HR5	Operations and significant suppliers identified inwhich the right to exercise freedomof association and collective bargaining may be violated or at significant risk, and actions taken to support these rights	6.3, 6.3.3, 6.3.4, 6.3.5, 6.3.7, 6.4.5	33	●	
	HR6	Operations and significant suppliers identified as having significant risk for incidents of child labor, andmeasures taken to contribute to the effective abolition of child labor	6.3, 6.3.3, 6.3.4, 6.3.5, 6.3.7, 6.3.10	-	●	Child labor is prohibited according to the International Labor Organization (ILO)
	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		-	●	Forciful labor is prohibited according to ILO.
	HR8	Percentage of security personnel trained in the organization's policies or procedures concerning aspects of human rights that are relevant to operations	6.3, 6.3.5, 6.4.3, 6.6.6	-	◐	Security work has been outsourced to an external security firm.
	HR9	Total number of incidents of violations involving rights of indigenous people and actions taken.	6.3, 6.3.6, 6.3.7, 6.3.8, 6.6.7	-	●	No violation of rights of natives
	HR10	Percentage and total number of operations that have been subject to human rights reviews and/or impact assessments		-	●	Each business site operates the safety & health committees and conducts constant checks. Under ILO regulations, staff's human rights are protected and working conditions are improved.
	HR11	Number of grievances related to human rights filed, addressed and resolved through formal grievancemechanisms		81	●	
Product Responsibility Performance Indicators	PR1	Life cycle stages inwhich health and safety impacts of products and services are assessed for improvement, and percentage of significant products and services categories subject to such procedures	6.3.9, 6.6.6, 6.7, 6.7.4, 6.7.5	26~27	◐	
	PR2	Total number of incidents of non-compliancewith regulations and voluntary codes concerning health and safety impacts of products and services during their life cycle(by type of outcomes)		-	●	No violation of customers' health and safety laws
	PR3	Type of product and service information required by procedures, and percentage of significant products and services subject to such information requirements	6.7, 6.7.3, 6.7.4, 6.7.5, 6.7.6, 6.7.9	-	◐	Hyosung initiates to acquire domestic and international certification for each product produced in each PU in different sectors, e.g. environment, hygiene, food packaging, electricity/electronics, etc.
	PR4	Total number of incidents of non-compliancewith regulations and voluntary codes concerning product and service information and labeling (by type of outcomes)		-	●	No critical violation of laws on product information labeling.
	PR5	Practices related to customer satisfaction, including results of surveys measuring customer satisfaction	6.7, 6.7.4, 6.7.5, 6.7.6, 6.7.8, 6.7.9	26	◐	Regular satisfaction surveys for customers using Hyosung's products are conducted, which are in turn reflected throghout management.
	PR6	Programs for adherence to laws, standards, and voluntary codes related tomarketing communications, including advertising, promotion, and sponsorship	6.7, 6.7.3, 6.7.6, 6.7.9	12~13	◐	
	PR7	Total number of incidents of non-compliance with regulations and voluntary codes concerningmarketing communications, including advertising, promotion, and sponsorship		-	◐	No case of violation of marketign laws in management and endless efforts will be poured in for legal compliance
	PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data.	6.7, 6.7.7	-	●	Endless efforts are underway to protect information. There has been no critical information leakage or complaint raised up until 2012.
	PR9	Monetary value of significant fines for non-compliancewith laws and regulations concerning the provision and use of products and services	6.7, 6.7.6	-	●	No serious violations of laws for products supplied by Hyosung

Glossary

This pages explains major terminologies in this Hyosung Sustainability Report.

