

SUSTAINABILITY REPORT

2021



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ESG MAGAZINE

FINE TODAY, GREEN TOMORROW

The first issue of LFC's ESG Magazine, which is designed to disclose its ESG management in its own language, contains the story of how LFC is leading change for a better today and for a sustainable future as well.



COVER STORY

Based on LFC's new brand identity, the dots and lines used in the cover design of this report symbolize the infinite possibilities created by each microscopic chemical atom and the better future that LFC is shaping. The red, green, and purple colors stand for "LOTTE, Fine, Future", respectively, and embody LOTTE Fine Chemical's ESG vision of creating a fine today and toward a sustainable future with the technologies and products of LFC.

● LOTTE ● Fine ● Future

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CEO MESSAGE

Dear LFC Stakeholders,

This Sustainability Report 2021 is our seventh such report since 2016, and we would like to express our sincerest gratitude for your unwavering trust and encouragement.

In 2021, LOTTE Fine Chemical (LFC) experienced unprecedented business challenges – as the COVID-19 pandemic continued to persist, uncertainties increased and the global supply chain began to collapse; and a urea solution crisis due to China’s suspension of urea exports made domestic industry to a halt. In addition, as carbon-neutral growth and other eco-friendly business transitions began in earnest across the nation, we were called upon to respond to such transitions in an effective manner.

Despite such an unprecedented business environment, we made concerted efforts to strengthen customer-oriented sales, diversify raw material supply lines, and adopt a green hydrogen ammonia business system for future growth, ending the year with KRW 1,780.3 billion in sales and KRW 244.5 billion in operating profit, both the highest in the history of LFC. In addition, we created ESG-dedicated BOD organizations and defined ESG action plans, thus setting 2021 as the first year of full implementation of ESG management.

In 2022, we plan to conduct ESG management in earnest based on the newly established ESG strategies, while continuing to increase sales. In the environmental area, we will continue efforts to secure a position of advantage in the market of green ammonia, an eco-friendly energy source of growing importance, in tandem with strategically implementing the “Green Promise 2030” initiative of LOTTE Group’s Chemical Unit. In the area of society, we consider safety to be of the most important value in business activity, and thus will do our best to build a world-class safe workplace based on employee consensus and practices, while continuing diverse efforts at compliance management such as employee training programs related to anti-corruption and fair trade. In addition, we will realize genuine win-win growth through building cooperative and sound partnerships with local communities and partner companies.

With respect to governance, we will promote ESG management at the BOD level by enhancing the activity of the ESG Committee, while practicing BOD-centric business management and protecting shareholders’ rights and interests and boosting their value by appointing female external directors, forming a committee of recommending external director candidates, establishing a corporate governance charter, and publishing corporate governance reports, all of which is expected to enhance the transparency, expertise and diversity of the BOD.

As always, LFC will do our utmost to realize sustainable growth and take the lead in the practice of ESG management, which has become an indispensable element of corporate survival today, even in a fast-shifting and increasingly competitive environment. We look forward to your continued support and interest in our efforts to go beyond achievements of today toward a global specialty chemical company.

Thank you.

June 2022



CEO, LOTTE Fine Chemical **Yong-Seok Kim**



COMPANY OVERVIEW

Having faced many changes and challenges over the past 58 years, LFC has grown into a “specialty chemical company” by focusing on preemptive capacity expansion and internal efficiency; cost reduction and quality improvement; and new business development and R&D investment. We are now growing as a global company by strengthening the competitiveness of our existing businesses and securing future growth engines based on global capabilities and experience, while making every effort to achieve sustainable growth with all our stakeholders based on creative labor-management culture. We will continue to make today’s living environment better based on best technology and optimal products as part of our efforts to prepare a sustainable tomorrow for the Earth and future generations.

Company Profile

Establishment



August 27, 1964

No. of Employees



903

Total assets



KRW 2,723,454 million

Sales



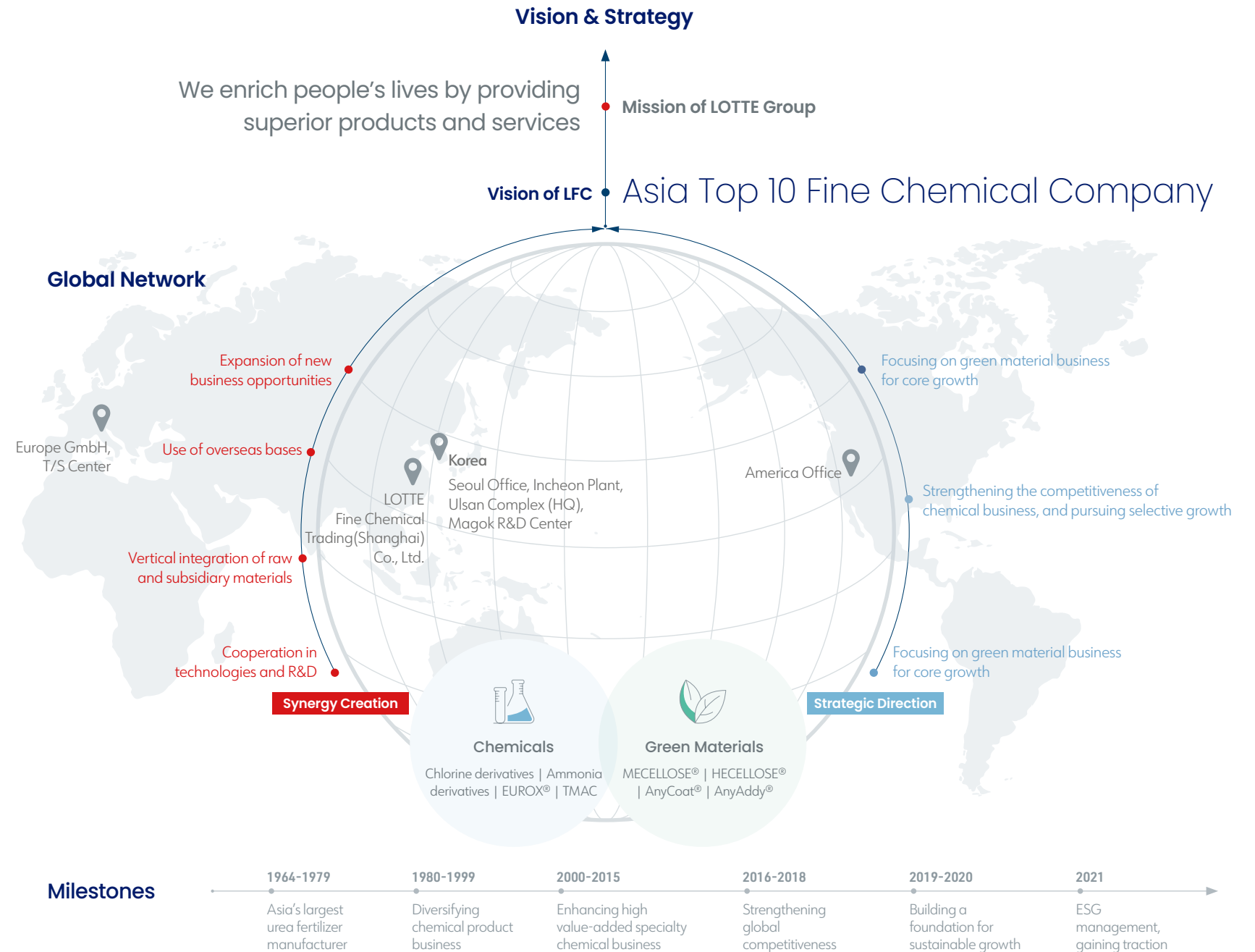
KRW 1,780,293 million

Net income



KRW 585,458 million

* As of December 31, 2021; and based on consolidated financial statements



More information is available in the Appendix section

BUSINESS PERFORMANCE



Asia Top 10 Fine Chemical Company.

LFC is making continuous efforts to grow into an “Asia Top 10 Fine Chemical Company”. In the research sector, we are expanding our research infrastructure to develop new uses for our products and to provide high-quality customer services and technical support, while carrying out change and innovation activities at our production sites to secure world-class manufacturing competitiveness based on firmly established safe work environment. We are also well positioned to pursue corporate growth in harmony with society and the environment as a truly global top-tier company.

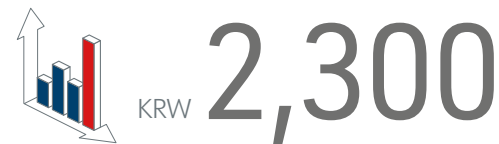
KEY FIGURES

Classification	Unit	2019	2020	2021
FINANCIAL POSITION				
Total assets	KRW million	1,792,685	1,874,589	2,723,454
Total liabilities	KRW million	299,572	224,889	524,824
Total equity	KRW million	1,493,113	1,649,700	2,198,630
INCOME				
Sales	KRW million	1,311,271	1,263,636	1,780,293
Operating profit	KRW million	189,666	139,233	244,514
Net income	KRW million	168,372	198,792	585,458
Key Ratios				
Operating profit margin	%	14.5	11.0	13.7
Debt ratio	%	20.1	13.6	23.9
ROE	%	11.7	12.7	29.9



Sales / Operating Profit

In 2021, LFC's sales increased by 40.9% year-on-year to KRW 1,780.3 billion, and operating profit rose by 75.6% year-on-year to KRW 244.5 billion, attributable to the increase in sales volume following the preemptive expansion of the production capacity of the green materials business, the establishment of an early commercial production system, and the increase in demand from downstream industries for major products amid the economic recovery, as well as the increase in sales prices in line with strong international prices.



Dividend per share¹⁾

LFC determined the size of the dividend by comprehensively considering shareholders' dividend stability, future investment for corporate value growth, and financial stability.



Investment in green material production facilities

LFC is has been expanding capex and investment in new businesses to enhance profitability by investing KRW 175.9 billion in green material production facilities from 2019 to 1H 2022. LFC plans to focus on new investments in the green materials business in 2022 in addition to regular maintenance work.

¹⁾ The dividend for the fiscal year ending on December 31, 2021

ESG PERFORMANCE



Good Partner Making a Sustainable Future.

LFC has established “Green Planet” (Think of the Earth), “Green Basis” (Follow the Basics), and “Green Partnership” (Grow Together) as the strategic directions for its ESG management in order to systematically implement strategic tasks for each field, such as GHG emissions reduction, safety accident prevention, and anti-corruption/ethical management. By promoting ESG management in the sincerest manner, LFC is realizing its corporate vision of creating a better today and a sustainable tomorrow with finest technologies and products.

KEY FIGURES

Classification	Unit	2019	2020	2021
ENVIRONMENTAL				
Energy consumption intensity	TJ/Product-Ton	0.0059	0.0058	0.0060
GHG emissions intensity	tCO ₂ eq/Product-Ton	0.263	0.253	0.257
Water reuse	Ton	157,309,157	159,794,158	165,526,451
Waste recycling rate	%	84	90	93
Environmental investment	KRW billion	3.08	20.78	12.55
Eco-friendly product sales	KRW billion	379.6	412.3	473.7
Employee participation rate in environmental education	%	100	100	100
Social				
No. of employees	Person	861	892	903
No. of female managers	Person	34	36	36
Average length of continuous service	Year	15.3	15.5	15.9
LTIR (Lost Time Injured Rate)	-	0.32	0.15	0.15
Percentage of improvement made to health & safety problems	%	83.4	83.8	94.9
Employee participation rate in anti-corruption education	%	100	100	100
Partner company purchase (Amount)	KRW billion	314.4	282.6	392.9
Customer data breach and theft	Case	0	0	0



Grade A for 5 consecutive years at the ESG Evaluation by KCGS

As a result of systematically implementing ESG management that considers environmental and social values as well as creating financial results, LFC has received excellent grades ESG evaluations conducted by ESG rating agencies at home and abroad, including Korea Corporate Governance Service (Grade A for 5 consecutive years), Sustainvest (Grade AA for 6 consecutive years), and EcoVadis (Gold for 2 consecutive years)¹⁾.



KRW **473.7** billion

Eco-friendly product sales

As social interest in air pollution prevention and alternative product markets has expanded, LFC’s sales of eco-friendly products such as EUROX® and green material products have also continued to increase. In 2021, sales of eco-friendly products reached KRW 473.7 billion, a year-on-year increase of about 15%.



0.15

LTIR (Lost Time Incident Rate)

LFC has been strengthening of on-site safety management to global level and increasing safety management awareness of its employees and business partners, the number of industrial accidents at LFC worksites has continued to decrease.



