

Lifetime Value Creator

LOTTE Fine Chemical Sustainability Report 2019

LEADING FINE CHANGE

Globality

Integrity

Sustainability



ABOUT THIS REPORT

LOTTE Fine Chemical (LFC) began issuing its Sustainability Report in 2016 in order to inform internal and external stakeholders of the company's sustainability, and to listen attentively to stakeholder expectations and demands. In this fifth sustainability report, we analyze and report main businesses from the economic aspect, which is the basis for income creation and growth engines, as well as from the social and environmental aspect that determines the company's sustainability. Based on this integrated and transparent reporting on both financial and non-financial performance, LFC seeks to promote sustainable growth and gain stakeholders' trust.

Reporting Period and Scope This report presents data about the company's performance from January 1 through December 31, 2019, and some data include activities conducted in 2020. Quantitative data includes the outcomes for the last three years to identify trends. This report is mainly on the economic, environmental, and social activities and accomplishments made by the company's worksite in Korea, including the Ulsan complex, Seoul office, and Incheon plant. Some of the disclosed data includes the performance of overseas subsidiaries, direct subsidiaries, and supply chains.

Reporting Principles and Reporting Standard This report was created in accordance with the business model format of the standard integrated reporting framework that was established by the International Integrated Reporting Council (IIRC) and the core options of the Global Reporting Initiative (GRI) Standards, which are international sustainability management reporting guidelines. It also presents data that reflects environmental, social, and governance (ESG) performance and UN's Sustainable Development Goals (SDGs).

Reporting Cycle LFC issues its sustainability report every year, and the latest issuance date is June 2019.

External Assurance Financial information was assured by an independent auditor. Also, in order to ensure the report's objectivity and reliability, a third party assurance was undertaken in accordance with international standards AA1000AS (Addendum 2018) and AA1000AP 2018. A separate assurance took place for greenhouse gas data.



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This report is available in PDF format which can be downloaded at the company website of LFC

LFC constantly strives for change and innovation. We change so that we can create better products and achieve stronger growth, and we innovate so that we can be a positive influence throughout society.

LFC also thinks ahead. Our focus is on how we can enhance the value of life and strike the right balance with the environment. We are also seeking new ways to create social and environmental value at the same time as achieving financial success, so that we can grow in partnership with all of our stakeholders.

In 2019, LFC continued to think carefully and act boldly in order to bring about profound changes for the better. Through our outstanding products that add values **PAGE 10** and constant efforts to create shared value **PAGE 16**, we take the lead on the path towards a sustainable future.

LFC strives to fulfill the UN Sustainable Development Goals (SDGs) to perform corporate social responsibilities and to develop into a sustainable company. The UN SDGs are 17 goals that humankind should ultimately achieve from 2015 through 2030 that were set by the UN for sustainable development of the international community. LFC will continue to make its best efforts to implement the UN SDGs to realize a "life of harmony between humankind and the environment", in addition to economic growth.



LFC AT A GLANCE



1964

Establishment



Website of LFC



844

Number of employees



ZERO

No. of cases of customer information leakage



ZERO

No. of cases of corruption



100%

Percentage of employees who have received training on anti-corruption

SOCIAL PERFORMANCE

FINANCIAL PERFORMANCE



1,792.7

Total assets (KRW billion)



1,311.3

Sales (KRW billion)



168.4

Net income (KRW billion)



15 companies

Support for partner companies' establishment of a safety and health management system (KOSHA 18001)



72.5%

Employee participation rate in social contributions



3.1 hours

Volunteering hours per employee

ENVIRONMENTAL PERFORMANCE



20.1%

Debt ratio



AA-

Credit ratings (Korea Ratings, Nice Investors Service)



11.3%

ROE



83.9%

Recycling rate of waste



1,731

Investment in the environment (KRW million)



379.6

Eco-friendly product sales (KRW billion)

* As of December 31, 2019; Based on consolidated financial statements

* As of December 31, 2019

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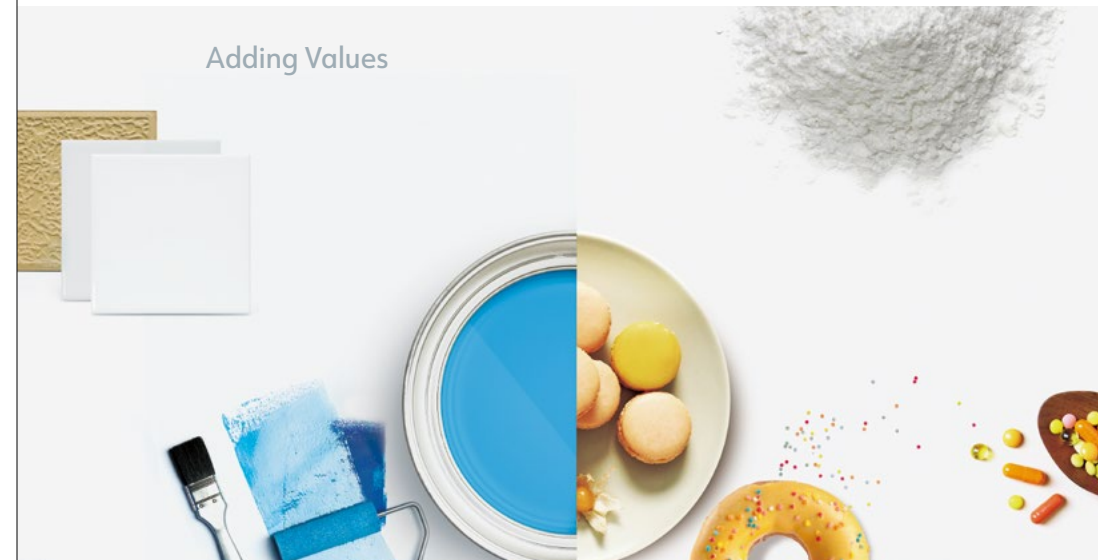
Sustainability Performance



16



Adding Values



10



Company website
www.lottefinechem.com

Brand website
Green materials www.lotte-cellulose.com
EUROX® www.eurox.co.kr



CEO MESSAGE



Thanks to your continued interest and support, LOTTE Fine Chemical (LFC) has created its fifth sustainability report, after the first report was published in 2016. On behalf of everyone at LFC, I give you my profound thanks for your unwavering encouragement and support.



Dear stakeholders,

Growth in the global economy in 2019 was sluggish, bordering on stagnation, which in turn has led to increased uncertainty worldwide. In addition to major trade disputes, including the dispute between Korea and Japan and the US-China protectionist trade conflict, there were major changes in the business environment driven by rapid technological change, including artificial intelligence (AI) and digital transformation. There were also challenges rising from within the business environment at home, including tighter environmental regulations, rising unemployment, and a prolonged period of slow economic growth.

Even in this difficult environment, we carried out capacity expansion for our specialty products, including MECELLOSE[®] and AnyCoat[®], and maintained sales of key products such as epichlorohydrin (ECH) and caustic soda. As a result, we were able to achieve a good financial performance for the year, with KRW 1,311.3 billion in sales and KRW 168.4 billion in net income, despite the stagnancy in the overall chemical market.

Going forward, we will enhance competitiveness of our existing businesses by improving cost and quality management and increasing efficiency while also building the engines of new growth, including the development of new technologies, new products, and new businesses. This will enable us to realize our mid- to long-term vision of becoming an “Asian Top 10 Fine Chemical Company”.

As well as creating economic value, LFC is striving to become a sustainable company. In 2019, we made significant efforts to repay all of our stakeholders for their support, and to achieve win-win cooperation with our local communities.

As a result, LFC has earned recognition for its sustainable management. We have received an A grade for three consecutive years in the ESG evaluation conducted by the Korea Corporate Governance Service, and an AA grade for four consecutive years in the ESG evaluation by SUSTINVEST. In 2020, we will continue to create a better world as a sustainable company by implementing our “3+1 CSR Specialization Strategy”, which we have defined as “Happy Family, Dreamy Future, Warm Companion, and Clean Environment”, under our social contribution slogan of “The World of Sharing and Mutual Cooperation”.

In 2020, LFC, along with the rest of the world, is facing an unprecedented crisis caused by COVID-19. However, we will build on our experiences of turning crises into opportunities, and will advance further in the year ahead. I ask for your continuing interest and support as LFC takes on the challenge of creating a better future as a sustainable company.

May 2020

CEO, LOTTE Fine Chemical
Kyung-Moon Jung

COMPANY PROFILE

Company Overview

Established in 1964, LFC began with the general chemical business, which is the foundation of the chemical industry, and has been at the heart of the development of the Korean chemical industry ever since. We have experienced many changes and challenges over the last 57 years, but continued to expand capacity, increase efficiency, and invest into advanced R&D. As a result, LFC has grown into a technology-based specialty chemical company which is preparing for new growth, with the target of becoming an "Asian Top 10 Fine Chemical Company".

LFC is expanding our R&D infrastructure in order to discover new uses for our products, and to provide our customers with top-quality technology services. At the same time, our worksites are constantly innovating so that we can become a global leader in both manufacturing competitiveness and safety. LFC is also enhancing our global position by improving the competitiveness of existing businesses and building the drivers of future growth, based on creative labor-management culture, and on the strength of our expertise and experience developed on the global stage.

In addition, we are striving to fulfill our corporate social responsibilities and to achieve sustainable growth by solidifying win-win cooperation with all of our stakeholders, including customers, partner companies, and local communities.

Ownership Stock Information

Number of shares issued	25,800,000
Paid-in capital	KRW 129.0 billion
Share price ¹⁾	KRW 45,150
Market capitalization	KRW 1,164.9 billion

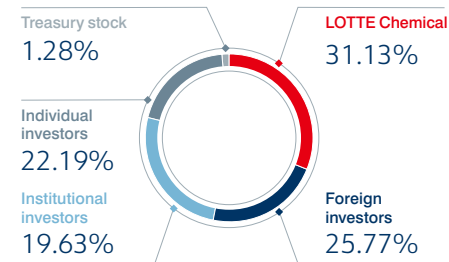
¹⁾ Based on the 2019 year-end share price

Key Milestones

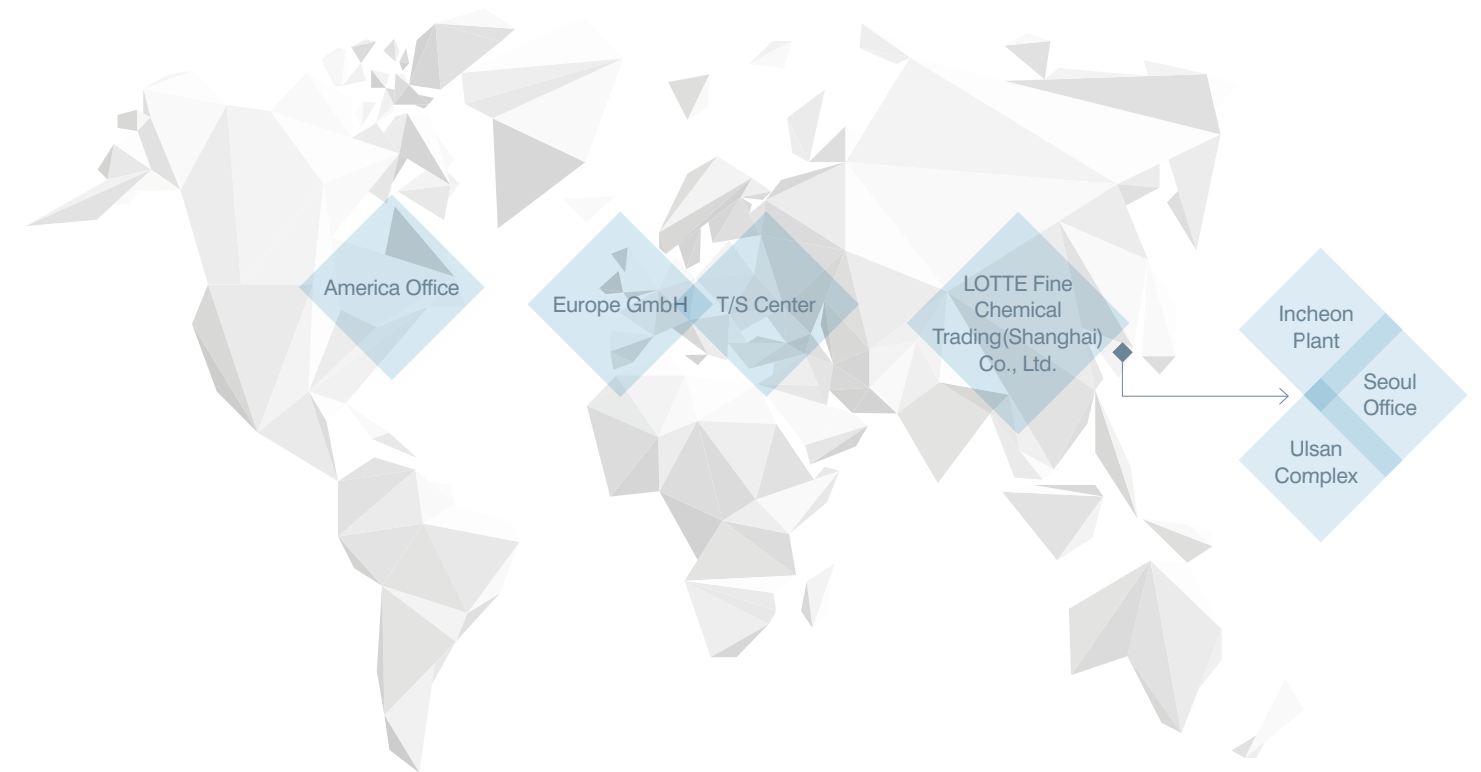
CEO	Kyung-Moon Jung
Establishment date	August 27, 1964
Industrial classification	Chemical product manufacturing
Number of employees	844
Total assets	KRW 1,792,685 million
Sales	KRW 1,311,271 million
Net income	KRW 168,372 million

* As of December 31, 2019;
Based on consolidated financial statements

Major Shareholders



Global Network



1964-1979

Asia's largest urea fertilizer manufacturer

- **1964** Korea Fertilizer Industries, established
- **1967** Korea Fertilizer Industries, nationalized
- **1976** Initial public offering (IPO)

1980-1999

Diversifying chemical product business

- **1980** Construction of methylamine (MA) and dimethylformamide (DMF) plant, completed
- **1994** Acquired by Samsung Group, company name changed to Samsung Fine Chemical
- **1994** MECELLOSE[®], launched
- **1995** Production of TMAC, commenced
- **1999** Production of ECH and caustic soda, commenced

2000-2015

Enhancing high value-added specialty chemical business

- **2000** AnyCoat[®], launched
- **2001** Production of PTAC, commenced
- **2009** Production of polymer toner, commenced
- **2010** The China subsidiary, established
- **2011** HECELLOSE[®], launched
- **2012** Capacity of MECELLOSE[®] plant, AnyCoat[®] plant, and polymer toner plant, expanded
- **2013** Capacity of ECH and caustic soda, expanded
- **2014** A subsidiary and T/S Center in Europe, established
- **Oct. 2015** Decision made on acquisition by LOTTE Group

2016-2018

Strengthening global competitiveness

- **Feb. 2016** Company name, changed to LOTTE Fine Chemical
- **Apr. 2018** Construction of MECELLOSE[®] F2 plant, completed
- **Jun. 2018** America Office, established
- **Dec. 2018** Construction of HECELLOSE[®] 2 plant, completed

2019

Building a foundation for sustainable growth

- **Apr.** Construction of AnyCoat[®] D plant, completed
- **Dec.** Chosen as a leisure-friendly company
- **Dec.** Chosen as a company recognized for local community contribution
- **Dec.** Received the USD 600 Million Export Tower Award

Won the USD 600 Million Export Tower Award on Trade Day

LFC won the USD 600 Million Export Tower Award at a ceremony celebrating the 56th Trade Day. This award was presented for our export performance from June 2018 to June 2019, and was the fourth best performance from among all the 1,329 companies that received the 2019 Export Tower. LFC will continue to succeed in global markets through the highest levels of quality, and by developing advanced new technologies and products.

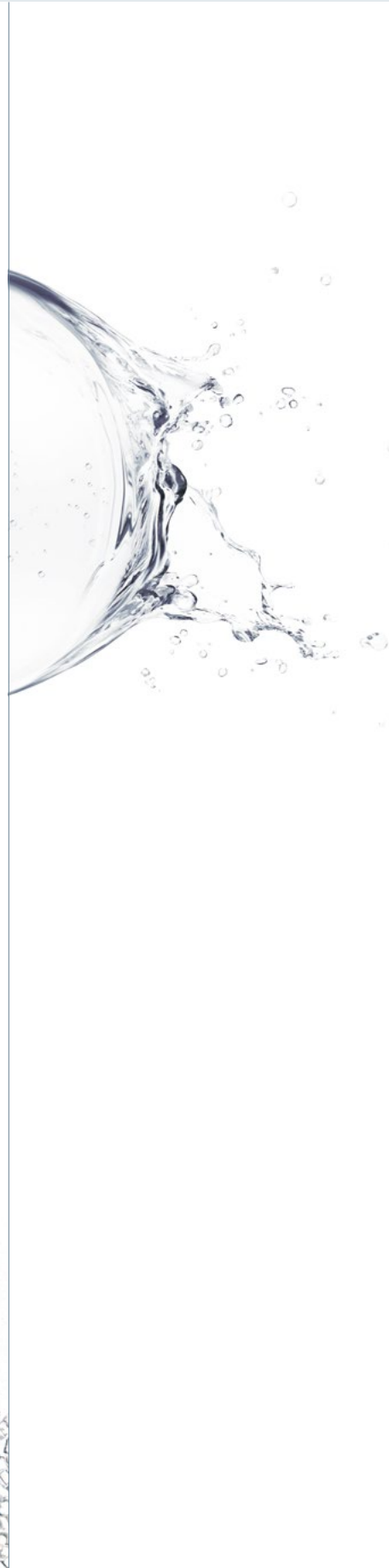


2019 HIGHLIGHTS – BUSINESS

Adding values to create fine change

LFC has a balanced product portfolio consisting of general chemical products as well as high value-added specialty chemical products and electronic materials. Although not always easy to see, our products are always there to make daily lives more comfortable and convenient.

Our constant innovation is bringing about fine changes for the better for people around the world. LFC is now leveraging the production know-how we have accumulated over the last 57 years, and making extensive investments into R&D, in order to become an “Asian Top 10 Fine Chemical Company”.

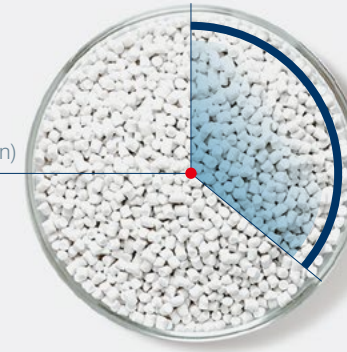


CHLORINE RELATIVES

Sales (Unit: KRW billion)

475.7

* Based on consolidated financial statements



Sales Portion

36.3%



Chlorine relatives are vital in many areas of industry

LFC's chlorine relatives product group consists of ECH, which is a raw material for epoxy resins, caustic soda, and PTAC which is a reinforcing agent for paper. ECH is the main material in waterproof and rustproof paints, and is seeing a steady increase in demand from various industrial sectors, including construction and shipbuilding. Caustic soda is an essential basic material for the chemical industry, used in textiles, medicine, paper, detergent, and many other products. Chlorine relatives are one of LFC's major businesses, as they are used in many core industries. We are therefore seeking to enhance our competitiveness in both domestic and overseas markets by expanding capacity, creating new markets, and reducing costs.

Application

- **Epichlorohydrin (ECH)**
Water-resistant synthetic resin products, ion exchange resins, flame retardants, etc.
- **Caustic soda**
Surfactants, synthetic fibers, dye intermediate, perfume, pesticides, medicines, etc.

CHLORINE RELATIVES

CELLULOSE RELATIVES

AMMONIA RELATIVES / ELECTRONIC MATERIALS

CELLULOSE RELATIVES



Sales (Unit: KRW billion)

319.6



Sales Portion

24.4%

* Based on consolidated financial statements

Eco-friendly cellulose relatives with high functionality and high added value

LFC's cellulose relatives product group comprises of MECELLOSE[®], HECELLOSE[®], AnyCoat[®], and AnyAddy[®]. These are all eco-friendly, as their raw materials are pulp from trees and cotton. They add considerable value to applied products by substantially improving the functionality of raw materials, including viscosity, water solubility, and water retention.

Application

- **MECELLOSE[®]**
Cement mortar, tile cement, ceramic extrusion, polymers, etc.
- **HECELLOSE[®]**
Paint, detergents, personal care, home care, medicines, oil drilling, etc.

MECELLOSE[®] and HECELLOSE[®] are additives in white powder form. MECELLOSE[®] is added to building cement to improve viscosity, water retention, lubricity, and stability, while HECELLOSE[®] is used as a viscosity agent, moisturizer, and stabilizer in diverse sectors, including paint, personal care products, and construction. AnyCoat[®] and AnyAddy[®] are also white powder products. AnyCoat[®] is a coating and capsule material which improves the delivery of pharmaceutical products, and AnyAddy[®] is a food additive that enhances the texture of food.

In 2019, demand fell in some upstream industries as a result of slowing economic growth, leading to difficulties for many chemical companies. However, LFC was able to maintain momentum for growth thanks to its high value-added products. MECELLOSE[®] and HECELLOSE[®] enhanced their brand value worldwide, while AnyCoat[®] and AnyAddy[®] increased sales on the back of their successes in global markets. We will maintain our growth in high value-added and highly functional products based on our distinctive technologies.

Application

- **AnyCoat[®]**
Capsules, tablet coatings (for stomach and intestines), etc.
- **AnyAddy[®]**
Food additive, health functional food coatings, gluten-free additive, etc.

Alignment with UN SDGs

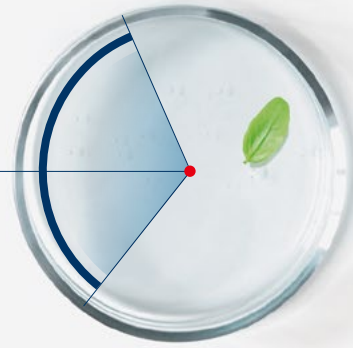


AMMONIA RELATIVES

Sales (Unit: KRW billion)

433.7

* Based on consolidated financial statements



Sales Portion

33.1%



Ammonia relatives which make daily life prosperous

LFC's general chemical product group consists of ammonia and EUROX[®]. LFC began its history with fertilizer manufacturing, and has supplied key chemical materials to basic industries in Korea ever since, thus supporting the nation's economic growth. Ammonia is a basic chemical, used as a raw material for fertilizer, synthetic fiber, nylon, and ABS resin. We operate the largest ammonia facility in Korea, and continue to enjoy steady growth based on our outstanding infrastructure. EUROX[®] is an exclusive brand of LFC, and is a catalyst reducing solution which reduces the amount of nitrogen oxide discharged from diesel engines. These high-quality products, maintained by strict quality management and inspection processes, support the company's continued growth.

Application

- **Ammonia, anhydrous**
Raw material for nitrogen-based fertilizer (urea, ammonium sulfate, ammonium chloride, and ammonium nitrate), raw materials for nitric acid, rayon, nylon, acrylonitrile, hydrazine, etc.
- **EUROX[®]**
Catalyst reducing solution which reduces the amount of nitrogen oxide discharged from diesel engines

ELECTRONIC MATERIALS

Sales (Unit: KRW billion)

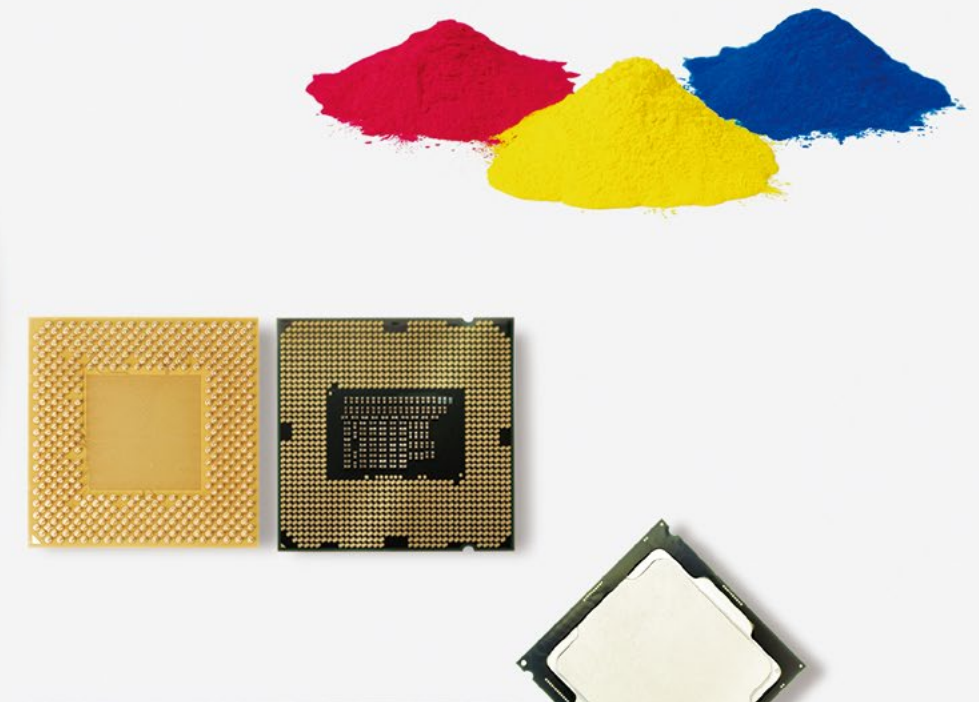
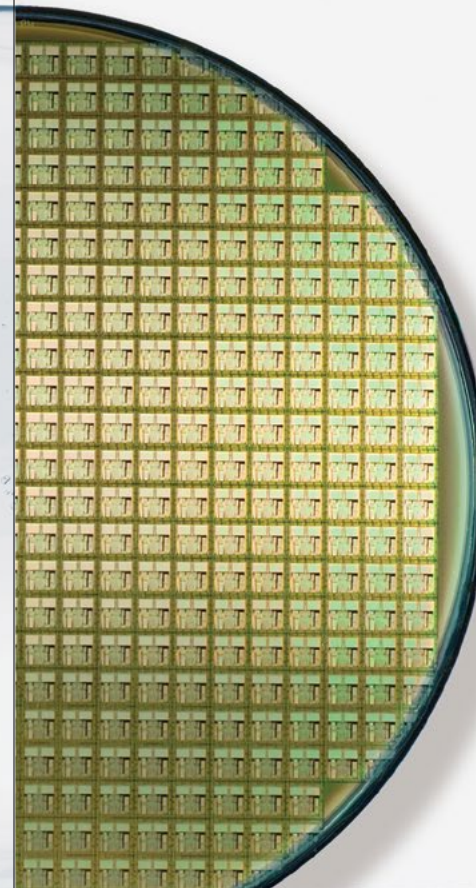
82.3

* Based on consolidated financial statements



Sales Portion

6.3%



Electronic materials, the key to functional innovation in IT

LFC's electronic material product group consists of TMAC and polymerized toner for color laser printers. TMAC is a colorless, transparent liquid, and is a key material in the semiconductor developing solutions used in semiconductor and LCD/OLED manufacturing. LFC's polymer toner for color laser printers offers a uniform and small size of particle, energy savings from the low fusing temperature, and higher speed printing compared to conventional pulverized toners. With IT devices, a vital part of our daily lives, and the IT industry developing at ever-greater speeds, we will continue to expand and innovate our its electronic materials business.

Application

- **Tetramethylammonium chloride**
Raw material for semiconductors and LCD/OLED developing solution
- **Polymer toner**
Toner for color laser printers

Shared values to amplify fine change

LFC is finding new ways to grow together in partnership with our local communities by carrying out a wide range of social contributions and activities for creating shared value (CSV). Our “3+1 CSR Specialization Strategy” adds LFC’s particular commitment to “Clean Environment” to LOTTE Group’s CSR strategy of “Happy Family, Dreamy Future, and Warm Companion”. Based on this strategy, LFC sought in 2019 to build a world in which people live together in a spirit of sharing and win-win. We will continue to make meaningful changes that amplify our positive social impacts, both by striving within LFC and by working together with other LOTTE Group affiliates.



Earned the highest grades in evaluations of sustainable management

LFC earned an AA grade, the highest grade possible, in the “2019 Sustainable Management Evaluation of Listed Companies in Korea” from SUSTINVEST for the fourth consecutive year. We have also earned an A grade for three consecutive years in the ESG Evaluation from the Korea Corporate Governance Service. Given the recent trend for markets to assess non-financial value as well as financial factors when evaluating a company, these outstanding grades in ESG over several years represent a truly meaningful achievement, and establish LFC’s potential for sustainable growth and creating social value.

Received an AA, the best grade, for four consecutive years in a sustainable management evaluation by SUSTINVEST

Received an A for three consecutive years in the ESG Evaluation of the Korea Corporate Governance Service

AA

ALIGNMENT WITH UN SDGs





Safety

Making safety the highest priority within our corporate culture

Safety cannot be compromised at any time or at any cost. In order to ensure the highest standards of safety at all times, LFC is continually strengthening its health and safety management systems, with central operations being run by an independent internal organization which is dedicated to safety and other environmental issues. We strive to achieve three goals at our business sites – safe business sites, competitive business sites, and happy business sites. In 2019, we enhanced our culture of safety by setting out the "Safety Golden Rules" to be followed by all employees. In addition, we aimed to internalize a safety culture through "Safety Contact".

Established the Safety Golden Rules – eight major safety principles that are specialized to LFC

8 major safety principles

ALIGNMENT WITH UN SDGs

P. 61



Safety

Sharing the health and safety culture to grow together

LFC is striving to achieve accident-free business sites through win-win cooperation with our partner companies by strengthening our own health and safety culture, and also by expanding the scope of building a health and safety culture to include our partner companies. Our health and safety activities are managed in accordance with OHSAS 18001, and we also help our partner companies adopt and implement certified health and safety management systems such as KOSHA 18001. Through these efforts, we are pursuing a target of zero fatal accidents in the short- to mid-term, and constantly looking for ways to build a safe working environment and win-win cooperation with partner companies over the long term.

