

2019 Sustainability Report

Sustainability with Stakeholders

HYOSUNG

ABOUT THIS REPORT

Hyosung published its first Sustainability Report in 2012 in order to actively communicate with stakeholders. The 2019 Hyosung Sustainability Report is the fourth sustainability report Hyosung has published. Through this report, we would like to share and transparently disclose the company's sustainable management activities and achievements across the economic, social and environmental sectors.

Reporting Principles

The 2019 Hyosung Sustainability Report was prepared in accordance with the core options of the GRI Standards of the Global Reporting Initiative (GRI). In addition, external sustainability initiatives and indicators including EcoVadis, ISO26000, UN SDGs have been considered and further reflected so that we meet varied interests and criteria of different stakeholders.

Reporting Period and Scope

The reporting period for this report is from January 1, 2019 to December 31, 2019. When it comes to provision of trend data, time range has been set to include last three years from 2017. In case of qualitative activities and achievements the report may include data up until June 2020. All financial data is based on the criteria of K-IFRS (Korean International Financial Reporting Standards).

Hyosung was divided into the holding company and 4 operating companies, Hyosung Corporation, which is in charge of group-wide investment plans and management of subsidiaries – Hyosung TNC Corp., Hyosung Heavy Industries Corp., Hyosung Advanced Materials Corp. and Hyosung Chemical Corp., whose business area covers textile · trading, heavy industries · construction, industrial materials and chemicals, respectively. Reporting period of financial information for each company ranges from the date of the division to December 31, 2019.

The scope of this report includes all domestic and overseas business sites (Vietnam, China) in Hyosung Corporation and its four operating companies. For matters required attention to the scope of the report, a separate explanation is provided to avoid confusing readers. For your convenience, we use the abbreviations of company names. Accordingly, some business performance and activities described in the report may not be applicable to entire business operations. With the improvement of sustainability management system after spin-off, data has been readjusted, which has led to partial changes of certain data from the previous report. In such cases, the criteria of the data calculation are indicated separately at the bottom of the content.

Verification

In order to ensure the credibility and fairness of this report, Networks-Y has verified this report in accordance with the AA1000AS(2008) principles (inclusiveness, importance, responsiveness) as well as with the verification procedures based on ISAE 3000 data and process reliability principles. The related results of the verification can be found on page 102 of the report.

Inquiries

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Additional Information

This report has been created in the form of an interactive PDF which includes hyperlink features to direct readers to the relevant page both within and outside the report.

Glossary for Major Terms

PG: Performance Group
PU: Performance Unit
Hyosung: Hyosung Corp. and 4 operating companies

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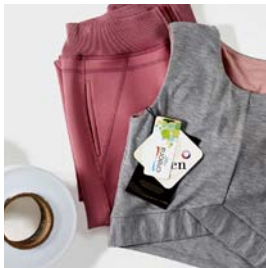
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CEO Message



Dear respected stakeholders,
I appreciate your interest in and support for
Hyosung.

I believe that the sustainability of Hyosung is deeply based on continued trust and support from our stakeholders including shareholders, customers, suppliers, local communities, and employees. Companies nowadays are facing unprecedented difficulties from aggravated global business environment along with the COVID-19 pandemic. However, opportunities still exist in times of the pandemic, and only companies that increase their value by fulfilling their environmental and social responsibilities can succeed in the future. As such, we are striving to become a sustainable company by communicating proactively with our stakeholders in recognition of our roles and responsibilities as a global citizen.

A new era is emerging. As AI (Artificial Intelligence) advances, the time of ‘Singularity’ is approaching, and the concept of business and the rules of the game will completely shift in all areas. We can recognize such changes by looking at the entire forest, rather than a single tree, the forest meaning an ecosystem where Hyosung lives together with stakeholders and finds the answers to prepare for the future.

There has been a growing demand for information about ESG (Environmental, Social and Governance) from stakeholders, investors, and customers. For the successful establishment of its ESG system, Hyosung operates a TFT at the group level. We address improvements, prioritize tasks and monitor performance in a regular basis. Moreover, we are improving the risk system that requires extra focus and care such as safety and health risks from COVID-19.

This year’s report focuses on Hyosung’s sustainability issues revealing its achievements based on the tasks it has proceeded. In particular, we have laid a firm foundation based on which Hyosung Corporation and its four operating companies can effectively disclose its system, strategy, process and performance related to ESG with each other after the spin-off. We will keep trying to ensure differentiated sustainability by each business company, taking advantage of its unique industrial characteristics and strengths.

Hyosung will continue to communicate more actively with its stakeholders and increase its future value based on this. We always appreciate your continued support, and promise to be a creative company that challenges its best.

CEO & Chairman **HYUN-JOON CHO**

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First to Bring the Most Valuable Changes (CREATIVITY INSPIRED)

When a new change for the future aims at a better tomorrow that everyone dreams and hopes for, the change can have true value. A change with value breathes inspiration into numerous industries and technologies, and a creative company that leads the change presents a better tomorrow faster than anyone else. This is what Hyosung considers as the most valuable kind of “Creativity.” Hyosung does not settle for the status quo as a provider of leading products in our business areas and always seeks out challenging opportunities to grow in the global market. We are deeply aware of our role as a member of community and strive to become a company that can contribute to society.

HYOSUNG WAY

Hyosung Way is a system of values, where all Hyosung members around the world empower each other to make their dreams come true. By putting the Hyosung Way into practice, Hyosung will become a global leader that enhances the quality of life of each customer.

Enhance and enrich the quality of life for humanity with its leading technology and management capability.

GLOBAL EXCELLENCE

- Maximize competitiveness with ceaseless self-improvement efforts to win in any situation.
- Blaze new trails in markets around the world with a global outlook.

INNOVATION

- Eliminate all inefficiencies that do not add value.
- Create new possibilities with a positive mindset.

ACCOUNT-ABILITY

- Be responsible and take ownership of actions.
- Never give up until the goal is achieved.

INTEGRITY

- Uphold transparency and fairness based on facts and principles.
- Respect and cooperate with each other to foster a great workplace.

ABOUT HYOSUNG CORPORATIONS

Company name	Hyosung Corporation
Date of establishment	3 November 1966
CEO	Hyun-Joon Cho, Kyoo-Young Kim
Headquarter location	119 Mapodaero, Mapo-gu, Seoul, Republic of Korea
Main business area	Management and investment of shares of the affiliated business companies, research service, group CI management, interior, etc.
Major business countries	29 countries incl. Korea, China, and Vietnam
Revenue	KRW 3,373.4 billion
Group revenue	KRW 18,004.1 billion

* The information provided in 'Major business countries,' 'Revenue,' and 'Group revenue' is as of the end of December 2019, and is aggregated based on the consolidated financial statements of four business companies, Hyosung, Hyosung TNC, Hyosung Heavy Industries, Hyosung Advanced Materials and Hyosung Chemical.

Rating



Corporate Bond (CB)



Commercial Paper (CP)

OVERVIEW

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Focus Issues & Business Cases

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MANAGEMENT APPROACH

CUSTOMER SATISFACTION AND PRODUCT RESPONSIBILITY

Background

Customer-centric management is emphasized more than ever, as the center of consumption pattern of products and service moves from suppliers (push strategy) to customers (pull strategy). It is important to understand customers' needs clearly to achieve their satisfaction. Customer-centric management can be an effective business strategy to maximize profits of a company in the long run.

Our approach

In the effort to realize customer-centric management, we are trying to increase and internalize our C-Cube capacity by establishing guidelines of C-Cube activities and implementing group-wide training. We do not only listen to VOC (Voice of Customer) but also VOCC (Voice of Customer's Customer) and VOCO (Voice of Competitor) so that we can identify customers' real needs and reflect them to our business strategies.

Objective in 2020



Securing VIU
(Value in Use)



Creating
new business

Achievement in 2019



Introducing &
Managing C-Cube
System



Establishment of
C-Cube Activity
System and Manuals



C-Cube Training and
Promotion on a
Group-wide Level

UN SDGs Linkage



Customer-centric Management

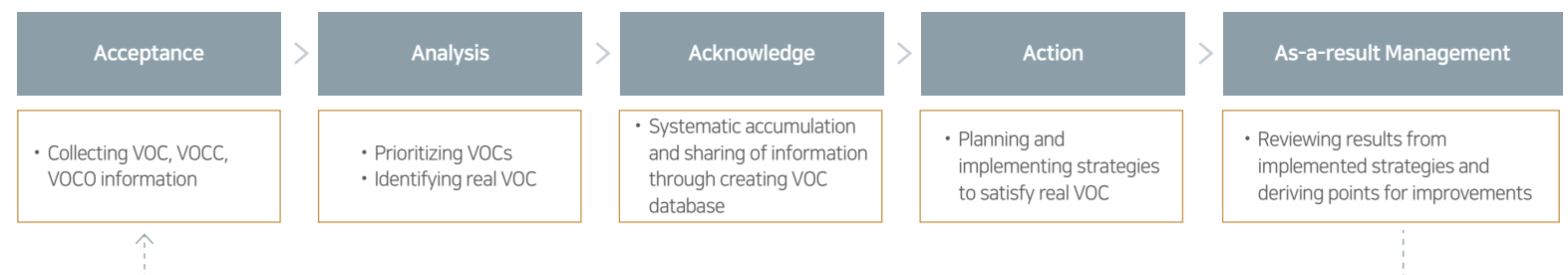
Carrying on C-Cube Activities

We carry out customer-centric management in which we identify customers' real needs to meet and implement business strategies. In this sense, C-Cube activities are implemented so that all employees apply customer centric strategies in their day-to-day tasks. C-Cube activity follows a 5-step-process including 'Acceptance', 'Analysis', 'Acknowledge', 'Action' and 'As-a-result Management.' In particular, the 'As-a-result' step is a process that analyzes the success and failure factors of the past activities to derive strategies that increase the success rate next time, thus contributing to employees' continuous capacity development in the related activities. In 2019, we set up a system to internalize and support C-Cube (VOC) activity process to reflect customers' voices at all departments such as sales, marketing, product and R&D. Throughout this process, customer-centric work environment has been created where all members of the organization listen to customers' voices and strive for customer satisfaction.

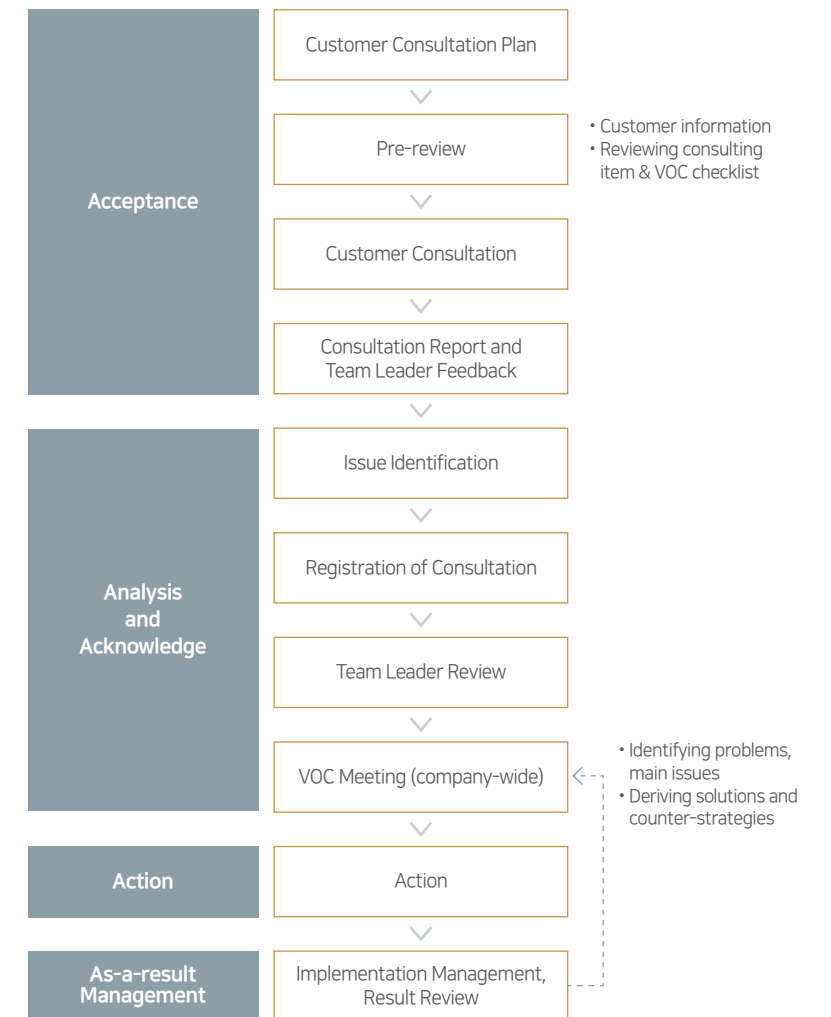
Internalizing C-Cube Capacity

Hyosung carries out C-Cube activities based on documented manuals and conducts group-wide training so that C-Cube can be successfully incorporated in the organization. A dedicated team for promoting C-Cube activity was established, and pre-training was conducted on person in charge appointed by each department. We conduct group-wide training and supervisor training for persons in charge. Monthly information exchange meeting is also held to share the performance of C-Cube activities. In addition, C-Cube activity manuals by organization have been created and utilized in each business department reflecting its own organizational culture and business environment. In the event of VOC issue, all related departments cooperate to find a solution and executes it in a timely manner. We are also promoting best practices through publishing 'VOC Letter' which introduces relevant benchmark cases. In 2020, we will continue to promote C-Cube activities focusing on three main targets, which are securing VIU (Value in Use), zero C&C (Claim and Complaint) and creating new business.

C-Cube Activities Flow Chart



Process of C-Cube Activities



MANAGEMENT APPROACH

CUSTOMER SATISFACTION AND PRODUCT RESPONSIBILITY

Background

In the future, the global textile market is expected to change into a high value-added market that requires advanced level of quality especially in the fashion and industrial textile sectors. Moreover, many countries have adopted protectionist policies in the global trade market due to the influence of COVID-19 pandemic, and it is expected that only highly competitive companies can survive in the changed trade market environment. Due to the textile industry's shift toward high value-added one and growing competition in the trade market, it has become one of essential business management strategies to identify customer needs and reflect them to products and services.

Our approach

In order to systematically manage the voice of customers, Hyosung TNC improved the existing GBIS system and tries to derive customized solutions by analyzing VOC data comprehensively. We also focus on improving manufacturing production process for higher product quality through establishing our standards in accordance with the global standards and introducing Smart Factory system.

Objective in 2020



Improving customer DB operation system



Maintaining ISO9001

Achievement in 2019



Improving GBIS (Global Business Information System)



Introducing Smart Factory

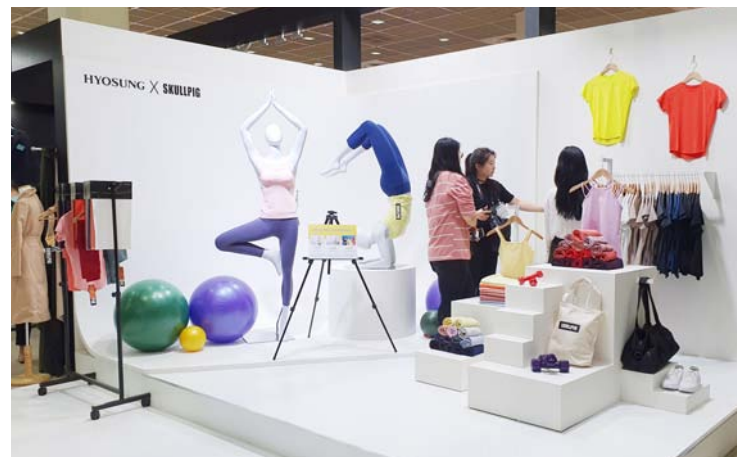
UN SDGs Linkage



Customer-centric Management

Joint Participation at Global Trade Fairs with Client Companies

Hyosung TNC operates a joint exhibition booth with client companies every year in international and domestic trade fairs. Through this, we can help our clients to expand their sales channels and identify customers' needs and market trends, as well as consolidate our global leading position by promoting excellence of our products to potential customers. We also continue to support domestic SMEs (small and medium enterprises) clients, that have relatively limited opportunities for international-scale exhibitions, by joint-participation in international trade fairs. In 2019, Hyosung TNC co-participated with its clients in a variety of exhibitions including Preview in Daegu (PID), Preview in Seoul (PIS), Vietnam Saigon Textile in Vietnam and Outdoor Retailer Summer Market in the USA. We attended the world-largest textile trade fair, Intertextile Shanghai, together with 18 international client companies, and performed various activities to grow together and secure leadership in the market.



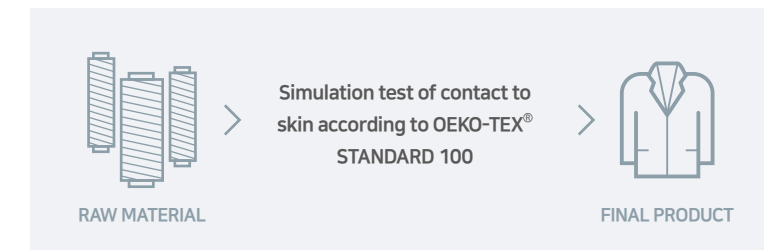
[Seoul International Textile Fair (PIS)]

Customer-tailored Solutions with VOC Management

In order to collect and manage VOC in more systematic way, Hyosung TNC has improved the existing GBIS (Global Business Information System) and integrated important customer information and voices that were managed decentralized in the past. In addition, we provide customer-tailored solutions using continuous customer DB updates, enabling a foundation for mutual growth with the customers. Internally, we operate quality assurance meetings in which product quality-related issues are discussed and separate regular meetings specialized in VOC issues. We continue to develop differentiated products and identify new demands by using our customers' needs combined with our technological capacity.

OEKO-TEX® STANDARD 100

Hyosung TNC operates OEKO-TEX® STANDARD 100 certification system which is approved by International Association for Research and Testing in the Field of Textile and Leather Ecology. OEKO-TEX® STANDARD 100 assures products safety with its testing method across 100 stages of simulation tests, taking into account all the possible situations where harmful substances can contact the human body. The certification is renewed every year to constantly secure the product safety.



Improving Product Quality according to Customers' Needs

Hyosung TNC operates production condition in accordance with the global standards for the quality and process stability. We also inspect products thoroughly according to physical property and appearance standards before shipping them to customers. Our quality management system is assured by ISO 90001, a quality management certification, which we obtained to maintain the system more effectively. In manufacturing plants, quality improvement activities are carried out in each subdivision, which are production, quality, and maintenance, in order to improve product quality continuously and fulfill improvement requests raised by customers in timely manner. In addition, the Smart Factory has been introduced to advance our production technology and quality management. Through this, we analyze data collected within the process and discover factors affecting quality to contribute to process and quality improvement.



[Product Quality Improvement Activities]

MANAGEMENT APPROACH

CUSTOMER SATISFACTION AND PRODUCT RESPONSIBILITY

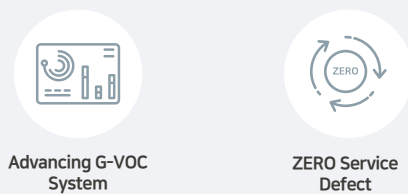
Background

The power facility industry is at risk of decreasing orders due to global economic slowdown caused by COVID-19 pandemic and intensifying competition due to Chinese companies entering the market. In addition, the construction industry is in a difficult situation due to the government’s finance and apartment pre-sale regulations to manage household debt, deteriorating profitability in the public sector and growing competition among construction companies in the private sector. To overcome this market uncertainty, it is important to achieve customer satisfaction through product quality innovation.

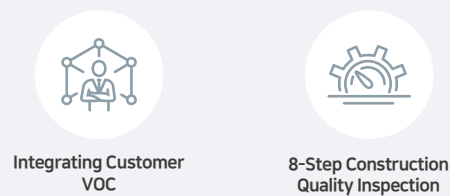
Our approach

Hyosung Heavy Industries strives to supply the products with the optimal performance and quality desired by customers by identifying their technical requirements and market trends. To this end, we are operating a comprehensive VOC management system based on big data and preparing for market-leading technologies throughout strategic collaboration with customers. We will consolidate our customer relationship based on trust through continuous communication.

Objective in 2020



Achievement in 2019



UN SDGs Linkage



Quality Management Together with Customers

G-VOC(Global Voice Of Customer) Management System

Hyosung Heavy Industries is practicing customer-oriented quality management using a customer management system, G-VOC (Global Voice of Customer), and the portal system which enable comprehensive management of VOC information. In the G-VOC management system, customer service departments register VOC and share them across the company, so that customer feedback can be promptly reflected to our product development and other similar problems can be avoided next time. This system allows us to transparently monitor our customer response in real time and represent customers’ needs more effectively utilizing big data.

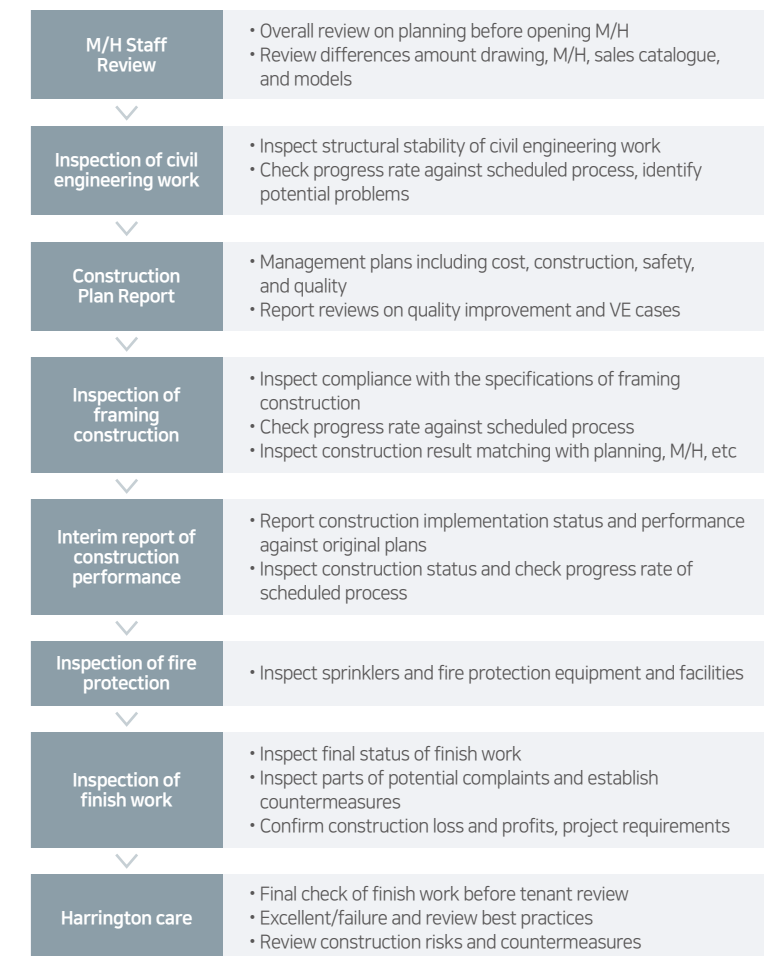
■ G-VOC Operation Purposes and System Structure



Construction Project Quality Management

8 Steps of Quality Inspection of Construction Project

The Construction PU of Hyosung Heavy Industries carries out 8-step quality inspection for a construction project, which starts from model house inspection by staffs and ends with final confirmation before tenant review. In particular, we establish a thorough management plan (construction execution plan, interim performance report) before execution and keep reflecting improvements in the entire process. Moreover, we constantly check our performance against the plan to strengthen the process without any problem. In order to improve customer safety, we are conducting real-time monitoring and evaluation of products and services based on VOC (Voice of Customer) and deriving product differentiation strategies to achieve higher product quality. In this way, we can cut costs and maximize customer satisfaction by preemptively responding to customer complaints.



MANAGEMENT APPROACH

CUSTOMER SATISFACTION AND PRODUCT RESPONSIBILITY

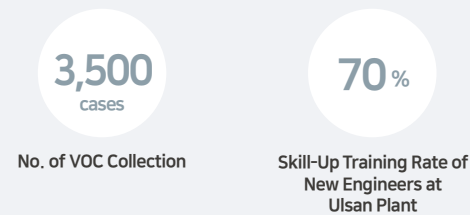
Background

Industrial materials are used in various sectors and require high quality to realize different properties depending on each application. Therefore, it is considered more important than any industry to discover customer needs, which is then followed by definition and realization of the optimal quality through constant communication with customers. Customers’ trust gained in this process is an essential element of the company’s sustainable growth.

Our approach

Hyosung Advanced Materials identifies customers’ needs through a customized VOC (Voice of Customer) management system to provide them optimized solutions. In addition, we are striving to provide the same level of quality at all manufacturing plants across the globe. As a result of pursuing customer satisfaction and product responsibility, we have enhanced competitiveness of our products and services. Also, improving our customer satisfaction has become a foundation for our sustainable growth.

Objective in 2020



Achievement in 2019



UN SDGs Linkage

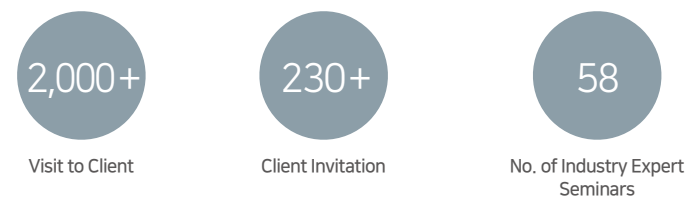


Strengthening Quality Competitiveness upon the Focus on Customers

Customized VOC Management System

In order to provide optimal products and services, Hyosung Advanced Materials manages a VOC (Voice of Customer) management system which is tailored to each customer. In 2019, we collected over 3,000 VOC cases from which we identified customer feedback requiring improvements in a variety of business sectors including delivery, technology, quality and sustainability. We also collect customer needs and exchange technology through regular customer visits which take place once or twice a year for each customer. We use various channels such as academic conferences, product & technology exhibitions to collect VOC, and strive to provide the best solutions accordingly. Also expert seminars and trainings were hosted in response to customers' needs for technical knowledge. We seek to increase customer value through continuous VOC management.

■ Performance of Customized VOC Management System in 2019



Business Cases – Customer Satisfaction and Product Responsibility

✓ VOC Letter

Tire & Industrial Reinforcements PU is publishing VOC Letter, a company newsletter distributed to all departments including production, research, sales and planning, to share VOC response cases and prospective tasks as well as market trends and issues. We respond to customers’ requests in timely manner by taking appropriate measures designed on VIU(Value in Use) analysis from various perspectives and sharing the information with all relevant departments.

✓ Intensive Capability Building Program – "Skill-up Training"

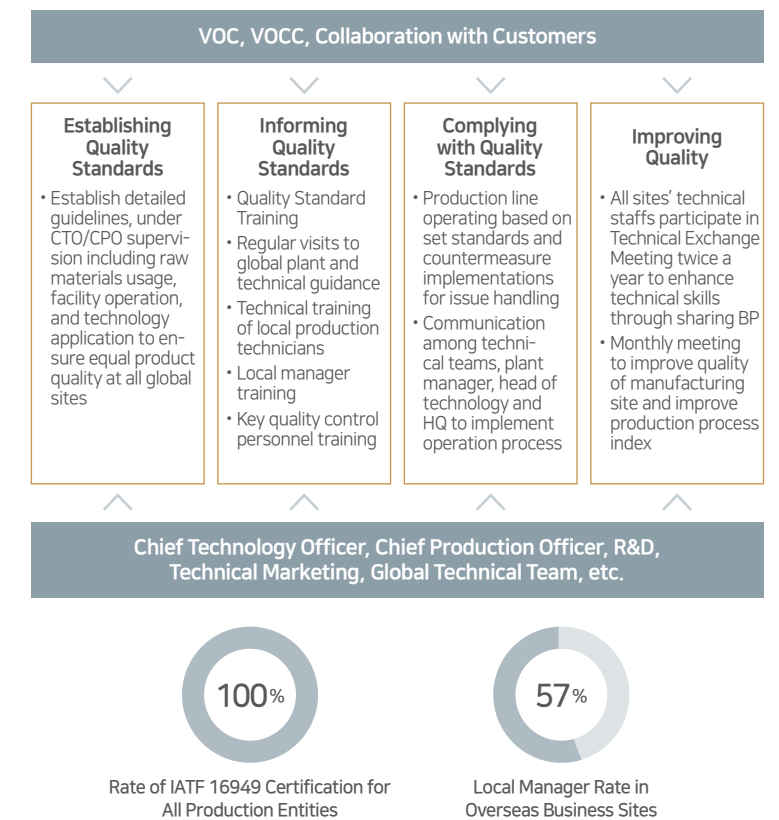
At the Ulsan Plant, the parent of Hyosung Advanced Materials, we are conducting Skill-up training for junior employees and other new employees. It aims to cultivate specialists through 4-month intensive training of professional skills and knowledge. The trainees learn a variety of business knowledge applicable to real tasks such as labor relations and sales as well as knowledge about production process directly related to quality.

✓ Manufacturing Process Training for New Employees

Hyosung Advanced Materials requires all new employees to complete a 2-week-training of key manufacturing processes at Ulsan regardless of their position or major, in order to enhance understanding of products and their production process.(100% completion rate in 2019)

Global Quality Management System

Hyosung Advanced Materials regards product quality as prerequisite to 'customer value' and operates its business based on global quality management system to ensure consistent quality required by customers in all manufacturing sites around the world. The new quality policy has been established and distributed to all manufacturing plants, emphasizing the importance of product quality consistency. Production quality standards for each process are established and managed, and production activities are carried out in accordance with the quality control process from the input of raw and subsidiary materials to the shipment of final products. Product quality management dedicated organization is operated under leadership of CTO(Chief Technology Officer) and CPO(Chief Production Officer). Cases and standards are shared with all production subsidiaries through monthly meetings and technology exchange meetings between factories, and continuous monitoring and feedback are also carried out. We continue to improve the global quality management system and our capacity for quality assurance. In this sense, we offer job rotation to improve common competency of employees, train next-generation CTO and CPO, and cultivate local managers in overseas production plants.



MANAGEMENT APPROACH

CUSTOMER SATISFACTION AND PRODUCT RESPONSIBILITY

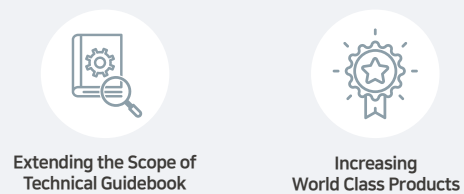
Background

We can find petrochemical products everywhere in our daily lives, such as household appliances, digital devices, medical equipment and cleaning detergents. In the past, based on mass production system, price competitiveness was considered to be the most important market driver in this industry. However, in a modern society where distinct individuality of brand is sought after, it become more and more important to produce products suitable for customer needs and to have differentiated quality competitiveness.

Our approach

Hyosung Chemical recognizes the importance of realizing customer satisfaction and listens to customers to provide products that meet customer needs. Various communication channels are made available both online and offline, so that we can provide high-quality products with advanced technological capacity. Moreover, we are promoting diverse activities to improve products and services, giving the utmost priority to customer safety and health, and running the process in which customer opinions are reflected in our business strategies.

Objective in 2020



Achievement in 2019

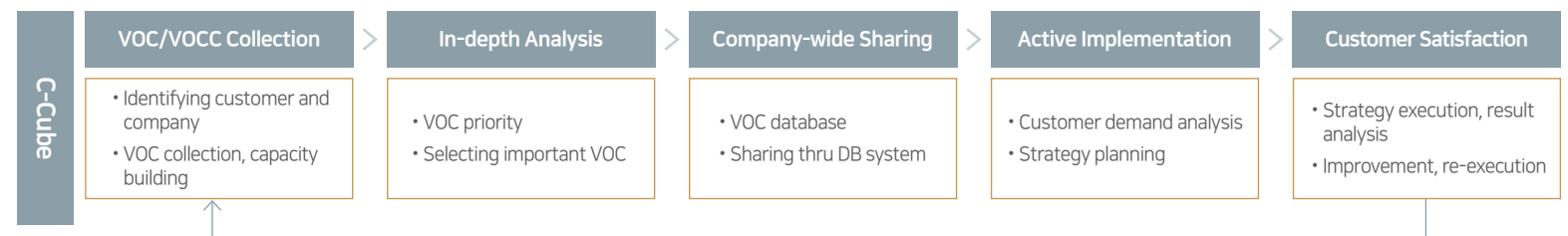


UN SDGs Linkage

Listening to Voice of Customers

VOC Committee

Hyosung Chemical listens to VOC so that we can meet customers' needs by providing them with products and services with the desired quality in timely manner. We believe that our clients' competitiveness is directly linked to ours and operate C-Cube system by which customer requests are collected and fulfilled proactively. In 2019, around 3,900 VOC cases were registered in the system, and we are solving various cases related to quality, technology, delivery, environment and CSR activities. This system is aimed to prevent the same problem from occurring again next time by processing the recurring requests in the past to data, and is transparently monitored to provide complete solutions on the problems.



Environment Safety Certifications and Product Responsibility

EU REACH, FDA, RoHS Certifications

Hyosung Chemical PP/DH PU acquired chemical safety certifications approved by FDA of the United States (2009), EU RoHS (2007) and REACH (2010). They certify that our hazardous chemical management system is established and operated properly, and hazardous substances are handled under control below exposure limit. Hyosung Chemical will continue to assure chemical safety so that our customers and even end consumers can trust and use our products safely.

Automotive Quality Management System Certification

The POK business division of Hyosung Chemical developed an engineering plastic material used in automotive fuel line, automotive exterior and interior parts, POKETONE™, which is certified by IATF 16949, an ISO-approved automotive quality management system certification. Through this, we have met the global standards of quality management system, and enhanced customer satisfaction by providing products and services which fulfill our customer needs as well as regulations.

Technical Guidebook Based on Customer Needs

The customers of Hyosung Chemical often would like to check whether our product is of desired performance in advance of actual performance evaluation, and basic material information such as density and molecular weight is not sufficient to meet such needs. In this sense, Hyosung Chemical publishes the Technical Guidebook that combines data and explanations required by potential customers such as tensile strength, shock strength, UV exposure impact, electrical resistance, and refractory. In addition to experimental data, the guidebook also contains methods for customers to process their own products without direct technical support from Hyosung Chemical. In 2019, we published a guidebook for polyketone and plan to expand the applied products.

Food Safety Management System Certification

In February 2020, the Film PU of Hyosung Chemical earned food safety management system certification to keep up with request from international food companies which are our end customers buying our packaging materials. We produce safe and hygienic products and prevent quality degradation or contamination by establishing management standards in accordance with the food safety rules.



MANAGEMENT APPROACH

OVERSEAS EXPANSION INTO NEW MARKETS

Background

Along with the technology development, conventional industries which are based on price competitiveness are gradually diminishing. In the high value-added industries emerging in the 21st century, accessibility to customer market is considered more important than low production cost, and this promotes companies to expand to overseas markets proactively. Moreover, companies are expanding overseas production bases to better cope with the increasing trade barriers due to global trade protectionism.

Our approach

Hyosung has entered in 29 countries around the world so far and is growing its business territory based on key emerging markets such as Vietnam, India and China. Vietnam is our global production base for Asian and European markets, and India is targeted for its local market based on continuous investment. Hyosung will continue to consolidate its position as a global company by differentiated adaptation strategies for local markets based on the world's best technology and quality.

Objective in 2020



Achievement in 2019



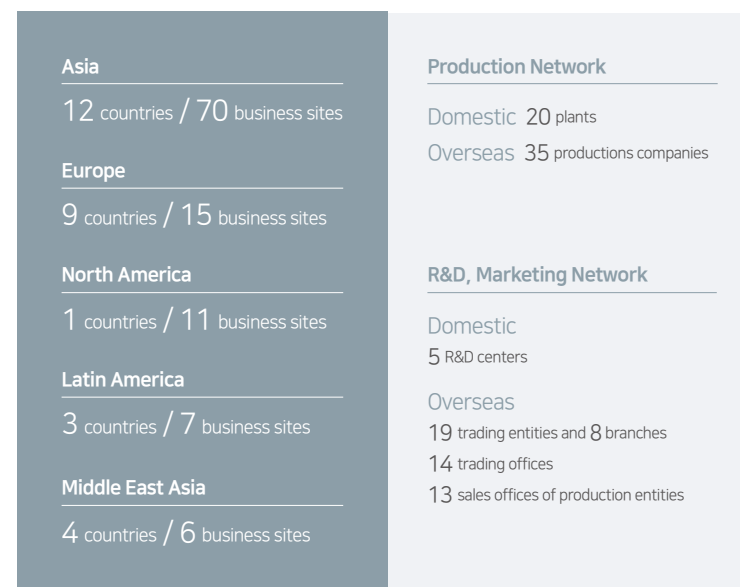
UN SDGs Linkage

Strengthening Global Competitiveness

Continuous Overseas Business Expansion

In an attempt to quickly and effectively respond to overseas markets, Hyosung has expanded its production bases abroad, and is trying to produce products that are suitable for overseas local markets. In this sense, we are also operating our business in Vietnam, India, and China which have high potential in the future, actively investing in facilities and infrastructure so that we can solidify our dominant position in the region. In 2019, especially, large-scale investments were made to establish new production subsidiaries and plants, and we are strategically developing and promoting our products in the global market. Hyosung will continue to establish a strategic global network with the aim of becoming a pioneer in overseas markets and enhancing its global competitiveness.

Global Network of Hyosung



✓ Vietnam

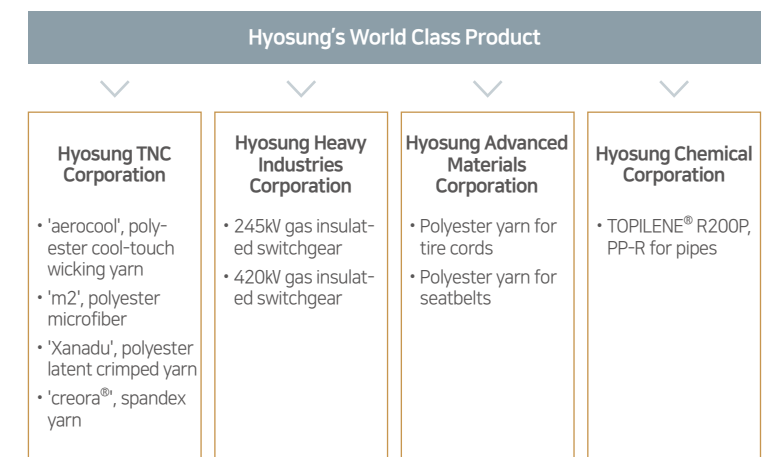
Hyosung is engaged in various business areas across Vietnam. Hyosung has been intensively developing its production complex in Vietnam so that it may serve as the key production base, optimized for the global market. Starting with the world's no. 1 spandex and tire cord business, we have expanded our business areas to chemicals and heavy industries sectors. Our business sites in Vietnam will become a global production base of products for all the markets around the world.

✓ India

India is one of the largest textile markets in the world with high growth potential. Hyosung has been operating a trade corporation since 2012, after the first business launch in New Delhi in 2007. Especially in 2019, with the spandex plant newly established in India, we are able to enter the local market more effectively.

Strengthening Competitiveness with Innovative Technologies

The title of 'World Class Product of Korea' is given only to the selected Korean products that are either among the top five in their industry worldwide or hold at least 5% of global market share with certain size of their overseas business (overseas business twice bigger than that of domestic business or generating at least USD 50 million in sales). The Ministry of Trade, Industry and Energy of Korea selects qualified products for the title, and Hyosung managed to win the title for nine products from four operating companies. The selected products are recognized as the world's first-rate products for time period, from minimum 6 years and to maximum 17 years, and have pioneered a solid global market leadership through differentiated technology competence, despite the entries of numerous latecomers. We will continue to make efforts to lead innovation in the global market with our world-renowned technical capacity.



MANAGEMENT APPROACH

OVERSEAS EXPANSION INTO NEW MARKETS

Background

The growing clothing industry has brought increases in demand of nylon and polyester materials. However, the competition within the industry is getting severer as the developing countries are actively entering the market due to the low technical barrier to entry. Moreover, as manufacturers’ direct exports through the expansion of the overseas sales network increase, dependence of exports on traders is decreasing. To cope with such risk of market shrink, discovery of new overseas markets is emerging as a key task for sustainability management.

Our approach

Hyosung TNC is securing production bases in Vietnam and India to discover overseas market and participating in international trade fairs every year to pioneer new markets. In particular, we are striving to present our technological strengths focusing on functional materials which are growing fast with high demands from customers. As green businesses are expected to emerge worldwide, Hyosung TNC is standing out as a trading company focusing on resource recovery and energy sectors.

Objective in 2020



Achievement in 2019



UN SDGs Linkage



Proactive Expansion to Overseas Markets

Participation in Major Global Trade Fairs

Outdoor & Sports Trade Fair, ‘ISPO’

Hyosung TNC participated in ISPO Munich, the world’s largest sports and outdoor trade fair, in 2019. In order to reflect the ever-increasing demand for eco-friendly textiles in the sports industry, we jointly developed a fabric using biodegradable wood pulp in cooperation with ‘LENZING’, the world’s largest producer of recycled fibers. We also showcased the clothes made of the corresponding fabric in the exhibition to promote ‘environmental consumption’ of customers.



[ISPO Munich in Germany]

Functional Textile Exhibition, ‘OR Show’

We participated in ‘OR Show (Outdoor Retailer Show)’ which is a global exhibition for functional textiles in outdoor & sports sector hosted in Denver, USA. In the exhibition, Hyosung TNC launched ‘Creora® ActiFit’, a high-performance spandex yarn suitable for ‘challenge and a healthier lifestyle’ and extreme sports.

The World’s Largest Textile Trade Fair, ‘Intertextile Shanghai’

We participated at ‘Intertextile Shanghai’ together with 18 international client companies and carried out various activities to promote shared growth with clients and preoccupy market leadership.

Hyosung TNC will continue to focus on enlarging overseas market share by strengthening integrated global marketing activities for nylon and polyester business. We will also keep developing new differentiated products which fulfill customers’ needs through more customer contact points to collect VOC.

Securing Overseas Production Bases

Vietnam

Hyosung TNC has established a production base in Vietnam to expand its production capacity and keep up with the increasing demand worldwide in spandex and nylon yarn. In this way, we are fulfilling customers’ needs with differentiated quality of products.

India

Hyosung TNC’s spandex plant was established on a 396,694m² site in Maharashtra, India, and it is recognized as the cornerstone for targeting local market. We will review continuous investments based on potential growth of Indian market and grow into a beloved company by Indians, contributing to their economy development.

Entry into New Markets with Green Biz

Hyosung TNC’s Chemical PU is diversifying global chemical products from upstream to downstream level and focusing on developing products that could become business solutions to our customers. We are especially specialized in resource recovery and energy sectors, and are developing the corresponding business models, involved with recycled chemical products such as recycled PET and recycled PSF as well as sales of bio diesel raw materials including used cooking oil and palm oil. In this way, we are positioning ourselves as a market leader in green business.

Resource Recovery Sector

We have been expanding our business by increasing value chains in new business sectors and even entering the African market in which local business sites were lacking previously. In order to extend our value chains in regard with recycling business, we will continue to cooperate with recycling enterprises as well as with our existing customers.

Energy Sector

Starting with China, we are expanding and diversifying the market to Southeast Asia, and promoting direct export to Europe, the biggest customer base of ours. Additionally, we are planning to extend our product scope to include not only finished goods like bio diesel, bio oil, and palm oil but also raw materials based on bio fuels. Hyosung TNC is striving to develop its capacity and potential growth engine for the future in an aim to grow into a global leader in the industry of bio diesel raw materials.

MANAGEMENT APPROACH

OVERSEAS EXPANSION INTO NEW MARKETS

Background

The power industry and construction industry are regarded as key industries for a nation and are usually highly involved with public values. Given the fact that relevant policies such as ‘Basic Plans for Power Supply’ and ‘Urban Planning Act’ intervene the market, current domestic market is already highly saturated with advanced power facilities and city infrastructure already widely available. Therefore, companies need to seek for new overseas markets including developing countries, to secure sustainable growth in the future.

Our approach

Hyosung Heavy Industries is pioneering new overseas markets by entering various countries and regions around the world, including the United States, Latin America, Europe and Southeast Asia. Our strategy is to establish production bases in each region in the world since the power and construction industries rely on economies of scale, thus requiring large-scale investments in infrastructure facilities. We are targeting the global market in different strategic methods, including direct investment method such as acquisition of foreign companies, and contractual method such as technology or service contracts.

Objective in 2020



Expanding Production Base in the US

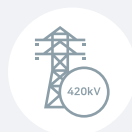


New Renewable Energy Project Contract in Europe

Achievement in 2019



Acquisition of Mitsubishi UHV Transformer Plant



Contract with Svenska Kraftnet for 420kV UHV Circuit Breaker

UN SDGs Linkage



Localization Strategies for Global Market

Production Base of UHV Transformer in North America

Hyosung Heavy Industries has acquired Mitsubishi’s ultra-high voltage (UHV) transformer plant (MEPPI, Mitsubishi Electric Power Products, Inc.) located in Tennessee to secure the first local production base in order to target the world’s largest U.S. power market. From the first half of 2020, the Tennessee Plant is expected to manufacture core type UHV transformers which account for 95% of total demand in the global transformer market including North America. We expect that power consumption in the US will be steadily increasing, as well as the demand for upgrading aging power facilities and infrastructure. We would like to improve our market competitiveness by means of local production base against the reinforced trade protectionism in the US such as anti-dumping tariffs imposed on major domestic UHV transformer providers. Since entering the US market in 2001, Hyosung Heavy Industries has maintained long-term partnership with major utility companies in the US, and the new product base in Tennessee will allow us to supply products to customers in a more stable way. Once the Tennessee Plant is in operation finally, the Changwon Plant, which is the main domestic business site in Korea, will serve updated role as a global technology development center and focus on premium markets in Europe as well as the Middle East and Asia markets.



[Tennessee Plant in the United States]

Hosting Webinars for Six Major Countries in Latin America

Hyosung Heavy Industries is reinforcing its brand image as a technology leader through regular technology seminars delivered to the Latin American market. Following the technology seminars directed to Chile and Peru in 2019, we extended the target audience and held webinars for six major Latin American countries via webinar, an online video conferencing method, in June 2020. We have been carrying out sales performance beyond the limitations of time and distance by practicing new ‘untact marketing’ attempts based on non-face-to-face communication. In this webinar, we introduced the latest technologies and our capabilities related to eco-friendly insulating oil transformers and outdoor circuit breakers (GIS), and through Q&A session, we were able to listen to the voices of various customers while promoting our technologies.

First Entry into the Nordic Power Market

Hyosung Heavy Industries recently signed an order contract for 420kV UHV circuit breaker with Svenska Kraftnet, the state-owned power agency in Sweden, making the successful entry into Nordic power market. Hyosung has intensively working on building close business relationship with Swedish transmission and distribution offices for the past three years in order to enter the market. It is evaluated as a best practice of VOC management by listening to customers to provide products with optimized technological capacity and quality desired by customers. Hyosung Heavy Industries plans to complete supply of 420kV UHV circuit breakers to the southern power substation in Stockholm by 2021, and continue to expand its business further in the Nordic, Eastern and Western Europe, by solidifying strategic partnership with EPC (Engineering, Procurement, Construction) companies based in Europe with the confidence gained from overcoming high market barriers with recognition by the Swedish power agency. The power market of major European countries, including Sweden, is expected to grow by more than 5% per year over the next 10 years due to the replacement and improvement work on old transmission grids and transformers. The market size of circuit breaker, for example, is estimated over KRW 200 billion, and the growth rate of power transformers, substations and renewable energy sectors is expected to increase later on.

Securing Overseas Production Bases

■ Vietnam

As one of the most fast-developing countries, Vietnam needs to build key infrastructure such as port and urban development. As such, Hyosung Heavy Industries is trying to proactively expand its infrastructure business in Vietnam based on technological expertise and knowledge accumulated over a long period of time in transmission and construction sector.

MANAGEMENT APPROACH

OVERSEAS EXPANSION INTO NEW MARKETS

Background

Market competition intensifies as barrier to entry lowers, and the industry matures. In order to maintain a market-leading position in this environment, we need capacity to solve customers’ problems beyond simply presenting good products with quality and performance. It is also required as an essential quality of a company to discover new markets and customers by quickly capturing changing market trends such as lightweight, environmental, and composite material products.

Our approach

When it comes to business areas where we play market-leading role with our high technology and product profiles, we take the strategy to maintain the market by continuously developing products meeting customer needs based on our technology and product capacity differentiated from competitors. In a business area where the new materials and new applications are actively under development, we try our best to secure a growth engine for our sustainable future by focusing on new applications which can demonstrate our performance and pioneer new markets.

Objective in 2020



Achievement in 2019



UN SDGs Linkage



Global Production Network

Optimized Production Base

At Hyosung Advanced Materials, overseas production bases account for more than 90% of sales, and are located in major countries on each continent so that we can optimize product supply to Tier 1 customers based on regional characteristics of the automobile industry. In addition to the production subsidiaries in China and Europe, we have established a large-scale production base in the southern part of Vietnam by intensively fostering Vietnam as the company's main production base since 2007. In 2018, a new subsidiary was established in the central region of Vietnam. We have introduced IoT technologies in our production facilities in Vietnam and made the high-efficiency production available with the IoT-driven big data. Domestic production plants, on the other hand, serve as the mother plant which manages production quality of other global production sites, based on the past production experience in our flagship products. In addition, Korean production sites are in charge of high value-added products such as carbon and aramid fiber. We extended our production capacity for BCF(Bulked Continuous Filament) yarn in Ulsan Plant, so that we can expand our dominance in the polyester automotive carpet market against the competitors' low-cost polypropylene products. We also plan to expand capacity in Korea for new materials such as aramid and carbon fiber to effectively respond to increasing customer demand and to localize materials. After the ceremony for new investment agreement in carbon fiber which was attended by the President of Korea, Moon Jae-in, production capacity has doubled from 2,000 to 4,000 tons. We plan to continue expanding the capacity to 24,000 tons per year by 2028 through a total investment of KRW 1 trillion. Aramid yarn production sites are also under expansion at Ulsan Plant in line with the increasing demand for option cables for 5G telecommunication networks. We are promptly responding to customer needs and reflecting them in product development by operating research centers in Korea, Vietnam and China.