100%

Employee participation rate in anti-corruption education

LFC conducts anti-corruption education for its employees every year to promote the importance of ethical management and create a culture of ethics.

¹⁾ As of December 31, 2021

BUSINESS OVERVIEW

1

LFC has been maintaining stable growth thanks to its balanced product portfolio, of which chemical business and green materials business are the two main pillars. Chlorine-ammonia-based products that serve diverse purposes in our daily life and high-value-added green material products that enrich our daily lives are the key materials that enable us to achieve sustainable growth and make fine change. We therefore continue to make enterprise-wide efforts to upgrade our products based on active R&D and the preemptive capacity expansion.

2

3

GREEN MATERIALS

Cellulose derivatives – Industrials	276.9
Cellulose derivatives – Foods and Pharmaceuticals	123.0

22.5% of total sales

Sales by Business in 2021

(Unit: KRW billion)

CHEMICALS	1,380.4
Chlorine derivatives	750.8
Ammonia relatives	537.2
Others	92.4

77.5% of total sales

399.9

* As of December 31, 2021; and based on consolidated financial statements

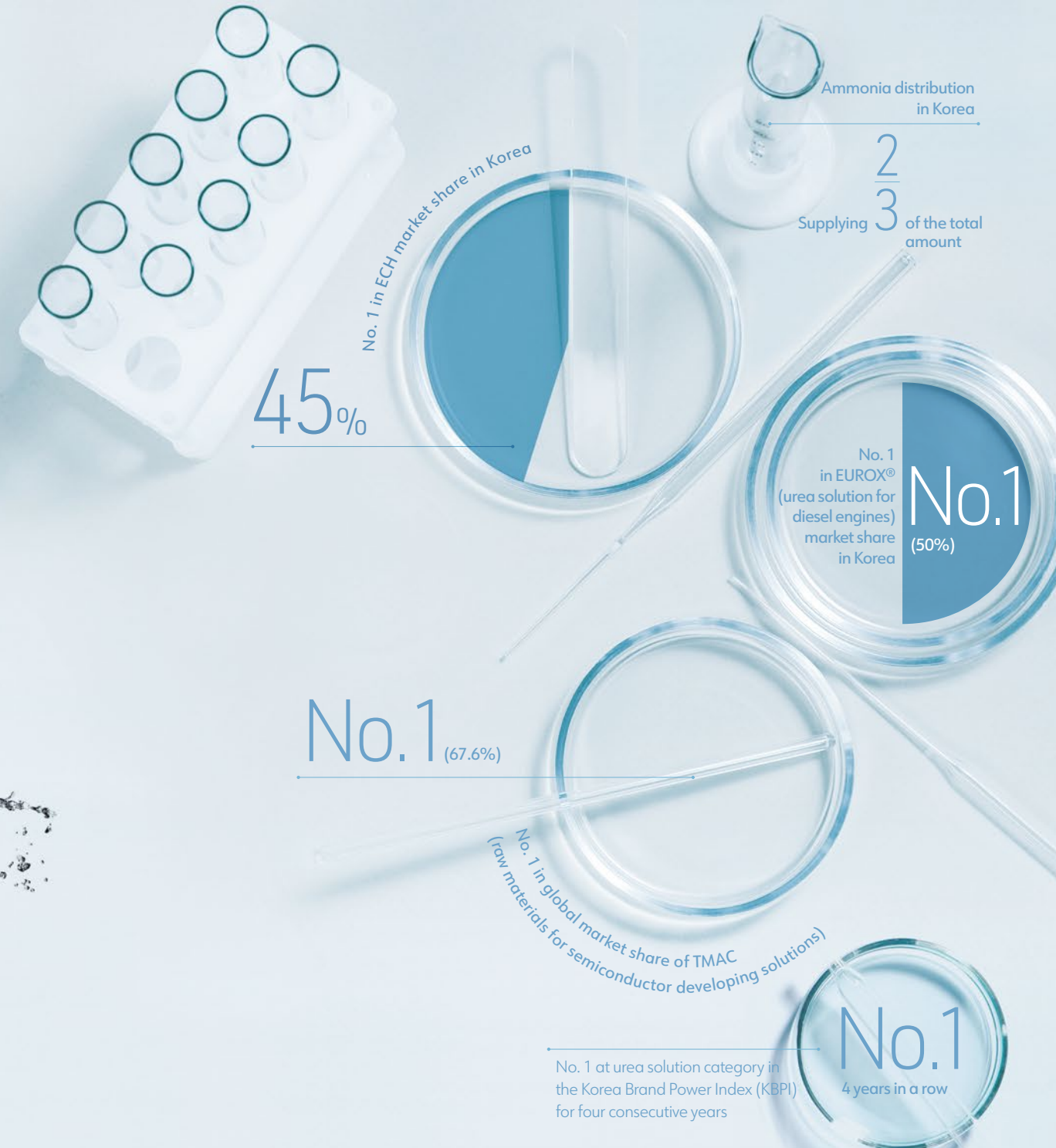
1

Chemicals

LFC's chemicals business consists largely of chlorine derivatives and ammonia derivatives. The former includes ECH, which is showing steady growth as new demand expands in various industrial sectors, and caustic soda, which is used in textiles, medicines, paper and detergents among many other things, and is an essential raw material of the chemical industry. The latter includes ammonia, for which LFC has the largest facilities in Korea and is recording stable growth based on its excellent infrastructure, and Eurox®, LFC's own urea solution brand. LFC is enhancing its competitiveness in domestic and overseas markets by producing and supplying high-quality chlorine-based and ammonia-based products in a wide range of fields, and by conducting thorough quality control and expanding the eco-friendliness of products.

2

3



* Market share is based on the internal estimates

CHLORINE DERIVATIVES

LFC's chlorine derivatives product group consists of ECH, a raw material for epoxy resins; caustic soda, which is used as a basic raw material for chemical products; and PTAC (3-Chloro-2-hydroxypropyltrimethylammonium chloride)¹⁾, which is used as a reinforcing agent for paper.

ECH, the main material in waterproof and rustproof paints, is seeing steady growth due to rising demand from various industrial sectors, including the construction and shipbuilding industries. Caustic soda is a by-product of chlorine, a raw material used in the production of ECH and polyvinyl chloride (PVC), serving as an essential basic material for the chemical industry.

For chlorine derivatives, one of LFC's major business lines, we have been enhancing competitiveness in both domestic and overseas markets by expanding production capacity, creating new markets, and reducing costs. In 2021, we achieved the highest profit ever for ECH products through a profit-oriented sales portfolio and an active pricing policy based on our stable production capacity, while caustic soda also contributed to improving chlorine-based profitability by promptly responding to changes in the global market environment, such as China's electricity regulations.

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.



Tetramethylammonium chloride (TMAC)

Colorless transparent liquid which is a raw material for TMAH used for semiconductors and LCD/OLED developing solution



¹⁾ 3-Chloro-2-hydroxypropyltrimethylammonium chloride

AMMONIA DERIVATIVES

LFC's ammonia derivatives product group consists of ammonia and EUROX®. Ammonia is a basic chemical used as a raw material for fertilizer, synthetic fiber, nylon, and ABS resin. LFC has maintained stable growth in this area based on its ammonia storage facility, the largest in Korea, and its outstanding infrastructure. As part of the global carbon-neutral policy for the future, ammonia is attracting growing attention about its value as a means of transporting hydrogen, an eco-friendly energy source. LFC has also focused on securing a foundation for future growth by establishing a clean ammonia ecosystem through participation in the Green Ammonia Bunkering Consortium and the Hydrogen and Ammonia Power Generation Demonstration Promotion Group led by KEPCO.

EUROX®, an exclusive brand of LFC, is a catalyst-reducing solution that reduces the amount of nitrogen oxide discharged from diesel engines. As the market for urea continues to grow, we are strengthening our market dominance by increasing sales and enhancing product competitiveness based on thorough quality management. In 2021, we strived to diversify sourcing and stabilize market prices even amid a difficult business environment characterized by disruptions in the supply and demand of raw materials. We also further strengthened our position in the market by increasing the sales of EUROX® through the expansion of injection equipment and brand marketing.

APPLICATION

Ammonia, Anhydrous

Raw materials 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




1

Green Materials

The cellulose derivatives of LFC's green materials business division are functional additives made with raw materials derived from tree pulp and cotton. They add value to products by substantially improving the functionalities of raw materials, including viscosity, water solubility, and water retention. They consist of industrial products such as MECELLOSE® and HECELLOSE®, and food and pharmaceutical products such as AnyCoat® and AnyAddy®. We have increased our market share for MECELLOSE® and HECELLOSE® and enhanced our brand image by releasing various products with new specifications tailored to meet customer needs. With regard to AnyCoat® and AnyAddy®, we have maintained the pace of growth by promptly supplying products of outstanding quality in response to global trends such as the growing interest in health and the expanding food and drug market.

2

 Website for cellulose derivatives

3



No.1

AnyCoat® (raw material for vegetable capsule coating) has the largest share in the global vegetable capsule market share



* Market share is based on the internal estimates



CELLULOSE DERIVATIVES – INDUSTRIALS

MECELLOSE®, HECCELLOSE®

Industrial cellulose derivatives consist of MECELLOSE® and HECCELLOSE®. MECELLOSE® is added to building cement to improve viscosity, water retention, lubricity, and stability, and is also used as a ceramic filter additive, while HECCELLOSE® is used as a viscosity agent, moisturizer, and stabilizer in diverse sectors, including water-soluble paints, personal care products, and construction. In response to customer needs, LFC has introduced various products composed of MECELLOSE® and HECCELLOSE® with the aim of expanding its market shares and enhancing its brand image, maintaining a stable pace of growth as a result.

APPLICATION

MECELLOSE®

Cement mortar, tile cement, ceramic extrusion, polymers, etc.



HECELLOSE®

Paint, detergents, personal care, home care, oil drilling, etc.



CELLULOSE DERIVATIVES – FOODS AND PHARMACEUTICALS

AnyCoat®, AnyAddy®

AnyCoat® is white powder product that is used as a coating and capsule material to improve the delivery of pharmaceutical products, while AnyAddy® is a food additive that enhances the texture of food. In line with the rising global interest in health and the growing food and pharmaceutical markets, we are maintaining a robust growth trend by ensuring a stable supply of products of superior quality and providing enhanced technical support services. LFC is expanding the global market share of Anycoat® and AnyAddy® by pioneering new markets through relentless quality improvements and the development of new uses. Going forward, we will continue to grow by contributing to the development of downstream industries with high-value-added, high-functional products.

APPLICATION

AnyCoat®

Capsules, tablet coatings (for stomach and intestines), etc.



AnyAddy®

Food additive, health functional food coatings, gluten-free additive, etc.



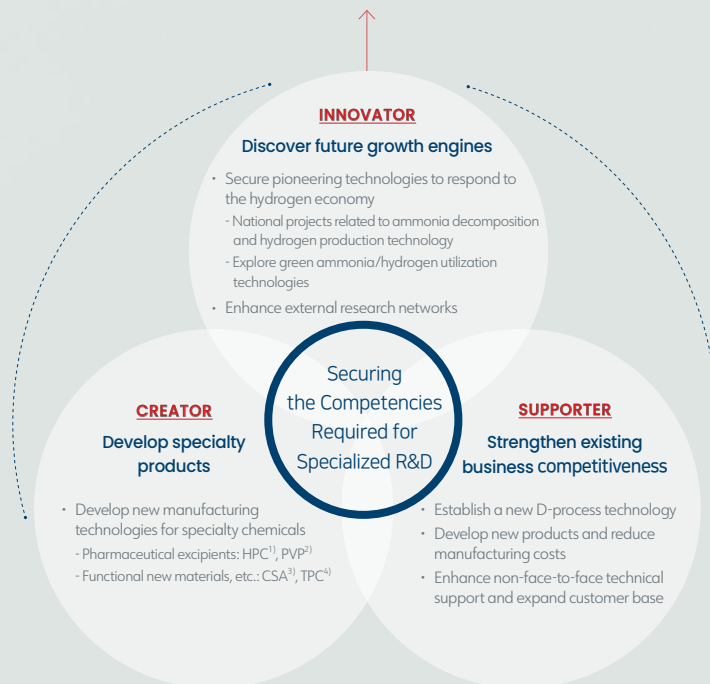
1 Research & Development

R&D EXECUTION SYSTEM

R&D STRATEGY Based on the wealth of experience and professional capabilities it has accumulated over several decades, LFC is focusing on enhancing its competitiveness in existing businesses and improving execution capabilities in new business areas by strengthening technology platform-centered technology capabilities. In November 2021, we established a new R&D strategy with the goal of "Securing Specialty R&D Capabilities", which serves as a key role in our efforts to realize corporate vision, enabling us to secure our distinctive technological prowess.