Helped 15 partner companies build a safety and health management system from 2014 through 2019

15 partner companies

ALIGNMENT WITH UN SDGs

P. 61



Work-Life Balance

Recognized for excellence in offering a balance between work and personal lives

In 2019, LFC was recognized as a "leisure-friendly company" by the Ministry of Culture, Sports and Tourism and the Regional Culture & Development Agency. This is mainly attributable to our corporate culture, which encourages employees to find harmony between their work and leisure time. In 2019, with the full implementation of the 52-hour work week, LFC adopted a flexible working system and a PC-OFF system as part of our efforts to create the right balance between work and personal lives. We also provide practical help at a corporate level to ensure that this balance can be achieved, including high levels of maternity care and support for cultural activities.

85% of employees who are eligible to use maternity leave used the maternity care system

85%

ALIGNMENT WITH UN SDGs

P. 72-73



Clean Environment

Social contribution activities to create green value

LFC maintains a strategic focus on a "Clean Environment" in carrying out its social contribution activities. Our Urban Box Farming Campaign, which is aimed at making city centers greener, is a community contribution program that draws on participation by local citizens. 2019 marked the tenth anniversary for this program, and during the year, we were able to communicate with around 3,400 citizens to share with them the importance of green value. We also continued with various other activities to make our precious natural environment more pristine and beautiful. These included the Campaign to Protect Bamboo Shoots in the Bamboo Forest of the Taehwa River Grand Park, planting in the Bamboo Forest, ocean purification in Incheon, and the purifying of the Yecheoncheon Stream in Ulsan.

Distributed saplings and seedlings to around 3,400 citizens through the Urban Box Farming Campaign

3,400 citizens

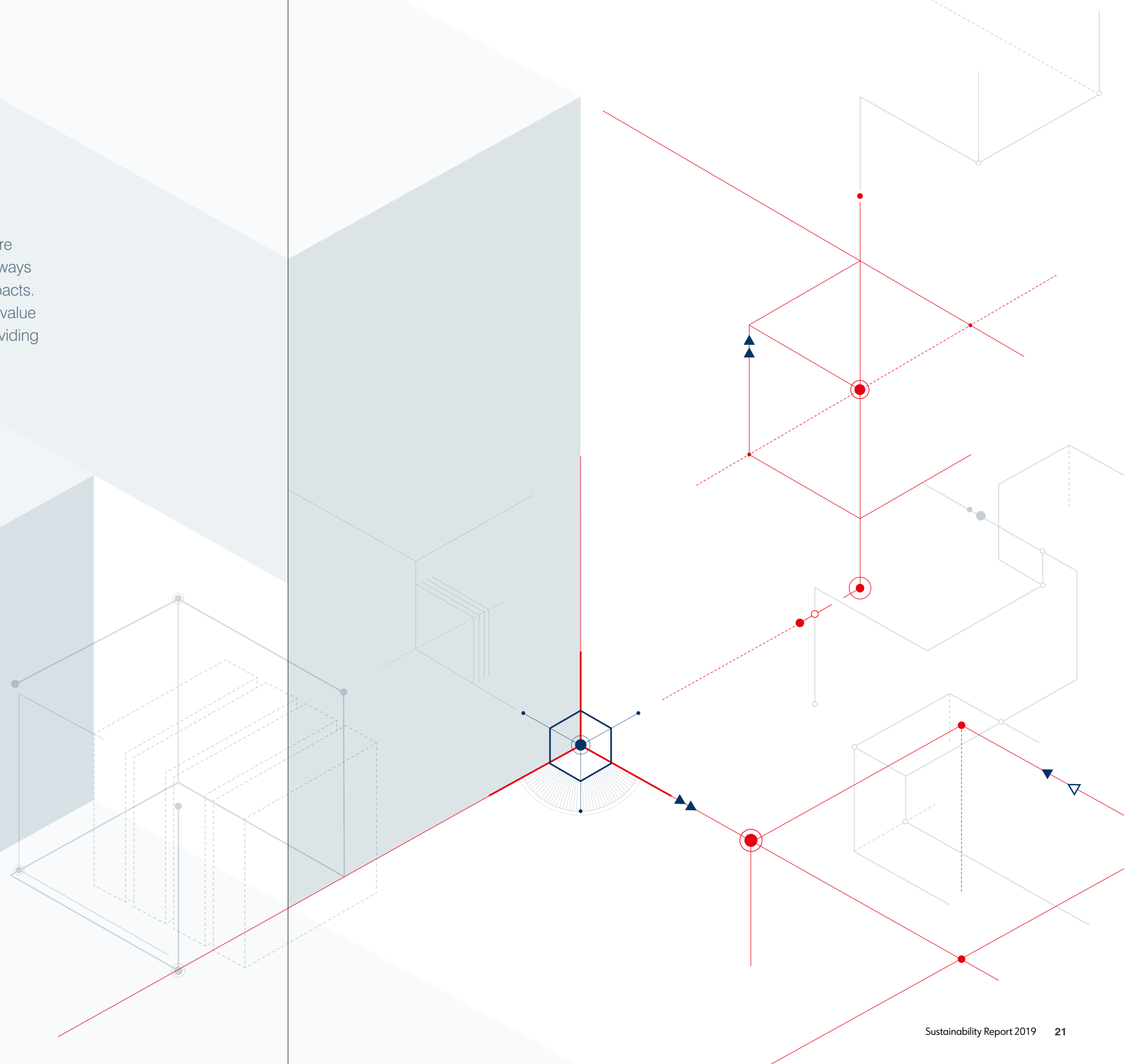
ALIGNMENT WITH UN SDGs

P. 69



CSV STORY

LFC generates economic value through outstanding products that are based on excellent technologies. And at the same time, we look for ways to make positive social impacts and minimize our environmental impacts. Going forward, we will further develop our business model to create value for all of our stakeholders, thereby contributing to humankind by providing products and services beloved and trusted by our stakeholders.

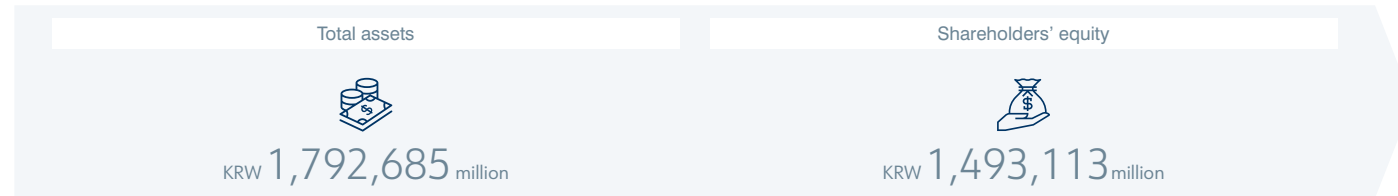


- 22 Value Creation Business Model
- 24 EUROX®, a green impact brand
- 27 Cellulose Relatives, eco-friendly green materials

VALUE CREATION BUSINESS MODEL

CAPITAL INPUT

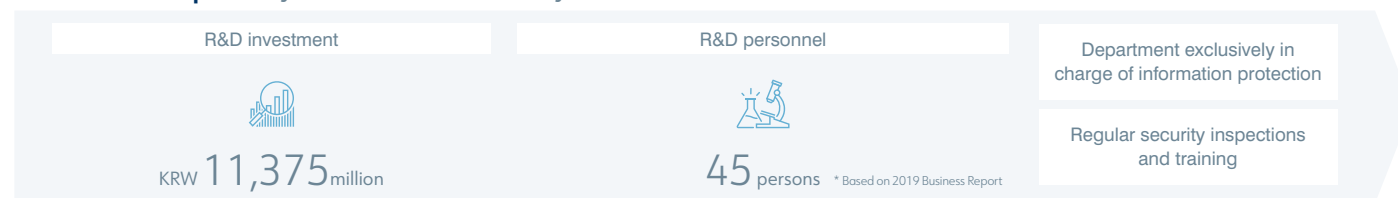
Financial Capital - Financial capital of shareholders and investors



Human Capital - Employees with a vision and vocation



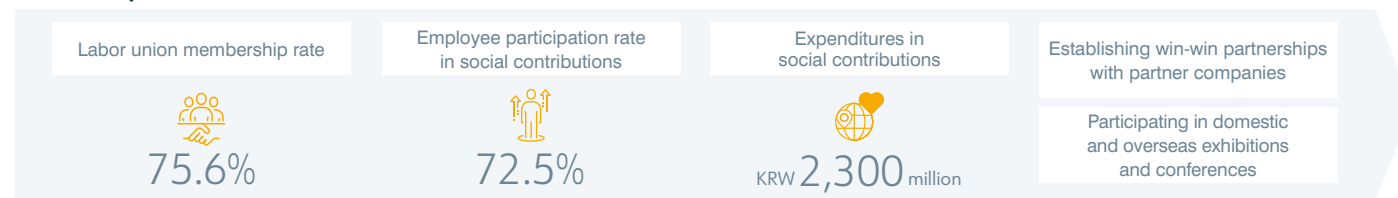
Intellectual Capital - Systems for R&D and security



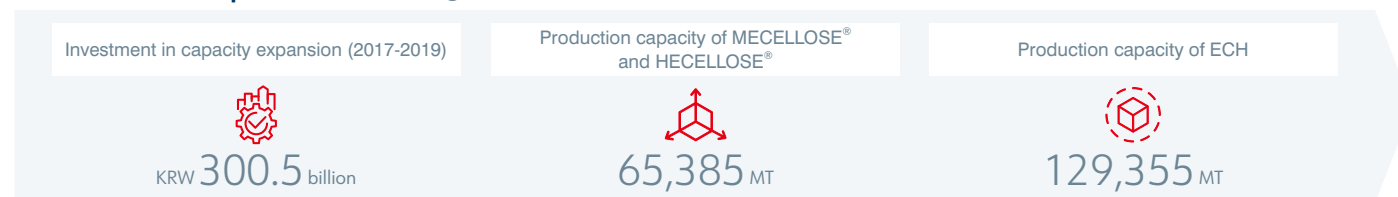
Environmental Capital - Environment resources and processes



Social Capital - Relations and communication with stakeholders



Manufactured Capital - Manufacturing facilities



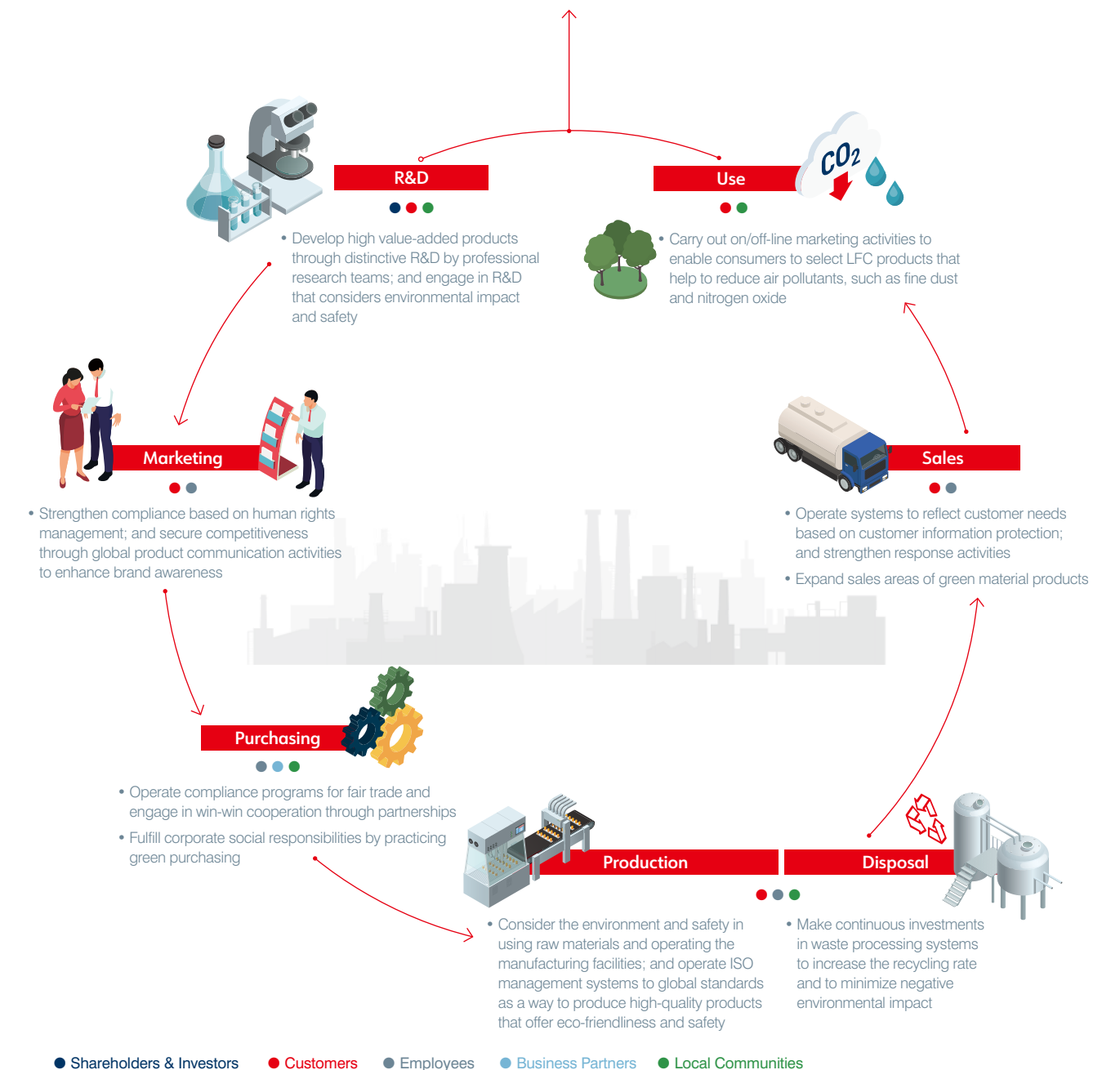
VALUE CHAIN

Mission of LOTTE Group

We enrich people's lives by providing superior products and services

Vision of LFC

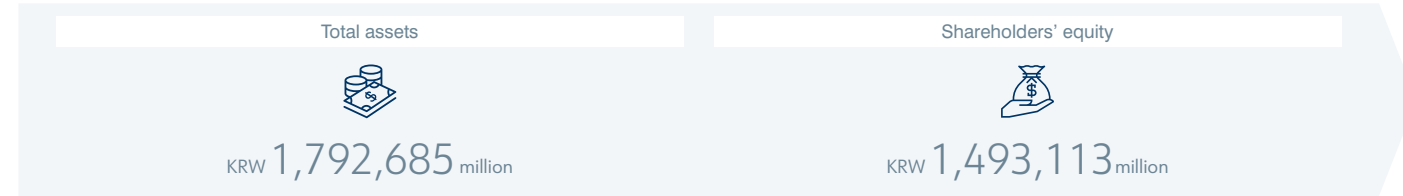
Asian Top 10 Fine Chemical Company



VALUE CREATION BUSINESS MODEL

CAPITAL INPUT

Financial Capital - Financial capital of shareholders and investors



Human Capital - Employees with a vision and vocation



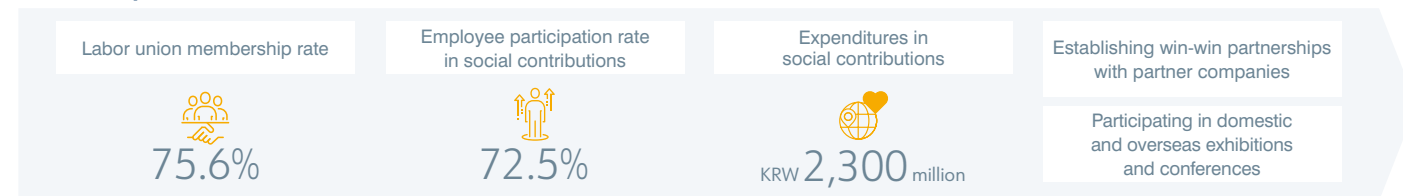
Intellectual Capital - Systems for R&D and security



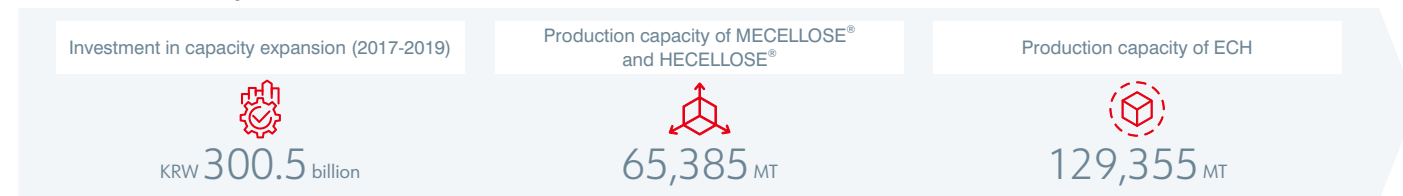
Environmental Capital - Environment resources and processes



Social Capital - Relations and communication with stakeholders

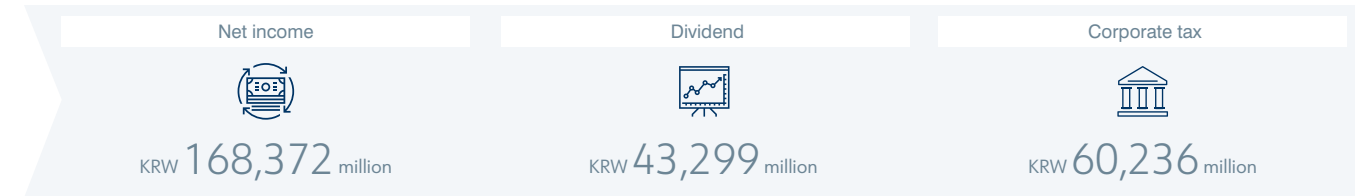


Manufactured Capital - Manufacturing facilities

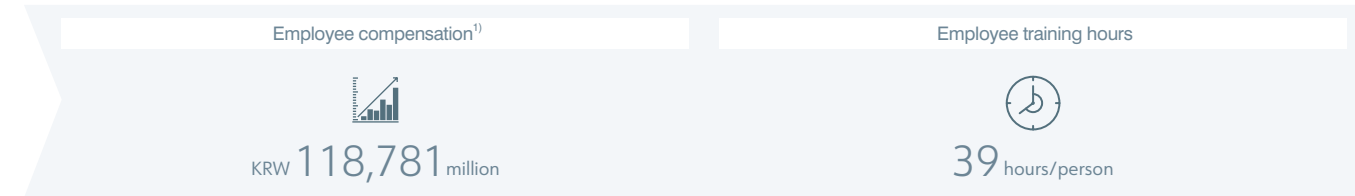


CAPITAL OUTPUT

Financial Capital - Financial capital of shareholders and investors



Human Capital - Employees with a vision and vocation



Intellectual Capital - Systems for R&D and security

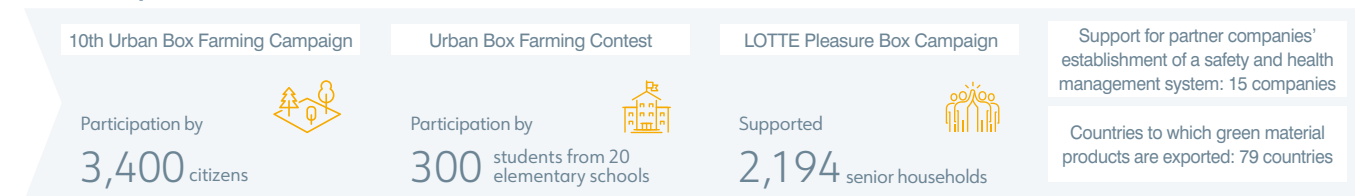


* 465 cases of patent (Applications: 211, Registrations: 254); Domestic - 198 cases (Applications: 104, Registrations: 94) | Overseas - 267 cases (Applications: 107, Registrations: 160)

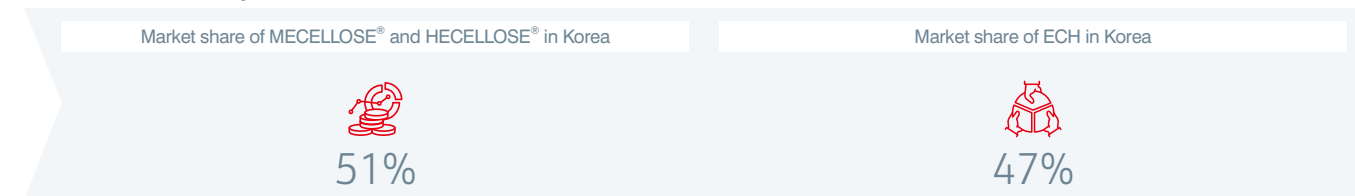
Environmental Capital - Environment resources and processes



Social Capital - Relations and communication with stakeholders



Manufactured Capital - Manufacturing facilities

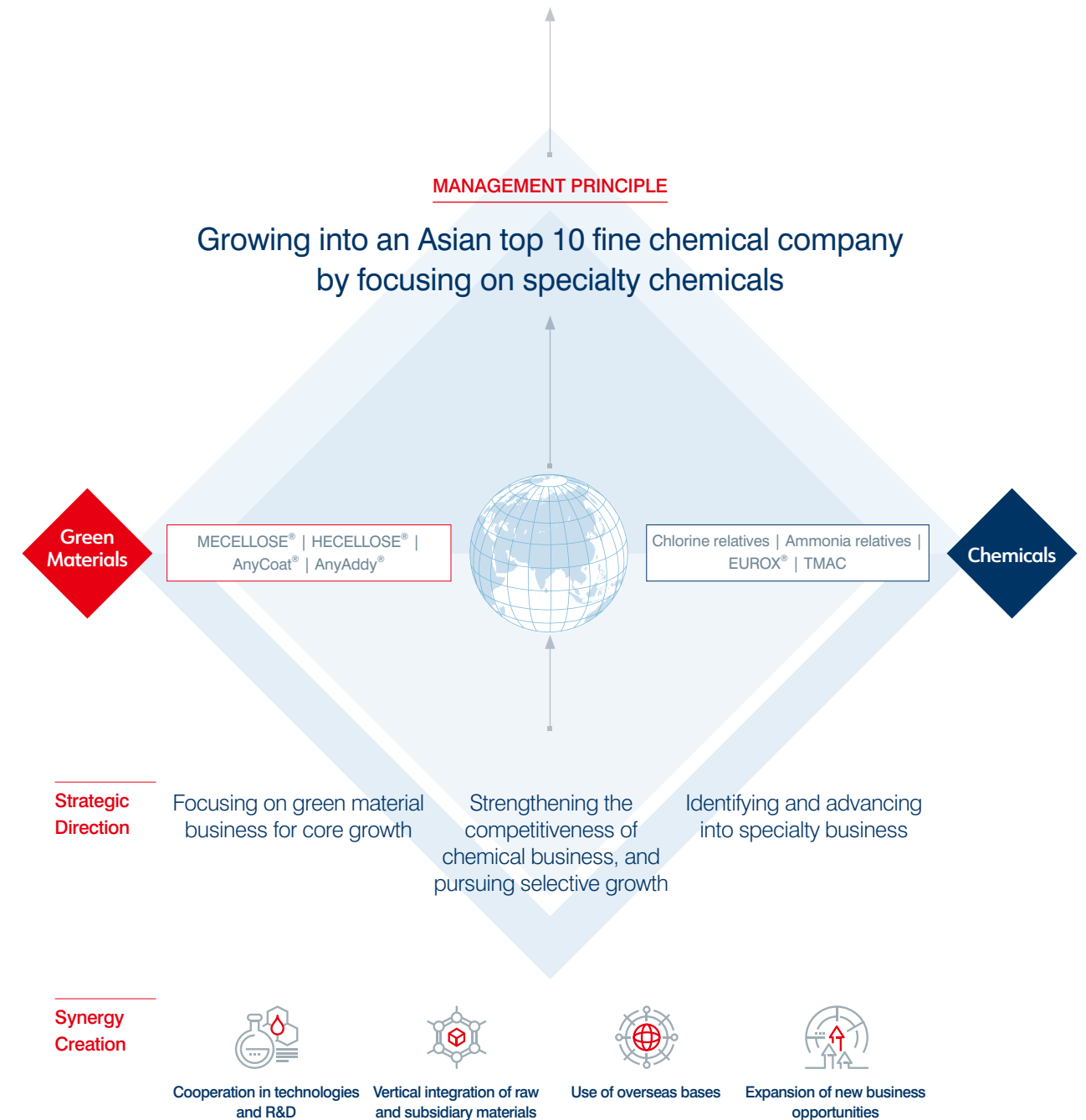


¹⁾ Salary and bonus, welfare benefits, retirement benefits, training expenses

²⁾ Cumulative basis

VISION

Asian Top 10 Fine Chemical Company



EUROX®, a green impact brand



Creating Shared Value through EUROX®

Business Value	Social Value
<ul style="list-style-type: none"> • Enhance the company's brand value <ul style="list-style-type: none"> - Enhance corporate brand awareness by offering a B2C product that is rare in the B2B business-centered chemical industry • Lead the urea solution market in Korea <ul style="list-style-type: none"> - No. 1 in sales for 12 consecutive years in the urea solution market (based on tally by the Ministry of Environment) - Launched a premium 3.5 l product exclusively for sedans and SUVs that has significantly reduced impurities • Strengthen corporate fundamentals <ul style="list-style-type: none"> - Acquire know-how and increase potential for new business expansion by working with such various businesses as automobile manufacturers, distributors, gas stations, and online shopping malls 	<ul style="list-style-type: none"> • Reduce fine dust <ul style="list-style-type: none"> - Contribute to reducing fine dust and improving air quality • Publicize urea solution <ul style="list-style-type: none"> - Play an important role in publicizing the importance and need for urea solution, which people are not yet familiar with, through various marketing activities • Increase customer awareness and satisfaction <ul style="list-style-type: none"> - Attract interest from manufacturers and consumers of urea solution through quality management, that exceeds certification criteria, and continuous communication on the importance of quality

ALIGNMENT WITH UN SDGs



No. 1 urea solution brand with top quality

LFC's flagship eco-friendly product, EUROX®, is a urea solution, that is also known as diesel exhaust fluid (DEF), launched in 2008 at a time when diesel vehicles which use a urea solution were beginning to be sold in Korea, and when many people did not even know what a urea solution was. Since then, EUROX® has been Korea's leading urea solution brand, ranking No.1¹⁾ in sales for 12 consecutive years.

This success of EUROX® has been underpinned by strict quality management and distinctive sales and marketing activities. Its outstanding quality, in particular, is the greatest strength of EUROX® and source of pride, which is why we strive to ensure quality in the entire process of production, management, and packaging. During production, our eight-step filter system ensures product quality that exceeds certification criteria. Moreover, we continue to look for improvements in quality. We produce our own containers and package the products, thus eliminating the possibility of contamination in the container.

In 2019, we became the first urea solution provider to make our 10-liter PET bottles transparent, which makes the bottles easier to recycle. We also made the label easier to peel off for the same reason. Even though EUROX® had used its brand color as its PET bottle color for many years, LFC has changed it to protect the environment and demonstrate the eco-friendly value of EUROX®.



What is a urea solution?

A urea solution is a chemical substance made by mixing urea and highly purified water, and contains 32.5% urea. It is a catalyst which purifies the nitrogen oxide in automotive exhaust gases by converting them into environmentally harmless nitrogen and water. Urea solution is used in diesel vehicles which are required to adhere to the strengthened EURO 4 regulations on exhaust gases. In addition, according to international standard ISO 22241, it must be colorless with a freezing point of -11°C.

In addition, LFC visited every automobile company in Korea to publicize the strengths of EUROX®. This led to the successful signing of genuine parts agreements with major automotive companies. In particular, LFC supplies EUROX® as a genuine part for new diesel vehicles with an SCR²⁾ device. We recently released a premium 3.5l product exclusively for passenger SUVs which significantly reduces impurities and enables easy injection.

We have implemented a variety of distinctive marketing activities for EUROX®, including collaboration with the LOTTE Giants baseball team, an affiliate of LOTTE Group. The EUROX® brand is displayed prominently on the team's uniform, and on large outdoor billboards at the home Sajik Baseball Stadium. We also created a positive brand image through an advertisement featuring the LOTTE Giants cheerleaders. On the strength of its highly addictive chorus and signature choreography, the advertising attracted 5 million views in just three weeks after it was launched online.

As a result of these efforts, EUROX® has ranked No. 1 for two consecutive years since the Korea Brand Power Index (K-BPI) began to cover the urea solution business. K-BPI is organized by Korea Management Association Consulting, and is the leading brand evaluation survey in Korea. It interviews 12,000 consumers about major brands in Korea, and then assesses the best brands across different sectors.

Captivating customers' hearts with distinctive ideas

In the early stages of the EUROX® business, urea solution was not well-known, and so LFC undertook a wide range of marketing activities to publicize it. We cooperated with CJ Logistics, a major Korean distributor, so that when delivery drivers visited gas stations, they could inject EUROX®. The more EUROX® drivers asked for specifically, the more gas stations began to stock it.

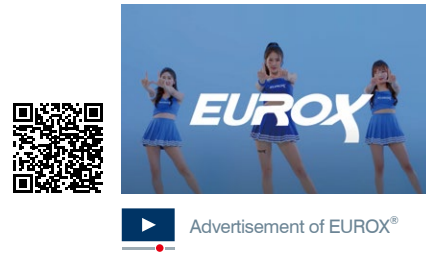
We also uncovered the fact that truck drivers, who are the key customers of EUROX®, often purchased diesel and urea solution together at gas stations. We therefore came up with the creative idea of providing gas stations with a supply device very similar to a gas pump. LFC thus developed the EUROX® Bulk Dispenser (EBD), first setting up EBDs at truck-only gas stations. This was a great success, and ensured that EUROX® came to dominate the market. As of the end of 2019, the EBD network comprises some 2,500 dispensers across Korea, and is responsible of approximately half of EUROX® sales.