Term	Definition
Fire Retardancy	A property of a material that is hard to burn, especially between combustibility and incombustibility
Electric/Electronic Sub Assembly(ESA)	Electric/Electronic components powered by batteries
PCS	Power Conditioning System
Polarizing Plate	One of optical elements that make complete polarizers out of untilted lights or random polarizers
Air-Compressor	Equipment that compress air
Air-Driver	Device that dehumidifies
BAU	Business As Usual
CDM	Clean Development Mechanism
Compressed Fuel Refueling Systems	Compressed Fuel Refueling Systems
CSMS	Customer Satisfaction Management System
DEWI-OCC	Offshore and Certification Centre GmbH
DH Process	Propane Dehydrogenation Process
ENPLA	Engeeneering and Plastic
ESS	Energy Storage System
EV MOTOR	Electric Vehicle Motor
GIS	Gas Insulated Switchgear
GRS	Global Recycle Standard
High Strength Grade	Tensile strength of 4.9 Gpa, elastic modulus of 240 Gpa
Pelletizer	Machinery that assembles raw materials in the power form in a sphere in making artificial light-weight aggregates for assembly machine or of assembly type
PP	Polypropylene
PSM	Process Safety Management
PVA	Polyvinyl Alcohol
Smart Grid	Intelligent power grid system that optimizes energy efficiency as a power supplier exchanges real-time information with consumers interactively by applying IT to power technologies
SMS	Safety Management System
SOC	Social Overhead Capital
STACOM	Static Synchronous Compensator
TAC	film, Tri-Acetyl Cellulose
TMS	Tele-Monitoring System
TPA	High purity Terephthalic Acid

Third Party Assurance Report

INTRODUCTION

Det Norske Veritas Certification Ltd. (hereinafter referred to as 'DNV') has been commissioned to carry out assurance engagement on Hyosung Corporation Co., Ltd. (hereinafter referred to as 'Hyosung') Sustainability Report 2012 (hereinafter referred to as 'the Report'). This engagement focused on the information provided in the Report and the underlying management and reporting processes. This Assurance Statement is intended for the readers of the Report. Hyosung is responsible for the collection, analysis, aggregation and presentation of all information within the Report. DNV's responsibility regarding this Assurance engagement is to the management of Hyosung only, in accordance with terms of reference and scope of work agreed. DNV disclaims any liability or responsibility to a third-party for any decisions(whether investment or otherwise) based upon this Assurance Statement.

SCOPE OF ASSURANCE

This Assurance Engagement covered data from calendar year 2012. The scope of DNV's Assurance Engagement included the verification of:

- The scope of reporting is limited to Hyosung's organization and activities.
- Sustainability policy, goals, initiatives, practices and performance for calendar year 2012, as described in the Report. These were verified at company level.
- Health & Safety, Social and Environmental data management systems, and associated processes and tools for collecting, analyzing, aggregating and reporting quantitative and qualitative information provided in the Report
- Processes for defining the boundaries, focus and content of the Report
- Review of the extent to which the principles and requirements of the Global Reporting Initiative (GRI) Guidelines for Sustainability Reporting (GRI G3.1) are reflected in the Report
- The extent to which the principles of Materiality, Inclusivity and Responsiveness are adopted according to requirements of the moderate verification of Type 1 of AA1000 AS (2008). The reliability of the information within the Report was verified to a moderate level of assurance.

LIMITATIONS

The engagement excluded the sustainability management, performance and reporting practices of Hyosung's suppliers, contractors and any third-parties mentioned in the Report. DNV did not interview external stakeholders as part of this Assurance Engagement. Finance-related data was checked out by an account auditing agency. Economic performances including financial data were cross-checked at head-office with internal documents and the financial statements audited by the 3rd party.

STATEMENT OF COMPETENCE AND INDEPENDENCE

DNV provides sustainability risk management services through specialists worldwide. This engagement was undertaken by a multi-disciplinary team of suitably qualified and experienced sustainability professionals. DNV was not involved in the preparation of any information presented in the Report. DNV did not provide any services to Hyosung from 2012 to the Report verification period in 2013 that could compromise the independence or impartiality of our work.