R&D Strategy

Asia Top 10 Fine Chemical Company

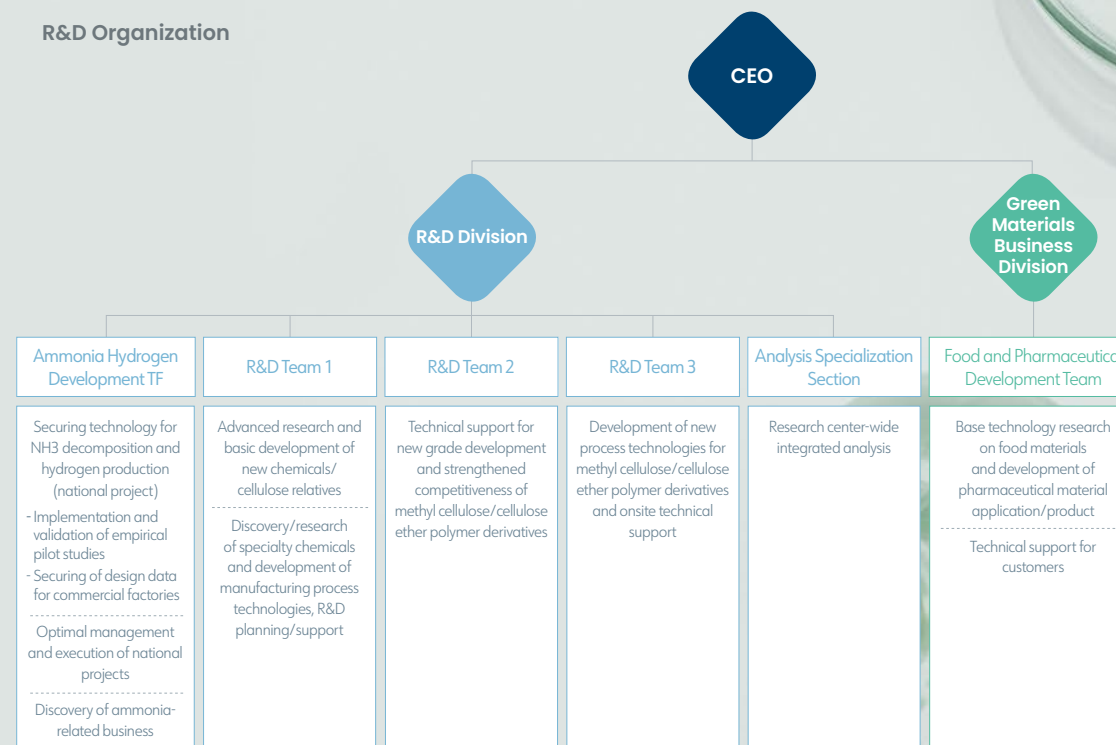


3

¹⁾ HPC: HydroxyPropyl Cellulose
²⁾ PVP: PolyVinylPyrrolidone
³⁾ CSA: Cellulose-based Super Absorbent
⁴⁾ TPC: TerePhthaloyl Chloride

R&D ORGANIZATION The R&D Division, LFC's cradle of next-generation technology development, has focused on promoting technological innovation and securing sustainable growth engines by concentrating its R&D on specialty products related to cellulose derivatives, food and pharmaceutical materials, and eco-friendly materials. In addition to one analysis team, the division is composed of five teams in fine chemicals, including amine relatives and chloride relatives, and specialty chemicals including cellulose ether polymers for industrial use and food and pharmaceutical uses. The division is striving to reinforce LFC's core technologies to enable the company to achieve its vision through specialty products. By utilizing our existing capabilities and focusing on the development of profit-maximizing technologies as well as new products, the division plays a pivotal role in enabling us to leap forward as a world-class specialty chemicals company that will contribute to human happiness.

R&D Organization



KEY R&D ACHIEVEMENTS

Cellulose Derivatives



Expansion of the general-purpose additive MECELLOSE® ETC for construction use

As general-purpose goods are consistently required in the construction additives market, we have developed a series of MECELLOSE® ETC products with specialized functions rather than simple general-purpose ones. The ETC standard improves not only adhesive strength but also the open time in tile cement applications and can also be applied to finishing materials such as cement plaster and gypsum plaster. We have developed an ETC standard with improved adhesive strength and open time as well as superior workability. In the future, we will further consolidate our position in the building additives market through the continuous expansion of the application of ETC standards.

Development of MECELLOSE® which minimizes lumps in mortar

Lumps often occur in gypsum plaster mortars, hindering the progress of building works. Customers are therefore calling for the manufacturers of cellulose ether to come up with products that can minimize or even eliminate the occurrence of lumps. In line with such demands, LFC is committed to developing high-performance gypsum plaster additive products that can minimize the occurrence of mortar lumps by introducing a new process to its existing MECELLOSE® manufacturing technology.

Development of high-performance MECELLOSE® for ceramic extrusion

The use of ceramic extruded products (catalyst supports) to reduce harmful substances is increasing due to the growing demand for reduced exhaust gas emissions from automobiles and internal combustion engines, driven by rising environmental awareness. As such, the need is growing for thickeners with low undissolved fiber content and enhanced extrudability and shape retention so as to improve the performance of ceramic extrusion products, secure productivity in diverse working conditions and environments, and produce extruded products with fine inner wall viscosity. Based on these technical requirements, we have developed MECELLOSE® products that are optimized for ceramic extrusion products, significantly helping customers improve productivity and performance in the manufacture of extruded products.

Continuous efforts in fundamental research and development of cellulose derivatives

LFC is focusing its R&D capabilities on the development and commercialization of new cellulose derivatives to meet the increasingly segmented and specialized customer needs, while also accelerating efforts to develop new high-efficiency processes to enhance manufacturing competitiveness as well as new manufacturing technologies for food and pharmaceutical products, for which the requisite properties are becoming increasingly diverse. In particular, we are researching new cellulose derivatives for widespread use in the construction industry and developing eco-friendly super absorbent resins using such derivatives. We are also striving to develop high-quality, high value-added products to meet customer needs and earn trust from the market.



Chemical Products



R&D on new amine/chlorine-based chemical products and processes

LFC is committed to developing its competitiveness by continually generating research outcomes in the chemical business environment, where there is increasingly fierce competition for survival as a result of the ongoing technological integration and advancement. We have been conducting research on quality improvements and differentiate the performance of EUROX®, a catalytic reductant that reduces the amount of nitrogen oxide discharged from diesel engines, while providing reliable technical support to customers. To develop new downstream product technologies for chlorine-based chemical business, we have adopted new technologies and are conducting research focused on mass production, leading to tangible outcomes. In addition, we are striving to boost competitiveness by reducing the cost of existing chemical products through such tasks as diversification of the chemicals used in chemical processes. Going forward, we will sharpen our competitive edge based on technological prowess despite the increasingly fierce competition and continue to lead the market.



Food and Pharmaceutical Materials



Development of pharmaceutical materials and formulation research

Four grade excipients of HPMC, developed by LFC especially for sustained-release tablets¹⁾, have been enjoying a significant increase in sales, and we are conducting research to diversify excipient items in a bid to further strengthen our position as a global excipient manufacturer. We are also focusing on formulation research through various forms of open innovation, including joint research and entrusted technology development. Based on these efforts, we aim to develop and provide products and professional technical services that satisfy the needs of pharmaceutical companies – our major customers.

Development of new uses for food and pharmaceutical materials

We are advancing into new markets by internalizing the vacant technologies of the cellulose ether material business, discovering new applications of the material, analyzing the technical barriers to market entry, and setting the priority of our material commercialization projects. We are supplying materials that are appropriate for each use to such new areas as personal care, feed, and agriculture, while also expanding the scope of application of food and pharmaceutical materials through key application technology-based commercialization support. To this end, LFC is developing new formulations, such as films and hydrogels, utilizing the main physical properties.

Research on uses for alternative foods

The global megatrends in the food industry are changing rapidly as customer needs become increasingly diverse. AnyAddy® is a food material that improves the properties of alternative foods, including meat analogues and gluten-free foods, two sectors that are growing rapidly. LFC is striving to provide distinctive products and services by making continuous efforts to reflect market trends and develop customer-tailored uses.

Development of materials for the cultured meat scaffold

LFC is conducting preemptive research for promising industries as a way to secure sustainable competitiveness. In particular, we are preparing for future changes in the food industry by establishing cooperative relationships with academia and companies with advanced technology related to cultured meat, which is expected to lead the global meat market after 2030.

Development of next-generation new food and drug ingredients

In order to develop new materials that will be required by new growth industries such as meat analogues and biological engineering, LFC is working together with external organizations equipped with various technologies as well as conducting our own research. Furthermore, to secure differentiated food and drug material technologies and products, we are striving to continue expanding innovation and diversity in the field of materials.



¹⁾ Sustained-release tablets: Tablets made to release an active ingredient slowly (pharmaceuticals made into a round disc or cylinder by combining powder or crystalline drugs)



OUR APPROACH TO ESG

At LFC, ESG management is a key strategy for sustainable growth. We are therefore establishing a systematic ESG management framework, listen to the voice of all our stakeholders, and ensure that our business activities are aligned with ESG strategies. Based on our commitment to thinking of the earth and complying with the basics through technology innovation and development, we are creating a better today and moving towards a sustainable tomorrow where we can all grow together.

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→ ESG MANAGEMENT FRAMEWORK

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ESG MANAGEMENT FRAMEWORK

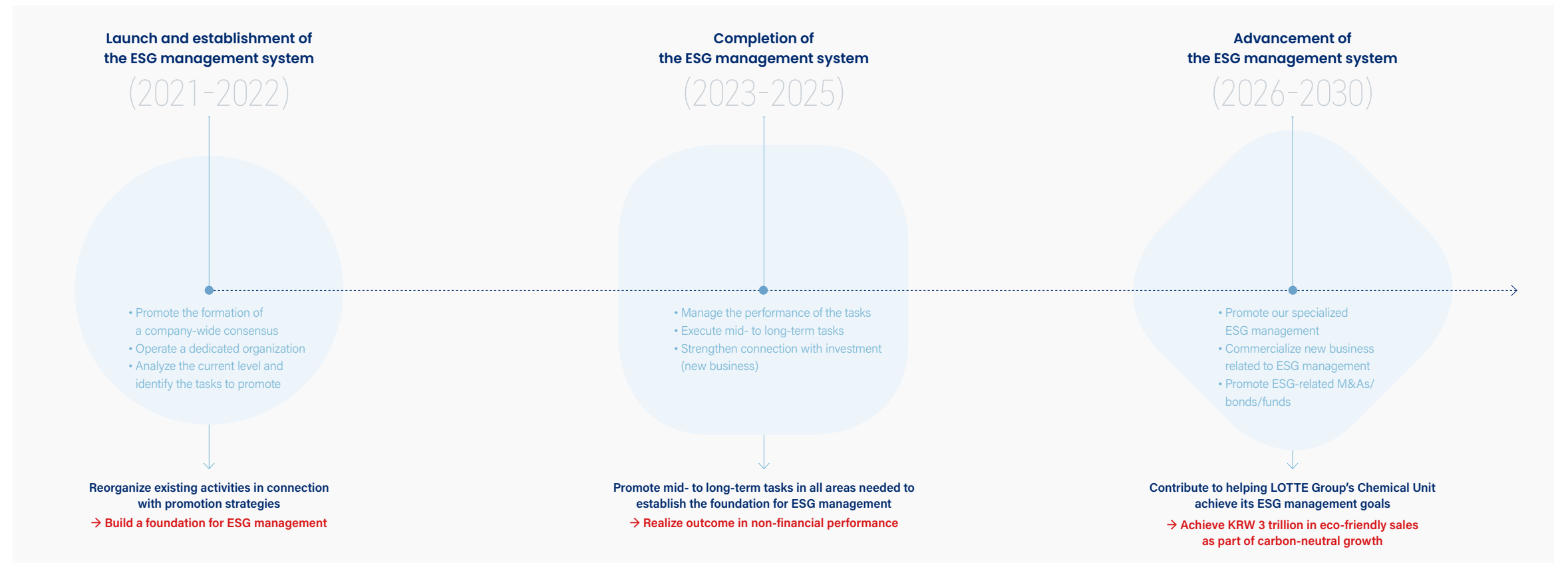
ESG MANAGEMENT SYSTEM

Against prolonged COVID-19 pandemic, businesses should consider environmental and social aspects in addition to financial performance in order to secure sustainability, which in turn making ESG (Environmental, Social, Governance) a hot topic. In particular, in line with the growing importance of ESG factors such as carbon emission reduction, water resource management, clean technology/eco-friendly product development, supply chain management, and workers' human rights, global investment institutions including Blackrock, a leading asset management company, are placing greater importance on ESG factors when making corporate investment decisions.