[Contract Signing Ceremony of New Investment in Carbon Fiber at Jeonju Plant]

Differentiation Strategy

Market Expansion through Material-specific Approach

Hyosung Advanced Materials apply different market expansion strategies between key materials such as polyester and nylon, which are our foundation business, and new material such as aramid and carbon fiber which have been developed since the 2010s. Our polyester and nylon material products are subject to customer-centric expansion strategy through which we continuously fulfill the changing customers' needs in parallel with new customer development, and we aim to provide solutions to increase customers' values. Our global no. 1 products - tire cords and yarns for seat belts, are continuously under R&D to reduce product weight while increasing strength in line with the market trend of lightweight. In regard to our interior business area, by applying polyester materials to automotive carpets which was conventionally produced only with existing polypropylene and nylon materials, we have preemptively introduced customized products that meet both marketability and economic competitiveness, which further led to expansion to new markets. We will continue to develop polyester products based on recycle materials and acquire more environmental certifications, in order to fulfill environmental responsibility as well as needs of end-users who are sensitive to such issues. For new materials such as aramid and carbon fiber which were developed as next-generation growth engine, we are actively facilitating market expansion through extending product applications. We are targeting the new market by increasing supply of such materials for novel applications such as hydrogen high-pressure containers, aircraft and oil & gas from contracts with new clients, as well as traditional applications in CNG high-pressure containers and bullet-proof products.



Participation in International Exhibitions for Technical Marketing

In order to promote our products, we are actively participating in major global exhibitions such as JEC World and CAMX, and communicating with customers to explain the underlying technologies and applications. In May 2019, Hyosung Advanced Materials participated in Techtextil, the world's biggest industrial textile trade fair hosted in Germany. At the exhibition, a variety of our industrial yarn lineups were presented such as polyester and nylon as well as aramid and carbon fiber, which attracted a great attention from the participants. In November 2019, we attended Milipol, the world's largest defense industry exhibition. As interest in bullet-proof materials has increased worldwide due to deteriorating global security and rising threat of terrorism, Hyosung Advanced Material's aramid fiber ALKEX®, received great interest at the exhibition. In addition to the industrial textile exhibitions, we plan to participate in the Tire Technology Expo 2020 the world's largest tire exhibition, to actively promote our products and engage with our existing and potential customers.

MANAGEMENT APPROACH

OVERSEAS EXPANSION INTO NEW MARKETS

Background

With the emerging trade protectionism along with national priority policies as well as various social and environmental threats to global economy such as COVID19, uncertainties are ever more increasing in business environment nowadays for a company. In this situation, Hyosung Chemical is striving to further solidify its position by actively discovering and targeting overseas markets for sustainable management while diversifying its production bases. In particular, we aim to preoccupy a differentiated position in the global market with proper plans and strategies after identifying new trends and needs, focusing on emerging markets in Vietnam and Southeast Asia.

Our approach

Hyosung Chemical is enhancing its global competitiveness to create economic value, which is the core purpose of every company. Specifically, we plan to establish Vina Chemicals in Vietnam, which will serve as a strategic overseas base for our overseas business, based on our own technology expertise accumulated for 30 years in our domestic production sites. In this way, we would like to operate a sustainable business by overcoming the uncertainties in the business environment.

Objective in 2020



Production Capacity for Hyosung Vina Chemical



Establishing Extra Production Facility in Vietnam

Achievement in 2019



Production Capacity for Hyosung Vina Chemical



Expansion to Markets in Taiwan/Japan

UN SDGs Linkage



Performance of Expansion to Overseas Markets

Overseas Production Base & Expansion to New Market

■ Hyosung Vina Chemical

Hyosung Chemical established Hyosung Vina Chemicals Co., LTD in Vietnam, which costed about KRW 1.4 trillion for investment, will serve as a strategic overseas basecamp for Hyosung Group companies. Hyosung Vina Chemical is under development of an integrated production system by newly installing LPG storage, docks and polypropylene (PP) plants. Currently, the dock facilities in which VLGC (Very Large Gas Carrier) can be docked are completed, and the first process covering 300,000 tons has been completed. Hyosung plans to finish the second PP process of 300,000 tons and the accompanying propylene process by 2021. Through this, a total of USD 1 billion (KRW 1.1 trillion) is expected as sales revenue in 2021.



[Hyosung Vina Chemical]

Overseas Expansion into New Markets

BUSINESS CASE 1 – China

Optical Film PU of Hyosung Chemical independently develops and produces Tri-Acetyl Cellulose(TAC) film which protects the PVA polarizing film inside LCD polarizers, which are fitted into TVs, monitors, laptops, etc. Since establishing a plant for producing TAC film for LCDs in Ulsan, we have been producing TAC film, which is unprecedented in South Korea. In addition, thanks to our TAC plant 2 which was established in Oksan in 2013, we now boast an annual production capacity of 100 million m². We are increasing the sales of our products by entering the Chinese market, which is recently emerging as the largest display market in the world, with high quality optical film products used in OLED and coating. (Overseas sales rate 30% (2018) -> 40% (2019)) Moreover, in keeping with changing optical film markets, we have developed new Acryl films resistant to water in 2018 and continue to invest in facilities and R&D projects so that we can stand out as a specialist in optical film industry.



[TAC Film]

Promotion in Overseas Market

■ (Middle East Asia) MOU between Hyosung Chemical and Saudi Aramco

In March 2019, Hyosung Chairman, Cho Hyun-Joon, signed a comprehensive MOU for cooperation in chemical, advanced materials and hydrogen projects with Saudi Aramco, the world's biggest petrochemical company, and in June 2019, he met Amin H. Nasser, the CEO of Saudi Aramco, in person and signed the MOU. Through this MOU, we discussed mutual cooperation between Hyosung Chemical and Aramco on our products such as polyketone and high-tech new materials. Hyosung Chemical will strive to develop new business for the future by our technological capacity combined with Aramco's management expertise.



[MOU with Saudi Aramco]

BUSINESS CASE 2 – Taiwan

Nitrogen Trifluoride (NF₃) developed and sold by Neochem PU is a product used in semiconductor / display companies to remove impurities, and the Taiwanese market has the third largest demand (about 11%) in the world as of 2019. In 2017, Hyosung Chemical made sales of 200 tons (about 8% SOW) in Taiwan, and through our active VOC activities, the sales volume doubled to 400 tons (15% SOW) in 2019. Hyosung Chemical will continue to make effort to gain recognition as the world's best NF₃ supplier by maximizing customer satisfaction through effective VOC activities.



[Nitrogen Trifluoride (NF3)]

■ (China) Participation in 'Chinaplas 2019'

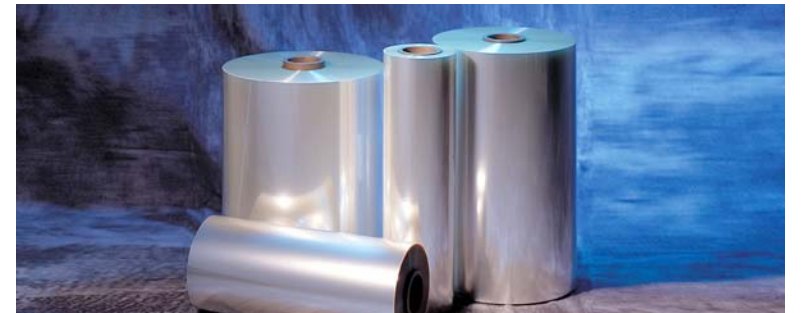
Chinaplas is the largest plastics and rubber trade fair in Asia which attracts massive attention of international buyers in the chemical industry sector. Hyosung Chemical has attended the Chinaplas 2019 in May, unveiled new PP (Polypropylene) products before market launch and also promoted POKETONE™(POK). We would like to pay attention to customer needs and increase market share of high-value products by actively participating in various international fairs.



[Chinaplas 2019 in China]

BUSINESS CASE 3 – Japan

PET film sold by Hyosung Chemical's Film PU is used in packaging and various industrial and optical purposes as a key material in a variety of industries. Since its entry of Japanese market in 2004, we have actively promoted our packaging PET film through VOC activities and achieved 300 tons of sales volume in 2019. Particularly, our base film quality has been approved by one of our client companies, Oji Paper, which is a manufacturer of X-Ray film in Japan, throughout 1-year long quality verification process which started from January 2018. Accordingly, the production and sales of the base film started in January 2019, which yielded 80 tons of sales per month in 2019. We will continue to expand sales based on consistent product quality.



[PET Film]

■ (Germany) Participation in 'K-Fair 2019'

K-Fair which is held in Düsseldorf, Germany, is the world's largest plastic and rubber exhibition which started in 1952. Despite the first participation in this exhibition, Hyosung Chemical has gained great attention and interest from numerous visitors with its differentiated marketing activities as well as with high-tech products including 'R200P', polypropylene for cold and hot water supply pipes and POKETONE™, a new polymer material used to produce transparent containers.



[K-Fair 2019 in Germany]

MANAGEMENT APPROACH

ECO-PRODUCTS AND TECHNOLOGY DEVELOPMENT

Background

As social awareness in green products and technologies has increased, various stakeholders, through conferences and reports, are emphasizing the importance of environmental efficiency and its contribution to management efficiency. As the governmental regulations related to environment issues continue to be strengthened, social and public requests for development of environmental products and technologies is inevitable. Therefore, a company is required to internalize such importance of developing green products and technologies within overall business strategies.

Our approach

As a global company operating in the industrial sectors where high environmental impacts are expected such as textiles, chemical, industrial materials and heavy industries, Hyosung is striving to minimize its environmental impact through various activities in the entire business process. In this sense, Hyosung focuses its efforts on eco products considering entire product life-cycle and R&D projects for the next-generation energy sources such as ESS and hydrogen energy. We will continue to fulfill our social responsibility to preserve environment and support sustainability for the future.

Objective in 2020



Achieving GHGs Emission Target
(3.4% compared to BAU)



Expand EHS Committee Activities

Achievement in 2019



Update of Green Management Vision 2030



Established EHS Committee

UN SDGs Linkage



Eco-products R&D

Green R&D System

Hyosung has grown its business based on the manufacturing industry and has been practicing green management by minimizing the environmental impact from manufacturing sites. Due to changes in global corporate environment, corporate responsibility for environmental values is gaining more emphasis, and the demand for eco products is also increasing. Hyosung has been making efforts in minimizing its environmental impacts through developing eco-friendly materials, investing on environmental facilities and introducing environmental production process and methods. In addition, we plan long-term investments on hydrogen-related business in line with promotion of hydrogen economy for the future. We hope to play a vital role in this newly emerging key industry through production of hydrogen and hydrogen fuel tank as well as construction of charging stations.

R&D of Eco-friendly Energy, Hydrogen Fuel

In accordance with the paradigm shift expected from existing economic structure based on carbon fuel toward hydrogen-powered economy (Hydrogen Economy Promotion Roadmap), Hyosung is working on technology development to set up a complete value chains that cover liquid hydrogen production, transport and recharging facilities. In order to provide liquid hydrogen which will be used in domestic mobility sector, Hyosung is cooperating with an international company known for its hydrogen technologies and jointly investing in construction of hydrogen plants (13,000 tons of annual capacity of production, which is enough to fuel 100,000 sedans) as well as in the setup of 120 hydrogen fueling stations in key regions across the country. By creating a total value chain for hydrogen fuel technology, Hyosung will boost the domestic hydrogen industry and play a vital role as a driving force for the shift to hydrogen-powered economy.



[Eco Product R&D]

Eco-friendly Product R&D Sectors

Sector	Description and Outcome
Bio-based Spandex Yarn	We developed bio-based spandex by polymerizing bio material from fermented corns. We plan to apply it to various products incl. yoga wear and swimsuit.
creora [®] eco-soft	With this polymer product settable to heat at about 15~20℃ lower than general spandex, customers can reduce energy for fabric manufacturing and reduce emissions.
Polyester Yarn (Regen)	In the process of converting waste PET bottles into fibers, we have developed a technology to improve the viscosity and color fluctuations of polymers and to secure dyeability.
Nylon Yarn (MIPAN [®] Regen)	We are conducting research to obtain the raw material Eco-CPL (caprolactam) by decomposing discarded nylon products, and to secure the yarn quality and dyeability by repolymerizing it.
Development & Diversification of Eco Textile	We are developing yarns with biodegradation rate higher than 80% from a PET biodegradable chip
Bio-PET Products	We plan to develop a technology to manufacture Bio-PET fiber by polymerizing and spinning Bio-EG, which is based on fermented sugar cane, for various applications including tire cords and automotive carpets.
High-Strength Tire Cord	A research is underway to make high-strength tire cord products through heat treatment optimization after spinning using special technology. This can contribute to emissions reduction and reduction in tire weight.
Carbon Fiber (TANSOME [®])	We are conducting research on high-strength carbon fibers applicable to high-pressure vessels used for hydrogen vehicles and composite materials to shorten molding cycle.
Eco-friendly Material (POKETONE [™])	We have developed eco-friendly engineering plastics by polymerizing pollutants such as carbon monoxide (CO), ethylene, and propylene. They are applied to automobiles, electronics, and industrial use.

MANAGEMENT APPROACH

ECO-PRODUCTS AND TECHNOLOGY DEVELOPMENT

Background

Since textile production is involved with a complex process including spinning, weaving, braiding, dyeing, processing and cutting, it is necessary to consider environmental impact in a comprehensive aspect. For example, water use can cause water pollution, and organic matters emitted from the dyeing and processing process may cause air pollution. Therefore, environmental impact should be reviewed over the entire lifecycle of a product from its raw material to end use.

Our approach

Hyosung TNC is focusing on developing products made of eco-friendly materials as a company that values sustainable development and green management. In the textile industry. Hyosung TNC is steadily launching recycled products and low-carbon eco products in the chemical textile market which is mostly based on petrochemical materials, thus, strengthening its position as an environment-friendly yarn manufacturer within the market.

Objective in 2020



Improving Wastewater Sludge Recycle Rate



Continuous Replacement of Old Facilities

Achievement in 2019



90% of Wastewater Sludge Recycle Rate



Replacement of 5 Old Monitors

UN SDGs Linkage



Recycled Products

'Regen'® - Recycled polyester yarn made of waste PET bottles

Hyosung TNC's 'regen' is Korea's first eco-friendly polyester yarn which was made of substances extracted from waste PET bottles. Made of 100% recycled material, regen dramatically reduces landfill wastes and CO₂ emissions. In recognition of its outstanding environmental performance, regen has acquired the world's first GRS (Global Recycle Standard) certification in the sector of polyester recycle textile from Control Union, a global certification organization based in the Netherlands.

'MIPAN'® Regen' - Recycled nylon yarn

'MIPAN regen' is a nylon yarn recycled from waste petrochemical materials, contributing to saving petrochemical resources in chemical textile production. Although being recycled from pre-consumer wastes, MIPAN regen maintains the same quality as normal nylons. Unlike conventional partially-recycled nylons, MIPAN regen is made of 100% process wastes, and is widely recognized for its excellence in environmental performance.

'creora'® Regen' - Recycled spandex yarn

Hyosung TNC is producing creora® regen, a recycled spandex yarn which is made of 100% reclaimed waste generated from spandex production process. By adding recycled spandex yarn in its product portfolio recently, Hyosung TNC is now recognized as an eco-friendly yarn manufacturer that recycle all polyester, nylon and spandex materials. In addition, creora® regen is certified by GRS from Control Union based in the Netherlands for its excellence in emissions reduction (25%).



[regen® Product Photos]



Low-carbon Products

'creora'® eco-soft' - Low-heat settable spandex

Hyosung TNC's creora® eco-soft, whose soft-touch fabric can be produced at approximately 15-20°C lower temperature than conventional spandex, enables textile manufacturers to reduce emissions as well as to save costs through less energy consumption.

Bio-based Spandex

Along with the growing interest in eco-friendly materials as part of the sustainability trend, Hyosung TNC is developing spandex that is made of ingredients from nature. Recently, we have managed to develop bio-based spandex using raw materials extracted from corns. Currently, commercialization of the product is discussed with major fashion brands such as LuLulemon(yoga wear brand) and Levis(denim brand) for the final launch expected in 2021.

Eco Products of Hyosung TNC

Recycled Products	Low-carbon Products
<ul style="list-style-type: none"> • Polyester yarn, 'Regen' • Nylon yarn, 'MIPAN Regen' • Spandex yarn, 'Creora Regen' 	<ul style="list-style-type: none"> • 'Creora Eco-soft' • Bio-Based spandex yarn

MANAGEMENT APPROACH

ECO-PRODUCTS AND TECHNOLOGY DEVELOPMENT

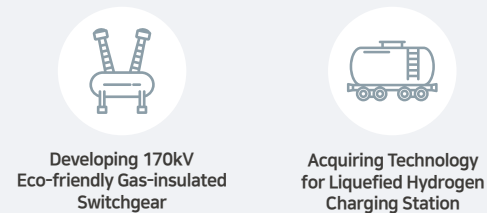
Background

We have observed the environment trend in power industry rising as the government announced the ‘Hydrogen Economy Promotion Roadmap’ in the beginning of 2019 and set a target to supply 6.2 million hydrogen vehicles and 1,200 hydrogen charging stations by 2040. In regard to construction industry, green construction market is also gradually expanding with various attempts to purchase and use eco-friendly materials in construction. Social interest in the environment will continue to increase in the future, and the demand for eco-friendly power facilities and buildings is expected to increase accordingly.

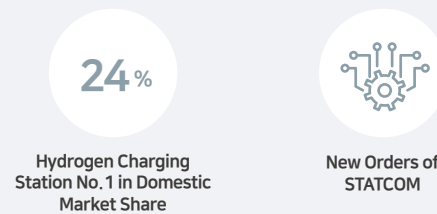
Our approach

Hyosung Heavy Industries is making various efforts throughout its management to minimize its environmental impact. In particular, we are developing different technologies to be ready for the next energy era, focusing on ESS, hydrogen charging stations and smart grids. Hyosung Heavy Industries will continue to take the lead in fulfilling its environmental responsibility as a company that considers a sustainable environment and the future.

Objective in 2020



Achievement in 2019



UN SDGs Linkage



Increasing Eco-friendly Products

Developing Green Power Facilities

Hyosung Heavy Industries is a business leader in power facilities and equipment including transformers and circuit breakers, which are used mainly in power transmission and distribution network. We are especially working on developing and supplying eco-friendly products that replace conventional insulating materials to green materials. We have developed an eco-friendly transformer by using ester oil as an alternative insulation material instead of mineral oil, which not only minimized environmental risk but also secured safety against fire. We have installed 150 eco-friendly transformers all around the world including Europe and Middle East Asia and continue various materiality researches to improve the product. In case of gas-insulated switchgears (GIS), we are developing a 170kV eco-friendly GIS that uses eco-friendly gas (mixture based on fluorinitrile and CO₂) alternatively instead of SF₆, which is normally used as internal insulation gas. When the development is completed in 2020, we will start applying it to new substations and old facilities replacement projects in the domestic market to lead emissions reduction activities in the power generation system.



[Development of Eco-friendly Transformer]

New Orders of Smart Power Grid, STATCOM

Hyosung Heavy Industries is the third company in the world to develop Modular Multilevel Converter (MMC) STATCOM. We are delivering and operating STATCOM in Korea after successful commercialization for the first time in the country. We have secured numerous operation performance through contracts with Korea Electric Power Corporation (KEPCO) in Korea, Power Grid Corporation of India (PGCIL) and Empresa de Transmision Electronica S.A.(ETESA) in Panama. Through continuous technology development and securing additional line-up, we recently signed a contract for a facility replacement project in the US, and signed the first supply contract with the Sri Lankan Power Authority (CEB), gaining global recognition of excellent product and technology.

Expanding Hydrogen Charging Stations and Developing Supply Technology

Hyosung Heavy Industries developed and delivered the hydrogen car charging system to Hyundai Motor Namyang Research Institute for the first time in Korea in 2008. We managed to achieve the biggest market share (24%) in Korea, by supplying a total of 26 hydrogen charging stations, including 11 under construction as of June 2020. In order to enhance our competitiveness, we completed the development of a next-generation hydrogen charging equipment which satisfies J2601 and plan to apply it from the second half of 2020. In order to meet the growing demand for hydrogen fueled cell vehicles and commercial hydrogen vehicles, medium and large-scale hydrogen charging systems will be developed to solidify our position in the hydrogen charging facility market. In accordance with the government's roadmap for hydrogen industry, Hyosung Heavy Industries signed an MOU with Linde of Germany, in April 2020 to secure technologies for liquefied hydrogen plant and charging station to gain competitive edge in hydrogen supply and charging industry.



[Hydrogen Charging Station at Korea Automotive Technology Institute (KATECH) in Gwangju]

ESS(Energy Storage System)

ESS is a device which enables excess energy to be stored when power demand is low to use it afterwards. In this way, ESS increases reliability of power supply and generates additional values through flexible power management system. Hyosung Heavy Industries, as a leading company of ESS in Korea, provides suitable devices in a variety of purposes such as integrating renewable energy sources, frequency regulation, peak cut and installing independent microgrid. Our ESS product consists of highly-efficient-reliable ES PCS, PMS for various applications and high-performance batteries with optimal capacity. We offer a total package of solutions for ESS system including customized consulting service, system establishment and post-management.

MANAGEMENT APPROACH

ECO-PRODUCTS AND TECHNOLOGY DEVELOPMENT

Background

Climate change has significant impact not only on companies but also on various stakeholders. Due to the government's environmental impact reduction policy and enhanced awareness of consumers, companies are required to reduce environmental pollution and minimize the use of resources and hazardous substances throughout the entire product lifecycle, including production, consumption, and disposal. With the higher demands for eco-conscious products, stakeholders advocate companies that continue to enhance their environmental capacity with continued interest.

Our approach

Hyosung Advanced Materials has been developing and selling eco-friendly products with an aim to facilitate recycling, respond effectively to climate change and to mitigate environmental impact in line with Green Management Vision 2030 policy. In 2019, we have managed to commercialize and launch scrap-based steel tire cord and secured environment certification by developing a yarn which is made of recycled PET bottles.

Objective in 2020



Achievement in 2019



UN SDGs Linkage



Mitigating Environmental Impact in Production

Hyosung Advanced Materials identifies environmental impact of production processes at all stages from procurement of raw materials to final product and tries to minimize such impact. We will keep discovering new measures that could contribute to impact mitigation, extend the scope of the existing improvement activities and boost development and application of new technologies.

Eco-friendly Products Made of Plant-based 'Bio-PET'

With the advent of autonomous driving and car sharing services, enhanced driving convenience will increase the mileage and driving time of automobile in the future, and automobile and auto parts manufacturers continue to research and develop in order to minimize environmental impact. Especially, customers' needs in eco-friendly materials are rapidly increasing along with the current R&D trends of seeking for lightweight and fuel efficiency. To mitigate resource depletion and environmental problems which are caused by polyester(PET) made from existing petrochemical materials, Hyosung Advanced Materials is making use of Bio-PET from Bio-EG extracted from vegetable-based raw materials to produce car carpet products and is conducting research to extend the scope of application.



✓ What is Bio-PET?

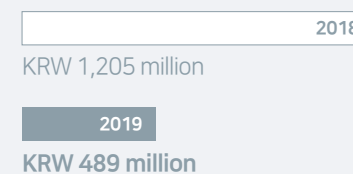
It is an eco-friendly polyester produced with Bio-EG extracted through catalytic reaction and fermentation process using sugar canes and corns, instead of oil-based EG(ethylene glycol) which is commonly used in PET(polyethylene terephthalate).

Waste Sulfur Treatment for Low Environmental Impact

The production process of aramid fiber, a high-strength and incombustible fiber, generates waste sulfuric acid. From June 2018, we applied a special eco-friendly technology for waste sulfuric acid treatment, which had previously been treated by an external sewage treatment company reducing 19,000 tons of waste sulfuric acid treatment. In this way, we manage to achieve both cost reduction of treatment process and prevention of water pollution.



Cost for waste sulphur treatment

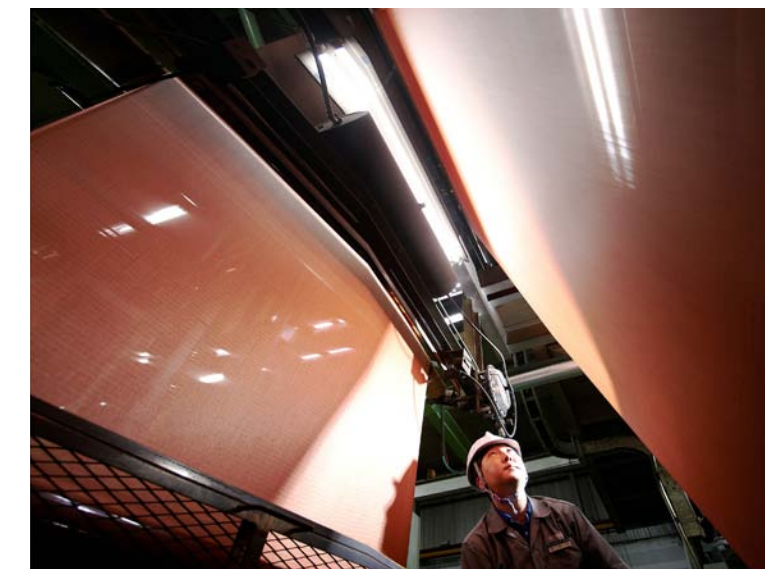


'Lyocell Tire Cord' -- Made of Wood Extract Material

Rayon tire cord used as a reinforcement for high-speed tires, has a risk of hazardous substances being released due to the use of sulfuric acid in the manufacturing process. On the other hand, our 'Lyocell Tire Cord', developed as a substitute for rayon tire cord, is made of cellulose extracted from wood and release very little harmful substances such as carbon disulfide and hydrogen sulfide during rayon manufacturing, effectively preventing air and water pollution caused by release and treatment of harmful substances.

Eco-friendly Dip to Improve Fatigue Resistance in Tires

At the final manufacturing process of tire cords, tire cords are dipped in a chemical-compound fluid, chemical dip, and then dried by heat. This process is essential to achieve best performance of tires by increasing adhesion between tire cords and rubber, and to increase driving distance by enhanced resistance. Hyosung Advanced Materials developed eco-friendly dip recipe after ceaseless research to achieve environmental manufacturing process. The eco-friendly dip is now close to commercialization stage, and with this, we expect to reduce hazardous substances in the process without using rezosynol and formalin, and contribute to generating less waste tires by extending product lifetime with higher fatigue resistance.



[Tire Cord Manufacturing Site]

Expansion of Low-carbon Products

With the enhanced awareness of climate change response, Hyosung Advanced Materials aims to respond to possible climate change impact in the use phase of a product while directly reducing emissions in the production phase. To this end, we continuously develop and produce products that can reduce greenhouse gas emissions in all business areas.

TANSOME® – the key to automotive fuel efficiency improvements

TANSOME® is the first high-performance carbon fiber developed in Korea through our independent technology, featuring only one-fourth the density but 10 times the strength of steel. Featuring its ultra-lightness and high-intensity, TANSOME® is used as a key material for improving fuel efficiency of automobiles through vehicle weight reduction, ultimately contributing to reducing carbon emissions. In addition, with its excellence in stability and functionality, TANSOME® is used in a variety of products, especially in high-pressure CNG containers as well as in environmental energy industries.



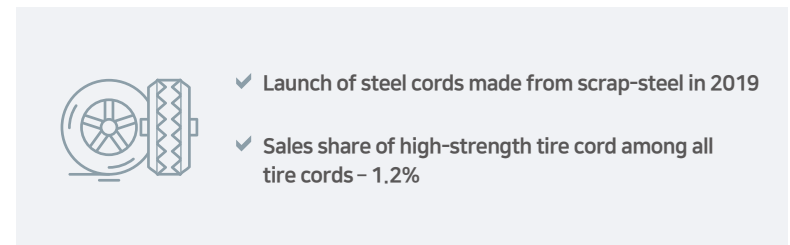
[Hyosung Advanced Materials' Carbon Fiber, TANSOME®]

High-strength Tire Cord

Tire cord is a major reinforcement material which determines the form and performance of tires, and is used in a rubber-rolling process in tire production. High-strength tire cords has its intensity 10-20% higher than regular tire cords, and lowering cord thickness contributing to less rubber usage during calendering. The lightweight of tires results from weight saving of cord and rubber, which improves fuel efficiency and reduces GHGs emission through rolling resistance reduction of tires.

Steel Cords Made of the Process By-products

The production process of wire rod generates steel scraps as by-products and releases greenhouse gases. Hyosung Advanced Materials produces eco-friendly products that can save raw materials and reduce emissions at the same time using steel scraps generated as by-products. Wire rod, made from scrap-steel has high strength due to its high impurities, but has limitation in application to thin products, so it has been commercialized by applying to some of the current product specifications. We will continue to develop screening and processing technologies to further extend product applications.

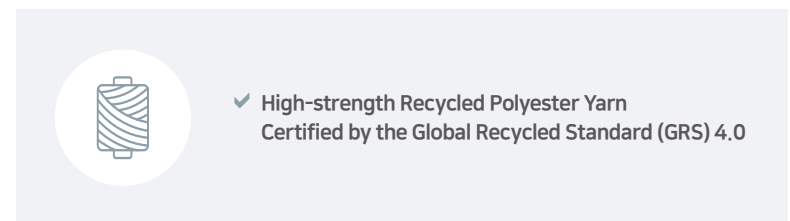


Increasing Recycled Products

Hyosung Advanced Materials has a large number of polyester-based products in its product portfolio and strives to minimize environmental impact that can occur in the production and use of products. Process wastes, which can be easily discarded in the lifecycle of a product, and after-use products have been recycled as polyester chips and used as raw materials.

Recycled Polyester Yarn

Global fabric consuming manufacturers (i.e. apparel and shoes) are actively promoting the use of recycled polyester yarn, an eco-friendly product, as environmental pollution caused by excessive use of plastic products has emerged as a social problem. In line with the global efforts to reduce environmental pollution and respond to environmental demands in the apparel markets, Hyosung Advanced Materials developed high-strength recycled polyester yarn using raw materials extracted from waste plastics and obtained Global Recycle Standard (GRS) certification from an international authority.



Recycled Floormat by polyester recycled chips

Global automobile manufacturers are proactively developing and introducing automotive parts recycled from waste plastics. Hyosung Advanced Materials started to develop automotive carpet and mat using BCF (Bulk Continuous Filament) based on the needs from development teams in the client companies. We are working on developing the product which meets the customers' requirements by utilizing not only polyester recycled chips and waste nylon from waste fish nets and waste yarn, but also process wastes from both our production lines and our supplier companies for recycled chips.



[Automotive Carpets]

Novel Technology Development

Green Technology Development

Hyosung Advanced Materials endeavors to minimize the environmental impact that can occur in the entire production process, from raw materials to product production, product use, and post-use processing. To reduce the environmental impact, we are in the process of developing a lubricant that replaces Nonylphenol, and applying it to the tire cord production process. In addition, we are developing high-strength carbon fiber that can be used in high-pressure containers which is essential for hydrogen energy facilities and lightweight bodies and structure of vehicles that can reduce emissions. We are focusing on R&D projects in carbon fiber, an eco-friendly material that can be used in various high-tech industries such as aerospace and high-capacity energy storage.

MANAGEMENT APPROACH

ECO-PRODUCTS AND TECHNOLOGY DEVELOPMENT

Background

Environmental responsibility obligated to companies has gradually expanded to the extent that a company has to not only consider the environmental impacts of production process, but also the impacts from product use after production. Accordingly, corporate activities to fulfill environmental responsibility have emerged ever more important, such as developing green products and technologies, and minimizing environmental impacts from the entire product lifecycle including the planning stage, production, use and end-of-life treatment.

Our approach

Hyosung Chemical is making various efforts throughout its overall business management to minimize environmental impacts. We are minimizing environmental impact of corporate activities by developing technologies in preparation for the next energy era, covering from raw materials to product use.

Objective in 2020



Achievement in 2019



UN SDGs Linkage



Development and Application of Eco-friendly Materials

POKETONE™ - Eco-friendly Material



Poketone is the future industrial new material commercialized solely by Hyosung Chemical. It is a new type of polymeric material which is made of carbon monoxide, an air pollutant, and was certified by the Korea Institute of Industrial Technology Promotion as a green product (classification code T071101-5). It is produced and sold at Yongyeon Plant in Ulsan, and has expanded its market worldwide with annual growth of more than 150% since 2017. Hyosung Chemical continues to develop new markets for polyketone, an environmentally-friendly new material, and in 2019, we entered five countries including Indonesia and Argentina and sold polyketone pellet products for the use in cosmetics containers, toys, and helmet parts.



[POKETONE Production Plant]

Extending Application of New Material, 'POKETONE™

■ Toy Products

Toys must meet safety requirements in accordance with the Special Act on the Safety of Products for Children. As a result, toy producers are increasingly interested in the safety of materials used in products. Hyosung Chemical's Poketone is suitable for toy products for children without a risk of heavy metals and hazardous chemicals being released. As such, the global fast food company, M, produces souvenirs with Poketone, and it is also drawing attention as an alternative material to replace traditional food plates for children.

■ Water Meters

Hyosung Chemical and Samsung Instrument Industry collaborated to develop a water meter with polyketone applied. Polyketone has a heat conductivity of about 1/200 of that of conventional brass material, making it more resilient to ice damage than a brass-based product. In addition, without a risk of heavy metal release, the Poketone water meter is gaining popularity in the market due to the strengthening environmental standards. Hyosung Chemical and Samsung Measuring Co. (SSMI) supplied 23,000 Poketone water meters to the Department of Waterworks of the Seoul Metropolitan Government in September 2019 and will continue to expand our share in the market.



[Toys]



[Water Meters]

Water Treatment Membrane

The demand for water purification technology is increasing due to the depletion and pollution of water resources from population growth, urbanization, and global warming. Membrane filtration technology associated with water treatment, is a next-generation technology that replaces traditional filtration methods and is recognized for its high efficiency and cost-effectiveness. Hyosung Chemical has acquired three certifications of new type of environmental technology by developing its own pressure membrane and submerged membrane, the backbone of membrane filtration technology. We endeavor to apply them to water treatment facilities in water treatment, sewage treatment, and seawater desalination.



[Water Treatment Membrane]

MANAGEMENT APPROACH

SUSTAINABLE SUPPLY CHAIN MANAGEMENT

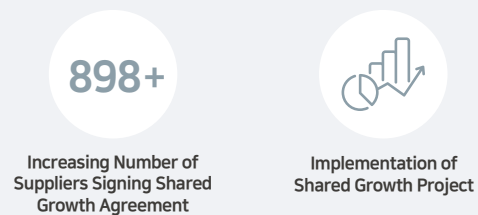
Background

In the perspective of value chain, the way of large companies simply supporting SMEs usually results in zero-sum without creating synergy effects from each other. Therefore, sustainable supply chain management is necessary as the basis for strengthening competitiveness of major value chains in the industry and securing potential growth. We need to support natural approach to shared growth between large firms and SMEs so that they can create positive-sum effects based on their own competitive edges respectively.

Our approach

Hyosung is striving to build a sustainable business ecosystem based on win-win cooperation and fair trading with its business partners. We support our suppliers to establish management system in accordance with global standards and further fulfill environmental and social responsibilities.

Objective in 2020



Achievement in 2019



UN SDGs Linkage



Shared Growth System

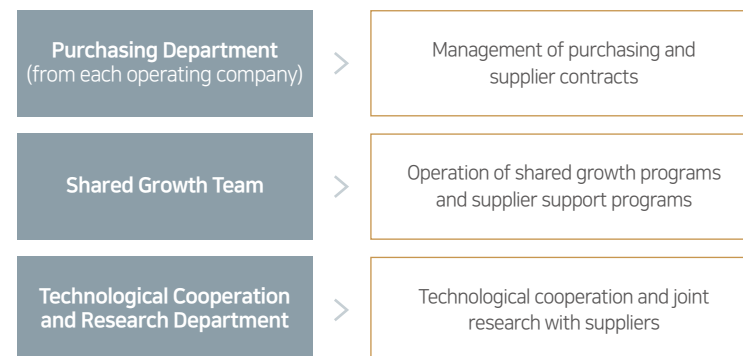
Shared Growth Implementation System

Hyosung is striving to create the future together with a common goal based on the recognition that is a co-density with its suppliers. Hyosung has established a shared growth system based on the belief that the competitiveness of suppliers directly contributes to our growth. By setting ‘Shared Growth with Suppliers’ as one of our group management policies, we continue to facilitate mutual communication as well as build close partnership with the suppliers. This principle of shared growth has been also inherited in four operating companies which were spun off in June 2018.



Organizational System of Supplier Management

In order to promote shared growth, each operating company has a person in charge at purchasing team to deal with related tasks. Hyosung Heavy Industries, in particular, which has relatively large supply chain, has established and operates a dedicated department for shared growth, Shared Growth Promotion Team. Moreover, we are strengthening technological competence of partner companies through technology cooperation and joint research with participation of R&DB Labs and Power & Industrial Systems R&D Center.



Shared Growth Activities

Shared Growth Programs

Hyosung is operating various programs and policies to facilitate shared growth. Hyosung leads the partner company’s growth through signing a shared growth agreement with our suppliers, paying in cash for their supply and supporting their business consulting. In order to motivate our suppliers to continue their performance, we have been hosting ‘Special Prize for Proud Hyosung-er Award’ annually since 2013 to award outstanding suppliers who have contributed to innovation of manufacturing technology and price reduction.

Status of Shared Growth Agreement Contracts

Company	2018	2019
Hyosung Corp.	832 (Before spin-off)	113
Hyosung TNC		56
Hyosung Heavy Industries		639
Hyosung Advanced Materials		53
Hyosung Chemical		37
Total	832 companies	898 companies

Energy Partnership MOU

For the purpose helping suppliers to reduce greenhouse gas emissions and save energy, Hyosung and its four operating companies have signed a MOU on shared growth with Korea Energy Agency and provided the suppliers with consulting services for energy diagnosis.



[Energy Partnership MOU Signing Ceremony]

Compliance Program

Promoting Fair Business Practices

In order to establish a fair business trade culture together with suppliers, we have established fair trade guidelines, which are recommended by the Korea Fair Trade Commission, in our corporate regulations. Four basic practices are included in our corporate regulations, including making contracts, selection and operation of partners, setup and operation of internal deliberation committee and written proof of subcontracting. We also announced the guidelines for prohibiting retaliatory acts such as unilateral restriction or suspension of transactions to suppliers in order to establish a healthy and transparent business relationship with suppliers which enables fair partnership.

(Established in 2012, revised in 2014 in Hyosung / established in 2018 in operating companies)

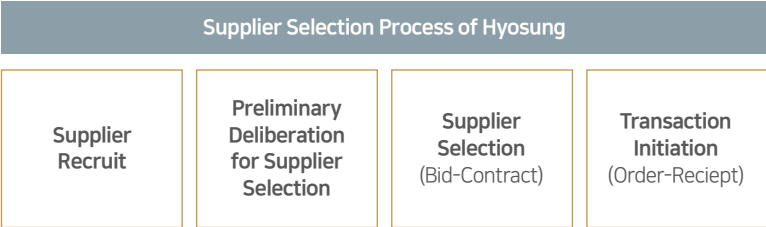


Practices for Making Contracts

Hyosung and its operating companies have built rational and transparent business relationships with suppliers by ensuring that the interests of suppliers are properly reflected in contracts. To this end, we prepare a checklist for preemptive inspections, which we use to prevent unfair behaviors before a contract is signed.

Practices for Partner Seltction

Hyosung and its operating companies are working to establish fair and transparent criteria for selecting suppliers. We clearly announce the application criteria and recommendation requirements in our shared growth website, and any interested company can freely apply for registration as a supplier through e-procurement system. In addition, in order to manage supply chain risks, we conduct registration screening for all new suppliers before they get approval to participate in bidding process.



Practices for Internal Deliberation Committee

For the purpose of deliberation on fairness and legality of trading contract between suppliers and subcontractors, Hyosung and the operating companies operate the Deliberation Committee. We monitor and detect unfair practice after (or during) a transaction has taken place. Any unfair activities are corrected immediately so that future transactions are made properly so that a fair trading culture is established.

Practices for Written Proof of Subcontracting

Hyosung and its operating companies have clearly designated the types of documents required in order to facilitate a clear transaction and protect suppliers' rights when signing contracts with suppliers

Fair Business Trade Education

We regularly provide case study training of the Subcontracting Act and breach of contract to the departments considered to have high risk related to unfair business trade with suppliers such as Purchasing Team, Outsourcing Management Team and Shared Growth Team. We also implement training about fair business trade to the sales departments, covering the Fair Trade Act and the Fair Agency Transactions Act, and providing information on legitimate process and standards in the sales environment.

Non-retaliation Guidelines

Hyosung is compliant with non-retaliation guidelines which prohibits the company from rejecting or ceasing the trade or significantly limit the quantity or content of products or services of the suppliers in business trade due to certain reasons. The employees perceived with the relevant misconduct are summoned to disciplinary committee and are treated accordingly.

- ✓ Report to related agencies that the company has violated fair trade regulations

✓ Request for mediation with the company in the Dispute Mediation Committee

✓ Raise questions related to contents in the contract

✓ Raise questions and issues related to fair trade through hot-line operated by the company

Supplier Ethical Management

Code of Ethics for Shared Growth Management

" Suppliers are a source of competitive edge for the company, and we aim for shared growth based on transparent and fair trading with suppliers."

1. When selecting suppliers, it is considered whether they comply with Hyosung's human rights, environmental and social values.

2. Business transactions with a supplier should be made in an equal position, and we do not engage in unfair trade practices, abusing our superior position.

3. We create a foundation for shared growth with suppliers by enhancing their sustainability through multi-faceted support activities.

Guidelines to the Code of Ethics for Shared Growth Management

1. When selecting suppliers, starting and continuing contracts with them, we consider whether they comply with human rights, environmental, and social values which the company pursues.

2. We ensure that business transactions with a supplier is carried out fairly in an equal position, and we thoroughly discuss trade conditions and process with suppliers and do not commit unfair trade practices, abusing our superior position.

3. We create a foundation for shared growth with suppliers by enhancing their sustainability through multi-faceted support activities.

4. We protect the physical and intellectual property rights of suppliers and all information of sub-contractors.

Supporting Supplier Ethical Management

Hyosung and its operating companies reflect suppliers' performance in human rights and ethical management in the annual suppliers evaluation, and based on this, we encourage their improvement in such matters. In addition, we monitor overdue wages at partner companies and support them to improve working environment and securing rest facilities and the resorts.



[Supplier Training on Ethical Management]

MANAGEMENT APPROACH

SUSTAINABLE SUPPLY CHAIN MANAGEMENT

Background

In textile industry, structure of supply chain is usually very complex, and the synergistic effect of cooperation between upstream and downstream partners is very high. Therefore, added values can be created within the value chain by promotion of shared growth. In addition, we can secure new growth engines in the trading market where growth is stagnating due to rising trade protectionism by supporting competent SMEs so that they can expand into overseas markets and increase exports.

Our approach

Hyosung TNC is pursuing sustainability by enhancing competence across all supply chains, from the quality of raw materials to post-sales services and transportation. Hyosung TNC’s shared growth strategies and programs are expected to create a positive impact on our business performance well as on suppliers, and will give positive awareness about the company to various stakeholders in domestic and overseas local communities, as a sustainable company.

Objective in 2020



Increasing Cash Payment for Suppliers



Improving Supplier Evaluation System

Achievement in 2019



Amount of Cash Payment to Suppliers



New Registration on Supplier Evaluation System

UN SDGs Linkage



Building Supplier Competitiveness

Training Support for Suppliers

Hyosung TNC is providing training support to its partners to improve competitiveness in their business. The manufacturing plants regularly conduct environment safety training for its suppliers, and if necessary, a customized job training is delivered by an external training organization such as KMAC. In this way, suppliers can be trained in a variety of competences and skills such as productivity improvement, quality innovation, resource saving, manufacturing cost reduction, process improvement, work standard, environment, health and safety, human error, problem solving ability and so on.

Management and Evaluation of Chemical Substances

Hyosung TNC is conducting a preliminary investigation on chemicals and reviewing hazardous substances to prevent accidents when handling the chemicals. In addition, MSDS is distributed to the person in charge of handling business sites to build their awareness in hazard and danger of chemicals. Supplier companies are supposed to conduct inspection before shipping, and the vehicle transporting the chemicals can enter the company only when they pass the pre-shipment inspections and no problem is found in products. After that, related personnel from each team start inspection upon receipt of chemicals, and the entire process including parking of the carrier vehicles, connection of loading pipes and injection of chemicals, is conducted under the presence of the Environment Safety Team, Production Team, and Quality Team.

Compliance Program and Social Responsibility

Hyosung TNC is trying to comply with the standard subcontracting contract issued by the Fair Trade Commission. The standard subcontracting contract protects the material and intellectual property rights of business partners by stipulating clauses such as prohibition of forcing suppliers to provide technical data, technology escrow, guarantee of intellectual property rights and transfer of ownership.

Supplier Registration Evaluation & Supply Chain Risk Management

Hyosung TNC uses traditional standards such as quality, delivery, price, and management performance as criteria for evaluating suppliers at registration, as well as ethical management performance associated with environment, safety, legal requirements, human rights, and labor issues. The same criteria are also applied to regular evaluations suppliers and the results are reflected in review process for contract renewal. In 2019, 13 companies were newly registered by meeting all these requirements.

Shared Growth Activities

Cash Payment for Outstanding Suppliers

Hyosung TNC conducts an annual evaluation of its suppliers in accordance with ISO9001 and its own standards, and selects 56 companies every year based on evaluation results to give them payment in cash within ten days after the tax invoice is closed. Gumi Plant pays cash three times a month, which contributes to improving cash flow, and in 2019, it paid about KRW 34.6 billion in cash in total.

Support for Sales Bond Insurance

Hyosung TNC operates sales bond insurance for its business agencies, which are both customer and supplier, and major clients. Sales bond insurance insures up to 90% of the loss amount in all cases when the payment is not made due to the buyer’s cause after domestic transaction. In this way, we reduce the financial burden on customers and business partners while ensuring the stability of credit operations. Currently, about KWR 120 million is incurred as the premium from purchase of sales bond insurance. Hyosung TNC is supporting business partners by paying the premium and plans to expand its operation to benefit more partners.

Communication with Suppliers

Hyosung TNC holds purchase meetings with supplier companies and listens to their difficulties and opinions through on-site visits to the companies. Partners can report any violations or unfair requests and transaction activities through on and offline channels such as Hot-line and Shinmungo system. We continue to communicate with our partners in order to build trust and operate various support programs and policies so that all partners can get fair opportunities.

MANAGEMENT APPROACH

SUSTAINABLE SUPPLY CHAIN MANAGEMENT

Background

The sustainability of the supply chain is becoming increasingly important. Unfair trading practices against partners will undermine competitiveness of a company in the long run, not only damaging its reputation in short-term. In construction industry, particularly, a variety of activities to support suppliers are under implementation, including technical support such as patent application as well as financial support by raising shared growth fund.

Our approach

Hyosung Heavy Industries aims to strengthen sustainability of its supply chain by establishing a partnership with partner companies based on virtuous cycle. We would like to operate an integrate our technology and quality-related business know-how (technical capacity building, business system advancement) in one system including all partner companies. In addition, we will move away from contractual relationship and continue to establish supply chain partnerships through joint technology development and performance sharing.

Objective in 2020



Expanding Financial Support for Suppliers

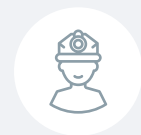


Reinforcing Support for Second-tier Suppliers

Achievement in 2019



ICT-QC Support Activities



Improving Working Environment for Field Workers

UN SDGs Linkage



Reinforcing Supplier Risk Management

Supplier Registration Evaluation

When registering our business partners, we evaluate them focusing on three major aspects, management, production, and quality. Details of the evaluation on management include CSR risk factors such as business management, human rights, environment, health & safety, and finance. Companies that fail to meet the standard are excluded from the list, and in this way, supply risk evaluation is strictly managed.

■ Main Evaluation Subjects of Supplier Registration

Category	Evaluation Items
Business management	Employees' average years of service, turnover rate and CSR fulfillment
Human Rights	Cases of unfair treatment such as gender discrimination and child abuse, and working hours of employees
Environment	Prevention facilities for environmental pollution, waste management and treatment methods
Safety & Health	Frequency of safety accidents and status of safety training
Training & Organization	Regular employees training, operation of research institute and design organization
Working Environment	Tidiness in plants, notification of safety rules, working garments and safety gears

Regular Supplier Evaluation System

Hyosung Heavy Industries Construction PG conducts a yearly evaluation of its partners who have participated in the construction for more than one month. This mainly evaluates on environment, safety as well as quality, construction and general management status. Heavy Industries PG conducts a semi-annual evaluation as well directed to regular partners. Key assessment items include quality and delivery times as well as environment, safety and health. The partners who get high grade based on the evaluation are selected as shared growth partners and receive incentives such as overseas training, invitation to partners meetings, and nameplates certifying outstanding suppliers.

Pre-contract & Post-contract Deliberation System

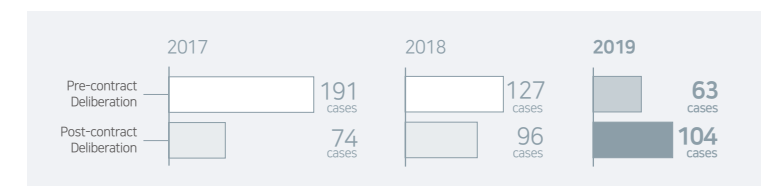
For the purpose of deliberation on fairness and legality of trading contract between suppliers and subcontractors, Hyosung and its operating companies operate the Deliberation Committee. We strive to facilitate fair trading practices by monitoring unfair practices in the past transactions so that we can immediately correct them and reflect them in the later transactions.

Shared Growth Program

Hyosung Heavy Industries is operating various programs and policies to facilitate shared growth. We lead the partner companies' growth through paying in cash and providing consulting services and also motivate them for better performance by introducing an award system for outstanding suppliers. In addition, we also operate benefit sharing system and financial support for suppliers. Hyosung awards 'Special Prize for Proud Hyosung-er Award' to outstanding suppliers every year since 2013. The award is given to the suppliers who have contributed to manufacturing technology, innovation and cost reduction of our products through technology enhancement and innovation.