¹⁾ Based on figures from the Ministry of Environment

²⁾ Selective Catalytic Reduction: A device for reducing emissions of nitrogen oxide by converting the nitrogen oxide in exhaust gases into harmless by-products

Cellulose Relatives, eco-friendly green materials

GREEN MATERIALS



Advertisement of EUROX®



EUROX® has become a byword for urea solution as a result of creative marketing and business cooperation based on partnerships. We are proud that so many truck drivers simply say 'Please give me EUROX®'.

Henry Yoon
Managing Director in Charge of Strategic Trading and B2C Biz



Number of EBD distributed as of 2019 year-end (cumulative)

2,500+



Number of finished car brands with which LFC has signed genuine parts agreements

12



Ranked No. 1 for two consecutive years in the K-BPI urea solution category

No.1



A better future built by EUROX®

EUROX® is an eco-friendly product which creates environmental as well as economic value, and has led the growth of the urea solution market since its launch. New diesel commercial vehicles are now required to use a urea solution to reduce air pollutants. However, vehicles in the past were sometimes illegally altered so that they could be driven without a urea solution. LFC informed the Ministry of Environment of the seriousness of illegal alterations, which brought about a policy correction, thereby delivering the value of green growth. Urea solution is becoming ever more important as consumers emphasize the importance of protecting the environment, and exhaust gas regulations become stricter across the globe. As the market leader and flagship brand in its sector, EUROX® will continue to set the standard for quality in urea solution products.

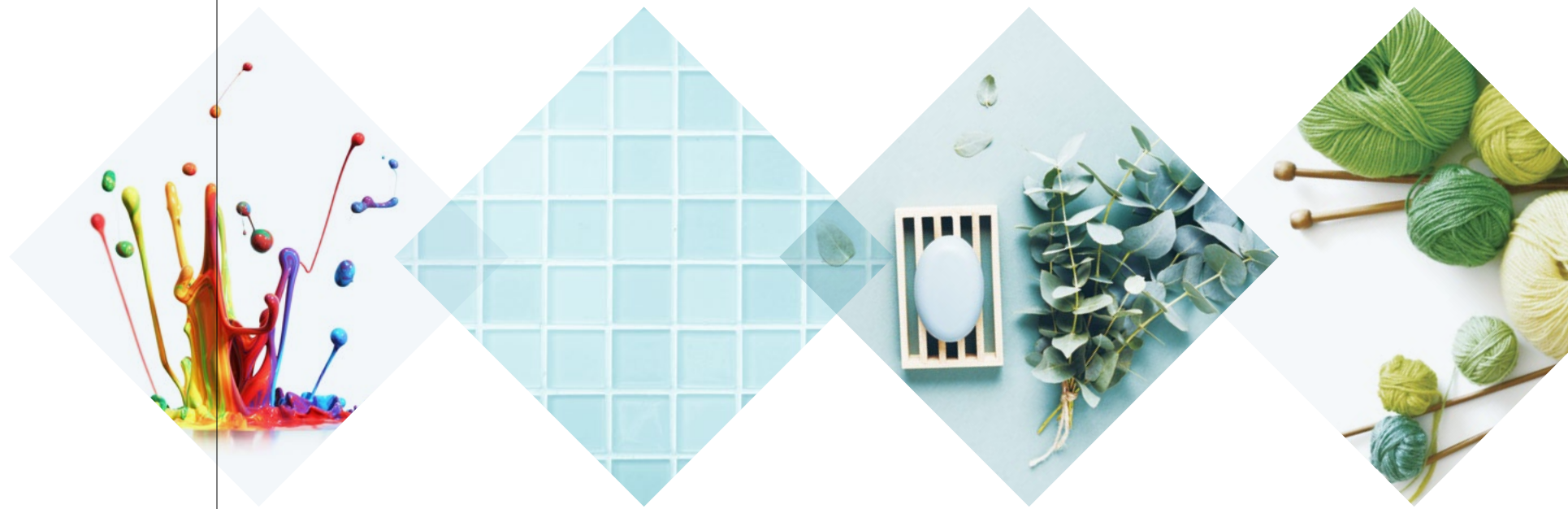
EUROX® is also fully committed to creating social value. With many people suffering due to COVID-19 in 2020, we have helped with recovery by supplying urea solution worth KRW 70 million to North Gyeongsang Province and North Jeolla Province, to be used in quarantine vehicles preventing the spread of COVID-19, vehicles transporting patients to health centers, and agricultural machines in rural areas which are experiencing difficulties due to shortages of personnel during the farming season. The EUROX® was delivered through a collaboration with the Korea Foundation for Cooperation of Large & Small Business, Rural Affairs. EUROX® will continue to lead as a brand which creates sustainable shared value in terms of economic, environmental, and social value.

Global milestones in green products

MECELLOSE[®] is an eco-friendly additive for industrial use. Its primary raw material is cellulose which can be obtained from wood and cotton. In 1991, LFC became the first company in Korea to independently develop MECELLOSE[®], and began mass production in March 1994. At that time, only a few companies around the world possessed the high-temperature, high-pressure technology required to manufacture this product, and LFC's development of MECELLOSE[®] led to qualitative growth in the Korean concrete market. It also enabled the development of technologies to make concrete more lightweight, which in turn has made construction industry more advanced. Following the success of MECELLOSE[®], LFC moved forward with the development of HECCELLOSE[®] based on the same methyl cellulose (MC) technology. HECCELLOSE[®] is an eco-friendly and water-soluble polymer synthesized with pulp and ethylene oxide, and enables excellent quality and functionality in end products.

With the success of hydroxypropyl methyl cellulose (HPMC) for industrial use, in 2000 LFC expanded its business to include high value-added pharmaceutical HPMC. After successfully commercializing AnyCoat[®] in 2000, the HPMC business for food and pharmaceuticals grew every year through to 2012. There was a temporary stagnation after 2013, so in order to address this, LFC introduced major changes to become more customer-centric to provide better solutions. After in-depth market analysis, LFC made HPMC capsules for medicines as its main business, and focused on fulfilling strong customer demand for the highest quality of raw materials. In addition, we obtained international certifications, including ISO 9001, ISO 14001, and FSSC 22000, after strict verification processes from major accredited organizations. As a result of this distinctive strategy of supplying products with customer-tailored specifications, sales growth resumed in 2015, and LFC ranked No. 1 in global market share for botanical HPMC capsules.

LFC will continue to grow, based on its advanced technologies and previous experiences of both success and failure. We will also create new markets based on innovative ideas and strong business execution. We will continue to take on the challenge of exceeding customer expectations so that we can develop into a leading specialty chemical company which can proudly represent LOTTE Group as a true "Lifetime Value Creator".



Global competitiveness of green materials

MECELLOSE[®] MECELLOSE[®] is non-ionic cellulose ether which dissolves in cold water. It is a high value-added product that can be added to cement mortar or paint to prevent drying and increase viscosity. In particular, it offers the major benefit of enabling work to be done in water, and as a result it is widely used in the construction and repair of river and ocean piers, tunnels, and harbor facilities. The production of MECELLOSE[®] in Korea has ensured a stable supply of this high value-added construction additive, the entire volume of which was previously dependent on imports. This has been a major benefit to related industries in Korea, including construction, chemicals, and medicines.

The main advantage of LFC's MECELLOSE[®] manufacturing technology is its simple and innovative process. The mixing of raw materials and the subsequent reactions take place in a single reactor, resulting in increased production efficiency and lower costs. In addition, the reaction is highly efficient, leading to considerably reduced amount of wastewater. During the refining process, steam pressure is applied to multi-layered plates to remove refining by-products, thereby substantially reducing the amount of salt in the product, which in turn makes buildings much more durable.

HECELLOSE[®] HECCELLOSE[®] is the brand name of LFC's cellulose relative soluble polymer. This highly functional and eco-friendly material enhances the quality of end-products, and is used in a diverse range of products such as water-soluble paints and construction materials, shampoo, and other daily necessities. The barriers to entry for HECCELLOSE[®] were extremely high, given the advanced technologies required, the high initial cost of facility investments, and the product quality certification requirements for each customer. However, LFC was successfully able to develop HECCELLOSE[®] manufacturing technologies independently, thanks to its outstanding technological prowess. In particular, we developed a manufacturing process which has significantly improved production volumes. We also developed a refining technology which replaced the three centrifuges previously needed in the filtration process with a single centrifuge, resulting in a 70% reduction in energy consumption.

AnyAddy[®] LFC has diversified its HPMC business portfolio to include areas outside pharmaceuticals. Given the specific characteristics of HPMC, and especially that it is edible, we expanded into the food business by launching the AnyAddy[®] food additive. Before the development of AnyAddy[®], there were already dozens of food additives available to consumers. However, AnyAddy[®] offers HPMC's unique reverse thermal gelling, meaning that a gel is formed when heat is applied, thus resulting in increased elasticity and improved moisture retention. AnyAddy[®] uses these attributes to give food a number of beneficial properties, and as a result it quickly expanded its market dominance.

When AnyAddy[®] was first launched, the lack of familiarity with HPMC for food prevented the food industry from showing much interest. LFC therefore looked for practical ways in which to use HPMC, including by developing recipes. We also contacted bakeries, rice cake shops, and noodle restaurants to show how AnyAddy[®] could be used in various foods. In addition, extensive promotional activities developed more sales channels in the food additive market. In particular, the global market for meat substitutes was worth some KRW 6 trillion in 2019, and continues to grow at around 8% per annum, making it a very promising business for LFC to focus on. We therefore cooperated with the LOTTE R&D Center to develop meat substitutes which include AnyAddy[®]. The result was the development of LOTTE FOODS' "N Nature Zero Meat" plant-based patty, and Lotteria's "Miracle Burger". We also worked with LOTTE Confectionery to develop a plant-based Choco Pie that uses AnyAddy[®] instead of eggs, which has been especially popular in the Indian market.

The recent trend for "Free-From Food"¹⁾ has resulted in increased demand for functional food additives. LFC will lead this and other changes in the market, and will also generate new growth by continuing to develop new uses for AnyAddy[®], as well as expanding its sales channels.

¹⁾ Food which is free from specific ingredients that can cause illness and allergies



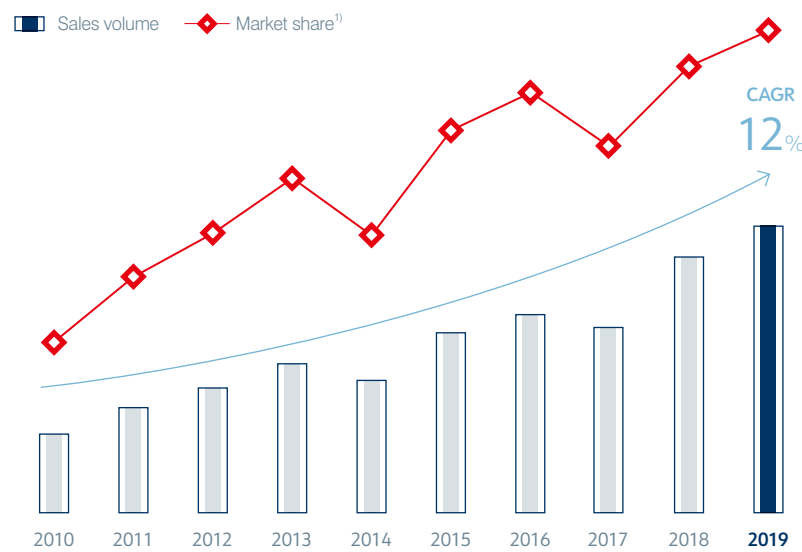
AnyCoat® AnyCoat® is a cellulose ether with pulp as its raw material. It is a highly-functional plant-based coating agent used in pharmaceuticals, vitamins, and other nutritional supplements. In 2000, LFC became the third company worldwide to successfully develop the technology needed to produce AnyCoat®. Because it maintains the form of food and increases viscosity, AnyCoat® is also used as a food additive in bread, cookies, cream, and fried food as well as capsule coating. Its particular strength is as a plant-derived ingredient which can replace animal-based gelatin.

LFC produces two types of AnyCoat® – AnyCoat®-C and AnyCoat®-P. AnyCoat®-C is a water-soluble product, and is used as a coating or capsule material to protect pharmaceutical ingredients. AnyCoat®-P is insoluble in water and acid, but soluble in alkali (base), and can therefore only be decomposed by intestinal enzymes. It is mainly used to coat drugs that are soluble in the intestine (gastric/duodenal ulcer treatments, aspirin, etc.), rather than soluble in the stomach, and for coatings which protect drugs that can be destroyed by gastric acid. In addition, in order to reduce the dependence of its pharmaceutical HPMC business on capsules, LFC has expanded its business to include slow-release. This new business requires advanced technologies to guarantee uniform quality; as a result, LFC has focused on the key factors controlling quality, namely degree of substitution, particle size, and particle shape. As a result of its in-depth technological analysis, advanced facilities and changes in production methodologies, LFC was successfully able to develop a new specification, AnyCoat® Plus, that is the equal of, or even better than, premium products of competitor.

On the strength of its outstanding quality, AnyCoat® has maintained its position as a top-tier global brand in the botanical HPMC capsule market since 2015. It has continued to achieve steady sales growth through to 2019, and is now used in a large proportion of the botanical pharmaceutical capsules on the market. Demand for AnyCoat® is expected to increase further as the population continues to age and healthcare market grows as well. After beginning mass production in 2001, sales volume of AnyCoat® has increased around 150 times, and its sales revenue rose by 90 times in the past 20 years, making it a key business for LFC. We will continue to collaborate with the food affiliates of LOTTE Group to develop new uses for AnyCoat®, as well as making further quality improvements.



Sales and market share of AnyCoat®, a HPMC for medicine capsules



Largest share of the global botanical HPMC capsule market

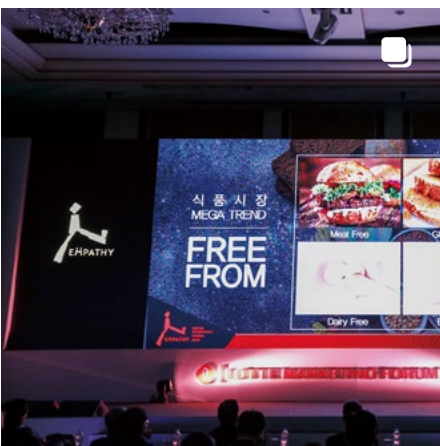
¹⁾ Based on the estimation by LFC



AnyCoat® receives the Award of Excellence at the 2019 LOTTE Marketing Awards

LOTTE Group has held the LOTTE Marketing Forum since 2012 to strengthen the marketing activities of its affiliates. The 2019 Forum was held in November 2019 at LOTTE HOTEL WORLD in Seoul, with participation of 19 companies, including LFC and other LOTTE Group chemical companies, as well as food and distribution affiliates. This year's Forum was based on the theme of "empathy", and information was shared about each company's outstanding products and new services. The Marketing Award is handed out at every LOTTE Marketing Forum to honor affiliates which have achieved excellence in customer-centered marketing. In 2019, LFC's AnyCoat® won the Award of Excellence for marketing which focused on its customers in the botanical pharmaceutical capsule market.

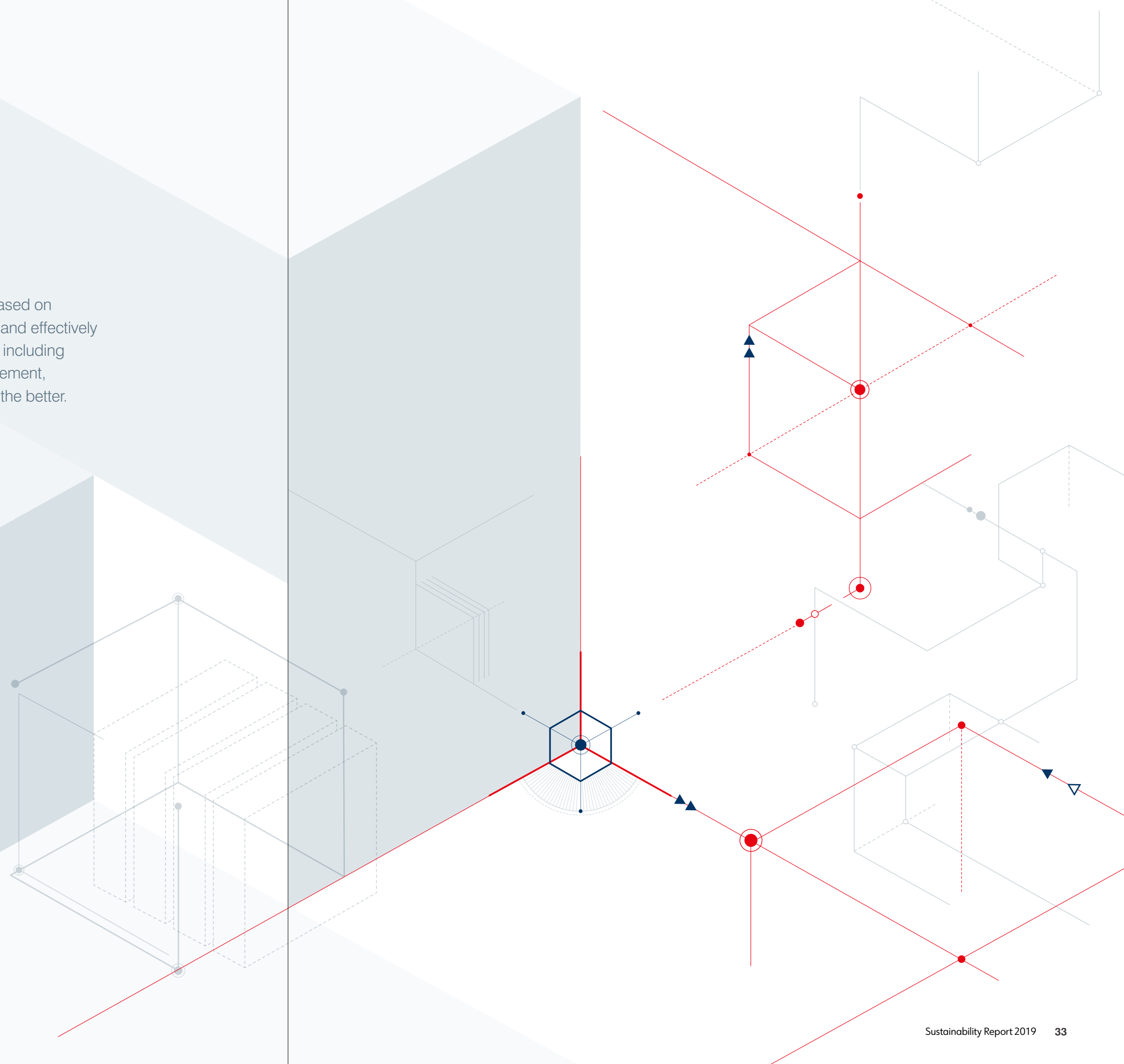
Leading fine change by making a green impact



SUSTAINABILITY APPROACH

LFC is committed to responsible management and ethical growth based on the implementation of advanced corporate governance. We actively and effectively communicate with all our stakeholders through a range of channels, including this Sustainability Report, as a way to encourage stakeholder engagement, thereby changing the company and society as a whole, together for the better.

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Sustainability Management System

Corporate Governance

BOD status

The Board of Directors (BOD) is LFC's top decision-making body that has voting rights on corporate management and overall business operations. LFC ensure the transparency of the BOD in order to carry out management activities that are based on checks and balances. The BOD consists of three inside directors, three outside directors, and one non-executive director, who are experts in the respective field. Based on independence, outside directors provide expert opinions on the company's major decisions from the perspective of sustainability, and assess and review the company's performance. The BOD meets regularly according to an annual operation plan, and an extraordinary BOD meeting can be convened when urgent decision-making is needed. To prevent a conflict of interest when the BOD makes a decision, voting rights of a director are restricted if the director has an interest in a specific agenda item in accordance with the Commercial Act and the BOD Regulations.

BOD activities

The BOD holds regular and extraordinary meetings as necessary, and deliberates and resolves the company's major management matters that are set forth in relevant laws, the Articles of Incorporation, and the BOD Regulations. In 2019, a total of seven board meetings were held, and the BOD deliberated, decided, and reported a total of 25 agenda items. The average BOD attendance rate of outside directors was 100%. A BOD meeting is convened by the BOD chairperson or a director appointed by the BOD, and resolutions are made by the attendance of the majority of directors and the majority of votes of the attending directors, except as otherwise stipulated in accordance with relevant laws. LFC transparently discloses information on the BOD, including its composition and performance, as well as its sub-committees and major resolutions, on the company website. We also regularly disclose business reports, and make prompt and accurate disclosures that are required by laws and that can have a material impact on shareholders and other stakeholders.

Transparency of the BOD

LFC's total assets were less than KRW 2 trillion at the end of the previous year, and therefore we are not obligated to set up an outside director nominating committee. However, we elect directors through nomination by the BOD and resolution by the annual general meeting (AGM) to ensure fairness and independence of our corporate governance. Directors are required to satisfy the qualifications set forth in relevant laws and the Articles of Incorporation, and to have integrity, sound ethical awareness, and a proper work ethic. In addition, they must represent long-term, balanced interests of all shareholders and other stakeholders of the company. LFC is accordingly electing outside directors who have no significant personal interests in the company and who can make independent decisions.

BOD Activities in 2019

Date	Key agenda	Decision	Director attendance (Total)	Outside director attendance (Total)
Jan. 24	Agenda 1 Approval of financial statements and business report for the 55th fiscal year (2018)	Passed	4 (5)	2 (2)
	Agenda 2 Donations	Passed		
Feb. 28	Agenda 1 Decision on holding of the 55th AGM and other agenda items presented for discussion	Passed	4 (5)	2 (2)
	Agenda 2 Payment of performance bonus to CEO	Passed		
	Agenda 3 Appointment of compliance officer	Passed		
	Report 1 Report on the status of internal accounting management system operations in 2018	-		
	Report 2 Report on auditor's opinion on internal accounting management system operations	-		
	Report 3 Report on results of compliance control and fair trade compliance operation	-		
Mar. 25	Agenda 1 Appointment of CEO	Passed	7 (7)	3 (3)
	Agenda 2 Commission of director's duty	Passed		
	Agenda 3 Appointment of BOD sub-committee members	Passed		
	Agenda 4 Amendment to internal accounting management rules	Passed		
	Agenda 5 Establishment of Audit Committee	Passed		
	Agenda 6 Approval of limit on remuneration of directors for the 56th fiscal year	Passed		
Apr. 26	Agenda 1 Investment in the capacity expansion of MECCELLOSE® G line	Passed	7 (7)	3 (3)
	Agenda 2 Approval of limit on remuneration of executives for 2019	Passed		
	Report 1 Business performance for first quarter of 2019 and outlook for the first half of the year	-		
Jul. 25	Agenda 1 Investment in the capacity expansion of AnyCoat®	Passed	7 (7)	3 (3)
	Agenda 2 Change to the name of the Related Party Transactions Committee and amendment to operation rules	Passed		
	Report 1 Business performance for first half of 2019 and annual outlook	-		

Date	Key agenda	Decision	Director attendance (Total)	Outside director attendance (Total)
Oct. 24	Report 1 Business performance for third quarter of 2019 and annual outlook	-	7 (7)	3 (3)
Dec. 19	Agenda 1 Establishment of business plan for 2020	Passed	6 (7)	3 (3)
	Agenda 2 Approval of comprehensive limits on transactions with major shareholders in 2020	Passed		
	Agenda 3 Appointment of CEO	Passed		
	Report 1 Report on the promotion and retirement of executives	-		

Audit Committee

Establishment of an audit committee is a legal obligation for listed companies that record total assets of no less than KRW 2 trillion at the end of the previous year. Companies that record less than KRW 2 trillion can choose whether to establish a committee in accordance with the Articles of Incorporation. Even though LFC is not obligated, we established the Audit Committee to increase corporate transparency and business efficiency, and elect Audit Committee members through BOD recommendation.

Audit Committee Activities in 2019

Date	Key agenda	Decision	Director attendance (Total)	Outside director attendance (Total)
Apr. 26	Agenda 1 Election of the Audit Committee chairperson and the matter of sequence of acting chairperson	Passed	3 (3)	3 (3)
	Report 1 Report on the Audit Committee operation plan and operation regulations	-		
	Report 2 Report on the results of review in the first quarter of 2019	-		
Jul. 25	Report 3 Outline of the internal accounting management system	-	3 (3)	3 (3)
	Report 1 Report on the 56th semi-annual financial statements and semi-annual report	-		
	Report 2 Outline of key audit matters (KAM) and report on the operation plan	-		
	Report 3 Report on plan to improve the internal accounting management system process	-		
Oct. 24	Report 4 Work report by the internal audit department	-	3 (3)	3 (3)
	Report 1 Report on the 3rd quarter financial statements and quarterly report of the 56th fiscal year	-		
	Report 2 Report on the progress of the designated audit system	-		
Nov. 21	Report 3 Report on the manager certification evaluation process	-	3 (3)	3 (3)
	Report 1 Progress with an audit contract with an auditor and audit plan	-		
	Report 2 Organization of key audit items of KAM	-		
Dec. 19	Report 3 Progress with internal accounting management system project	-	3 (3)	3 (3)
	Agenda 1 Approval of audit contract-related matters	Passed		
	Report 1 Report on results of interim audit	-		

Sub-committees of the BOD

To enhance the efficiency of management activities, LFC set up sub-committees of the BOD which are the Management Committee, Audit Committee, Transparent Management Committee, and Compensation Committee.

Composition of the Sub-committee

Sub-committee	Composition	Member	Roles and responsibilities
Management Committee	3 inside directors	Kyung-Moon Jung, Woo-Hyun Joo, Jun-Hyuk Shin	<ul style="list-style-type: none"> Improve efficiency of management and operation Resolve BOD delegations
Audit Committee	3 outside directors	Chang-Soo Lee, Kyung-Hyun Ahn, Ho-Joong Kim	<ul style="list-style-type: none"> Ensure transparency of the company, and ensure its management efficiency
Transparent Management Committee	3 outside directors 1 inside director	Chang-Soo Lee, Kyung-Hyun Ahn, Ho-Joong Kim, Woo-Hyun Joo	<ul style="list-style-type: none"> Secure transparency in managing the company by establishing fair trading compliance system
Compensation Committee	3 outside directors 1 inside director	Chang-Soo Lee, Kyung-Hyun Ahn, Ho-Joong Kim, Woo-Hyun Joo	<ul style="list-style-type: none"> Secure objectivity and transparency in calculating director compensation Determine compensation limits of registered directors to be submitted to the AGM Other matters delegated by the BOD

* As of March 31, 2020

BOD Profile

Classification	Name	Key profile
Inside directors	Kyung-Moon Jung	Currently CEO, LOTTE Fine Chemical 2016-2019: Head of Management Group, LOTTE Fine Chemical 2016: Head of Planning Division, LOTTE Chemical 2014-2016: Managing Director of Vision Strategy Office, Policy Division of LOTTE Group
		Currently Head of Management Group, LOTTE Fine Chemical 2018-2019: Head of Management Support Division, LOTTE Fine Chemical 2017-2018: Head of Management Division, LOTTE Fine Chemical 2013-2016: Operations Office, Policy Division of LOTTE Group
		Currently Strategic Planning Division Head, LOTTE Fine Chemical 2017-2018: Head of Purchasing Division, LOTTE Fine Chemical 2016-2017: Manager of Material Purchasing Division, LOTTE Fine Chemical 2014-2016: Manager of Purchasing Division, LOTTE Fine Chemical
	Chang-Soo Lee	Currently Adjunct Professor, Graduate School of Industrial and Entrepreneurial Management, Chung-Ang University 2012-2015: CEO, KPMG Korea 2004-2012: Deputy CEO, KPMG Korea
Outside directors	Kyung-Hyun Ahn	Currently Professor, Department of Chemical and Biological Engineering, School of Engineering, Seoul National University Currently Head, Nano-structure Polymer Processing Center 2004-2008: Associate Professor, Seoul National University
	Ho-Joong Kim	Currently Professor, College of Business, School of Business, Konkuk University 2009-2013: Member, Professional Accounting Deliberation Committee, Financial Supervisory Service 2008-2009: Vice President, Korean Accounting Association
Non-executive director	Boo-Ok Jung	Currently Head of HR Innovation Office, LOTTE Group 2015-2019: Head of Polymer Business Division, LOTTE Chemical 2014-2015: Head of SM/BTX Business Unit, LOTTE Chemical

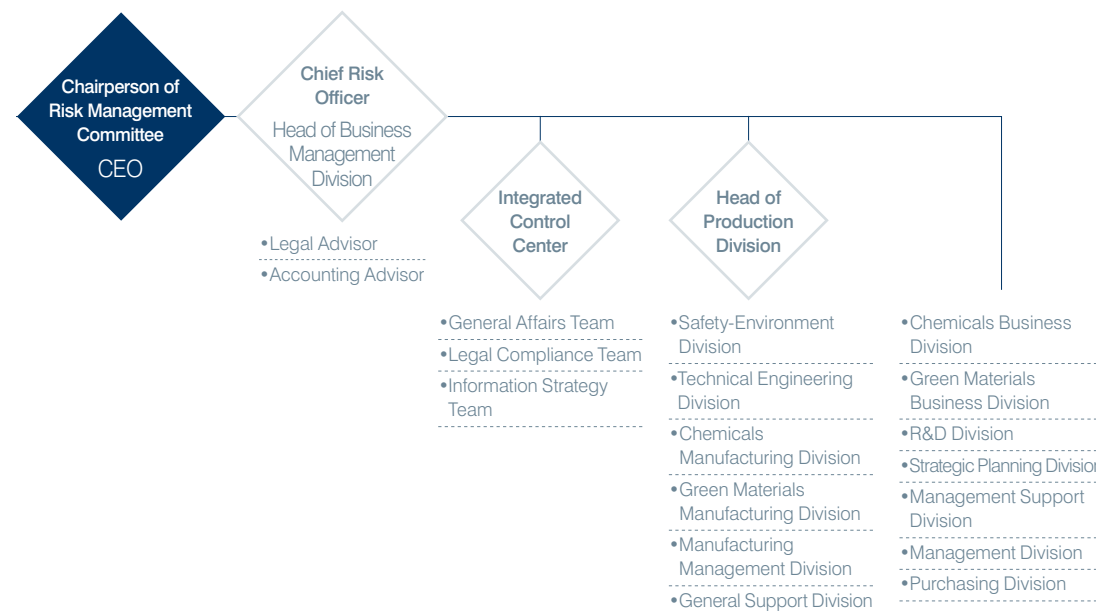
* As of March 31, 2020

Risk Management

Risk management system

In a rapidly changing business environment, the importance of risk management is gaining importance, with a focus on a company's environmental safety and response to external media. LFC preemptively responds to risks by making a categorization into company-wide risk management (financial and non-financial) and business-specific risk management, and operates a company-wide risk management system for quick decision-making and early response in the event of a risk.