LFC has been implementing sustainable management that considers environmental and social values as well as achieving excellent financial results amid the rapidly changing business environment. In 2021, we took a step further and declared 2021 as the first year of to fully build ESG management system, which was followed by the establishment of the ESG Committee under the BOD along with the ESG Management Team to lay solid foundations for promoting ESG management. In 2022, LFC will achieve sustainable growth for the company and all stakeholders as well by establishing strategies for ESG management, executing detailed company-wide tasks, and creating new values.



Mid- to Long-term Roadmap for ESG Management



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→ **ESG MANAGEMENT FRAMEWORK**

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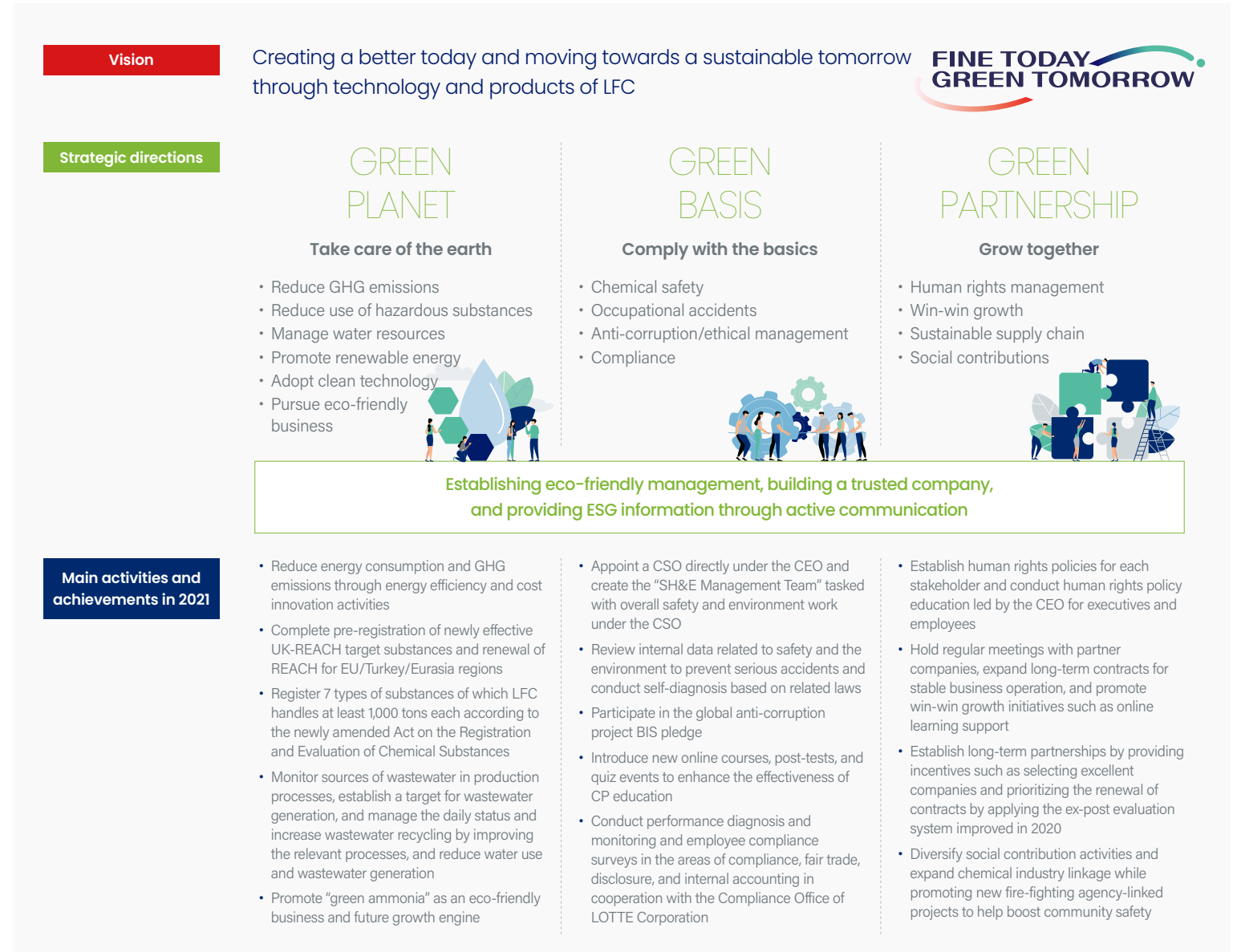
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ESG MANAGEMENT STRATEGY

Under the vision of “Creating a better today and moving towards a sustainable tomorrow through technology and products of LFC”, we have set three main strategic directions – Green Planet, Green Basis, Green Partnership – and are implementing strategic tasks aimed at establishing eco-friendly management, building a trusted company, and providing ESG information through active communication.

ESG Management Strategy System



ESG MANAGEMENT GOVERNANCE

In July 2021, LFC established the ESG Committee under the BOD for the first time among the LOTTE Group affiliates. As the highest decision-making body for ESG management, composed of external directors with expertise in diverse fields, the ESG Committee aims to internalize the value of sustainable management and enhance corporate value throughout the company's management activities – including company-wide ESG management strategy, planning and decision-making – by presenting the direction of ESG management and monitoring the performance of major tasks with the decision-making authority in order to maximize ESG-based business opportunities and minimize risks. In October 2021, the ESG Committee dealt with the appointment of the chairperson and reported the strategy for green hydrogen-ammonia, a future growth engine. At its first meeting held in February 2022, the committee discussed the new ESG promotion strategies. Going forward, the committee plans to deliberate and report on the company's progress and performance in each ESG area at its regular committee meetings. At the same time, we have established the ESG Management Team, a dedicated ESG organization, to support the activities of the ESG Committee and provide information on external ESG policies and trends to our stakeholders. The results of LFC's ESG activities, implemented under systematic ESG governance, are disclosed in a timely and transparent manner through the company's sustainability reports and website.

ESG Management Organization



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- ESG Management Framework
- **BUSINESS MODEL**
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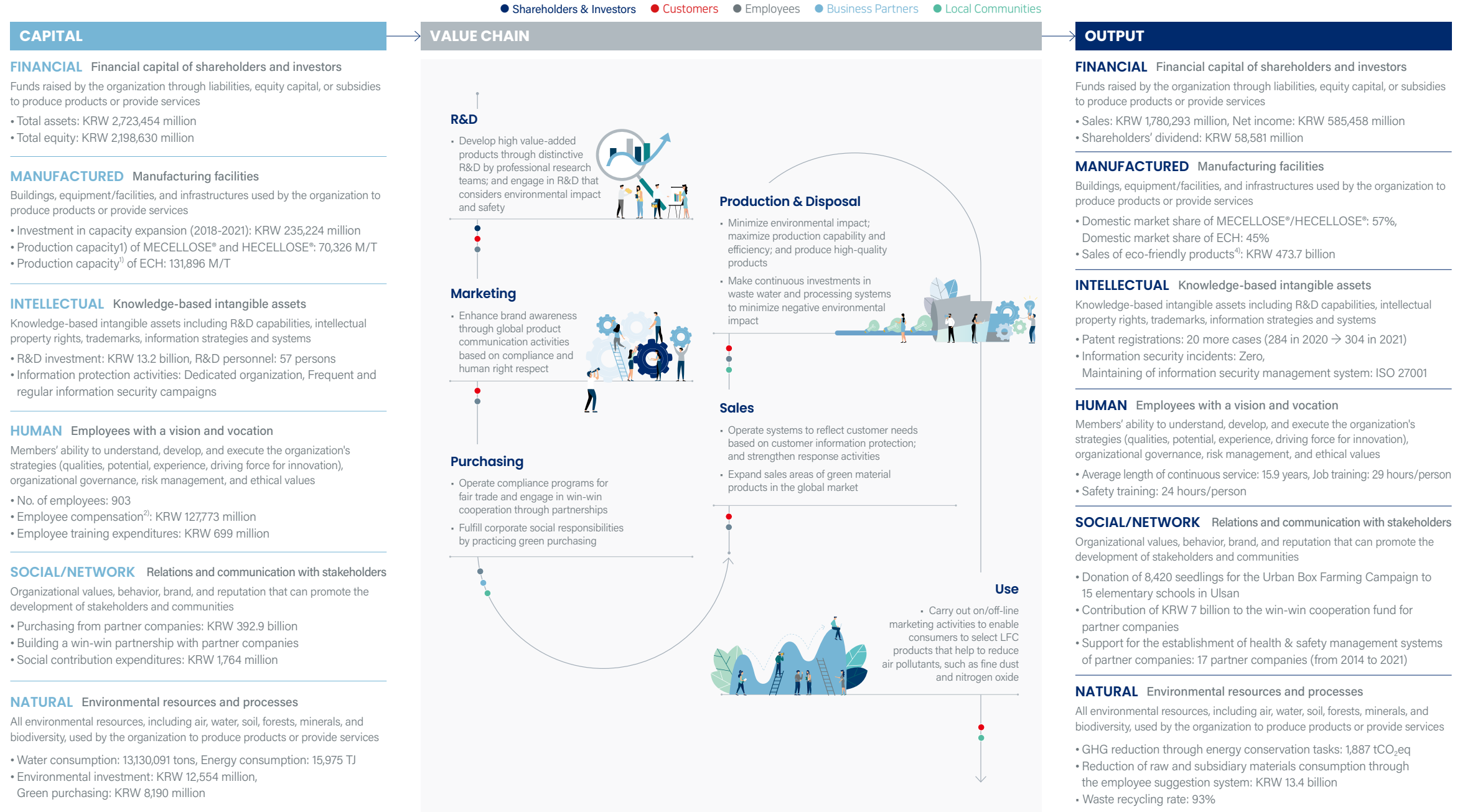
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ESG MAGAZINE

BUSINESS MODEL



¹⁾ Production capacity: Daily production capacity (plan) × standard operating days (number of days excluding regular maintenance, minor regular maintenance, emergency stop, etc.)
²⁾ Salary and bonus, welfare benefits, retirement benefits

⁴⁾ Based on EUROX® and green materials products

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STAKEHOLDER ENGAGEMENT

We strive to create sustainable value in partnership with our stakeholders by listening to and encouraging their participation through various communication channels.

STAKEHOLDER COMMUNICATION AND ENGAGEMENT

LFC defines customers, shareholders and investors, partner companies, employees, government, and local communities as major stakeholders that directly or indirectly influence our business activities while also being influenced by us. Stakeholder opinions are collected through various communication channels and reflected in our major business and management activities. We will continue to identify stakeholder opinions through active communication with them, derive points for improvement and look for ways to change and develop in a better direction.