VERIFICATION METHODOLOGY

This Assurance Engagement was carried out from February to April in 2013, and in accordance with the DNV Protocol for Verification of Sustainability Reporting (VeriSustain™) and AA1000AS(2008). In reaching our conclusion, we have undertaken the following work ;

- Interviewed Hyosung's management representatives and managers thereof
- Visited Hyosung's HQ in Seoul, Republic of Korea ;
- Examined relevant documents, data and other information requested by DNV and made available by Hyosung;
- Reviewed the mechanisms implemented by Hyosung to promote and oversee its sustainability-related policies as described in the Report;
- Reviewed a selection of internal communication and external media reports relating to Hyosung's sustainability management approach, performance and adherence to its policies;
- Analyzed sustainability data management systems, assessing specific data and information reported according to AA1000AS(2008). The assessment of reliability of data and information was based on explicit assertions regarding sustainability performance on material issues and included a review of their completeness and accuracy. It included a review of the methods, practices and tools used in the collection, aggregation, analysis, internal quality control and reporting of the data and information. DNV's assessment also included: high-level trend analysis; the identification and significant changes in performance from the previous reporting; a review of data traceability; and record checks at different stages in the data flows.
- Checked GRI Statement confirming that the Report fulfills the requirement of GRI G3.1

CONCLUSION

In DNV's opinion, and based on the scope of this Assurance Engagement, the Report provides a reliable and fair representation of Hyosung's sustainability strategy, policy, practices and performance in 2012. Based on the work undertaken as part of this Assurance Engagement, DNV believes that the Report generally meets 'A+' levels required in GRI G3.1 and the Moderate Level of Assurance of AA1000AS(2008), and principles, content and quality requirements of verification of Items 1. Further conclusions and observations on the adoption of reporting principles and specific performance information are made below; Regarding the level of adherence to reporting principles, we conclude the following

Inclusivity

Hyosung has engaged with a wide range of stakeholders regarding sustainability issues via survey and interview. Stakeholder engagement process includes a wide scope of stakeholder groups. This Report specifies on stakeholder engagement process and stakeholder research results. There are five stakeholder groups which are: Shareholders and Investors, Partner Companies, Staff, Customers and Other Stakeholders (government, NGOs and mass media). It is recommended to indicate the reason of being selected, the communication processes for respective groups. Departments in each division identify major interests of stakeholders using direct and indirect means, and actively conduct communication and participation. Since Hyosung is engaged in overseas projects in diverse fields, it is recommended that the participation of stakeholders overseas can be expanded, thus identifying their expectations and applying them to sustainable management. The level of complying with inclusivity is judged to be high.

Materiality

Hyosung has identified and prioritized critical issues by considering business impact, internal strategic policies, common issues in the industry, stakeholder interest and social impact. In the materiality evaluation process, important issues encompassing short-term, medium-term and long-term impacts have been clearly discovered. This Report suggests major issues related to Hyosung's activities and performance of issues highly relevant to stakeholders. Critical issues devised through stakeholder surveys and related activities and performance are fairly reported. Critical issues were identified and decided on by reflecting stakeholder opinions. In publishing the next Sustainability Report, more focus could be on core issues identified as a result of materiality evaluation. The level of complying with materiality is judged to be high.

Responsiveness

Stakeholders' opinions, interest and expectations were reflected in preparing for this Report and systematizing sustainable management of Hyosung. The Report generally satisfies stakeholder responsiveness. In fact, a more mature system needs to be established. In order to show to stakeholders that sustainable management is carried out as planned, goals for each critical issue need to be set, and a more effective system to monitor and measure performance needs to be in place. The level of complying with responsiveness is judged to be moderate.

Quality Principles for the Report

Hyosung-defined reporting scope and boundaries deal with Hyosung's critical issues and activities, and stakeholders' more relevant issues and activities. No critical omission has been found in verified data and information. The Report does not include some performance in Hyosung's business fields. Performance of all business fields including overseas business must be reported. The Report comparatively provides balanced information. However, more active reporting and response are needed for some negative stakeholder opinions. Data and information in the Report are overall reliable. Graphics-based performance comparison is judged to be appropriate. However, it is recommended that an official internal evaluation process could be established to identify data management processes and data identification. The level of complying with the quality principles for the Report is judged to be moderate.