Financial Support	<ul style="list-style-type: none"> • Payment in cash to suppliers under shared growth agreement • Financial support for joint overseas expansion • Network loan • Shared growth funding
Management Support	<ul style="list-style-type: none"> • 'Business Doctor' • Support for overseas training • Support for training of suppliers • Support for training venues
Productivity Improvement	<ul style="list-style-type: none"> • Consulting for productivity improvement • On-site plant visit program • Support for ICT-QC (smart plant) • Energy Companion Project
Technology Support · Performance Exchange	<ul style="list-style-type: none"> • Joint R&D and patent application • Tech-ESCROW • Contribution of Hyosung's R&D capacity for joint research
Secondary Suppliers	<ul style="list-style-type: none"> • Shared growth agreement between first and secondary suppliers • Shared growth payment system • Industry innovation movement • Cash payment monitoring

■ Operation of Supplier Pre- & Post-contract Deliberation System



Supplier Communication

Hyosung Heavy Industries listens to the difficulties and suggestions of suppliers and communicates with them to facilitate shared growth. We also provide a venue for information sharing and facilitating interactive communication through regular communication channels such as business partners meetings. Partners can report any violations or unfair requests and transaction activities through on and offline channels such as Hot-line and Shinmungo system. We will continue to establish a trusted relationship with our partners through continuous communication and provide them with fair opportunities, thereby laying the foundation for shared growth.

■ Communication Channel of Hyosung Heavy Industries

Category	Description
Shared Growth Meeting with Suppliers	Hyosung hosts Shared Growth Meeting with Suppliers every year by inviting the representatives of the suppliers. During the meeting, we share the annual performance and discuss business forecast and expected market conditions for the next year.
Hot-line	We receive opinions and reports of supplier-related violations through our dedicated counselling hot-line and email channel. It is also used as an interactive communication channel to handle inquiries and suggestions related to Hyosung's shared growth programs.
Sinmungo	We collect reports on employee' malpractice and misconduct against suppliers with strict confidentiality on the information by means of a reporting channel, Sinmungo, within Hyosung e-Procurement portal site
Dispute Mediation Committee	In the event of a dispute, the Dispute Mediation Committee is held to promptly prepare and implement the mediation plans. The results of the review are reported directly to the management level to prevent recurrence in advance.



[Mountain Climbing Activities with Suppliers]

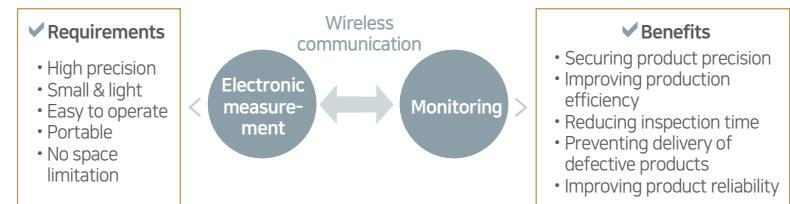
Enhancing Supplier Communication

Supplier Monitoring and Production Support

In order to select outstanding suppliers, Hyosung Heavy Industries checks on their CSR implementation through on-site inspection and real-time monitoring. When signing a contract with an outstanding supplier, consent is asked regarding monitoring of their CSR performance, and partners that do not meet the criteria are excluded from the list of outstanding partner companies. When a safety accident occur, the incident is reflected in the evaluation even in the middle of the project after signing contract. Regarding labor issues, the partner's payment to subcontractors and cash payment rate are kept track.

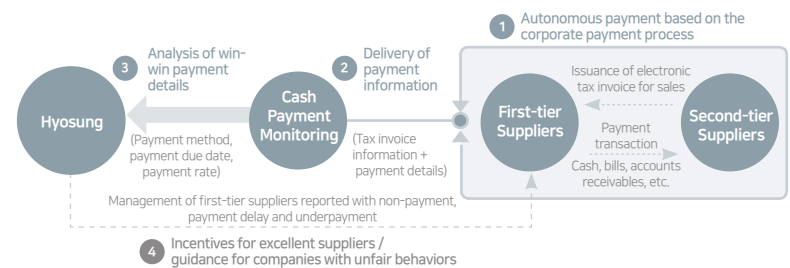
ICT-QC (Smart Factory) Support

Hyosung Heavy Industries provides its suppliers with wireless electronic measuring devices and quality control system applied with ICT (Information and Communication Technology), as part of its support for smart factories for SMEs. Through the distribution of such tools, we anticipate our suppliers could prevent quality problems and enhance problem-solving capacity based on automated quality inspection system and real-time monitoring and analysis. Furthermore, ICT is integrated into the business processes in planning, design, production, and sales to help improve productivity and reduce production costs.



Supporting Shared Growth of First & Second-tier Suppliers

Hyosung Heavy Industries supports shared growth agreement between first-tier suppliers and second-tier suppliers so that the benefits also reach the subcontractors in the hope of contributing to a virtuous cycle of shared growth in the industry. The main contents of the agreement include the facilitation of fair trading practices between the first-tier and second-tier suppliers, the spread of shared growth culture, compliance with the subcontracting regulations, use of standard subcontracting contracts, and extension of mutual growth benefits to second-tier suppliers (increasing cash payment rate, shortening the payment deadline, etc.). In addition, we conduct monitoring on win-win payment system and cash payment so that lower-tier suppliers can receive the payment in timely manner.



Compliance Program

Support for Overseas Training

We have been supporting overseas training since 2009 to enhance the competitiveness of our business partners and strengthen partnership by benchmarking production expertise of advanced companies and sharing best practices of innovative management. In November 2019, Heavy Industries PG visited the production sites of Hyosung TNS, BYD, GAC-HONDA in Guangzhou as well as Guangzhou Guanggao Plant, along with 13 outstanding partner companies selected from the regular evaluation.



[Overseas Training for Outstanding Partner Companies]

Improving Working Environment for Suppliers

Hyosung Heavy Industries ensures enough rest areas for field workers employed by supplier companies to improve their working conditions. In 2019, we installed containers for rest space for field workers in order to prevent accidents from extremely hot (sunstroke) or cold weather (frostbite).



[Improving Suppliers' Working Environment]

MANAGEMENT APPROACH

SUSTAINABLE SUPPLY CHAIN MANAGEMENT

Background

Due to the changing trend in the management strategy of the automobile industry, it is becoming necessary to establish a sustainable supply chain by emphasizing social and economic responsibilities of suppliers such as human rights, safety, and environment. Suppliers should now grow together as partners who accompany us throughout the entire procedures including production process, not to mention quality compliance and delivery time.

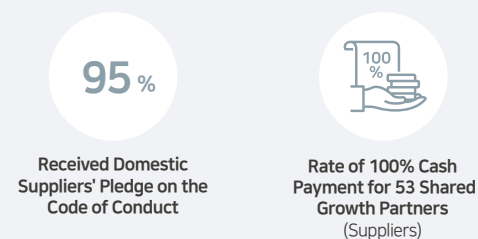
Our approach

Hyosung Advanced Materials has established a supplier management system with the purchase team and other relevant departments to build regular monitoring and evaluation system and promote various support programs. Furthermore, we are striving to further enhance shared growth management through compliance program and preliminary business consultation. We preemptively manage potential risks by setting up emergency response system to maintain sustainable supply chain.

Objective in 2020



Achievement in 2019



UN SDGs Linkage



Supplier Management System for Stability of Supply

Complementary Supplier Management Organization

With the lead of Purchase Team, various departments within Hyosung Advanced Materials are closely collaborating to manage suppliers effectively. For example, Quality Assurance Team is in charge of monitoring, technical support and training for suppliers' product quality improvement, Production Team supports suppliers' products to meet the standard. The Technology Innovation Team supports technology development of supplier companies and the Plant's Administration Team takes care of purchasing raw and consumable materials while the Environment Safety Team is responsible for overall management and support for suppliers when it comes to safety and environment.



Supplier Risk Management Focus Areas (Hyosung Advanced Materials)

- CUSTOMER-ORIENTED MANAGEMENT**
 - Reflecting customer needs and continued monitoring on customer satisfaction
 - Quality/performance evaluation by management
 - Dedicated organization for quality and responsibility
- COMPLIANCE WITH SOCIAL RESPONSIBILITY**
 - Human rights/labor responsibility
 - Ethical management
 - Fair business practices/anti-corruption
 - CSR activities
- SAFETY & ENVIRONMENT**
 - Management of waste/hazardous substances
 - Safe working environment
 - Contingency plan and training
 - A dedicated organization for environment



- PROCUREMENT MANAGEMENT**
 - Purchasing process review
 - Raw material tracking system
 - Supplier monitoring
- PRODUCT REALIZATION**
 - Review quality planning
 - Production process inspection
 - Preventive maintenance and repair
- QUALITY MONITORING & IMPROVEMENT**
 - Production monitoring and stock management
 - Equipment calibration program
 - Defects management and response
 - Internal audit and improvements
- EMPLOYEE EDUCATION**
 - Training for improving proficiency
 - Motivation program for high quality product
 - Health and safety training

Supplier Management System

Regular Supplier Monitoring

Hyosung Advanced Materials selects new suppliers based on their supply safety, compliance with employees’ human rights and ethical management. In particular, as a supplier of industrial yarn and fabric which are mainly used in automobiles, we regularly monitor raw materials every year in accordance with a certification of IATF 16949, a system certification for automobile parts manufacture, and ISO 14001, environmental management system, etc. Through this consistent monitoring and review, we evaluate our suppliers’ products in various aspects including quality, price, delivery date, and management, and identify their problems and support improvement activities. Hyosung Advanced Materials conducts re-evaluation of all domestic processing partner companies once a year to evaluate strikes, back payment, environment and safety as well as quality and delivery, based on which benefits are provided. In 2019, we completed monitoring of 23 raw material suppliers and 4 processing suppliers. Currently, we are trying to advance the evaluation system by adding more standards including human rights, labor, ethical management, health & safety and environment in order to effectively manage social and environmental risks of suppliers and strengthen our own social responsibility. In addition, we prepared and shared guidelines related to social and environmental responsibility to our partner companies in order to strengthen their sustainability. As of 2019, 95% of all partner companies voluntarily submitted a pledge to comply with these guidelines.

[Table] Evaluation Rate and Improvement Plans of the 6th Revision of Supplier Management Process (IATF 16949)

Area	Existing standards	Rate	Additional standards planned for the 7th revision
Quality	Quality management system, customer claims, defects	35%	None
Competitiveness	Delivery, delay of delivery, price competitiveness	30%	None
General management	Management performance, Contract period in years	10%	<div><div>• Management plan, detailed action plans, activities to improve business performance</div><div>• Investment plan and cost reduction activities</div><div>• Average years of service, turnover rate, CSR activities</div><div>• In-house ethics regulations and reporting channels</div><div>• Cases of anti-corruption, violation of fair trade law</div></div>
Human right	Wage arrears Number of labor strikes	10%	<div><div>• Cases of workplace harassments</div><div>• Compliance with legal standards of working hours and wages</div><div>• Employment of minors, working condition of minors, child labor and forced labor prohibition</div><div>• Policy for protection of pregnant women</div><div>• Employment contract and appropriate overtime pay</div><div>• Stipulation of employee non-discrimination, employees’ freedom of association</div></div>
Environment	Certifications and permissions Environment and safety accidents	15%	<div><div>• Dedicated environment team/department</div><div>• Regular monitoring of working environment and safety inspection</div><div>• Regular fire and other safety-related trainings</div></div>

Supplier Communication

Hyosung Advanced Materials runs a communication channel that allows suppliers to raise their opinions any time in the event of an unfair request or violation of our regulations. Suppliers can report anonymously whistleblowing center on our website. Confidentiality of information and informants is guaranteed, and any consequent disadvantage is prohibited. In addition, we listen to our partner companies’ voices through regular communication channels such as business partners meeting and quality-related requests through annual on-site evaluation.

Compliance Program

Through the Code of Ethics, Hyosung Advanced Materials announces to the public that it respects the principles of fair trade and intellectual property rights of its partner companies. In addition, the self-compliance program, which was succeeded by the holding company in 2018, provides guidelines to employees and prevents violation of fair business practices through monitoring conducted by the self-compliance manager. In addition, in case of supply contract worth more than KRW 2 billion, the company uses checklist of the preliminary business consultation system to identify any violations or unfair practices in advance to prevent corruption.

Share Growth Management with Suppliers

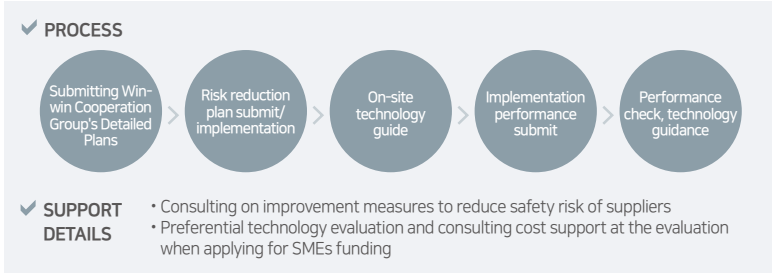
Comprehensive Supplier Support Activities

As a partner that manages risks together with suppliers beyond raising their competitiveness in cost and quality, Hyosung Advanced Materials cooperates with and supports them in various fields to ensure their sustainable production. If selected as an outstanding partner through evaluation by the purchasing team, the partner company receives cash payment benefits and is recommended as a candidate for Outstanding Partner Companies Award which gives the winner a reward. We also support our business partners through training and providing technical consulting service, and participation in Energy Partnership Program. Regarding the safety-related matters, the Environment Safety Team conducts on-site inspections for health and safety management of partner companies twice a year and rewards outstanding companies. Our safety manager and rewarded outstanding partners provide mentoring and guidance about overall health & safety issues to newly registered partners. We also participate in the Win-win Cooperation Program every year to help partner companies assess risks and develop technologies, and for partner in the sector of repair and maintenance, we inspect their daily safety measures(Safety First Activity). Musculoskeletal disorders prevention program is also conducted every year for our supplier companies to strengthen their health and safety. For enhancing welfare of partner companies, we provide them with the same fringe benefits including the use of resort facilities and medical service. Recently, we provided masks to employees in partner companies to alleviate difficulties and hardship from COVID-19 crisis.

BUSINESS CASE – Win-win Cooperation Program with Suppliers

The Ulsan plant of Hyosung Advanced Materials actively participates in the Win-win Cooperation Program organized by the Korea Occupational Safety and Health Agency every year to support the safe production environment of partner companies. Ulsan Plant participates in the Win-win Cooperation Programs with 47 in-house suppliers and manages safety and health with safety and health managers and external specialists. We conduct regular meetings and training programs every month, joint weekly and daily safety inspections and implement regular audits and interview on a semi-annual basis to mitigate risks from supplier companies. In addition to the risk reduction programs and support for technology development, we are carrying out various activities to promote health and safety of our partner companies and employees such as installation of fire protection and medical equipment and health programs against obesity, smoking, and musculoskeletal disorders.

[Win-win Cooperation Program – Ulsan Plant]



MANAGEMENT APPROACH

SUSTAINABLE SUPPLY CHAIN MANAGEMENT

Background

Based on the corporate philosophy that the competitiveness of partner companies is the competitiveness of Hyosung Chemical, we are managing the supply chain in consideration of sustainability at all stages of selecting, operating and evaluating partner companies. Hyosung Chemical will continue to reform corporate systems and support.

Our approach

To improve the sustainability of our supply chain, we provide financial, educational and technological support for supplier companies. By selecting suppliers according to transparent standards and procedures and complying with fair trading practices, we have established a robust relationship based on virtuous circle with our suppliers in which optimal product quality is achieved and suppliers can grow mutually with Hyosung Chemical.

Objective in 2020

38

Number of Suppliers Signing Shared Growth Agreement

6

Incentive Program for Excellent Suppliers

Achievement in 2019

37

Number of Suppliers Signing Shared Growth Agreement

4

Incentive Program for Excellent Suppliers

UN SDGs Linkage



Strengthening Supplier Risk Management

Supply Registration Evaluation & Supply Chain Risk Management

Throughout the registration and evaluation process of supplier companies, their ethical management performance regarding environment, safety, legality, human rights and labor is evaluated as well as traditional standards including product quality, delivery, price and management performance. The same criteria are applied to regular evaluation of suppliers and the results are reflected in the deliberation on contract renewal.



Registration Evaluation of New Suppliers

Hyosung Chemical conduct evaluation of new supplier company in five main categories, including business management and environment. Those that meet the criteria determined by internal regulations can be registered as a supplier company.

Category	Main Item	Method
Management and Managerial Skills	<ul style="list-style-type: none">Establishment of business plans and performance managementCSR activities	Document
HR Management	<ul style="list-style-type: none">Unfair treatment (E.g. gender discrimination)Employee treatment (E.g. wage)	Interview/ Document
Environment·Safety·Health	<ul style="list-style-type: none">Environment, waste treatmentPotential risk assessment	Onsite Review / Document
Finance	<ul style="list-style-type: none">Average annual sales growth rateCurrent, liability rate	Document
Training and Organization	<ul style="list-style-type: none">Company organization and divisions/rolesTraining performance against plans	Document

Pre-contract & Post-contract Deliberation System

Hyosung Chemical manages supply chain risk by operating pre-contract and post-contract deliberation system after signing subcontracts to monitor any unfair treatment and compliance with legal requirements.

Category	Subject	Main Items
Pre-contract Deliberation	Issuance of written contract	<ul style="list-style-type: none">Mandatory specification on contract by law
	Prohibition of unfair subcontracting payment decisions	<ul style="list-style-type: none">Subcontract payment decisionOptional contract, competitive bid payment decision
	Prohibition of forced purchase of goods	<ul style="list-style-type: none">Forcing purchasing orders
	Prohibition of unfair demand for economic benefits	<ul style="list-style-type: none">Prohibition of sponsorship and incentives
Post-contract Deliberation	Payment delay	<ul style="list-style-type: none">Payment settlementCompliance with payment due date
	Violation of technical data law	<ul style="list-style-type: none">Request for technical dataThird party technology leaks
	Unfair subcontracting payment reduction	<ul style="list-style-type: none">Extra requirements other than written contractCompliance with the law in case of payment reduction

Shared Growth Activities

Win-win Cooperation Program

As part of support program for supplier companies, Hyosung Chemical is participating in Win-win Cooperation Program, organized by the Korea Occupational Safety and Health Agency, since 2016 to strengthen our suppliers' capacity and responsibility of health and safety management. A total of 15 supplier companies participated in this program in 2019. We have made improvements at a total of 51 issues through monthly partner companies meeting, joint inspections and regular risk assessment.



[Win-win Cooperation Program with Suppliers]



[Supplier Joint Inspection]

Protecting Supplier Property Rights

Hyosung Chemical complies with the standard subcontracting contract issued by the Fair Trade Commission. The standard subcontracting contract protects the material and intellectual property rights of business partners by stipulating clauses such as prohibition of forcing suppliers to provide technical data, technology escrow, guarantee of intellectual property rights and transfer of ownership.

Cash Payment for Outstanding Suppliers

Hyosung Chemical conducts an annual evaluation of its suppliers in accordance with ISO9001 and its own standards. Based on this evaluation, we selected 37 companies in 2018 to give them payment in cash within ten days after the tax invoice is closed. We have contributed to improving cash flow of our supplier companies by operating incentive systems for outstanding partners and have paid about KRW 13.7 billion in cash in 2019. In case of in-house partners, payments are made in cash within 5 days after the tax invoice is closed to support their business operation. We will continue to find helpful measures and systems to contribute to mutual growth and co-existence with our partners.

Supplier Communication

Hyosung Chemical runs a reporting channel regarding supplier companies through which people can anonymously report unfair requests or treatment involved with our suppliers or their violation to our policy. We implement non-retaliation measures to ensure confidentiality of content and reporters and prevent any disadvantages to reporters. Once the report is received, we immediately investigate the relevant case, identify facts to take suitable actions and notify the informant of the result. In addition we also listen to voice of our partner companies in connection with the company-wide VOC activities to improve product quality, environment and business status of our partners.

Support for Sales Bond Insurance

Hyosung Chemical operates sales bond insurance for its business agencies, which are both customer and supplier, and major clients. Sales bond insurance insures up to 80% of the loss amount in all cases when the payment is not made due to the buyer's cause after domestic transaction. In this way, we reduce the financial burden on customers and business partners while ensuring the stability of credit operations. Hyosung Chemical is supporting suppliers by paying the insurance premium which amount to KRW 126.4 million.

Supplier Training

Hyosung Chemical holds monthly meetings with representatives of supplier companies, and during this meeting, we conduct training on safety-related issues and gather supplier companies' feedback and suggestions in all business operation including environment. We also publish and distribute health and safety manual once a year, and provide training on all treated chemicals, guidelines for safety at work, and contingencies to deal with workplace accidents or emergencies. Through this training and support for the supplier companies, we encourage their awareness in safety and prevent workplace accidents.



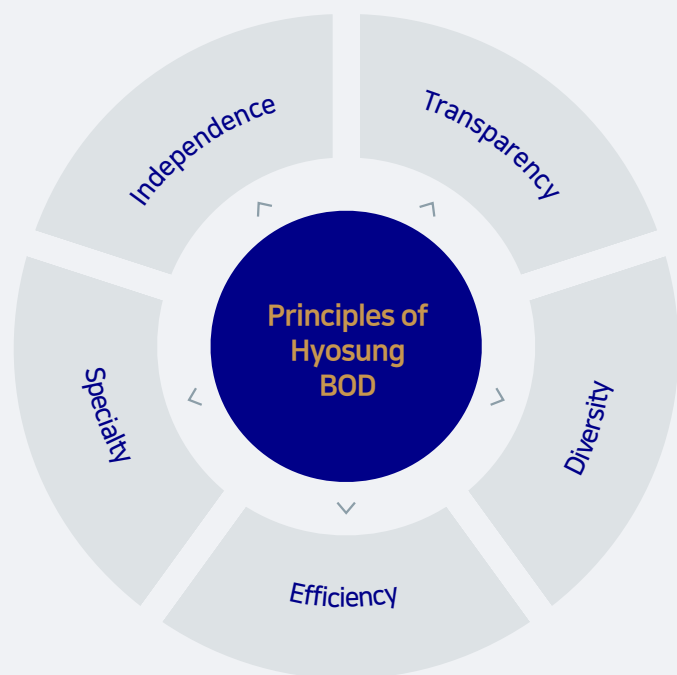
Sustainability Management

Governance	34
Risk Management	36
Ethical Management	38
Human Resource Recruiting	40
Human Resource Training	41
Human Resource Management	43
Shared Growth Management	45
Green Management	48
Safety and Health	52
Research and Development	54
Information Security	55

GOVERNANCE

Based on the philosophy, “leading a better life for mankind based on best technology and management capabilities”, Hyosung is aspiring to be the top global company with the basis on person and society, and operating the governance system according to the robust principles and policies. Our governance is based on checks and balances as well as firm authority, guaranteeing transparent and independent decision-making and effective business operation.

As the highest decision-making body, the Board of Directors reviews and decides on matters prescribed by law or corporate articles of association, delegated matters by the general meeting of shareholders, or high-priority matters related to basic company policy and business operation. It is also aimed to improve interests of the stakeholders including shareholders.



UN SDGs Linkage



Principles of the Board of Directors (BOD)

Board Independence and Transparency

In order to strengthen the independence and transparency, Hyosung comprises the majority of outside directors, who lead the BOD. The outside directors whose independence is verified implement checks and balances on the executive management. The agenda are reviewed and decisions are made in accordance with the articles of association and the Board regulations, and the voting rights of any director who has a special interest or conflict of interests regarding a certain agenda is limited pursuant to the BOD regulations. Meanwhile, in order to avoid conflict of interests among directors and implement large-scale internal transactions among business companies in fair and transparent manner, the Transparent Management Committee is operated to review and put limitations on the matters related to ‘Transactions between Directors and Company’ as specified in the Commercial Act (Article 398). Regarding the committees in the BOD, the Audit Committee entirely consists of outside directors, while the Outside Director Candidate Nominating Committee is mandated to have 2/3 of its members from outside directors, and to appoint an outside director as a representative director of the committee in order to enhance independence and transparency.

Board Specialty and Diversity

In the fast-changing business environment where strategic decision-making of the Board is constantly required, the specialty and diversity is considered as a prerequisite for a director. The top in-house business specialists are in charge of overall operation of business and participate in the BOD as the representative directors, fulfilling responsibility management. In order to represent various stakeholders, the BOD is composed of outside directors with profound experience and specialty in a variety of fields such as finance, economy, law, and industry so that the BOD is not biased against a specific background. Outside directors objectively supervise and advise management by participating in the BOD based on specialty in their field. In particular, the Audit Committee includes at least one specialist in finance and accounting. In addition, continuous training is provided to improve the professionalism of the board directors.

The newly appointed directors receive introductory company training including visions, strategies, financial status and major policy. In order to improve understanding of the business industry, we identify demands for training/education from the BOD and conduct regular training accordingly.

Board Efficiency

For efficient operation of the BOD, we have established committees in the BOD to take specific roles and functions required. The Audit Committee and the Outside Director Candidate Nominating Committee are mandated to be established according to the relevant law. The Management Committee was set up to respond flexibly to the rapidly changing global business environment and to operate business efficiently. The Management Committee reviews and decides on matters delegated by the BOD such as management policy and investment.

Board Evaluation and Reward

Each year, directors are evaluated based on their specialty in corporate business and technology as well as performance of the Board activities, and the following result is discussed in the BOD. Compensation for the Board is payed fairly and transparently based on the evaluation result with an approval of the general shareholders’ meeting. The remuneration of the Board is provided within the remuneration limit approved at the general meeting of shareholders. The retirement allowance of the BOD shall be paid in accordance with the provisions on retirement allowance for executives which was approved by the general meeting of shareholders.

Protection of Shareholder Value

Hyosung announces a general meeting of shareholders 17 to 22 days before the meeting date, which is longer than the minimum standard of two weeks, to protect shareholders’ interests and rights and interests, and to allow them to spend enough time deliberating on agenda items. In addition, we try to avoid peak dates during the proxy season to hold a general meeting in order to reach the necessary quorum and secure shareholders’ votes. Shareholders may exercise their rights by proposing schedules in writing or electronically up to six weeks before the general meeting of shareholders. Meanwhile, dividends have been continuously paid to enhance shareholder value, and they are determined in consideration of investment, business performance and cash flow conditions of the company. All shareholder uphold equal voting rights based on the number of shares held. In addition to regular performance announcements every year, the NDR (Non-Deal Roadshow) is held regularly for investors in Korea and Asia. We provide various in-depth IR (Investor Relations) materials to meet the increasing shareholders’ demand for information and enhance their understanding and trust. Moreover, a policy regarding internal control has been established to prevent internal transactions or self-transactions for personal interest.

Principles of the Board of Directors (BOD)

Board Members

HYOSUNG TNC

HYOSUNG HEAVY INDUSTRIES

HYOSUNG ADVANCED MATERIALS

HYOSUNG CHEMICAL

The Board of Directors(BOD) consists of directors who are appointed in the Shareholder's meeting, and is comprised 3 inside directors and 7 outside directors. Standing directors are nominated by recommendation of the BOD. For a closer and more objective review, candidates are recommended through a separate resolution process from the Outside Director Candidate Nominating Committee. Relevant information is provided to shareholders through reference materials disclosed prior to the shareholders' meeting and announcement of convening the shareholders’ meeting. The resolution is approved by shareholders on the day of the shareholders' meeting.

(As of the end of December 2019)

Title	Name	Gender	Roles	Appointed Date	Expiry Date	Specialty
Standing Director	Hyun-Joon Cho	Male	CEO, Member of the Outside Director Candidate Nominating Committee, Member of the Management Committee	1998. 3.17	2022. 3.19	Corporate management
	Kyoo-Young Kim	Male	CEO, Member of the Transparent Management Committee, Member of the Management Committee	2017. 3.17	2021. 3.14	Corporate management
	H.S.(Hyun-Sang) Cho	Male	Member of the Management Committee	2014. 3.21	2022. 3.19	Corporate management
Outside Director	Byung-Doo Sohn	Male	-	2013. 3.22	2021. 3.21	Economy, education
	Myung-Ja Kim	Female	Member of the Audit Committee, Chairman of the Outside Director Candidate Nominating Committee	2017. 9.22	2021. 3.14	Environment, technology
	Young-Lae Son	Male	Chairman of the Audit Committee, Member of the Outside Director Candidate Nominating Committee	2017. 9.22	2021. 3.14	Accounting, finance
	Sang-Myeung Chung	Male	Chairman of the Transparent Management Committee, Member of the Audit Committee	2017. 9.22	2021. 3.14	Law (lawyer)
	Tae-Ho Park	Male	Chairman of the Board of Directors	2003. 2.28	2021. 3.21	Commerce, trade
	O-Gon Kwon	Male	Member of the Transparent Management Committee	2017. 9.22	2021. 3.14	Law (lawyer)
	Dong-Chae Jeong	Male	Member of the Transparent Management Committee	2020. 3.20	2022. 3.19	Economy, culture

* At the general meeting of shareholders held on March 20, 2020, Hyun-Joon Cho and Hyun-Sang Cho have been consecutively appointed, while the outside director, Joong-Gyeong Choi resigned due to the term expiry, and Dong-Chae Jeong was newly appointed as outside director.

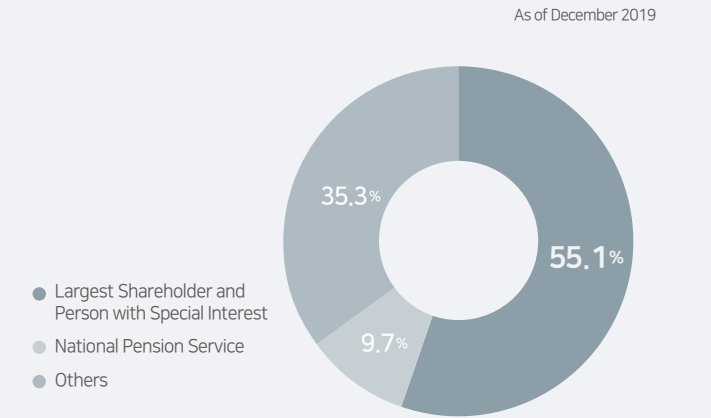
Board Operation

Regular meeting is held once in each quarter by principle, while temporary meetings are convened occasionally when necessary. In 2019, a total of 6 meetings were held, and 29 agenda were covered for report and decision-making including compliance support activities, transactions between directors and company as well as major business status.

Board Subcommittees Status

Subcommittee Name	Members	Number of Meetings Hosted in 2019
Management Committee	Standing Director, Hyun-Joon Cho (Chairman), Standing Director, Kyoo-Young Kim, Standing Director, H.S.(Hyun-Sang) Cho	39
Transparent Management Committee	Outside Director, Sang-Myeung Chung (Chairman), Outside Director, O-Gon Kwon, Outside Director, Dong-Chae Jeong, Standing Director, Kyoo-Young Kim	6
Outside Director Candidate Nominating Committee	Outside Director, Myung-ja Kim (Chairman), Outside Director, Young-Lae Son, Standing Director, Hyun-Joon Cho	2
Audit Committee	Outside Director, Young-Lae Son (Chairman), Outside Director, Myung-ja Kim, Outside Director, Sang-Myeung Chung	7

Shareholders Status



Status of the BOD Meetings in 2019



Status of Compensation Amount for Directors and Auditors in 2019

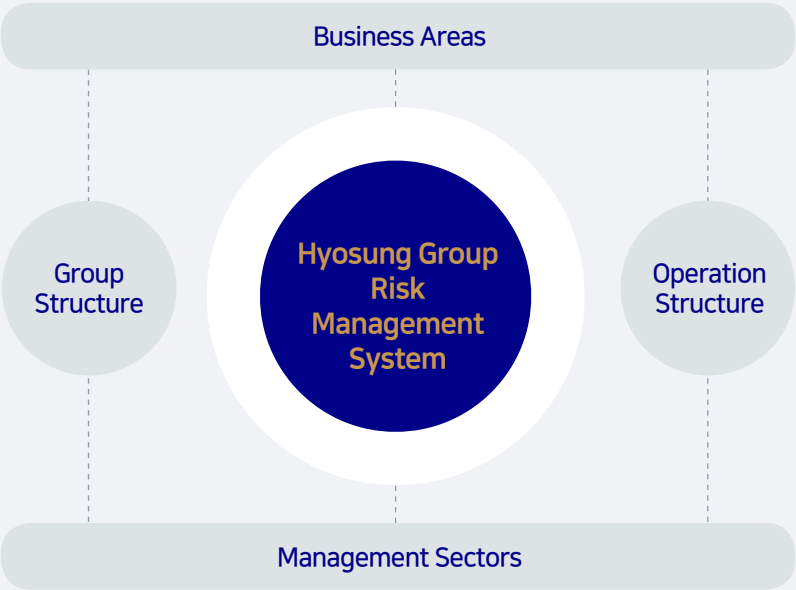
Unit: KRW 1 million

Category	Persons	Total Compensation	Avg. Compensation per director
Standing Directors	3	7,557	2,519
Outside Directors	4	217	54
Directors from the Audit Committee	3	163	54

* 'Directors from the Audit Committee' are excluded in 'Outside Directors'

RISK MANAGEMENT

Risk can rise in both financial areas such as exchange rates, liquidity and interest rates, as well as non-financial areas such as supply chain, environment, law, and security. In order to timely respond to the internal and external risks that may hinder the achievement of our sustainability goals, Hyosung has a group-wide risk management system covering all business areas and operating companies. As we recognize risk management to be a critical part of management strategy, we have identified and defined possible risk concepts in each field in advance and have manualized response processes for each case. Recently, unpredictable risks such as COVID-19 have negatively impacted the corporate management. Hyosung has established a dedicated risk management organization to properly respond to such sudden risks. Hyosung will be the leading company through running risk management process and developing effective systems and process.



Risk Management Strategies

Integrated Risk Management System

Hyosung is exposed to a variety of risks involved with health & safety, supply chain, and environment, etc. In order to effectively manage risks, Hyosung is operating an integrated group-wide risk management system across Hyosung. We have established a cooperation system between the holding company and the operating companies as well as between headquarter office and domestic/overseas business sites so that risks are identified in advance and negative impact to Hyosung can be minimized.

Risk Management Process

Hyosung runs a risk management process which is based on five stages, 'identification-analysis-prevention-solution-monitoring'. We are effectively respond to the risk by prioritizing them upon likelihood and impact.



Risk Management Sector

Hyosung is running a risk management system which integrates both financial and non-financial risks. We are reducing risk-driven uncertainties by defining the risks in each sector and setting up detailed response measures. Financial risks, especially, are reviewed and approved in accordance with the policy established by the Management Committee in the Board of Directors.

Category	Risk Definition	Response Methods
Exchange Rate	Risk of financial loss due to exchange rate change	We manage exchange risk systematically by matching deposit and expenditure currencies to minimize the occurrence of exchange positions, and detailed classification of exchange rate risk management policy including hedge cycle, period, and rate.
Liquidity	Risk of financial loss due to unexpected liquidity deterioration	We regularly forecast future cash flows to maintain an appropriate level of deposit, and have concluded agreements with a financial institutions regarding the emergency funding.
Interest Rate	Risk of financial loss due to interest rate fluctuations	Considering the trend of interest rate maturity and short- and long-term interest rate structure, the appropriate amount of borrowings and deposits is derived, and the allowance of interest rate gap ratio is set and complied with.
Supply Chain	Risk of hindrance in production due to raw materials supply failure	We are strengthening our partnership by identifying the requirements of supply chain in advance. We have defined supply chain emergency situations and differentiated responses for each scenario has been established accordingly.
Safety and Health	Human injury or financial loss due to disasters, safety accidents	Regular training is conducted for each disaster and safety accident scenario such as earthquake, fire, explosion, and gas leakage to foster the ability to respond flexibly in the event of an actual accident.
Environment	Risk of reputation decline due to non-compliance with environmental regulations	We operate a dedicated departments to manage environmental risks and regularly monitor emissions through the greenhouse gas emission system.
Legal Compliance	Risk of penalties due to legal violations	We promote use of standard contracts, proactively preventing possible legal violations such as the Fair Trade Act, and the Audit Team and the Compliance Support Team conducts regular monitoring on this. We also strive to improve employees' understanding of legal matters throughout regular training in job-related legal issues.
Security	Risk of weakening of company's core competency due to information leakage	In order to prevent leakage of important information, a dedicated security inspection department conducts regular monitoring. Also, a document centralization system has been established to effectively manage the creation, modification, storage, and transfer of documents.

Key Risk Management Activities

COVID-19 Risk Management

Hyosung carried out a wide range of response and prevention activities to effectively manage COVID-19 risks based on the tight cooperation among relevant departments across all sectors of business by the lead of the Corporate Strategy/Support/Finance Offices. We focused on initial prevention measures by refraining all possible social gatherings taking place at business sites such as company-wide team building activities, domestic/overseas business trips, on-site visit from external guests, club activities, and group training. Also we set up clear guidelines for employees to follow. In an effort to practice social distancing within the company, we started home-office system backed up by IT services. Moreover, employees' body temperature was checked whenever they enter and leave the office building and those detected with high temperature were reported to the HR team for medical test.

COVID-19 Response Activities of Hyosung

HR	<ul style="list-style-type: none">Established and execution of home-workingGuideline preparation and regular notifications to prevent infection at workResponse manual/process for employees with similar symptomsSupport mask purchasing costs for all employees in Korea for 2 months
Operation	<ul style="list-style-type: none">Office entry process using thermal imaging cameras, mandatory mask usageContactless thermometers and hand sanitizers placed at workplacePatrol for social distancing during commuting/lunch timeSeparate operation of lunch times by floorGuidelines for domestic/international business tripSupport mask purchasing costs for suppliers in Korea for 2 months
Overseas Subsidiaries	<ul style="list-style-type: none">Guidelines of working and prevention activities for expatriates and overseas subsidiariesSupport costs for expatriates' families return to KoreaProvide masks and protection garments to our business sites in China
IT/Security	<ul style="list-style-type: none">Phishing precautions related to COVID-19 to prevent accidentsGuide off-site access to intranet and real-time troubleshooting servicesTechnical support(i.e. messengers with video call function)



[COVID-19 Prevention Activity - Thermal Imaging Camera]

Supply Disruption Risks

Emergency Response System of Business Sites

Risk against stability of supply is one of the most important risks for Hyosung which mostly produces intermediate materials. In order to manage risks throughout the entire process, including raw material, supply stability of suppliers and processing contractors, and delivery, Hyosung established the process-specific mechanism to conduct regular inspection and scenario training in compliance with international standards (IAFT 16949, ISO 14001) for each organization or department in charge. In particular, emergency response organizations have been established and specific measures to emergency have been organized to cope with risk of supply crisis caused by natural disasters such as earthquakes, typhoons, and heavy rains, as well as mad-made disasters such as fires.



[Emergency Response Training at Business Sites]

Environmental Risk Management

With the lead of the Environment Safety Team at each business site, we are monitoring our business sites day-to-day and constantly training the employees about impact and prevention measures of environmental accidents. In particular, we are striving to minimize possible risks by delivering response training for specific scenarios, such as leakage of water and wastewater due to malfunction of production facilities, leakage of wastewater due to failure of wastewater treatment facilities, and leakage from toxic substances storage tanks.

Safety Risk Management

Hyosung constantly manages its safety risks by operating the Environment and Safety Team in each business site. Environment and Safety Team regularly delivers safety training which is customized to characteristics of each business site. We promote employees' safety awareness and compliance by conducting on-site training on falling accidents, safety helmets and confined space at Korea Occupational Safety and Health Agency (KOSHA) in every quarter, also mandating employees of supplier companies to complete on-site training. In addition, we have initiated 'Accident-free Campaign' through which incentives are provided depending on the number of accident-free days. We operate an IT-based chemical substances management system, complying with the Act on the Registration and Evaluation of Chemical Substances and the Chemical Control Act.

Sustainability Risk Management

In an attempt to manage sustainability risk in the group-wide range as Hyosung, TFT for Sustainability was established in both the holding company and all the operating companies. We plan to manage risks rising from all sectors of sustainable management such as green management, ethical management, human resource management, supply chain management, and environmental risk management in overseas business sites. In 2019, we derived and executed necessary tasks in three different categories, short-, mid-, and long-term, depending on their urgency, significance and feasibility, through which we expect to achieve effective sustainability risk management.

Sustainability Action Plans in 2019

Category	Action Plans
Enhancing Operation System	Establish Sustainability task force team at a company-leve => Regular meeting at Hyosung Group level
Expanding External Disclosure	Increase the frequency of publishing sustainability report from biennially to yearly, and adding overseas subsidiaries to the scope of reporting (Hyosung Vietnam, Dongai)
Environmental Risk	Enhancing climate change risk management
Environmental Risk	Establish Green Management Vision 2030, to reflect the external environmental changes
Security Risk	Enhance security risk response capacity by introducing a company-wide integrated document control system (HiCloud)
Ethical Management	Extend the scope of both training subjects Reinforce employee awareness through expanding the participants of ethical management training
Human Resource Management	Establish a training system at each operating company
Suppliers Management	Strengthen the monitoring on suppliers' CSR fulfillment in addition to their pledge for ethics compliance. Establish Code of Conduct for suppliers and request for their participation
Suppliers Management	Reinforce supplier support projects
Others	Update the Code of Ethics and guidelines, purchasing policy, and safety/health policy

ETHICAL MANAGEMENT

As the social demand increases in ethical management, many domestic and international companies are starting to declare their commitment to ethical management and are making efforts to practice it. In addition, many regulatory agencies monitor the companies, focusing on legal compliance and transparency, and the social demands in corporate ethics are also increasing. We are emphasizing the importance of ethical management under the company's first business principle, 'Honesty and Trust.' In addition to basic legal compliance, we carry out various ethical management activities in order to promote fair and transparent business operation and to ensure the company's sound growth and stakeholders' trust. Ethical management forms the foundation of basic principles of behavior for all employees at Hyosung, and we believe that competitiveness and actual economic outcomes can only be achieved upon ethical management.



UN SDGs Linkage



Ethical Management System

Ethical Management Principles




In an effort to facilitate clean corporate ethics, Hyosung continuously strives to internalize ethical management in the company. 'Honesty and Trust' is the core philosophy of our ethical management, and in order to realize it in practice, the 'Code of Ethics' and 'Guidelines to the Code of Ethics' were established. The Code of Ethics consists of seven themes, including compliance with laws and regulations, customer-respecting management, shareholder-oriented management, employee-respecting management, employees compliance management, suppliers shared growth management and social responsibility management. Each of these ethical code themes is reflected in the management activities through the implementation of Guidelines to the Code of Ethics. They are regularly reviewed to cope with rapidly changing industry trends, and communication channels are operated to reflect the diverse needs of stakeholders.

Code of Ethics	Guidelines to the Code of Ethics
Compliance with laws and regulations	<ul style="list-style-type: none">Compliance with national policies and regulationsCompliance with corporate policies and basic corporate ethics
Customer-respecting management	<ul style="list-style-type: none">Transactions with customersPartnership with suppliers
Shareholder-oriented management	<ul style="list-style-type: none">Protect profits of shareholders and investorsProtect shareholders' right-to-know
Employee-respecting management	<ul style="list-style-type: none">Respect for executives and employeesFacilitation of a sound company culture
Employees compliance management	<ul style="list-style-type: none">Transparent and fair task performance
Shared growth management for suppliers	<ul style="list-style-type: none">Aim for mutual growth with business partners
Social responsibility management	<ul style="list-style-type: none">Contribution to social developmentSound and healthy social life

Organizational Structure of Ethical Management

Hyosung has formed a strong organizational structure for ethical management, centered on the CEO. The CEO is striving to ensure that the ethical management philosophy can be naturally reflected in management activities.Major ethical management activities are operated under the supervision of the Compliance Support Team. We make sure that members of the Compliance Support Team have strong understanding of the company for smooth execution of ethical management activities. In addition, we have designated personnels within each department to assist the Compliance Team in effectively managing ethical management activities. Also, independent internal auditors who have been appointed so that thorough supervision is carried out throughout the entire management from field work to headquarter office.

Ethical Management Enhancement Process

 Prevention	<ul style="list-style-type: none">Employee trainingProvide Code of Ethics to employeesSelf-inspection using checklistMonitoring and managing legal changes
 Monitoring	<ul style="list-style-type: none">Regular non-regular audit by the department in charge (Audit Team)Technology and quality auditMonitoring on reported cases
 Follow-up Management	<ul style="list-style-type: none">Improvement activitiesDeveloping case-based trainingImmediate improvement and re-inspection of audit subjectsReport to CEO on audit results

Ethical Management Communication Channel

Hyosung is operating 'HR Counseling Center' and 'Grievances Procedure' so that employees can receive counseling on unethical behavior and grievances, and counseling on ethical standards. Usually, counseling takes place by face-to-face, but anonymous counseling is also available online to protect the identity of the reporter. In order to secure thorough confidentiality, we also operate a mailbox in Mapo Post Office. In 2018, we set up an online reporting channel in our website in 2018 to receive reports of unethical behaviors in the supply chain such as bribery, solicitations and unfair business trades.

Awareness Building for Ethical Management

Ethical Management Pledge

All new employees in Hyosung sign ‘Pledge of Practicing Ethical Management’ and ‘Pledge of Prohibiting Solicitation and Bribery’ so that they understand the code of ethics and their guidelines and declare their commitment. In 2019, we received signed pledges from all office employees not only in Korea but also in Vietnam. In addition, we provide ethical management training to heads of each department and introduce major violations, advantages of ethical management and sound work ethics as well as guidelines. Starting in 2020, we began to have ethical management pledges from overseas employees and conducted regular training.

Ethical Management Training

In order to promote employees’ voluntary practice and awareness of ethical management, we are conducting mandatory annual training not only to all employees in general but also to newly recruits or promoted employees. High-risk departments are selected considering their direct involvement with the suppliers and relevance of fair business practices, and these departments are subject to regular training on subtracting laws and contract violation cases. For Sales Department, we provide information about compliance process and standards applicable to sales field such as trade secrets protection, cases of embezzlement, bribery and forgery, and the regulations related to fair trade and franchise and agency transactions. We plan to make educational contents for all office employees in our domestic sites to facilitate their awareness in ethical management.

Ethical Management Campaigns

For effective promotion of employees’ awareness in ethical management, we produced promotional videos and magazines which are later distributed within the company groupware. In addition, we continuously deliver the importance of ethical management through messages from management executives.



[Employee Pledge for Ethical Management at Hyosung Vietnam]

Business Ethics Risk Management

Internal Monitoring

Hyosung conducts an audit on all aspects of management, from on-site management to job diagnosis for production management. We have established and operated internal audit regulations since 1984, and it has been inherited also to each operating companies after spin-off in 2018. The technology and product audits are also in operation to build customer trust in our products and achieve their satisfaction. In addition, we guarantee the independence of audit activities. We guarantee anonymity and minimize disadvantages so that auditors and informants are not treated unfairly.

Internal Audit System

We conduct regular audits according to internal audit regulations, and special audits are conducted when certain topics or issues arise. The material cases detected from the audit results are dealt with different measures such as caution, punishment and reimbursement depending on seriousness of the cases.

Follow-up Monitoring after Audit

The audit results are reported to the CEO, and those who are notified of the results are required to make immediate improvements to the indicated matters. At the same time, the audit team regularly reviews the issues to prevent recurrence.

Reported Cases and Inspection of Noncompliance with Anti-corruption (Unit: Persons)

Category		2018		2019	
		Domestic	Overseas	Domestic	Overseas
Hyosung Corporation	Inspections upon whistleblowing	1	1	-	-
	Number of Disciplined Persons	-	1	-	-
Hyosung TNC	Inspections upon whistleblowing	4	1	-	-
	Number of Disciplined Persons	10	5	-	-
Hyosung Advanced Materials	Inspections upon whistleblowing	-	1	-	1
	Number of Disciplined Persons	-	-	-	6
Hyosung Heavy Industries	Inspections upon whistleblowing	2	-	2	-
	Number of Disciplined Persons	4	-	25	-
Hyosung Chemicals	Inspections upon whistleblowing	-	-	-	-
	Number of Disciplined Persons	-	-	-	-
Total	Inspections upon whistleblowing	7	3	2	1
	Number of Disciplined Persons	14	6	25	6

Ethical Management Training Status in 2019 (Unit: Persons)

	Ethics and Anti-corruption	Fair Trade	Total
Hyosung Corporation	1	14	15
Hyosung TNC	6	13	19
Hyosung Advanced Materials	116	117	233
Hyosung Heavy Industries	95	23	118
Hyosung Chemicals	36	2	38

Compliance Program

Hyosung established a compliance program in September 2006 to voluntarily re-inforce its compliance with regulations and spread sound business practice in the company. Each operating company inherited it and introduced it to their management system upon the spin-off on June 1, 2018. The Compliance Support Team is responsible for managing the compliance program and minimizing related risks by promoting guidelines to compliance program, training employees, and monitoring. The Compliance Officer appointed by the board of directors operates the program, and updates the Compliance Manuals every year for employees to comply with up-to-date legal frameworks even in the event of revisions or changes.

Pre & Post-contract Deliberation System

In the process of making a contract with suppliers, we are operating a system to fundamentally block illegal matters and unfair practices through deliberation both before and after signing a contract. The internal deliberation committee, which consists of purchasing executives and purchasing team leaders, confirms compliance with fair trade through the legality review check sheet, and make efforts not only to comply with commercial laws but also to promote win-win cooperation with suppliers.

Ethical Management Awareness Building for Suppliers

When we make a contract with new suppliers, we ask them to voluntarily submit the statement of declaration for ethical management. Furthermore, we have established the code of conduct for suppliers to facilitate awareness of ethical management within the supply chain. In order to raise awareness of ethical management not only for employee but also for our suppliers, we plan to provide ethical training materials and venues for employees of supplier companies.

The Code of Conduct for Suppliers

- ✔ **Ethics and Fair Trade**
- We promise to establish a transparent fair trade culture and actively participate in ethical management.
- ✔ **Human Rights and Labor**
- Respect employees' human rights and do not treat them inhumanely.
- ✔ **Safety and Health**
- Prevent accidents and occupational diseases of workers by preemptively identifying risks in the workplace.
- ✔ **Environment**
- Meet environmental standards of all products and services and try to minimize environmental impact.

HUMAN RESOURCE RECRUITING

Employees’ capacity is a key factor of a company’s competitiveness, especially in a global society where company’s business activities take place all over the world. Hyosung would like to secure competitiveness by building a foundation for a sustainable work environment where each employee’s individuality is respected, a sound organizational culture is promoted, and a safe working environment is available so that employees can work in a pleasant atmosphere and yield optimal performance. We hire employees who practice our core values, 'global excellence, innovation, accountability, integrity', and provide them with various growth opportunities. We also provide them with an organizational culture of communication and cooperation and with a work environment that respects a balance between work and life. By taking these measures, we are trying to prevent a loss of talented people and to increase job satisfaction and commitment.