Communication Frequency ● Year-round ○ Quarterly ■ Once a year

Stakeholder group	Communication channel	Stakeholder opinion	LFC's response and activities
Customers (Individual customers / Corporate customers)	<ul style="list-style-type: none"> ● Customer meeting ● Product seminar ● Voice of customers, website ○ Onsite visit by the Technology Department ■ Customer satisfaction survey ■ Sustainability report 	<ul style="list-style-type: none"> • Secure new growth engines • Strengthen R&D • Identify risks of each sector • Increase customer satisfaction • Respond to customer needs in an active manner 	<ul style="list-style-type: none"> • Conduct market analysis and monitoring of customer needs • Discover new markets and develop new products • Opened a new research center in Magok • Respond to complaints related to product quality and shipping on a regular basis • Designate staff responsible for providing responses in relation to products, and regularly/frequently make onsite visits and provide training in relation to products
Shareholders & Investors	<ul style="list-style-type: none"> ■ Annual general meeting ■ Corporate briefing ■ Business report ■ Sustainability report ○ Results announcement ○ NDR ● Conference call and meetings 	<ul style="list-style-type: none"> • Innovate in areas of infrastructure, costs, etc. • Increase dividends and investments for new growth engines • Strengthen the transparent, ethical mindset • Expand IR activities 	<ul style="list-style-type: none"> • Strive to maximize shareholder value • Establish sound corporate governance, and engage in activities for shareholders • Increase transparency of company operations • Maximize shareholder value through management performance distribution strategies, including dividends
Partner Companies (Contractors / Material suppliers / Product OEMs)	<ul style="list-style-type: none"> ● Online Shinmungo ● Training for partner companies ■ Meetings with partner companies 	<ul style="list-style-type: none"> • Ensure fairness in selecting partner companies • Provide benefits to excellent partner companies • Manage value chain risk 	<ul style="list-style-type: none"> • Expand support for partner companies (technology, personnel) • Set process to respond to value chain risk • Provide training related to safety and subcontracting transactions, and implement an internal incentive system • Provide support for technology development/protection, and dispatch experts
Employees (Including employees' families)	<ul style="list-style-type: none"> ● Communication portal (Intranet) ○ Labor-Management Council ○ Industrial Safety and Health Committee 	<ul style="list-style-type: none"> • Strengthen training (capability, ethics, human rights, safety, etc.) • Improve working environment • Respect labor-management agreements 	<ul style="list-style-type: none"> • Guarantee the right balance between work and personal life • Develop capability-strengthening programs • Expand welfare benefits for employees • Strive to improve working environment • Adopt a training system that is in line with the trend
Local Community & Environment (Government agencies and local governments / Local residents / NGOs)	<ul style="list-style-type: none"> ● Government hearings ● Social contribution programs ● Social contribution proposals ● Participation in local councils 	<ul style="list-style-type: none"> • Participate in government policy • Expand social contribution programs • Increase investments for eco-friendly management 	<ul style="list-style-type: none"> • Participate in national projects led by the government • Diversify areas of social contributions and related programs • Conduct continuous social contribution activities that leverage the company's expertise • Run environmental conservation programs, such as the Urban Box Farming Campaign • Invest in eco-friendly process facility

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SELECTION OF MATERIAL ISSUES

In our pursuit of sustainable management, we are identifying and reposing to stakeholders' needs and interests, thereby making positive impact.

PROCESS FOR SELECTING MATERIAL ISSUES

LFC conducts an annual materiality test to identify which ESG issues affect the company and its stakeholders.

Materiality Assessment Process

Composition of issue pool

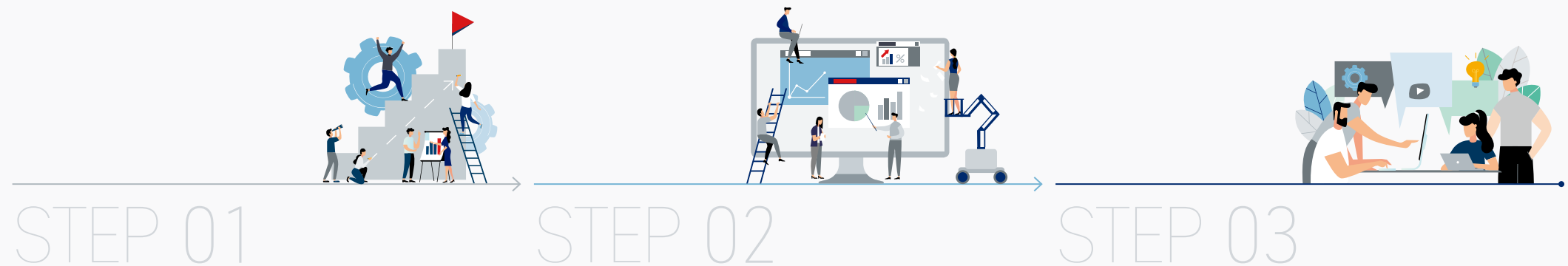
- Organized a pool of 159 issues based on global sustainability management initiatives such as the GRI Standards, ISO 26000, the ten principles of the UNGC, and the criteria used for ESG evaluation conducted by Korea Corporate Governance Service
- Selected 23 ESG issues in consideration of the internal status of the issue pool, benchmarking of similar and advanced companies, and internal corporate status
- Complemented recent ESG issues by benchmarking the materiality evaluation issues of leading companies and peers to derive the final 27 ESG issues

Stakeholder materiality assessment survey

- Developed a materiality assessment questionnaire on the 27 ESG issues and conducted survey to departments in charge of stakeholder support and other employees
 - Departments in charge of stakeholder support: Questionnaire survey on stakeholder interest
 - Employees: Questionnaire survey on business importance
- Period: Jan. 17 (Mon.) – Jan. 21 (Fri.)
- Results: 103 respondents (40 from departments in charge of stakeholder support, 63 employees)

Review and feedback

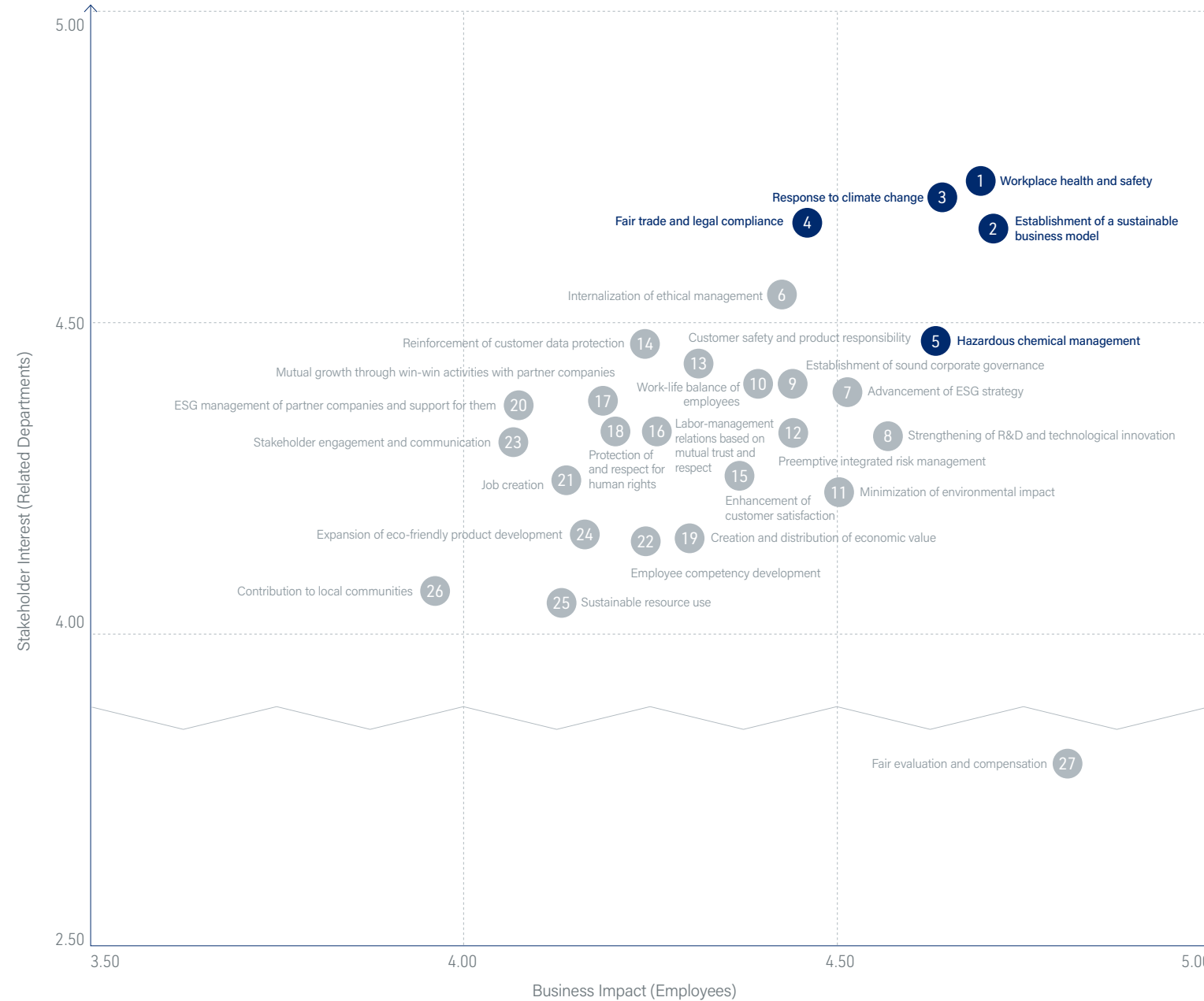
- Derived priorities for 27 ESG issues by considering both the stakeholders' interest and business importance
- Finalized the selection following the review of the identified material issues by departments related to sustainability management
- Reflected the material issues in the contents for this sustainability report



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RESULTS OF SELECTING MATERIAL ISSUES

Based on the results of the analysis of the materiality assessment questionnaire, we have identified five material issues out of a total of 27 ESG issues – workplace health and safety, establishment of a sustainable business model, response to climate change, fair trade and legal compliance, and hazardous chemical management – that are considered to be material in achieving sustainable growth and creating social value.



No.	Area	Issue	Stakeholders	Page
1	Social	Workplace health and safety	Shareholders & investors, partner companies, employees, local community & environment	35-37
2	Business	Establishment of a sustainable business model	Customers, shareholders & investors, partner companies, employees	7-13, ESG Magazine 6-9
3	Environmental	Response to climate change	Shareholders & investors, employees, local community & environment	26
4	Governance	Fair trade and legal compliance	Customers, shareholders & investors, partner companies, employees	53-54
5	Environmental	Hazardous chemical management	Customers, partner companies, employees, local community & environment	27

No.	AREA	Issue	Page
6	Governance	Internalization of ethical management	51-53
7	ESG General	Advancement of ESG strategy	15-16
8	Business	Strengthening of R&D and technological innovation	12-13
9	Governance	Establishment of sound corporate governance	46-48
10	Social	Work-life balance of employees	32
11	Environmental	Minimization of environmental impact	24-25, 27-28
12	Governance	Preemptive integrated risk management	49-50
13	Social	Customer safety and product responsibility	27
14	Social	Reinforcement of customer data protection	40-41
15	Social	Enhancement of customer satisfaction	40
16	Social	Labor-management relations based on mutual trust and respect	34
17	Social	Mutual growth through win-win activities with partner companies	38
18	Social	Protection of and respect for human rights	33
19	Business	Creation and distribution of economic value	59
20	Social	ESG management of partner companies and support for them	37, 38, 54
21	Social	Job creation	63
22	Social	Employee competency development	30-31
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25	Environmental	Sustainable resource use	28
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MATERIAL ESG ISSUES

Regarding the five material issues of workplace health and safety, establishment of a sustainable business model, response to climate change, fair trade and legal compliance, and hazardous chemical management, we have looked carefully at recent external trends as well as LFC's responses and major achievements. Going forward, we will respond systematically to these material issues by reflecting them in our ESG management direction, and transparently disclose the results to stakeholders through sustainability reports.