Risk Management Organization



Risk response process

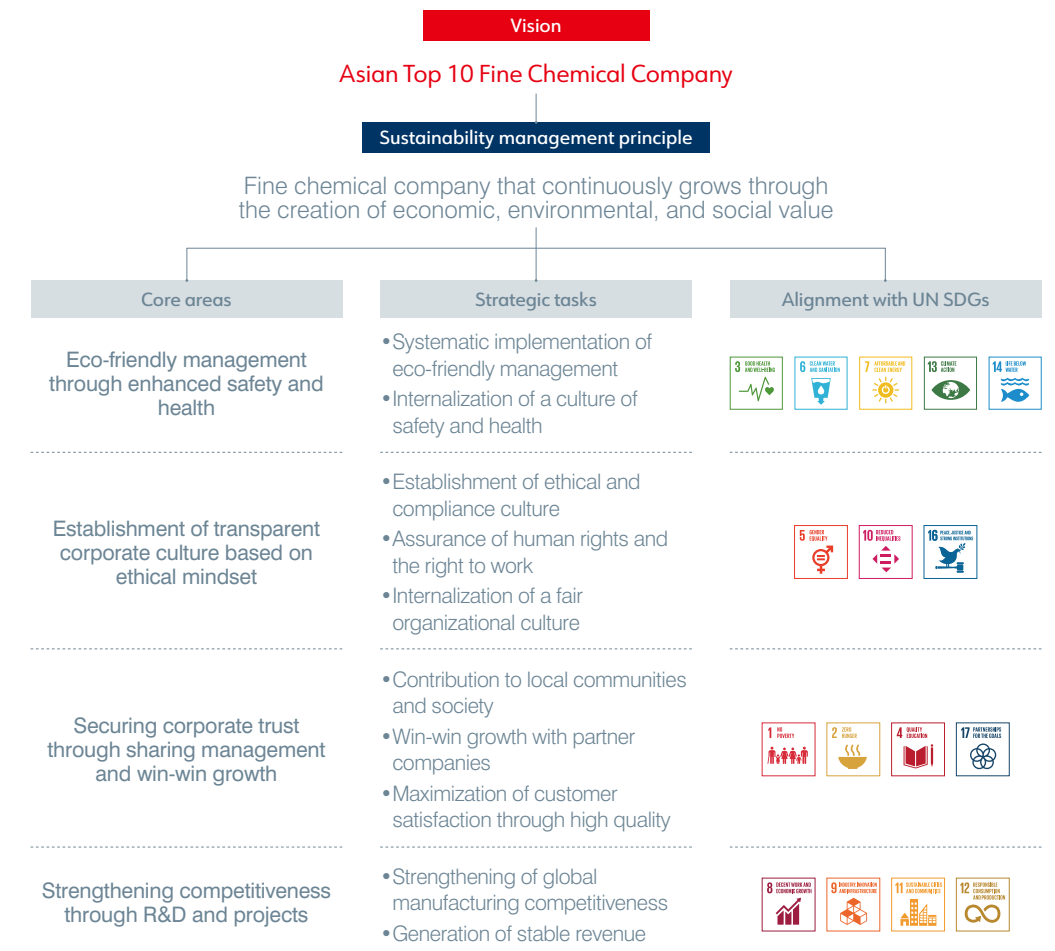
LFC operates a risk response process according to the level of risk. For level A and B risks, with high risk levels, the Risk Management Committee is convened to take a company-wide response. For level C risks, which have a relatively lower risk level, the executive in charge responds quickly, after which a report is made to the Risk Management Committee.



Sustainability Management Strategy

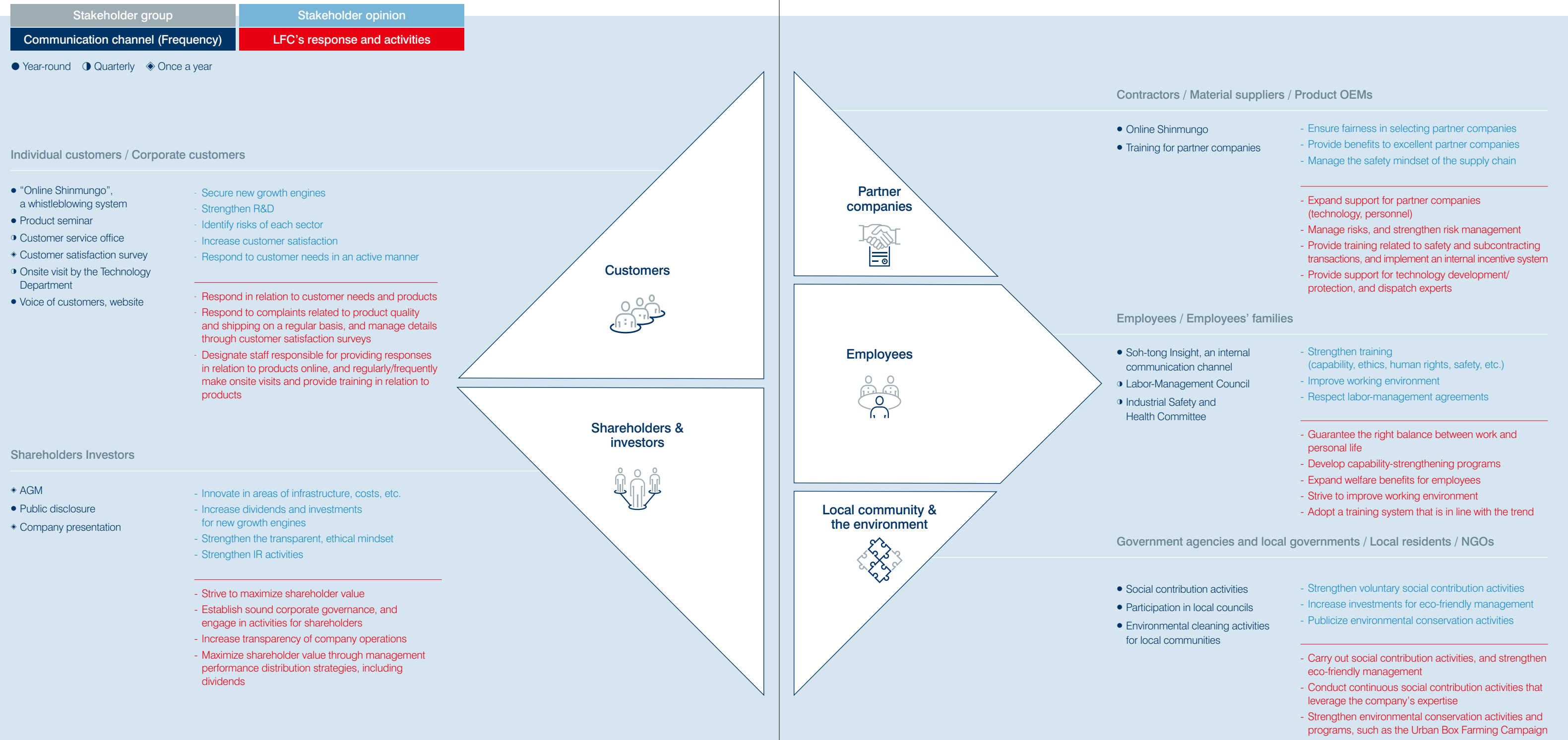
Sustainability management strategy system

LFC established a sustainability management system that is connected with company-wide management strategies to practice sustainability management from a more systematic, long-term perspective. We expanded previous core implementation areas to set a direction, and derived appropriate strategic tasks based on material issues. In addition, by connecting the UN Sustainable Development Goals (SDGs) with LFC's management direction and strategic tasks, we are striving to manage our sustainability management performance in accordance with the shared goal of the international community for sustainable development.



Stakeholder Engagement

LFC defines customers, shareholders and investors, partner companies, employees, government, and local communities as its major stakeholders. Stakeholder opinions are collected through various communication channels, and are reflected in LFC's major business and management. We will continue to identify stakeholder opinions through active communication with them and derive improvement points to look for ways to change and develop in a better direction. This effort enables us to establish trust-based relations with stakeholders, and will serve as a driving force that generates sustainable value together with stakeholders.

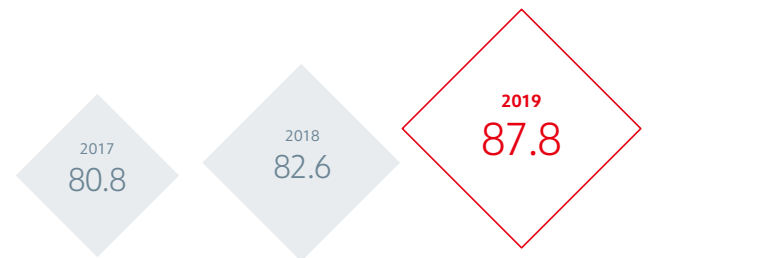


Materiality Analysis

LFC pursues the implementation of stakeholder participation-based sustainability management. In executing sustainability management, we strive to build a virtuous cycle where we closely examine what issues our stakeholders are interested in and what they want, identify the difference between stakeholders' perception and the company's current state, and reflecting this in our sustainability management strategy. As part of this effort, LFC selects material issues together with its issuance of the Sustainability Report every year. For the 2019 report, we asked 109 internal and external stakeholders on their overall perception and opinions on our sustainability management level.

Perception towards sustainability management

Comprehensive Perception



Detailed Questions

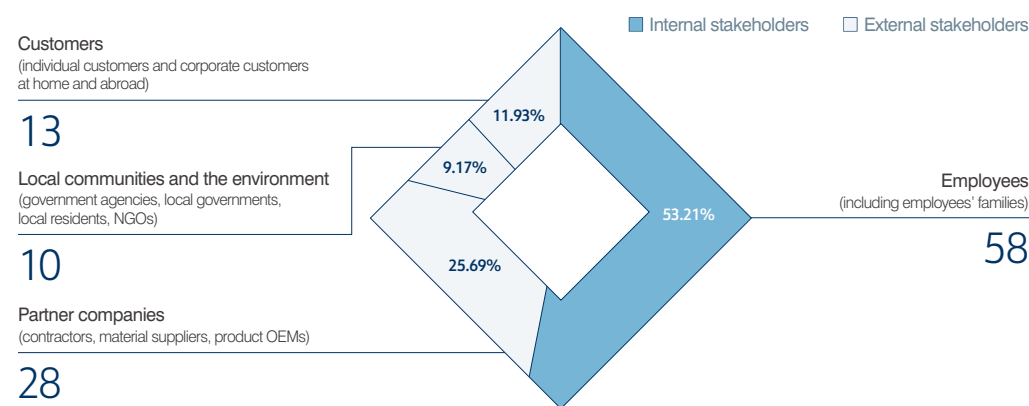
	2017	2018	2019
LFC will continue to grow	81.4	82.2	92.4
LFC is a company trusted by citizens	78.0	80.7	78.1
LFC is contributing to national and economic development	83.5	83.3	90.5
LFC has a sound governance	78.6	82.9	84.8
LFC abides by laws and fulfills its social responsibilities	82.7	83.8	93.3

Material Analysis Process

Material issues of LFC were chosen in consideration of business impact and social interest of core subjects of social responsibility defined in ISO 26000, a global standard on corporate social responsibility.

We measured the level of social interest and business impact considering the global community's level of interest and the business impact of social responsibility issues, that are regarded as important by stakeholders, by using a five-score scale and aggregated them. The level of social interest was measured in consideration of the degree of media exposure of each issue, benchmarking of the same industry and leading companies, and such global guidelines as UN SDGs¹⁾, GRI²⁾ and IR³⁾. In terms of business impact, we measured the impact of core subjects of social responsibility, defined in ISO 26000, on our business based on the survey results received from 109 stakeholders.

Composition of Stakeholders for Business Impact Measurement



¹⁾ UN Sustainable Development Goals: Universal call to action to achieve sustainable development adopted by all United Nations Member States in September 2015

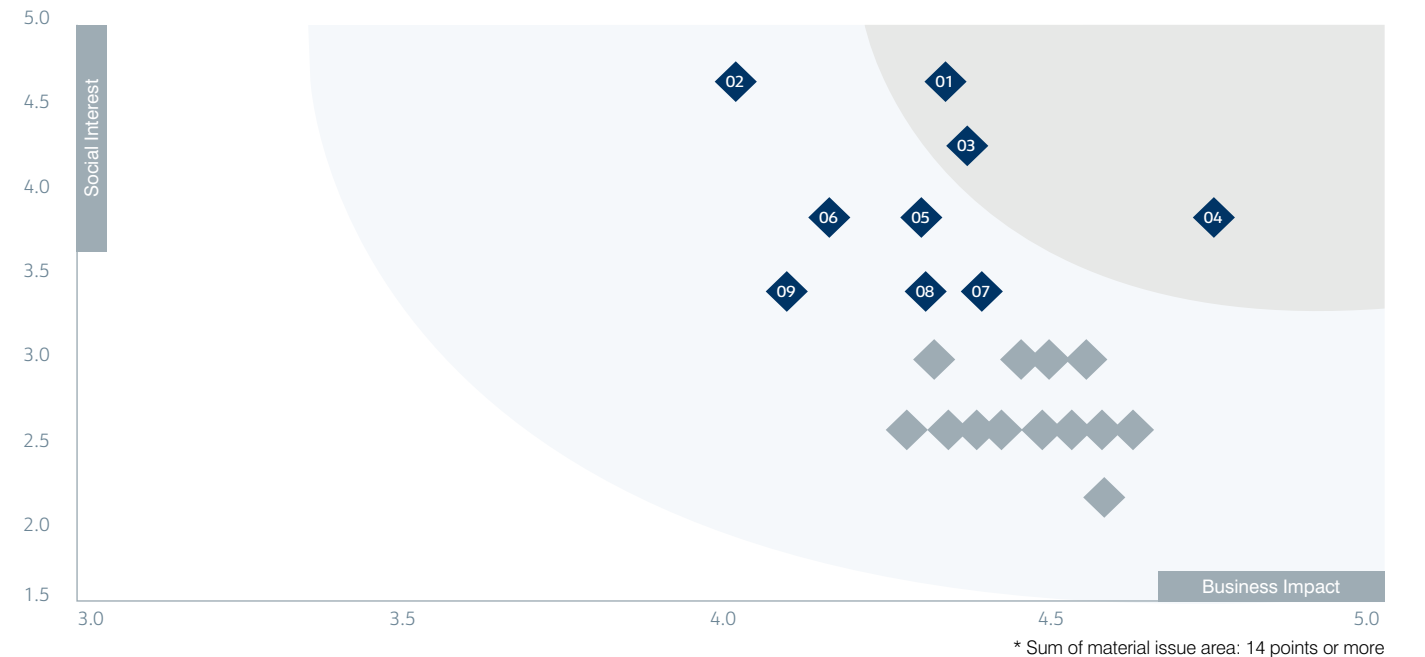
²⁾ Global Reporting Initiative: Global standards for sustainability reporting

³⁾ Integrated Reporting: Integrated reporting framework set by the International Integrated Reporting Council

Material Analysis Results

"Creating economic value and expanding stakeholder distribution" was chosen as the most important issue among LFC's material sustainability issues. From among 32 core subjects of social responsibility, issues that fell under the top 30% were chosen as material issues. Of the seven core subjects defined in ISO 26000, all other social responsibility issues excluding "labour practices" were chosen as material issues of LFC.

Materiality matrix



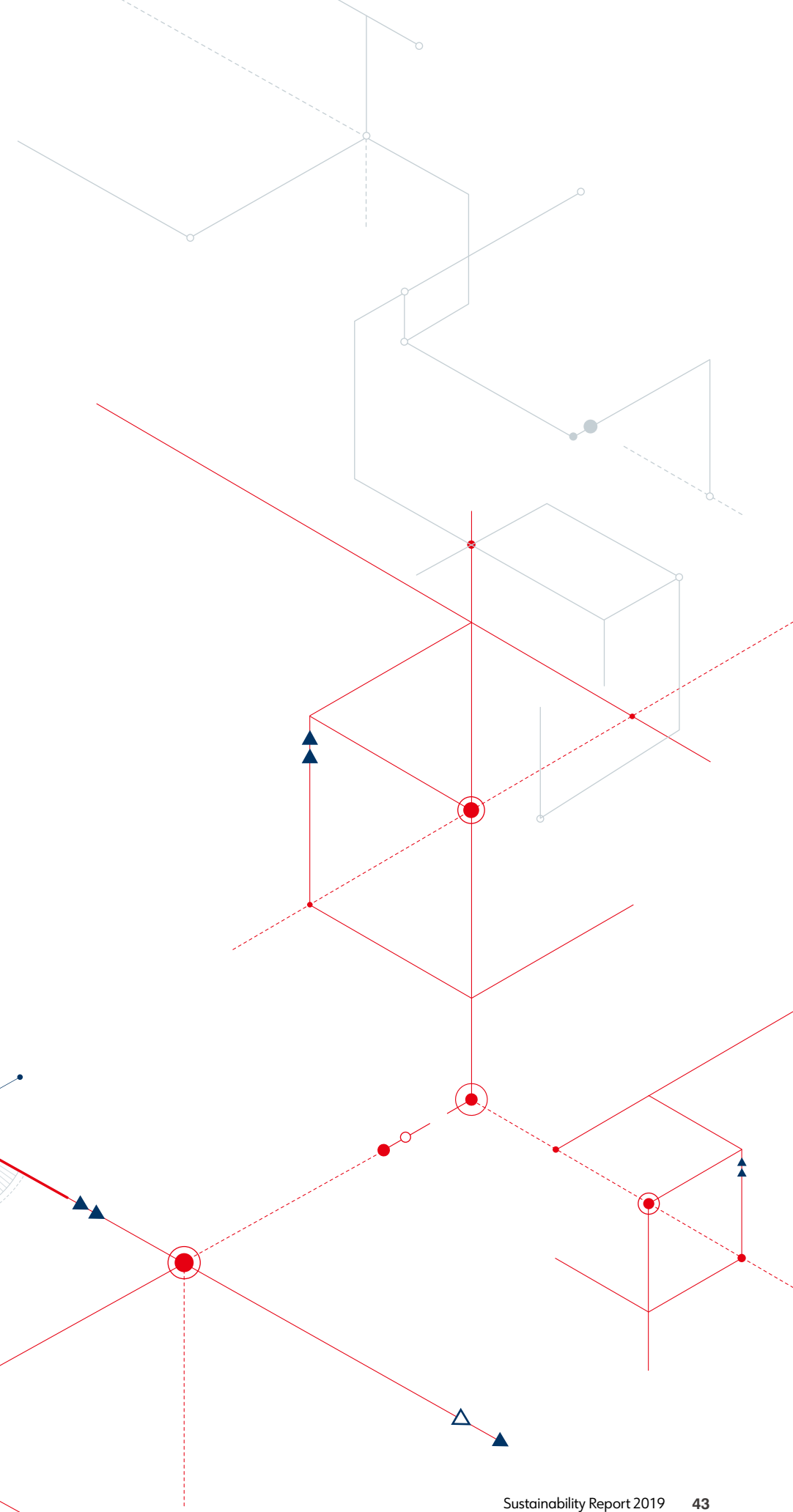
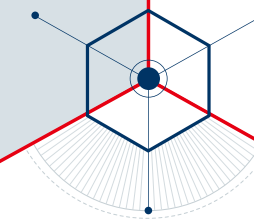
Reporting of material issues

No.	Subject	Material issue	Impact	Section	Page
1	Community involvement and development	Creating economic value and expanding stakeholder distribution	Economic, social, environmental	Distribution of economic value	P. 81
2	Community involvement and development	Contributing to improving welfare and infrastructure of local communities	Social	Social contributions through partnership	P. 75-77
3	Organizational governance	Enhancing BOD transparency	Economic, social	Transparency of the BOD	P. 34-35
4	The environment	Improving environmental performance through pollution prevention (water quality, air, waste, and harmful substance management)	Environmental	Minimizing negative environmental impacts	P. 65-67
5	Organizational governance	Strengthening stakeholder communication	Economic, social, environmental	Stakeholder engagement	P. 38-39
6	Consumer issues	Conducting activities to increase consumer awareness for sustainable consumption (participation in domestic and overseas events, including international conferences and forums)	Economic, social, environmental	Product communication	P. 56-57
7	Human rights	Establishing a human rights management system (training on human rights, HR Committee)	Social	Respecting and protecting human rights of employees	P. 72
8	The environment	Using eco-friendly materials, and producing eco-friendly products	Economic, environmental	Environmental performance	P. 82-83
9	Organizational governance	Internalizing internal and external sustainability management issues (UN SDGs, LOTTE Group's policies)	Economic, social	2019 Highlights – Sustainability	P. 16-19
				CSV story	P. 24-31
				Sustainability management strategy	P. 37
				Value creation business model	P. 22-23, P. 44-45, P. 48-49, P. 58-59, P. 62-63, P. 70-71
				Management approach of each sustainability performance section	

SUSTAINABILITY PERFORMANCE

LFC leverages our own business capabilities to enable society to make positive changes. As a company that strives to improve people's quality of life and live in harmony with the environment, we respect people, run our business with a sense of social responsibility, and protect the natural environment. In 2019, LFC continued to take on the challenge of creating shared value (CSV) as a company, and was able to reach important milestones in various aspects of our sustainability management.

- 44 Strengthening Compliance Management
- 48 Enhancing Competitiveness through Innovation
- 58 Expanding Health & Safety Management
- 62 Advancing Eco-friendly Management
- 70 Building a Win-win Culture



Strengthening Compliance Management

SUSTAINABILITY CONTEXT

The advanced compliance system at LFC ensures that the company is managed according to the requirements of laws, regulations, ethics, and social norms. It is a way of protecting LFC from adverse internal and external factors, and it also helps our employees avoid unnecessary external risks by encouraging them to adhere to internal controls. LFC's compliance system is based on two pillars – ethical management and compliance management – and is our important asset. LFC therefore constantly upgrades its compliance management capabilities by applying reasonable tools, and makes progress towards becoming a global company through integrated risk management.

LFC's SDGs



SUSTAINABILITY PLAN



Build a compliance system by 2020



Continue to assess ethical status of all employees, and conduct capability diagnosis of leaders

INTERVIEW

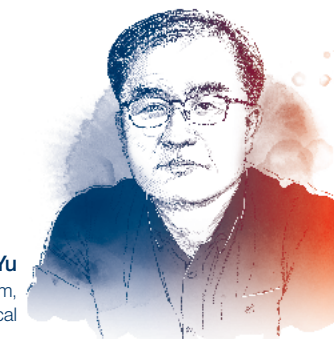
How important is whistleblowing management in establishing an ethical culture at LFC, and what is the role of the whistleblowing system?



The whistleblowing system is a channel used by employees and external stakeholders to send any information relating to unfair or unlawful conduct by the company, as well as any other complaints.

It is one of important systems that we run in order to actively listen to a range of opinions from both inside and outside the company, which is essential in ensuring that ethical management takes root at LFC. The Ethics Management Team investigates any issues raised from information received through these channels, or sends it to the relevant department to make sure that the matter is resolved. The results of these investigations are reported to senior management and to the Audit Committee. In addition, we amend our internal rules and regulations wherever we find shortcomings, and make improvements to prevent the recurrence of similar events in the future.

In addition, all management and employees at LFC are required to receive in-depth training on ethics, so that everyone at the company is able to develop an ethical mindset. We also undertake regular inspections to correct any conduct that goes against our standards and principles. We maintain this level of commitment because ethical management is a principle by which any global company must abide. LFC will therefore continue to put ethical management into practice throughout the company in order to control risk factors related to ethics, and to enhance the value of the company.



Seungsoo Yu
Head of Ethics Management Team,
LOTTE Fine Chemical

SUSTAINABILITY IMPACT

Employee participation rate in compliance management training



100%

No. of cases of corruption



Zero

Establishment of the Audit Committee



Increased corporate transparency

Ethical Management

LOTTE Personnel Code of Conduct

- Trust with Our Employees**
People who are truly precious to each other as part of a family.
Trust is what binds us together as one.
- Trust with Our Customers**
Making LOTTE products and services to be first choice of customers.
This is the strength of trust.
- Trust with Our Partners**
People who become one with partner companies based on trust.
It is us, LOTTE people.
- Trust with Society**
A company trusted by society for contributing to society and setting an example.
This is what LOTTE pursues as a responsible business.

Ethical management system

LFC operates an ethical management implementation system with the Ethics Management Team, directly under the CEO, taking a central role. Based on LOTTE Group's resolve towards ethical management, LFC has established ethical management principles and carries out various activities that publicize the principles internally and externally, while making continued efforts so that ethical management can be fully established as a corporate culture.

conduct follow-up measures for confirmed cases, such as discipline, process improvement, and ethical management training. In addition, LFC sends a letter of ethics management from the CEO of the company to our partner companies in order to demonstrate our commitment to ethical management. We also assess ethical status of all employees and conduct capability diagnosis of leaders in our efforts to ensure that ethical management takes root at LFC.

Establishing a culture of ethics

LFC continuously provides ethical management training based on the Code of Conduct and Code of Practice of LOTTE Group, and posts employee guidelines for ethical management in its internal portal. We also receive reports on corruption through the Online Shinmungo on our company website, and

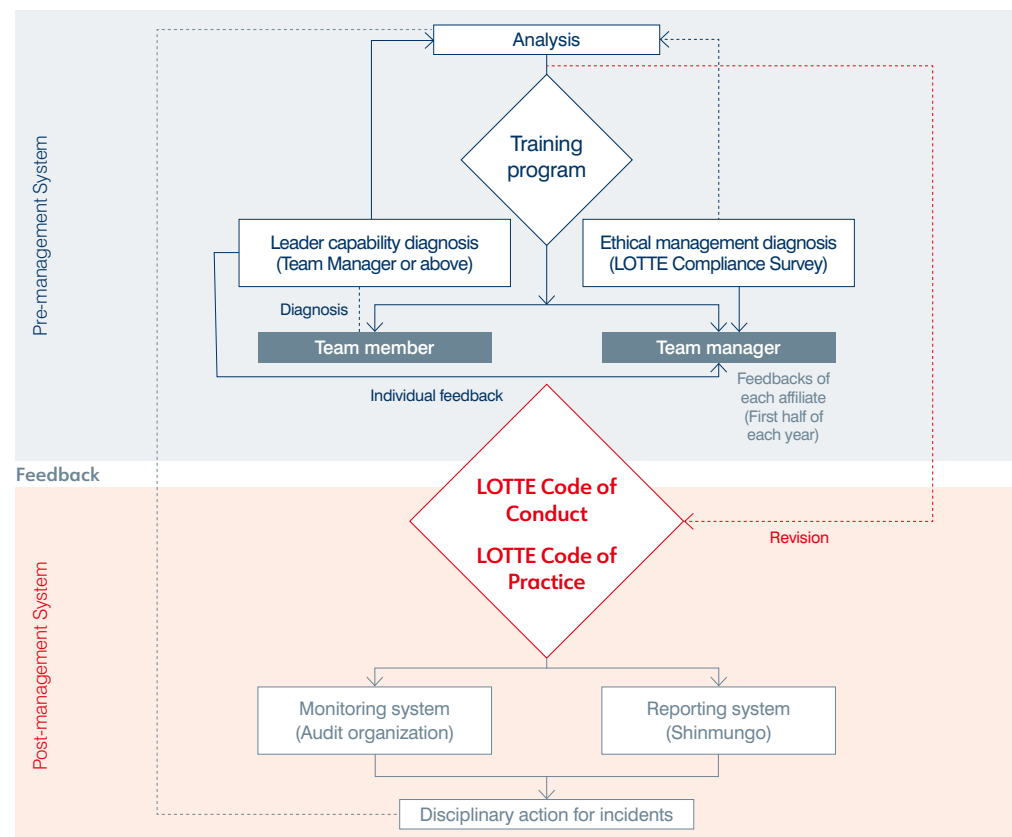
Management of ethical management

LFC runs a system of managing ethical management that is based on the Code of Conduct and Code of Practice of LOTTE Group. By doing so, we prevent unfair work-handling and unethical matters of employees and staff from partner companies, and identify and manage matters that require improvement.

Ethical Management Implementation System



Ethical Management System



¹⁾ Director participation rate in the training on the Improper Solicitation and Graft Act: 43%

CEO Compliance Message

Dear employees,
On the occasion of the 71st anniversary of Constitution Day, I make clear the company's commitment towards compliance and ask for your participation.
LFC established the Compliance Management Charter in 2017, and since then the company has been implementing and strengthening anti-corruption regulations by making amendments, including prohibition of unlawful solicitation and other. As such we have adopted global-level compliance, and are implementing policies that are required to appropriately operate and manage the systems.
Many supervisory institutions in Korea and abroad have recently been examining compliance with laws related to company activities, such as the Fair Trade Act as well as the Foreign Trade Act and occupational safety and chemical substance-related laws. Accordingly, the importance of internal compliance of companies is gaining emphasis.
In addition, companies that do not abide by basic rules and only pursue immediate profits are subject to strong punishment, and are discredited as dishonest companies and criticized by consumers.
Therefore, a company's declaration of its commitment towards compliance management and its effort to put the commitment into action is a strategy for survival against the backdrop of increasingly fierce competition, and is also a part of the company's efforts to fulfill its sound responsibilities toward stakeholders and society and to achieve continued growth.
Compliance management, which has become a prerequisite for corporate survival and continued growth, gains meaning only when all employees who lead a company strive to make compliance management a part of daily life.
To enable LFC to make huge strides forward, with "compliance management" serving as a strong foundation, I strongly urge all employees at LFC to comply with the following:

First, all employees must understand and comply with work-related laws. Internal compliance has recently been gaining greater importance in diverse areas. An employee therefore needs to develop an accurate understanding of laws that are related to the work he or she is in charge of. There is a high possibility of violating a law when an employee handles work by jumping to conclusions and making assumptions without an accurate understanding of laws, ultimately resulting in damage to the company.
Second, if whether a matter is unlawful is at issue or is not clear, employees must check first before moving forward. If an employee has doubts, he or she should ask questions to the Legal Compliance Team and supporting departments to prevent legal risks.
Third, employees should not order, approve, aid, abet, and condone unlawful conduct, not to mention directly engaging in unlawful conduct. Even trivial unlawful conduct can threaten the company's survival. Ordering, aiding, abetting, and condoning unlawful conduct simply based on grounds that it is a custom hinders the company's timely response and also causes greater damage to the company. Please keep in mind that employees will certainly be held accountable for conduct that is in violation of the law and company regulations.
We will become stronger when the company and employees comply with laws and principles and compete fairly.
The foundation for our survival will be built when we clearly share the basics and principles in our daily work, strictly abide by them, and internalize compliance management.
Let us build a foundation for LFC to take decisive steps towards new growth by fully establishing a compliance management culture.
Thank you.