UN SDGs Linkage

Recruiting Excellent Employees

Hyosung's Talents

Hyosung’s desired talents are ‘global leaders’ who are able to integrate within themselves our core values of global excellence, innovation, accountability and integrity to realize our mission of "Enhance and enrich the quality of life for humanity with its leading technology and management capability." Hyosung employees clearly understand the meaning and value of their work, challenge themselves to achieve the best outcomes and fulfill their responsibilities with dedication and self-motivation, thereby contributing to a brilliant future for themselves, for the company, for the customers, and for all stakeholders in the society.

Open Recruitment

To attract ‘global leaders’ who can fulfill Hyosung’s mission, we are running various channels in both regular and occasional recruitment. In addition, we are transparently sharing the information related to the employment contract and recruiting process through our individual recruitment website in the company. All applicants are given an equal opportunity in the recruitment process and are not subject to discrimination based upon their academic background, gender, or religion. As part of our efforts to enhance transparency and diversity we have excluded sections, such as applicants’ photos and family status, and eased application restrictions based on age, academic record, and language proficiency scores. In consideration of the socially disadvantaged, we are also implementing preferential policies for national merit and the disabled.

Onboarding Program

We are operating onboarding programs for new employees so that they can easily adapt to the company and demonstrate their capacity at early times in their fields. All new employees receive introductory training in Hyosung and each operating company, and mentoring program are delivered consecutively. For new employees who already have career experience, introductory training in our core values, organizational structure and regulations is provided on a regular basis, and scouted executives are provided with 1:1 training program to introduce them to the business status, organization structure, management philosophy and other company policies after they get on board.

Mentoring Program

Hyosung is operating mentoring program to support the new employees’ onboarding and career development. New employees of Hyosung receive introductory training over Hyosung and the Operating Company. A mentor is assigned from each team to take responsibility of assisting the new employees as they build competences required in their job position. When new employees are assigned to their teams they are matched 1:1 with a mentor and participate in a mentoring program for 6 months. The program helps new employees acquire basic competencies necessary for their growth by enhancing their understanding of the company's philosophy and business, their positions, our products, customers, and markets. Hyosung continues to improve its system for new employees to secure future growth engines.



[Onboarding Program for New Employees]

HUMAN RESOURCE TRAINING

Hyosung is making various efforts to secure competitiveness for sustainable growth after its transition to the holding company system on June 1, 2018. After the spin-off, the Human Resource Development Center reorganized its training programs and set the direction of operation tailored to business area and characteristics of each operating company. To this end, staffs of the Human Resource Development Center have been deployed to each operating company to share knowledge and experience so that the companies can establish and operate their own training system and enhance job competency required from the relevant industry. In 2019, Hyosung conducted various education programs focusing on four areas: spreading management philosophy, developing leaders, strengthening job expertise, and building global competency. We will continue to strengthen the foundation of sustainable growth of our employees by integrating management philosophy into the field, discover and disseminate best practices through the close collaboration with the Human Resource Development Center and persons in charge of training in each operating company.



UN SDGs Linkage

Enhancing Employees Competency

Spreading Management Philosophy

We are carrying out a variety of programs to spread our core value, ‘Hyosung Way’, and to highlight accountability management, so that all employees are clearly aware of the management philosophy and further apply it to their tasks. We focus on introducing core values to the new employees so that their direction of growth could align with the company’s. We guide all employees to practice ‘actions for accountability management’ and to internalize management philosophy. Since 2019, we have incorporated ‘actions for accountability management’ into our employee evaluation system, as we are trying to improve employees’ attitudes toward work, the pursuit of the company’s sustainable growth, and their personal development.

Category	Description of Training
All employees	Educating 'actions for accountability management' so that employees understand and practice them at work
Newly recruited (new/experienced)	Sharing corporate philosophy, core values, and actions for accountability management to the newly recruited in order to help them quickly adapt to the company
Newly promoted	Encouraging the newly promoted employees to make change in accordance with their new job level by educating them on the expectations for their new role

Developing Leaders

Hyosung’s leadership training efforts are aimed at developing managers who have the capability of promoting our business sustainably and lead the organization effectively. When executives and team leaders are appointed, we support them and provide educational opportunities to help them gain a broader perspective as a businessman. Recently, we are also paying attention to the role of a leader who could effectively communicate with millennials and encourage their immersion. We will continue to make efforts so that all employees can practice their leadership and grow into leadership positions.

Category	Description of Training
Newly appointed executives	Making newly appointed executives aware of their roles and responsibilities and supporting their growth as goal-achieving leaders based on business philosophy and entrepreneurship
Scouted executives	Assisting onboarding of scouted executives by educating company core values, business status and policies
New team leaders	Supporting new team leaders’ success through performance and team management based on roles and responsibilities
Insight forum	Providing up-to-date business trends and diverse insights to executives and team leaders

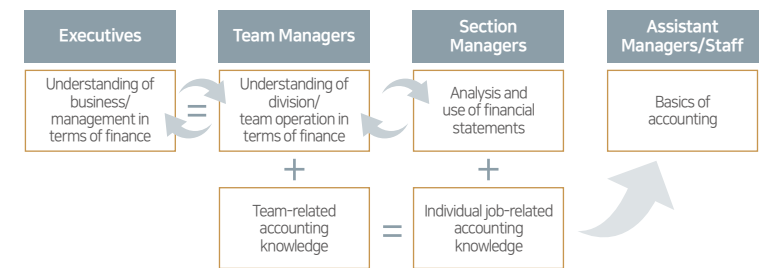
Strengthening Job Specialty

Hyosung provides a variety of training and education for all executives and employees in the company so that they can learn the knowledge and skills required for their respective fields of work. In addition to the Human Resource Development Center, each PU/business site or team operates job training tailored to its own characteristics, enabling the training to go hand in hand with the task at actual work.

Category	Description of Training
Finance/Accounting	Improving business efficiency through comprehensive understanding of finance/accounting
Sales	Overall sales activities : customers / market / competition / credit / stock / logistics
Production	Overall production activities: process / facilities / quality / innovation activities / environment safety
Management	Overall management support and operational activities : costs / accounting / regulations / HR
Research	Overall R&D activities : R&D / research methodology / project feasibility
Core competency training	General job competencies required in each business unit : product knowledge / work attitude / organization strategies

After the transition to the structure of holding company in 2018, Hyosung has been required to secure effective business operation and financial stability. Following this change, each executive or employee is challenged to implement various tasks with the strict cost-effectiveness in their mind. To this end, we have organized a company-wide training in finance and accounting in 2019. Our executives have undertaken extensive training on effective management of business KPIs in order to support profit management and investment decision-making for sustainable growth of the company. Training of team leaders was focused on accounting knowledge and management measures which may be useful in their individual field of work such as sales, production, research, operation, planning and finance. Team members were trained to learn practical knowledge about finance and accounting applicable to their tasks. Executives who have participated in this training have acknowledged that profit management and responsible decision-making for investment are essential for maximizing future values for shareholders and company alike. Many team members found the program to be helpful for learning applicable knowledge and measures in terms of profit management.

[Company-wide Finance/Accounting Training]



Enhancing Employees Competency

Enhancing Global Competency

As Hyosung is actively expanding its business territory around the world, it has become our utmost priority, as we work to strengthen the capabilities of human resources to respond effectively to the needs of global market. To this end, we have identified and actively supported various educational needs derived from overseas subsidiaries and branches, such as the fostering of leaders who can lead the continued growth of overseas subsidiaries and enhancement of job competency for overseas expatriates and local employees. In 2019, we dispatched in-house professors to Vietnam and Jiaxing. They were tasked with training candidates for executive positions, new employees and salespeople: they provided them with coaching and training tailored to the local conditions. In the future, we expect that our overseas subsidiaries and branches will establish their own training systems and work to disseminate the company's management philosophy while also developing their employees' competencies.

Overseas Business Sites	Description of Training and Development
Vietnam	Establishing a system for developing candidates for executive positions - Selection, competency assessment, management training, personalized on the job training and regular mentoring
Jiaxing, China	Building sales capacity for new sales employees - Sales, customer counseling skills and data collection, and sales coaching for local managers
Tokyo	Building sales capacity for expatriates and local employees - Customer counseling skills and market research methodology
India	Supporting the establishment of an employee training system - Establishing a core competencies training structure and provided five training contents that had been translated into English



[Training in Overseas Corporations]

Field-specific Training by Professors

Hyosung has two full-time professors with backgrounds in leadership and sales, respectively. They work to provide education tailored to the company's unique business characteristics and organizational culture, which are differentiated from a general business curriculum. Whenever there is a demand for training in the field of work, a differentiated hands-on training is provided with specific solutions related to the issues at hand. The Human Resources Development Center will continue to strengthen activities that contribute to improving the performance in the field by providing various means of support, such as training system and curriculum development, to meet educational needs at each operating company and PU/business site.



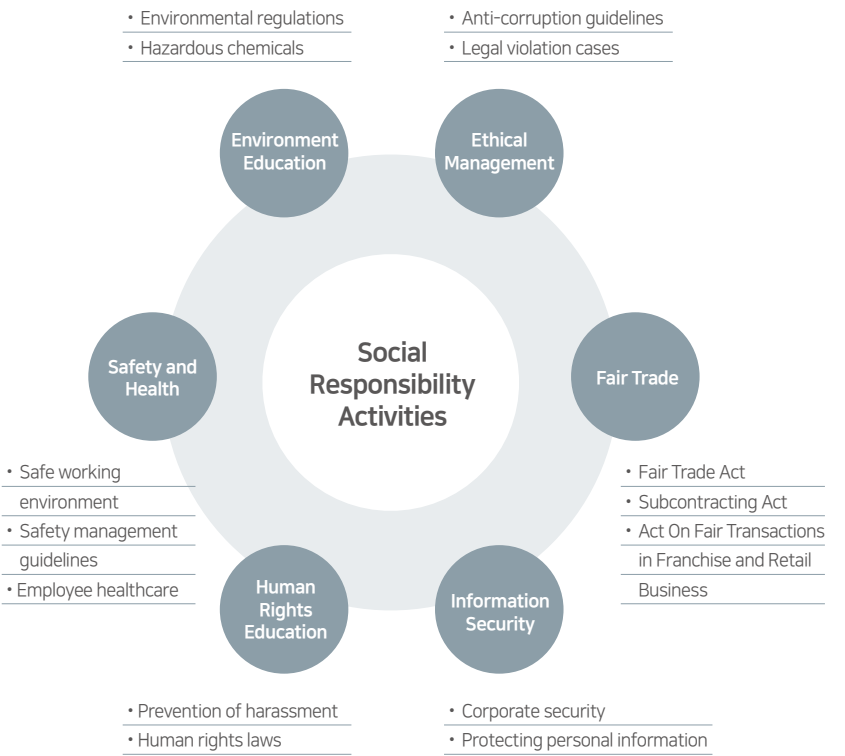
[Field-specific Training]

Sharing Management Issues

The Human Resource Development Center provides training through diverse channels, so that all employees can align themselves with the direction that the company is pursuing, as well as the business objectives. In 2019, we conducted training for employees in different positions, in cooperation with related departments to effectively steer C-Cube (VOC, VOCC, VOCO) activities, the customer-centric management practices that are emphasized as part of the company's management principle. In 2020, we made video clips of C-Cube activities and spread them to all overseas business sites so that we can share the practices among local employees.

Social Responsibility Activities

Hyosung provides a variety of online training courses in addition to classroom training in order to effectively keep up with the various competency development needs of employees. We provide over 730 courses necessary for job performance such as job competencies, basic career skills, certification by industry, and foreign languages. All employees are given opportunities to grow through self directed learning. We also continue to train them about the required competencies of sustainability management. We also provide compulsory education to all employees, covering topics such as preventing sexual harassment, awareness-building related to persons with disabilities in the workplace, and occupational health and safety. In 2020, trainings on anti-corruption and compliance with fair business practices, environmental education, and workplace harassment prevention are delivering to all employees.



HUMAN RESOURCE MANAGEMENT

Hyosung is operating diverse support systems to enhance employees' engagement and job satisfaction. We are also running a maternity protection policy, a flexible working policy, and an in-house daycare center to alleviating the childcare burden. We are paying attention to employees' requests and needs through employee survey so that we can cultivate a sound organizational culture and pleasant working environment as well as carry out team building activities accordingly. Moreover, we encourage employees' motivation by rewarding excellent employees in each quarter. Hyosung has established a company-wide communication channel to address employees' grievances and protect their rights. To reinforce the organization's vision and goals, the CEO directly participates and promotes conversation and communication with employee.



UN SDGs Linkage



Work and Life Balance

Family-friendly Management

Hyosung endeavors to build a family-friendly culture within the company that encourages employees and their families to participate and communicate with us, in our goal of becoming a happiness-oriented company. To that end, we have implemented various programs for employees and their families as well as maternity protection policy. In recognition of these activities, Hyosung earned Family-friendly Management Certification in 2015, and Hyosung Advanced Materials and Hyosung Heavy Industries both obtained this certification after the group division in 2018.

Maternity Protection Policy

Hyosung boasts a variety of maternity protection policies for pregnant employees. In addition to the 90 to 120 days of maternity leave that can be used before and after childbirth, the company also offers reduced working hours by 2 hours per day within 12 weeks after pregnancy or after 36 weeks of pregnancy. In addition, the company guarantees maternity leave and supports medical expenses in case of miscarriage or complication. After giving birth, childcare leave can be used within one year, or a reduced working hour system of 15 to 30 hours per week can be arranged. In addition, employees can use nursing room in the company and breastfeeding time is guaranteed for 30 minutes or more, twice a day in the office. In addition, a special ID card is provided to pregnant employees so that colleagues can be more aware and considerate. We also provide leave for spouses and family care leave in case of sickness of their children or family members, and enforce a policy to prevent overwork of pregnant women at night or during holidays.

Daycare Centers

In order to relieve the childcare burden of working parents and to further support a work-life balance, we are running in-house daycare centers in the Mapo, Changwon and Ulsan offices. We ensure the best childcare environment in the centers by regularly conducting inspections for toxic substances ensuring reliable childcare and high-quality education by teachers from professional childcare service agencies.



[Company Daycare Center]

Flexible Working Arrangements

Hyosung complies with legal working hours (52 hours per week) and supports flexible working arrangements to increase employees' productivity. There are optional working hours system and flexible working hours system, and overtime pay is given for extra working hours. In this way, employees can manage their time flexibly and efficiently depending on their workloads.

Refresh Day and Designated Holiday System

Through the 'Refresh Day Policy', Hyosung encourages employees who may find it difficult to use up their paid holidays due to the factory operation schedule to use a maximum of five annual paid holidays in a row. In addition, we operate the designated holiday system, in which employees are given days-off, usually in connection to one-day-national holiday or traditional holiday. This allows employees to fully recharge and return to work with fresh energy.

Organization Culture Development

Team Building Activities (HOT, Hyosung One Team)

HOT (Hyosung One Team) is our organizational development program which was designed to build synergy-making teams based on active communication and cooperation. A total of 299 teams have participated voluntarily in this program, and it has been implemented in more extended way in connection with training for new team leaders since 2019. Through these activities, participants reflect on their team culture and make progress in establishing plans for improvement. Not only do these efforts lead to positive changes in within-team communications, they also heighten the commitment and dedication from each team member to putting new resolutions into practice.

Employee Opinion Survey

We implement opinion surveys to diagnose organizational culture and current issues in each PU, business site and team, so that we can identify a sense of belonging and trust from our employees in depth. A professional firm in the field of organizational culture is invited to implement these surveys. We have conducted surveys and 1:1 in-depth interviews to all employees and executives to understand the status of our company and set the direction of organizational innovation we will pursue in the future.

Organization Culture Development

Proud Hyosung-er Award

The Proud Hyosung-er Award is awarded every quarter or year to the executives or employees who have achieved outstanding performance contributing to company’s growth and development. Winners are selected in the sectors of marketing, technology, research and management support, and monetary incentives and promotion-related advantages are given as a reward.



[Proud Hyosung-er Award]

Conversation with Top Management

The CEO of Hyosung holds a monthly meeting to directly explain and share the company’s major achievements, issues and policies to executives and team leaders. During the meeting, a Q&A session is prepared where top management members and employees can communicate candidly, thereby strengthening company-wide communication and management transparency.



[Conversation with Top Management]

Company Communication

Internal Bulletin Boards, Blogs and Other External Communication Channels

Hyosung is operating communication boards such as ‘Tong Tong Bulletin Board’(used in real name, 156 posts in 2019) and ‘Wa-gle Wa-gle’(used in nickname, 430 posts in 2019) in its company intranet so that all employees widely share business information and news and exchange their opinions. Tong Tong Bulletin Board serves as a communication platform across entire business units, with communicators from each unit putting posts along with photos to promote business activities. It also facilitates interactive communication by actively responding to the suggestions posted by employees (42 posts in 2019). In addition, by operating Hyosung blog, 'MY FRIEND HYOSUNG', we deliver various news within and outside the company, including major corporate news, social responsibility activities and stories of employees. Furthermore, we also created YouTube and NAVER TV channels for internal and external communication. In recognition of our active company-wide communication, we received the 'Best Organizational Communication Blog Award' in 2018 Korea Communication Awards hosted by Korea Business Communications Association.



Communicator

In order to facilitate cross-departmental communication in PGs and PUs, we are appointing ‘Communicators’ within each business site. At least one employee should be selected as a communicator in each site. Once appointed as a communicator, he or she is responsible for communicating and informing issues of their business site to others after getting proper training related to organizational communication.

Employee Relations

There are labor unions organized in the company. Each business unit transparently discloses management status of the company to its employees through regular briefing sessions or round-table meetings for each management-level. Meanwhile, we operate the Labor-Management Committee at the headquarter as well as at each business site and hold a quarterly meeting to discuss welfare, grievances, health and safety of employees. The received complaints are handled throughout the entire company, and improvement status is constantly monitored.

HR Counseling Center

The HR counseling center is a communication channel to collect and directly deliver employees’ work-related grievances to the executives including various issues such as sexual harassment, embezzlement, and personnel corruption. HR executives directly interview with employees and give them feedback under strict confidentiality. As a result, we manage to lower the turnover rate of our employees by providing them with job change options or consulting solutions.

External Communication Channels



Hyosung Official Facebook Page
<https://www.facebook.com/myfriendhyosung>



Hyosung Official NAVER Post Page
<https://post.naver.com/hyosungpr>



YouTube Channel – Channel 호호
<https://www.youtube.com/채널호호>

SOCIAL CONTRIBUTION

The effect of CSR (corporate social responsibility) activities are maximized when core competency of a company matches with the actual needs from a local community. Corporate social contribution is becoming more competency-oriented and market-oriented. Hyosung operates a communication channel and consultative body to gather a wide range of opinions from local citizens and expert group in order to accurately understand the needs of the community. We are also forming partnerships with NGOs and civic organizations to propel our social contribution more effectively. By expanding the scope of social contribution, we aim to benefit all underprivileged people in the community, strengthen strategic social contribution by closely combining it with our core competencies and business area, and further enhance the sustainability of Hyosung.



Social Contribution System

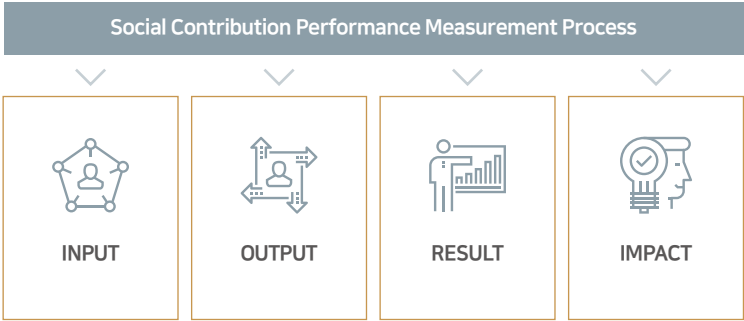
Focus Areas of Our Social Contribution

Hyosung has chosen “We will stand by with you by ‘Sharing’” as the social contribution slogan for to express its commitment to fulfill its role as a member of local community. The main focus of our social contribution consists of three themes, which are supporting vulnerable group, culture and art sponsorship, and supporting patriots and veterans.



Social Contribution Performance Measurement Process

In order to maximize the effectiveness of social contribution activities and propel social contribution activities that meet sharing philosophy and requirements of sustainable initiatives such as UN SDGs, we are operating a process for measuring social contribution performance. We internally evaluate the qualitative and quantitative performance of social contribution activities using the process established through expert consultation. We are enhancing the effectiveness of social contribution activities by sharing the results with stakeholders and eliciting improvements based on the measured results.



Supporting Vulnerable Groups

Smile Expedition in Vietnam

To support the vulnerable group overseas, Hyosung dispatched the ‘Smile Expedition’, the medical group to the Dongnai province near Ho Chi Minh City, Vietnam. The Smile Expedition, a social contribution program with 9 years of history in Hyosung, consisted of 30 members including staffs of the international relief organization, Korean Food for the Hungry International(KFHI), medical team of the Gangnam Severance Hospital and staffs of Hyosung. It has provided free medical treatment and health education for 2,400 local residents. The medical service covered a variety of sections including heart surgery, gynecology, ophthalmology, dentistry as well as health training. In addition, about 150 people including expectant mother in Hyosung business sites and college students in nearby areas were provided with basic gynecological training covering safe contraception methods and knowledge about pregnancy. Elementary school students received anti-cavity treatment and eye examination. A total of 15,000 local residents who were placed in a medical blind spot received high-quality free medical treatment since 2011.

Overseas Child Sponsorship

Through monthly donation by the employees, Hyosung is supporting children residing in underprivileged areas in Vietnam and developing their region. In addition, Hyosung also provides a clean and safe education environment for the children and help children from minority ethnic group learn Vietnamese language by building a library. The fund raised through voluntary donation from our employees is used for the health and education of Vietnamese children, and the company's grant amount is used for development projects for the areas where children live, for classroom expansion, drinking water quality, and awareness activities for parents and teachers.



[Smile Expedition Activities]

Culture and Art Sponsorship

Sponsorship for Theater Company and Producers

Since 2015, we have been donating to Yeonwoo theater company, contributing to the revitalizing creative theater plays in Korea. The funds are used for activities to produce creative plays such as finding and casting new actors and playwriting.

Cultural Heritage Conservation Activities in Changdeokkung Palace

Since 2006, employees of Hyosung have regularly participated in the cultural heritage protection activities of Changdeokkung Palace. In 2019, we organized an event in Changdeokkung Palace with 40 employees and their family members in which we all cleaned a pavilion, Juhabru, in the palace together while strengthening the employee bond as well as contributing to cultural heritage conservation.

Appointment of Cultural Heritage Guardian Company

In October 2018, Hyosung was appointed as a Cultural Heritage Guardian Company through activities such as preservation and maintenance work of national palaces and sponsorship for restoration of traditional interior space. Cultural Heritage Guardian Company is a company that is committed to protecting our national cultural heritage by voluntarily working on their preservation and restoration. Since 2017, we have been working with the Cultural Heritage Administration to help preserve and restore Korea's cultural heritage. We have been carrying out a project to restore lights in Daejojeon Hall and Huijeongdang Hall at Changdeokkung Palace, and participating in volunteer work with employees every year since 2006.

Sponsorship for the Orchestra of Youth with Disabilities

We continue to support the Onnuri Love Chamber, a youth orchestra group with physical and intellectual disabilities. In 2019, KRW 50 million was supported to purchase instruments and provide scholarship. We have assisted growth of the orchestra since 2014 with the continued support and performance opportunities provided. We also invite the members of the Onnuri Love Chamber to a special music class through which they could get direct lesson from orchestra members of the 'Silk Road Ensemble' led by world-renowned cellist Yo-Yo Ma.



[Cultural Heritage Conservation Activities in Changdeokkung Palace]

Certification of Exemplary Institution Supporting Culture and Arts

Since 2015, Hyosung has been certified as an excellent institution supporting culture and arts by the Ministry of Culture, Sports and Tourism of Korea. This certification system has been designed to certify organizations and companies which have set a good example for sponsorship activities in the related fields under the Act on Revitalization of Support for Culture and Arts. Hyosung has been recognized of continued support for culture and arts including funding Yeonwoo theater, sponsoring musical education for children with disabilities and funding the musical show which is aimed to prevent youth violence.

Supporting Patriots and Veterans

Housing Support Project for Veterans

We are trying to improve living condition of veterans of the Korean War and the Vietnam War who are experiencing financial difficulties, by providing repair work for their outdated houses. We have been continuing the support for 7 years since we first raised a funding in 2012. Through this project, we have completed the construction and repair work for 21 households in 2019.

History Field Trips for Senior Veterans

In cooperation with the Southern Seoul Office of Patriots and Veterans Affairs, we supported the elderly veterans to explore historical sites, providing them with opportunities to go out with their family which is usually difficult otherwise. In 2018, we arranged four trips and invited total 190 participants. In 2019, we extended the support and organized total six trips to invite 384 senior participants to the trips.



[Overseas Child Sponsorship Program]

Creating Job Opportunities for Vulnerable Groups

Support for Employment Promotion Program for Women from Vulnerable Group

In lined with the government's initiative of creating more jobs, we are supporting employment for women in career break and middle-aged women. We support the programs which can be practically effective in the long run, not shortsighted low-skill-based programs. In 2019, a total of 42 women participated in vocational training including training for ERP logistics management jobs and children nursing jobs, and 33 of them were employed afterwards. Since 2013, we have had a total of 327 graduates through this project, and 250 of them have managed to find a job.

Support for the Social Enterprise, 'Goodwill Store'

Goodwill Store is a representative social enterprise business model which started in the US and currently operates more than 2,400 stores in 13 countries, including Canada, providing over 100,000 jobs. Goodwill Store sells items donated by companies and individuals at low prices and contributes the subsequent profits to job creation and vocational training for people with disabilities. It also contributes to economic independence of disadvantaged and vulnerable people in the society by hiring them to operate the store. Hyosung is supporting the Goodwill Store run by Together Foundation in Korea. After first branch of Goodwill Store opened in Eunpyeong-gu, Seoul, in November 2013, the second branch was opened in Sevitseom. We will continue item donation and volunteer work with our employees to support them.

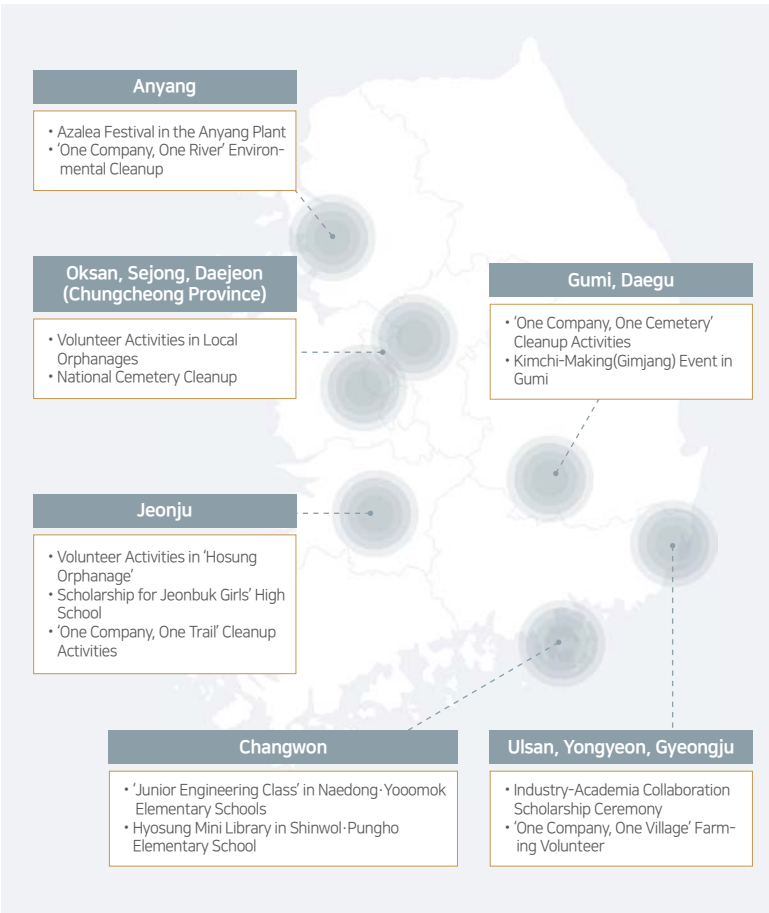
Sponsorship for Eden Welfare Foundation

Since 2014, as part of commitment to creating jobs for people with disabilities, we have supported the Eden Social Welfare Foundation, a social company working on employment for the disabled. We donated unused or malfunctioning computers for their up-cycling project and financed the cost of replacing the machine producing bin bags, for their facility improvement. We also pay attention to the quality of jobs by supporting lamp replacement in plants to create healthier and safer working environment. We have provided a total of 8,226 units of computer equipment until 2019 and are planning to fund and donate the computers in 2020.



[Rehabilitation Treatment for Disabled Children and Support for Non-disabled Siblings]

Social Activities in Our Business Sites



Anyang

■ Azalea Festival in the Anyang Plant

Anyang Plant opens its flower garden to the public so that people can enjoy the blooming azalea in spring. During the 40th Azalea Festival in 2019, various activities took place, including medical check-ups and charity flea market in order to facilitate shared growth with the local community

■ 'One Company, One River' Environmental Cleanup

We regularly clean up neighboring rivers in the region by picking up trash and dirt around the river, contributing to clean environment of local community.

Oksan, Sejong, Daejeon (Chungcheong Province)

■ Volunteer Activities in Local Orphanages

We regularly visit orphanages in the local community our business sites are located in order to improve living condition of the children and support their education. In 2019, we carried out CSR activities in Chungbuk Hyeneung orphanage near the Oksan Plant to enhance convenience of children.

■ National Cemetery Cleanup

The employees working in Chungcheong region visit the National Cemetery in Daejeon on Memorial Day every year to commemorate people who sacrificed to protect the country and clean up their cemetery as volunteer work.

Gumi, Daegu

■ 'One Company, One Cemetery' Cleanup Activities

The employees in Gumi Plant visited Yeongcheon National Cemetery to honor the veterans at Memorial Tower and clean and repair 800 graves of veterans.

■ Kimchi-Making(Gimjang) Event in Gumi

The Kimchi-making(Gimjang) event, in which employees of Gumi Plant participate together, is a representative social contribution activity of Gumi Plant, which has been in its 10th year since 2010. In 2019, we delivered 2,000 heads of kimchi carefully made by our employees to local neighbors in need and social welfare facilities.

Ulsan, Yongyeon, Gyeongju

■ Industry-Academia Collaboration Scholarship Ceremony

We are providing scholarship to the selected students from Ulsan University who have excellent academic performance even under economic difficulties so that they can concentrate on studying with the stable financial support.

■ 'One Company, One Village' Farming Volunteer

We visited Ulsan Joong-go-san village to help their farming work during the farming season, the busiest time of the year for many farmers. Ulsan plant consults with the one company one village coucil to provide necessary support for Joong-go-san village, a sister village of Ulsan plnat since 2005, and supports necessary events and activities such as rice planting, harvesting, as well as throwing a party for the elderly residents in the village.

Changwon

■ 'Junior Engineering Class' in Naedong·Yoomok Elementary Schools

As part of our social contribution, we are providing science class to elementary school students in a presence of our professional research staff at Changwon Plant, as a teacher. Through this program, students learn the principles of Hyosung's flagship products and explore hands-on modelling exercises. Since its launch in 2004, 'Junior Engineering Class' has attracted about 3,000 students so far. In 2019, we arranged the program for students in the 5th to 6th grades in Naedong elementary school to make model hydro-powered cars related to our hydrogen charging station business. In addition, a junior engineering camp was held for 100 students in Yoomok elementary school in Changwon, so that they can interactively experience engineering technology related the fourth industrial revolution.

■ Hyosung Mini Library in Shinwol·Pungho Elementary School

Since 2010, we have donated books to small-sized elementary schools in Changwon region which lack books and bookshelves. Since 2014, we have selected two schools in collaboration with the Changwon Office of Education and donated books and bookshelves worth of KRW 20 million. In 2019, we established Mini Library in two schools, Shinwol and Pungho elementary schools in Masan.

Jeonju

■ Volunteer Activities in 'Hosung Orphanage'

Jeonju Plant organizes regular visits to Hosung orphanage in the region to proceed 'Sharing Volunteer Activities'. In 2019, we have supported replacement costs for old electric appliances and building study rooms, contributing to improving the living condition.

■ Scholarship for Jeonbuk Girls' High School

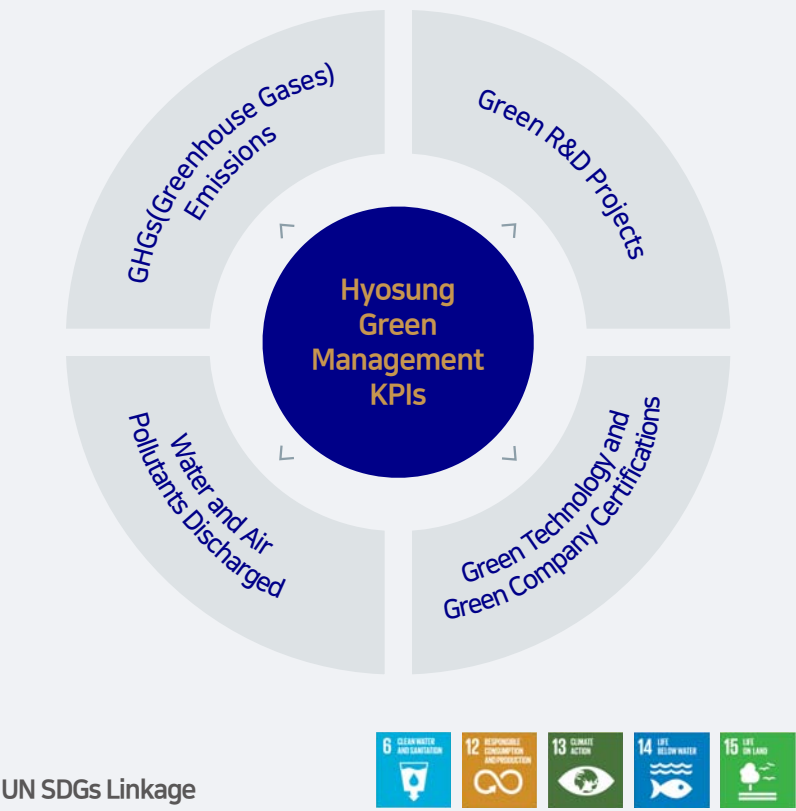
Since 2017, Jeonju Plant has been supporting scholarship to students in difficult economic condition or excellent academic performance in Jeonbuk Girls' High School, contributing to fostering local talents in the region.

■ 'One Company, One Trail' Cleanup Activities

The Jeonju Plant regularly maintains the trail near the Jeonju Plnat which is visited frequently by local residents as well as employees for taking a walk or social gathering. We are conducting environmental cleanup activities so that the citizens can use the space more pleasantly.

GREEN MANAGEMENT

As stakeholders' interest in the environment increases, industries are facing changes in accordance with international environmental agreements and initiatives. in accordance with the green energy policy that has been emphasized since the Paris Agreement took effect, global leading companies are expanding use of renewable energy, and financial organizations are evaluating environmental issues of companies when making important investment decisions. Therefore a company's environmental management capabilities are emphasized more than ever nowadays. From the planning stage of business, Hyosung proactively seek for countermeasures against environmental risk by identifying environmental issues from various stakeholders. And in order to carry out green management systematically, EHS(Environment, Health, Safety) Committee and related organizations are reorganized and specific plans and tasks are set up. The performance is monitored every year. In addition, every year, Hyosung plans and executes investment in facility improvement for energy saving and emissions reduction as well as waste management and pollution prevention.



Green Management System

Green Management Strategies

To realize our green management vision, "Becoming an Eco-friendly Company Leading the Better Life of Humanity," Hyosung has established four strategies: 20.5% of emissions reduction (compared to BAU), business expansion through developing green technologies, environmental corporate culture through green infrastructure within the company, and enhancement of stakeholder trust by disclosing information transparently. In addition, we are deriving detailed action plans to support these strategies and implementing them to realize the goals.

Organization and Activities of the EHS Committee

Hyosung and its operating companies operate the EHS(Environment, Health, Safety) Committee, the highest decision-making body, to effectively review and decide on green management strategies. It is chaired by the CEO, and consists of the heads of each business sites including plants, technical centers, and re-search centers. Professional personnel in the sector of EHS such as the leader of Environment Safety Team and the head of Quality Safety Department also take part as professionals for each sector. Hyosung Advanced Materials operates the Green Management Committee headed by a C-Suite executive under the Sustainability Management Committee instead of the EHS Committee in other operating companies. The committee reviews and resolves issues such as environmental targets and goals, implementation, certifications, company-wide safety inspection, climate change response including environmental risk man-agement and environmental impact mitigation.

Green Management Strategies System

VISION 2030	Becoming an Eco-Friendly Company Leading the Better Life of Humanity			
Strategies	20.5% of emissions reduction by 2030 compared to BAU	Market discovery and business expansion through green technology development	Facilitating eco-friendly corporate culture by establishing green infrastructure at Hyosung	Increasing stakeholder trust through transparent information disclosure
Action Plans	<ul style="list-style-type: none">Obtain offset credits through external reduction projects such as SDM* in accordance with the new climate systemReduce GHGs by expanding energy saving / renewable energy facilitiesEffective GHGs management through corporate carbon asset management systemMinimize financial risk through effective and economic trading of emissions allowance	<ul style="list-style-type: none">Expand eco-friendly clean energy, business in accordance with the growth of hydrogen economyStrengthen business capacity of ESS(Energy Storage System) for energy efficiency in power supply and demandExpand green products such as regen® and MIPAN® regenPursue low-carbon, green growth by leading renewable energy business	<ul style="list-style-type: none">Minimize environmental impact by advancing water/air pollution management systemReduce water consumption by water reuse and decrease waste disposal by recycling resourcesFoster win-win cooperation and shared growth with suppliers such as the 'Energy Companion Project'Reinforce green procurement of goods, services, and tehcnology	<ul style="list-style-type: none">Establish green management system by promoting green technology / entitiy certificationsBuilding stakeholders' trust by participating in CDP** and environmental information disclosure systemExecute energy-saving cooperation projects with local communities at each business siteParticipate in environmental cleanup activities such as 'One Company-One River/Park/Mountain'

* Sustainable Development Mechanism under the Paris Agreement / ** Carbon Disclosure Project

20.5% of Emissions Reductions by 2030 Compared to BAU

Upgrading Greenhouse Gas Management System

Hyosung has established a greenhouse gas(GHGs) management program to systematically manage emissions target and performance by each business site, and has upgraded the existing system in 2019, based on the changed guidelines after spin-off. We manage monthly emissions data in preparation for the ETS(Emission Trading System) system, as well as source-specific emissions data (Scope 1, 2) to effectively respond to third-party verification for the ETS system, CDP (Carbon Disclosure Project), and continued customers’ requests.

Building Awareness for GHGs Reduction

Hyosung shares best practices related to energy saving in each business site to encourage all employees to be committed to reducing greenhouse gas emissions. In addition, each business site establishes detailed action plans and goals for emission reduction so that employees can practice them in day-to-day work.

GHGs Emissions Quality Control & Quality Assurance

The Green Management Team, which is in charge of calculation and reporting of emissions of Hyosung, operates quality assurance of greenhouse gas emissions such as monitoring energy consumption and greenhouse gas emission activities and internal verification of data errors for calculating emissions. The departments in charge of tasks related to greenhouse gas in each business site (Power Control Team, Plant Management Team) are responsible for quality control through collecting, managing, preserving data on GHGs reduction activities as well as meter management and regular inspection (calibration test).



[Photovoltaic Panels]

Greenhouse Gas Emissions Reduction

Hyosung manages all energy usage data at its business sites to derive optimal measures to reduce emissions and increase energy efficiency, and actively conducts activities to mitigate emissions such as enhancing efficiency of production lines, replacing old facilities to high-efficiency ones, use of renewable energy, and shift to low-carbon fuels.

High-efficiency Production Lines

Anyang Plant is controlling unnecessary energy use by attaching a timer to a power outlet to automatically turn off thermo-hydrostat equipment such as the fan coil unit (FCU) and air conditioner at the end of the day. Daejeon plant is saving power by flexible operation of thermo hygrostats in the plant and shortened preparing time of a production to reduce running time of dryers. Ulsan plant is minimizing heat loss from radiation in steam by achieving the efficiency in production process and is saving power usage from replacing aging facilities with high-efficiency ones. Jeonju Plant has reduced 50% of LNG use by optimizing carbon fiber production process. By using idle compressed air of nitrogen generators as low pressure air in the production process, low pressure compressor usage time has been reduced, thus, reducing power required for operation.

Replacement with High-efficiency Facilities and Inverters

Many industrial facilities including pumps, fans, and compressors are usually highly electricity-intensive with low level of energy-efficiency. Hyosung has introduced operation method using high-efficiency or manual inverters for such heavy energy-consuming facilities to achieve higher energy efficiency and less power consumption in order to create a better working environment with lower level of noise and vibration. Moreover, boilers and motors with low energy consumption efficiency were replaced with high-efficiency ones, which not only save energy but also reduce greenhouse gas emissions.



[Waste Heat Steam Pipes]

Replacement with High-efficiency LED Lamps

Hyosung is continuing to reduce power by replacing the existing conventional lamps with LED lamps. Since 2015, about 13,000 lamps at Changwon Plant and 7,000 at Gumi Plant were replaced with LED ones. Our business sites in Ulsan, Daegu, and Yongyeon have also contributed to reducing emissions by using high-efficiency LED lamps.

Solar Photovoltaic Power Generation and Solar Water Heating System

In order to facilitate the use of renewable energy, Hyosung has gradually expanded photovoltaic power facilities installed on the rooftop of its buildings since 2015. The power generated by such process is used in our own business sites, allowing the company to purchase lower power volume and reduce indirect emissions (scope 2). We also produce hot water with solar panels to use it as tap water in the plant.

Use of Steam from Waste Heat

Hyosung is reducing the use of fossil fuels by utilizing the heat generated at waste incineration plants near its business sites as well as processing waste heat at plants of other companies. In addition, economic revenue is also generated by reselling such external waste heat to other companies through steam pipelines.

Replacement with Low-carbon Fuel

Hyosung has been reducing emissions by replacing carbon-intensive B-C oil with LPG and LNG. It has gradually expanded the replacement rate and finally stopped using B-C oil since November 2019. Additionally, we are replacing fossil fuels used in boiler with biogas (methane) generated from the anaerobic digestion process of wastewater treatment facilities in our business sites.



[Wind Power Tower]

Facilitating Eco-friendly Corporate Culture by Establishing Green Infrastructure

#1. Air Quality Improvement

Risk Management regarding the Special Act on Air Quality Improvement

Hyosung provides detailed guidance to each business site to manage legal risk from air quality improvement regulations.

In 2019, educational materials were distributed to each business site regarding the enactment of the subordinate statutes of the Air Control Zone Act, and training sessions were held to introduce related details. In addition, we encourage employees to attend the briefing session on the Air Control Zone Act, held by the Ministry of Environment, so that business sites have the capability to voluntarily comply with the Air Quality Control Area Act.

Air Pollution and Odor Management

Hyosung conducts regular training for field workers to enhance their understanding of air pollutant management and to develop practical skills. We effectively manage air pollution and odors by setting up our own standards for emission of air pollutants that are stricter than the legal standards stipulated by the Korean Ministry of Environment.

Reducing the Emission of Air Pollutants

Hyosung converted B-C oil, a high-sulfur fuel used in factory machinery, power generation, and boilers, into low-sulfur fuels such as LNG and by-product gas (Off-gas, biogas). In addition, we reduce not only air pollutants emitted but also energy consumption by introducing high-efficiency and low-NOx burners and replacing outdated boilers. As the health and safety of the people have been threatened by fine dust, we have voluntarily signed an agreement with the Ministry of Environment on the reduction of fine dust for the improvement of air quility in the local society in preparation for the season of high concentration of fine dust and emergency reduction measures. In addition, we make various efforts to reduce air pollutants by establishing and operating our own standards of emission concentrations that are stricter than legal standards through optimizing the operation of air quality facilities and by conducting real-time monitoring on air pollutant emissions.

#2. Water Management

Reducing the Discharge of Water Pollutants

Hyosung minimizes the discharge of water pollutants by establishing its own internal standards that are much stricter than the legal standards. Regular water quality inspection is conducted to all business sites, and improvement activities such as replacement of aging water pollution prevention facilities are carried out on the sites where something significant is found as a result of the inspection. In addition to the water quality inspection, the company conducts its own analysis of wastewater density and develops emergency countermeasures to remove water pollutants in connection with the production department when highly polluted wastewater is released.

Water Saving

For efficient management of water usage, Hyosung sets a target for water use reduction and operates performance management on this. The water saving performance is reflected in the performance evaluation by each department to motivate them to achieve their goals. At some business sites, we have designated water saving managers, and enhanced employees' awareness by sharing water saving ideas and providing case trainings to executives and employees.

Water Reuse

Hyosung has established and operated water reuse facilities and processes to expand the use of recycled water. Some business sites manage their performance of recycled water use, and excellent business sites are rewarded based on the performance. In the future, we plan to expand rainwater facilities and water recycling facilities in order to establish a sustainable water reuse system.



[Sewage Treatment Facility for Water Reuse]

#3. Waste Management

Waste-related Legal Risk Management

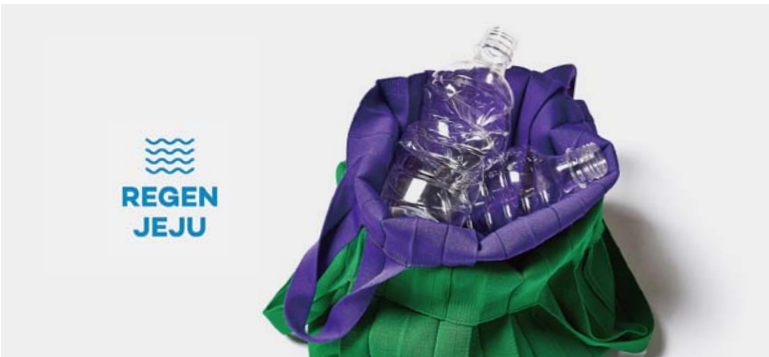
The Green Management Team minimizes legal risks related to waste matter that may occur at the business sites by disseminating the waste-related regulatory information such as Waste Charge System and Extended Producer Responsibility to employees at all business sites of Hyosung.

Waste Management

Hyosung carries out systematic waste management by clearly defining the disposal method according to the waste type at each business site. In addition, we strive to ensure the proper waste management through training on separate waste disposal and regular inspection activities. In order to reduce the amount of waste generated in the production process and minimize environmental impact, we are improving the waste disposal process by taking into account the properties and components of waste, and deriving improvement measures to increase the waste recycling rate.

regen[®]jeju – Waste Recycling Project with Public Organizations

Hyosung is working with the Ministry of Environment and Jeju Island Development Corporation on a waste recycling project. 'Recycle to Be Reborn' is a project to build a resource circulation system in Jeju, and Jeju Island Development Corporation, which produces bottled water, Jeju Samdasoo, collects discarded PET bottles in Jeju Island, and Hyosung makes the recycled fiber, 'regen[®]jeju', using a recycled chips from the waste PET bottles, and then finally a bag manufacturer produces recycled bag as an end product using regen[®]jeju. We can make 1 eco-friendly bag with 16 plastic bottles (500mL). Hyosung will continue to make various efforts to promote waste recycling.



[Regen[®] Jeju Product Photo]

Facilitating Eco-friendly Corporate Culture by Establishing Green Infrastructure

#4. Hazardous Chemical Substance Management

Hazardous Chemical Substances Management System

Hyosung manages all chemical substances used in the workplace through an ERP-based computer system. All purchased materials are investigated to confirm whether they contain chemical substances through the system, and purchases are blocked if they contain chemicals without approval by the chemical manager at each business site. Purchase of materials is only approved when the materials completely comply with the regulations. This is verified through cross checking the materials data provided by the supplier with our SERC DB(a SAP EHS Regulatory Content Database). Through this process, risks that may arise in connection to the relevant laws.

Chemical Substances Management System

In preparation for potential emergencies such as leakage and explosion of chemical substances, we have established an accident response system by setting up networks with related departments and organizations and conducting regular emergency response training for employees. In addition, we have established Comprehensive Measures for Chemical Substance Management based on which dedicated teams are organized along with their responsibilities and roles defined. All business sites treating chemical substances have established a thorough chemical spill response system in which potential travel path of the spill is tracked in advance, a step-by-step prevention plan is established and blocking facilities are installed in the final travel route. We also conduct weekly on-site inspections with a checklist of risk factors related to hazardous chemicals. Our suppliers handling chemicals are required to report their contracts to environmental agencies in accordance with legal procedures.

Chemical Substances Risk Management

The Green Management Team guides the revision of the chemical-related regulations to its business sites so that each business site can be managed according to the latest regulations, and ensures compliance with the regulations by guiding performance reports and updating the DB of chemical substances. The Environment Safety Team carries out regulatory evaluation of chemicals purchased and produced, discharged amount assessment according to relevant laws, statistical investigation of chemicals, and performance reports on hazardous chemicals, and thoroughly manages chemical substances handling facilities in the workplace in accordance with legal standards. In compliance with the revised regulations on registration and evaluation of chemical substances, Hyosung has completed a preliminary report on existing imported chemicals or manufactured

that is more than 1 ton and is currently under registration process through joining joint registration committee after being granted a grace period for registering chemicals according to the amount of manufacture and import.

Impact Assessment and Minimization of External Impact

The business sites treating specific hazardous chemicals over certain amount manage their use of chemicals in accordance with off-site risk assessment. We assess the impact on other businesses, residents and ecosystems near our business sites in the event of a spill, and the reassessment takes place whenever there is a change in the amount of chemicals treated and the treating facilities. In addition, we have established a risk management plan and notify residents and the relevant organizations of the hazards of substances as well as evacuation drills in case of an accident, in an effort to minimize the damage to local communities.

Emergency Scenario Response Training

Hyosung establishes emergency scenario contingency plans and trains all employees every year based on them in order to effectively respond to emergency situations such as leakage of harmful chemicals. Based on the assumption of actual disaster cases, the emergency scenario response training is conducted with the goal of minimizing impact on environment and humans in case of disasters by strengthening emergency response abilities. We protect human lives and raise employees' awareness in safety accidents through the training and work on ensuring safety through prevention, preparedness, response and recovery of emergency situations, mitigating physical and human damage.