Issues	Background	LFC's response and management
<p>Workplace health and safety</p>	<ul style="list-style-type: none"> In January 2022, the "Serious Accidents Punishment Act" aimed at strengthening the roles and responsibilities of corporations regarding the prevention of serious accidents and the promotion of corporate safety management went into effect. In the midst of the strengthening of the related regulations, serious accidents such as the collapse of apartment buildings and worker electric shocks and falls have continued to occur in Korea, increasing the social demand for enhanced management and prevention efforts for corporate safety. As the social demand for stronger safety management grows, companies are reorganizing their accident prevention and safety management systems by systematically assessing their current status with the goal of eliminating serious accidents in the management process, including that of their business partners. 	<ul style="list-style-type: none"> Based on the health and safety management system ISO 45001, LFC is promoting various safety management activities throughout value chain with the goal of reducing the occurrence of occupational accidents at worksites including those of its in-house partners. We have appointed a CSO to establish and promote company-wide safety and environmental policies under the direct control of the CEO, and launched SH&E Management Team, a company-wide safety management organization under the CSO, to enhance our health and safety management capabilities and respond effectively to the strengthening of safety-related laws such as the Serious Accident Punishment Act. We have also launched the Safety and Health Management Committee to systematically check the status of our responses to the Serious Accident Punishment Act and our system for fulfilling the obligation to secure health and safety, while strengthening our health and safety management at the corporate level by obtaining the BOD's approval of the company's annual health and safety plan. <p style="text-align: right;">For more information, see pages 35-37 📄</p>
<p>Establishment of a sustainable business model</p>	<ul style="list-style-type: none"> Uncertainty is growing in the global markets, including the chemical industry, due to the prolonged COVID-19 pandemic, rising oil prices, and rapid changes in international political conditions. Despite such adverse market circumstances, corporations are required to strengthen the competitiveness of their existing businesses in order to maintain a stable business foundation while building a sustainable business model through continuous portfolio innovations in line with changes in the external environment. In particular, the importance of responding to climate change has grown in recent years across industries worldwide, accelerating companies' efforts to realize carbon neutrality through eco-friendly business operations. 	<ul style="list-style-type: none"> LFC has been maintaining stable growth pace based on a balanced product portfolio, and now we are pursuing business strategies in a sustainable manner by flexibly responding to environmental changes such as the post-COVID conditions, carbon neutrality, and growth of the markets for eco-friendly products. To reinforce specialty chemical business, we are expanding green materials business, including food and pharmaceutical materials and superior quality products, where we excel, under a system of constant collaboration between working-level staff and experts. We also strive to secure competitiveness in the hydrogen energy ecosystem by promoting the green ammonia business based on experience and technologies in the existing ammonia business, including storage and transportation. <p style="text-align: right;">For more information, see pages 7-13 and ESG Magazine pages 6-9 📄</p>
<p>Response to climate change</p>	<ul style="list-style-type: none"> Climate change due to the massive increase in energy use is causing enormous environmental, social and economic impacts. Recognizing the risks posed by climate change, the international community has declared the goal of achieving carbon neutrality by 2050 and is strengthening the related regulations. In line with this global trend, global companies are striving to realize carbon neutrality by investing in eco-friendly facilities and developing eco-friendly product in an effort to reduce their greenhouse gas (GHG) emissions, while enhancing corporate competitiveness and fulfilling social responsibilities. 	<ul style="list-style-type: none"> To achieve carbon neutrality, LFC is promoting proactive climate change response activities in the areas of energy consumption and GHG emissions according to its roadmap for securing global energy competitiveness and complying with the related regulations of the GHG emission trading system, among others. Our production sites have set and managed energy efficiency and energy cost as key indicators, while substantially reducing energy consumption by focusing on annual energy-saving measures and initiatives such as facility improvement. In addition, we have set reduction targets so as not to exceed the allowed amount of GHG emissions by carrying out reduction activities and deploying trading mechanisms. <p style="text-align: right;">For more information, see page 26 📄</p>
<p>Fair trade and legal compliance</p>	<ul style="list-style-type: none"> Fair trade and legal compliance are crucial to the formation of a sound corporate culture. Moreover, given that laws on monopoly regulation, fair trade, and anti-corruption are being strengthened worldwide in response to dumping and bribery/solicitation issues, violations of the fair trade laws can not only inflict huge economic damages on companies but also lead to the loss of their reputation and the trust of their stakeholders. In response, leading companies have established company-wide compliance management systems to participate in global initiatives and pursue sustainable growth beyond mere legal compliance. 	<ul style="list-style-type: none"> In order to open the way to a better future based on mutual trust, LFC has conducted company-wide ethical management while also striving to raise its employees' awareness of the need for compliance. We have established the Code of Conduct, which requires our employees to make decisions and act in a right way, in addition to providing continuous ethical management education so that our employees can follow the basic procedures and standards when performing their duties. We also operate a reporting channel so that our stakeholders, including employees and partner companies, can present their opinions on unfair business practices and unethical matters. In addition, we strive to handle cases fairly and take all necessary follow-up measures to prevent any recurrence of the same issues. <p style="text-align: right;">For more information, see pages 51-54 📄</p>
<p>Hazardous chemical management</p>	<ul style="list-style-type: none"> Exposure to hazardous chemicals can cause fatal damage to the human body and trigger serious accidents resulting in fatalities, while inadequate management of chemicals causes serious damage to the environment. Corporations need to work hard to reduce chemical accidents by upgrading the safety of their chemical substances as well as improving the verification and management of hazardous chemical information. 	<ul style="list-style-type: none"> LFC has established a company-wide chemical substance regulatory response system and complies with both national and regional chemical substance regulations, such as REACH for EU, Turkey, and Eurasia regions as well as the Act on the Registration and Evaluation of Chemical Substances and the Chemical Substances Control Act in Korea. In particular, based on the LOTTE Chemical Management System (LCMS), we manage hazardous chemicals throughout the entire process, from raw materials to product arrival/delivery, thereby improving work efficiency and safety. LFC is positioning itself as a reliable partner by actively supporting the safe use of chemical substances not only by its employees, but also by customers and partner companies. <p style="text-align: right;">For more information, see page 27 📄</p>

OUR ESG PERFORMANCE

LFC is committed to minimizing its impact on the Earth by considering environmental aspects throughout the entire product lifecycle, from product development to production and disposal. We also strive to create better social value through products and services we provide, while seeking ways to grow together with all our stakeholders. In addition, we are faithfully fulfilling our commitment to environmental protection through ESG practices based on our robust corporate governance.

ENVIRONMENTAL



LFC considers environmental aspects in the entire process from product development and production to disposal. Based on the environmental management system and systematic decision-making system, we are building eco-friendly workplaces, minimizing our ecological footprint. In addition, as climate change caused by increased GHG emissions has negative environmental and social impacts, we are making continuous efforts to proactively respond to climate change through activities for improving energy efficiency, reducing GHG emissions, etc. with the goal of achieving carbon neutrality.

IN THIS SECTION

Environmental Management

We continue to upgrade our environmental management system based on the ISO 14001 environmental management system and company-wide environmental management governance. We check the environmental management system and activities once a year to identify areas of improvement. In addition, we are expanding our environmental investments in process improvement and pollution prevention facilities, in order to do more than simply respond to environmental regulations and thus minimize the environmental impact of our business operations.

Response to Climate Change

We are strengthening our ability to respond to climate change by complying with the related regulations, including the GHG emissions trading scheme, establishing a roadmap to secure global energy competitiveness, strengthening company-wide technological competitiveness, and promoting GHG reduction activities from the perspective of energy conversion. In February 2021, LOTTE Group's Chemical Unit, including LFC, announced and has since implemented the "Green Promise 2030" strategy, which is centered on the following four core tasks – responding to climate change, strengthening eco-friendly business, expanding the virtuous cycle of resources, and creating a green ecosystem.

Minimizing Negative Environmental Impacts

As global regulations on chemical substances are being continuously strengthened, we have built a company-wide response system, and are operating our unique system, LCMS (LOTTE Chemical Management System), which manages all inbound and outbound chemical substances from raw materials to products. In addition, we are providing employee training to ensure the safe use of chemical substances, and are minimizing our environmental impact by applying appropriate treatment methods and facilities to waste and water/air pollutants emitted during our business operations.



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ENVIRONMENTAL MANAGEMENT

Integrated Environmental Management

ENVIRONMENTAL MANAGEMENT SYSTEM In order to minimize the environmental impacts that may occur in the course of its business operations, LFC strives to create environmentally-friendly workplaces and considers environmental aspects throughout all its product development, production, and disposal processes. Since we first acquired the ISO 14001 environmental management system certification for the Ulsan plant in 1996, we have expanded the scope of certification to include all business sites with manufacturing facilities, while also making continuous efforts to improve the environmental system by having the operational status of the system evaluated annually through internal and post-external audits. In addition, LFC is monitoring environmental management trends at home and abroad, as well as changes in customer requirements to make further improvements.

ENVIRONMENTAL MANAGEMENT ORGANIZATION In December 2021, in a bid to ensure systematic decision-making on the environment and safety and the prompt execution of business, we appointed a Chief Safety Officer (CSO) directly under the CEO to lead the Safety and Environmental Management Team, which is responsible for establishing company-wide safety and environmental policies and making decisions on the related issues. The Green Environment Team within the Safety & Environment Division under the Manufacturing Group continuously promotes eco-friendly activities aimed at reducing pollutants in factories under an eco-friendly management system, while the Technology & Process Team actively responds to recent environmental and climate change-related issues by practicing carbon management including efforts to reduce GHG emissions and energy consumption.

ENVIRONMENTAL MANAGEMENT STATUS CHECK LOTTE Group has established and manages the environmental management system at the Group level, and conducts on-site inspections of each of its subsidiaries to identify their specific environmental management risks, solve the related problems, and take the necessary measures. In 2021, LFC continued to review the allocation of environmental management tasks and the content of procedures, taking into consideration changes in the internal and external circumstances, in order to identify areas for improvement, establish the relevant processes, and upgrade the procedures. In addition, we launched an in-house verification system to review our management activities in each area of our environmental management on an annual basis and to improve any deficiencies in our processes. Furthermore, we have conducted systematic upgrades so as to identify any abnormality in the processes and establish countermeasures early on by collecting information on our monthly performance in the areas of water/air quality and waste discharge and disclosing it in-house.

ENVIRONMENTAL TRAINING LOTTE Group conducts online education on ESG trends, carbon-neutrality and eco-friendly strategies for all its subsidiaries every quarter. In 2021, the Group also offered education and training to its environmental management personnel to ensure that they respond effectively to ESG challenges. LFC conducts education and training on a regular basis as a way to prevent chemical accidents and minimize damages in the event of accidents.

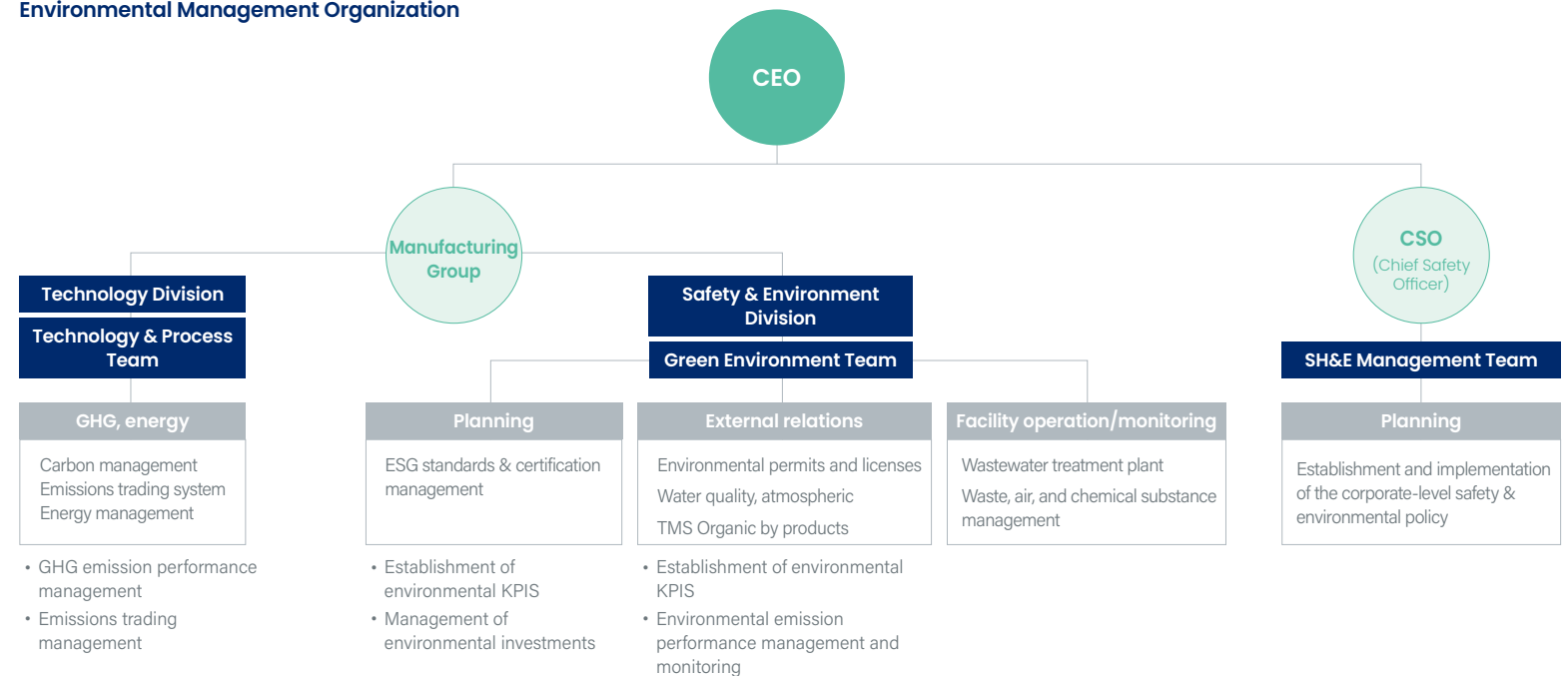
In accordance with the Chemical Substances Control Act, we provide education for managers and staff who are responsible for handling hazardous chemicals as part of our comprehensive environment/safety training for employees. We also work together with partner companies to build eco-friendly workplaces by providing training opportunities to those of their employees who have higher possibility of being left behind. As a result, the completion rate of hazardous chemical safety training for our employees and those of our major in-house partners has been 100% every year.