Compliance Mindset

Compliance management organization and system

LFC operates the Legal Compliance Team directly under the CEO. The Legal Compliance Team is in charge of presenting an overall direction for compliance management, such as establishing and executing compliance management strategies. It constantly monitors the status of compliance management to prevent unethical conduct. It has also established a system to prevent recurrences in relation to disciplinary action against employees in the event of an issue, and conducts various other activities to enhance employee awareness of compliance.

Improving and assessing employee awareness of compliance

LFC conducts compliance management training every year for employees' voluntary implementation of compliance management and to increase awareness. We conduct various activities related to compliance management to form a consensus among employees towards compliance, and provide mandatory training on compliance and ethical management to newly hired employees.

All employees participated in the corporate-wide compliance management training that took place in 2019, including training on the Improper Solicitation and Graft Act, thereby enhancing employee mindset on compliance management, and the training on the Improper Solicitation and Graft Act was also provided to directors¹⁾. LFC conducts monitoring every year to diagnose observance of the compliance management code and the level of the culture of practicing compliance management and reflects the results in its management activities so as to promote continued development of activities that practice compliance management.

Project to establish a compliance system

LFC is building a compliance system that diagnoses risks in anti-corruption, HR and labor, and industrial safety areas. To this end, we selected a professional advisory company with the goal of completing the establishment in the first half of 2020. After the completion of the project, LFC will develop improvement measures and systematically manage issues that are identified according to diagnosis results.

Compliance Program

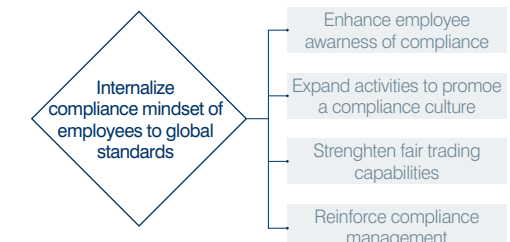
For voluntary compliance with fair trade laws, LFC adopted the Compliance Program (CP) in 2006, and is striving to prevent unfair trade conduct and to build a fair trade culture. We systematically and efficiently operate CP, with central roles performed by the Legal Compliance Team, which oversees all work related to fair trade, and based on collaboration between compliance officers in different divisions. We create and distribute a fair trading handbook, which is used as a work manual, and also provide regular training to onsite departments on amendments to relevant laws. LFC conducts an internal diagnosis of relevant departments, and has an internal system that can prevent and inspect the possibility of legal violations by having internal fair trade experts review overall business, including new businesses, sales, and purchasing.

LFC enacted compliance regulations, and operates various training programs for each core factor. To strengthen fair trade capabilities, we provide systematic CP training to employees in charge of fair trade and subcontracting per job function. Targeting high-risk departments, including sales and subcontracting-related departments, we examine compliance matters and report the results to the management, thereby arousing attention among employees in charge and taking the necessary corrective measures.

Compliance Management Organization by Task

Internal transactions	Collusion	Sub-contracting	Public disclosure
Financial Accounting Team	Legal Compliance Team	Purchasing Team	Corporate Management Team

Compliance Management Vision



Enhancing Competitiveness through Innovation

SUSTAINABILITY CONTEXT

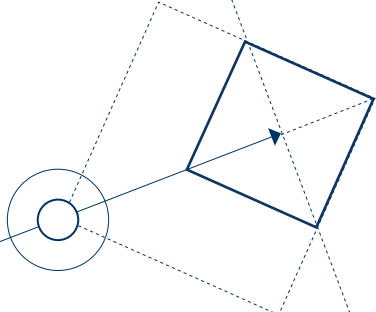
LFC's innovation begins with people. We provide training programs that consist of diverse curriculums to nurture talents who are active in the global market, while also overhauling our organizational system, including R&D organization. Our global talents do not fear failure and make continuous efforts to grow into leaders who lead innovation of themselves and the company. The growth of our employees, in turn, leads to LFC's outstanding research competitiveness and development of high-quality products. In addition, we have established an ISO system and are maintaining it to the global standards, in order to ensure systematic operation of quality management and information protection management which form the basis of continuous innovation.

LFC's SDGs



SUSTAINABILITY PLAN

- Fostering excellent talents who are appropriate for the businesses' characteristics through training that is aimed at strengthening job competencies
- Enhancing the competitiveness of existing product groups, building a new business technology platform, and securing implementation capabilities
- Maintaining the international standard quality management system (ISO 9001: 2015) and information protection management system (ISO/IEC 27001: 2013)



INTERVIEW

What kind of training does LFC provide to its employees, and what impact does this have on employees and organizational growth?

“ LFC offers its employees a wide range of training and other opportunities for self-improvement.

There is training related to individual job functions, training on global skills, and support for employees in acquiring relevant qualifications. We also provide many knowledge programs so that our personnel can adapt flexibly to the changing business environment. These programs include the "Yi Sun Sin" leadership program, a digital transformation program, and a design thinking program. Other programs are helping to create a flexible organizational culture; these include the "Protecting Life" program, psychological counseling, and individual training. LFC is also committed to building a corporate culture that respects diversity, which is why it runs a range of programs in support of diversity, including extended childcare leave, sympathy leadership, and two-way gender communications training.

In addition to training which focuses on job skills, LFC is establishing an organizational culture in which individual employees are able to demonstrate their capabilities to the fullest. These major investments in training are improving competitiveness of our employees and their work engagement, which in turn is increase productivity throughout the entire organization.



Jiyeon Park
Assistant Manager of
Human Resources Team,
LOTTE Fine Chemical

SUSTAINABILITY IMPACT

- Training hours per employee **39** hours/person
- R&D investment **11,375** KRW million
- No. of cases of handling the voices of customers **281** cases
- No. of cases of leakage/theft of customer information **Zero**
- Holding of the "Challenge 2020"

Human Resources Development

Model employee and fair recruitment

LFC looks for talents who do not fear failure, make endless efforts to develop skills, and know the value of cooperation and win-win. In particular, we provide quality jobs to people who pursue change based on creative thinking and endless innovation; work hard to become the best based on a sense of ownership and responsibility; and communicate and harmonize with colleagues based on trust. To this end, LFC operates a transparent, fair recruitment process, and thus grows together with its employees.

Fair evaluation and compensation

In order to motivate its employees and deliver fair feedback, LFC has established a transparent and fair performance management system. In addition, the company has systems in place to ensure that fair compensation is provided according to individual and organizational evaluations.

Human resources development program

LFC helps its employees to grow into business leaders through diverse systems, ranging from recruitment to talent nurturing. The company's leading talent nurturing programs include a female talent nurturing program, job function training program, global competency training program, and knowledge training program. In 2019, LFC provided training for around 39 hours per person and invested a total of KRW 910 million in education and training expenses to foster talent.

Nurturing female talent LFC is making a wide range of efforts to establish an organizational culture that values diversity and to foster female talent. As part of these efforts, the company offers special internal lectures by experts on female leadership, provides support for female managers' self-development and participation in forums for networking, and strives to systematize programs for female employees returning from parental leave.

Job function training program LFC operates internal training programs to strengthen the professional knowledge and competencies that are required by job function, including management strategy, purchasing, accounting, and finance. It supports its employees in completing training provided by outsourced professional organizations

and acquiring job-related certificates. In addition, we hold an onsite training technology academy to develop safety and manufacturing competitiveness, thereby securing a knowledge base. We continually foster in-house job experts, and actively conduct engineer training using in-house lecturers. We also support outstanding engineers to enter the Graduate School of Engineering Practice of Seoul National University, and thus foster key talent.

Global competency training program LFC helps its employees develop global competencies by offering internal language courses and external support. We operate language incentive systems, such as the language fund and language allowances, to boost employee motivation and to establish an organizational culture of learning. To improve global HR competencies, LFC provides support so that key talent can attend international conferences, and we operate learning programs for research. We also provide trainings to staff who will be soon dispatched overseas and locally hired personnel, and offer other integrated support.

Knowledge training program In order to have employees develop a basic attitude and knowledge that is needed as LFC employees, we provide training that disseminates the company's key values, anti-corruption training, sexual harassment prevention training, and training to improve perceptions towards the disabled. We operate the "Yi Sun Sin" leadership program and SERICEO program, in addition to leadership diagnoses, with the goal of strengthening leadership of our employees. We also present a way for emotional management within the organization through the "Protecting Life" program.

LFC provides online programs and supports learning organizations in various areas, such as digital transformation, 5G, and design thinking, so that employees can identify changing trends in a timely manner and build necessary networks. It also provides support so that employees can attend forums in diverse fields to identify the latest business and social issues and develop insight. In addition, we provided all employees with an opportunity to attend internal special lectures presented by external lecturers.

Challenge 2020

The LFC Ulsan complex held the 'Challenge 2020' event to share how the business site has changed in 2019 and its value, and to establish the vision and direction of Production Division for 2020. It gave a special lecture by inviting an official who is well-known for the subject of challenge, gave a presentation on outstanding cases of innovative activities, and strengthened its determination to become a business site that continues to take on "challenge" which is one of the core values of LOTTE people.



Research & Development

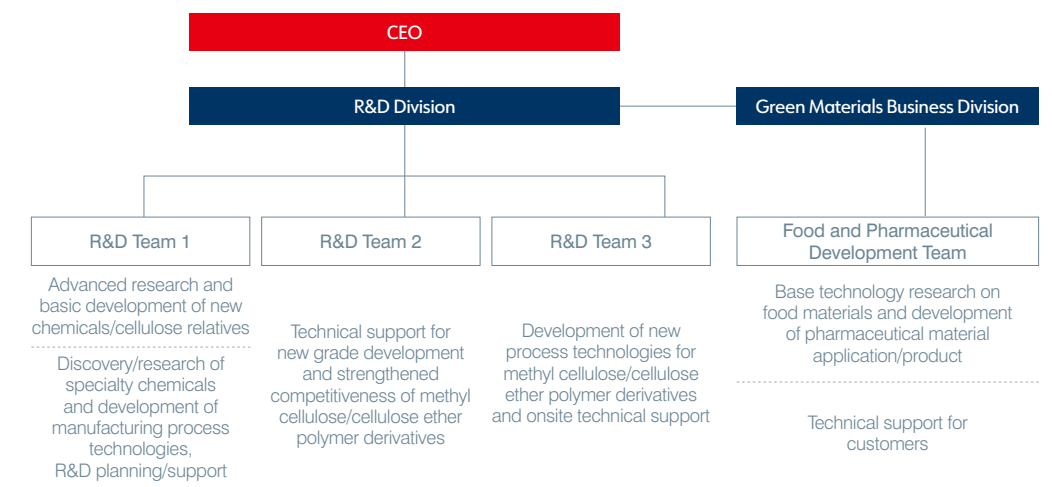
R&D organization and strategy

The R&D Division of LFC comprises of four teams that consist of professional researchers in the field of fine chemicals, such as amine relatives and chloride relatives, as well as specialty chemicals, such as cellulose ether polymers for industrial use and food and pharmaceutical use.

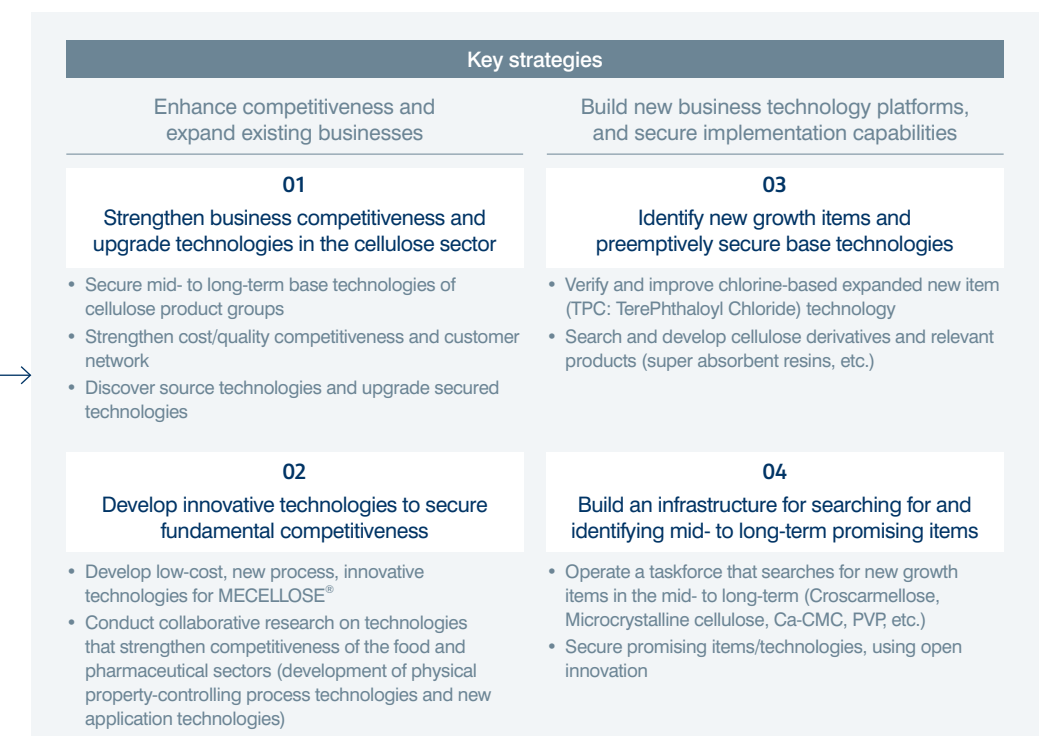
The Division conducts a wide range of research based on the experiences and professional capabilities that it accumulated over several decades.

In particular, it focuses on enhancing the competitiveness of existing businesses and increasing the implementation of new businesses by strengthening technical capabilities, leveraging its outstanding technology platform. By doing so, the Division helps LFC secure distinctive technologies, thereby performing key roles in realizing the corporate vision.

R&D Organization



R&D Strategy



Major R&D activities for cellulose relatives

Expansion of high functional additive MECELLOSE® HiEND for construction Use of large tiles for decoration or wall finishing has become a trend, leading to a sharp rise in demand for quality tile cement that has high adhesion strength. In line with such market demand, LFC makes continuous efforts to develop and expand the product group of the MECELLOSE® HiEND series, a high-performance additive for tile cement that delivers high adhesion strength and has slip resistance that is adequate for large tiles. It also offers excellent workability and sufficient open-time (operable time).

Development of viscosity agent HECELLOSE® EXT for oil drilling The need for viscosity agents has continued in many areas of industry, including construction. LFC developed the HECELLOSE® EXT series product, which is specialized as a viscosity agent for oil drilling, and is receiving good reviews from the market. The EXT grade is effective for rock removal and transport based on high viscosity, and has high compatibility with the usage environment and other materials as a result of stable saline solubility. By continually expanding the EXT grade series, which offers outstanding properties and versatility, LFC will further strengthen its position in the sector of special industrial uses.

Development of high-performance MECELLOSE® for cement extrusion Use of cement-extruded panels is increasing due to performance demand for buildings, such as houses, public offices, and stadiums, and reduced construction periods. Accordingly, there is demand for a viscosity agent with high extrudability and strengthened shape retention for high-temperature work conditions and various shaped extruded products to improve the performance and productivity of cement extruded products. LFC developed the MECELLOSE® product, which is optimized for cement extruded panels, based on this technical need, thus contributing significantly to productivity and performance improvements of customers' various extruded products.

- 1
- 2
- 3

1. MECELLOSE®, high functional additive for construction
2. HECELLOSE®, viscosity agent for oil drilling
3. High-performance MECELLOSE® for cement extrusion



Fundamental research and development of cellulose derivatives LFC is focusing its R&D capabilities on development and commercialization of various new cellulose derivatives in line with customer needs that are steadily becoming segmented and specialized. Along with developing new high-efficiency processes to enhance manufacturing competitiveness, we are expediting manufacturing technology development for food/pharmaceutical products, for which required properties are becoming increasingly diverse. In particular, we are researching new cellulose derivatives that are widely used in the construction industry and developing eco-friendly super absorbent resins using the derivatives, as well as developing non-cellulose thickening agents that improve workability and work quality by increasing the viscosity of paints. In addition, LFC is working on developing high-quality, high value-added products to offer products that meet customer needs and are trusted in the market.

Major R&D activities for chemical products

New amine/chlorine-based chemical products and R&D for new process technology LFC strives to develop competitiveness by continually generating research outcomes in the chemical business environment, where there is increasing competition for survival as a result of steady technological integration and advancement. The company has been researching quality improvement to enhance the quality and performance of EUROX®, catalyst reducing solution which reduces the amount of nitrogen oxide discharged from diesel engines, and to make its performance distinctive, while also providing reliable technical support to customers. To develop new downstream product technologies for chlorine-based chemical business, LFC adopted new technologies and is conducting research for mass production, which is leading to tangible outcomes. Through continued development of new process technologies, we will gain an advantage based on technological prowess even amid fierce competition, thereby leading the market.

R&D for food and pharmaceutical materials

Development of pharmaceutical materials and formulation research LFC's four grade excipients of HPMC, that were recently developed especially for sustained-release tablets, have been significantly increasing sales of relevant area, thereby proving to be suitable HPMC excipients in the generic and incrementally modified drug (IMD) fields, which are expected to steadily grow in the global pharmaceutical market. LFC is also focusing on formulation research in various forms of open innovation, including joint research and entrusted technology development, and, based on these efforts, it develops and provides products and professional technical services that satisfy the needs of pharmaceutical companies, which are our major customers.

Research on the use for food alternatives The trend in the food market is sharply changing as customer needs become increasingly diverse. AnyAddy® is a food material that improves the properties of food alternatives, including the recently rapidly-growing meat alternatives and gluten-free food. LFC is striving to provide distinctive products and services through continued efforts, such as reflecting market trends and developing customer-tailored uses.

Development of new use for food and pharmaceutical materials By filling up vacant technologies of the cellulose ether material business and analyzing technical barriers of markets that can be entered, LFC is setting the priority of material commercialization projects and advancing into new markets. It is supplying materials that are appropriate for each use to areas that it can newly enter, such as personal care, feed, and agriculture, and expanding the scope of application of food and pharmaceutical materials through key application technology-based commercialization support.

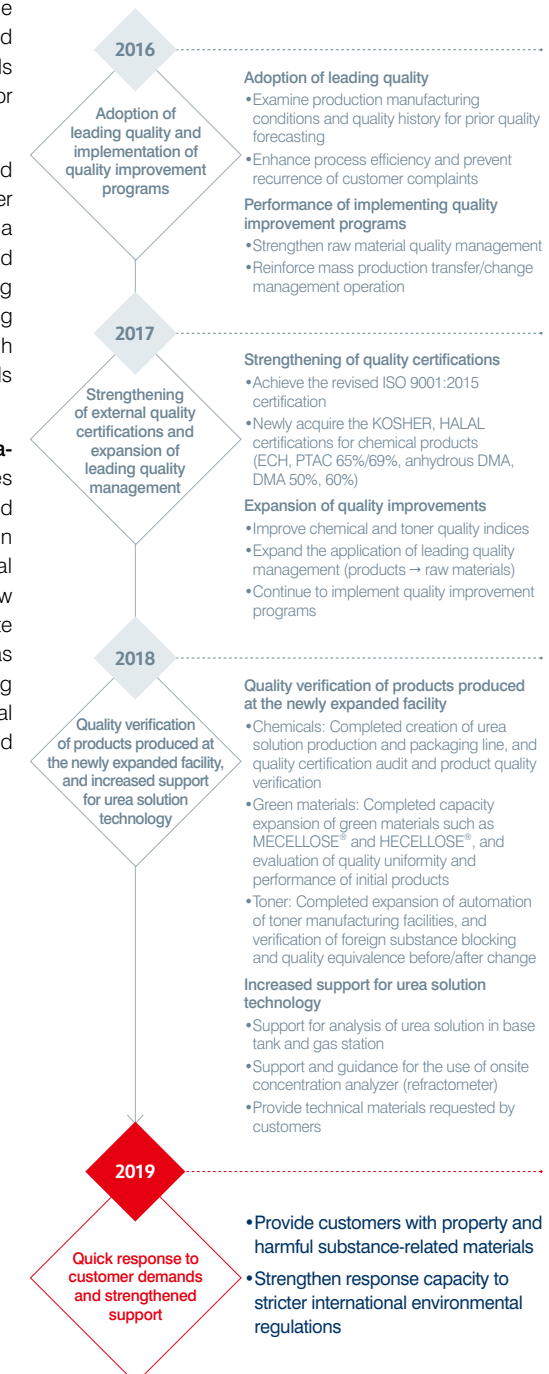


Customer Satisfaction

Direction to secure quality for customer satisfaction

LFC is making diverse efforts to secure quality competitiveness, such as establishing a relevant process, building a quality assurance (QA) system, and identifying defect improvement cases, while also renewing and maintaining its quality management system (ISO 9001: 2015). Based on these activities, LFC will move forward with strengthening the foundation for leading quality management and improving quality competitiveness.

Directions to Ensure Quality



Major quality management activities

Conducting process audit LFC conducts process audits to review the response system for addressing customer complaints and inappropriate matters, and to examine the implementation status of the quality assurance process. By doing so, LFC confirms whether production activity-related processes, inspections, and operation processes are effectively executed, thereby examining the reliability of products and services that are provided to customers, and strives to fully establish a culture where employees conduct work based on standards and processes. We will continue to select a key theme by quarter through process audits and make necessary improvements.

Strengthening quality management of raw and intermediate materials Each business division manages quality in accordance with each raw or intermediate material's characteristics to strengthen quality management on major raw and intermediate materials, chemicals, and catalysts. LFC will strengthen quality and supplier management for raw and intermediate materials that are subject to focused management, and apply this to the new material and supplier certification process. We will also establish a quality verification system for raw materials and products at their initial phase of adoption for continued maintenance and management.

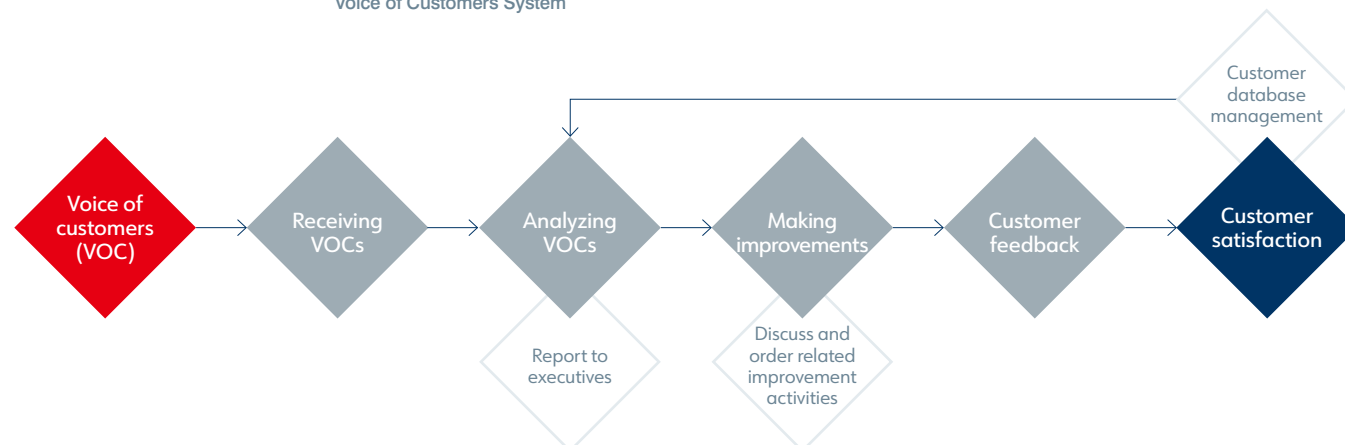
Voice of customers

LFC built a customer response system that connects all sectors, including sales, production, quality, and research, and responds quickly to customer demands. It provides property and harmful substance-related materials to customers, is strengthening responses to stricter global environmental regulations, and steadily carrying out improvement activities to offer better services.

VOC Status by Product

	2017	2018	2019
Toner	6	10	23
Green materials	61	64	68
Chemicals	135	146	190
Total	202	220	281

Voice of Customers System



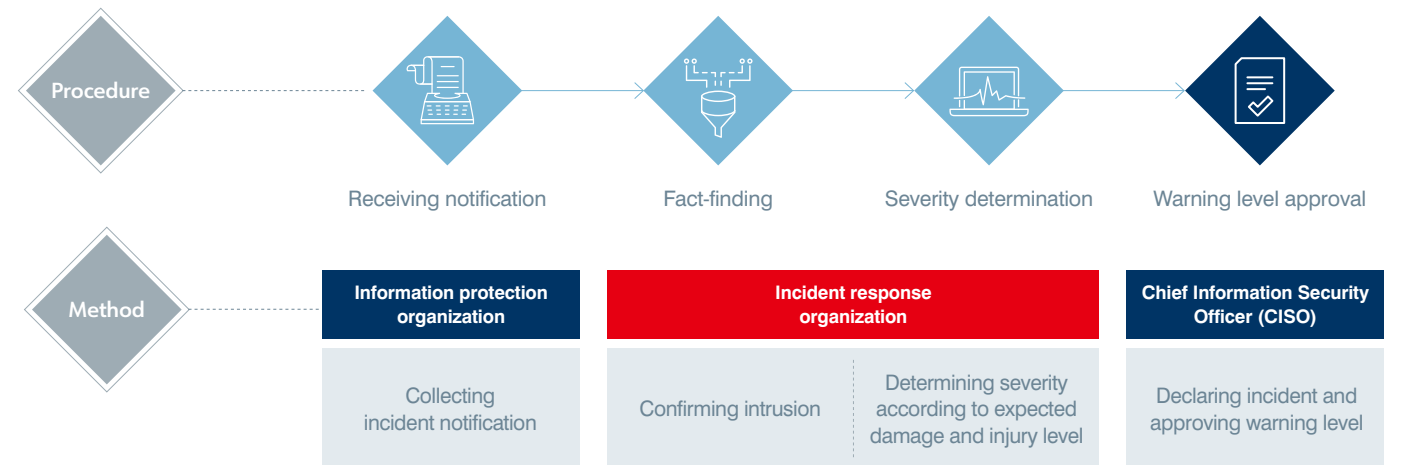
Protecting customer information

Information protection organization and activities LFC operates an organization committed to information protection to strengthen information security, and has taken top-level protection measures in accordance with the "Personal Information Protection Act" and the "Act on Promotion of Information and Communications Network Utilization and Information Protection, Etc.". In addition, the company provides regular training, and strictly manages and supervises all employees to raise awareness towards information protection and to ensure safe collection, storage, use, provision, and disposal of personal information. We have designated the first Monday of each month as "Information Protection Day" and make continuous efforts to protect information by sharing related incidents and other precautions. We also hold "Clean

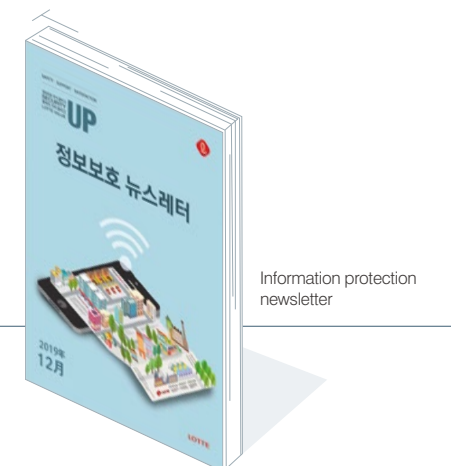
Office Day" every quarter to carry out information protection activities in business sites through physical security inspections.

Monitoring of customer information leakage LFC has been maintaining its ISO 27001 certification, an international standard on information protection, since 2017. It built a personal information management system and monitors personnel who handle personal information to prevent leakage, forging, and falsification of personal information. We immediately notify customers in the event of an incident, and establish and implement an incident response measure every quarter to minimize relevant damage. In addition, we run security drills to prepare for email virus attacks every quarter as part of efforts to prevent cyber attacks.

Response Process to Information Protection Breach



ISO 27001 certification



Product Communication

Overseas exhibitions publicize LFC's high value-added green products

ECS 2019

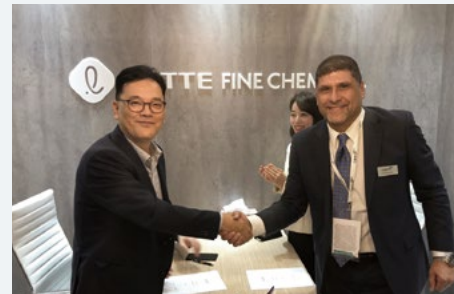
LFC participated in the European Coating Show (ECS) 2019 in Nuremberg, Germany from March 19 to 21. Held every other year, ECS is the world's largest coatings exhibition. In 2019, 1,159 companies from 110 countries around the world took part in the exhibition, which attracted more than 30,000 visitors. We met many existing and potential new customers, and enjoyed successes including reaching an agreement on new testing and securing a potential new distribution network. In addition to publicizing the LOTTE brand and increasing customer contact, LFC was able to use the exhibition to publicize the expansion of HECCELLOSE® Plant 2 and share details about the new grade of MECCELLOSE®, leading to strengthened brand image of our products.