[Emergency Scenario Response Training]

Increase stakeholder trust through transparent information disclosure

Environment Management System Certification

Hyosung establishes mid- to long-term environmental goals and detailed annual implementation plans, and conducts internal and external audits every year to check their performance against their goals and derive improvements. We introduced ISO 14001 to systematically identify, evaluate, manage, environmental impacts and to efficiently manage environmental risks. Through ISO 14001 certification, the company discovers and manages environmental issues in a timely manner and conducts internal audits every half year by qualified internal auditors. When it comes to the issues with high risk of accidents, we come up with scenarios in advance and conduct emergency training to minimize any damage in the event of an accident.

Green Technology and Green Enterprise Certifications

Hyosung has developed a number of products which have been approved by green technology certification and environmental labeling, and is striving to obtain the specialized green enterprise certification for each business site. We will continue to expand green technology certification and the specialized green enterprise certification to earn stakeholders' trust in our green management capacity.

Environment Cleanup Campaigns in Each Business Site

Hyosung actively participates in protecting the natural environment near each business site through the 'One Company-One Mountain,' 'One Company-One River,' and 'One Company-One Walking Trail' campaigns. We fulfill our responsibilities as a member of the local community through environment cleanup activities through voluntary participation by our executives and employees.



['One Company-One River' – Environmental Cleanup Activity]

SAFETY AND HEALTH

Hyosung cannot overlook the risk of safety accidents given the fact that its business sites are mostly based on manufacturing plants and industrial sites. In addition, recently, stakeholders are increasingly interested in prevention of disasters and accidents and improvement of working environment. Therefore, leading domestic or international companies are striving to ensure higher level of safety and health than the legal standards. Hyosung considers safety and health to be a key value for the company to pursue and tries to create a system that can prevent accidents preemptively based on basics and principles rather than in the aftermath. To this end, Hyosung has set a goal of a accident-free workplace and implements detailed safety and health activities based on two strategies: workplace and employees’ safety and health.



Safety and Health System

Safety and Health Management System

Hyosung operates a safety and health management system that focuses on safety & health of workplace and employees. We make sure that all business sites at high risk of safety accidents establish a safety and health management system based on manuals, and operate various programs to promote employees’ health. In particular, we have acquired international safety and health certifications such as KOSHA 18001 and ISO 45001. We are resolving risk factors in the workplace and preventing safety accidents in the process of conducting environment and safety assessments (PQ, Pre-qualification) which are required by customers.

Safety and Health Management System

Mission	>	Achieving Accident-free Business Sites			
Strategies	>	Workplace Safety and Health		Employees Safety and Health	
Tasks	>	By Production Process	By Facility	By Task at Work	By Handling Substance
Organizations in Charge	>	Industrial Safety & Health Council, Safety Inspection Committee			

Industrial Safety and Health Council

Hyosung continuously keeps track of safety and health issues that require decision-making through regular meetings of the Industrial Safety and Health Council between labor and management. In particular, by operating the working-level safety and health committee between labor and management to resolve related complaints at the working site in a timely manner, we are building trust between two sides and creating a safe workplace. In addition, we conduct regular labor-management joint inspection involving not only our employees but also supplier companies. In addition, we continue to invest in safety facilities and provide training and education to promote safety awareness.

Safety Inspection Consultative Body

In order to prevent safety accidents and improve the capability of safety management, Hyosung has established the company-wide safety inspection consultative body which consist of the heads of the Safety Environment Teams at each business site to conduct regular safety inspections. The improvements are derived through regular safety inspections in all domestic and overseas business sites, and major safety and health issues are identified based on significance and urgency through meetings of safety and health representatives of in-house supplier companies. In addition, by sharing the best practices and conducting case studies across our business sites.

Safety and Health in the Workplace

Executives-led Company-wide Safety and Health Inspection

Hyosung conducts company-wide workplace safety and health inspections under the supervision of PU Presidents and Plant Managers in order to preemptively cope with workplace accidents that may occur in the production lines. Plant managers, department managers and supervisors carry out safety inspections for key assets within plants, and the status of response in the event of an accident. Also, staffs of the Safety Environment Team and members of the Industrial Safety and Health Council also participate in the inspection to enhance effectiveness. We also check the health status of our employees during vulnerable seasons, such as, heat waves. We strive to prevent accidents and disasters through regular mock training

Facilitating Safety Culture in the Workplace

Hyosung conducts an annual safety culture survey of the management supervisors to identify necessary improvement and reflects the result in the safety management plan. In order to promote employees' safety awareness, we are conducting a joint awareness campaign and a customized workplace campaign using statistics on accidents by each sector. In addition, accident cases which also cover from ours to other companies cases are shared to all plants, and accordingly, preventive measures are established for tasks posing a risk of similar accidents. We are working on improving EHS(Environment, Health and Safety) awareness by delivering monthly notice from the safety health manager through IP TV or corporate newspaper to employees, regularly sharing safety and health issues during executive meetings and providing leaflets to visitors that include safety and health compliance and evacuation tips in case of an emergency. In addition, emergency drills, which cover emergency evacuation, first aid, lifesaving and fire drills, are conducted with related agencies for safe operation of the workplace.

Hands-on Safety Simulation Program

Every quarter, Hyosung conducts various hands-on safety simulation programs, which are involved with falling accidents, safety helmets and confined space. All employees, including the newly recruited, are required to complete hands-on training programs. Experiencing possible real-world incidents during the training, the participants can be more alert and careful about safety risk factors, therefore, preemptively capturing and mitigating safety risks, as well as improve their ability for emergency response.

Workplace Safety and Health

Safety Training Before Work

Hyosung provides regular safety training for on-site technical employees before work. The supervisor delivers safety work procedures and health and safety compliance to the workers based on work standards, potential risk assessment results, as well as accident cases. We effectively utilize this 10-minute on-site training to promote safety awareness of employees.

Accident-free Campaign

Hyosung has been implementing the Accident-free Campaign since 2013, through which all employees voluntarily participate in health and safety activities and establish a prevention-oriented safety and health process. We calculate target number of 'accident-free' days in each department and team and strive to achieve the targets through self-control safety management by team members along with the supervisor in charge, and incentives are provided depending on the number of days if they successfully achieve the target.



[Regular Safety and Health Inspection of Business Sites Hosted by Top Management]

Self-control Safety and Health Management Activities by Each Department

In cooperation with the Safety Environment Team, each operational department selects a safety and health inspection theme suitable for its condition and characteristics, and finds risk factors through self-control safety inspection and carries out improvement activities. In addition, when a safety accident occurs, the head of the corresponding department immediately reports the details of the accident in accordance with the manual and establishes fundamental safety measures under the supervision of the responsible plant manager. In addition, we prevent similar accidents by sharing details and safety measures about the accident with other plants and business unit.

Preliminary Safety and Environmental Review System

Hyosung operates a preliminary safety and environment review system to prevent accidents and comply with regulations. In addition to changes in existing processes, facilities, utilities, and chemicals, we include review items such as on-site work safety for workers in business trip or dispatched workers, as well as changes in work standards. Related safety and environment reviews are reflected in the manuals or checklists of the design review process for each item so that safety can be secured at the stage of product design. In addition, we minimize work inefficiency by enabling IT system(HOPE, internal approval system) to manage the process of safety and environment review.



[Self-control Safety and Health Management Activities of Business Sites]

Win-win Cooperation Activities with Suppliers

Hyosung provides the same level of safety training to supplier companies in order to improve their self-control safety management capabilities and awareness. We also carry out activities such as high-risk workplace focus management and support for potential risk assessment. We share changes in regulations, major issues of safety and health, and cases of internal and external safety accidents during monthly meetings with safety and health representatives from supplier companies, and provide technical support for vulnerable areas through supplier safety and health evaluation every half year. If a violation of the regulations occurs during the safety inspection, a warning notice is issued, and the work is immediately stopped to prevent safety accidents. We are making efforts to prevent safety accidents of our suppliers through such diverse support activities.

Fire Fighting Facilities Improvement

Hyosung is improving its fire fighting facilities to prevent fires and explosions and minimize spread and casualties in the event of a fire. Since 2013, we have continuously invested in the improvements of fire fighting facilities and have completed the improvements such as replacement of fire detectors, replacement and stabilization of old fire lines, installation of special fire detectors and intelligent analog detectors, and establishment of an integrated fire monitoring system.



[Preliminary Safety and Environmental Review]

RESEARCH AND DEVELOPMENT

As the development of the industry is advanced, the importance of developing high-quality and high-value-added technologies is growing since there is a limit to enhancing competitiveness by upscaling the size. In addition, due to the widening scope of innovation and the increasing complexity of technology, companies' R&D strategies are evolving from closure to openness, making the technological boundaries being dissolved. It is time to successfully converge technologies to keep up with the latest R&D trends. Hyosung is speeding up R&D innovation by establishing the Production Technology Center for the convergence of research and production organizations. We have also established the Vision 2025 Roadmap to systematically enhance our R&D capabilities. In this way, Hyosung can secure a stable position in the market by developing high-tech technologies and improving product quality in preparation for a knowledge-based competition in the future.



R&D Organizational System

R&D Committee

R&D Committee is an company-wide committee with the attendance of CEOs, COOs, representatives of each operating company, heads of PG/PU, executives and team leaders to discuss the R&D status of major items of each operating company and reflect customers' requirements in R&D strategies in timely manner. The R&D Committee is held twice per year, and during the committee, an overall direction for R&D activities are established and the opinions of related departments are comprehensively reviewed, including sales, marketing, development and research to set up R&D strategies.

R&D organization

The R&D organization in Hyosung is developing its capabilities through its experience, passion, and constant challenges in differentiated global technologies. It mainly consists of four organizations, which are Hyosung R&DB Labs, Power & Industrial Systems R&D Center, Steel Wire Technical Center and Technology R&D Center, mainly contributing to the development of world-class products in various sectors, including spandex, tire cord, carbon fiber, polyketone, STATCOM, and ESS for energy saving.

Production Technology Center

The Production Technology Center was established in 2019 with the aim of strengthening technical competence as well as fostering experts in core technologies by linking Hyosung R&DB Labs and main production plants to collaborate. In order to minimize errors and improve efficiency in applying R&D results to the production line, the Production Technology Center is in charge of reviewing facilities for production technology, as well as preparing measures for applying new technologies according to process simulation and design/condition changes. Professionals from different fields and organizations, including Hyosung R&DB Labs and production units in each sector, are mutually improving their capabilities by throwing training in their respective fields. In the future, we will invite outside experts to hold seminars and lectures to supplement technical capabilities, and we will continue to secure high-level professionals in preparation for further expansion of production lines.

Internal Technology Exchange Meetings

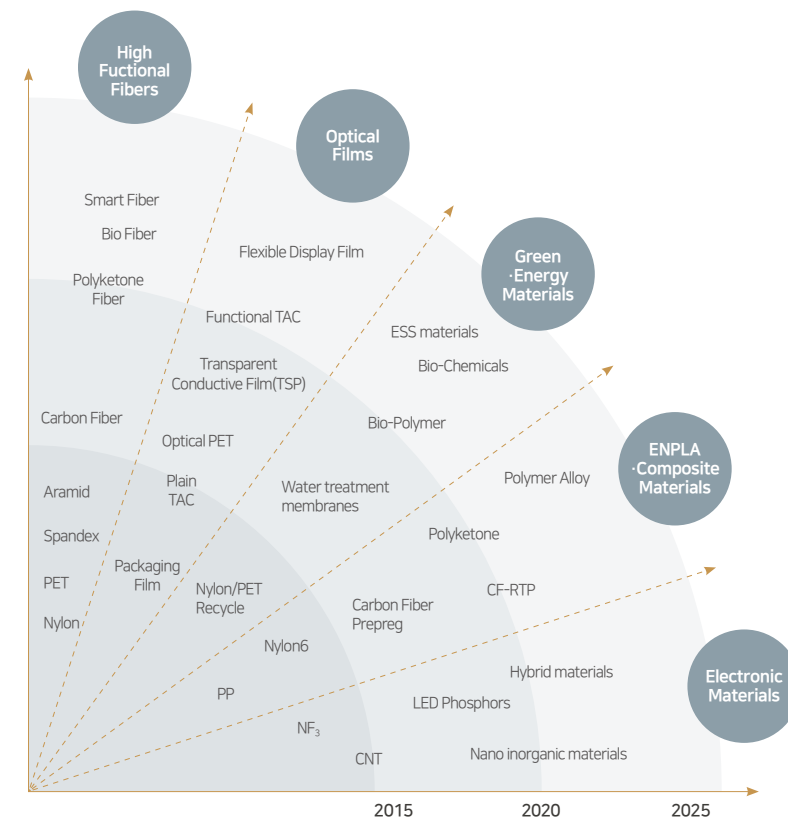
In order to increase our R&D competence and efficiency, we are actively promoting technology exchange among relevant departments. We regularly operate base technology task force teams to acquire core base technologies and internalize research capacity, and effectively tackle research challenges by facilitating technology convergence corporate culture through Brainstorming Breakthrough Meetings and Tech. Cross Meetings.

Hyosung R&DB Labs

Hyosung R&DB Labs is the first R&D center affiliated with a corporation with a history of 48 years. Based on its research technology in the synthetic fiber field, which was the driving force behind Korea's industrial growth in the 1970s, it has been gradually expanding its research area to include chemical materials, products, and new materials. It consists of 5 major research groups, including textile research group, polymerization research group, electronic materials research group, film research group, and functional materials research group, and focuses on 10 core technologies such as polymerization and synthesis technology. In addition, we are striving to establish R&D culture based on VIU (Value in Use), secure and foster excellent research personnel so that we can continuously innovate logical and theoretical research paradigms to improve research efficiency.

Vision 2025 Roadmap of Hyosung R&DB Labs

Hyosung R&DB Labs has set up Vision 2025 as the Technological Leader, forging the future with its global level technology and secured future growth engines based on the five new product axes.



INFORMATION SECURITY

As business and information technologies change, information security issues are continuously changing as well. In order to effectively respond to changes in information security issues, companies must ensure robust information security systems. In particular, it is important to understand the flow of information in the course of business and to pinpoint where information security risks can occur, especially considering intangible and shareable nature of information itself. To be prepared for information security risks caused by cyber terrorism or internal data leakage, Hyosung established information security regulations and operating standards as well as organized an organizational system to inspect such risks. In addition, we are conducting various activities to prevent leakage of important information by reviewing the security log and installing multifunction printers with security solutions attached.



UN SDGs Linkage



Information Security System

Regulations and Operating Standards for Information Security

Hyosung established information security regulations and operating standards in 2016 for purpose of protecting important information and data assets held by the company and creating an environment to use data safely. The scope of the information security regulations is extended to cover visitors, trainees, temporary employees, and contract-related personnel. In addition, the sector of management has been divided into 9 parts to support enforcement of information security regulations and thorough security awareness.

Information Security Management Area

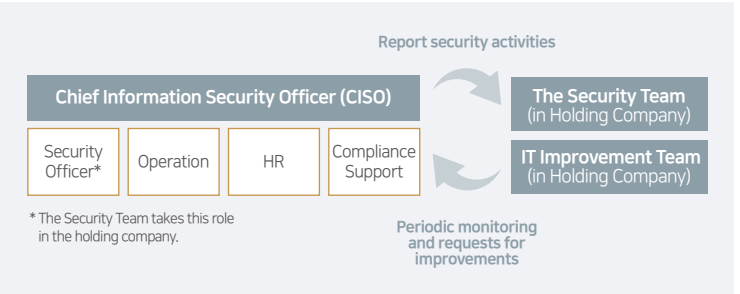
The areas of work in the information security sector are classified into security management, monitoring, and security discipline. Operational standards have been established and implemented for each area. In case of security discipline, findings of security breaches revealed from audit team and the security team's regular and irregular audits are referred to the Disciplinary Committee. Then, the disciplinary actions are decided through the audit process and the necessary corrective procedures are carried out accordingly.

Category	Operational Standards	Details
Security Management	Personnel Security	• Employees security • External personnel security • Data protection training and awareness building
	Physical Security	• Physical security plans and control
	Business Continuity	• Establishing/operating business continuity plans
	Security Accident Response	• Security accident response system
	Personal Data Protection	• Personal data protection principles • Persona data processing standards
	Information Asset Management	• Roles and responsibilities per each information asset • Management of internal information
Monitoring	Compliance Inspection	• Regular inspection on security logs • Data protection compliance inspection
	IT Infra Security Management	• Authentication and access management • Internet and network security management • Server security management • Application security management • DB security management • Security equipment and security solution • PC security management • Mobile security management
Security Discipline	Reward/penalties Standards	• Security discipline procedure and standards • Level of security discipline

Information Security Organization

In order to achieve the objectives of information security, each organization of Hyosung is managed under the guidance and supervision of the Chief Information Security Officer (CISO). In addition, the IT Improvement Team, the HR team, the Operation Team, and the Compliance Support Team are conducting support activities for information security by disseminating security policies to the entire company and checking regulatory compliance. The Security Team of the holding company is responsible for regular monitoring, risk management, and ad hoc requests at the group level. The information protection manager and the security manager of each company perform the management and monitoring of the company's information security activities, report the results to the Security Team which evaluate them and deliver proper countermeasures.

Information Security Organizational Structure



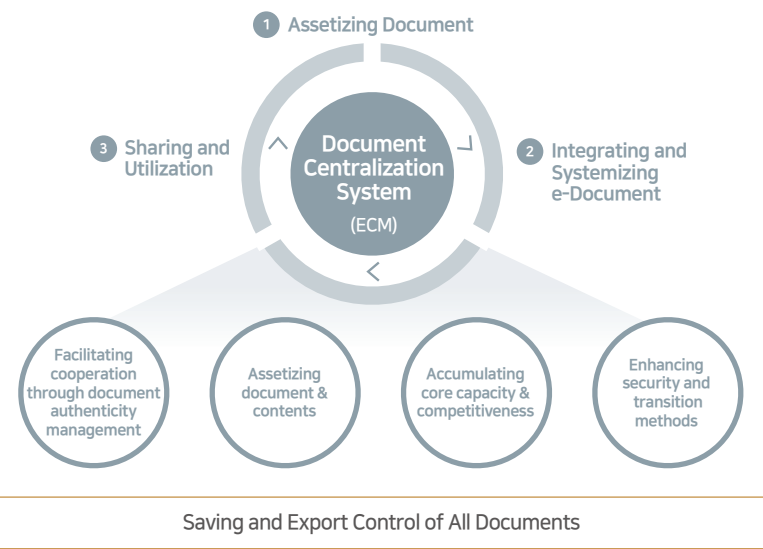
Roles & Responsibility of Information Security Organization

Security Organization	Roles and Responsibilities
CISO (Chief Information Security Officer)	• General guidance and supervision of information protection • Supervision of implementation of information security activities
Security Team (Security Manager)	• Information security planning and implementation • Security training and inspection of business companies and workplaces • Responding to the legal requirements of privacy issues
IT Improvement Team	• Review and execute IT security policies • Investment in security equipment, security solutions, and budget execution
HR Team	• Review and implement HR security policies • Collection of information security pledges
General Affairs Team	• Review and implement physical security policies • Manage protected zones and information asset transfer
Compliance Support Team	• Legal review and support of data protection activities

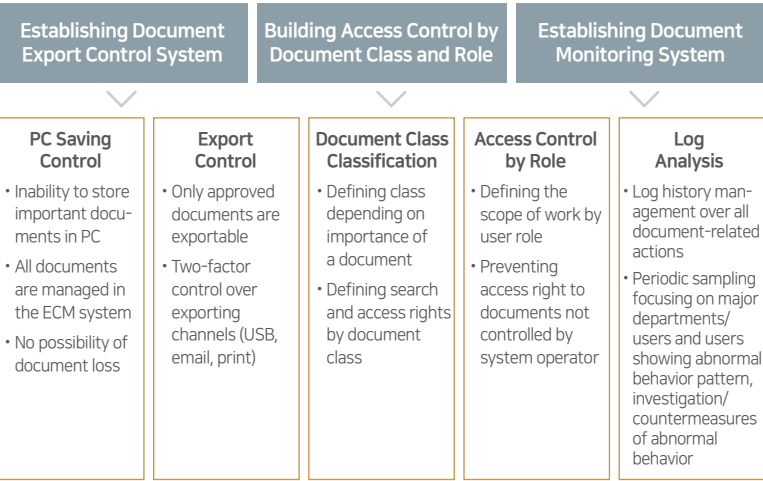
Major Information Security Activities

Document Centralization System (ECM)

Hyosung introduced the centralized document management system in 2019 in order to ensure fast data retrieval time and low restrictions in document sharing as well as to prevent data leakage in the process of document distribution.



We strengthen document security and reduce the possibility of information loss and leakage by establishing a robust control system over document export, storage to user PCs, and document distribution. Entire lifecycle of a document is managed through the system, and importing and sharing activities of documents are centrally controlled and monitored by the system.



Compliance with Document Management Regulations

Based on the regulations for the creation, processing, preservation, and control of documents, Hyosung sets the retention period according to type of document and guides the department in charge to discard the expired documents. We are establishing regulations to prevent data leakage in the document destruction process. Modification and storage of important documents that require high level of security is possible only in the document centralization system, and only approved documents can be exported or shared.

Information Security Activities

Hyosung conducts monitoring and inspection activities to detect and preemptively take actions on possible internal and external breaches. Each business company manages the security logs of employees on a weekly basis, and the security team of the holding company conducts a risk assessment on monitoring results from each business company and takes additional measures if necessary. We also manage security-related risks across the company by delivering corrective measures through regular inspection in each sector. For protection of data provided by third parties as well as employees, Hyosung is mandatorily encrypting the data when data is stored in the server and applying the database access control program to prevent external intrusion.

Details of Information Security Activities

Category	Description	Activity Counts in 2019
Security logs management	CISO finally checks the details of external mails received, offsite download, and use of external storage media (USB, etc.) after confirmation of team leader.	52 times (Weekly)
Information leakage solution	Perform a regular inspection of mail/media sent outside the company that can leak information (E.g. Google Cloud)	227 times (daily)
Business continuity training	Conduct regular simulation training according to scenarios of an information security accident	1 time/year
IT vulnerability inspection	Inspect key websites and infrastructure equipment for information security vulnerabilities	1 time/year
Business site vulnerability inspection	Visit each business site to check the status of information security	1 time/year
Security control	Personnel from third-party security company are stationed to monitor external attacks such as hacking	Scheduled to operate in 2020
Spear-phishing detection	Set keywords related to spear-phishing and monitor mail history	Scheduled to operate in 2020
Inspection of entrusted organizations	If personal data is entrusted to an outside company, inspect the consignee for the status of personal data protection	Scheduled to operate in 2020

Personal Data Expiry System

Hyosung sets an expiry period for personal data that is not used for a certain period of time in order not to keep unnecessary personal information, and destroys the data on expiration date. When we destroy personal information, We make sure there is no problem in other systems in connection with the data destruction. We also inform our stakeholders of their personal information destruction before expiry date so that we can earn their trust in our information security system.

Strengthening Information Security Awareness

Information Security Pledge

Hyosung is promoting awareness of information security by obligating new employees and retiring employees to sign a pledge for information protection. We also request external employees their pledge of information protection when there is a joint project with other companies or business partners.

Information Security Accident Prevention Activities

To prevent information security accidents, Hyosung conducts preemptive monitoring including monitoring on security logs and computer system, inspection on workplace security status, as well as scenario-based response training to accidents. Through such activities, we effectively manage information security risks that may occur inside and outside the company.

Information Security Training

Every year, Hyosung conducts information security training for employees both online and offline, including awareness of information breaches, personal data protection including customer data, and sharing data breach cases, to enhance security awareness continuously. Online training is provided to all employees once a year, and offline training is conducted once a year separately to the information security staffs. In addition, we inform employees of relevant regulatory updates and notifications through e-mail and company bulletin boards, and improve accessibility to related education sources by creating pop-up windows once a day announcing information security notice when entering Groupware platform.

Information Security Training Program Cycl

- ✓ Announcement via email / company-wide bulletin board - Constantly
- ✓ Pop-ups in Groupware - Daily
- ✓ Offline training for security staffs - Yearly
- ✓ Online training for all employees - Yearly

Sustainability Performance

Hyosung Corporation	58
Hyosung TNC	64
Hyosung Heavy Industries	71
Hyosung Advanced Materials	79
Hyosung Chemical	88

HYOSUNG

CORPORATION

Economic Performance

Hyosung has been stably creating economic value every year, which is distributed to various stakeholders such as customers, local communities, suppliers, executives, shareholders, investors and the government. Through such creation and distribution of economic value, we are moving forward to sustainable growth.

Financial Statements (Consolidated)

Unit: KRW 1 million

Category	2017	2018	2019
i .Current assets	4,630,981	1,379,400	1,312,040
Cash and cash equivalents	501,133	341,208	189,328
Trade and other current receivables	2,013,676	464,296	403,089
Inventories	1,679,932	498,426	573,742
Other current assets	436,241	75,471	145,881
ii .Non-current assets	9,903,997	5,028,505	5,215,015
Long-term trade and other non-current receivables	313,040	54,216	48,054
Tangible assets	5,663,176	947,976	918,325
Investments in properties	550,217	145,644	300,262
Intangible assets	318,130	162,328	160,511
Investments for affiliates and related companies	117,238	1,242,027	1,280,661
Other non-current assets	2,942,197	2,476,315	2,507,202
Total assets	14,534,979	6,407,905	6,527,055
i .Current liabilities	7,601,179	2,247,871	2,238,402
Trade and other current payables	2,073,792	471,129	431,206
Borrowings	4,916,997	1,571,441	1,513,215
Other current liabilities	610,391	205,301	293,981
ii .Non-current liabilities	3,070,518	1,457,887	1,578,411
Long-term trade and other non-current payables	400,492	220,786	206,091
Long-term borrowings	2,345,089	942,926	988,378
Other non-current liabilities	324,936	294,174	383,942
Total liabilities	10,671,697	3,705,758	3,816,813
[Capital stock]	175,587	105,355	105,355
[Retained earnings]	3,143,153	6,353,427	6,336,611
[Other components of equity]	334,776	(4,016,139)	(4,001,579)
[Non-controlling interest]	209,765	259,504	269,855
Total capital	3,863,282	2,702,147	2,710,242

Consolidated Statements of Comprehensive Income

Unit: KRW 1 million

Category	2017	2018	2019
Sales	8,509,950	3,002,480	3,373,447
Cost of sales	7,362,130	2,552,511	2,828,597
Gross profit	1,147,820	449,969	544,850
SG&A	636,745	277,358	289,819
R&D expenses	95,650	17,654	18,203
Operating income	415,425	154,957	236,828
Other gains	235,239	447,090	13,169
Other loss	299,792	25,704	20,956
Finance income	306,454	50,250	40,505
Finance expenses	307,613	83,193	68,861
Profit before tax	285,263	567,234	200,685
Income tax expense	(30,804)	103,167	50,676
Net profit	316,067	3,425,977	150,009
Other comprehensive gain(loss)	(13,429)	(83,591)	(3,904)
Total comprehensive gain(loss)	302,638	3,342,385	146,105

• We have completed the personnel division of Hyosung and four operating companies in June 1, 2018, and please note that the criteria for financial statements are different before and after the split.

Social Performance

Hyosung is increasing the recruitment of the socially underprivileged groups, such as the disabled and the veterans, and is increasing the rate of labor union membership in order to promote communication between labor and management and to guarantee employees’ rights. In addition, we are increasing training hours and training investment costs per person to support the capacity building of executives and employees, and also gradually increasing the amount of CSR investment for the mutual growth with the local community.

Employees Status

As of the end of 2019, Hyosung has 587 employees in total. The company seeks for stability of employment by minimizing the number of indefinite-term contract workers and non-regular workers, and actively engages in hiring minorities such as women, the disabled, and high school graduates.

Category	Subcategory	Unit	Hyosung Corporation		
			2017	2018	2019
Total employees		Persons	8,144	634	587
Gender	Male	Persons	7,313	525	478
	Female	Persons	831	109	109
Employment type	Permanent (male)	Persons	7,120	502	459
	Permanent (female)	Persons	768	103	93
	Subtotal	Persons	7,888	605	552
	Temporary (Male)	Persons	193	23	19
	Temporary (Female)	Persons	63	6	16
	Subtotal	Persons	256	29	35
Region	Domestic	Persons	7,789	586	587
	Overseas	Persons	355	48	27
Job category(based on permanent employment)	Office work	Persons	5,085	560	497
	Manufacturing	Persons	2,803	74	55
Fostering female human resource	Female employees ratio	%	10.2	17.2	18.6
	Number of female at manager-level or higher	Persons	143	50	45
	Female managers ratio (Number of female managers divided by number of total managers)	%	5.2	13.0	12.8
Diversity	Disabled	Persons	126	6	8
	Veterans	Persons	37	2	2
	Foreigners	Persons	28	6	5
	Subtotal	Persons	191	14	15
Creating job opportunities (the newly employed)	Male	Persons	483	8	37
	Female	Persons	121	4	15
	Subtotal	Persons	604	12	52
Employees who left (only counting the permanent employees who voluntarily quit)	Male	Persons	327	187	29
	Female	Persons	72	44	12
	Subtotal	Persons	399	231	41
Turnover rate		%	5.06	38.18	7.43

Maternity Leave and Childcare Leave

We operate a maternity and childcare leave system to help female employees develop their careers and to balance work and family. We also encourage male employees to use childcare leave, keeping up with the changes in awareness of childcare. We are promoting the system by allowing all applicants to use the childcare leave.

Category	Subcategory	Unit	Hyosung Corporation		
			2017	2018	2019
Male(maternity leave)	Employees under maternity leave	Persons	92	66	13
	Returning rate from maternity leave	%	100	100	100
Female(maternity leave)	Employees under maternity leave	Persons	75	23	4
	Returning rate from maternity leave	%	100	100	100
Male(childcare leave)	Employees under childcare leave	Persons	17	24	3
	Returning rate from childcare leave	%	100	100	100
	Rate of working more than 12 months after return	%	82	88	100
Female(childcare leave)	Employees under childcare leave	Persons	54	24	6
	Returning rate from childcare leave	%	98	100	100
	Rate of working more than 12 months after return	%	79	83	75

Regular Performance Evaluation Status

Hyosung operates a capability-based fair performance management system to emphasize performance and capacity elements across overall personnel management, such as evaluation, promotion, and transfer, and to prevent corruption and further create a sound organizational culture.

Category	Unit	Hyosung Corporation		
		2017	2018	2019
Number of employees subject to performance evaluation	Persons	7,804	600	552
Performance evaluation rate	%	96	93	94

• The figures above (Total employees / Gender / Employment types / Region – Domestic / Job category / Fostering female human resource / Diversity / Creating job opportunities / Employees who left) have been based on full-time regular employees and contract-based temporary employees in domestic business sites.

• Overseas employees (Region – Overseas) denotes expatriate employees who have been dispatched to overseas business sites.

Labor Union Membership Status

We operate labor unions by each business site, and each business site transparently discloses the company's management status to field workers through regular business briefing sessions and multi-layer meetings. In addition, we have established the Labor-management Council in the headquarter office and each business site and hold quarterly meetings to discuss welfare, grievances, health and safety issues. Complaints and grievances received are managed in the company-wide system and are continuously kept track of improvement status.

Category	Unit	Hyosung Corporation		
		2017	2018	2019
Employees covered by collective agreements	Persons	2,878	74	60
Number of union workers	Persons	1,705	48	47
Rate of union workers	%	59.2	64.9	78.3

Retirement Pension

Hyosung operates both DB-type and DC-type retirement pension systems to ensure the employees' freedom of choice and complies with the related legal standards.

Category	Unit	Hyosung Corporation		
		2017	2018	2019
Total operating fund for retirement pension (DB+DC)	KRW 1 million	361,384	74,165	79,745
Operating fund of DB pension	KRW 1 million	357,678	73,746	79,322
Operating fund of DC pension	KRW 1 million	3,706	419	423
Total number of members	Persons	8,029	670	606
Number of DB pension members (Persons)	Persons	7,247	602	529
Number of DC pension members (Persons)	Persons	782	68	77

Basic Wage and Remuneration

Hyosung pays new employees 1.7 times more than the legal minimum wage to guarantee their welfare and increase their motivation to work.

Category		Unit	Hyosung Corporation		
			2017	2018	2019
Basic salary for entry-level		KRW 1,000	3,117	3,118	3,272
Rate of entry-level salary to local minimum wage by law (%)	Male	%	214.8	184.6	174.7
	Female	%	214.8	184.6	174.7
Average basic salary		KRW 1,000	4,481	4,645	4,921

Employees Training Status

Hyosung conducts training for developing employees' capabilities, and both training hours and the cost of training investment per person have increased compared to 2018. The Hyosung R&DB Labs, the Power & Industrial Systems R&D Center, and the Production Technology Center have their own R&D training system and conduct in-house training, technical exchange and joint research with domestic and foreign specialized research institutes and leading universities to strengthen expertise of researchers.

• Data prior to 2018, which is before the transition to the holding company system, differs from the number of employees in Hyosung Corporation in 2019.

Category		Unit	Hyosung Corporation		
			2017	2018	2019
Number of training participants	Accumulated number of training participants during the year	Persons	201,750	78,079	9,792
Total training expenses	Total training expenses including costs paid to external institutions and other administrative costs	KRW 1,000	4,139,236	4,259,986	432,019
Total training hours	Required training by law and training registered in Hyosung Training System	Hours	513,141	226,383	32,577
Average training hours per person (Total training hours/ total number of employees)		Hours	63.01	28.52	55.50
Average training expenses per person (Total training expenses / total number of employees)		KRW	508,256	536,590	735,978

Category	Unit	㈜효성
		2019
Total number of participants in Environment training	Persons	118
Total number of participants in Ethics and anti-corruption training	Persons	1
Total number of participants in Fair trade training	Persons	14
Total number of participants in Safety and health training	Persons	1,652
Total number of participants in Human rights training (preventing harassment)	Persons	1,006
Total number of participants in Information security training	Persons	931

CSR Status

Hyosung has been continuously increasing its investment in social contribution. The total investment cost for social contribution was KRW 3,071 million in 2019, which increased by KRW 184 million from 2018.

Category	Unit	Hyosung Corporation		
		2017	2018	2019
CSR investment	KRW 1 million	2,364	2,887	3,071
CSR programs	Programs	37	46	46
Employees participating in CSR programs	Persons	5,773	5,704	5,631
Total CSR participating hours of employees	Hours	23,092	22,816	22,524
CSR participating hours per employee	Hours/person	4	4	4

Major CSR Activities

Since 2013, we have been continuing volunteer work at Seongmin Daycare Center (currently Janggunbong Daycare Center) which takes care of disabled children. Our employees and the children have built close relationship for a long time through various monthly activities together. In 2019, we accompanied them to broadcasting station, picnic at Yeouido, and indoor zoo tour, and Santa Clause events for Christmas, which gave them joy and opportunities to build sociality. Also, we held joint events with disabled and non-disabled children. In recognition of its contribution to the community, Hyosung has been selected as the outstanding company for contribution to local society by the recommendation of the Kyunghyang Welfare Foundation, the parent institution of the daycare center.

Environment and Safety Performance

Hyosung is reducing its energy use and greenhouse gases(GHGs) emissions in order to proceed as an environment-conscious company. In addition, we are reducing the amount of water usage such as waterworks and industrial water, and we have reduced wastewater discharge based on our own established standards that are stricter than the legal criteria for discharge. We are strengthening green management infrastructure by expanding green investment and purchase.

Energy Consumption

In 2019, Hyosung reduced consumption of both direct energy such as diesel, kerosene, LNG, and gasoline, and indirect energy such as electricity and steam, leading to about 4% reduction rate in total consumption amount compared to the previous year.

Category	Subcategory	Unit	Hyosung Corporation		
			2017	2018	2019
Direct energy consumption	Diesel	TJ	37.87	0.94	0.83
	Kerosene	TJ	0.64	0.12	0.06
	LNG	TJ	2,095.49	205.10	188.30
	Gasoline	TJ	12.66	6.10	5.76
	Propane	TJ	813.68	0.86	0.88
	B-C oil	TJ	337.08	-	-
	Off-gas	TJ	4,816.94	-	-
	LPG	TJ	4.77	-	-
	Biogas	TJ	21.52	-	-
	Subtotal	TJ	8,140.65	213.13	195.83
Direct energy consumption	Electricity	TJ	22,903.97	488.72	476.01
	Steam	TJ	1,140.15	10.96	9.60
	Process waste heat	TJ	-	-	-
	Waste incinerated heat	TJ	1,043.23	-	-
	Subtotal	TJ	25,087.35	499.68	485.61
Total		TJ	33,228.00	712.81	681.44
Energy intensity		TJ/ KRW 100 million	0.608	0.184	0.199

• By 2018, Hyosung Corporation has reported GHGs emissions and energy usage, including four divided operating companies. And in November 2019, the emission rights and obligations have been succeeded to each operating company in accordance with the GHGs-related laws.In the process of transfer of rights, the amount of energy use and emissions have been partially changed from the figures reported in 2018 Hyosung Sustainability Report. (The total sum of energy use and emissions remain unchanged.)

• Since energy consumption and emissions are based on domestic business sites, the intensity was also calculated using domestic sales.

Greenhouse gases(GHGs) Emissions

Through various efforts to reduce GHGs emissions, Hyosung has achieved a decrease in both direct and indirect emissions compared to 2018.

Category	Subcategory	Unit	Hyosung Corporation		
			2017	2018	2019
Direct GHG emissions (Scope 1)	Fixed combustion	tCO ₂ eq	408,187	10,479	9,610
	Mobile combustion	tCO ₂ eq	3,911	463	446
	Process emissions	tCO ₂ eq	27,330	-	-
	Waste disposal	tCO ₂ eq	1,498	-	-
	Subtotal	tCO ₂ eq	440,926	10,942	10,056
Indirect GHG emissions (Scope 2)	Electricity	tCO ₂ eq	1,112,394	23,736	23,119
	Steam	tCO ₂ eq	15,861	393	339
	Subtotal	tCO ₂ eq	1,128,255	24,129	23,458
GHG emissions intensity		tCO ₂ eq/ KRW 1 million	0.287	0.090	0.098

• The figures of emissions correspond to the information submitted to the Ministry of Environment for conformity assessment in 2019.

Energy Saving and Emissions Reduction Performance

Hyosung has established and implemented investment plans such as replacement of high-efficiency facilities and installation of inverters to practice environmental management, resulting in energy savings at each plant and reduction of GHGs emissions.

Business Site	Project Name	Execution Date	Hyosung Corporation		
			Budget (KRW 1 million)	Energy Saving Amount (kWh/year)	Emissions Reduction Amount (tCO ₂ eq/year)
Anyang	Installation of DC#1,2,3 Main Motor Inverter	2018.12	42	189,216	88
Anyang	Replacement with High-efficiency Cooler Oil-free Inverter Turbo Cooler 500RT	2019.01	180	1,095,000	511
Anyang	Small-scale Inverter Screw Compressor	2019.06	95	324,120	151

Water Resources Management Status

Hyosung is reducing water use by each source such as waterworks and industrial water. Total water usage in 2019 amounted to 650,000 tons, which decreased by 13% from 2018.

Category	Subcategory	Unit	Hyosung Corporation		
			2017	2018	2019
Water consumption by source of water	Waterworks	Tons	218,924	99,009	83,997
	Groundwater	Tons	101,409	-	-
	Industrial water	Tons	18,725,355	650,720	566,910
Total water consumption		Tons	19,045,687	749,729	650,907
Amount of recycled water		Tons	6,363,409	143,158	-
Water recycling rate		%	33.4	19.1	-

Wastewater and Water Treatment Status

At Hyosung's Anyang Plant, general water pollutants and priority toxic pollutants are inspected by an external specialized agency four times a month and once in a quarter, respectively. In addition, we strictly control the water quality by establishing our own standards of water pollutants release within 30% of the legal criteria.

Category	Unit	Hyosung Corporation		
		2017	2018	2019
Wastewater discharge amount	Tons	4,531,289.45	160,113.00	126,609.00
BOD	Tons	6,570.72	1.12	0.30
COD	Tons	19,543.75	2.80	1.15
SS	Tons	7,590.60	2.29	3.27
T-N	Tons	7,049.45	2.72	0.63
T-P	Tons	592.85	0.02	0.01

Waste Disposal Status

Hyosung's Anyang Plant reduces wastes by processing defect chips and yarns generated in the production process in a form that can be sold as a recycled product to resell them to recycling enterprises.

Category	Subcategory	Unit	Hyosung Corporation		
			2017	2018	2019
Industrial waste (general)	Recycled	Tons	27,287.0	742.6	992.0
	Incineration	Tons	3,117.1	-	-
	Landfill	Tons	4,064.0	52.5	25.1
	Others	Tons	17,654.1	-	-
	Subtotal	Tons	52,122.2	795.2	1,017.1
Industrial waste (designated)	Recycled	Tons	3,449.4	119.3	50.4
	Incineration	Tons	1,228.7	-	-
	Landfill	Tons	20.6	-	-
	Others	Tons	5,000.4	-	-
	Subtotal	Tons	9,699.1	119.3	50.4
Total waste		Tons	61,821.2	914.4	1,067.4
Amount of recycled waste		Tons	30,736.4	861.9	1,042.3
Waste recycling rate		%	49.7	94.3	97.6

Air Pollutants Emissions

Hyosung's Anyang Plant has established its own internal standard for discharging air pollutants, which is 20% of the legal standards for air pollutants such as NOx and SOx. If the amount is found to exceed the internal standards after regular monitoring, improvement measures, such as facility replacement, are immediately carried out to minimize air polluting impact.

Category	Subcategory	Unit	Hyosung Corporation		
			2017	2018	2019
General air pollutants	Nitrogen oxides (NOx)	Tons	494.3	8.2	12.2
	Sulfur oxides (SOx)	Tons	132.9	-	-
	Particulate matter (PM)	Tons	454.4	-	-
Ozone depleting substances	CFC(R-11)	Tons	500	-	-
	HCFC(R-123)	Tons	-	-	-
	HCFC(R-22)	Tons	550	-	-

Hazardous Chemicals Management Status

Hyosung has not been using hazardous chemicals since its transition to a holding company system in 2018.

Category	Unit	Hyosung Corporation		
		2017	2018	2019
Hazardous substances usage amount	Tons	316,070	-	-
Basic unit of hazardous substances usage amount	Tons/KRW 1 million	0.05592	-	-

• Since hazardous substance usage amount is based on domestic business sites, the basic unit was calculated using domestic sales.

Purchase Performance of Green Products and Services

Hyosung follows the green purchasing policy, and Anyang plant continues to practice it with different products including bio-PET, LED, and fire extinguishers.

Category	Unit	Hyosung Corporation		
		2017	2018	2019
Purchase	KRW 1,000	88,114	109,741	97,688

Environmental Investment

Hyosung practices green management through continuous environmental investments such as waste treatment, environmental restoration, and prevention of pollution.

Category	Unit	Hyosung Corporation		
		2017	2018	2019
Waste treatment and environment restoration expenses	KRW 1,000	4,842,741	181,479	164,380
Pollution prevention and environmental management expenses	KRW 1,000	4,607,788	105,100	107,063
Total	KRW 1,000	9,450,529	286,579	271,443

Environmental Cleanup Activities

Executives and employees of Hyosung Anyang Plant carry out environmental cleanup activities alternately at Anyangcheon Stream and Hogye Park every month. Through these monthly cleanup activities, we contribute to improving water quality and ecosystem in our local community.

Occupational Accident Rate

Hyosung is making efforts to create a safe workplace, and occupational fatality has not occurred for the last three consecutive years.

Category	Unit	Hyosung Corporation		
		2017	2018	2019
Total number of occupational accidents : Accidental disaster + Occupational disease	Persons	29	-	1
Occupational accident rate : Total number of occupational accidents / Total number of employees x 100	%	0.36	-	0.17
Number of work-related fatalities	Persons	-	-	-
Work-related fatality rate per ten thousand employees : Number of work-related fatalities / Total number of employees x 10,000	‰	-	-	-

HYOSUNG TNC

Economic Performance

Since its split from Hyosung in 2018, Hyosung TNC has been generating profits based on its robust business capabilities. Based on the research technology of synthetic fiber, which was the driving force of the country's industrial growth, we are expanding our research field to chemical raw materials, products, and new materials. We possess a number of patented technologies based on the continued R&D investments.

Financial Statements (Consolidated)

Unit: KRW 1 million

Category	2018	2019
i .Current assets	1,428,058	1,470,103
Cash and cash equivalents	84,735	89,365
Trade and other current receivables	772,215	821,326
Inventories	517,314	524,232
Other current assets	53,795	35,180
ii .Non-current assets	1,710,786	1,754,204
Long-term trade and other non-current receivables	8,975	11,168
Tangible assets	1,439,547	1,470,073
Investments in properties	125,520	124,523
Intangible assets	75,915	91,950
Other non-current financial assets	37,953	32,173
Other non-current assets	22,876	24,317
Total assets	3,138,844	3,224,307
i .Current liabilities	1,994,630	2,074,422
Trade and other current payables	643,245	626,878
Borrowings	1,324,975	1,381,779
Other current liabilities	26,410	65,765
ii .Non-current liabilities	657,313	566,931
Long-term trade and other non-current payables	26,439	31,161
Long-term borrowings	573,687	451,545
Other non-current liabilities	57,188	84,225
Total liabilities	2,651,943	2,641,353
[Capital stock]	21,638	21,638
[Retained earnings]	18,973	102,735
[Other components of equity]	363,056	364,584
[Non-controlling interest]	83,234	93,996
Total capital	486,901	582,953

Consolidated Statements of Comprehensive Income

Unit: KRW 1 million

Category	2018	2019
Sales	3,359,086	5,983,145
Cost of sales	3,103,320	5,419,332
Gross profit	255,766	563,813
SG&A	123,368	227,192
R&D expenses	7,345	13,708
Operating income	125,052	322,913
Other gains	16,903	31,333
Other loss	14,947	27,983
Finance income	54,538	113,780
Finance expenses	133,078	209,965
Profit before tax	48,468	230,078
Income tax expense	16,969	108,056
Net profit	31,498	122,022
Other comprehensive gain(loss)	(18,851)	(1,366)
Total comprehensive gain(loss)	12,648	120,656

Major R&D Activities

Based on its long-standing expertise in polymerization, spinning, drawing, and post-processing, Hyosung TNC is leading high value-added textile technologies including spandex and differentiated high-function nylon/PET yarns, and striving to develop new products and processes and commercialize them at early stage.

■ Development of Polymerization Method for High-Function Bonded Nylon Thread

The NYPET Polymerization Research Team of the Hyosung R&DB Labs developed polymers for bonded nylon thread boasting high quality and low cost with its own technology. Bonded nylon thread usually has a feature of melting and gluing at low temperatures, and has recently been used in non-woven shoes. Hyosung TNC has secured a technological edge in the competition with latecomers by developing a polymerization method that has a low melting point but has a high strength and low shrinkage rate in line with the market trend.

■ Development of Automotive Low-blackness Dope Dyed Yarn

The NYPET Yarn Research Tem has developed a low-blackness dope dyed yarn for automobiles, providing the customers with differentiated value in terms of price and quality. While existing automotive yarn was manufactured through dyeing process that uses a large amount of dyes, this product allows customers to use less dyes and save production costs, further contributing to environment.

R&D Expenses

Hyosung TNC invests steadily in R&D every year to ensure sustainable technological competitiveness.

Category	Unit	Hyosung TNC		
		2018(Actual)	2019(Plan)	2019(Actual)
R&D expenses	KRW 1 million	7,345	9,921	13,708

Patent Registration and Application

Hyosung TNC registers patents for its own technology every year to secure its intellectual property rights and use them as KPIs for performance management.

Category	Unit	Hyosung TNC		
		2017	2018	2019
Patent registration(accumulated)	Cases	701	714	726
Patent application(accumulated)	Cases	1,416	1,438	1,463

Suppliers Status

Hyosung TNC is maintaining a stable supply chain by changing its scope of management to major suppliers in 2019 and is supporting sustainable growth of the suppliers.

Category	Unit	Hyosung TNC	
		2018	2019
Number of suppliers	Companies	2,679	200
Total purchase from suppliers	KRW 1 million	1,244,608	656,666

Social Performance

Hyosung TNC is a large company with more than 1,500 employees and has a high sense of responsibility for the corporate social contribution. 127 new employees were hired in line with job creation initiative for the local community. Moreover, in order to promote women’s active social engagement, we are increasing the proportion of female employees and female managers. In addition, we are increasing training hours and training investment costs per employee to develop their capabilities.

Employees Status

As of the end of 2019, Hyosung TNC has 1,537 employees with about 12% of contract-based workers, employing the majority as regular employees. In addition, we are increasing the proportion of female employees and female managers in order to encourage them to stand out actively in the social activities.

Category	Subcategory	Unit	Hyosung TNC	
			2018	2019
Total employees		Persons	1,657	1,537
Gender	Male	Persons	1,389	1,237
	Female	Persons	268	300
Employment type	Permanent (male)	Persons	1,281	1,129
	Permanent (female)	Persons	226	228
	Subtotal	Persons	1,507	1,357
	Temporary (Male)	Persons	108	108
	Temporary (Female)	Persons	42	72
	Subtotal	Persons	150	180
Region	Domestic	Persons	1,518	1,537
	Overseas	Persons	139	168
Job category (based on permanent employment)	Office work	Persons	877	760
	Manufacturing	Persons	630	597
Fostering female human resource	Female employees ratio	%	16.2	19.5
	Number of female at manager-level or higher	Persons	26	33
	Female managers ratio (Number of female managers divided by number of total managers)	%	6.3	10.4
Diversity	Disabled	Persons	16	18
	Veterans	Persons	18	7
	Foreigners	Persons	4	3
	Subtotal	Persons	38	28
Creating job opportunities (the newly employed)	Male	Persons	85	72
	Female	Persons	27	55
	Subtotal	Persons	112	127
Employees who left (only counting the permanent employees who voluntarily quit)	Male	Persons	52	78
	Female	Persons	38	42
	Subtotal	Persons	90	120
Turnover rate		%	5.97	8.84

Maternity Leave and Childcare Leave

Hyosung TNC encourages maternity and childcare leave to balance work and life for female employees. As of the end of 2019, the return rate after childcare leave was found to be 100%. We plan to increase the proportion of male employees using childcare leave with constant support and encouragement.

Category	Subcategory	Unit	Hyosung TNC	
			2018	2019
Male(maternity leave)	Employees under maternity leave	Persons	-	23
	Returning rate from maternity leave	%	-	100
Female(maternity leave)	Employees under maternity leave	Persons	5	14
	Returning rate from maternity leave	%	100	100
Male(childcare leave)	Employees under childcare leave	Persons	-	1
	Returning rate from childcare leave	%	-	100
	Rate of working more than 12 months after return	%	-	100
Female(childcare leave)	Employees under childcare leave	Persons	6	14
	Returning rate from childcare leave	%	-	100
	Rate of working more than 12 months after return	%	-	63

Regular Performance Evaluation

As of the end of 2019, Hyosung TNC conducted a regular performance evaluation of 1,357 employees, or 88% of the total 1,537 employees. We have established a fair evaluation system, covering most of our employees in the evaluation system.