Opportunities for Improvement

The following is a summary of observations and improvements to be made provided to the management of Hyosung. The points do not influence the conclusion of this Report, and are provided for continuous improvement.

- To systematically manage major processes (data compilation, analysis, report editing, etc.) for publication of the Report through a documented procedural guideline
- To set and suggest quantified sustainability goals divided into short-term, medium-term and long-term goals
- To conduct internal verification to enhance accuracy and reliability of data and information disclosed through the Report
- Sustainability performance data management in the HQ is reliable. To establish a system to collect and manage data from subsidiaries, overseas branches and overseas businesses

March 2013, Korea

AA1000
Licensed Assurance Provider
000-10

Lead Verifier
Seung Hyun Kwak

Country Manager
In Kyoon Ahn

Assurance Engagement Reviewer
Global responsible for Sustainability services
Antonio Astone

About This Report

This Report is Hyosung's first Sustainability Report, imbuing Hyosung's willingness to generate common values including social and environmental values with all stakeholders around Hyosung and grow with them. With this Report, Hyosung is committed to expand communication channels with diverse stakeholders while sharing sustainable management with them.

This Report was written according to G3.1 of the Global Reporting Initiative (GRI) for sustainability reporting. Moreover, reporting took place in conjunction with both ISO 26000, an international standard on CSR and GRI Guideline. In order to secure reliability and fairness of the content, verification was made according to the AA1000AS from DNV, an independent verifier, which is contained on p.94 of the Report.

Reportign Period and Scope

Hyosung's Sustainability Report published for the first time in 2013 reported on both quantitative and qualitative performance from January 1, 2012 to Decemebr 31, 2012. Performance of 2011 was partially included in the qualitative performance, and performance of 2010 was included in some quantitative performance, thus providing data of the three years. The scope of reporting includes HQ in Seoul and domestic business sites (excluding subsidiaries, overseas business sites, Information & Communication PG, finance and others).

Hyosung's Sustainability Report is available in both Korean and English. Additional information on this Report can be checked out on Hyosung's website.

Hyosung's 2012 Sustainability Report Cover Story

Hyosung's 2012 Sustainability Report has a 3D illustration, seeking for creative design.
3D icons symbolize sustainability performance where the environment and community are the top priorities. 3D icons in Hyosung's each business field, economy, society and the environment are organically used to express Hyosung's identity in vibrant colors.

Information on Participators in this Report

Hyosung's Sustainability Report is available in both Korean and English. Additional information on this Report can be checked out on Hyosung's website, and for further details, please contact the relevant contact person as follows:

HQ / PG / PU	Name of Team	E-mail Address	Contact Person	Tel.
Corporate Administration Center	Legal Affairs Team	jbak@hyosung.com	Jong-Ho Park	02-707-7444
	HR Team	12kinos@hyosung.com	Hyun-Ho Park	02-707-7694
	Leadership Development Team, Hyosung HRD Center	ye.choi@hyosung.com	Ye-Kyung Choi	031-428-1256
	Communication Team	yong639@hyosung.com	Chan-Yong Park	02-707-7332
	General Affairs Team	hclee@hyosung.com	Ho-Cheol Lee	02-707-7302
	Audit Team	hnam@hyosung.com	Hoon Nam	02-707-7032
Corporate Finance Center	Fund Planning Team	smlee92@hyosung.com	Seung-Man Lee	02-707-7423
	Investor Relations Team	ssano@hyosung.com	Hyun-Ho Shin	02-707-6122
Corporate Strategy Center	IT Planning Team	yhkim@hyosung.com	Yong-Han Kim	02-707-7712
	Win-Win Planning Team	hs9600503@hyosung.com	Yong-Hak Ahn	02-707-7061
	Green Management Team	memories37@hyosung.com	Yung-Yul choi	02-707-7586
R&D	R&D Business Labs.	jysong@hyosung.com	Ji-Young Song	031-428-1173
	Power & Industrial Systema R&D Center	lylim@hyosung.com	You-lim Moon	031-596-1809
	Steel Wire Technical Center	hs9910871@hyosung.com	Woung-Chul Jung	052-255-5251
NylonPolyester Fiber PU	Strategic Planning Team	leejy@hyosung.com	Joong-Youl Lee	02-707-7375
Spandex PU	Marketing Team	sungsoo@hyosung.com	Sung-Soo Kim	02-707-7215
Fabric/Dyeing PU	Planning Marketing Team	ksjsyoo@hyosung.com	Kyoung-Sik Yoo	02-707-7205
Industrial Materials PG	Strategic Planning Team	ujchung@hyosung.com	Yoo-Jo Chung	02-707-7385
Tire & Industrial Reinforcements PU	Strategic Planning Team	seeworld@hyosung.com	Jae-Hong Lee	02-707-7167
Technical Yarn PU	Strategic Planning Team	skkim@hyosung.com	Sung-Kyoon Kim	02-707-7211
Interior PU	Strategic Planning Team	iamyoursun@hyosung.com	Sun Yu	02-707-7271
Aramid Business Division	Strategic Planning Team	seopangi@hyosung.com	Jae-Sub Seo	02-707-7358
Carbon Business Division	Strategic Planning Team	suhhjy@hyosung.com	You-Suk Suh	02-707-4316
Chemicals PG	Purchasing Team	chocs@hyosung.com	Chang-Sik Cho	02-2146-5233
PP/DH PU	Strategic Planning Team	gwan@hyosung.com	Min-Gwan Kim	02-2146-5411
TPA PU	TPA Sales Team	chiefhjy@hyosung.com	Jun-Young Ha	02-2146-5472
Film PU	Strategic Planning Team	hsson@hyosung.com	Hyun-Sun Son	02-2146-5253
Packaging PU	Strategic Planning Team	yjkwon@hyosung.com	Yun-Jeong Kwon	02-2146-5312
Optical Film PU	Strategic Plannings Team	yoojongeun@hyosung.com	Jong-Eun Yoo	02-2146-5355
Neochem PU	Strategic Planning Team	twkim@hyosung.com	Tae-Woo Kim	02-2146-5482
Power & Industrial Systems PG	Strategic Procurement Team	hsunah@hyosung.com	Sun-Ah Heo	02-707-6160
	Compliance & Risk Management Team	sungjaepark@hyosung.com	Sung-Jae Park	02-707-6777
Power Systems PU	Strategic Planning Team	anneyu@hyosung.com	In-Jung Yu	02-707-6975
Industrial Machinery PU	Strategic Planning Team	yoonju@hyosung.com	Yoon-Ju Lee	02-707-6383
Wind Energy Business Division	Strategic Planning Team	sh9121@hyosung.com	Song-Hee Choi	02-3668-5615
Construction PG	Strategic Planning Team	nablueda79@hyosung.com	Min-Chul Hwang	02-707-4413
Trading PG	Strategic Planning Team	yss@hyosung.com	Young-Seok Shin	02-707-8871
Business Sites	Changwon Plant	yongjinkwon@hyosung.com	Yong-Jin Kwon	055-268-9030
	Ulsan Plant	dykim@hyosung.com	Dae-Young Kim	052-278-7510
	Anyang Plant	jpkim67@hyosung.com	Jong-Pil Kim	031-428-1012
	Gumi Plant	kkh9369@hyosung.com	Kwang-Ho Kim	054-470-9122
	Yongyeon Plant	shkoo@hyosung.com	Sung-Hoi Koo	052-279-2041
	Eonyang Plant	yhyoon@hyosung.com	Yang-hoon Yoon	052-255-5199
	Daegu Plant	json@hyosung.com	Jeong Son	053-589-7010
	Daejeon Plant 2	hkkship@hyosung.com	Han-Gyu Kim	042-605-8520
	Gwanghyewon Plant	bsmin@hyosung.com	Byeong-Seo Min	043-530-1615
	Jincheon Plant	hs9311471@hyosung.com	Chung-Keun Bae	043-530-7780
	Yangsan Plant	ilcho@hyosung.com	Il-Rae Cho	055-387-7166