CPhI Worldwide 2019

LFC participated in the Convention on Pharmaceutical Ingredients & Intermediates (CPhI) Worldwide 2019, the largest annual exhibition in the pharmaceutical industry, from November 5 to 7. CPhI Worldwide is held in major cities in Europe, with the 2019 event taking place in Frankfurt, Germany with participation from 2,500 companies from 150 countries around the world. We focused on raising awareness of AnyCoat®, and successfully signed major contracts with large customers. LFC was also able to investigate customer requirements and market trends, and assess the product offerings of its competitors.

ChinaCoat

LFC participated in ChinaCoat 2019, held in Shanghai from November 18 to 20. ChinaCoat is one of the three major global exhibitions on paints and coatings, and connects the entire world, including Asia, Europe, and the Middle East, with the Chinese market. ChinaCoat 2019 saw 38,000 visitors from 32 countries, mainly from the Asia Pacific region. LFC's elegant and innovative booth also attracted many visitors, reflecting the outstanding brand reputation of HECCELLOSE® and MECCELLOSE®.



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1. ChinaCoat 2019
 2. CPhI Worldwide 2019
 3. CPhI Worldwide 2019
 4. K 2019
 5. ChinaCoat 2019



K 2019

LFC participated in conjunction with the chemical affiliates of LOTTE Group, including LOTTE Chemical, at K 2019, which was held in Düsseldorf, Germany from October 16 to 23. The K trade fair is the largest exhibition in the world for the plastics industry, and is held every three years. K 2019 was participated by 3,330 companies from 169 countries, and attracted more than 22,000 visitors. 2019 was the first time LOTTE Group had taken part in this exhibition, and it took advantage of the opportunity to introduce the Group and its chemical affiliates. It also exhibited the products which it offers to help to create a virtuous cycle of eco-friendliness within the plastics industry.

Chinaplas 2019

LFC participated with LOTTE Chemical (basic materials, cutting-edge materials, Titan) at Chinaplas 2019, Asia's largest plastics industry exhibition, held in Guangzhou from May 21 to 24. LOTTE Group displayed its advanced technologies for a wide range of applications, ranging from construction to daily life and clothing. There was a particular focus on automotive materials, with our exhibit featuring an automobile projection mapping image attracting great interest from its many visitors.

Expanding Health & Safety Management

SUSTAINABILITY CONTEXT

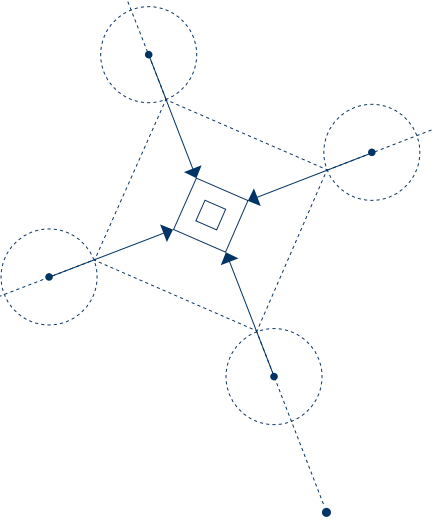
By implementing a plan for sustainable development which is based on our corporate philosophy of respecting human dignity, LFC has built safe production systems and established an onsite-focused safety management system. We are continuing to improve our health and safety systems, including by increasing communications related to safety. In addition, we are supporting health and safety management systems at our partner companies, and we make joint efforts to achieve “zero environmental safety accidents”.

LFC's SDGs



SUSTAINABILITY PLAN

- Maintaining the OHSAS 18001 Certification, an international occupational health and safety standard
- Systematically implementing the “Safety Inspection Day”
- Inspecting and increasing support for partner companies' safety and health management system (KOSHA 18001)



INTERVIEW

After establishing the health and safety system in partnership with LFC, which aspects of safety has it particularly helped with?

“Our company has continued to move forward with technological innovation in order to achieve sustainable growth alongside LFC.

We were committed to high levels of safety even before adopting the new health and safety management system, but LFC's support enabled us to establish a more advanced way of implementing safety management. We recognized the need for such a system, and developed an in-depth understanding of its details in the process of setting it up. We also came to the realization that there were many aspects of safety that we had not previously addressed as well as we could. In particular, we realized that health and safety management is best undertaken through the voluntary participation of our employees, and that it is better to manage safety in a systematic way rather than on an ad hoc basis.

I am grateful to LFC for providing considerable support in the establishment of our health and safety management system. Thanks to LFC, all our employees have a greater understanding of risk assessment. In addition, we received substantial help in achieving an accident-free worksite through the sharing of information and the training of employees on how to improve safety in their work. We will maintain the health and safety management system by holding council meetings, providing safety training, and sharing safety-related materials and information. Moreover, we will strive to grow together with LFC as its best possible business partner.



Hyun-sam Shin
Director, Daun E&C

SUSTAINABILITY IMPACT

Identification of unreasonable cases of safety and health



Process improvement in safety and health



Support for establishment of a safety and health management system at partner companies



¹⁾ Cumulative figure from 2014 to 2019

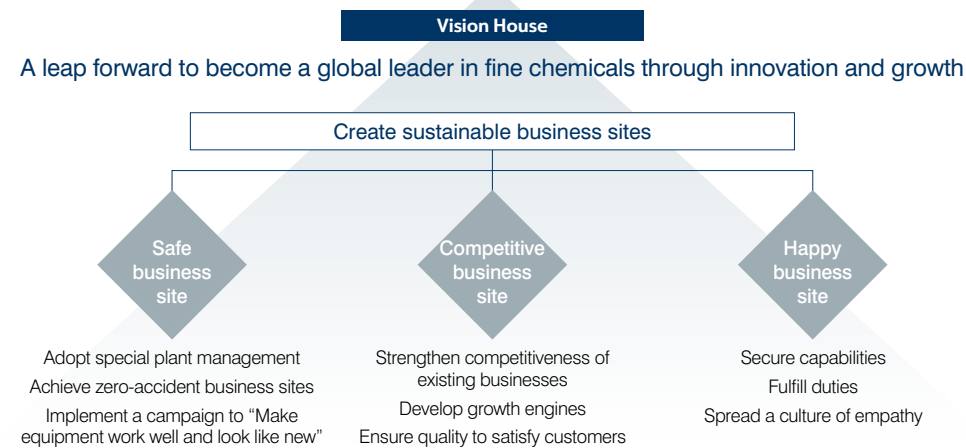
Culture of Safety & Health

Organization and strategy for safety & health management

LFC operates the Safety-Environment Division as a separate organization, in order to strengthen and better manage the safety and health management system, and the Safety Management Team under the Division oversees safety and health management at business sites. Based on a consensus among the company and all employees on the importance of

safety management, LFC acquired OHSAS 18001 Certification, an international occupational health and safety standard, and manages it. By achieving "the establishment of safe/competitive/happy business sites" based on such an international-level environment and safety management system that is closely connected to the field, LFC will realize sustainable business sites.

Safety & Health Management Vision



Employee Safety & Health Training

	2017	2018	2019
Regular safety training	24 hours/person		
Emergency response drill	Monthly per department, Bimonthly at the company level		

Safety & Health-related Councils

Hosted by	Meeting name	Frequency	Attendee	Main issues
CEO	Weekly CEO meeting	Weekly	CEO, Head of Production Division, and executives	Report on the implementation status of key execution tasks; and Sharing key safety & environment issues and trends
Head of Production Division	Plant weekly meeting	Weekly	Head of Production Division, executives, and heads of departments	Report on the implementation status of detailed execution tasks
	Plant safety and environment meeting	Monthly	Head of Production Division, executives, and heads of departments	Sharing the KPI of key safety & environment performance and trends
Heads of Departments & Leaders	Safety Contact	Weekly	Managers and above	Presenting safety & environment guides; and Sharing cases of accidents
	Supervisors' lunch discussion meeting	Monthly	Supervisors (Team managers)	Sharing safety & environment trends, issues, and guides; and Briefing on the execution plan
Occupational Safety and Health Committee	Occupational Safety and Health Committee ¹⁾	Quarterly	Committee members from the labor and the management	Discussing safety & environment policy and measures to correct deficiencies
	Working level meeting	As needed	Committee members from the labor and Safety Management Team	Examine and discuss safety & environmental deficiencies

¹⁾ The Occupational Safety and Health Committee is composed of 50% of the labor and 50% from the management

Establishing a safety culture

LFC has put various councils in place to increase employee awareness towards safety and motivate employees towards autonomous safety management. By doing so, we are forming a consensus towards safety and fully establishing a safety-first culture, thereby preventing human error. We provide regular safety training to all of our employees by setting a monthly theme and discuss major safety-related issues. We also give safety, environment, and health notices through internal communication channels, and strive to share and disseminate information such diverse subjects as device management, health management, and sanitation management, in accordance with the Environment, Safety, and Health Manual so that workers can properly respond to safety accidents. In 2018, a contest was held to create a slogan on building sustainable business sites which led to the establishment of "RE: Mind 50! RE: Start 100!" as the vision slogan that embodies LFC's determination to become a 100-year company based on the last 50 years.

Activities to strengthen safety culture

Safety Inspection Day LFC designates every Monday as the "Safety Inspection Day" and conducts an inspection by theme. In 2019, we carried out inspections on a total 65 themes, including wastewater, gas equipment, firefighting equipment, filling equipment, and asbestos management, and discovered a total 1,089 cases of issues and corrected 959 cases. To increase company-wide interest in safety, LFC set the outcomes of focused inspections as a criterion for evaluating managers. Activity outcomes are shared by posting them on "Soh-tong Insight", which is an internal portal, and are also disseminated through regular safety and health training and email. In 2020, LFC will establish and implement a detailed annual plan on monthly themes and activities, and additionally carry out theme training on the following month's activities during regular safety training to raise interest and level of participation in activities.

Safety Golden Rules The previous "12 Major Rules on Safe Work" presented overall standards on safety, and there was growing need to make a change into rules that were specialized for LFC's

work characteristics. We have therefore established a new set of "Safety Golden Rules", composed of eight major safety principles. In creating the new rules, we used keywords and pictograms, rather than rules in the form of descriptive sentences, thereby increasing effectiveness and visibility Safety Golden Rules. Based on the newly-established Safety Golden Rules, our employees are following rules that they chose and determined, rather than safety rules that are set by the Safety-Environment Division or according to the Group policy, and are performing leading roles so that safety is fully established as a corporate culture.

Safety Contact Campaign At all training and meetings, ranging from small meetings to shift morning assemblies and executive meetings, a "safety message" is shared as the first agenda item. A safety message is shared with participants for no more than five minutes. If needed, content of the Safety Contact Box that is set up in meeting rooms is used to share opinions on safety.

Support for safety & health management of partner companies

Helping partner companies establish safety & health management system To prevent accidents at business sites, safety and health management of partner companies is most important, in addition to safety and health management by LFC employees. LFC has therefore been supporting the establishment of the safety and health management system (KOSHA 18001) of partner companies that are stationed at LFC's business sites since 2014, with the goal of achieving accident-free business sites through win-win cooperation with partner companies. Partner companies that are stationed at LFC business sites and have a partnership with LFC operate the safety and health management system. The safety and health management system enables employees and teams of a partner company to assess risks according to work scope and content; to voluntarily establish and execute measures that reduce risks; and to examine the effectiveness, using the "Plan-Do-Check-Action" cycle.

Results of operating the safety & health system at partner companies LFC supported the establishment of the safety and health management system at a total 15 partner companies from 2014 to 2019, and is supporting newly-contracted partner companies with safety and health system certification and establishment. In addition, LFC supports follow-up and renewal evaluations so that partner companies can maintain their safety and health management system, while providing incentives to outstanding partner companies after conducting a partner company inspection every quarter, thus helping partner companies make further efforts towards safety and health management.



Safety vision slogan

Advancing Eco-friendly Management

SUSTAINABILITY CONTEXT

In order to respond to the challenges posed by global climate change, LFC is securing competitiveness to meet all the requirements of the Korean greenhouse gas emission trading scheme and other international environmental regulations. In particular, we run integrated management systems for energy and chemical substances, and continue to improve the results of these systems. In addition, LFC is protecting local communities by investing in environmental facilities and partnering with local organizations to participate in environmental improvement projects.

LFC's SDGs



SUSTAINABILITY PLAN



Completing the permission on allocated emissions amount pursuant to the Special Act on Improving the Air Environment of the Air Management Zone



Operating the LOTTE Chemical Management System (LCMS)



Participating in a project to foster the Taehwa River Grand Park's Bamboo Forest

INTERVIEW

What kind of help did LFC provide for the Campaign to Protect Bamboo Shoots in the Bamboo Forest of the Taehwa River Grand Park, and what are the future expectations for this campaign?



LFC has been providing help in protecting bamboo shoots since 2005. At that time, the Bamboo Forest was not as green as it is now, for it had not been well-managed.

However, thanks to the efforts of many LFC volunteers in carrying out sometimes challenging activities, the Bamboo Forest regained its green and flourishing state in just a decade. It has now become a beautiful ecological park, so that it has been designated as a national garden. It also protects the environment – in the event of a flood, bamboo forests can lower the velocity of flood waters, thus helping to reduce damage. I am grateful to LFC staff for continuing to volunteer over a long period of time. Their efforts have enabled the Bamboo Forest to both help the natural environment and give pleasure to the local community.

LFC also provides a full range of educational support, including by providing sketchbooks for the annual Bamboo Forest Drawing Contest for kindergarteners and elementary school students, held every May 5. I hope LFC will continue to provide the personnel and material resources needed to help the Bamboo Forest, our local community, and ourselves as individuals to remain happy and healthy.



Nam-geun Jo
Honorary Chairman,
Volunteer Group for
Bamboo Forest Protection

SUSTAINABILITY IMPACT

Amount of GHG reduction



7,450 tCO₂eq

Water pollution management standard



Strengthened to 50% of the legal limit

Waste recycling rate



84%

Prior report on chemical substances



50 types

Amount of green purchasing



5,458 KRW million

Urban Box Farming Campaign



3,400 citizens participated

Strategic Response to Climate Change

Response to global climate change

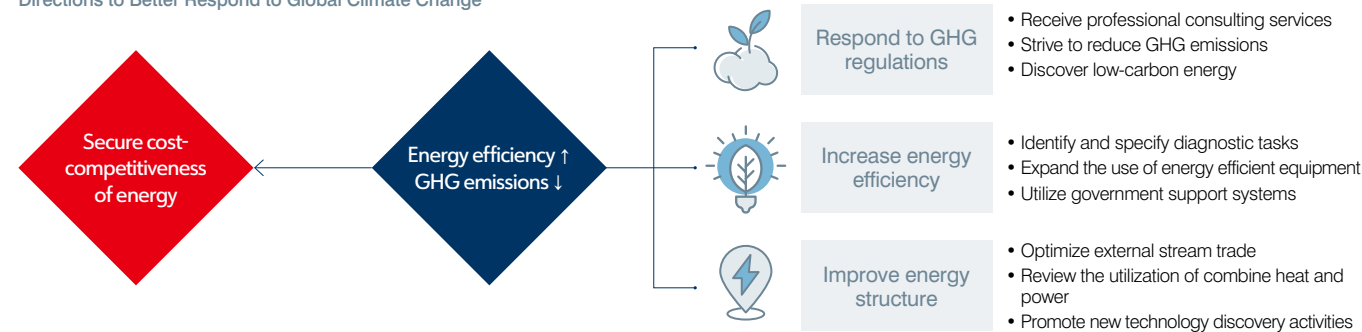
LFC has been making preparations ahead of others for the response to global climate change. We created an organization dedicated to energy efficiency, established a long-term roadmap to secure global energy competitiveness, and has been responding to the GHG emission trading scheme since 2015. LFC assigns reduction goals to its production departments, encourages them to achieve the goals through internal reduction activities and trading mechanisms, and strives to achieve the emission allowance of the emission trading scheme.

GHG reduction activities

LFC strives to reduce its GHG emissions by making continuous efforts at the company level, by conducting a third party energy diagnosis, improving equipment

efficiency, making process improvements, and applying new technologies. We are also strengthening our measure, reporting, and verification (MRV) system for real-time GHG and energy management systems and measuring instruments. To this end, we improved internal regulations in accordance with the Energy Use Rationalization Act and the Greenhouse Gas & Energy Target Management System. In addition, LFC identifies and implements tasks to reduce GHG emissions and energy consumption, with executives in charge in different production departments taking a central role. By assigning a reduction goal to each team and division and by having the Production Innovation Team manage KPI, the company is internally gaining preemptive learning effects regarding the GHG emission trading scheme, while externally enhancing its image as an eco-friendly company.

Directions to Better Respond to Global Climate Change



Environmental Goals, Execution Plans, and Outcome

	Key issues	Execution plan	Outcome	Targets to be met	Due
2019 Achievements	Enforcement of the amended Act on Registration, Evaluation, Etc. of Chemicals	Prior report on phase-in chemical substances manufactured or imported at least 1 ton	Made a list on chemicals subject to prior report and made a report	Completed prior report on 50 types	Jun. 2019
	Enforcement of the Special Act on the Reduction and Management of Fine Dust	Reduction of pollutant emissions when an emergency reduction measure is issued	Established an emergency plan operation measure	Minimized NOx pollutant generation by increasing use of additives at prevention facility ¹⁾	Feb. 2019
2020 Goals	Enforcement of the Special Act on Improving the Air Environment of the Air Management Zone	Completion of permission on emissions allocation amount	Completed permission on emissions allocation	In progress	Jul. 2020

¹⁾ Facility that makes the amount of a substance emitted from a discharge facility to be at or below the permitted level

GHG Emissions	(Unit: tCO ₂ eq)		
	2017	2018	2019
Total emissions	621,707	673,468	669,736
Direct emissions (Scope 1)	100,713	78,073	84,304
Indirect emissions (Scope 2)	520,994	595,396	585,432

Energy management

Establishing an integrated energy management system LFC manages, in real time, energy consumption of all major energy-using devices at its Ulsan, Seoul, and Incheon sites in its efforts to save energy. To this end, it has been holding the "Energy Innovation Day" since 2012, and is striving to reduce energy consumption through the collaboration among the Engineering (establishes guidelines and establishes improvement measures), Production (applies guidelines and makes improvement efforts), and Energy (establishes system and provides daily feedback) Departments.

Energy efficiency innovation activities LFC is making strenuous efforts to supply more affordable high-quality products to customers and curtail costs in a business environment where international oil prices and exchange rates have recently been sharply changing. In particular, we have set energy efficiency and cost saving as the key performance index (KPI) of production departments, and adopted a company-wide integrated innovation program in 2015 to collect employees' creative ideas. We operate a reward system based on grades through such activities as operating the knowledge suggestion system and identifying energy efficiency improvement items, thereby promoting energy innovation activities.

Energy Savings in 2019

Item	Energy consumption reduction (TJ)	GHG emissions reduction (tCO ₂ eq)
Power saving by installing MECCELLOSE® reactor inverter	169	7,450
Power saving by rationalizing PTAC plant rotator operation		
Steam reduction by rationalizing PTAC plant steam usage		
Steam reduction by rationalizing MA plant steam usage		
Power saving by optimizing production plan		
Power saving from pilot blower (BL-701A)		
Improve electricity intensity by rationalizing electrolyzer operation temperature		
Power saving by optimization of urea solution transfer pump		
Power saving by creating caustic soda No. 6 electrolysis facility		
Power saving by creating chlorine No. 6 electrolysis facility		
Power saving by improving electricity intensity of the newly expanded #2 ECH plant		
Power saving by improving electricity intensity of the newly expanded #2 ECH plant		
Steam reduction by improving steam intensity of the newly expanded #2 ECH AC plant		
Steam reduction by improving steam intensity of the newly expanded #2 ECH plant		
Recycling of No 2. HEC condensate		

Minimizing Negative Environmental Impacts

Developing global competitiveness in environmental management

All LFC employees are concentrating their strengths on building eco-friendly business sites based on determination towards environmental management. The Ulsan complex first acquired environmental management system certification in 1996, and afterwards continually established and developed the environmental management system. It was re-designated as a green company by the Ministry of Environment in 2017. It also receives an evaluation on the status of operation of the environmental management system through an internal and post external evaluation every year, and continues to make efforts to respond to the domestic and overseas flow regarding the environment as well as customer demands.

Pollutant discharge management

Air pollutant Following the enactment of the Special Act on Fine Dust Reduction and Control in December 2019, LFC has been operating an emissions goal of 10.6 kg/day for sulfur oxide (SOx) and 117 kg/day for nitrogen oxide (NOx), which is a reduction of more than 20% from 2017 levels, in the event of issuance of an emergency reduction measure. Even in ordinary times, LFC reduces NOx emissions to around 36.8 kg/day, which exceeds its reduction goal, by increasing the use of prevention facility chemicals. In 2020, in response to the total pollutant amount regulation that results from the enforcement of the Air Management Zone Act, LFC will observe its allocated amount. In addition, in response to strengthened hydrocarbon and specified hazardous air pollutant emissions standards with an amendment to the Clean Air Conservation Act, LFC will improve pollutant treatment facilities, thus managing pollutant emissions to be under the legal limit.

Designated as a green company



Water pollutant LFC established a monitoring system for sources of wastewater generation of production processes, and manages wastewater generation on a daily basis. It also improved pollutant removal capabilities by installing a multi media filter (MMF) to reduce pollutants in the final treated water of the wastewater treatment facility. Moreover, LFC strengthened its internal standard on water pollutant discharge to 50% of the permissible regulatory limit, and manages a discharge concentration standard on generated wastewater per production process as part of its diverse efforts to reduce pollutant discharge.

Wastewater Wastewater that is discharged from the Ulsan complex is first treated at a wastewater treatment facility within the complex, and then treated at the Yongyeon Sewage Treatment Plant operated by Ulsan City. Some wastewater is discharged directly to coastal waters through the MMF. In addition, by setting a generation reduction target per major wastewater generation source and improving processes that can recycle wastewater, LFC is reducing wastewater generation.

Environmental Performance Data

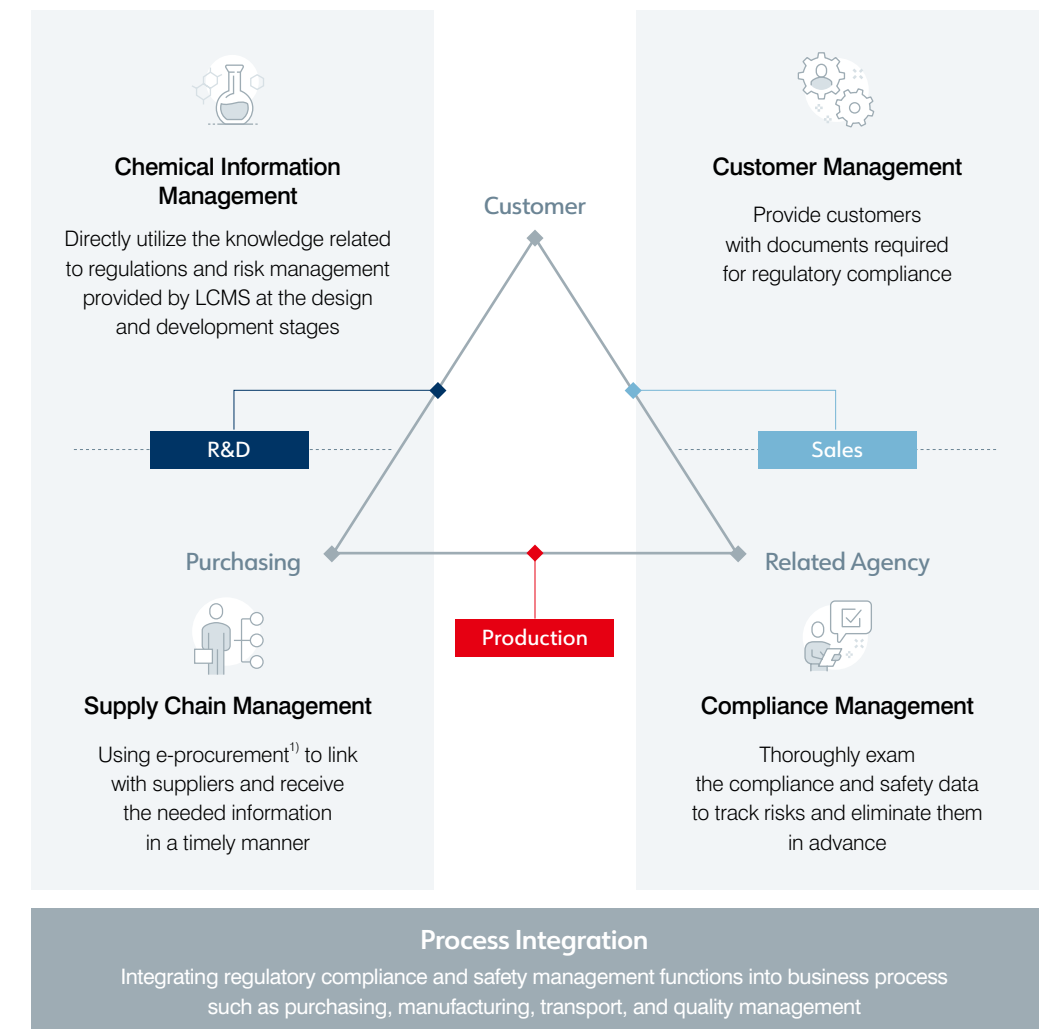
Large classification	Medium classification	Small classification	Unit	2017	2018	2019
Eco-friendliness	Eco-friendly products and services	Performance improvement in purchasing eco-friendly products and services	KRW million	3,756	2,198	5,458
		Performance improvement in selling eco-friendly products and services	KRW billion	326.5	352.3	379.6
Water	-	Water consumption	ton	12,111,430	12,451,795	12,272,848
		Water reuse	ton	384,604	333,937	387,797
Waste	-	Waste discharge	ton	67,540	79,950	80,428
		Waste recycle	ton	29,944	56,416	67,442
Energy	-	Energy consumption	TJ	14,160	17,065	13,519
		Energy reduction	TJ	234	100	169
NOx	-	Actual emission concentration	ppm	64	23	14
		Emissions	kg	17,563	16,775	13,643
		Legal limit	ppm	130	130	130
SOx	-	Actual emission concentration	ppm	8	0	5
		Emissions	kg	1,048	19	1,192
		Legal limit	ppm	100	100	100
Dust	-	Actual emission concentration	m ³	3	3	4
		Emissions	kg	1,010	1,350	1,174
		Legal limit	m ³	25	25	25
COD	-	Actual emission concentration	ppm	27	40	32
		Emissions	kg	236,578	350,076	299,798
		Legal limit	ppm	90 (Linked treatment) 40 (Direct discharge)	90 (Linked treatment) 40 (Direct discharge)	90 (Linked treatment) 40 (Direct discharge)
BOD	-	Actual emission concentration	ppm	16	7	4
		Emissions	kg	136,842	58,772	41,241
		Legal limit	ppm	80 (Linked treatment) 10 (Direct discharge)	80 (Linked treatment) 10 (Direct discharge)	80 (Linked treatment) 10 (Direct discharge)
SS	-	Actual emission concentration	ppm	21	21	19
		Emissions	kg	184,602	180,140	172,067
		Legal limit	ppm	90 (Linked treatment) 10 (Direct discharge)	90 (Linked treatment) 10 (Direct discharge)	90 (Linked treatment) 10 (Direct discharge)
Chemicals	-	Discharge	ton	53	52	64

Chemical substance management

Waste LFC manages the entire process of waste treatment using an online system, and also sets a waste discharge goal every year and continually makes investments and carries out taskforce activities to reduce waste generation. By continually shifting landfill wastes into recycled wastes, LFC improved the recycling rate from 71% in 2018 to 84% in 2019, in its efforts towards efficient resource management.

LFC tallies and controls all chemical substances that it receives and issues, ranging from raw materials to products, thereby thoroughly managing the substances. It has especially re-established the system for management of the entire process of hazardous substances, and operates the LOTTE Chemical Management System (LCMS) to increase work efficiency through systematic management of chemical substance information. In 2019, LFC made a prior report on phase-in chemical substances that are imported or manufactured at least 1 ton pursuant to the amendment to the Act on Registration, Evaluation, Etc. of Chemicals, thereby securing a registration grace period. In addition, the company continually improves hazardous chemicals handling facilities pursuant to the Chemical Substances Control Act¹⁾ and is taking other measures to actively respond to laws related to chemical substances.

Chemical Substance Management System



¹⁾ In-house supply chain system

Environment-friendly Activities

Activities for eco-friendly management

Investments in environmental facilities LFC is investing in the environmental sector to make continued environmental improvements, including pollutant reduction, and strives to increase efficiency of each plant's process and to optimize plant intensity. It establishes a green management investment goal every year and makes investments accordingly. In 2019, as part of its efforts to improve hazardous chemicals handling facilities, pursuant to the Chemical Substances Control Act, LFC strengthened monitoring functions, such as creating sprinkler facilities that are automatically connected to gas detection facilities, striving to prevent environmental accidents and chemical accidents. We also made facility improvements to reduce chemical substance removal processing time and to improve efficiency. In addition, we carried out activities to address irrational aspects of wastewater treatment facilities, such as improving sump neutralization functions.

The target of registration of the Act on Registration, Evaluation, Etc. of Chemicals is expanded to all phase-in chemical substances in 2020, and accordingly, LFC is making investments for main registration of substances that are handled at least an annual thousand tons. We also plan to invest in improving air pollution prevention facilities to respond to the stricter total hydrocarbon (THC) regulation.

Green purchasing LFC strategically implements green purchasing based on the company's green purchasing policy, and makes utmost efforts to purchase high-quality eco-friendly products at optimal prices. To build business sites that consider the environment, We purchased such green products as low-power LED, low-power electrode, and low-power separation membranes that can reduce energy consumption and minimize standby power. To this end, we made an investment of a total KRW 5,458 million.