Category	Unit	Hyosung TNC	
		2018	2019
Number of employees subject to performance evaluation	Persons	1,505	1,357
Performance evaluation rate	%	91	88

• The figures above (Total employees / Gender / Employment types / Region – Domestic / Job category / Fostering female human resource / Diversity / Creating job opportunities / Employees who left) have been based on full-time regular employees and contract-based temporary employees in domestic business sites.
• Overseas employees (Region – Overseas) denotes expatriate employees who have been dispatched to overseas business sites.

Labor Union Membership Status

Besides the Hyosung Labor Union, the Hyosung TNC Democratic Labor Union, the Hyosung TNC Gumi Factory Labor Union, and the Hyosung Polyester Labor Union are operating currently. Each business site transparently discloses the corporate management status to the employees through regular management briefing sessions and multi-layer meetings. In addition, we have established the Labor-management Council in the headquarter office and each business site and hold quarterly meetings to discuss welfare, grievances, health and safety issues. Complaints and grievances received are managed in the company-wide system and are continuously kept track of improvement status.

Category	Unit	Hyosung TNC	
		2018	2019
Employees covered by collective agreements	Persons	629	603
Number of union workers	Persons	269	507
Rate of union workers	%	42.8	84.1

Retirement Pension

Hyosung TNC operates both DB-type and DC-type retirement pension systems to ensure the employees' freedom of choice and complies with the related legal standards.

Category	Unit	Hyosung TNC	
		2018	2019
Total operating fund for retirement pension (DB+DC)	KRW 1 million	65,338	80,624
Operating fund of DB pension	KRW 1 million	64,415	79,061
Operating fund of DC pension	KRW 1 million	923	1,563
Total number of members	Persons	1,653	1,719
Number of DB pension members (Persons)	Persons	1,365	1,417
Number of DC pension members (Persons)	Persons	288	302

Basic Wage and Remuneration

Hyosung TNC pays new employees 1.7 times more than the legal minimum wage to guarantee their welfare and increase their motivation to work.

Category		Unit	Hyosung TNC	
			2018	2019
Basic salary for entry-level		KRW 1,000	3,118	3,272
Rate of entry-level salary to local minimum wage by law (%)	Male	%	184.6	174.7
	Female	%	184.6	174.7
Average basic salary		KRW 1,000	4,777	4,513

Employees Training Status

Hyosung TNC provides training for developing employees' capabilities, and both training hours and the cost of training investment per person have increased compared to 2018.

Category		Unit	Hyosung TNC	
			2018	2019
Number of training participants	Accumulated number of training participants during the year	Persons	14,408	23,046
Total training expenses	Total training expenses including costs paid to external institutions and other administrative costs	KRW 1,000	346,577	1,127,321
Total training hours	Required training by law and training registered in Hyosung Training System	Hours	48,044	55,847
Average training hours per person (Total training hours/ total number of employees)		Hours	28.99	36.33
Average training expenses per person (Total training expenses / total number of employees)		KRW 1	209,159	733,456

Category	Unit	Hyosung TNC
		2019
Total number of participants in Environment training	Persons	1,592
Total number of participants in Ethics and anti-corruption training	Persons	6
Total number of participants in Fair trade training	Persons	13
Total number of participants in Safety and health training	Persons	5,576
ToTotal number of participants in Human rights training (preventing harassment)	Persons	3,270
Total number of participants in Information security training	Persons	1,342

Vocational Training for Employees

Hyosung TNC has delivered a series of tailor-made vocational trainings taught by in-house instructors and experts in the industry. For example, we have conducted Creora School for the Spandex PU, region-based market development and product program for the Chemical PU, and technology seminar for Gumi Plant.

[Creora School at Spandex PU]

	All	
	Experienced new employees	Local employees
	New employees	
Advanced	• Differentiated product training (Advanced: Mechanism) • Introduction to the latest trend	
User Guide	• Spandex production process and properties (Advanced) • Differentiated product training (Medium: user guide) • Trouble shooting	• Understanding of spandex and textile properties (Advanced) • Differentiated product training (Medium: user guide) • VIU (Value Use) Training
	• Understanding of spandex and textile properties (Basic) • Differentiated product training (Basic: Type-specific characteristics) • Education of product application (e.g. tricot, knit, covering, D&F, diaper, etc.) • Market characteristics (domestic, overseas, Diaper, etc.)	

[Regional Market Development and Customer Product Training at Chemical PU]

✓ Regional seminar
Overseas corporation/branch managers conducts seminars for each region/culture
✓ Customer product training by external specialists
Customer product training and market training by specialists affiliated with universities/research center/ customer companies
✓ Presentation on market research for main products
Monthly market research meeting for major product

Non-face-to-face COVID-19 Training

Hyosung TNC delivered the two courses of basic job training and pre- and post-dispatch expatriate trainings through a non-face-to-face method, considering the spread of COVID-19. Various job training sessions will also be prepared and delivered non-face-to-face in the second half of the year.

Major CSR Activities

Hyosung TNC is supporting rehabilitation treatment for disabled children in cooperation with the Purme Foundation. We focus on rehabilitation treatment for disabled children in underprivileged condition, and since 2014, support has been expanded to include non-disabled children in blind spots of welfare. In 2019, we prepared a picnic program for siblings of the disabled children and visited a mud field at Baekmiri Village in Hwaseong, Gyeonggi-do province. In addition, we invited their families and our employees’ families for a field trip. Being recognized for its dedication, Hyosung TNC was selected as the outstanding company for contribution to local society in 2019.

Environmental and Safety Performance

Hyosung TNC increased energy efficiency by replacing aging facilities at Ulsan Plant in 2019, and is working with the Production Department to reduce various pollutants generated during the process. And we build eco-friendly infrastructure with continuous investment in waste management, pollution prevention, and environment restoration.

Energy Consumption

Hyosung TNC's Ulsan plant has saved energy by replacing five aging motors with new ones in 2019.

Category	Subcategory	Unit	Hyosung TNC	
			2018	2019
Direct energy consumption	Diesel	TJ	6.92	7.83
	Kerosene	TJ	0.37	0.42
	LNG	TJ	869.73	959.01
	Gasoline	TJ	1.87	1.75
	Propane	TJ	749.98	778.03
	B-C oil	TJ	147.49	26.79
	Off-gas	TJ	-	-
	LPG	TJ	2.92	1.11
	Biogas	TJ	24.13	32.54
	Subtotal	TJ	1,803.40	1,807.48
Indirect energy consumption	Electricity	TJ	6,084.17	5,666.91
	Steam	TJ	864.87	796.62
	Process waste heat	TJ	-	-
	Waste incinerated heat	TJ	454.08	409.58
	Subtotal	TJ	7,403.11	6,873.11
Total		TJ	9,206.52	8,680.59
Energy intensity		TJ/KRW 100 million	0.793	0.657

• By 2018, Hyosung Corporation has reported GHGs emissions and energy usage, including four divided operating companies. And in November 2019, the emission rights and obligations have been succeeded to each operating company in accordance with the GHGs-related laws. In the process of transfer of rights, the amount of energy use and emissions have been partially changed from the figures reported in 2018 Hyosung Sustainability Report. (The total sum of energy use and emissions remain unchanged.)

• Since energy consumption and emissions are based on domestic business sites, the intensity was calculated using domestic sales excluding sales from trade.

Greenhouse gases(GHGs) Emissions

Through a variety of activities to reduce GHGs emissions, Hyosung TNC has achieved a decrease in both direct and indirect emissions compared to 2018.

Category	Subcategory	Unit	Hyosung TNC	
			2018	2019
Direct GHG emissions (Scope 1)	Fixed combustion	tCO ₂ eq	98,471	95,792
	Mobile combustion	tCO ₂ eq	777	734
	Process emissions	tCO ₂ eq	-	-
	Waste disposal	tCO ₂ eq	2,254	4,102
	Subtotal	tCO ₂ eq	101,502	100,628
Indirect GHG emissions (Scope 2)	Electricity	tCO ₂ eq	295,494	275,229
	Steam	tCO ₂ eq	9,630	9,477
	Subtotal	tCO ₂ eq	305,124	284,706
GHG emissions intensity		tCO ₂ eq/KRW 1 million	0.350	0.292

• The figures of emissions correspond to the information submitted to the Ministry of Environment for conformity assessment in 2019.

Energy Saving and Emissions Reduction Performance

Hyosung TNC has established and executed different investment plans, such as replacement with high-efficiency facilities and LED lights, to reduce emissions while saving energy at its business sites.

Business Site	Project Name	Execution Date	Hyosung TNC		
			Budget (KRW 1 million)	Energy Saving Amount (kWh/year)	Emissions Reduction Amount (tCO ₂ eq/year)
Ulsan	Extruder BL Motor (BL Motor → Induction Motor)	2017.06	330	551,880	257
Daegu	Inspection Light Improvement	2017.03	6	9,712	5
Daegu	LED Light Replacement	2018.03	14.91	46,116	22

Use of Renewable Energy

Hyosung TNC receives waste incineration heat, a renewable energy source, from the waste incineration plant near its business sites, and uses biogas generated from the water treatment process at its production plant to operate boilers.

Business site	Energy Type	Unit	Hyosung TNC	
			2018	2019
Gumi	Waste energy	GJ/year	351,908	338,793
Gumi	Bio energy	GJ/year	7,888	8,993
Ulsan	Bio energy	GJ/year	16,239	23,546
Daegu	Waste energy	GJ/year	102,172	70,786

Water Resources Management Status

Hyosung TNC's Ulsan plant minimizes unnecessary water use through close cooperation with the production process. The water used in the production process is collected to the emergency reservoir in the plant for reuse for cooling.

Category	Subcategory	Unit	Hyosung TNC	
			2018	2019
Water consumption by source of water	Waterworks	Tons	78,696	79,892
	Groundwater	Tons	-	-
	Industrial water	Tons	6,822,981	7,573,653
Total water consumption		Tons	6,901,677	7,653,545
Amount of recycled water		Tons	3,941,960	2,920,091
Water recycling rate		%	57.1	38.2

Wastewater and Water Treatment Status

Hyosung TNC's Ulsan plant conducts water quality inspection every half year by an external specialized agency, covering all items of priority toxic pollutants, which have recently become a big social issue. We minimize damage to the environment of local community by identifying the released pollutants in advance through periodic water quality analysis. Also, the Gumi plant releases wastewater to the sewage treatment plant after minimizing the concentration of water pollutants through wastewater treatment plant and the wastewater prevention facility.

Category	Unit	Hyosung TNC	
		2018	2019
Wastewater discharge amount	Tons	1,413.015.00	1,235,251.00
BOD	Tons	3.89	3.01
COD	Tons	37.30	30.31
SS	Tons	6.99	5.23
T-N	Tons	18.96	9.45
T-P	Tons	0.55	0.25

Waste Disposal Status

Hyosung TNC's Ulsan plant has recycled more than 90% of wastewater sludge in 2019. We also plan to reduce the amount of wastewater sludge by 50% or more by installing a high-efficiency dehydrator in 2020.

Category	Subcategory	Unit	Hyosung TNC	
			2018	2019
Industrial waste (General)	Recycled	Tons	14,120.7	13,532.6
	Incineration	Tons	2,232.1	1,643.8
	Landfill	Tons	2,385.0	745.4
	Subtotal	Tons	18,737.8	15,950.8
Industrial waste (designated)	Recycled	Tons	8,584.5	7,619.1
	Incineration	Tons	956.1	1,028.2
	Landfill	Tons	8.2	2.0
	Subtotal	Tons	9,549	8,649
Total waste		Tons	28,286.6	24,600.1
Amount of recycled waste		Tons	22,705.2	21,180.7
Waste recycling rate		%	80.3	86.1

Air Pollutants Emissions

Hyosung TNC's Ulsan plant is improving the efficiency of pollutant treatment by replacing aging air pollution prevention facilities. In addition, we changed the fuel used in boilers from bunker C oil to a clean type of fuel, LNG, and replaced the burner used in boilers with low-NOx ones to reduce air pollutants emitted such as NOx and SOx. In a voluntary agreement for fine dusts reduction with the local government of Ulsan, we have been carrying out detailed tasks accordingly. The Gumi plant purifies pollutants initially through the absorption method by scrubber for exhaust gases generated during the spandex refining process, and then injects the exhaust gas into an oil-heating boiler for incineration. Through this process, we can minimize odor and pollutants emitted in the air.

Category	Subcategory	Unit	Hyosung TNC	
			2018	2019
General air pollutants	Nitrogen oxides (NOx)	Tons	71.2	62.3
	Sulfur oxides (SOx)	Tons	5.4	6.2
	Particulate matter (PM)	Tons	8.2	4.7
Ozone depleting substances	CFC(R-11)	Tons	-	4.8
	HCFC(R-123)	Tons	-	-
	HCFC(R-22)	Tons	-	2.5

Hazardous Chemicals Management Status

In 2019, Hyosung TNC's Gumi plant provided safety training for 931 employees including supplier companies to prevent chemical accidents and promote safety awareness. Also, we replaced the existing chemical storage cabinets with solvent cabinets to comply with the chemical regulations. In order to prevent leakage of toxic chemicals while transporting raw materials from tanker trucks to storage tanks, speed bumps and trenches have been established.

Category	Unit	Hyosung TNC	
		2018	2019
Hazardous substances usage amount	Tons	6,983	8,375
Basic unit of hazardous substances usage amount	Tons/KRW 1 million	0.00602	0.00634

• Since hazardous substance usage amount is based on domestic business sites, the basic unit was calculated using domestic sales excluding sales from trade.

Sales and Purchase Performance of Green Products and Services

Hyosung TNC follows the green purchasing policy and practices green management by selling and purchasing green products and services. In 2019, we sold KRW 23 billion worth green products and services, and purchased KRW 450 million.

Category	Unit	Hyosung TNC		
		2017	2018	2019
Sale	KRW 1,000	4,120,538	10,622,738	23,053,885
Purchase	KRW 1,000	407,047	142,620	451,028

Environmental Investment

Hyosung TNC practices green management through continuous environmental investments such as waste treatment, environmental restoration, and pollution prevention.

Category	Unit	Hyosung TNC	
		2018	2019
Waste treatment and environment restoration expenses	KRW 1,000	1,980,377	1,321,367
Pollution prevention and environmental management expenses	KRW 1,000	340,000	459,650
Total	KRW 1,000	2,320,377	1,781,017

Environmental Performance Management

At Hyosung TNC's Ulsan plant, major environmental items such as water quality management, waste management, air quality management, and chemical substance management, have been included in KPIs, and monthly reports are prepared to check whether the performance goal has been achieved.

Environmental Cleanup Activities

All employees of Hyosung TNC's Ulsan plant carry out environmental cleanup activities such as monthly garbage collection at the Taehwa National Garden in Ulsan as part of the company's environmental campaign, 'One Company, One River.'

Occupational Accident Rate

Hyosung TNC manages its occupational accident rate at a very low level promoting safe working environment, achieving zero occupational accident and death case in 2019. Occupational fatality has not occurred for the last two consecutive years in Hyosung TNC.

Category	Unit	Hyosung TNC	
		2018	2019
Total number of occupational accidents : Accidental disaster + Occupational disease	Persons	1	-
Occupational accident rate : Total number of occupational accidents / Total number of employees x 100	%	0.06	-
Number of work-related fatalities	Persons	-	-
Work-related fatality rate per ten thousand employees : Number of work-related fatalities / Total number of employees x 10,000	‰	-	-

Hearing Preservation Program

Hyosung TNC carries out a hearing preservation program for workers including supplier company who are exposed to the noise exceeding certain standard (90dB) in their working environment and for those who are diagnosed with symptoms of noise-induced hearing loss. Under the guidance from a specialized third-party organization, the auditory adhesion test is conducted individually, and proper hearing protection devices are selected. Also, we are trying to minimize the disease related to workplace noise by providing hearing protectors along with relevant training.



HYOSUNG HEAVY INDUSTRIES

Economic Performance

Hyosung Heavy Industries has stably created economic value since its split from Hyosung Group in 2018. In 2019, the company achieved total sales of KRW 3.78 trillion and net profit of KRW 16 billion, and it has established a virtuous economic cycle by allocating the economic value generated to stakeholders.

Financial Statements (Consolidated)

Unit: KRW 1 million

Category	2018	2019
i .Current assets	1,492,635	1,579,014
Cash and cash equivalents	40,977	38,216
Trade and other current receivables	772,662	811,512
Inventories	332,744	306,018
Other current assets	346,251	423,268
ii .Non-current assets	1,939,876	2,421,816
Long-term trade and other non-current receivables	484,725	513,376
Tangible assets	1,077,627	1,077,233
Investments in properties	143,815	568,109
Intangible assets	12,727	160,600
Other non-current financial assets	155,195	46,684
Other non-current assets	65,787	55,814
Total assets	3,432,511	4,000,830
i .Current liabilities	1,999,317	2,116,804
Trade and other current payables	814,935	684,688
Borrowings	746,739	965,109
Other current liabilities	437,644	467,007
ii .Non-current liabilities	528,483	893,529
Long-term trade and other non-current payables	125,457	238,988
Long-term borrowings	314,057	467,145
Other non-current liabilities	88,969	187,396
Total liabilities	2,527,800	3,010,333
[Capital stock]	46,623	46,623
[Retained earnings]	(3,639)	(1,611)
[Other components of equity]	861,533	863,231
[Non-controlling interest]	194	82,254
Total capital	904,711	990,497

Consolidated Statements of Comprehensive Income

Unit: KRW 1 million

Category	2018	2019
Sales	2,180,485	3,781,445
Cost of sales	1,941,278	3,388,813
Gross profit	239,206	392,632
SG&A	160,102	227,407
R&D expenses	29,109	34,973
Operating income	49,996	130,252
Other gains	31,563	16,273
Other loss	35,430	22,077
Finance income	37,239	75,222
Finance expenses	79,654	143,750
Profit before tax	3,714	55,920
Income tax expense	1,805	39,898
Net profit	1,909	16,022
Other comprehensive gain(loss)	(16,946)	(10,451)
Total comprehensive gain(loss)	(15,037)	5,571

• The company has completed the personnel division from Hyosung Corporation in June 1, 2018, and please note that the timeframe of the financial statement for 2018 is from June to December 2018 (7 months).

Major R&D Activities

The Power & Industrial Systems R&D Center operates DR (Design Review) process to support the development of innovative products and technologies, and establishes mid- to long-term technology development strategies for major products in the working group. We mainly develop innovative products such as new transmission technologies and DC grid, and innovative technologies in a variety of subjects including power electronics, system analysis and control, heat flow, vibration, noise, and reliability. To strengthen the expertise of R&D personnel, we provide training programs in the Global Technology Expert (GTE) system and actively participate in external technical cooperation activities.

■ Mid- to Long-term R&D Strategy

Each Heavy Industries PG establishes strategies for each core product in cooperation with relevant departments including Planning, Sales, Development and Research by analyzing trends related to markets, products, technologies and competitors, in a mid- to long-term perspective. Based on the established strategy, the company derives the next year's management plans and R&D tasks.

■ HULab(Hyosung University Lab)

We jointly plan and participate in governmental research projects. In addition, we run industry-university support programs and secure outstanding human resource by providing talented participants with fast-track job opportunities in Hyosung Heavy Industries right after their graduation. Throughout this HULab system, we have established a cooperative model to co-prosper with universities, and in 2019, we have operated HULab with a total of 29 universities.

■ Train R&D experts

In order to strengthen expertise of our R&D personnel, the Power & Industrial Systems R&D Center conducts technical exchanges and joint research with domestic and foreign research institutes and leading universities. We also train and educate our researchers to gain global competitiveness through our own education system, GTE (Global Technology Expert).

■ Design Review (DR) Process

DR Process refers to a project-monitoring and decision-making system which runs across the entire process of a research project from planning to commercializing and helps evaluate and determine status (e.g. change, stop, continue) of each project stage. In this way, we can manage risks derived from research outcomes and prevent potential problems and issues. Hyosung Power and Industrial Systems R&D Center is applying system engineering to project process to enhance productivity of the R&D projects and employing verification & validation process to increase customer satisfaction as well as product reliability.

■ 200MW Voltage-type HVDC System

The Power & Industrial Systems R&D Center developed 'HVDC (High-pressure Direct Current Transmission)' technology, an advanced transmission technology for the future. Since November 2017, we have been carrying out a R&D project, 'Voltage-type HVDC Localization,' funded by the Ministry of Trade, Industry and Energy in order to be prepared for the global market. In addition, we made a business agreement with KEPCO to install and operate the voltage-type HVDC system at Yangju substation in Korea from October 2022. The agreement covers prototype development and performance testing of key components such as submodules and controllers, as well as technology development for production.

■ 154-kV Substation Power Facility Management System (ARMOR)

The Power & Industrial Systems R&D Center has developed ARMOR, which is a new system for stable facility operation and systematic management, as the number of old power facilities as well as customer demand for longer lifespan of facilities are increasing. ARMOR is a power facility asset management system with cutting-edge digital technologies applied, such as AI, IoT and big data analysis. It is equipped with 'Health Index' function which assesses the integrity and condition of the facilities with 95% of prediction accuracy. ARMOR system is expected to reduce the risk of accidents and failures of power plants by 84% or more and reduce maintenance costs by 30% compared to the existing system. In 2019, we supplied ARMOR to POSCO, SK Energy and the power authority in Mozambique. In addition, we signed a business agreement with KEPCO for technical cooperation in the field of preventive diagnosis of power facilities and asset management systems.

R&D Expenses

Hyosung Heavy Industries invests steadily in R&D every year to ensure sustainable technological competitiveness.

Category	Unit	Hyosung Heavy Industries		
		2018(Actual)	2019(Plan)	2019(Actual)
R&D expenses	KRW 1 million	29,109	39,929	34,973

Patent Registration and Application

The Power & Industrial Systems R&D Center registers patents for its own technology every year to secure its intellectual property rights and use them as KPIs for performance management.

Category	Subcategory	Unit	Hyosung Heavy Industries		
			2017	2018	2019
Patent registration (accumulated)	Domestic	Cases	252	277	310
	Overseas	Cases	19	29	65
Patent application (accumulated)	Domestic	Cases	294	324	350
	Overseas	Cases	143	177	232

Suppliers Status

Hyosung Heavy Industries is maintaining a stable supply chain by changing its scope of management to major suppliers in 2019 and is supporting sustainable growth of the suppliers.

Category	Unit	Hyosung Heavy Industries	
		2018	2019
Number of suppliers	Companies	4,070	1,833
Total purchase from suppliers	KRW 1 million	1,739,349	1,069,589

Social Performance

Hyosung Heavy Industries is a large company with more than 3,000 employees and has a high sense of responsibility for the corporate social contribution. 243 new employees were hired in line with job creation initiative for the local community. Moreover, in order to promote women’s active social engagement, we are increasing the proportion of female employees and female managers. In addition, we are increasing training hours and training investment costs per employee to develop their capabilities.

Employees Status

As of the end of 2019, Hyosung Heavy Industries has 3,483 employees. The ratio of full-time regular employees is 97% of all employees. The number of female employees is 340, which is the sixth highest number among the major domestic electricity and gas companies. We are increasing the recruitment of disabled and veterans each year in consideration of the socially disadvantaged.

Category	Subcategory	Unit	Hyosung Heavy Industries	
			2018	2019
Total employees		Persons	3,487	3,483
Gender	Male	Persons	3,241	3,143
	Female	Persons	246	340
Employment type	Permanent (male)	Persons	3,188	3,124
	Permanent (female)	Persons	242	250
	Subtotal	Persons	3,430	3,374
	Temporary (Male)	Persons	53	19
	Temporary (Female)	Persons	4	90
	Subtotal	Persons	57	109
Region	Domestic	Persons	3,461	3,483
	Overseas	Persons	26	27
Job category (based on permanent employment)	Office work	Persons	2,525	2,555
	Manufacturing	Persons	905	819
Fostering female human resource	Female employees ratio	%	7.1	9.8
	Number of female at manager-level or higher	Persons	61	89
	Female managers ratio (Number of female managers divided by number of total managers)	%	4.3	10.3
Diversity	Disabled	Persons	59	75
	Veterans	Persons	77	82
	Foreigners	Persons	13	22
	Subtotal	Persons	149	179
Creating job opportunities (the newly employed)	Male	Persons	30	154
	Female	Persons	13	89
	Subtotal	Persons	43	243
Employees who left (only counting the permanent employees who voluntarily quit)	Male	Persons	39	79
	Female	Persons	2	14
	Subtotal	Persons	41	93
Turnover rate		%	1.20	2.76

Maternity Leave and Childcare Leave

Hyosung Heavy Industries promotes maternity and childcare leave to balance work and life for female employees. As of the end of 2019, the return rate after childcare leave was found to be about 95%, and ratio of those returning to work for more than 12 consecutive months was about 73%. Moreover, we plan to increase the proportion of male employees using childcare leave with constant support and encouragement.

Category	Subcategory	Unit	Hyosung Heavy Industries	
			2018	2019
Male (maternity leave)	Employees under maternity leave	Persons	24	97
	Returning rate from maternity leave	%	100	100
Female (maternity leave)	Employees under maternity leave	Persons	15	24
	Returning rate from maternity leave	%	93	96
Male (childcare leave)	Employees under childcare leave	Persons	54	132
	Returning rate from childcare leave	%	-	99
	Rate of working more than 12 months after return	%	-	96
Female (childcare leave)	Employees under childcare leave	Persons	31	14
	Returning rate from childcare leave	%	-	95
	Rate of working more than 12 months after return	%	-	73

Regular Performance Evaluation

As of the end of 2019, Hyosung Heavy Industries conducted a regular performance evaluation of 3,374 employees, or 97% of the total 3,483 employees. We have established a fair evaluation system, covering most of our employees in the evaluation system.

Category	Unit	Hyosung Heavy Industries	
		2018	2019
Number of employees subject to performance evaluation	Persons	3,430	3,374
Performance evaluation rate	%	98	97

• The figures above (Total employees / Gender / Employment types / Region – Domestic / Job category / Fostering female human resource / Diversity / Creating job opportunities / Employees who left) have been based on full-time regular employees and contract-based temporary employees in domestic business sites.

• Overseas employees (Region – Overseas) denotes expatriate employees who have been dispatched to overseas business sites.

Labor Union Membership Status

We notify the labor union as soon as any important business matters arise. Each business site transparently discloses the corporate management status to the employees through regular management briefing sessions and multi-layer meetings. In addition, we have established the Labor-management Council in each business site and hold quarterly meetings to discuss welfare, grievances, health and safety issues. Complaints and grievances received are managed in the company-wide system and are continuously kept track of improvement status.

Category	Unit	Hyosung Heavy Industries	
		2018	2019
Employees covered by collective agreements	Persons	847	813
Number of union workers	Persons	787	731
Rate of union workers	%	92.9	89.9

Retirement Pension

Hyosung Heavy Industries operates both DB-type and DC-type retirement pension systems to ensure the employees' freedom of choice and complies with the related legal standards.

Category	Unit	Hyosung Heavy Industries	
		2018	2019
Total operating fund for retirement pension (DB+DC)	KRW 1 million	189,089	224,657
Operating fund of DB pension	KRW 1 million	171,786	204,525
Operating fund of DC pension	KRW 1 million	17,304	20,132
Total number of members	Persons	3,297	3,425
Number of DB pension members	Persons	2,894	2,934
Number of DC pension members	Persons	403	491

Basic Wage and Remuneration

Hyosung Heavy Industries pays new employees 1.7 times more than the legal minimum wage to guarantee their welfare and increase their motivation to work.

Category		Unit	Hyosung Heavy Industries	
			2018	2019
Basic salary for entry-level		KRW 1,000	3,118	3,272
Rate of entry-level salary to local minimum wage by law (%)	Male	%	184.6	174.7
	Female	%	184.6	174.7
Average basic salary		KRW 1,000	4,530	4,746

Employees Training Status

Hyosung Heavy Industries provides training for developing employees' capabilities, and both training hours and the cost of training investment per person have increased compared to 2018.

Category		Unit	Hyosung Heavy Industries	
			2018	2019
Number of training participants	Accumulated number of training participants during the year	Persons	76,907	167,343
Total training expenses	Total training expenses including costs paid to external institutions and other administrative costs	KRW 1,000	745,407	2,284,723
Total training hours	Required training by law and training registered in Hyosung Training System	Hours	187,707	237,474
Average training hours per person (Total training hours/ total number of employees)		Hours	52.40	68.18
Average training expenses per person (Total training expenses / total number of employees)		KRW 1	213,767	655,964

Category	Unit	Hyosung Heavy Industries
		2019
Total number of participants in Environment training	Persons	19,611
Total number of participants in Ethics and anti-corruption training	Persons	116
Total number of participants in Fair trade training	Persons	117
Total number of participants in Safety and health training	Persons	52,473
Total number of participants in Human rights training (preventing harassment)	Persons	6,775
Total number of participants in Information security training	Persons	3,673

Capacity Building Activities

The head office and business all business sites of Hyosung Heavy Industries are reinforcing employees' job competency by continuous vocational training, which is tailored to each PU and its business area and taught by in-house instructors and specialists in the industry. In particular, 28 classes were delivered to the salesperson to improve their domain knowledge and customer-response skills. In addition, the Global Leader (GL) system is introduced to improve the competency of new managers in the workplace. We provide a step-by-step training system for the job capacity, company culture and leadership so that the trainees can become qualified for higher positions leading innovation in the corporate culture. In 2019, we carried out the GL training with 40 participants for 2 days and conducted education and qualification tests to improve their job competency.

Major CSR Activities

Along with Areumjigi Foundation, we carry out palace restoration project in Changdeokgung Palace. Through the first and second projects, the interior lighting and chandeliers were restored, allowing the visitors to see the palace inside, thus promoting the beauty of the country's historical and cultural heritage. In recognition of these achievements, we have been selected as the outstanding company for contribution to local society in 2019. In 2020, we plan to work on creating an exhibition room for interior viewing in the restored venue. In addition, Hyosung Heavy Industries has been supporting students of Seoul Jeongmun School, a public school for the mentally challenged, for 14 years since June 2007 and has held monthly hiking competitions and field trips with employees. In addition, we visited 200 underprivileged people in Changwon to deliver household goods. We support their national holidays such as the New Year's day and Chuseok every year under the slogan "Holidays with the Disabled" and continue to provide volunteer work to six welfare facilities for the elderly and the disabled.

Environment and Safety Performance

Hyosung Heavy Industries is upgrading its green management system with external verification by obtaining certifications of environmental management system. Each department sets HSE(Health, Safety and Environment) targets and related action plans to practice green management effectively. By actively participating in the governmental projects related to green technologies, we are fully demonstrating our environmental management capabilities as a sustainable leading company in the era of the fourth industrial revolution.

Energy Consumption

Hyosung Heavy Industries' Changwon plant introduced an integrated management system for the air conditioners and heaters installed in new buildings. The system centrally controls target facilities whenever necessary, for example in the situation of power peak, thus enabling energy saving. We also plan to introduce an integrated management system for power usage to keep promoting energy saving.

Category	Subcategory	Unit	Hyosung Heavy Industries	
			2018	2019
Direct energy consumption	Diesel	TJ	13.09	11.74
	Kerosene	TJ	0.03	0.03
	LNG	TJ	132.99	113.82
	Gasoline	TJ	3.15	3.02
	Propane	TJ	7.42	7.37
	B-C oil	TJ	-	-
	Off-gas	TJ	-	-
	LPG	TJ	1.01	0.33
	Biogas	TJ	-	-
	Subtotal	TJ	157.70	136.32
Indirect energy consumption	Electricity	TJ	990.68	892.03
	Steam	TJ	-	-
	Process waste heat	TJ	-	-
	Waste incinerated heat	TJ	67.94	64.37
	Subtotal	TJ	1,058.62	956.40
Total		TJ	1,216.32	1,092.72
Energy intensity		TJ/KRW 100 million	0.063	0.064

• By 2018, Hyosung Corporation has reported GHGs emissions and energy usage, including four operating company. And in November 2019, the emission rights and obligations have been succeeded to each operating company in accordance with the GHGs-related laws. In the process of transfer of rights, the amount of energy use and emissions have been partially changed from the figures reported in 2018 Hyosung Sustainability Report. (The total sum of energy use and emissions remain unchanged.)

• Since energy consumption and emissions are based on domestic business sites, the intensity was calculated using domestic sales excluding sales from construction.

Greenhouse gases(GHGs) Emissions

Through a variety of activities to reduce GHGs emissions, Hyosung Heavy Industries has achieved a decrease in both direct and indirect emissions compared to 2018.

Category	Subcategory	Unit	Hyosung Heavy Industries	
			2018	2019
Direct GHG emissions (Scope 1)	Fixed combustion	tCO ₂ eq	7,317	6,346
	Mobile combustion	tCO ₂ eq	1,059	910
	Process emissions	tCO ₂ eq	1,247	963
	Waste disposal	tCO ₂ eq	19	66
	Subtotal	tCO ₂ eq	9,641	8,285
Indirect GHG emissions (Scope 2)	Electricity	tCO ₂ eq	48,115	43,324
	Steam	tCO ₂ eq	-	-
	Subtotal	tCO ₂ eq	48,115	43,324
GHG emissions intensity		tCO ₂ eq/KRW 1 million	0.030	0.030

• The figures of emissions correspond to the information submitted to the Ministry of Environment for conformity assessment in 2019.

Energy Saving and Emissions Reduction Performance

For the purpose of practicing green management, Hyosung Heavy Industries has established and executed investment plans for LED lights replacement and managed to reduce emissions and save energy at its business sites.

Business site	Project Name	Execution Date	Hyosung Heavy Industries		
			Budget (KRW 1 million)	Energy Saving Amount (kWh/year)	Emissions Reduction Amount (tCO ₂ eq/year)
Changwon	LED Light Replace	2017.07	97	111,142	52

Use of Renewable Energy

Hyosung Heavy Industries uses waste icineration heat system a renewable energy source, from the domestic waste incineration plant near its business site.

Business site	Energy Type	Unit	Hyosung Heavy Industries	
			2018	2019
Changwon	Waste energy	GJ/year	67,941	64,369

Water Resources Management Status

Hyosung Heavy Industries is reducing water consumption by each water source such as ground water, industrial water Total water usage in 2019 amounted to 430,000 tons, which decreased by 16% from 2018.

Category	Subcategory	Unit	Hyosung Heavy Industries	
			2018	2019
Water consumption by source of water	Waterworks	Tons	-	704
	Groundwater	Tons	8,165	4,916
	Industrial water	Tons	503,038	424,634
Total water consumption		Tons	511,202	430,254
Amount of recycled water		Tons	971	818
Water recycling rate		%	0.2	0.2

Water Saving and Reuse

Hyosung Heavy Industries' Changwon plant regularly replaces old water pipes to prevent water leaks, and the Production Support Team inspects water leakage of facilities to minimize unnecessary water use caused by water leaks. Also, the circuit breaker manufacturing team of Changwon plant filters used water from the water pressure test and stores it in the water tank to reuse about 80 tons every month.

Air Pollutants Emissions

Hyosung Heavy Industries' Changwon plant has established a strict internal emission acceptance standard, which is 60% of the legal acceptance standard for air pollutant emission, and has preemptively replaced active carbon and back filter when the internal criteria are exceeded. Also, we set a reasonable replacement cycle of activated carbon and back filter by identifying their breakthrough pattern compared to production output. We are constantly monitoring production output to replace the filter materials in timely manner. The UHV Production Team has come up with various solutions for the existing problems. In addition, the Casting Team has managed to shorten the replacement cycle by introducing adsorption and catalytic oxidation facility (Veraria) which uses regenerative filter for the first time in Korea.

Category	Subcategory	Unit	Hyosung Heavy Industries	
			2018	2019
General air pollutants	Nitrogen oxides (NOx)	Tons	-	-
	Sulfur oxides (SOx)	Tons	-	-
	Particulate matter (PM)	Tons	11.6	10.0
Ozone depleting substances	CFC(R-11)	Tons	-	-
	HCFC(R-123)	Tons	-	-
	HCFC(R-22)	Tons	-	-

Waste Disposal Status

For systematic waste management, Hyosung Heavy Industries provides waste sorting training to new employees during their introductory onboarding training and to all employees in the regular training twice a year. First, the department that produces wastes separately discharges wastes according to their characteristics, such as combustible waste, waste paper, and non-flammable wastes, and reclassifies some mixed wastes in the waste storage facility. In the process of reclassification of waste, we separately collect and sell waste metal including containers, molds, and scrap iron. Regarding waste oil and waste paint, we have introduced real-name waste discharge system so that each department can monitor and manage waste discharge amount, leading to their waste discharge reduction. Wastes transported to waste storage are stored separately by each materiality. Waste is managed in consideration of the storage limit and storage period, and the contracted consignee takes out the wastes for disposal service. When waste disposal is completed, related information is collected, such as disposal amount and disposal companies, in the waste management system (Olbaro). We also continue to find new companies to improve the efficiency and effectiveness of waste disposal.

Category	Subcategory	Unit	Hyosung Heavy Industries	
			2018	2019
Industrial waste (General)	Recycled	Tons	6,419.2	4,115.3
	Incineration	Tons	1,662.5	1,027.5
	Landfill	Tons	372.0	124.5
	Subtotal	Tons	8,454	5,267
Industrial waste (designated)	Recycled	Tons	355.0	291.0
	Incineration	Tons	344.1	108.2
	Others	Tons	1.6	0.0
	Subtotal	Tons	701	399
Total waste		Tons	9,154.4	5,666.5
Amount of recycled waste		Tons	6,774.2	4,406.3
Waste recycling rate		%	74.0	77.8

Wastewater and Water Treatment Status

Hyosung Heavy Industries' Changwon plant conducts water quality tests every month to constantly monitor water pollutant concentration level. Also, filter materials in the wastewater treatment plant, such as activated carbon and sand, are regularly replaced. We are releasing the wastewater with its concentration within 70% of the legal acceptance criteria.

Category	Unit	Hyosung Heavy Industries	
		2018	2019
Wastewater discharge amount	Tons	10,868.4	8,141.40
BOD	Tons	1.05	0.48
COD	Tons	0.50	0.50
SS	Tons	0.28	0.05
T-N	Tons	2.39	1.78
T-P	Tons	0.35	0.15

Hazardous Chemicals Management Status

Hyosung Heavy Industries' Changwon plant used organic solvents to remove foreign substances in the circuit breaker product in order to avoid potential quality defects. However, the solvents generate large amount of pollutants, bringing damages such as an odor to local community and environment. To cope with this problem, we introduced a water-soluble ultrasonic cleaning machine and used eco-friendly water-soluble cleaning agents to suppress odor.

Category	Unit	Hyosung Heavy Industries	
		2018	2019
Hazardous substances usage amount	Tons	154.3	151.1
Basic unit of hazardous substances usage amount	Tons/KRW 1 million	0.00008	0.00009

• - Since hazardous substance usage amount is based on domestic business sites, the basic unit was calculated using domestic sales excluding sales from construction.

Sales and Purchase Performance of Green Products and Services

Hyosung Heavy Industries follows the green purchasing policy and practices green management by selling and purchasing green products and services. In 2019, we sold KRW 490.2 billion worth green products and services, and purchased KRW 34.8 billion.

Category	Unit	Hyosung Heavy Industries		
		2017	2018	2019
Sale	KRW 1,000	170,222,907	137,962,758	490,230,514
Purchase	KRW 1,000	6,479,287	1,447,055	34,846,686

Environmental Investment

Hyosung Heavy Industries practices green management through continuous environmental investments such as waste treatment, environmental restoration, and pollution prevention.

Category	Unit	Hyosung Heavy Industries	
		2018	2019
Waste treatment and environment restoration expenses	KRW 1,000	477,326	404,342
Pollution prevention and environmental management expenses	KRW 1,000	2,320,847	334,103
Total	KRW 1,000	2,798,173	738,445

Environmental Performance Management

Hyosung Heavy Industries' Changwon plant operates an environmental performance evaluation system every year by establishing HSE goals and detailed implementation tasks for each department. Major KPIs include zero case of environmental non-compliance, compliance with emission allowances, waste (flammable, waste paint) emission reduction eco-friendly design, and saving raw materials. The Safety Environment Team is divided into two sectors, respectively, and collects all departments' quarterly performance to monitor their achievement. When KPIs are unfulfilled as planned, improvement activities are derived after finding the cause and method.

Environmental Education

Hyosung Heavy Industries' Changwon plant mandates new employees (incl. in-house suppliers) to complete environmental education at their onboarding introductory training, and carries out regular environmental education for all employees twice a year. In addition, customized training is provided to environmental facility operators through on-site visits.

Green Technology Development

Hyosung Heavy Industries' Changwon plant is developing a technology to replace SF6 gas, a greenhouse gas used in the circuit breaker production process, with eco-friendly gas. With the successful replacement with eco-friendly gas after technology development, greenhouse gas emissions are expected to be reduced by 98%. (23,900 kgCO2/kgSF6 ⇨ 380 kgCO2/kg · Novec Mixture)

Participation in State-run Projects for Green Technology Development

Hyosung Heavy Industries is participating in state-run research projects for improving energy efficiency and facilitating renewable energy. We are strengthening our position as a market leader in eco-friendly technologies by participating in state-run projects including facilities' lifespan extension, energy efficiency improvement, and renewable energy.

Project Name	Project Period	Project Budget (KRW 1 million)			Comment
		In cash	In kin	Total	
Voltage-type HVDC Power Equipment Diagnosis Technology Development	2017.11~2021.10	327	75	402	Extending facility lifespan (environment)
Development of 5 types of semiconductor gas sensor (95% of price, 80% of size reduced) and diagnostic IED for the diagnosis of transformer oil gas	2017.12~2020.05	59	28	87	Extending facility lifespan (environment)
Development/operation/demonstration of DC ±200kV voltage-type MMC	2017.11~2021.10	65,817	7,500	73,317	Energy efficiency
Development and demonstration of ESS products for emergency power peaks in North America	2017.12~2020.11	812	202	1,014	Renewable energy
Development of an integrated lightweight semiconductor transformer and lightweight high-efficiency magnetic synchronous motor for urban railway vehicles	2018.04~2021.12	135	765	900	Energy efficiency
Development of 1MVA multi-channel charger for electric vehicles using SiC devices	2019.05~2022.12	756	504	1,260	Environment
Establishment of experience complex for demonstration of future power service models	2019.10~2023.09	897	220	1,117	Renewable energy
Technology development and demonstration of hydrogen fusion charging station using biogas	2019.05~2021.12	369	246	615	Environment

Environmental Management System Certification

For the effective operation of the environmental management system, Hyosung Heavy Industries conducts review in accordance with ISO14001 once a year. We implement internal audits and monitor HSE compliance twice a year. The internal environmental audit is carried out in the first half and the second half of the year by three groups of two internal auditors, and covers 42 departments.

Green Building Certifications

Hyosung Heavy Industries acquired a total of four green building certifications in 2019. We will continue to use eco-friendly building materials and increase green building certifications.

Certified Building	Certification Organization	Hyosung Heavy Industries		
		Certification Code	Certification Date	Rating
Yongin Giheung Hyosung Harrington Place	Korea Appraisal Board	2019-258	2019-06-05	General(green4)
Pyeongtaek Hyosung Harrington Place Complex 2	Korea Appraisal Board	2019-283	2019-06-25	General(green4)
Cheongdam 101 Villa	Korea Green Building Council	KGBC-C-b-327	2019-07-17	Good(green3)
Cheongdam 101-7 Villa	Korea Green Building Council	KGBC-C-b-328	2019-07-17	Good(green3)

Occupational Accident Rate

Along with Hyosung Heavy Industries' efforts to create a safe workplace, the number of occupational accidents declined by three compared to the previous year, and occupational fatality has not occurred for the last two consecutive years.

Category	Unit	Hyosung Heavy Industries	
		2018	2019
Total number of occupational accidents : Accidental disaster + Occupational disease	Persons	18	15
Occupational accident rate : Total number of occupational accidents / Total number of employees x 100	%	0.52	0.43
Number of work-related fatalities	Persons	-	-
Work-related fatality rate per ten thousand employees : Number of work-related fatalities / Total number of employees x 10,000	‰	-	-

Health Care Facility Improvement

Hyosung Heavy Industries operates a health care room and physical therapy room in the workplace to enhance employees' health and their access to medical care. In order to provide a better working environment for employees, we continue to expand health care facilities, including the exercise therapy room and the body composition analyzer device (InBody).

Health Care Management for Employees

Hyosung Heavy Industries conducts medical checkups on its employees every year. Based on the result after medical checkup, those who are diagnosed as having a disease or symptoms are given special care. The visiting industrial health doctors keep track of those patients through consultation and education. We encourage employees' voluntary engagement in various health programs, including anti-smoking clinic and in-company exercise programs.

Musculoskeletal Disorders Prevention Program

Hyosung Heavy Industries is carrying out activities to prevent musculoskeletal disorders of field workers by identifying both subject workers and tasks prone to the disorders after implementing investigation of musculoskeletal disorders risk factors. In cooperation with external organization, we provide physical therapies to the subject employees who are selected through survey results and in-depth counseling with an occupational health specialist.

Potential Risk Assessment Focusing on Worker Behavior.

Hyosung Heavy Industries annually conducts an assessment for potential risks to prioritize risk factors after identifying and evaluating them. Recently, safety accidents have been often caused by unsafe behaviors of workers. Therefore, in the potential risk assessment, a group of experts (workplaces, safety managers, and members of the labor union's Occupational Safety and Health Committee) analyze workers' behavior and identify potential risks accordingly. In addition, a potential risk assessment I also carried out when the working environment changes, such as safety accidents or changes in working methods.

Improving the Risk of On-site Heavy-weight Handling Activities

Hyosung Heavy Industries has continuously improved the risk of handling heavy objects using cranes since 2017. We are discovering risk factors of safety accidents related to heavy objects through potential risk assessment and improvement proposal system. In addition, related departments (design, production technology, production, safety and environment) have discussion on fundamental safety measures for improving the tasks prone to such difficulties. In addition, we thoroughly manage weight lifting aids by monthly inspections. In particular, round-slings (weight handling equipment) that are difficult to visually inspect go through an inspection by specialized external agency to secure reliability.



HYOSUNG ADVANCED MATERIALS

Economic Performance

Since its split from Hyosung in 2018, Hyosung Advanced Materials has been generating profits based on its robust business capabilities. We continuously pursue growth in order to fairly distribute our profits to various stakeholders including customers, local communities, partner companies, employees, shareholders, investors and the government.

Financial Statements (Consolidated)

Unit: KRW 1 million

Category	2018	2019
i .Current assets	1,030,998	982,899
Cash and cash equivalents	84,773	31,839
Trade and other current receivables	442,526	439,444
Inventories	466,559	472,116
Other current assets	37,140	39,500
ii .Non-current assets	1,503,700	1,548,200
Long-term trade and other non-current receivables	3,956	4,675
Tangible assets	1,196,736	1,276,038
Investments in properties	151,964	150,397
Intangible assets	107,704	71,743
Other non-current financial assets	716	4,183
Other non-current assets	42,624	41,164
Total assets	2,534,698	2,531,099
i .Current liabilities	1,474,716	1,540,234
Trade and other current payables	369,241	301,758
Borrowings	1,088,357	1,211,066
Other current liabilities	17,117	27,410
ii .Non-current liabilities	593,966	585,464
Long-term trade and other non-current payables	7,716	11,977
Long-term borrowings	553,076	540,076
Other non-current liabilities	33,174	33,411
Total liabilities	2,068,682	2,125,698
[Capital stock]	22,400	22,400
[Retained earnings]	(26,584)	(100,800)
[Other components of equity]	389,990	401,832
[Non-controlling interest]	80,210	81,968
Total capital	466,016	405,400

Consolidated Statements of Comprehensive Income

Unit: KRW 1 million

Category	2018	2019
Sales	1,767,487	3,053,616
Cost of sales	1,584,713	2,696,624
Gross profit	182,774	356,992
SG&A	101,363	169,628
R&D expenses	17,269	29,037
Operating income	64,143	158,327
Other gains	13,902	23,255
Other loss	24,843	56,339
Finance income	21,419	37,988
Finance expenses	80,063	110,958
Profit before tax	(5,442)	52,273
Income tax expense	18,303	105,180
Net profit	(23,745)	(52,907)
Other comprehensive gain(loss)	2,478	9,984
Total comprehensive gain(loss)	(21,267)	(42,923)

Major R&D Activities

As a materials company, Hyosung Advanced Materials recognizes the possession of original technology as a basic condition for its business and has secured the original technology for all its products since the early stages of business. Based on the research capabilities of the Hyosung R&DB Labs, which was established as the first research institute affiliated with a private company in Korea, the company continues its research in textiles and functional materials to develop safer and more comfortable products and to provide optimized solutions to customers. Also, through the research capabilities of the Steel Wire Technical Center, which was established in 1989, we are advancing the technology and improving the quality of steel cord and bead wire.

■ Development of Application Technology for Special Polyester Tirecord Fabric for PCR Tires

The Tire Adhesion Research Team in Hyosung R&DB Labs has developed an application technology for special polyester cord fabric with improved heat resistance and adhesion. With this technology, we have managed to apply polyester tire cord to special cord fabric of PCR (Passenger Car Radial) tire for the first time in the world. Currently, Hyosung's polyester special cord fabric technology is used in the products of domestic and foreign tire companies. In addition, we have developed ultra-high heat-resisting technology that can be applied to new use cases (Bias Tire Carcass) to expand the use of polyester tire cords, and through quality improvement and localization of adhesive components, we are contributing to the improvement of quality and cost reduction of customer products.

■ Development of Precision-controlled Heat Treatment Technology on Steel Tire Reinforcements

The Steel Wire Technical Center developed a precision-controlled heat treatment technology through a metal microstructure prediction program in 2019. By doing so, we are contributing to improving the quality of our products by producing high-strength, high-quality steel cords by optimizing the process conditions for creating and homogenizing metal micro-organisms.

■ Research on the Performance Improvement of Carbon Fiber for Hydrogen Vessel

The Carbon Materials Research Team, which has succeeded in product development for high-pressure containers for compressed natural gas used in city buses, continues to develop carbon fiber for its application in hydrogen high-pressure containers, in preparation for the upcoming advent of hydrogen-powered economy. In 2019, Carbon Materials Research Team has succeeded in developing carbon fiber with improved properties.