EMPLOYEE SUGGESTIONS SYSTEM To ensure the smooth operation of its business sites, LFC has been running an employee suggestions system since 1968, the beginning stage of the company milestones, to better manage its employees' ideas and performance. This system allows employees to freely present their own ideas for improvement related to optimizing factory operation, improving the environment, and reducing the use of raw and subsidiary materials at each worksite, while the company continues to revitalize the system by selecting and awarding ideas that lead to great effects. In 2021, our employees made 2,388 suggestions, which contributed to a product cost improvement of KRW 13.4 billion originating from improved productivity and reduced consumption of raw and subsidiary materials.

Expanding Environmental Investment

In addition to responding to environmental regulations, LFC is expanding its investment in the environmental sector to continuously improve the environment, including reducing pollutants, while increasing the efficiency of each plant's processes and optimizing plant intensity. In 2019, as a part of our efforts to improve our hazardous chemical handling facilities, pursuant to the Chemical Substances Control Act, we strengthened monitoring functions by installing sprinkler facilities automatically connected to gas detection facilities, while minimizing the possibility of environmental accidents by increasing the capacity of our facilities to prevent leaks of hazardous chemical substances and accelerating automation. In addition, we began to actively invest in reducing pollutant emissions, with the aim of cutting down the generation of fine dust, by optimizing treatment facilities based on strengthened air pollutant emission standards. In 2020, as the targets of registration under the Act on the Registration and Evaluation of Chemical Substances had been expanded to all existing chemical substances, we registered all substances of which we handled more than 1,000 tons per year, while investing heavily in improving our air pollution prevention facilities to respond to the allocation of pollutants and the expansion of the total hydrocarbons (THC) regulations following the strengthening of the regulations on the total amount of air pollutants.

Environmental Management Organization



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In 2021, we focused on creating eco-friendly workplaces in line with the promotion of ESG management, installed incinerators to reduce air pollutant emissions, and conducted a pilot test to reduce water consumption and wastewater discharge by reviewing our wastewater effluent reuse. In 2022, we plan to actively promote the creation of a green ecosystem by investing in the reuse of wastewater effluent and reducing hazardous substances and wastes.

INVESTMENT IN ENERGY CONSERVATION AND WASTE RECYCLING FACILITIES To reduce energy consumption and increase waste recycling, in 2021 LFC invested about KRW 15.3 billion in expanding its supply of organic by-products, installing external supply facilities, and improving air emission facilities for green materials. Going forward, LFC will take the lead in realizing eco-friendly workplaces based on continuous investment in the environment, while reducing the energy consumption and waste generation associated with the chemical manufacturing industry based on its continuous investment in factory facilities.

GREEN PURCHASING LFC practices strategic green purchasing based on its policy of securing eco-friendly, high-quality products at the best possible prices. In 2021, we invested KRW 8.2 billion in the purchase of green products such as low-power LEDs, low-power electrodes, and low-power separation membranes that can reduce energy consumption and minimize standby power. For wood pulp, raw materials of our green material products, in particular, we buy products of business partners with FSC²⁾ and PEFC³⁾ certifications, aimed at minimizing negative environmental impact. Going forward, we will set systematic measures such as reviewing the granting of additional points in the evaluation of supplier selection for those suppliers with green purchasing and ESG certifications in order to further expand green purchasing.

ENVIRONMENTAL PERFORMANCE MANAGEMENT We have set and now manage detailed indicators such as the establishment/performance of an organization devoted to environmental management, training systems, environmental goals, control of pollutant emissions, and the management of hazardous chemical substances. Based on the Group's sustainable growth evaluation index, LFC annually identifies current status, performance, and improvement points in its environmental management. Based on the sustainable growth evaluation index, LFC is improving its environmental management activities, responding to major ESG evaluations at home and abroad, and advancing its environmental management.

²⁾ Forest Stewardship Council

³⁾ Programme for Endorsement of Forest Certification

Investment in Energy and Waste Facilities in 2021

Investment	Total investment	Investment in 2021	Goal	Effects
Expansion of supply of organic by-products and installation of outside supply facilities			Recycle organic by-products	Waste recycling
Installation of organic matter incinerators			Reduce wastewater discharge (with the installation of wastewater treatment facilities); Reuse raw materials; and Produce additional energy	Waste recycling, energy conservation (GHG reduction)
Installation of No.1 ECH MVR	KRW 37,444 million	KRW 15,277 million	Recover waste heat (reduction of steam consumption)	Energy conservation (GHG reduction)
Improvement of emission facilities in producing green materials			Recycle heat from emissions reprocessing/incineration (steam production)	Energy conservation (GHG reduction)
Improvement of hot water system ¹⁾ in producing MECELLOSE®			Eliminate heat loss factors (reduction of steam consumption)	Energy conservation (GHG reduction)
Improved electrolytic chiller operation			Introduce energy-efficient facilities (heat source, power saving)	Energy conservation (reduction of GHG)

¹⁾ Process of recovering hot water

Environmental Goals

Classification	Goal	Plan	Outcome	Targets	Due
Achievements in 2021	Respond to the Act on Integrated Management of Environmental Pollution Facilities	Aim to acquire an integrated environmental management permission	Completion of on-site verification of existing licenses, preparation for prior consultation	In progress	Dec. 2022
	Respond to the amendment to the Act on the Registration, Evaluation, Etc. of Chemicals	Registration of substances of which 1,000 tons or more are manufactured or imported	Registration of 7 substances	Completed	Dec. 2021
Goals for 2022	Respond to the Chemical Accident Prevention Management Plan system	Integration of business units	Conformity certified	Completed	Jan. 2022
	Wastewater effluent reuse	Investment in progress	Pilot testing and optimization of operating conditions	In progress	Jun. 2023

Green Purchasing Policy

• **Purpose of Green Purchasing**

We fulfill our environmental management vision and policy as well as corporate social responsibility by prioritizing and promoting green purchasing to prevent resource wastage and environmental pollution and to contribute to creating an eco-friendly, happy life for humankind.

• **Criteria for Green Purchasing**

- ① Products that have received green product certification from the government or a certification body
- ② Domestic and overseas eco-label certified products
- ③ Products produced using eco-friendly raw materials
- ④ Products produced by companies with an "excellent" ESG management rating
- ⑤ Products that relatively reduce environmental pollution and energy consumption when used for the same purpose



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RESPONSE TO CLIMATE CHANGE

As climate change caused by increased GHG emissions adversely affects not only the Earth's ecosystems but also society as a whole, major countries including Korea have declared their goal of achieving "net zero" carbon emissions by 2050 and are strengthening the related regulations. Accordingly, advanced companies are realizing carbon neutrality and responding to climate change by implementing GHG emission management throughout their value chain in a bid to enhance their corporate competitiveness and fulfill their social responsibilities.

In response to these changes in the business environment, LFC, which is committed to achieving carbon neutrality, is carrying out proactive climate change response activities such as establishing an organization dedicated to energy efficiency, producing a long-term roadmap to secure global energy competitiveness, and complying with all the related regulations, including the GHG emission trading system. In particular, to achieve the emissions allowance of the GHG emissions trading system, we have assigned reduction targets to our production departments and are implementing our own reduction activities and trading mechanisms. Moreover, in February 2021, LOTTE Group's Chemical Unit, including LFC, announced the "Green Promise 2030" strategy which aims to achieve carbon-neutral growth and generate sales of KRW 6 trillion in eco-friendly business through four core tasks – responding to climate change, strengthening eco-friendly business, expanding the virtuous cycle of resources, and creating a green ecosystem.

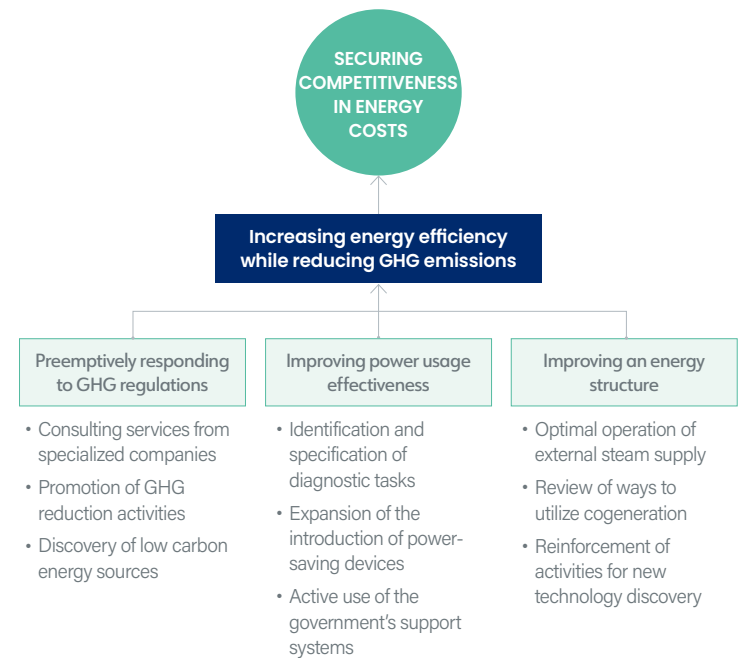
In 2022, LFC will establish a mid- to long-term strategy for reducing GHG emissions in response to climate change from the perspective of strengthening technological competitiveness and energy conversion, while preparing systematic and feasible countermeasures such as upgrading GHG emission management, analyzing future emission estimates and deriving an eco-friendly portfolio to achieve carbon neutrality. Based on its achievement, we plan to disclose climate change-related information in response to the Carbon Disclosure Project (CDP).

ENERGY EFFICIENCY MANAGEMENT LFC is striving to supply its customers with high-quality products at more reasonable prices while curtailing costs in a business environment where international oil prices and exchange rates fluctuate considerably. We have set energy efficiency and cost saving as the key performance indices (KPI) of our production departments. Since 2015, we have been implementing a company-wide integrated innovation program to induce energy innovation activities by recognizing and rewarding the creative ideas of our employees through a knowledge suggestion system. In 2021, we derived approximately seven energy conservation tasks and reduced energy consumption by 73 TJ.

GHG REDUCTION ACTIVITIES LFC is boosting its competitiveness in response to climate change by carrying out activities to reduce GHG emissions from the perspective of strengthening technological competitiveness and energy conversion at the company-wide level. We are continuously strengthening the MRV (Measure, Report, Verify) system for real-time GHG emissions and our energy management systems and instruments by upgrading our in-house regulations in accordance with the Greenhouse Gas/Energy Target Management System and the Energy Use Rationalization Act, while each of our production departments is taking the lead in discovering and implementing tasks to reduce energy use and GHG emissions. Accordingly, we allocate reduction targets to each team and department, and have the Production Innovation Team manage the KPI, thereby gaining preemptive learning effects on the GHG emission trading system internally and strengthening our eco-friendly competitiveness externally. In 2022, we are considering introducing renewable energy at our business sites, along with a quantitative reduction target, and building CCUS¹⁾ facilities.