Providing safety & environmental training to partner companies

Environmental training

LFC provides regular training to ensure safe handling of chemical substances, effective responses in the event of chemical accidents, and eco-friendly process operation. By doing so, it is preventing chemical accidents, minimizing accident damages, and internalizing the importance of eco-friendly process operation. In addition, LFC is active in providing its employees environmental safety trainings, including training for managers and relevant employees who handle hazardous chemical, pursuant to the Chemical Substances Control Act. We also offer training opportunities to people who can become excluded from training, including staff from partner companies working at LFC business sites, and holds regular meetings to make joint efforts to realize safe business sites.

Environmental performance evaluation system

Based on LOTTE Group's sustainable growth evaluation index, LFC identifies the status, performance, and improvement points in the environmental management sector every year. We have detailed index in place for management, such as the operation of an organization in charge of environmental management, the establishment of training system, environmental goals and implementation performance, and performance in managing discharged pollutants and hazardous chemicals. based on these indices, we are improving our -friendly management activities.

Green Purchasing Policy

- Implement the environmental management vision and policy by facilitating green product purchasing
- Prevent resource waste and environmental pollution by facilitating green product purchasing, and fulfill corporate social responsibilities

Solving Environmental Issues of Local Communities

Environmental campaigns and activities for local communities

Urban Box Farming Campaign The Urban Box Farming Campaign is a leading social contribution program of LFC. Jointly participated by citizens, this campaign involves giving out saplings and seedlings to make the city center green and to publicize why it's important that we value nature. In April 2019, LFC gave out fig and herb seedlings to around 3,400 citizens in partnership with the Ulsan Life Forest and KBS Ulsan Broadcasting Station, and held additional events to communication with citizens. In celebration of the 10th anniversary of the Urban Box Farming Campaign, LFC also held a contest that was participated by 300 children from 20 childcare centers, kindergartens, and elementary schools. As a result, the Urban Box Farming Campaign has established itself as an arena of eco-friendly social contribution that is jointly shared and enjoyed with the local community.

Activities to foster bamboo forest The Bamboo Forest of the Ulsan Taehwa River Grand Park serves as a hub of Ulsan. LFC has been carrying out bamboo shoot protection activities in May and June every year since 2005. In 2019, employees and their families jointly took part in volunteer activities, and the company supported the hosting of a drawing contest that was held for children. In addition, LFC entered an agreement to take part in the project to foster the Bamboo Forest, which was chosen as one of top 26 ecological tourist sites in Korea, by 2020, and participated in pilot activities and planted bamboo, including a species of thick-stemmed bamboo and black bamboo.

Ocean purification activities In July 2019, the Incheon plant of LFC carried out ocean purification activities at Oido, Incheon as part of its efforts towards sustainable preservation of marine resources. In collaboration with the Incheon Korea Coast Guard and regional army unit, it collected wastes along the coast, and plans to conduct continued ocean purification activities in 2020 by joining hands with the Incheon Regional Office of Oceans and the Fisheries and Korea Coast Guard.

Stream purification activities LFC set up a new volunteer team at its Ulsan complex and has been conducting purification activities for Yeocheoncheon Stream since July 2019. Extending 6.27 km, Yeocheoncheon Stream is a major city center stream that begins at Ulsan Grand Park, passes through the city center, and flows into the Port of Ulsan. 'Dream Together', which is the volunteer team exclusively in charge, carries out stream purification activities, including collecting waste in areas nearby Yeocheoncheon, located near the business site, once a month.



1. Activities to foster bamboo forest
2. Ocean purification activities
3. Urban Box Farming Campaign

Building a Win-win Culture

SUSTAINABILITY CONTEXT

LFC strives to grow into a company amplifying positive social impacts that enable us to grow together with all of our stakeholders. To this end, we improve the quality of life of our employees and build a culture of win-win between labor and management inside the company, while spreading a culture of win-win by solidifying partnerships with partner companies and by communicating and cooperating with local communities. In particular, we are strengthening partnerships with grassroot groups in the local community and carrying out strategic social contributions, and will continue to make relentless efforts to fulfill our roles as a corporate citizen.

LFC's SDGs



SUSTAINABILITY PLAN

- Increasing employee job satisfaction by strengthening taskforce activities on improving the corporate culture
- Identifying ways to support joint growth of partner companies
- Continuously implementing the "3+1 CSR Specialization Strategy" and developing new programs



INTERVIEW

Did what you learned at "Daddy School" help during your parental leave? How did you use what you learned?

“Daddy School provided a good education in parenting, and that really helped me as a father.

"It's also your first time as dad..."
 This is a famous line from a TV show a few years ago, and it's a line that all parents can identify with. When I became a father for the first time, everything was new to me and often made me anxious, but Daddy School provided a good education in parenting, and that really helped me as a father. Before Daddy School started, it was difficult to learn about parenting from other fathers, except for short online columns. It was therefore good for me to pick up useful tips and advice from experienced fathers and external experts, including how fathers in other countries handle parenthood. In particular, I learned how to deal with situations in which I would have probably otherwise have made mistakes, including understanding the stress felt by mothers, the roles a father must play as his child grows, and how to assess and react to a child's psychological state. Thanks to what I learned at Daddy School, my anxiety around fatherhood was significantly reduced.

As a first-time father, I did my best to perform the roles of a father during my parental leave, using what I had learned at Daddy School. Even during the short time of parental leave, I was able to spend fulfilling days with my child, and form a truly heartfelt bond which will last a lifetime. I was also better able to appreciate the difficulties my wife was going through, and then to do my best to relieve her of her burdens whenever I could. Daddy School is currently focused on fathers who are about to take parental leave, but I hope it will be expanded to provide help to the parents of children of all ages.



Seunghoon Shin
 Manager of
 Corporate Management Team,
 LOTTE Fine Chemical

SUSTAINABILITY IMPACT

Employee participation in human rights training
 100%

No. of cases of discrimination
 Zero

Three-year cumulative usage rate for parental leave of male employees
 72%

Creation of rules on managing contracts with subcontract partner companies

Employee participation rate in social contributions
 72.5%

Expenditures in social contributions
 2,300 KRW million

Improving Employee Value

Respecting and protecting employee human rights

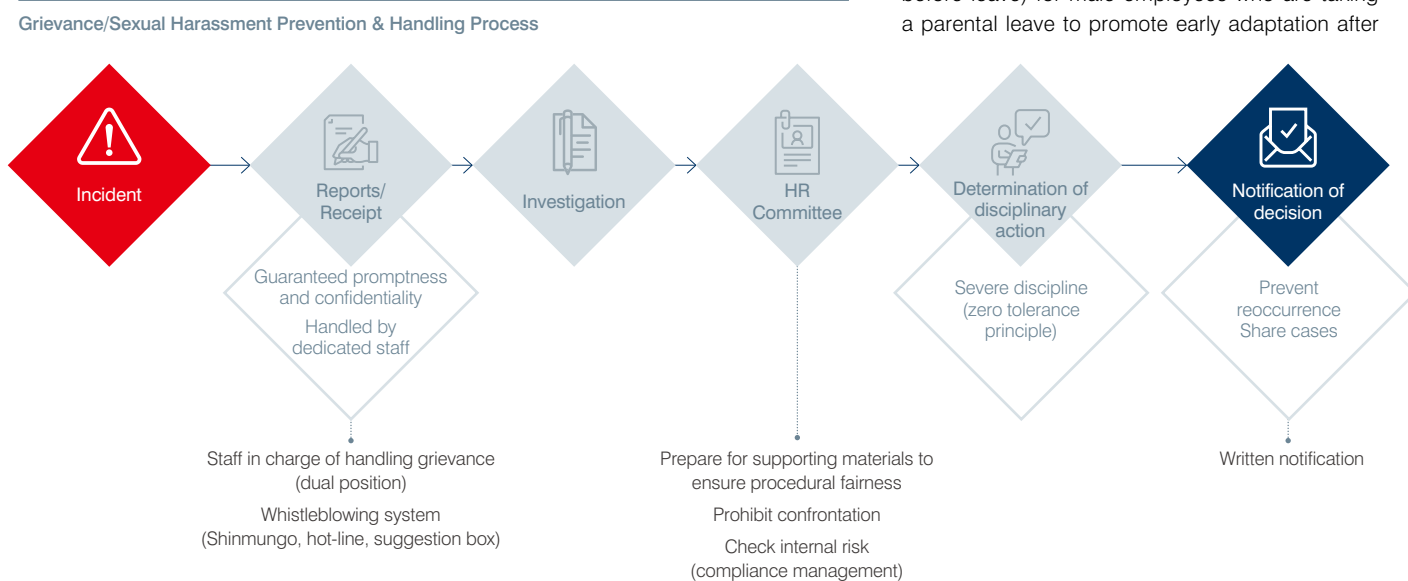
Human rights management system At LFC, we respect individual employee's human rights in accordance with our human-centered management philosophy and basic rights regarding dignity and value as humans that are stipulated in the Constitution. We prohibit forced labor and child labor, observe the Labor Standards Act, and strictly prohibit discrimination based on academic background, region of origin, gender, age, religion, or race. In particular, LFC guarantees fair treatment of all employees in its HR and welfare systems, ranging from employment to assignment, promotion, wages, training, and retirement. During statutory training in 2019, LFC provided human rights training to all employees through a lawyer to prevent workplace verbal abuse, and training on the Act on Preventing Workplace Harassment. As a result of these efforts, there was no case related to discrimination during the 2019 reporting period, and there is no business area that has the possibility of seriously violating the freedom of association and collective bargaining.

Grievance Center LFC established the Grievance Center in 2018 to receive information on various forms of employee grievances and to resolve them, and is receiving reports through its whistleblowing system. A grievance counselor is assigned at each business site as a way to quickly and actively respond to received reports on grievances.

Balance between work and personal life

Flexible working systems LFC has a flexible working hours system in place, so that employees can adapt their work schedules to their childcare hours and self-development needs, leading to increased job satisfaction and work efficiency. In addition, in accordance with the "Pledge to Practice 10 Major Tasks for Work Innovation" of the Ministry of Employment and Labor, LFC is establishing a work environment where overtime is reduced and contacting employees after work hours should be refrained. Moreover, we adopted the PC-off system in January 2019 to comply with the Labor Standards Act and to increase efficiency of work hours, and also introduced an attendance management system in April to better manage 52-hour workweek system.

Maternity care system LFC encourages its employees to use maternity leave and parental leave, in order to guarantee long-term work conditions to competent female talents and to contribute to the resolution of the social issue of low birthrates. We provide full support for safe childbirth of our employees by operating a work hour reduction system and offering time for checkups during a pregnancy. We also offer a 10-day paid paternity leave to spouses and a gift to congratulate childbirth. In particular, we make sure that the use of parental leave does not lead to any discriminative treatment or any disadvantage in relation to employment, wage, and career path. We also operate a self-development support system so that female talent can unlock their full potential. As of 2019, 85% of female employees who can use parental leave is using the system. Parental leave for male employees was also made mandatory, and three-year cumulative usage rate for parental leave of male employees stood at 72%. In addition, female employees with a child who is about to enter elementary school can use the leave-of-absence system to take care of children entering school. LFC also operates the Daddy School (training before leave) for male employees who are taking a parental leave to promote early adaptation after



returning to work, and Mom's Healing (training for return to work) for female employees who took a parental leave, as part of the diverse efforts it makes to build a family-friendly work environment and help strike harmony between work and personal life.

Health support system LFC covers medical expenses of employees as well as their spouses to reduce employee burden regarding medical expenses and to promote their health. The company also provides support for pregnancy and childbirth-related expenses and congratulatory gifts, resulting in a high level of employee satisfaction. Annual health checkup is offered to all employees, and for those aged over 30, the company provides a comprehensive medical examination that includes a thorough examination program in addition to the general checkup for around 100 elements.

Certified as a family-friendly company LFC has a wide range of systems in place to help its employees to strike right balance between work and family life. In addition, we run programs that enable employees and their families to share a healthy, flexible organizational culture, including watching a baseball game as a group from a business site,

giving children of employees an opportunity to participate in volunteer activities, helping employees send their parents on a tour, and holding a winter ski camp and the "One Mind Festival". Acknowledged for these efforts, LFC was recertified as a family-friendly company by the Ministry of Gender Equality and Family in 2018.

Creating a happy workplace

Support for cultural life Employees can freely create clubs, and LFC provides financial support for a cultural life when a club satisfies internal criteria. There are 21 clubs, including scuba diving, performance-viewing, soccer, and bowling, and they are contributing to enhancing work satisfaction among employees.

Psychological counseling center Through the "Do Dream" psychological counseling center, LFC helps employees effectively overcome the various types of stress that occur in daily life, including at work and home. We also regularly deliver information on mental health through a monthly internal mail and online bulletin board, and provide information on and offer psychological tests as well as meditation programs.



One Mind Festival



Inviting families to watch a baseball game

Awards & Accolades

Chosen as a leisure-friendly company in 2019

LFC was chosen as a leisure-friendly company in 2019 by the Ministry of Culture, Sports and Tourism and Regional Culture & Development Agency. Commenced in 2012, a leisure-friendly company refers to a model company that supports its workers in striking balance between work and leisure life. In 2019, 44 companies were selected as leisure-friendly companies. We will continue to take further steps as a member of LOTTE Group, which pursues balance between work and personal life.



Employee Communication

Win-win culture between labor and management

LFC has established a wide range of online and offline channels to cultivate a strong communication culture, and strives to create an open and productive work environment.

In particular, the labor union of LFC was established in 1971 and has been continually implementing various joint labor-management programs to build labor-management relations of win-win based on the vision of "creative partnership". All employees with an assistant manager or lower position are eligible to become a member pursuant to the collective agreement, and they can freely join and leave the union. As of the end of 2019, the number of members is 411, representing around 75.6% of employees eligible for the union membership.



Soh-tong Insight

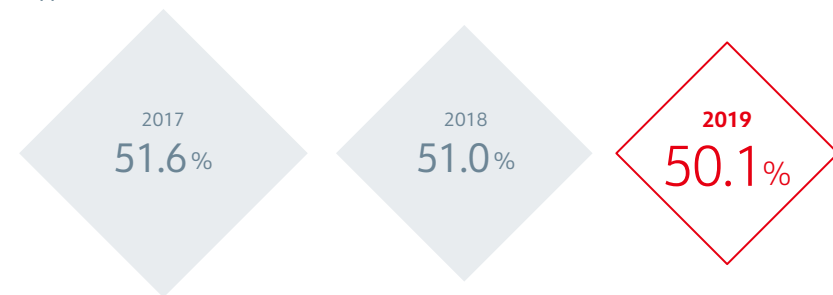
Activities to strengthen communication

Soh-tong Insight LFC shares management and company news, useful daily life information, and information on employee family events and club events through "Soh-tong Insight", an internal online communication portal. In particular, employees can freely communicate with the company and resolve difficulties through the "Soh-tong Avatar", an anonymous bulletin board. We also strive to communicate with customers and potential employees through social media channels.

Mentoring program LFC runs an in-house mentoring program for newly hired employees, including experienced workers, so that new members can more quickly adapt to the organization. This program helps new employees to better understand the company and their respective work by providing them an opportunity to experience various activities inside and outside the company for around four months with support from mentors who are chosen in consideration of work characteristics and position. In addition, a reverse mentoring program is in place so that employees of different generations can share insight and communicate with each other.

Regular meetings LFC regularly holds various meetings, including meetings led by the CEO and C-level executives for new employees and female talents, and Fine Lunch Day which is a lunch gathering among employees with the same position to share their concerns. These promote mutual communication, stronger ties, and exchange of opinions among employees.

Collective Agreement Application Rate



* No. of labor union members/Average number of employees for the year (excluding executives)



2019 Labor-Management Council meeting



Meeting for female talents



Meeting for newly hired employees led by the CEO

Building Trust with Partner Companies

Joint growth with partner companies

LFC maintains fair cooperative relations with partner companies by engaging in diverse efforts for win-win, such as signing fair trade agreements and improving the contract system, based on its five major joint growth strategies – improving work process, strengthening personnel capabilities, improving quality, reducing cost, and strengthening market sensing. To ensure fair and transparent execution of work when trading with other companies, LFC creates a standard contract on major contract changes, etc. and receives confirmation from the Compliance Department.

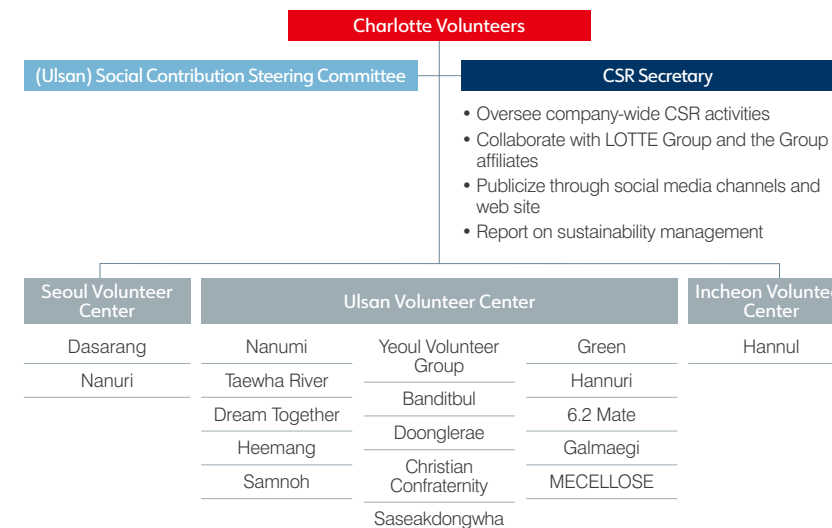
Improving contract management process On the strength of LOTTE Group's determination toward win-win cooperation and joint growth, LFC is solidifying its commitment to win-win growth with business partners. To this end, in 2019 we created rules on managing contracts with subcontract partner companies to build long-term win-win partnerships with them, thereby increasing fairness and credibility of the contracting process and in selecting partner companies.

Financial support for partner companies LFC makes payment to its partner companies in cash instead of promissory notes. In particular, we make our payments in full within 15 days after the closing of tax invoices for small and medium-sized enterprises. In addition, we adopted a system of making early payments to partner companies that require emergency funds at the end of the year, for the New Year, and at major holidays.

Strategy to Achieve Win-win Growth with Partner Companies



Organization for CSR Activities



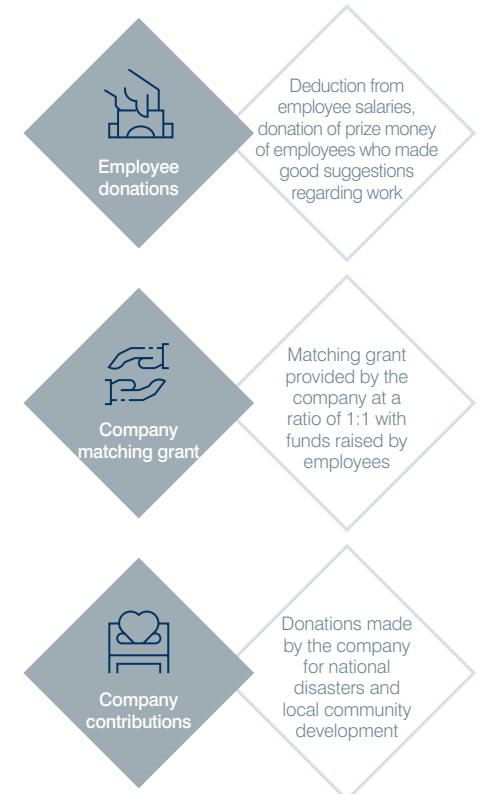
Social Contributions Through Partnership

Social contribution organization and strategy

LFC carries out ongoing and strategic corporate social responsibility (CSR) activities, aiming at "the World of Sharing and Mutual Cooperation". We are implementing a wide array of programs based on our social contribution implementation strategy that adds "Clean Environment" to "Happy Family, Dreamy Future, Warm Companion" – LOTTE Group's three core values of social contributions. We are also engaged in a variety of donations in partnership with LOTTE Group.

In order to efficiently conduct our CSR activities, LFC is operating a volunteer team that is specialized for a specific program at each business site. The CSR Secretary is in charge of operating funds and establishing strategies on social contributions. Since 2019, LFC has been holding the "Volunteer King Awards Ceremony", which selects and awards employees with an outstanding volunteering performance, every year to encourage employee participation in CSR. In 2020, LFC will maintain the "3+1 Specialization Strategy", while strengthening existing CSR activities and generating social contribution synergy through collaboration with LOTTE Group and other chemical affiliates.

Social contribution fund LFC's social contribution fund consists of employee donations, the matching grant sponsored by the company, and other contributions made by the company.



CSR Activities

Happy Family

Happy Love House LFC carries out activities to improve the residential environment of low-income families in partnership with the MICOS Children Center. We select one family every year, and the volunteer group installs wallpaper and replaces furniture and lights as part of our efforts to create a cleaner, safer space. In 2019, LFC repaired the home of a child from a multicultural family whose dream is to become a makeup artist. LFC will continue to provide support so that children can dream of a hope-filled future in their safe homes.

HANDS ON volunteer activities LFC is carrying out HANDS ON volunteer activities to support single mothers in partnership with Korea Welfare Services, with the goal of helping single mothers achieve financial independence. After holding one-day classes by inviting single mother lecturers who completed professional training related to making daily items, LFC donated created items to the underprivileged in the local community. By doing so, we help single mothers develop their careers and provide support to those in need of a helping hand.

Dreamy Future

Sponsoring Ulsan Swings In 2014, LFC established "Ulsan Swings", a multicultural little league baseball club, in partnership with the Ulsan Nambu Police Station and Ulsan Namgu Comprehensive Social Welfare Center, as part of our efforts to help children from multicultural families plan for their future with a sense of hope and dream. In 2019, LFC provided support to cover baseball club training expenses and held a baseball academy in collaboration with the Lotte Giants, in addition to inviting families to watch a baseball game.

Donation of books and book concert To improve the environment for children to learn and read, LFC chose schools, local children's centers, and social welfare organizations in Ulsan, and donated around 1,600 books including basic chemistry books. We also held a book concert aimed at encouraging children to read books. We anticipate that the books will vitalize a culture of reading where children take interest in chemistry and develop a reading habit.

Warm Companion

LOTTE Pleasure Box Campaign LFC took part in the Pleasure Box Campaign, a LOTTE Group's flagship CSR activity, and provided a helping hand to neighbors in need by delivering boxes that contain items that are needed in daily life. In June 2019, LFC created and delivered 2,194 boxes that were designed to help seniors through the summer heat to the elderly in 10 shabby one-room towns across the nation.

Joint program with social contribution agreement companies LFC is taking part in "Social Volunteer - Best Ulsan", a social contribution brand of Ulsan which was created together by companies that do business in Ulsan in 2012, as part of our efforts to spread the culture of participation. 21 companies, including LFC, have been conducting a wide range of CSR activities, including "Building Homes of Love" and "Dream-Ket", and in 2019, "Special Companion, Flying in the Skies Together" was newly launched. This program is intended to improve the quality of life of the low-income people with disabilities who cannot move by themselves and are in financially difficult conditions. Around 130 people, consisting of one staff from the member companies matched with one person with disabilities, went to Jeju Island for 3-day trip enjoying cultural experiences.

Donation to the farming and fishing community win-win cooperation fund LFC made a donation of KRW 200 million to the farming and fishing community win-win cooperation fund that was adopted in 2019 for sustainable development of farming and fishing villages and for promotion of win-win cooperation between private companies and farming and fishing communities. The donation that was made in 2019 will be used for activities that help farming and fishing villages and local communities, beginning with a program that will deliver rice grown in the Ulju-gun region in 2020 to the underprivileged in Ulsan and Incheon.

Sponsoring a cultural event for firefighters LOTTE Group affiliates of its Chemical Business Unit (BU) held an event for firefighters. The Chemical BU invited 1,500 firefighters and their families, and provided a cultural performance in collaboration with Korean Society of Related Fire Officers. Under the slogan, "LOTTE Chemical BU, a Friend of Firefighters", it will continue to carry out activities for treatment, rehabilitation, and cultural sponsorship for firefighters, thereby contributing to increased welfare of firefighters, who are working hard at the front lines for people's safety.

CSR Strategy

Strategic areas	Beneficiaries	Details
Happy Family	Family & women	Comfortable Mom Project for families suffering from incurable diseases (starting in 2020), Love House activity to improve residential environment, HANDS ON volunteer activities to support single mothers, etc.
Dreamy Future	Children & youth	Sponsorship for Ulsan Swings, a multicultural little league baseball club, donation of books, book concert, etc.
Warm Companion	Local communities	Donation to the farming and fishing community win-win cooperation fund, sharing kimchi, Do Dream volunteer activities in partnership with the Samdong Welfare Foundation, bread sharing volunteer activity in partnership with the Korea Red Cross, etc.
Clean Environment	The environment	Urban Box Farming Campaign, Campaign to Protect Bamboo Shoots in the Bamboo Forest of the Taehwa River Grand Park, etc.



1. HANDS ON volunteer activities
2. Donation of books and book concert
3. Sponsoring Ulsan Swings
4. LOTTE Pleasure Box Campaign

Awards & Accolades

Chosen as a Company Recognized for Local Community Contributions

LFC was chosen as a "Company Recognized for Local Community Contributions" by the Ministry of Health and Welfare and the Korea National Council on Social Welfare. First implemented in 2019, this system identifies and officially recognizes companies and public organizations that have continued to conduct CSR activities based on a partnership with a non-profit organization in the local community. 121 public organizations and companies that were chosen, including LFC, have been provided with authority and qualifications as a company recognized for local community contribution for a year.



지역사회공헌
인정기업
CSR in the
Community
2019

Received the Top Badge of Honor from the Korea Red Cross

LFC received the Top Badge of Honor at the annual convention of the Ulsan Branch of Korea Red Cross that was held in celebration of the 114th anniversary of the Korea Red Cross which was founded on October 27, 1905. The annual convention is an event to which people and organizations that have helped with the Korea Red Cross are invited to trace footsteps and remind of its humanitarian principle. LFC was honored with the Top Badge of Honor, receiving recognition for providing support for recovery from a fire that occurred at an agricultural and marine product wholesale market in Ulsan in January 2019, including helping merchants overcome fire damage.