R&D Expenses

Hyosung Advanced Materials invests steadily in R&D every year to ensure sustainable technological competitiveness.

Category	Unit	Hyosung Advanced Materials		
		2018(Actual)	2019(Plan)	2019(Actual)
R&D expenses	KRW 1 million	17,269	14,687	29,037

Patent Registration and Application

Hyosung Advanced Materials registers patents for its own technology every year to secure its intellectual property rights and use them as KPIs for performance management.

Category	Unit	Hyosung Advanced Materials		
		2017	2018	2019
Patent registration(accumulated)	Cases	775	825	840
Patent application(accumulated)	Cases	1,563	1,597	1,610

Suppliers Status

Hyosung Advanced Materials maintains a stable supply chain by supporting sustainable growth of its supplier companies.

Category	Unit	Hyosung Advanced Materials	
		2018	2019
Number of suppliers	Companies	24	53
Total purchase from suppliers	KRW 1 million	900,515	1,471,572

Social Performance

Hyosung Advanced Materials is a large company with 1,000 employees in Korea, 5,000 in Vietnam, and 2,000 in China, and has a high sense of responsibility for fulfilling its corporate social responsibility. In 2019, 131 new employees in Korea, 2,707 in Vietnam, and 292 in China were hired, in line with job creation initiative for the local community. Moreover, in order to promote women’s active social engagement, we are increasing the proportion of female employees and female managers.

Employee Status

As of the end of 2019, Hyosung Advanced Materials has 8,822 employees including Korea, Vietnam, and China. Contract-based workers account for about 3.7% of the total, with the majority of employees employed as regular employees. We are also increasing the proportion of female employees and female managers in order to promote women’s active social engagement.

Category	Subcategory	Unit	Hyosung Advanced Materials							
			Korea ¹⁾		Vietnam			China		
			2018	2019	2017	2018	2019	2017	2018	2019
Total employees		Persons	1,142	1,038	5,229	5,519	5,943	2,047	1,990	1,841
Gender	Male	Persons	1,044	932	4,093	4,376	4,730	1,526	1,501	1,376
	Female	Persons	98	106	1,136	1,143	1,143	521	489	465
Employment type	Permanent (male)	Persons	1,042	911	3,941	4,344	4,597	1,397	1,337	1,296
	Permanent (female)	Persons	91	97	1,099	1,107	1,098	471	429	423
	Subtotal	Persons	1,133	1,008	5,040	5,451	5,695	1,868	1,766	1,719
	Temporary (Male)	Persons	2	21	152	22	133	129	164	80
	Temporary (Female)	Persons	7	9	37	46	45	50	60	42
	Subtotal	Persons	9	30	189	68	178	179	224	122
Place of work	Domestic	Persons	1,012	1,038	5,152	5,447	5,873	2,006	1,955	1,808
	Overseas ²⁾	Persons	130	-	-	-	70	41	35	33
Job category (based on permanent employment)	Office work	Persons	560	456	734	779	816	395	383	400
	Manufacturing	Persons	573	552	4,306	4,672	5,057	1,652	1,607	1,441
Fostering female human resource	Female employees ratio	%	8.6	10.2	21.7	20.7	19.2	25.5	24.6	25.3
	Number of female at manager-level or higher	Persons	13	15	32	38	40	23	27	29
	Female managers ratio	%	4.3	7.0	24.2	27.5	26.2	17.4	18.8	19.8
Diversity	Disabled	Persons	22	26	-	-	-	3	5	12
	Veterans	Persons	22	16	-	-	-	-	-	-
	Foreigners ³⁾	Persons	1	-	77	72	92	41	35	33
	Subtotal	Persons	45	42	77	72	92	44	40	45
Creating job opportunities (the newly employed)	Male	Persons	42	107	1,127	1,955	2,323	296	333	223
	Female	Persons	4	24	428	362	384	60	72	69
	Subtotal	Persons	46	131	1,555	2,317	2,707	356	405	292
Employees who left(only counting the permanent employees who voluntarily quit)	Male	Persons	42	40	1,138	1,655	1,839	236	252	234
	Female	Persons	7	11	269	288	281	45	54	58
	Subtotal	Persons	49	51	1,407	1,943	2,120	281	306	292
Turnover rate		%	4.32	5.06	27.92	35.64	37.23	15.04	17.33	16.99

1) The company was newly established on June 1, 2018, thus, there is no data for 2017. / 2) Number of Korea in 2018 are korean nationals working as expatriates outside Korea. From 2019 there numbers was recognized as 'foreigners' at respective business sites. / 3) Foreigners refer to employees who are not national citizens of countries in which the business sites are located.

Overseas Employee Status

Hyosung Advanced Materials aims to realize localization of its overseas corporations by fostering local managers. In order to successfully integrate with the local community and improve the loyalty of local employees, the company continues to educate and foster local employees for management positions such as CEO and plant manager. As of 2019, the ratio of local managers is about 50%, and we will make efforts to further increase it in the future.

Category	Unit	Hyosung Advanced Materials					
		Vietnam			China		
		2017	2018	2019	2017	2018	2019
All managers (head of department, supervisor or higher)	Persons	70	65	92	66	62	67
Local managers (head of department, supervisor or higher)	Persons	35	39	41	35	35	37
Ratio of local managers	%	50	60	45	53	56	55

Maternity Leave and Childcare Leave

For the purpose of supporting career development of female employees, we actively encourage both male and female employees to use maternity and childcare leave, which has a high return rate. The company operates various systems that support employees’ work-life balance even after their maternity leave childcare. Also, the ratio of continuous working after returning to work is gradually increasing as we provide equal job opportunities without discriminating against those that took childcare leave.

Category	Subcategory	Unit	Hyosung Advanced Materials							
			Korea		Vietnam			China		
			2018	2019	2017	2018	2019	2017	2018	2019
Maternity leave (male)	Employees under Maternity leave	Persons	-	-	381	376	408	-	41	70
	Returning rate	%	-	-	99	99	100	-	97	99
Maternity leave(female)	Employees under Maternity leave	Persons	2	7	138	142	131	57	24	9
	Returning rate	%	100	100	85	81	92	95	92	100
Childcare leave (male)	Employees under childcare leave	Persons	2	4	122	159	201	-	-	-
	Returning rate	%	-	100	98	100	99	-	-	-
	Rate of working more than 12 months after return	%	-	N/A	70	82	84	-	-	-
Childcare leave (female)	Employees under childcare leave	Persons	2	8	104	192	179	57	24	9
	Returning rate	%	-	100	98	98	99	93	87	100
	Rate of working more than 12 months after return	%	-	100	68	77	78	64	95	100

Regular Performance Evaluation

As of the end of 2019, Hyosung Advanced Materials conducts regular performance evaluations for all the employees in Korea, Vietnam, and China. Regular performance evaluation is conducted by the team leader's first evaluation after self-evaluation of the performance, and the second evaluation by the executive in charge. The evaluation includes not only performance, but also feedbacks on the way of working and CDP(Career Development Path). Feedback session is stipulated to be conducted face-to-face, and during the session, employees can request task assignment considering individual CDP. At the HR counseling center, employees can also consult position transfer with the HR team leader based on their job satisfaction. In 2019, we reorganized and upgraded the existing evaluation system so that individual KPIs can be changed flexibly according to business conditions, and evaluators can give feedback on the progress of the work on a semi-annual basis.

Category	Unit	Hyosung Advanced Materials							
		Korea		Vietnam			China		
		2018	2019	2017	2018	2019	2017	2018	2019
Number of employees subject to performance evaluation	Persons	1,129	1,004	4,980	5,167	5,536	2,000	1,949	1,799
Performance evaluation rate	%	99	97	93	95	94	98	98	98

Labor Union Membership Status

Besides the Hyosung Labor Union, the Hyosung Polyester Labor Union and the Hyosung Democratic Labor Union are operating, and the employees are guaranteed to pursue their labor union membership and activities. Employees can join local and industrial unions outside of the company's labor unions. Each business site transparently discloses the corporate management status to the employees through regular management briefing sessions and multi-layer meetings. In addition, we hold regular quarterly meetings to discuss welfare, grievances, and health and safety issues for each business site. Complaints received are managed throughout the company and are continuously monitored for improvement. More than 90% of employees in Vietnam and China are subject to collective agreements.

Category	Unit	Hyosung Advanced Materials							
		Korea		Vietnam			China		
		2018	2019	2017	2018	2019	2017	2018	2019
Employees covered by collective agreements	Persons	567	571	5,238	5,447	5,597	2,019	1,966	1,817
Number of union workers	Persons	494	435	4,905	5,151	5,260	1,827	1,731	1,686
Rate of union workers	%	87.1	76.2	93.6	94.6	94.0	90.5	88.0	92.8

Retirement Pension

Executives and employees in Korea can choose between DB-type (defined benefit) and DC-type (defined contribution) retirement pensions systems according to their will. In Vietnam and China, retirement pensions are operated as national social insurance.

Category	Unit	Hyosung Advanced Materials							
		Korea		Vietnam			China		
		2018	2019	2017	2018	2019	2017	2018	2019
Total operating fund for retirement pension (DB+DC)	KRW 1 million, VND 1 million, CNY 1,000	50,631	61,505	7,041	7,765	16,806	20,901	22,430	21,298
Operating fund of DB pension		49,979	60,439	* Not applicable as retirement pension is managed by national social insurance					
Operating fund of DC pension		652	1,066						
Total number of members	Persons	1,155	1,172	4,954	5,245	5,577	9,587	9,546	8,001
Number of DB pension members	Persons	947	976	* Not applicable as retirement pension is managed by national social insurance					
Number of DC pension members	Persons	208	196						

Basic Salary and Remuneration

Hyosung Advanced Materials pays new employees in Korea, Vietnam, and China 1.7 times more than the legal minimum wage to guarantee their welfare and increase their motivation to work.

Category	Unit	Hyosung Advanced Materials							
		Korea		Vietnam			China		
		2018	2019	2017	2018	2019	2017	2018	2019
Basic salary for entry-level	KRW 1,000, VND 1,000, CNY 1	3,118	3,272	4,780	5,080	5,310	2,954	3,136	3,136
Rate of entry-level salary to local minimum wage by law (%)	Male	%	184.6	174.7	136.6	145.1	127.0	164.1	174.2
	Female	%	184.6	174.7	136.6	145.1	127.0	164.1	174.2
Average basic salary	KRW 1,000, VND 1,000, CNY 1	4,389	4,594	4,964	5,415	5,973	4,411	4,739	4,904

• Basic salary for entry-level, rate of entry-level salary to local minimum wage, and average basic salary are based on the representative corporation in the country concerned.

Employees Medical Checkup Rate

We provide annual medical checkups to all executives and employees in Korea, Vietnam, and China, and plan to enlarge the scope of the benefit, reinforcing welfare system of the company.

Category	Unit	Hyosung Advanced Materials		
		Korea	Vietnam	China
		2019	2019	2019
Subject employees	Persons	1,038	5,873	1,808
Employee who received medical checkup	Persons	1,004	5,187	1,745
Rate of Medical checkup	%	97	88	97

Major CSR Activities

Hyosung Advanced Materials is carrying out various social contribution activities based on three CSR focus areas that will realize the company's CSR vision, CSE (Creating Social Eco-system). The company has established a paid volunteer system to realize 'one voluntary work per employee', and actively promotes social contribution activities by operating matching grant. Every year, we award outstanding volunteers with Volunteer Awards. Since 2012, the headquarter has been serving as a meal helper for children with severe disabilities and has been holding an annual sports festival based on the relationship formed through the long service period. In recognition of such achievements, the company was selected as a 'CSR in the Community 2019' by Ministry of Health and Welfare.The business site provides necessary help to the local community through a 'one-company one-village committee', including environmental cleanup activities. Overseas corporations also are engaged in various CSR activities for local community stakeholders, and in recognition of such efforts, our corporation in Jiaxing was selected as an excellent philanthropy firm by the Jiaxing Economic Development Zone in February 2019.

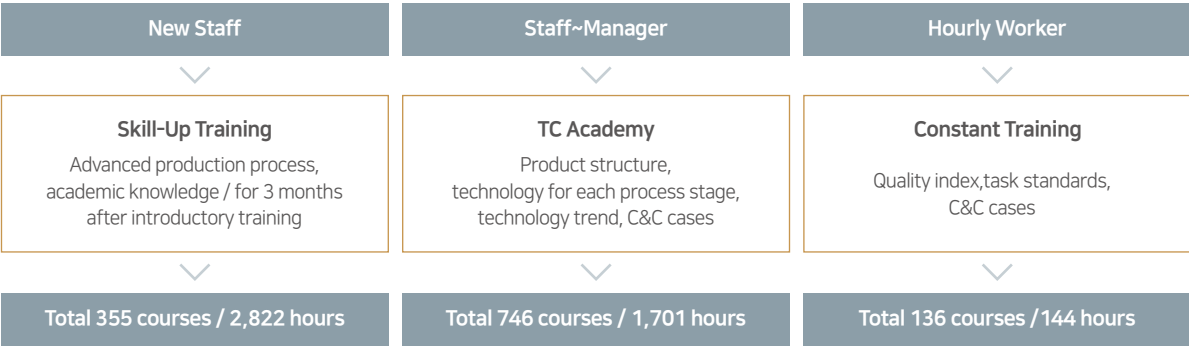


CSR Strategy of Hyosung Advanced Materials (http://www.hyosungadvancedmaterials.com/kr/csr/win_win_management.do)

Differentiated Training for Employees

Hyosung Advanced Materials provides differentiated education by job category, position, and department to develop employees' capabilities, and the total training expenses and per capita training investment has more than doubled compared to 2018. As a producer of high-performance materials, Hyosung Advanced Materials provides systematic training by technical advisors and process engineers to improve technology / product / process awareness of all employees. We also extended the scope of the differentiated training program to include hourly workers (manufacturing) so that enhanced competencies of employees are directly reflected to the quality of products.

■ Training for Improving Awareness of Technology/Product/Process



Category	Unit	Hyosung Advanced Materials							
		Korea		Vietnam			China		
		2018	2019	2017	2018	2019	2017	2018	2019
Number of training participants	Persons	10,429	14,896	7,424	13,792	16,940	13,609	10,636	12,083
Total training expenses	KRW 1,000, VND 1 million, CNY	318,076	832,816	3,080	5,571	4,702	218,125	309,477	635,372
Total training hours	Hours	38,708	41,372	114,748	160,672	216,982	55,428	52,954	78,650
Average training hours per person	Hours	38.9	39.9	22.0	29.0	13.0	27.1	26.6	42.7
Average training expenses per person	KRW, VND, CNY	278,525	802,327	558,955	1,009,465	791,173	107	156	345

Training for Sustainable Management

In 2019, the company strengthened training for sustainable management involving various fields, such as human rights, ethics, safety, and environment, and raised employees' awareness of corporate social responsibility.

Category (Total number of participants)	Unit	Hyosung Advanced Materials	
		2018	2019
Environment training	Persons	352	465
Ethics and anti-corruption training	Persons	65	95
Fair trade training	Persons		23
Safety and health training	Persons	1,027	3,674
Human rights training (sexual harassment & workplace harassment prevention)	Persons	2,284	2,355
Information security training	Persons	223	556

Environment and Safety Performance

Hyosung Advanced Materials operates the Green Management Committee to effectively practice environmental management, while setting up environmental management goals and implementing detailed action plans. We are also working on developing green technologies to reduce environmental pollutants including air and water pollutants and hazardous chemical substances, finally minimizing the environmental impact in the local society.

Green Management Committee

Hyosung Advanced Materials has expanded the scope of management of the CSR Committee, a consultative body directly under the CEO, and established the Sustainability Steering Committee, with the CEO as the chairman and C-Suite executives having authority for making decisions, and specialized subcommittees (Green Management Committee, Social Contribution Management Committee, Stakeholders Committee, Risk Management Committee). The Green Management Committee reviews and resolves issues related to safety, health and overall environmental activities, such as climate change response, environmental impact reduction, and developing and purchasing eco-friendly products.

Energy Consumption

Hyosung Advanced Materials has decreased both direct and indirect energy consumption in 2019, reducing total energy use by about 8% in Korea compared to the previous year.

Category	Subcategory	Unit	Hyosung Advanced Materials							
			Korea		Vietnam			China		
			2018	2019	2017	2018	2019	2017	2018	2019
Direct energy consumption	Diesel	TJ	9.00	7.40	-	-	-	-	-	-
	Kerosene	TJ	0.03	-	-	-	-	-	-	-
	LNG	TJ	312.79	283.23	-	-	-	-	-	-
	NG	TJ	-	-	1,447.00	1,553.00	1,556.56	3,297.95	3,679.51	3,739.78
	Gasoline	TJ	0.92	0.77	-	-	-	-	-	-
	Propane	TJ	290.41	241.95	-	-	-	-	-	-
	B-C oil	TJ	-	-	-	1.00	-	-	-	-
	Off-gas	TJ	-	-	-	-	-	-	-	-
	LPG	TJ	0.20	0.07	15.97	19.97	26.55	303.40	-	-
	Biogas	TJ	-	-	-	-	-	-	-	-
	Subtotal	TJ	613.35	533.41	1,462.97	1,573.97	1,583.11	3,601.35	3,679.51	3,739.78
Indirect energy consumption	Electricity	TJ	3,828.66	3,554.81	3,444.00	3,549.00	3,614.43	9,603.73	10,545.05	10,724.10
	Steam	TJ	229.05	220.11	507.00	618.00	591.50	30,799.34	32,227.56	21,490.62
	Process waste heat	TJ	-	-	-	-	-	-	-	-
	Waste incinerated heat	TJ	-	-	-	-	-	-	-	-
	Subtotal	TJ	4,057.71	3,774.92	3,951.00	4,167.00	4,205.92	40,403.07	42,772.61	32,214.72
Total		TJ	4,671.06	4,308.33	5,413.97	5,740.97	5,789.03	44,004.41	46,452.12	35,954.50
Energy intensity		TJ/KRW 100 million	0.444	0.403	0.442	0.451	0.412	11.123	11.094	8.498

• Until 2018, Hyosung Corp. reported GHGs emissions and energy usage including the four spun off operating companies. As of November 2019, the emission rights and all obligations were succeeded to each operating company in accordance to the GHGs-related laws and regulations. In the process of transfer of rights, the amount of energy use and emissions of each company have been partially changed from the figures reported in 2018 Hyosung Sustainability Report. (The total sum of energy use and emissions of Hyoung as a whole remain unchanged.)

• Energy consumption amount and GHGs emissions were calculated in basic unit using sales revenue of the entity in the corresponding region.

Greenhouse Gases(GHGs) Emissions

Through various efforts to reduce GHGs emissions, Hyosung Advanced Materials has achieved a decrease in both direct and indirect emissions compared to 2018.

Category	Subcategory	Unit	Hyosung Advanced Materials							
			Korea		Vietnam			China		
			2018	2019	2017	2018	2019	2017	2018	2019
Direct GHG emissions (Scope 1)	Fixed combustion	tCO ₂ eq	32,723	28,409	82,265	88,470	89,085	192,668	206,622	210,007
	Mobile combustion	tCO ₂ eq	709	578	-	-	-	-	-	-
	Process emissions	tCO ₂ eq	-	-	-	-	-	-	-	-
	Waste disposal	tCO ₂ eq	4,809	4,835	-	-	-	-	-	-
	Subtotal	tCO ₂ eq	38,241	33,822	82,265	88,470	89,085	192,668	206,622	210,007
Indirect GHG emissions (Scope 2)	Electricity	tCO ₂ eq	185,950	172,649	369,255	380,512	387,528	2,225,930	2,444,108	2,485,608
	Steam	tCO ₂ eq	2,574	2,636	30,914	37,682	36,066	1,877,959	1,965,043	1,310,369
	Subtotal	tCO ₂ eq	188,524	175,285	400,169	418,194	423,594	4,103,889	4,409,151	3,795,977
GHG emissions intensity		tCO ₂ eq/ KRW 1 million	0.216	0.196	0.394	0.398	0.365	10.861	11.024	9.468

• The figures of emissions correspond to the information submitted to the Korean Ministry of Environment for conformity assessment in 2019.

• Since the calculation method applied to assess overseas emissions is different from domestic method, we disclose the data additionally through third-party verification such as Carbon Footprint

Energy Saving and Emissions Reduction Performance

Hyosung Advanced Materials has established and executed various investment plans, such as facility replacement with high-efficiency ones and installation of inverters, to reduce greenhouse gas emissions while saving at its workplace.

Business Site	Project Name	Execution Date	Hyosung Advanced Materials		
			Budget (KRW 1 million)	Energy Saving Amount (kWh/year)	Emissions Reduction Amount (tCO ₂ eq/year)
Ulsan	Extruder motor replacement	2017.06	20.3	29,070	14
Ulsan	Cooler	2017.08	295	1,017,151	474
Ulsan	Improving utility operation efficiency (cooler replacement)	2018.02	339	1,173,409	547
Ulsan	Changing heat treatment method	2018.12	33.8	187,952	88
Ulsan	Improving of utility operation efficiency (cooler replacement)	2019.02	339	1,144,856	534
Ulsan	Heater replacement	2019.05	99.2	392,966	183
Ulsan	Installing scrubber inverter	2019.09	33.8	771,639	360
Ulsan	Changing energy source of heat treatment	2019.11	15.6	187,952	88

Water Resources Management Status

Hyosung Advanced Materials works closely with the teams in charge of production process to minimize unnecessary water consumption. In addition, we collect the water used in the process and discharge it to an emergency reservoir in the plant for reuse as cooling water, reducing the amount of water used, and increasing water recycling rate.

Category	Subcategory	Unit	Hyosung Advanced Materials								
			Korea		Vietnam			China			
			2018	2019	2017	2018	2019	2017	2018	2019	
Water consumption by source of water	Waterworks	Tons	14,294	19,719	3,143,971	3,808,158	3,572,339	479,963	504,496	478,201	
	Groundwater	Tons	-	-	-	-	-	26,792	3,438	-	
	Industrial water	Tons	3,707,272	4,512,253	-	-	187,511	289,550	319,446	208,264	
Total water consumption		Tons	3,721,566	4,531,972	3,143,971	3,808,158	3,759,850	796,305	827,380	686,465	
Amount of recycled water		Tons	1,287,800	2,442,607	-	-	6,601	-	-	-	
Water recycling rate		%	34.6	53.9	-	-	0.2	-	-	-	

Wastewater and Water Treatment Status

Hyosung Advanced Materials minimizes environmental damage to the local community by thoroughly and regularly analyzing water quality to identify the status of water pollutant emissions. Domestic business sites conduct water quality analysis every half year by an external specialized agency for certain hazardous substances which have become a social issue recently.

Category	Unit	Hyosung Advanced Materials								
		Korea		Vietnam			China			
		2018	2019	2017	2018	2019	2017	2018	2019	
Wastewater discharge amount	Tons	783,869.33	895,712.17	299,872.00	510,870.00	484,239.00	412,836.00	441,800.00	296,532.00	
Biological Oxygen Demand(BOD)	Tons	7.80	1.14	-	-	-	-	-	2.17	
Chemical Oxygen Demand(COD)	Tons	11.97	11.78	182.21	242.79	183.92	37.73	35.91	23.74	
Suspended Solids(SS)	Tons	2.99	2.08	82.90	102.71	102.51	-	1.90	1.06	
Total Nitrogen(T-N)	Tons	12.80	10.13	34.89	89.26	66.33	2.72	2.56	4.43	
Total Phosphorus(T-P)	Tons	0.20	0.09	-	-	-	0.08	0.07	0.09	

Waste Disposal Status

Hyosung Advanced Materials is improving its waste disposal method so that resource circulation is achieved through recycling rather than incineration or landfill. We used to entrust large-scale waste synthetic fibers and organic solvents to waste treatment company in incineration method, but now waste synthetic fibers are reused as auxiliary fuel after intermediate processing, and waste organic solvents are entrusted to companies that process the waste organic solvents with other substances into mixed fuel. Furthermore, we are researching and applying technologies to convert the waste plastics, such as wasted fishing net, recycled PET, Nylon chips which enable waste recycling and reduction of raw materials consumption.

Category	Subcategory	Unit	Hyosung Advanced Materials								
			Korea		Vietnam			China			
			2018	2019	2017	2018	2019	2017	2018	2019	
Industrial waste (General)	Recycled	Tons	2,890.5	4,500.2	18,199.6	22,054.3	20,665.9	-	-	-	
	Incineration	Tons	457.8	849.4	1,156.1	1,341.9	1,611.0	-	-	-	
	Landfill	Tons	27.1	67.4	700.8	734.3	831.0	-	-	-	
	Others	Tons	0.0	0.0	-	-	165.70	482.2	556.4	689.4	
	Subtotal	Tons	3,375.4	5,417.0	20,056.5	24,130.5	23,273.6	482.2	556.4	689.4	
Industrial waste (designated)	Recycled	Tons	485.7	514.6	15,234.0	16,377.0	16,632.00	3,739.6	2,028.9	2,251.3	
	Incineration	Tons	13.5	51.0	10,557.0	11,444.0	11,707.00	1,201.6	1,386.3	394.1	
	Landfill	Tons	0.0	1.0	-	-	-	1,634.3	322.1	205.9	
	Others	Tons	2.5	2.6	-	-	-	6,731.4	4,090.3	3,313.1	
	Subtotal	Tons	501.7	569.2	25,791.0	27,821.0	28,339.0	13,306.8	7,827.6	6,164.4	
Total waste		Tons	3,877.1	5,986.1	45,847.5	51,951.5	51,612.6	13,789.0	8,384.0	6,853.8	
Amount of recycled waste		Tons	3,376.3	5,014.8	33,433.6	38,431.3	37,297.9	3,739.6	2,028.9	2,251.3	
Waste recycling rate		%	87.1	83.8	72.9	74.0	72.3	27.1	24.2	32.8	

• A small quantity less than 0.1 tons is marked as 0.0.

Air Pollutant Emissions

At the Ulsan plant two aging scrubbers of air pollution prevention facilities were newly replaced to increase the efficiency of handling pollutants, and the fuel used in boilers was changed from B-C oil to a clean fuel, LNG. In addition, we have signed a voluntary agreement with Ulsan City to reduce fine dust and are implementing detailed tasks. Jeonju plant carried out environmental assessment before the extension of production lines and installed additional air pollution prevention facilities to reduce and manage the air pollutants emissions in advance. In addition, Jeonju plant implemented a large-scale investment in supplementing the waste gas incineration plant (RTO) in 2019 in preparation for the strengthening emission standards of hydrogen cyanide (HCN) from 2020, and is managing it with internal standards that are stricter than the legal emission standards.

Category	Subcategory	Unit	Hyosung Advanced Materials								
			Korea		Vietnam			China			
			2018	2019	2017	2018	2019	2017	2018	2019	
General air pollutants	Nitrogen oxides (NOx)	Tons	44.0	41.4	88.0	71.0	74.0	15.0	18.5	15.5	
	Sulfur oxides (SOx)	Tons	2.1	12.8	54.0	50.0	69.0	0.0	0.7	0.1	
	Particulate matter (PM)	Tons	20.4	16.4	98.0	64.0	68.0	0.0	0.2	0.0	
Ozone depleting substances	CFC(R-11)	Tons	-	3.0	-	-	-	-	-	-	
	HCFC(R-123)	Tons	-	-	-	-	-	-	-	-	
	HCFC(R-22)	Tons	-	-	-	-	-	-	-	-	

Hazardous Chemicals Management Status

Hyosung Advanced Materials is required to provide MSDS (Material Safety Data Sheet) at the purchase of chemicals in all domestic factories. In addition to the regular legal inspection, we also identify and report on the risks that may arise during a series of purchase, storage, handling, and use of hazardous chemicals, through regular inspection activities of hazardous chemicals storage facilities, Off-site Risk Assessment and preparation of a risk management plan, and proactively inspect problems and take preemptive measures. Our business sites and overseas affiliates regularly conduct training about hazardous chemicals at least once a year including training for the staffs handling hazardous chemicals and chemical safety training. Ulsan plant appoints managers of hazardous chemicals and provides them with external training. In order to ensure workplace safety and protect local residents and ecosystem, Jeonju plant delivers two-hour chemical substance safety training every year not only to its own employees but also to employees from supplier and contractor companies.

Category	Unit	Hyosung Advanced Materials							
		Korea		Vietnam			China		
		2018	2019	2017	2018	2019	2017	2018	2019
Hazardous substances usage amount	Tons	12,202	12,353	74,771.0	75,958.0	77,145.0	-	-	-
Basic unit of hazardous substances usage amount	Tons/ KRW 1 million	0.01160	0.01156	0.06	0.06	0.05	-	-	-

• The basic unit of hazardous substances usage amount was calculated using sales revenue of our business entities in the corresponding region.

Sales and Purchase of Green Products and Services

Hyosung Advanced Materials complies with the Green Purchasing Policy and purchases eco-friendly raw materials such as pulp and PET recycled chips, as well as environmental facilities instruments including air pollutant filters to strengthen eco-friendly purchasing activities. In 2020, we plan to expand the development and production of eco-friendly products that were promoted mainly in Korea to overseas.

Category	Unit	Hyosung Advanced Materials								
		Korea			Vietnam			China		
		2017	2018	2019	2017	2018	2019	2017	2018	2019
Sale	KRW 1,000	43,971,847	55,087,189	64,577,082	-	-	5,296,951	-	-	-
Purchase	KRW 1,000	2,169,001	537,315	1,127,331	1,064,653	92,066	3,065,010	-	-	-

• In accordance with the internal accounting management standards, Korea's performance includes amount of sales and purchase for green products and services, excluding Vietnam and China.

Environmental Investment

Hyosung Advanced Materials establishes an investment plan for continuous green management activities such as waste treatment, environmental restoration, and prevention of environmental pollution, and ensures that investments can be executed reasonably through internal review procedures. After investment planning, we aggregate and manage implementation performance of additional investment that occurs specially so that green management is well practiced.

Category	Unit	Hyosung Advanced Materials							
		Korea		Vietnam			China		
		2018	2019	2017	2018	2019	2017	2018	2019
Waste treatment and environment restoration expenses	KRW 1,000	623,975	1,131,932	4,383,810	4,071,910	3,604,877	764,858	698,289	651,034
Pollution prevention and environmental management expenses	KRW 1,000	281,235	291,752	50,790	96,826	42,204	-	-	-
Total	KRW 1,000	905,210	1,423,685	4,434,600	4,168,736	3,647,081	764,858	698,289	651,034

Environmental Performance Management

Jeonju plant establishes and manages environmental performance indicator goals every year. Typically, we have established our own standards for wastewater discharge, which is significantly lower than the legal standards, and since KPI is managed by the number of cases exceeding the self-standard rather than the emission concentration, we are tracking problems in the production process and wastewater treatment process every time they are exceeded to derive improvements. Ulsan plant also practices green management according to the plans derived from the established goals and environmental performance evaluation system based on ISO14001. From 2019, we have expanded the scope to overseas business affiliates.

Environmental Cleanup Activities

Employees of Hyosung Advanced Materials at Jeonju plant participate in environmental cleanup activities near the plant once a year. We are working on maintaining the clean and pleasant scenery by picking up trash at gardens, flower beds, footpath and streets around the plant.

Environmental Product Certifications

As of the end of 2019, Hyosung Advanced Materials has obtained a total of 6 environmental certifications for its products. In the future, we will continue to develop green technologies and increase environmental certification products and green technology products.

Certification Organization	Certificate Number	Hyosung Advanced Materials	
		Product Name	Certification Period
Korea Environmental Industry & Technology Institute (KEITI)	10227	TRENDY(SPACE)(7mm)	2018.11.22 ~ 2020.11.21
KEITI	10793	MJ (7mm)	2019.05.27 ~ 2021.05.20
KEITI	10793	FS (6.5mm)	2019.05.27 ~ 2021.05.20
KEITI	10793	BS (6mm)	2019.05.27 ~ 2021.05.20
KEITI	17275	MAXIMA(8mm)	2019.11.11 ~ 2021.07.09
KEITI	20323	SWAN design tile	2019.06.17 ~ 2020.11.12

Safety and Health Activities

Hyosung Advanced Materials conducts various activities to promote the health of employees and suppliers' employees. For example, we are operating programs for musculoskeletal disease prevention, hearing preservation, brain cardiovascular disease prevention, and raising three health funds, including obesity, non-smoking, and musculoskeletal. In recognition of its safety management activities not only in Korea but also in overseas affiliates Jiaxing Corporation was selected as the best company in safety management selected by the Jiaxing Economic Development Zone in February 2019. Hyosung Advanced Materials runs an environment and safety diagnosis day for each department every week, including supplier companies, to check the overall environment and safety in business sites including chemical-handling facilities. In addition, we provide MSDS (Material Safety Data Sheet) training to chemical-handling personnel to raise their awareness. Staff members of the Environment Safety Team, Production Team, and Quality Assurance Team are present to inspect the entire process of loading the chemicals from vehicle to input. Based on the regulations for management of safety protective equipment, Hyosung Advanced Materials provides designated safety equipment to all employees, including suppliers who work inside the factory for all production and construction activities regardless of their affiliation.

Occupational Accident Rate

Hyosung Advanced Materials continues a lot of occupational accident prevention activities for workplace safety, and occupational fatality has not occurred for the last two consecutive years.

Category	Unit	Hyosung Advanced Materials							
		Korea		Vietnam			China		
		2018	2019	2017	2018	2019	2017	2018	2019
Total number of occupational accidents : Accidental disaster + Occupational disease	Persons	18	27	7	6	7	20	31	24
Occupational accident rate : Total number of occupational accidents / Total number of employees x 100	%	1.58	2.61	0.13	0.11	0.12	0.98	1.56	1.30
Number of work-related fatalities	Persons	-	-	-	-	-	-	-	-
Work-related fatality rate per ten thousand employees : Number of work-related fatalities / Total number of employees x 10,000	‰	-	-	-	-	-	-	-	-

Environmental Emergency Response Manual

We have established an environmental emergency response manual so that we can notify an emergency situation quickly across the company and ensure all departments and sectors respond to it systematically in the event of an environmental emergency. We strive to raise awareness of environmental emergency accidents and familiarize ourselves with manuals through regular training, such as joint fire drills with the public and corporation, and education on hazardous chemicals. A separate emergency report system is operated for prompt communication, and the reporting formats are organized in advance to ensure accuracy of emergency-related information. The manual contains scenario-based guidelines for various environmental accidents and natural disasters such as earthquakes, typhoons, and heavy rains. Especially in the preparation for fire in the plant, we have established additional facilities and process necessary for prompt fire control as well as measures in the manual. We also prepared restoration measures for the aftermath of situation to ensure rapid recovery from damage.

HYOSUNG CHEMICAL

Economic Performance

Since its split from Hyosung in 2018, Hyosung Chemical has been generating profits based on its robust business capabilities. It has become a leading global company in the field of chemical products, creating a variety of top brands.

Financial Statements (Consolidated)

Unit: KRW 1 million

Category	2018	2019
i .Current assets	438,323	446,058
Cash and cash equivalents	79,258	46,059
Trade and other current receivables	184,669	150,973
Inventories	125,295	127,510
Other current assets	49,101	121,516
ii .Non-current assets	1,214,926	1,617,458
Long-term trade and other non-current receivables	4,710	4,947
Tangible assets	1,117,555	1,448,333
Intangible assets	74,145	73,072
Investments for related companies	6,692	10,738
Other non-current financial assets	2,649	73,869
Other non-current assets	9,175	6,499
Total assets	1,653,249	2,063,516
i .Current liabilities	685,979	431,320
Trade and other current payables	275,675	219,882
Borrowings	399,746	185,916
Other current liabilities	10,558	25,522
ii .Non-current liabilities	600,022	1,177,488
Long-term trade and other non-current payables	12,055	12,519
Long-term borrowings	582,940	1,155,850
Other non-current liabilities	5,027	9,119
Total liabilities	1,286,001	1,608,808
[Capital stock]	15,951	15,951
[Retained earnings]	18,284	98,175
[Other components of equity]	333,013	340,582
[Non-controlling interest]	-	-
Total capital	367,248	454,708

Consolidated Statements of Comprehensive Income

Unit: KRW 1 million

Category	2018	2019
Sales	1,116,772	1,812,470
Cost of sales	1,002,169	1,568,885
Gross profit	114,603	243,585
SG&A	36,042	68,705
R&D expenses	13,566	20,993
Operating income	64,995	153,887
Other gains	2,963	3,973
Other loss	4,469	6,312
Finance income	20,904	43,762
Finance expenses	50,024	89,349
Related companies profit	(6,951)	4,053
Profit before tax	27,418	110,014
Income tax expense	7,023	22,190
Net profit	20,395	87,824
Other comprehensive gain(loss)	2,891	2,814
Total comprehensive gain(loss)	23,285	90,638

Major R&D Activities

Hyosung Chemical is pioneering the world of technology for the future of mankind through differentiated competitive technology, expertise in R&D, constant challenges and passion.

■ High-strength and High-resistant Foaming Polypropylene Materials for Pipes

The Polypropylene Research Team of the Hyosung R&DB Labs has developed a foaming polypropylene material which is suitable for automotive internal materials due to its excellent foam-forming properties and high heat-resistance and high stretchable properties. In the future, it will also be applied for lightening a vehicle. Based on our cutting-edge technology enabling high-rigidity and high-shock-resistance, we have managed to meet the demand and requirements from the European market. In the future, we will continue to improve the properties of polypropylene and expand the application areas including development of eco-friendly polypropylene materials.

■ High-intensity, Chemical-resistant, and Hamless Polyketone Materials for Food Conveyors

The Polyketone Research Team at the Hyosung R&DB Labs developed material for injection molding used in meat processing conveyor parts, which is suitable for food manufacturing as it has excellent chemical resistance and high-intensity while being harmless to human body. Polyacetals, which were used previously, can release harmful substances such as formaldehyde, but polyketone does not contain or emit harmful substances, making it suitable for food processing. In addition, with its highly chemical resistant and shock resistant properties, it can be reliably used in all food-handling sectors. In the future, we will continue to expand the market by developing more polyketone materials and use cases.

■ Various High-functional Films

The Film Research Team of the Hyosung R&DB Labs is developing functional films that apply primer surface design technology. Silicon release coating product protects adhesive layers by preventing contamination of adhesive materials. Anti-static coating products are used as mobile process protection films for their excellent anti-static performance and solvent-resistance. Currently, we are striving to develop high value-added films with high functions such as oxygen and moisture barrier, rainbow free and oligomer blocking.

■ Cost-competitive Acryl Film

In order to cope with moisture-resistant non-TAC needs according to the trend of large-scale TVs of customer companies, the Optical Film Research Team has succeeded to produce acryl film through solvent casting method using the existing TAC production line, for the first time in the world. Our Acryl film has the advantage of being uniform in thickness, good at coating adhesion, and resilient to foreign material/defects compared to the existing melting method, which improves coating quality during the customer's coating process. Also, the film thickness can be thinned, speeding up mass production process, contributing to enhanced productivity and cost competitiveness. We are planning to expand the use of acryl films for a variety of purposes, from TV to mobile to vehicle, through continuous technology development and quality improvement.

R&D Expenses

Hyosung Chemical constantly invests in R&D every year to ensure sustainable technological competitiveness.

Category	Unit	Hyosung Chemical		
		2018(Actual)	2019(Plan)	2019(Actual)
R&D expenses	KRW 1 million	13,566	20,289	20,993

Patent Registration and Application

Hyosung Chemical registers patents for its own technology every year to secure its intellectual property rights and use them as KPIs for performance management.

Category	Unit	Hyosung Chemical		
		2017	2018	2019
Patent registration(accumulated)	Cases	915	970	1,021
Patent application(accumulated)	Cases	1,904	1,969	1,993

Suppliers Status

Hyosung Chemical maintains a stable supply chain by supporting sustainable growth of its supplier companies.

Category	Unit	Hyosung Chemical	
		2018	2019
Number of suppliers	Companies	862	900
Total purchase from suppliers	KRW 1 million	1,145,741	1,022,410

Disclosure of Supplier Fair Trade Principles

Hyosung Chemical is pursuing sustainable growth together with suppliers based on the trust from the citizens. Recognizing that suppliers are a source of our competitiveness, we have established the 'The Code of Conduct for Hyosung Chemical Suppliers,' through which we form a transparent and fair business relationship with our partner companies and recommend practicing CSR to all partner companies dealing with Hyosung Chemical. In addition, by disclosing such principles on the Hyosung Chemical website, we announce our commitment to fulfill them as a social promise, not only a promise between the two companies.

Reporting Channel Operating Process

To practice ethical management, Hyosung Chemical set up 'Reporting Channel' on its website which is in operation under following process.

- ① Report Receipt: Our independent audit team receives a report.
- ② Report Review: The Audit Team checks the significance of the issue and selects the responsible department for the matter and conducts monitoring and review on processing of the report item.
- ③ Responsible Department: The responsible team (Audit Team, HR Team, Compliance Support Team) notifies the details of the issues including investigation result and solutions to the Audit Team.
- ④ Result: The decision from the responsible department is re-examined, and the final result is informed to the reporter.

Fair Trade Compliance Program

Hyosung Chemical has established an internal process to practice fair trade. Since 2006, the company has established and operated the self-compliance management system and updated related regulations and manuals in 2019. We ensure that internal and external stakeholders comply with relevant laws and regulations.

Social Performance

Hyosung Chemical is a large company with more than 1,000 employees and has a high sense of responsibility for the corporate social contribution. We have hired 61 new employees in line with job creation initiative for the local community. Moreover, in order to promote women’s active social engagement, we are increasing the proportion of female employees and female managers. In addition, we are increasing training hours and training investment costs per employee to develop their capabilities.

Employees Status

As of the end of 2019, Hyosung Chemical has 1,165 employees with about 2% of contract-based workers, employing the majority as regular employees. In addition, we are increasing the proportion of female employees and female managers in order to support their active social engagement.

Category	Subcategory	Unit	Hyosung Chemical	
			2018	2019
Total employees		Persons	1,198	1,165
Gender	Male	Persons	1,090	1,038
	Female	Persons	108	127
Employment type	Permanent (male)	Persons	1,069	1,028
	Permanent (female)	Persons	107	108
	Subtotal	Persons	1,176	1,136
	Temporary (Male)	Persons	21	10
	Temporary (Female)	Persons	1	19
	Subtotal	Persons	22	29
Region	Domestic	Persons	1,158	1,165
	Overseas	Persons	40	44
Job category(based on permanent employment)	Office work	Persons	564	520
	Manufacturing	Persons	634	616
Fostering female human resource	Female employees ratio	%	9.0	10.9
	Number of female at manager-level or higher	Persons	13	18
	Female managers ratio (Number of female managers divided by number of total managers)	%	5.2	7.4
Diversity	Disabled	Persons	15	19
	Veterans	Persons	20	21
	Foreigners	Persons	1	1
	Subtotal	Persons	36	41
Creating job opportunities (the newly employed)	Male	Persons	27	31
	Female	Persons	10	30
	Subtotal	Persons	37	61
Employees who left(only counting the permanent employees who voluntarily quit)	Male	Persons	35	28
	Female	Persons	10	10
	Subtotal	Persons	45	38
Turnover rate		%	3.83	3.35

Maternity Leave and Childcare Leave

Hyosung Chemical encourages maternity leave and childcare leave to balance work and life for female employees. As of the end of 2019, the ratio of employees who have continued to work for more than 12 months after returning is 100%, and we also plan to increase the proportion of male employees using childcare leave with constant support and encouragement.

Category	Subcategory	Unit	Hyosung Chemical	
			2018	2019
Male (maternity leave)	Employees under maternity leave	Persons	8	15
	Returning rate from maternity leave	%	100	100
Female (maternity leave)	Employees under maternity leave	Persons	10	7
	Returning rate from maternity leave	%	100	100
Male (childcare leave)	Employees under childcare leave	Persons	3	-
	Returning rate from childcare leave	%	-	100
	Rate of working more than 12 months after return	%	-	100
Female (childcare leave)	Employees under childcare leave	Persons	8	9
	Returning rate from childcare leave	%	-	89
	Rate of working more than 12 months after return	%	-	100

Regular Performance Evaluation

As of the end of 2019, Hyosung Chemical conducted a regular performance evaluation of 1,136 employees, or 97% of the total 1,165 employees. We have established a fair evaluation system, covering most of our employees in the evaluation system.

Category	Unit	Hyosung Chemical	
		2018	2019
Number of employees subject to performance evaluation	Persons	1,114	1,136
Performance evaluation rate	%	96	97

• The figures above (Total employees / Gender / Employment types / Region – Domestic / Job category / Fostering female human resource / Diversity / Creating job opportunities / Employees who left) have been based on full-time regular employees and contract-based temporary employees in domestic business sites.

• Overseas employees (Region – Overseas) denotes expatriate employees who have been dispatched to overseas business sites.

Labor Union Membership Status

We operate the Hyosung Chemical Branch of the Food Workers' Union beside the Hyosung Chemical Labor Union. In principle, we notify the labor union as soon as possible in the event of an important management matter in accordance with the collective agreement. Each business site transparently discloses the corporate management status to the employees through regular management briefing sessions and multi-layer meetings. In addition, we hold regular quarterly meetings to discuss welfare, grievances, and health and safety issues for each business site. Complaints received are managed throughout the company and are continuously monitored for improvement.

Category	Unit	Hyosung Chemical	
		2018	2019
Employees covered by collective agreements	Persons	341	615
Number of union workers	Persons	337	588
Rate of union workers	%	98.8	95.6

Retirement Pension

Hyosung Chemical operates both DB-type and DC-type retirement pension systems to ensure the employees' freedom of choice and complies with the related legal standards

Category		Unit	Hyosung Chemical	
			2018	2019
Total operating fund for retirement pension (DB+DC)		KRW 1 million	43,741	59,322
Operating fund of DB pension		KRW 1 million	43,200	58,337
Operating fund of DC pension		KRW 1 million	541	985
Total number of members	Subtotal	Persons	1,198	1,209
Number of DB pension members (Persons)		Persons	1,033	1,027
Number of DC pension members (Persons)		Persons	165	182

Basic Wage and Remuneration

Hyosung Chemical pays new employees 1.7 times more than the legal minimum wage to guarantee their welfare and increase their motivation to work.

Category		Unit	Hyosung Chemical	
			2018	2019
Basic salary for entry-level		KRW 1,000	3,118	3,272
Rate of entry-level salary to local minimum wage by law (%)	Male	%	184.6	174.7
	Female	%	184.6	174.7
Average basic salary		KRW 1,000	4,323	4,608

Employees Training Status

Hyosung Chemical provides training for developing employees' capabilities, and both total training costs and per capita training investment have more than doubled compared to 2018.

Category		Unit	Hyosung Chemical	
			2018	2019
Number of training participants	Accumulated number of training participants during the year	Persons	7,324	15,824
Total training expenses	Total training expenses including costs paid to external institutions and other administrative costs	KRW 1,000	421,497	976,805
Total training hours	Required training by law and training registered in Hyosung Training System	Hours	44,271	37,346
Average training hours per person (Total training hours/ total number of employees)		Hours	36.95	32.06
Average training expenses per person (Total training expenses / total number of employees)		KRW 1	351,834	838,459

Category		Unit	Hyosung Chemical
			2019
Total number of participants in Environment training		Persons	929
Total number of participants in Ethics and anti-corruption training		Persons	36
Total number of participants in Fair trade training		Persons	2
Total number of participants in Safety and health training		Persons	1,153
Total number of participants in Human rights training (preventing harassment)		Persons	2,208
Total number of participants in Information security training		Persons	704

Major CSR Activities

We have supported the visual artists of Seoul Art Space Jamsil, the only art residency studio for disabled artists in Korea which is run by Seoul Foundation for Arts and Culture, by funding their artwork and exhibition costs. In 2019, as part of support for the creative activities of disabled artists, we successfully held a special exhibition called 'Mumu' with 12 resident artists, and showed about 70 art pieces including paintings, photographs, installation art, and crafts. Recognized for such contribution, we have been selected as a company contribution to local community in 2019 upon the recommendation of the Seoul Foundation for Arts and Culture.

Health Care and Disease Prevention for Employees

Hyosung Chemical is conducting health care and disease prevention activities for its employees. Daejeon plant provides in-depth counseling and periodic health care for the prevention of musculoskeletal diseases through external health agency (KMI) on a monthly basis, and provides health care for field workers twice a year with the medical staffs visiting to the site. Moreover, the company has supported employees to quit smoking, assisting them with behavioral changes and practices. In addition, we conducted a survey to identify tasks prone to musculoskeletal disorders and subject workers. Accordingly, those found to be subject to musculoskeletal disorders (12% from total) have received medical and health care support accordingly.

Environment and Safety Performance

Hyosung Chemical is establishing its green management system with the environmental management system certification every year.management system certification every year. We have installed a detector for the discharge of hazardous chemicals at its Yongyeon plant for early detection and prompt response in case of an emergency of hazardous chemicals leakage. For the safety of employees, regular safety checks are conducted in each business site.

Energy Consumption

In order to reduce electricity use and practice green management, Hyosung Chemical has installed solar panels at the rooftop of DH power room office building in 2015, and expanded the facilities for additional operation. The solar power generated is used for hot water and internal heating for the building. In 2019, a total of 160,512kWh was generated and used internally, contributing to power saving and environment protection.

Category	Subcategory	Unit	Hyosung Chemical	
			2018	2019
Direct energy consumption	Diesel	TJ	8.10	13.08
	Kerosene	TJ	0.03	0.60
	LNG	TJ	406.62	360.46
	Gasoline	TJ	1.26	1.19
	Propane	TJ	38.74	52.51
	B-C oil	TJ	11.70	-
	Off-gas	TJ	5,136.44	5,300.41
	LPG	TJ	0.14	0.05
	Biogas	TJ	-	-
	Subtotal	TJ	5,603.02	5,728.30
Indirect energy consumption	Electricity	TJ	11,252.75	11,226.54
	Steam	TJ	-	-
	Process waste heat	TJ	-	-
	Waste incinerated heat	TJ	580.05	562.05
	Subtotal	TJ	11,832.80	11,788.59
Total		TJ	17,435.83	17,516.89
Energy intensity		TJ/KRW 100 million	0.992	0.966

• By 2018, Hyosung Corporation has reported GHGs emissions and energy usage, including four divided operating companies. And in November 2019, the emission rights and obligations have been succeeded to each operating company in accordance with the GHGs-related laws. In the process of transfer of rights, the amount of energy use and emissions have been partially changed from the figures reported in 2018 Hyosung Sustainability Report. (The total sum of energy use and emissions remain unchanged.)

• Since energy consumption and emissions are based on domestic business sites, the intensity was calculated using domestic sales.