APPENDIX

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Financial & Non-Financial Performance Summary

Summarized Financial Statements				
Classification	Unit	2017	2018	2019
Current assets	KRW million	697,028	716,359	860,530
Cash and cash equivalents	KRW million	131,712	6,827	10,561
Short-term financial instruments	KRW million	225,000	50,000	50,000
Financial assets at fair value through profit or loss ¹⁾	KRW million	-	260,743	398,005
Held-to-maturity financial assets	KRW million	89	0	0
Accounts receivable	KRW million	186,081	215,390	210,466
Other current financial assets	KRW million	6,855	4,698	3,779
Other current assets	KRW million	8,644	6,668	9,904
Inventories	KRW million	138,647	172,033	177,815
Non-current assets	KRW million	944,276	983,671	932,156
Long-term financial assets	KRW million	25	25	22
Fair value through other comprehensive income ¹⁾	KRW million	-	12,056	9,653
Held-to-maturity financial assets	KRW million	50	0	0
Other non-current financial assets	KRW million	4,100	1,847	1,907
Available-for-sale financial assets	KRW million	23,516	0	0
Investment in joint venture	KRW million	191,700	241,927	208,764
Property, plant and equipment	KRW million	708,100	701,983	670,935
Investment properties, net ²⁾	KRW million	-	-	8,816
Right-of-use assets ²⁾	KRW million	-	-	7,954
Intangible assets, net	KRW million	15,097	25,818	24,104
Other non-current assets	KRW million	1,112	16	1
Deferred income tax assets	KRW million	577	0	0
Total assets	KRW million	1,641,304	1,700,030	1,792,685
Current liabilities	KRW million	354,566	228,509	282,524
Non-current liabilities	KRW million	94,033	93,623	17,048
Total liabilities	KRW million	448,598	322,132	299,573
Equity attributable to owners of the parent	KRW million	1,192,706	1,377,898	1,493,113
Capital stock	KRW million	129,000	129,000	129,000
Capital surplus	KRW million	302,905	302,905	302,905
Other components of equity	KRW million	18,802	18,802	18,802
Accumulated other comprehensive income	KRW million	(247)	(18,778)	(20,656)
Retained earnings	KRW million	742,246	945,969	1,063,062
Total equity	KRW million	1,192,706	1,377,898	1,493,113
Sales	KRW million	1,159,511	1,371,696	1,311,271
Operating profit	KRW million	111,125	210,714	189,666
Net profits	KRW million	89,231	214,923	168,372
Profit attributable to owners of the parent	KRW million	89,231	214,923	168,372

¹⁾ Publicly disclosed since 2018

²⁾ Publicly disclosed since 2019

Summarized Financial Statements					
Classification	Unit	2017	2018	2019	
Earnings per share	KRW	3,503	8,438	6,611	
Number of entities included in consolidation	Company	3	2	2	
Operating profit margin	%	9.6	15.4	14.5	
Debt ratio	%	37.6	23.4	20.1	
ROE	%	7.5	15.6	11.3	
CAPEX	KRW billion	63.1	92.4	70.1	
Sales portion by business	Chlorine relatives	%	33.5	36.7	36.3
	Ammonia relatives	%	33.4	34.5	33.1
	Cellulose relatives	%	24.1	21.8	24.4
	Electronic materials	%	9.0	7.0	6.3
Sales by business	Chlorine relatives	KRW billion	388.2	502.7	475.7
	Ammonia relatives	KRW billion	386.5	473.5	433.7
	Cellulose relatives	KRW billion	280.9	299.4	319.6
	Electronic materials	KRW billion	103.9	96.1	82.3
Portion of exports	Domestic sales	%	46.0	45.0	58.9
	Exports	%	54.0	55.0	41.1
Countries to which green material products are exported	Countries	75	83	79	
Portion of export by region	Asia	%	20.0	21.0	26.1
	Europe	%	19.0	14.0	16.5
	China	%	17.0	13.0	12.1
	North America	%	15.0	15.0	19.6
	South America	%	11.0	11.0	5.0
	Middle East/Africa	%	9.0	9.0	4.7
	Japan	%	6.0	14.0	13.5
	CIS	%	3.0	3.0	2.5
Number of shares issued	Share	25,800,000	25,800,000	25,800,000	
Net profits	KRW billion	89.2	214.9	168.4	
Capital ratio	%	72.7	81.1	83.3	
Global market share of green materials business	%	9.1	9.3	8.9	
R&D investment	KRW billion	11.3	11.9	11.4	
Export portion of Green Materials Business Division	%	93.7	94.0	94.4	
Fixed income securities	KRW billion	280.0	80.0	80.0	

Distribution of Economic Value					
Classification	Unit	2017	2018	2019	
Shareholders	Sub total	20,376	43,299	43,299	
	Dividend	KRW million	20,376	43,299	43,299
Employees	Sub total	110,476	122,912	118,781	
	Salaries & bonus	KRW million	81,109	92,836	90,953
	Employee benefits	KRW million	20,698	21,568	19,610
	Severance benefits	KRW million	7,774	7,477	7,305
	Training expenses	KRW million	895	1,030	914
Government & public institutions	Sub total	11,807	60,892	60,236	
	Corporate tax and other taxes	KRW million	11,807	60,892	60,236
Local communities	Sub total	561	1,096	2,522	
	Expenditures in social contributions	KRW million	427	956	2,300
	Membership fee	KRW million	134	140	222
Business partners	Sub total	368,530	450,470	408,981	
	Facility investment	KRW million	63,095	92,223	70,111
	Subcontracting costs	KRW million	18,431	21,058	21,771
	Purchasing costs	KRW million	287,004	334,217	314,400
	Advertising expense ¹⁾	KRW million	731	2,972	2,699
Total		511,750	678,669	633,819	

¹⁾ Made adjustment for the 2018 figure according to the recalculation of sales promotion expenses since 2018

Environmental Performance					
	Classification	Unit	2017	2018	2019
Product	Production volume	Ton	2,362,891	2,613,306	2,540,157
Energy	Direct energy consumption	TJ	355	2,458	732
	Indirect energy consumption	TJ	13,806	14,607	12,787
	Total energy consumption	TJ	14,160	17,065	13,519
	Energy consumption intensity	TJ/Product-Ton	0.006	0.007	0.005
	Reduction of energy consumption	TJ	234	100	169
Water	Total water consumption ¹⁾	Ton	12,111,430	12,451,795	12,272,848
	Water consumption intensity	Ton/Product-Ton	5.1	4.8	4.8
	Water reuse	Ton	977,994	892,346	946,157
Greenhouse gas (GHG)	Total emissions	tCO ₂ eq	621,707	673,468	669,736
	GHG emissions intensity	tCO ₂ eq/Product-Ton	0.260	0.258	0.264
	Direct emissions (Scope 1)	tCO ₂ eq	100,713	78,073	84,304
	Indirect emissions (Scope 2)	tCO ₂ eq	520,994	595,396	585,432
Other air pollutants	Reduction of GHG emissions	tCO ₂ eq	5,902	4,387	7,450
	NOx emissions	kg	17,563	16,775	13,643
Wastewater	SOx emissions	kg	1,048	19	1,192
	Total weight of wastewater	Ton	8,415,900	9,100,200	9,051,428
Water pollutants	Wastewater discharge intensity	Ton/Product-Ton	3.6	3.5	3.6
	Total weight of COD	kg	236,578	350,076	299,798
	COD discharge intensity	Kg/Product-Ton	0.10	0.13	0.12
	Total weight of BOD ²⁾	kg	-	58,772	41,241
Waste	BOD discharge intensity	Kg/Product-Ton	-	0.02	0.02
	Total weight of waste	Ton	67,540	79,950	80,428
	Waste discharge intensity	Kg/Product-Ton	0.029	0.031	0.032
	Specified waste	Ton	1,306	848	813
	General waste	Ton	66,233	79,103	79,614
	Incineration	Ton	1,443	1,200	1,184
	Landfill	Ton	35,447	22,310	11,723
	Others	Ton	705	24	78
Investment and procurement	Recycling	Ton	29,944	56,416	67,442
	Recycling rate	%	44.3	71.0	83.9
Investment and procurement	Total environmental protection expenditures and investments	KRW million	10,046	6,151	1,731
	Green procurement	KRW million	3,756	2,198	5,458

Environmental Performance					
	Classification	Unit	2017	2018	2019
Environmental investment	Noise	KRW million	0	203	129
	Waste materials	KRW million	597	0	0
	Hazardous chemicals	KRW million	4,559	876	0
	Energy	KRW million	986	177	971
	Water quality	KRW million	3,329	4,810	179
	Air quality (including odor)	KRW million	493	85	452
	Accident prevention	KRW million	82	0	0
Environmental education	Percentage of employees having received environmental education	%	100	100	100
Eco-friendly product sales		KRW billion	326.5	352.3	379.6

¹⁾ Stream water consumed

²⁾ Data being managed since 2018

Social Performance						
Classification	Details	Unit	2017	2018	2019	
Employees	Total No. of employees	Person	820	840	844	
		Male	Person	734	752	749
		Female	Person	86	88	95
	By employment type	Full-time	Person	800	808	810
		Part-time	Person	20	32	34
	By age	Under 30	Person	110	91	93
		30-50	Person	635	635	610
		Over 50	Person	75	114	141
	New employee hires	Total No. of newly hired employees	Person	27	38	30
Employment	Employee turnover	Employee turnover rate	%	0.5	0.2	1.2
		No. of employees eligible for parental leave	Person	13	22	33
	Parental leave	No. of employees on parental leave	Person	10	14	28
		Parental leave rate	%	76.9	63.6	85.0
		No. of employees over 12 months after returning to work ¹⁾	Person	-	14	28
	Industrial accident	No. of industrial accidents	Case	1	4	4
		Industrial accident rate	%	0.16	0.61	0.60
		Hours of work lost	Hours	888	1,872	1,872
	Employee education and training	Total hours of employee training	Hours	38,700	34,731	31,124
Training hours per person ³⁾		Hours	47.2	43.0	38.5	
Training expenses per person ³⁾		KRW 10,000	104	127	113	
Length of service	Average years of service	Year	14.3	14.8	15.4	
Wages and benefits	Welfare and benefits	Percentage of welfare cost to sales	%	1.8	1.6	1.5
	Female	No. of female leaders	Person	4	4	3
Diversity	Minority groups	Persons with disabilities	Person	21	23	23
		Recipients of patriots & veterans benefits	Person	41	42	43
		Foreigners	Person	2	2	1
Human rights	Human rights training	Hours of human rights training	Hours	1	1	1
		Percentage of employees having received human rights training	%	100	100	100
Anti-corruption	Anti-corruption training	Percentage of executives having received anti-corruption training	%	100	100	100
		Percentage of employees having received anti-corruption training	%	100	100	100
	Incidents of corruption and actions taken	No. of cases of corruption	Case	0	0	0
		No. of disciplinary actions or dismissals due to corruption	Case	0	0	0
		No. of contracts terminated, or not renewed due to corruption	Case	0	0	0
		No. of lawsuit against the company or its employees	Case	0	0	0

Social Performance						
Classification	Details	Unit	2017	2018	2019	
Safety & health	Safety & health assessment	Percentage of product/service categories having received industrial safety assessments	%	100	100	100
		Fines for violation of industrial safety regulation	KRW million	0.74	0.00	0.50
	Deficiencies in safety & health	No. of cases identified	Case	1,016	6,567	3,643
		No. of cases improved	Case	972	5,756	3,039
		Percentage of improvement	%	95.7	87.7	83.4
	Safety training	Safety training hours	Hours	24	24	24
Marketing communication	Regulatory compliance	Fines for non-compliance with regulations concerning marketing communications, including advertising and promotion	KRW million	0	0	0
		Incidents of non-compliance with regulations concerning marketing communications, including advertising and promotion	Case	0	0	0
Customer satisfaction	Complaints	Complaints received from the external agency or government concerning leakage of customer privacy	Case	0	0	0
		Number of identified leaks, thefts, or losses of customer data	Case	0	0	0
PSM Rating	Ulsan complex	Rating	P	P	S	
	Incheon plant	Rating	S	S	S	
Labor union		No. of labor union members	Person	413	414	411
		Percentage of union members compared to employees eligible for union membership	%	77.2	69.2	75.6
		No. of full-time union members	Person	3	3	3
		Collective agreement application rate: No. of labor union members / Average number of employees for the year (excluding executives)	%	51.6	51.0	50.1
Social contributions		Employee participation rate in social contributions	%	85.5	93.7	72.5
		Expenditures in social contributions	KRW million	427	956	2,300
		Employee volunteer hours per person	Hours	3.2	3.1	3.1
Supply chain management	Support for business partners	Partner company satisfaction	Point	84.1	84.5	-
		Partner company purchase	KRW billion	287.0	334.2	314.4
	Percentage of business partners' purchase	Chemical business	%	53	56	54
		Green materials business	%	28	27	31
		Others	%	7	5	3
		Packaging supplies	%	5	4	5
Utility	%	3	3	5		
Chemicals	%	4	5	2		

¹⁾ Data being managed since 2018

²⁾ Minor injuries

³⁾ Based on full-time employees

GHG Verification Statement



This Assurance Statement has been prepared for LOTTE FINE CHEMICAL CO., LTD.

Terms of Engagement

Lloyd's Register Quality Assurance Ltd. was commissioned by LOTTE FINE CHEMICAL CO., LTD. to provide independent assurance on its Greenhouse Gas (GHG) Inventory Report for the calendar year 2019 (the report) against "GHG Target Management Scheme for quantification and reporting of GHG emissions in Korea" and "Monitoring Plan of calendar year 2019" using "Verification guideline for GHG emission trading system in Korea". The report relates to direct GHG emissions and energy indirect GHG emissions.

Management Responsibility

LR's responsibility is only to LOTTE FINE CHEMICAL CO., LTD. LR disclaims any liability or responsibility to others as explained in the end footnote. The management of LOTTE FINE CHEMICAL CO., LTD. is responsible for preparing the report and for maintaining effective internal controls over all the data and information within the report. Ultimately, the report has been approved by, and remains the responsibility of LOTTE FINE CHEMICAL CO., LTD.

LR's Approach

LR's assurance engagement has been carried out in accordance with our verification procedure using "Verification guideline for GHG emission trading system in Korea" to reasonable level of assurance.

The following tasks were undertaken as part of the evidence gathering process for this assurance engagement:

- Visiting sites and auditing management system to control the data and records regarding GHG emissions and energy uses
- Interviewing the relevant persons responsible for managing and maintaining data and associated records
- Reviewing the historical data and information back to source for the calendar year 2019.

Level of Assurance & Materiality

The opinion expressed in this Assurance Statement has been formed on the basis of a reasonable level of assurance, and at the materiality of the professional judgement of the verifier and at the materiality level of 2.5%.

LR's Opinion

Based on LR's approach, except for the effect of the matter as below, we believe that the report is prepared in accordance with GHG Target Management Scheme for quantification and reporting of GHG emissions in Korea and "Monitoring Plan of calendar year 2019" using "Verification guideline for GHG emission trading system in Korea" and the GHG emissions data in the Table 1 is materially correct:

- Fuel ECH Tar in hydrochloric acid manufacturing facility (# 2 ECH) (Serial No. 26) did not meet the component analysis cycle (once a month). Therefore, the emission factor was conservatively recalculated according to the conformity assessment guidelines.

LR Reference: **SEO 6019655**

Dated: 26 March 2020

IL-HYOUNG LEE

On behalf of Lloyd's Register Quality Assurance Ltd.
17th Floor, Singsong Building, 67 Yeouinaru-ro, Yeongdeungpo-gu, Seoul, 07327, Korea

Table 1. GHG emissions reported in the Report

Scope (as defined within GHG Target Management Scheme for quantification and reporting of GHG emissions in Korea)	Year 2019
Direct GHG Emissions (Scope 1)	84,304
Energy Indirect GHG Emissions (Scope 2)	585,432
Total GHG Emissions	669,736

* Data is presented in tonnes of CO₂ equivalent.

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Independent Assurance Statement

To the Stakeholder of LOTTE Fine Chemical Co., Ltd.

KFQ has been requested by LOTTE Fine Chemical Co., Ltd. to provide independent assurance on the 2019 LOTTE Fine Chemical Integrated Report (further 'the Report'). Our responsibility is to perform an assurance and to provide assurance statement based on the work carried out. KFQ was not involved in the process of preparing the Report thus LOTTE Fine Chemical Co., Ltd. has responsibility to the contents contained in the Report.

Standards and Scope

The assurance was planned and carried out according to the following standards and scope:

- Compliance with GRI Standards according to the criteria of 'Core Option'
- Compliance with GRI Standards regarding principles for defining report content and report quality
- Application of Type 1 and moderate level approach according to AA1000AP (2018) and AA1000AS (2008) with Addendum 2018
- Linking sustainable management activities with UN SDGs

Methodology

In order to assess the reliability of the contents of the report, we reviewed the process for preparation of the Report as well as for data and information gathering. We checked the non-financial information in the Report against evidence provided by LOTTE Fine Chemical Co., Ltd. and information gathered from media by KFQ from a sustainable perspective. In the case of financial information, it was checked whether the data identified through Data Analysis, Retrieval and Transfer System (<http://dart.fss.or.kr>) is correctly reported. Through on-site verification, we reviewed a series of processes for materiality assessment, data collection and report preparation. After we confirmed that some errors, inappropriate information and ambiguous expression found in above process are properly complemented in final report provided by LOTTE Fine Chemical Co., Ltd.

Limitations

The completeness and responsiveness of sustainability performance in the report has inherent limitations due to its nature and the methodology used to determine, calculate and estimate its performance. In accordance with the terms of our engagement, the scope of our work did not include verification of raw data of specified performance information.

Findings and Conclusions

As a result of the above our work, we confirm that the content of this report meets the requirements of the 'Core option' of GRI Standards and that KFQ has secured a reasonable basis for Type 1 assurance level as per AA1000AP (2018) and AA1000AS (2008) with Addendum 2018. And we could not find any material error or inappropriate information of the final Report against the following principles:

Inclusivity

LOTTE Fine Chemical Co., Ltd. has engaged and communicated with stakeholders in the process of developing a strategic response and communicating sustainability.

KFQ confirmed that LOTTE Fine Chemical Co., Ltd. has gathered stakeholders' views and expectations by selecting five main stakeholders and reflected them in sustainable management. In addition, the LOTTE Fine Chemical Co., Ltd. has established a stakeholder engagement process to disclose key issues affecting stakeholders in the report and these issues are appropriately reflected in the sustainable management activities aligned with UN SDGs.

Materiality

Whether material topics of sustainable are considered in overall LOTTE Fine Chemical Co., Ltd.'s strategy, governance and activities.

LOTTE Fine Chemical Co., Ltd. identifies and prioritizes issues to be reported by applying the materiality assessment process and reported relevant sustainable management activities and performance. And LOTTE Fine Chemical Co., Ltd. Has analyzed both impact of its business and attention of stakeholders and linked its business strategies.

Responsiveness

LOTTE Fine Chemical Co., Ltd. has responded interest and expectations stakeholders affecting sustainable performance through establishing communication process with stakeholders.

LOTTE Fine Chemical Co., Ltd. has been reporting activities and performance that addresses needs and concerns of stakeholders which were identified from materiality assessment process and responds to their opinion by taking into consideration for its overall management.

Recommendation for Improvement

KFQ recommends the followings for advanced approach to achieve LOTTE Fine Chemical Co., Ltd.'s sustainable management goal and provide its performance effectively in the next report:

- We hope to enhance sustainable management in a timely manner by establishing a system that periodically identifies, measures, and evaluates the mutual impact of major stakeholder groups.
- In order to achieve the goal of "Asia TOP 10 Fine Chemical Company," we hope that the scope of reporting related to global leadership, including social responsibility management and global cooperation of Asian and global networks, will gradually expand.

Competency and Independence

The assurance team was formed in accordance with KFQ's internal regulations. KFQ has no conflict of interest which could threaten the independence and impartiality of verification, other than providing third-party audit services in the LOTTE Fine Chemical Co., Ltd. business.



May, 2020
Seoul, Korea

A handwritten signature in black ink that reads 'Ji Young Song'.

Ji Young Song, CEO
Korean Foundation for Quality (KFQ)

GRI Standards Index

Universal Standards

GRI 102: General Disclosure			
GRI Standard	Disclosure	Page	UN SDGs
Organizational Profile	102-1	Name of the organization	8p
	102-2	Activities, brands, products, and services	10-15p
			24-29p 94-95p
	102-3	Location of headquarters	97p
	102-4	Location of operations	97p
	102-5	Ownership and legal form	8p
	102-6	Markets served	22-23p
	102-7	Scale of the organization	8p
	102-8	Information on employees and other workers	2p, 84p
	102-9	Supply chain	75p
	102-10	Significant changes to the organization and its supply chain	No significant change
	102-11	Precautionary principle or approach	64-67p
	102-13	Membership of associations	96p
Strategy	102-14	Statement from senior decision-maker	6-7p
Ethics and Integrity	102-16	Values, principles, standards, and norms of behavior	46-47p
	102-17	Mechanisms for advice and concerns about ethics	72p
Governance	102-18	Governance structure	34-37p
	102-40	List of stakeholder groups	38-39p
Stakeholder Engagement	102-41	Collective bargaining agreements	74p
	102-42	Identifying and selecting stakeholders	38-39p
	102-43	Approach to stakeholder engagement	38-39p
	102-44	Key topics and concerns raised	40-41p
Reporting Practice	102-45	Entities included in the consolidated financial statements	80p, Refer to LFC Business Report 2019
	102-46	Defining report content and topic boundaries	41p
	102-47	List of material topics	41p
	102-48	Restatements of information	No significant change
	102-49	Changes in reporting	No significant change
	102-50	Reporting period	About This Report
	102-51	Date of most recent report	About This Report
	102-52	Reporting cycle	About This Report
	102-53	Contact point for questions regarding the report	About This Report
	102-54	Claims of reporting in accordance with the GRI Standards	About This Report
	102-55	GRI content index	90-93p
102-56	External assurance	About This Report	

Topic-specific Standards

GRI 200: Economic Performance			
GRI Standard	Disclosure	Page	UN SDGs
Procurement Practices			
GRI 103: Management Approach	103-1	Explanation of the material topic and its boundary	70-71p
	103-2	The management approach and its components	
	103-3	Evaluation of the management approach	
Procurement Practices	204-1	Proportion of spending on local suppliers	85p
Anti-corruption			
GRI 103: Management Approach	103-1	Explanation of the material topic and its boundary	46-47p
	103-2	The management approach and its components	
	103-3	Evaluation of the management approach	
Anti-corruption	205-1	Operations assessed for risks related to corruption	34-37p, 45-47p
Anti-competitive Behavior			
GRI 103: Management Approach	103-1	Explanation of the material topic and its boundary	70-71p
	103-2	The management approach and its components	
	103-3	Evaluation of the management approach	
Anti-competitive Behavior	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	No violation

GRI 300: Environmental Performance			
GRI Standard	Disclosure	Page	UN SDGs
Energy			
GRI 103: Management Approach	103-1	Explanation of the material topic and its boundary	62-63p
	103-2	The management approach and its components	
	103-3	Evaluation of the management approach	
Energy	302-1	Energy consumption within the organization	82p
	302-4	Reduction of energy consumption	82p
Emissions			
GRI 103: Management Approach	103-1	Explanation of the material topic and its boundary	62-63p
	103-2	The management approach and its components	
	103-3	Evaluation of the management approach	
Emissions	305-1	Direct (Scope 1) GHG emissions	82p
	305-2	Energy indirect (Scope 2) GHG emissions	82p
	305-5	Reduction of GHG emissions	82p
	305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	66p, 82p

GRI 300: Environmental Performance			
GRI Standard	Disclosure	Page	UN SDGs
Effluents and Waste			
GRI 103: Management Approach	103-1	Explanation of the material topic and its boundary	62-63p
	103-2	The management approach and its components	
	103-3	Evaluation of the management approach	
Effluents and Waste	306-1	Water discharge by quality and destination	82p
	306-3	Significant spills	No significant spill
	306-4	Transport of hazardous waste	Not applicable

GRI 400: Social Performance			
GRI Standard	Disclosure	Page	UN SDGs
Employment			
GRI 103: Management Approach	103-1	Explanation of the material topic and its boundary	70-71p
	103-2	The management approach and its components	
	103-3	Evaluation of the management approach	
Employment	401-1	New employee hires and employee turnover	84p
	401-3	Parental leave	72p, 84p
Labor/Management Relations			
GRI 103: Management Approach	103-1	Explanation of the material topic and its boundary	70-71p
	103-2	The management approach and its components	
	103-3	Evaluation of the management approach	
Labor/Management Relations	402-1	Minimum notice periods regarding operational changes	At least 30 days in advance
Occupational Health and Safety			
GRI 103: Management Approach	103-1	Explanation of the material topic and its boundary	58-59p
	103-2	The management approach and its components	
	103-3	Evaluation of the management approach	
Occupational Health and Safety	403-1	Workers representation in formal joint management-worker health and safety committees	85p
	403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	85p
	403-3	Workers with high incidence or high risk of diseases related to their occupation	85p
Training and Education			
GRI 103: Management Approach	103-1	Explanation of the material topic and its boundary	48-49p
	103-2	The management approach and its components	
	103-3	Evaluation of the management approach	

GRI 400: Social Performance			
GRI Standard	Disclosure	Page	UN SDGs
Training and Education	404-1	Average hours of training per year per employee	84p
	404-2	Programs for upgrading employee skills and transition assistance progra	50p
Diversity and Equal Opportunity			
GRI 103: Management Approach	103-1	Explanation of the material topic and its boundary	70-71p
	103-2	The management approach and its components	
	103-3	Evaluation of the management approach	
Diversity and Equal Opportunity	405-1	Diversity of governance bodies and employees	84p
Non-discrimination			
GRI 103: Management Approach	103-1	Explanation of the material topic and its boundary	70-71p
	103-2	The management approach and its components	
	103-3	Evaluation of the management approach	
Non-discrimination	406-1	Incidents of discrimination and corrective actions taken	71p, 84p
Human Rights Assessment			
GRI 103: Management Approach	103-1	Explanation of the material topic and its boundary	70-71p
	103-2	The management approach and its components	
	103-3	Evaluation of the management approach	
Human Rights Assessment	412-2	Employee training on human rights policies or procedures	84p
Local Communities			
GRI 103: Management Approach	103-1	Explanation of the material topic and its boundary	70-71p
	103-2	The management approach and its components	
	103-3	Evaluation of the management approach	
Local Communities	413-1	Operations with local community engagement, impact assessments, and development programs	76-77p
Marketing and Labeling			
GRI 103: Management Approach	103-1	Explanation of the material topic and its boundary	70-71p
	103-2	The management approach and its components	
	103-3	Evaluation of the management approach	
Marketing and Labeling	417-2	Incidents of non-compliance concerning product and service information and labeling	No violation concerning product supply
	417-3	Incidents of non-compliance concerning marketing communications	No violation concerning marketing communications
Customer Privacy			
GRI 103: Management Approach	103-1	Explanation of the material topic and its boundary	48-49p
	103-2	The management approach and its components	
	103-3	Evaluation of the management approach	
Customer Privacy	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	85p

Product List

Category	Product Name	Abbreviation	Chemical Formula	CAS No.	Characteristic / Purity	Packing	Application	Others
Chlor-Alkali Derivatives	Sodium Hydroxide		NaOH	1310-73-2	Liquid, 25%, 50% ap. solution	Tank lorry, Bulk vessel, Pipe	Chemical agent, Pulp & paper processing	
	Sodium Hypochlorite	HYPO	NaOCl	7681-52-9	Colorless or slightly yellow liquid, 12% solution	Tank lorry	Bleaching agent, Disinfectant	Domestic only
	Hydrogen		H ₂	1333-74-0	Gas, 99.99%	Pipe	Hydrogen peroxide raw material, Hydrodesulfurization	Domestic only
	Hydrochloric Acid		HCl	7467-01-0	35% aq. solution	Cylinder, Tank lorry	Agrochemicals, Pharmaceuticals	Domestic only
	Methyl Chloride	MC	CH ₃ Cl	74-87-3	Colorless, liquefied gas, 99.9% min.	940Kgs Cylinder	Agrochemicals, Organic synthesis, Quaternary ammonium salt	
	Methylene Chloride	MCL	CH ₂ Cl ₂	75-09-2	Colorless, clear, volatile liquid, 99.9% min.	250Kgs steel drum, ISO-tank, Tank lorry, Bulk vessel	Electronic material processing, Pharmaceuticals, Metal cleanser, Urethane foaming	
	Chloroform	CFM	CHCl ₃	67-66-3	Colorless, clear, volatile liquid, 99.9% min.	250Kgs steel drum, ISO-tank, Tank lorry, Bulk vessel	Pharmaceuticals, Solvents, Fluorocarbon refrigerants (R-22)	
	Epichlorohydrin	ECH	C ₃ H ₅ OCl	106-89-8	Colorless, clear, 99.9% min.	240Kgs steel drum, ISO-tank, Tank lorry, Bulk vessel	Epoxy resin, Synthetic glycerin, Water treatment chemicals	EU REACH registered
	S-Quata® (3-chloro-2-hydroxy PropylTrimethyl Ammonium Chloride)	PTAC	C ₆ H ₁₅ Cl ₂ NO	3327-22-8	Colorless liquid, 65% min. (S-Quata 885), 69% min. (S-Quata 889)	230Kgs PE drum, 1.1MT IBC, Flexibag, Tank lorry	Additives for starch, High-quality pulp, Personal care product	EU REACH registered
Cellulose Ethers	MECELLOSE®	MC		9004-67-5	White or yellowish powder	20kg: Paper bag with PE inner liner 350kg: PP Jumbo bag with PE inner liner	Tile adhesives, EIFS/ETICS, Plasters & renders, Ceramic & cement extrusion, Joint compounds, Paints & coatings	
		HPMC		9004-65-3				
		HEMC		9032-42-4				
	HECELLOSE®	HEC		9004-62-0		25kg: Paper bag with PE inner liner 450kg: PP Jumbo bag with PE inner liner	Paints & coatings, Personal care, Joint compounds, Oil field, Emulsion polymerization, Detergents, Construction applications	
	AnyCoat®	HPMC		9004-65-3		20kg, 25kg: Fiber drum with PE double inner bag	Film coating, Binder, Sustained release, Formulation, Capsule making	Certificate: Kosher, ISO 9001, DMF
		HPMC-P		9050-31-1				
		HPMC-AS		71138-97-1			Enteric coating, Solid dispersion	
AnyAddy®	MC		9004-67-5	20kg, 25kg: Fiber drum with PE double inner bag or PE inner liner	Foods, Dietary supplements	Certificate: FSSC 22000 (GFSI)		
	HPMC		9004-65-3					
	HPMC-P		9050-31-1					
Ammonia Derivatives	Monomethylamine	MMA	CH ₃ NH ₂	74-89-5	Colorless liquid, 40% min.	170Kgs steel drum, 20MT ISO-tank	Pharmaceuticals, Alkylalkanolamines (MDEA), Soil fumigant, Pesticide	
	Dimethylamine	DMA	(CH ₃) ₂ NH	124-40-3	Colorless liquid, 50%, 60% min. gas, 99.8%	160Kgs steel drum, 19MT ISO-tank, High pressure ISO-tank	Rubber vulcanization accelerator, Agrochemicals, Surface active agent, Water treatment	
	Trimethylamine	TMA	(CH ₃) ₃ N	75-50-3	Colorless liquid, 30% min.	Tank lorry	Surface active agent, Anion exchange resin, Agrochemicals	
	Trimethylamine-HCL	TMA-HCL	(CH ₃) ₃ NHCl	593-81-7	Colorless liquid, 57% min.	Tank lorry, Flexibag	Livestock feed, Pharmaceutical intermediates, Anti-static agent, Additives for starch	
	EUROX®		(NH ₂) ₂ CO	57-13-6	Colorless urea solution, 32.5% and 40%	10L PET, 3.5L PET, EBD V1.5, Bulk vessel	Selective catalytic reduction (De-Nox) in diesel engine (32.5% for automobile, 40% for industry)	
	Ammonia		NH ₃	67-56-1	Colorless liquid, 99.5% min.	Tank lorry, Pipe	Urea, Caprolactam, Acrylonitrile, Hydrazine	
	Tetramethyl Ammonium Chloride	TMAC	(CH ₃) ₄ NCl	75-57-0	Colorless solution, 58% min.	20MT ISO-tank, Tank lorry	TMAH raw material, Oil & gas industry	
Tetramethyl Ammonium Hydroxide	TMAH	(CH ₃) ₄ NOH	75-59-2	Colorless solution, 20% or 24.9% min.	190Kgs PE drum, 20MT ISO-tank, Tank lorry	Photoresist development, Anisotropic etchant		

Membership

Korea Electric Engineers Association	Ulsan Safety Communication Committee
Ulsan Electric Association	Korea Gas Safety Corporation Information Member
Korea Customs Logistics Association	KISANHYUP
Ulsan Shipper Logistics Council	Korea Association of Occupational Health Nurses
Ulsan Chamber of Commerce and Industry	Korean Nurses Association
Ulsan Plant Head Council	Korea Industrial Technology Association (KOITA)
Yeochon Industrial Complex Plant Head Council	Ulsan R&D Head Council
University of Ulsan, School of Chemical Engineering Adjunct Professor Council	Drymix. Info
National Emergency Plan Association	Korea Industrial Technology Association (KITA)
Ulsan Branch of Emergency Plan Council	Korea International Trade Association
Ulsan Industrial Security Council	Fair Competition Federation
Ulsan Civil Defense Working Council	Korea Management Association
Korea Hydrogen Industry Association	Korea Institute Chemical Engineers
Ulsan Yangsan Enterprises Federation	The Federation of Korean Industries
Korea Chemicals Management Association	Korea Economic Research Institute
Ulsan Prosecutor's Office Environmental Protection Association	Korea Chlor Alkali Industry Association
Green Company Council	Korea Food Materials Industry Association
Ulsan Environmental Engineering Association	Korea Specialty Chemical Industry Association
Ulsan Yecheon Safety Association	Korea Responsible Care Council
Korea Fire Safety Institution	Korea Listed Companies Association
Korea Industrial Safety Association	Incheon Environmental Volunteer Association
Southern Fire Safety Promotion Council	Incheon Environmental Engineering Association

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