Greenhouse gases(GHGs) Emissions

Through various efforts to reduce GHGs emissions, Hyosung Chemical has achieved a decrease in both direct and indirect emissions compared to 2018, which is proved by issuance of annual statements of GHGs emissions and third-party verification.

Category	Subcategory	Unit	Hyosung Chemical	
			2018	2019
Direct GHG emissions(Scope 1)	Fixed combustion	tCO ₂ eq	251,645	256,674
	Mobile combustion	tCO ₂ eq	656	608
	Process emissions	tCO ₂ eq	25,770	26,851
	Waste disposal	tCO ₂ eq	355	249
	Subtotal	tCO ₂ eq	278,426	284,382
Indirect GHG emissions(Scope 2)	Electricity	tCO ₂ eq	546,521	545,248
	Steam	tCO ₂ eq	-	-
	Subtotal	tCO ₂ eq	546,521	545,248
GHG emissions intensity		tCO ₂ eq/KRW 1 million	0.469	0.458

• The figures of emissions correspond to the information submitted to the Ministry of Environment for conformity assessment in 2019.

Energy Saving and Emissions Reduction Performance

Hyosung Chemical has established and implemented investment plans for replacing with high-efficiency facilities and installing inverters, to reduce emissions while saving energy at its business sites.

Business Site	Project Name	Execution Date	Hyosung Chemical		
			Budget (KRW 1 million)	Energy Saving Amount (kWh/year)	Emissions Reduction Amount (tCO ₂ eq/year)
Yongyeon 1	LED Light Replacement	2017.06	300	630,563	294
Yongyeon 2	Increasing Water Pump Efficiency	2017.11	11	182,305	85
Yongyeon 2	Heat Exchanger Replacement	2019.02	485	1,638,605	764
Yongyeon 2	Heat Exchanger Replacement	2018.01	462	4,684,182	2,184
Yongyeon 3	Installing Solar Power Facilities at Parking Lot	2017.09	140	27,125	12

Use of Renewable Energy

Hyosung Chemical receives waste incineration heat steam, a renewable energy source, from a domestic waste incineration plant near its business site, and uses electricity generated by solar power facilities installed in the plant. In particular, Yongyeon plant has established a network system to trade external steam and process-generated steam among nearby plants (also including external companies), contributing to optimal condition for making use of steam energy with high-efficiency.

Business Site	Energy Type	Unit	Hyosung Chemical	
			2018	2019
Oksan	Waste energy	GJ/year	249,766	224,441
Yongyeon 1	Waste energy	GJ/year	173	172
Yongyeon 1	Solar energy	kWh/year	61,391	57,551
Yongyeon 2	Waste energy	GJ/year	56,349	88,421
Yongyeon 2	Solar energy	kWh/year	70,788	34,756
Yongyeon 3	Waste energy	GJ/year	217,664	192,952
Yongyeon 3	Solar energy	kWh/year	67,375	68,205
Gumi	Waste energy	GJ/year	52,584	56,064

Water Resources Management Status

Hyosung Chemical uses part of the discharged water to wash belt press (dehydrator), saving water use for cleaning, and increases the replacement cycle of ion exchange resin (6 months ⇄ 1 year), saving water used for resin recovery. Also, the water used in the production process was recovered to the emergency reservoir in the plant to be reused for cooling. We also work closely with the production process to minimize unnecessary water usage.

Category	Subcategory	Unit	Hyosung Chemical	
			2018	2019
Water consumption by source of water	Waterworks	Tons	105,864	108,337
	Groundwater	Tons	103,624	105,330
	Industrial water	Tons	7,515,306	7,802,511
Total water consumption		Tons	7,724,794	8,016,178
Amount of recycled water		Tons	342,002	345,310
Water recycling rate		%	4.4	4.3

Wastewater and Water Treatment Status

Yongyeon plant uses different methods, including physical, chemical and biological methods, to treat wastewater, and in-company water quality standards for accepted water release are managed at about 30% of the legal standard. In addition, highly contaminated wastewater is entrusted to external agency for its management so that it does not affect the wastewater treatment plant. Hyosung Chemical’s Gumi plant collects wastewater from production process in wastewater treatment plant and then discharges it to the sewage treatment plant after minimizing water pollutants through the wastewater prevention facilities.

Category	Unit	Hyosung Chemical	
		2018	2019
Wastewater discharge amount	Tons	2,205,275.00	1,766,124.56
BOD	Tons	11.19	7.01
COD	Tons	23.33	14.39
SS	Tons	15.69	10.42
T-N	Tons	16.39	8.59
T-P	Tons	0.73	0.46

Waste Disposal Status

Hyosung Chemical has established waste management regulations and is safely treating wastes accordingly.

Category	Subcategory	Unit	Hyosung Chemical	
			2018	2019
Industrial waste (general)	Recycled	Tons	11,353.7	13,892.3
	Incineration	Tons	594.9	663.2
	Landfill	Tons	7,025.9	6,627.0
	Others	Tons	536.5	544.8
	Subtotal	Tons	19,511	21,727
Industrial waste (designated)	Recycled	Tons	662.6	681.8
	Incineration	Tons	458.1	431.4
	Landfill	Tons	14.6	10.5
	Others	Tons	9,272.0	7,944.7
	Subtotal	Tons	10,407	9,068
Total waste		Tons	29,918.2	30,795.7
Amount of recycled waste		Tons	12,016.4	14,574.1
Waste recycling rate		%	40.2	47.3

Air Pollutants Emissions

Hyoseong Chemical's Yongyeon and Gumi plants have installed low-NOx burners to reduce NOx, air pollutants generated from boilers, and a person in charge of the field conducts daily inspections to monitor pollution prevention facilities are operating properly. Also, we minimize air pollutant emissions by installing short-rage exhaust system (active carbon, adsorption carbon towers) and air prevention facilities in production process of PET films in Gumi plant.

Category	Subcategory	Unit	Hyosung Chemical	
			2018	2019
General air pollutants	Nitrogen oxides (NOx)	Tons	320.1	268.2
	Sulfur oxides (SOx)	Tons	44.1	20.5
	Particulate matter (PM)	Tons	9.5	8.6
Ozone depleting substances	CFC(R-11)	Tons	-	-
	HCFC(R-123)	Tons	-	-
	HCFC(R-22)	Tons	95.0	95.0

Hazardous Chemicals Management Status

Hyosung Chemical has installed a leak detector in a hazardous chemical storage facility to detect harmful chemicals in the event of an emergency, and to prevent damage from environmental accidents in advance.

Category	Unit	Hyosung Chemical	
		2018	2019
Hazardous substances usage amount	Tons	296,915.2	292,408.3
Basic unit of hazardous substances usage amount	Tons/KRW 1 million	0.16898	0.16133

• Since hazardous substance usage amount is based on domestic business sites, the basic unit was calculated using domestic sales.

Pre-receipt Safety Inspection for Chemicals

Hyosung Chemical is conducting safety inspection on suppliers at each receipt of chemicals to the company. In addition, MSDS is distributed to the person in charge of the chemical-handling business sites to build their awareness in hazard and danger of chemicals. Supplier companies are supposed to conduct inspection before shipping, and the vehicle transporting the chemicals can enter the company only when they pass the pre-shipment inspections and no problem is found in products. After that, related personnel from each team start inspection upon receipt of chemicals, and the entire process including parking of the carrier vehicles, connection of loading pipes and injection of chemicals, is conducted under the presence of the Environment Safety Team, Production Team, and Quality Team.

Environmental Investment

Hyosung Chemical implements an annual environmental investment plan to practice green management and improve the quality of environment. We mainly focus on investment in waste treatment, environmental restoration, and environmental pollution prevention, and process facility investment. In 2019, we invested (about KRW 1.6 billion) in facilities that convert methyl acetate, a byproduct of the oxidation reaction process, into super acid and re-put it into the process. It reduces the production cost while reducing the emission of harmful chemicals. In addition, we are reducing power consumption through facility investment including high-efficiency fuel pumps, replacement of old heat exchangers, and installation of small-scale blowers. Hyosung Chemical will continue to contribute to improving the environment of the country and the local community through continuous environmental investment.

Category	Unit	Hyosung Chemical	
		2018	2019
Waste treatment and environment restoration expenses	KRW 1,000	3,142,596	1,975,568
Pollution prevention and environmental management expenses	KRW 1,000	2,663,960	4,360,359
Environmental improvement facilities	KRW 1,000	-	2,534,406
Total	KRW 1,000	5,806,556	8,870,333

[Major Environmental Investments in 2019]

Category	Unit	Hyosung Chemical	
		Plan in 2019	Executed in 2019
Low-NOx burner installation	KRW 100 million	10.3	6.5
Installation of hazardous chemical detectors	KRW 100 million	1.2	1.2
Replacement of heat exchangers	KRW 100 million	6	6
Installation of MA hydrolysis facilities	KRW 100 million	16	16.8
Installation of small-scale blowers	KRW 100 million	3.7	3.2
Installation of adsorption towers	KRW 100 million	0.3	0.3
Improvement of ventilation facilities in washroom	KRW 100 million	3	3
Improvement of Hoist in Dope process /exhaust gas from adsorption towers	KRW 100 million	5.5	5.5
Total	KRW 100 million	46	42.5

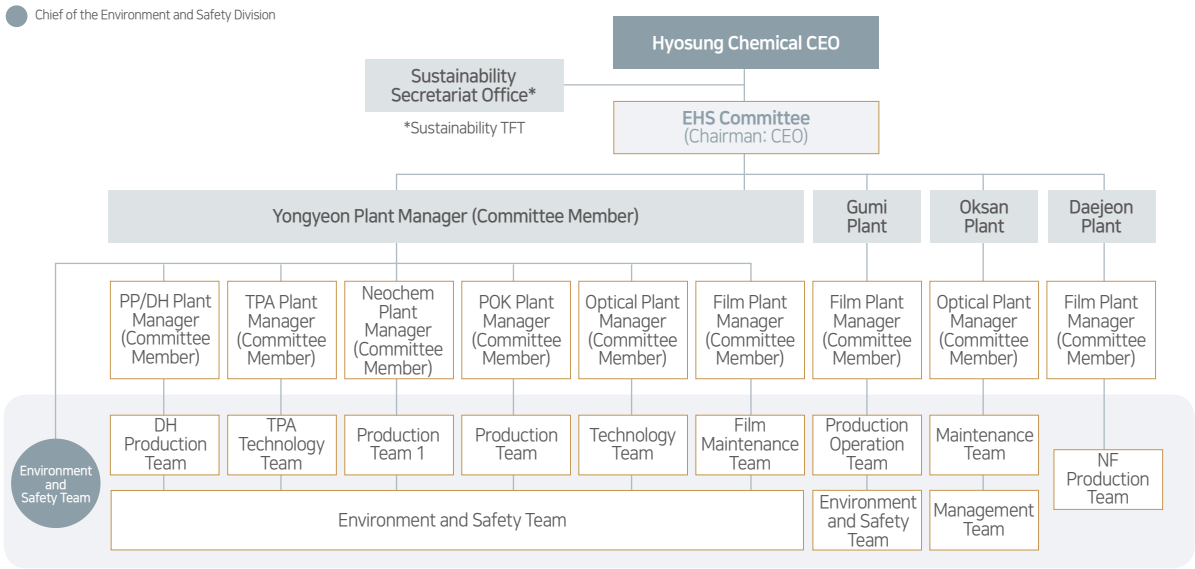
Sales and Purchase Performance of Green Products and Services

Hyosung Chemical is taking the lead in implementing green management by selling or purchasing green products and services. In 2019, We sold KRW 22.2 billion of eco-friendly products and services, and purchased 140 million. In order to promote green purchasing, we have established and operated a green purchasing policy by which eco-friendly products are given preferential consideration.

Category	Unit	Hyosung Chemical		
		2017	2018	2019
Sale	KRW 1,000	6,038,000	13,936,000	22,207,000
Purchase	KRW 1,000	8,664	89,260	138,870

Environment and Safety Management Meeting

Hyosung Chemical has held an environment and safety management meeting every half year since 2019, in which safety inspection results and safety management status of production plants are mainly discussed. The meeting is held under the supervision of the CEO and safety inspection is conducted for all plants. From 2020, the cycle of the meeting has been shortened from half-year to month, and the name of the meeting has been changed to EHS Committee. The CEO was appointed to chair the committee, the same as the meeting, and the manager of each plant is appointed as a member of the committee to enhance the effectiveness of operation.



Environmental Performance Management

As a certified green company, Hyosung Chemical's Yongyeon Plant 2 establishes a plan for quantitative amount (in unit price) of waste recycling and environmental pollution every three years. To achieve this, we are trying to reduce the amount of pollutants generated and to find additional recycling companies.

Category	Subcategory	Unit	Hyosung Chemical				
			Plan		Performance		Achievement rate
			Amount	Basic Unit	Amount	Basic Unit	
Air pollutants	NOx	Amount(TON), Basic unit(kg/TON, TON/TON(waste))	50.00	0.112	36.14	0.087	129%
	PM		1.50	0.003	1.73	0.004	81%
Water pollutants	COD		16.41	0.037	10.39	0.025	147%
	BOD		3.52	0.008	4.55	0.011	72%
	SS		6.70	0.015	7.83	0.019	80%
	TN		4.35	0.010	5.67	0.014	72%
	TP		0.54	0.001	0.39	0.001	127%
Wastes	Amount		5,226	0.012	6,864	0.016	71%
	Recycled amount		2,906	0.007	2,908	0.007	93%

Environmental Assessment

Hyosung Chemical has revised its environment, safety and health goals and the management guidelines for the detailed goals six times since its enactment in 2002. The detailed goals are established and monitored and evaluated for implementation and achievement. The main goals of 2019 are achieved about 90% so far, and they include zero environment and safety accident, production process stability, resource loss minimization, and thorough compliance with work standards. Hyosung Chemical will continue to conduct environmental assessments to identify and combat environmental and safety risks.

Environmental Management System Certification

Hyosung Chemical introduced ISO14001 to all its plants in order to effectively identify, evaluate, manage, and improve environmental risks and issues through the Environmental Management System (EMS). We have established environmental goals and detailed action plans for 2019, and conduct internal and external audits (Korea Quality Foundation) once a year to manage our performance against goals and continue to develop improvements. In addition, we derive and manage environmental impact factors found in plant operation through ISO14001 system. Since its enactment in 1996, we have revised the guidelines to emergency plan 11 times until 2019. For the matters with high risk of accident identified, we conduct scenario-based emergency training to minimize damage in the event of an accident.

Yongyeon Plant

Yongyeon plant operates ISO14001, and environmental impact assessment is conducted before introducing new production process or facilities. For the existing process, environmental impact assessment is conducted every three years to prevent risks. Also, the process is monitored and managed through the process monitoring system. The energy use status is managed on a unit basis, and the people in charge share and review the energy use status every week. In recognition of such efforts, we have obtained the Energy Champion certification from the Korea Energy Corporation.

Gumi Plant

After the introduction and operation of ISO 14001:2004 in 2007, Gumi Plant has switched to ISO 14001:2015 in 2018. Through environment management system, we identify and manage environmental impact factors, prepare scenarios and conduct emergency training accordingly so that we can minimize damage in the event of an accident.

Oksan Plant

Top patrol is conducted under the supervision of the plant manager to find and improve potential risk factors on a quarterly basis, and safety inspections are also implemented quarterly during hot and cold seasons. In addition, safety inspection on facilities and hazardous substances is held every month for each team under the lead of the Management Team. The legal safety inspection is conducted twice a year. (The deficiencies found are improved through annual self-audit in accordance with ISO14001 and PSM guidelines.)

Environment Audit

Hyosung Chemical conducts our own environmental audit once a year. The Environment Safety Team distributes assessment sheet for the audit to each business unit to assist their self-inspection, which allows them to immediately correct any problem found through notification for improvement and recommendation. The corrective actions must be reflected in the next year's environment, safety and health goals and are checked for further improvements during the environment audit at the end of year.

Environmental Cleanup Activities

As a member of the Ulsan Environmental Engineers Association, the Yongyeon plant participated in the ceremony of 2019 World Water Day (22.03.2019), which was held by Ulsan City, engaging in various of activities such as throwing EM earth balls and environmental cleanup for Taehwa River. We also contribute to the protection and improvement of the local environment by promoting our own environmental campaigns.

Raw and Subsidiary Materials Reduction Activities

Hyosung Chemical is also contributing to improving environment by reducing the use of raw and subsidiary materials which may cause negative environmental impact. Our Neochem PU produces NF3 GAS which is widely used in semiconductors, displays, and solar cells, by using HF (hydrogen fluoride), a colorless toxic gas, as a raw material. HF should be treated with extra caution in accordance with related laws and regulations. Therefore, we have a process for recovering HF, and the amount of HF recovery is increasing every year (the recovery rate in 2019 increased by 188% compared to 2018), through which we can reduce use of raw materials and further secure price competitiveness. We will continue to discover additional activities for reducing raw and subsidiary materials to enhance price competitiveness and protect environment.

Green Technology and Green Enterprise Certifications

As of the end of 2019, Hyosung Chemical has a total of three certifications for green technology and specialized green enterprise. We will continue to expand certifications in green technology and green enterprise through continuous green technology development.

Certification Organization	Certification Title	Hyosung Chemical	
		Certification Code and Product Name	Certification Period
KITC (Korea Industry Technology Certificate)	Green Technology	GT-16-00103	2016.08.11~2022.08.17
KITC	Green Specialized Enterprise	Yongyeon Plant 2	2007.10.31~2022.04.27
KITC	Green Technology Product	GTP-16-00185	2016.08.11~2022.08.17

Regular Safety Inspection Activities

Hyosung Chemical's Yongyeon Plant carries out various types of regular safety inspection activities. Each PU conducts a company-wide safety inspection every half year, and the Environmental Safety Team designates one PU every month for safety inspection. A designated person in charge of environment and safety in each team conducts monthly on-site PU safety inspection regarding the inspection subjects selected by the Environment and Safety Team./

Occupational Accident Rate

Category	Unit	Hyosung Chemical	
		2018	2019
Total number of occupational accidents : Accidental disaster + Occupational disease	Persons	6	4
Occupational accident rate : Total number of occupational accidents / Total number of employees x 100	%	0.50	0.34
Number of work-related fatalities	Persons	-	-
Work-related fatality rate per ten thousand employees : Number of work-related fatalities / Total number of employees x 10,000	‰	-	-

Provide Environmental Safety Training

Hyosung Chemical is providing regular environment and safety training to prevent related accidents. Each team conducts two hours of collective training for employees every year for environmental education such as air quality, water quality, waste, and energy saving, strengthening the awareness of environment and safety management. In addition, we deliver annual training on waste sorting at disposal, which has become a recent issue. The company also provides quarterly trainings to employees including supplier companies on all hazardous chemicals treated in the company, and promotes environmental safety awareness by trainings on process safety management (PSM), compliance with safety rules, and accident cases of other companies.

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Stakeholder Engagement

Stakeholders’ Main Interests and Communication Channels

Hyosung aims to provide differentiated value to stakeholders by identifying main interests of all stakeholders and establishing the right response target. We select stakeholders that have a significant impact on Hyosung, analyze risks and opportunities, and establish appropriate communication strategies for each stakeholder group. From the supply of products and services, pursuing economic and social values, to CSR activities contributing to sustainable supply chain, human rights, environment and society, Hyosung listens to stakeholders’ opinions sincerely and reflects them in its overall business activities.

Stakeholder Group	Main Interests	Our Response	Communication Channels
Customers	<ul style="list-style-type: none">Producing innovative products through R&DProviding customer-tailored productsContinued post-purchase communication	<ul style="list-style-type: none">We would like to strengthen the sustainability of our products and services by listening to customers feedback throughout entire product lifecycle, from R&D to final delivery.	<ul style="list-style-type: none">Company websiteGlobal exhibitionsTechnology exchange meetingsCustomer satisfaction surveys
Employees	<ul style="list-style-type: none">Providing fair evaluation and opportunitiesFacilitating communication between employees and managementCreating pleasant working environment	<ul style="list-style-type: none">We create an excellent working environment by ensuring various benefits and fair performance evaluation system, we encourage employees to actively participate in management.	<ul style="list-style-type: none">Wa-gle Wa-gle, Tong Tong bulletin boardsCommunitcator systemCEO-Leader meetingPerformance sharing meeting / business briefing meetingCompany-union meetings
Suppliers	<ul style="list-style-type: none">Fair distribution of performance outcomesPreventing unfair terms or unnecessary business interferencesPromoting fair business practices	<ul style="list-style-type: none">We continue to monitor the status of sustainable management of our suppliers and promote their voluntary practices for sustainability by providing training and supporting shared growth activities.	<ul style="list-style-type: none">Suppliers meetingQuality and safety improvement supportHot-line / whistleblowingWin-win cooperation program
Shareholders/ Investors	<ul style="list-style-type: none">Acquiring sustainable growth engine for the futureSecuring financial soundness and profitabilityEnsuring governance soundness	<ul style="list-style-type: none">In addition to the financial information, we disclose our sustainability performance and listen to opinions of shareholders/ investors on the improvement of sustainable management through performance evaluation.	<ul style="list-style-type: none">Corporate IR activitiesBOD and shareholders’ meetingBusiness reportsCorporate disclosure on the Korea Exchange
Local Communities	<ul style="list-style-type: none">Interactive communicationSincere CSR activitiesSustainable long-term support for capacity growth	<ul style="list-style-type: none">Through various communication channels, we constantly communicate with the local community, and we would like to contribute to the its development by carrying out CSR activities customized to the nature of each business company.	<ul style="list-style-type: none">Environmental cleanup activitiesOpen-house events at plantsBusiness-related CSR activitiesLocal community committees

Materiality Assessment

Hyosung selects key issues by analyzing the interests of major domestic/international stakeholders and their impact on business. The materiality assessment will be conducted by comprehensively considering international standards for sustainable management, such as GRI Standards, UN SDGs, and ISO 26000, social issues exposed to the media, and related trends within the same industry. In 2019, we derive a total of 12 key issues, and this report reveals Hyosung's management approach and major achievements on these issues.

Materiality Assessment Process

1. Constituting the Pool of Sustainability Issues

We have created a pool containing 51 sustainability issues based on the analysis of major international standards (i.e. GRI Standards, EcoVadis, ISO26000 and UN SDGs), internal corporate documents such as project plans and mid & long-term business strategies as well as market research.

2. Selecting Material Issues through Materiality Assessment

Material issues have been selected among 51 issues in the pool after evaluating materiality of each issue in the aspect of the business impact and the stakeholder interest. The stakeholder interest has been assessed by considering the level of interest in issues and information disclosure, and the business impact has been measured by level of management's interest and correlation with business strategy and financial performance.

3. Planning Structure and Contents of the Report

Key report issues have been derived in alignment with the material issues selected from the materiality assessment, based on which overall structure and detailed contents of this report have been planned.

Materiality Assessment

Peer Group Issues

Analyzing the issues of total 15 companies from the same or relevant industries

Internal Data Review

Internal stakeholders interview and main business strategy review and analysis

Media Research

Review 2,992 articles to analyze economic, social and environmental issues

International Standards Analysis

GRI Standards
EcoVadis
ISO26000
UN SDGs

Internal circle including key corporate strategy / status and industry issues

External circle including international standards and media sources

Key Report Issues

Focus Issues Derived from Materiality Assessment

Topic	Core Issues	GRI Aspect	Reporting Boundary	
			Internal	External
Economic	① Expansion to overseas markets for new growth engine	Market Presence	●	Customers, Suppliers
Social	② Customer relationship management (CRM) and maximizing customer satisfaction	Marketing and Labeling	●	Customers
Environmental	③ Green products and technology development	Energy	●	Customers
Social	④ Sustainable supplier chain management	Procurement Practices	●	Suppliers
Economic	⑤ Ethical management and anti-corruption activities	Ethics and Integrity	●	-
Social	⑥ Occupational safety and health	Occupational Health and Safety	●	-
Social	⑦ Mutual growth with local communities	Local Communities	●	Local Communities
Environmental	⑧ Climate change response	Energy, Emissions	●	-
Economic	⑨ Sound governances	Governance	●	-
Social	⑩ Product responsibility and safety	Customer Health and Safety	●	Customers
Social	⑪ Employees capacity building	Training and Education	●	-
Social	⑫ Respect for human rights	Human Rights Assessment	●	-

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Certifications Status and Association Membership Status By Business Site

Certifications Status by Business Site

Company	Business Site	Business Area	Certification			
			Environmental Management	Quality	Safety&Health	Eco-friendliness
Hyosung Corporation	Anyang	Interior	-	ISO 9001 IATF 16949	OHSAS 18001	-
Hyosung TNC	Headquarter	Headquarter	-	-	-	GRS
	Gumi	Spandex	ISO 14001	ISO 9001	Navi	-
		NPY	ISO 14001	ISO 9001		GRS
	Ulsan	NPY	ISO 14001	ISO 9001	KOSHA 18001	-
	Daegu1	Dyeing	-	-	-	Oeko-Tex® GRS
Hyosung Heavy Industries	Changwon	P&I	ISO 14001	ISO 9001 ISO 3834-2 KEPIC	KOSHA 18001 ISO 45001	-
	Sejong	P&I	ISO 14001	ISO 9001	ISO 45001	-
	Bangbae	Construction	ISO 14001	ISO 9001	-	Green Construction
Hyosung Advanced Materials		Tire Cord	ISO 14001	ISO 9001 IATF 16949	KOSHA 18001	GRS
	Ulsan	Tech. Yarn	ISO 14001	ISO 9001 IATF 16949	KOSHA 18001	GRS
		Aramid	ISO 14001	ISO 9001 IATF 16949		-
	Gyeongju	Steel Cord	ISO 14001	-	-	-
	Eonyang	Steel Cord	ISO 14001	ISO 9001 ISO/TS 16949	-	-
	Jeonju	Carbon	ISO 14001	ISO 9001 IATF 16949	-	-
	Daejeon	Interior	ISO 14001	ISO 9001	-	-
	Vietnam	Tire Cord	ISO 14001	ISO 9001 IATF 16949	ISO 45001	-
		Steel Cord	ISO 14001	ISO 9001 IATF 16949	-	-
	Quang Nam	Tire Cord	-	ISO 9001 IATF 16949	-	-

Company	Business Site	PU	Certification			
			Environmental Management	Quality	Safety&Health	Eco-friendliness
Hyosung Advanced Materials	Jiaxing	Tire Cord	ISO 14001	ISO 9001 IATF 16949	OHSAS 18001	Oeko-Tex® GRS
		Tech.Yarn	ISO 14001	ISO 9001 IATF 16949	OHSAS 18001	
		NPY	-	-	-	
		Film	ISO 14001	ISO 9001 BRC	OHSAS 18001	
	Qingdao	Steel Cord	ISO 14001	ISO 9001 IATF 16949	ISO 45001	-
		Interior	ISO 14001	-	ISO 45001	-
	Headqaurter	Headqaurter	-	ISO 9001	-	-
		Research center	-	ISO 9001	-	-
Hyosung Chemical	Yongyeon1	PP/DH	ISO 14001	ISO 9001	KOSHA 18001	-
		Neochem	ISO 14001	ISO 9001	ISO 45001	-
	Yongyeon2	TPA	ISO 14001	-	KOSHA 18001	Green Enterprise
		POK	ISO 14001	ISO 9001 IATF 16949		Green Enterprise Green Technology Product
	Yongyeon3	Film	ISO 14001	ISO 9001	-	-
		Opt. Film	ISO 14001	ISO 9001	-	-
		Neochem	ISO 14001	ISO 9001	ISO 45001	-
	Gumi	Film	ISO 14001	ISO 9001	NAVI	-
			-	-	FSSC22000	-
	Daejeon	Film	-	ISO 9001	ISO 22000 (FSSC22000)	-
	Oksan	Opt. Film	ISO 14001	ISO 9001	-	-

Certifications Status and Association Membership Status By Business Site

Association Membership Status By Business Site

Category	Association Name
Hyosung Group	The Federation of Korean Industries
	The Korea Enterprises Federation
	Korea Economic Research Institute
	Korea Management Association
	Korea Mecenat Association
	Korean-American Association
	Korea-Japan Economic Association
	Asia Society
	World Economic Forum (WEF)
	WEF YGL(Young Global Leader)
	KOREA - U.S. Economic Council
	YPO
	American Chamber of Commerce in Korea
Hyosung Corporation	Korea Chamber of Commerce and Industry
	Seoul Bar Association
	Korea International Trade Association
	Korea Listed Companies Association
	BLOOM COMPANY
	Federation of Korea Human Resource Development Representatives
	Korea Personnel Improvement Association
	Korean Standards Association
	HRD Forum
	Korea Association For Chief Financial Officers
	Korea Exchange
	Korea Investor Relations Service
	Institute of Internal Auditors Korea
Hyosung TNC	Korea Chamber of Commerce and Industry
	Seoul Bar Association
	Korea International Trade Association
	Korea Listed Companies Association
	Korea Textile Trade Association
	Korea Outdoor & Sport Industry Association
	Korea Chemical Fibers Association
	ICMC Signatory
	Korea Association For Chief Financial Officers
	Korea Exchange

Category	Association Name
Hyosung Heavy Industries	Korea Chamber of Commerce and Industry
	Seoul Bar Association
	Korea International Trade Association
	Korea Listed Companies Association
	Construction Association of Korea
	Korea Electrical Contractors Association
	Korea Fire Facility Association
	Korea Specialty Construction Association
	Korea Information & Communication Contractors Association
	Korea Mech. Const. Contractors Association
	International Contractors Association of Korea
	Korea Housing Association
	Korea Federation of Construction Contractors
	Korea Remodeling Association
	Korea Association for Natural Gas & Fuel Cell Electric Vehicles
	H2KOREA
	Korea Hydrogen Industry Association
	Korea Construction Engineers Association
	Korea Hydro Power Industry Association
	Korea Electrical Manufactures Association - Electric Motor Council
	Korea Association of Machinery Industry
	Korea Smart Grid Association
	Korea Electrical Manufactures Association
	Korea Exchange
	The Korean Society of Rotating Engineers
	Korea Electric Association
	The Korean National Committee of CIGRE
	Korea Plant Industries Association
Korea Atomic Industrial Forum	

Category	Association Name
Hyosung Advanced Materials	Seoul Chamber of Commerce and Industry
	Seoul Bar Association
	Korea International Trade Association
	Korea Listed Companies Association
	The Federation of Korean Industries
	The Korea Enterprises Federation
	Korea Economic Research Institute
	Korea Mecenat Association
	Korea Chemical Fibers Association
	Korea Exchange
	Membership Society of the National Museum of Contemporary Art, Korea
Hyosung Chemical	Korea Chamber of Commerce and Industry
	Seoul Bar Association
	Korea International Trade Association
	Korea Listed Companies Association
	Korea Semiconductor Industry Association
	Korea Industrial Special Gas Association
	Korea Petrochemical Industry Association
	Korea Packaging Engineers Association
	Korean Institute of Chemical Engineers - CEO Club
	Korea Display Industry Association
	Korean Packaging Association
	LG Twins Club
	Korea Exchange

Third Party Verification Statement

Foreword

Hyosung Corporation(“Hyosung”) commissioned NetworksY to undertake independent assurance of the Sustainability Report 2019(the “Report”). Hyosung (the holding company, Hyosung Corporation, and its four operating companies, Hyosung TNC, Hyosung Heavy Industries, Hyosung Advanced Materials, and Hyosung Chemical) has sole responsibility for the content of the Report. Our responsibilities in performing this assurance work is limited to the terms of the Agreement. The assurance engagements were based on the assumption that the data and information provided by the client to us were complete, sufficient, and true.

Scope and Standard

Hyosung describes its efforts and achievements of the corporate social responsibility activities in the Report. We conducted our engagement in accordance with ISAE 3000¹⁾ and AA1000AS(2008)²⁾. The term “moderate assurance” used in AA1000AS(2008) is designed to be consistent with “limited assurance” as articulated in ISAE 3000. Our assurance is a Type II assurance engagement as defined in the AA1000AS(2008). We evaluated the adherence to Principles of Inclusivity, Materiality and Responsiveness, and the reliability of the selected GRI Standards indices as below, where professional judgment of the team was exercised as materiality criteria.

We checked whether the Report has been prepared in accordance with the ‘Core Option’ of GRI Standards which covers the followings.

- GRI Standards Reporting Principles
- Universal Standards
- Topic Specific Standards
 - Management approach of Topic Specific Standards
 - Economic Performance : 201-1, 201-2, 201-3, 201-4
 - Anti-Corruption : 205-1, 205-2, 205-3
 - Energy : 302-1, 302-3, 302-3, 302-4, 302-5
 - Emissions : 305-1, 305-2, 305-3, 305-4, 305-5, 305-6, 305-7
 - Supplier Environmental Assessment : 308-1, 308-2
 - Occupational Health and Safety : 403-1, 403-2, 403-3, 403-4, 403-5, 403-6, 403-7, 403-8, 403-9, 403-10
 - Training and Education : 404-1, 404-2, 404-3
 - Local Communities : 413-1, 413-2
 - Supplier Social Assessment : 414-1, 414-2
 - Customer Health and Safety : 416-1, 416-2
 - Marketing and Labeling : 417-1, 417-2, 417-3

Limitations

The performance and reporting practices of partners, contractors and, third parties other than the reporting boundaries specified in the report are not within the scope of this assurance. Limited depth of evidence gathering including inquiry and analytical procedures and limited sampling at lower levels in the organization were applied. The baseline data for environmental and social performance are not verified, while the aggregated data at the corporate level are used for the verification. We expressly disclaim any liability or co-responsibility for any decision a person or an entity may make based on this Assurance Statement.

Approach

In order to verify the contents of the Report within an agreed scope of assurance in accordance with the assurance standard, we have carried out an assurance engagement as follows:

- Reviewed overall report
- Reviewed materiality test process and methodology
- Reviewed stakeholder engagement process
- Interviewed people in charge of preparing the Report
- Reviewed strategies and internal systems for sustainability management performance and activities

Conclusion

Based on the results we have obtained from material reviews and interviews, we had several discussions with Hyosung on the revision of the Report. We reviewed the Report’s final version in order to confirm that our recommendations for improvement and our revisions have been reflected. When reviewing the results of the assurance, we could not find any inappropriate contents in the Report to the compliance with the principles stipulated below. Nothing has come to our attention that causes us to believe that the data included in the verification scope are not presented appropriately.

- **Inclusivity : Participation of Stakeholders**
We could not find any evidence that any critical stakeholder group has been left out from the stakeholder engagement process mentioned in the Report. Also, we could not find any reason to conclude that Hyosung did not apply the principle of inclusivity in practicing sustainable management.
- **Materiality : Determining and Reporting of Material Issues**
We did not find any significant issues related to Hyosung’s sustainability performance excluded from the Report, nor did we find any issues that make us determine that Hyosung did not apply the process to derive important issues to be included in the Report.
- **Responsiveness : Organization’s Response to Material Issues**
We could not find any evidence to conclude that Hyosung did not apply the principle of responsiveness when considering what to include in the Report.

We could not find any evidence the Report was not prepared in accordance with the ‘Core Option’ of GRI standards.

Recommendation for Improvement

We hope the Report is actively used as a communication tool with stakeholders and recommend the following for continuous improvements. Hyosung has identified key issues related to sustainability by publishing a comprehensive report encompassing the holding company and its business companies, and has reported the information separately by each company, which is highly appreciated. However, the industries vary depending on the characteristics of each business company, requiring further improvement for important issues which have not been addressed in differentiated way by each company. In addition, business sites and products of each company were not presented with their performance based on clear division due to their complexity. We recommend that Hyosung communicates more actively with stakeholders by publishing company-specific reports in the future.

Independence

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

July, 2020
CEO. **SUNG SANG LEE**



* AA1000AS (2008) : AA1000 Assurance Standard (2008) is a global verification standard established by AccountAbility and provides a method to report sustainability issues by evaluating an organization’s operation, compliance with principles, and reliability of performance information.
* AA1000AP (2018): AA1000 AccountAbility Principles (2018) provides the principles underlying the AA1000 standard as a global verification principle established by AccountAbility.

GRI Standards Index

General Standards				
Topic	Index	Index Description	Page	Comments
Organizational Profile	102-1	Name of the organization	5	
	102-2	Activities, brands, products, and services	5	
	102-3	Location of headquarters	5	
	102-4	Location of operations	5, 12~17	
	102-5	Ownership and legal form	34~35	
	102-6	Markets served	12~17	
	102-7	Scale of the organization	58, 59, 64, 66, 71, 73, 79, 81, 88, 90	
	102-8	Information on employees and other workers	40~44, 59, 60, 66, 67, 73, 74, 81, 82, 83, 90, 91	
	102-9	Supply chain	24~32, 65, 72, 80, 89	
	102-10	Significant changes to the organization and its supply chain	-	No significant changes during reporting period
	102-11	Precautionary principle or approach	36~37	
	102-12	External initiatives	105	
	102-13	Membership of associations	101	
Strategy	102-14	Statement from senior decision-maker	4	
Ethics and Integrity	102-16	Values, principles, standards, and norms of behavior	5, 38~39	
	102-17	Mechanisms for advice and concerns about ethics	38~39	
Governance	102-18	Governance structure	34~35	
Stakeholder Engagement	102-40	List of stakeholder groups	98	
	102-41	Collective bargaining agreements	60, 67, 74, 82, 91	
	102-42	Identifying and selecting stakeholders	98	
	102-43	Approach to stakeholder engagement	98	
	102-44	Key topics and concerns raised	98	
Reporting Practice	102-45	Entities included in the consolidated financial statements	-	Refer to the business report
	102-46	Defining report content and topic boundaries	99	
	102-47	List of material topics	99	
	102-48	Restatements of information	2	
	102-49	Changes in reporting	2	
	102-50	Reporting period	2	
	102-51	Date of most recent report	2	
	102-52	Reporting cycle	2	
	102-53	Contact point for questions regarding the report	2	
	102-54	Claims of reporting in accordance with the GRI Standards	2	
	102-55	GRI content index	103~104	
	102-56	External assurance	102	
Management Approach	103-1	Explanation of the material topic and its boundary	Each Material Issue	
	103-2	The management approach and its components	Each Material Issue	
	103-3	Evaluation of the management approach	Each Material Issue	

Topic-Specific Standards				
Topic	Index	Index Description	Page	Comments
Economic Standard Series(GRI 200)				
Economic Performance	103-1,2,3	Management approach	24, 26, 27, 29, 31, 45	
	201-1	Direct economic value generated and distributed	58, 64, 71, 79, 88	
	201-2	Financial implications and other risks and opportunities due to climate change	49	
	201-3	Defined benefit plan obligations and other retirement plans	60, 67, 74, 82, 91	
	201-4	Financial assistance received from government	77	
Anti-Corruption	103-1,2,3	Management approach	38	
	205-1	Operations assessed for risks related to corruption	38~39	
	205-2	Communication and training about anti-corruption policies and procedures	38~39	
	205-3	Confirmed incidents of corruption and actions taken	38~39	
Environmental Standards Series(GRI 300)				
Energy	103-1,2,3	Management approach	48	
	302-1	Energy consumption within the organization	61, 68, 75, 84, 92	
	302-2	Energy consumption outside of the organization	61, 68, 75, 84, 92	
	302-3	Energy intensity	61, 68, 75, 84, 92	
	302-4	Reduction of energy consumption	49, 61, 68, 75, 84, 92	
	302-5	Reductions in energy requirements of products and services	18~23	
Emissions	103-1,2,3	Management approach	48	
	305-1	Direct (Scope 1) GHG emissions	61, 68, 75, 84, 92	
	305-2	Energy indirect (Scope 2) GHG emissions	61, 68, 75, 84, 92	
	305-3	Other indirect (Scope 3) GHG emissions	-	
	305-4	GHG emissions intensity	61, 68, 75, 84, 92	
	305-5	Reduction of GHG emissions	49	
	305-6	Emissions of ozone-depleting substances (ODS)	62, 69, 76, 86, 94	
Supplier Environmental Assessment	103-1,2,3	Management approach	24, 26, 27, 29, 31	
	308-1	New suppliers that were screened using environmental criteria	26, 27, 29, 31	
	308-2	Negative environmental impacts in the supply chain and actions taken	26, 27, 29~31, 37	
Social Standards Series(GRI 400)				
Occupational Health and Safety	103-1,2,3	Management approach	52	
	403-1	Occupational health and safety management system	52	
	403-2	Hazard identification, risk assessment, and incident investigation	52~53	
	403-3	Occupational health services	52~53	
	403-4	Worker participation, consultation, and communication on occupational health and safety	52~53	
	403-5	Worker training on occupational health and safety	52~53	
	403-6	Promotion of worker health	52~53	
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	52~53	
	403-8	Workers covered by an occupational health and safety management system	52~53	
	403-9	Work-related injuries	63, 70, 78, 87, 96	
Training and Education	403-10	Work-related ill health	63, 70, 78, 87, 96	
	103-1,2,3	Management approach	41	
	404-1	Average hours of training per year per employee	60, 67, 74, 83, 91	
	404-2	Programs for upgrading employee skills and transition assistance programs	41~42	
Local Communities	404-3	Percentage of employees receiving regular performance and career development reviews	59, 66, 73, 82, 90	
	103-1,2,3	Management approach	45	
	413-1	Operations with local community engagement, impact assessments, and development programs	45~46, 60, 67, 74, 82, 91	
Supplier Social Assessment	413-2	Operations with significant actual and potential negative impacts on local communities	-	No significant changes during reporting period
	103-1,2,3	Management approach	24, 26, 27, 29, 31	
	414-1	New suppliers that were screened using social criteria	26, 27, 29, 31	
Customer Health and Safety	414-2	Negative social impacts in the supply chain and actions taken	26, 27, 29, 31	
	103-1,2,3	Management approach	18, 19, 20, 21, 23	
	416-1	Assessment of the health and safety impacts of product and service categories	18~23	
Marketing and Labeling	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	-	No significant changes during reporting period
	103-1,2,3	Management approach	18, 19, 20, 21, 23	
	417-1	Requirements for product and service information and labeling	18~23	
	417-2	Incidents of non-compliance concerning product and service information and labeling	-	No significant changes during reporting period
	417-3	Incidents of non-compliance concerning marketing communications	-	No significant changes during reporting period

GRI Standards Index

Other Standards				
Topic	Index	Index Description	Page	Comments
Strategy	102-15	Key impacts, risks, and opportunities	36~37, 99	
Governance	102-21	Consulting stakeholders on economic, environmental, and social topics	26, 28, 30, 32, 98	
	102-22	Composition of the highest governance body and its committees	34~35	
	102-23	Chair of the highest governance body	34~35	
	102-24	Nominating and selecting the highest governance body	34~35	
	102-25	Conflicts of interest	34~35	
	102-26	Role of highest governance body in setting purpose, values, and strategy	34~35	
	102-28	Evaluating the highest governance body's performance	34~35	
	102-29	Identifying and managing economic, environmental, and social impacts	34~35	
	102-30	Effectiveness of risk management processes	36~37	
	102-31	Review of economic, environmental, and social topics	99	
	102-32	Highest governance body's role in sustainability reporting	99	
	102-34	Nature and total number of critical concerns	99	
	102-35	Remuneration policies	34	
	102-36	Process for determining remuneration	34	
Market Presence	202-1	Ratios of standard entry level wage by gender compared to local minimum wage	60, 67, 74, 82, 91	
	202-2	Proportion of senior management hired from the local community	59, 66, 73, 81, 90	
Indirect Economic Impacts	203-1	Infrastructure investments and services supported	45~47	
	203-2	Significant indirect economic impacts	45~46, 60, 67, 74, 82, 91	
Procurement Practices	204-1	Proportion of spending on local suppliers	65, 72, 80, 89	
Anti-Competitive Behavior	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	25, 26, 28, 30, 32	
Tax	207-1	Approach to tax	-	
	207-2	Tax governance, control, and risk management	-	
	207-3	Stakeholder engagement and management of concerns related to tax	-	
	207-4	Country-by-country reporting	-	
Materials	301-1	Materials used by weight or volume		
	301-2	Recycled input materials used	62, 69, 76, 85, 93	
	301-3	Reclaimed products and their packaging materials	-	
Water	303-1	Interactions with water as a shared resource	62, 69, 76, 85, 93	
	303-2	Management of water discharge-related impacts	-	
	303-3	Water withdrawal	62, 69, 76, 85, 93	
	303-4	Water discharge	62, 69, 76, 85, 93	
	303-5	Water consumption	-	
Biodiversity	304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	-	
	304-2	Significant impacts of activities, products, and services on biodiversity	-	
	304-3	Habitats protected or restored	-	
	304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	-	

Other Standards				
Topic	Index	Index Description	Page	Comments
Effluents and Waste	306-1	Water discharge by quality and destination	62, 69, 76, 85, 93	
	306-2	Waste by type and disposal method	62, 69, 76, 85, 93	
	306-3	Significant spills	-	No significant spills during reporting period
	306-4	Transport of hazardous waste	-	
	306-5	Water bodies affected by water discharges and/or runoff	-	
Environmental Compliance	307-1	Non-compliance with environmental laws and regulations	-	N/A
Employment	401-1	New employee hires and employee turnover	59, 66, 73, 81, 90	
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	-	
	401-3	Parental leave	59, 66, 73, 81, 90	
Labor/ Management Relations	402-1	Minimum notice periods regarding operational changes	-	
Diversity and Equal Opportunity	405-1	Diversity of governance bodies and employees	34~35, 59, 66, 73, 81, 90	
	405-2	Ratio of basic salary and remuneration of women to men	60, 67, 74, 82, 91	
Non-Discrimination	406-1	Incidents of discrimination and corrective actions taken	38~39	
reedom of Association and Collective Bargaining	407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	-	N/A
Child Labor	408-1	Operations and suppliers at significant risk for incidents of child labor	-	N/A
Forced or Compulsory Labor	409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	-	N/A
Security Practices	410-1	Security personnel trained in human rights policies or procedures	-	
Rights of Indigenous Peoples	411-1	Incidents of violations involving rights of indigenous peoples	-	No significant changes during reporting period
Human Rights Assessment	412-1	Operations that have been subject to human rights reviews or impact assessments	105	
	412-2	Employee training on human rights policies or procedures	105	
	412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	-	
Human Rights Assessment	415-1	Political contributions	-	
Customer Privacy	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	-	No significant changes during reporting period
Socioeconomic Compliance	419-1	Non-compliance with laws and regulations in the social and economic area	-	No significant changes during reporting period

UN SDGs (UN Sustainable Development Goals)

UN SDGs (Sustainable Development Goals) are the follow-up goals after the MDGs (Millenium Development Goals) that the UN and the international society as a whole are committed to achieve between 2016 and 2030. The SDGs include 17 goals and 169 targets for sustainable development of all countries around the world, including solving climate change response, economic growth, and decent jobs. The key sustainability targets in line with UN SDGs and main UN SDGs targets by each operating company are as follows.





UN SDGs 17 Goals

- Goal 1 - End poverty in all its forms everywhere
- Goal 2 - End hunger, improve food security, and promote sustainable agriculture
- Goal 3 - Ensure healthy lives and promote well-being for all at all ages
- Goal 4 - Ensure quality education and promote life-long learning opportunities for all
- Goal 5 - Achieve gender equality and empower all women and girls
- Goal 6 - Ensure availability and sustainable management of water and sanitation for all
- Goal 7 - Ensure access to sustainable energy for all
- Goal 8 - Promote sustainable economic growth, full employment and decent work for all
- Goal 9 - Build resilient infrastructure, promote sustainable industrialization
- Goal 10 - Reduce inequality within and among locations
- Goal 11 - Make cities and human settlements inclusive, safe, resilient, and sustainable
- Goal 12 - Ensure sustainable consumption and production patterns
- Goal 13 - Take urgent action to combat climate change and its impacts
- Goal 14 - Conserve and sustainably use the oceans, seas and marine resources
- Goal 15 - Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss
- Goal 16 - Establish and fair justice system for all
- Goal 17 - Strengthen the means of implementation and revitalize the global partnership for sustainable development

Hyosung's Sustainability Issues and Response Target

Key Sustainability Issues	UN SDGs	Response Activities
① Expansion to overseas markets for new growth engine		Expand overseas sales share and production bases in Europe
② CRM and customer satisfaction	 	Secure ViU(Value in Use) and achieve zero customer complaint
③ Green products and technology development	   	Recycle waste/hazardous substances. Pursue green management through green technology and green enterprise certifications
④ Sustainable supplier chain management	 	Increase suppliers on the shared growth agreement. Timely execution of shared-growth projects.
⑤ Ethical management and anti-corruption activities		Promote communication channels for ethical management (grievance center, HR counseling center)
⑥ Occupational safety and health	 	Systematic response by segmenting safety management issues by process, facility, task, and handling materials
⑦ Mutual growth with local communities	    	Ensure that all the underprivileged in the community receive support through effective CSR activities
⑧ Climate change response	    	Expand renewable energy development such as wind power, solar power, ESS, methane gas recycling facilities
⑨ Securing sound governance		Implementing mid & long-term sustainability action plans. Expand engagement in global initiatives
⑩ Product responsibility and safety		Reinforce organizational structure of research institutes (Hyosung R&DB Lab, R&D committee)
⑪ Employees capacity building	 	Provide well-organized training program in cooperation with group training center and training personnel in each operating company
⑫ Respect for human rights	  	Expand quality jobs through hiring more underprivileged and minimizing irregular/temporary positions

Sustainability Issues and Response Target by Operating Company

Hyosung TNC		
Key Sustainability Issues	UN SDGs	Response Activities
① Expansion to overseas markets for new growth engine		Securing production bases in Vietnam and India and expanding to new market based on green business
③ Green product/technology development		Expanding recycled products and low-carbon products
Hyosung Heavy Industries		
Key Sustainability Issues	UN SDGs	Response Activities
① Expansion to overseas markets for new growth engine		Expanding production bases in the US and signing more projects in renewable energy
③ Green product/technology development		Developing 170kV eco-friendly gas-insulated switchgear and obtaining liquefied hydrogen charging station
Hyosung Advanced Materials		
Key Sustainability Issues	UN SDGs	Response Activities
① Expansion to overseas markets for new growth engine	 	Maintaining the No.1 market share in the PET tire cord market and expanding aramid production capacity
② CRM and customer satisfaction		Achieving 70% of completion rate of Skill-up training in Ulsan plant and expanding VOC activities
Hyosung Chemical		
Key Sustainability Issues	UN SDGs	Response Activities
① Expansion to overseas markets for new growth engine		Expanding production facilities in Vietnam and production capacity of Hyosung Vina Chemicals
③ Green product/technology development		Increasing certifications of green technology and green enterprise certification