¹⁾ Carbon Capture, Utilization & Storage: Technology that captures carbon dioxide emissions from sources like coal-fired power plants and either stores or reuses it

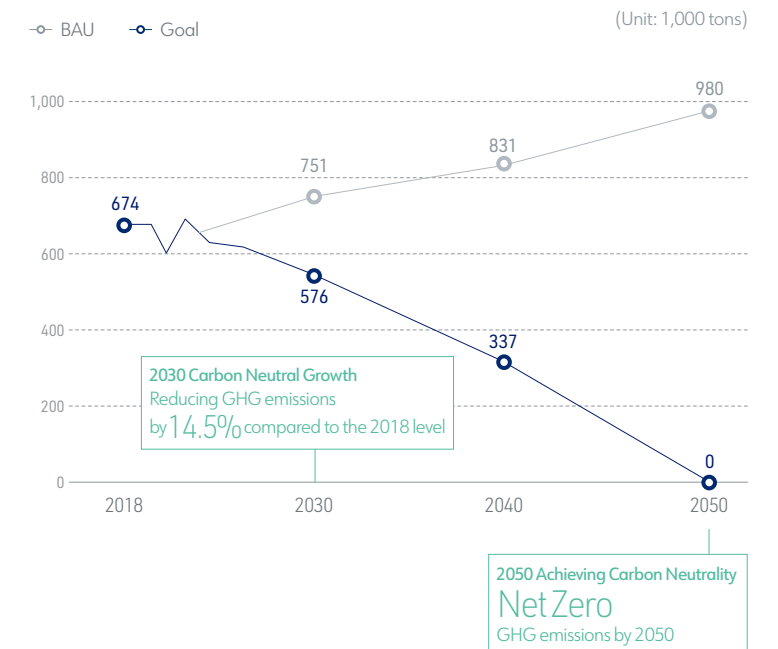
Directions to Secure Competitiveness in Response to Global Climate Change



Energy Conservation and GHG Reduction Performance in 2021

Items	Reduction of energy consumption (TJ)		Reduction of GHG emissions (tCO ₂ eq)	
	Plan	Performance	Plan	Performance
Power saving by optimizing the operating temperature of the electrolyzer in the electrolyzed water generator				
Improvement of the SM line trap				
Reduction of transfer power for wet cake				
Power saving by improving the B-Line drying process	54	73	1,381	1,887
Increased incinerator steam re-generation due to DME incineration				
Reduction of steam consumption by optimizing T-304 operation				
Power cost reduction by shutting down the hydrochloric acid transfer pump of the TMAC plant				

Mid-to Long-term Roadmap to Achieve Carbon Neutrality



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MINIMIZING NEGATIVE ENVIRONMENTAL IMPACTS

RESPONSE TO GLOBAL CHEMICAL REGULATIONS REACH¹⁾ is a global environmental regulation that greatly affects not only companies within the EU, but also offshore companies that export chemical substances to the EU. It is expanding to chemical substance regulations by country/region, such as Korea's Act on the Registration and Evaluation of Chemical Substances, Turkey's KKDIK, the UK's UK-REACH, and Eurasia's TR-EAEU.

LFC has established a company-wide response system and is responding to chemical substance regulations that are being expanded by country/region. As a manufacturer, supplier and purchaser of chemical substances, we completed the pre-registration of substances subject to UK-REACH, which took effect in 2021, in order to comply with each country's REACH regulations, and performed REACH renewal tasks in the EU/Turkey/Eurasia region. We will respond to the need to register with Turkey-REACH (KKDIK) and Eurasia-REACH (TR-EAEU), which is scheduled for 2023. Together with our customers and partners, we will actively support the safe use of chemical substances as their reliable partner, while promoting human health and environmental protection by actively responding to the new paradigm change in the chemical industry.

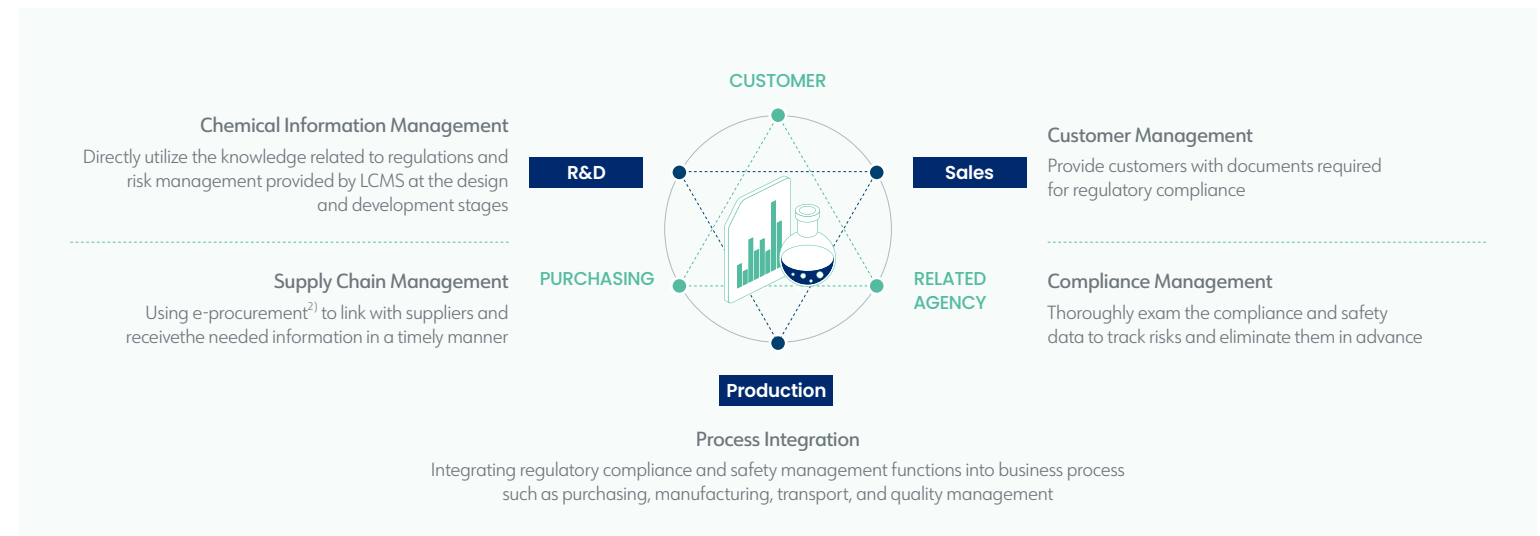
MANAGEMENT OF HAZARDOUS CHEMICAL SUBSTANCES LFC tallies and controls all the chemical substances that it receives and issues, ranging from raw materials to products, thereby thoroughly controlling such substances. Notably, we have established and operated the LCMS (LOTTE Chemical Management System), re-established a whole process management system for hazardous chemicals, and increased work efficiency through systematic management of chemical substance information.

In 2021, in accordance with the newly amended Act On Registration And Evaluation Of Chemical Substances, we registered seven chemical substances of which we handle in excess of 1,000 tons, among the chemical substances of which we import or manufacture in excess of one ton each, while acting as the representative company of the consultative body for three materials, namely, DMA, PTAC, and TMA-HCl. In addition, we have continuously improved our hazardous chemical handling facilities in accordance with the Chemical Substances Control Act and won the 'Conformity' grade in the first inspection of our facilities subject to the Act, while striving to prevent accidents such as chemical substance leakages.

For systematic implementation of domestic and overseas chemical substance regulations, which are being strengthened continuously, since 2020 the Incheon plant has prepared and managed both the global inventory status of products and the chemical inventory of products and some 250 kinds of raw/subsidiary materials and reagents, as well as establishing and implementing measures to reduce, dispose of, or safely manage hazardous chemicals in accordance with the regulations and the related risks.

ACTIVITIES FOR SOIL AND ENVIRONMENT CONSERVATION LFC regularly inspects levels of soil contamination at facilities subject to specific soil pollution management within the workplace designated in accordance with the Soil Environment Conservation Act, together with a company qualified as a professional soil pollution agency designated by the Ministry of Environment, and discloses the data through the environmental information disclosure system. In addition, we are making various efforts to prevent soil contamination due to our factory operations.

Chemical Substance Management System



¹⁾Registration, Evaluation, Authorization and Restriction of Chemicals: Chemical substance management system that stipulates that the mandatory registration, evaluation, permission or approval of 1 ton or more of chemical substances manufactured in or imported into the EU

²⁾In-house supply chain system



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MANAGEMENT OF WATER RESOURCES AND WATER POLLUTANTS

The water used in our production, process, and utility facility operations is supplied through water intake sources situated near each of our manufacturing plants that meet the standards for appropriateness of use. Also, the utility department based at each of our business sites takes the lead in optimizing our water consumption and expenditure through constant monitoring and process improvement.

LFC has established a system for monitoring the sources of wastewater generation in its production processes and manages their status on a daily basis by setting targets for the amount generated. We are also making continuous efforts to reduce water consumption and wastewater generation by improving our wastewater recycling processes. We have improved our ability to remove pollutants by installing and operating multimedia filters (MMF) designed to reduce pollutants in our final wastewater treatment plants. Moreover, we have strengthened our internal standard on water pollutant discharge to 50% of the permissible regulatory limit, while making various efforts to reduce our pollutant emissions, including management of the discharge concentration standards for wastewater generated by production processes. As a representative example, we do not simply treat wastewater containing acetic acid generated during the manufacture of our product AnyCoat-P, but instead convert it into an organic resource and supply it as a denitrification agent to a municipal sewage treatment plant, while continuing to look for ways to minimize environmental (water system) impact, create uses, and reuse them.

LFC is making active efforts to reuse wastewater and to become an eco-friendly business site by reducing the amount of water used and discharged through its wastewater effluent reuse facilities, as well as reducing its water pollutant emissions.



AIR POLLUTANT MANAGEMENT

As a result of proactive response to the total pollutant amount regulation and the subsequent enforcement of the Air Management Zone Act in 2020, LFC has been allocated 100% of the company's estimated nitrogen oxide emissions. We are responding to the total pollutant amount regulation to prevent any disruption of our overall plant operations – even in the case of an addition to or expansion of our production facilities. Also, we began to improve our air pollutant treatment facilities in order to comply with the enhanced emission standards following the establishment of specific air pollutant emission allowance standards and the expansion of the total hydrocarbon regulatory targets, as the amendment to the Clean Air Conservation Act has entered into force. Since 2020, the Ulsan plant has invested KRW 15.8 billion in the installation of new incineration boilers for the treatment of non-aqueous materials as part of a wider effort to make improvements at each of our manufacturing plants, while continuously working hard to reduce the emission of harmful substances. In 2021, the Incheon Plant introduced a new boiler with an improved low-NOx burner to reduce average emissions through alternating operation¹⁾.

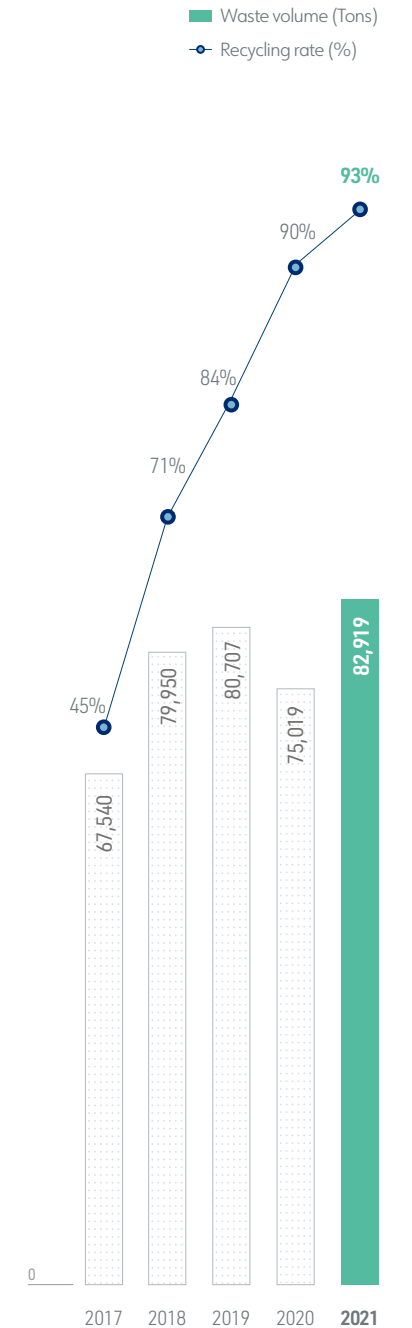
WASTE DISCHARGE MANAGEMENT

LFC manages the entire waste treatment process by using an online system in its business operations, sets an annual waste discharge target, makes continuous investments, and carries out taskforce activities aimed at reducing the generation of waste materials. By continually converting landfill waste into recycled waste, we increased our recycling rate from 84% in 2019 to 90% in 2020, and again to 93% in 2021. In addition to increasing the waste recycling rate, with the purpose of reducing waste emission in the first place, we are encouraging our on-site employees to get actively involved through optimization of the processes of classifiers and circle feeders and the implementation of policies that grant incentives to employees to reduce waste generation

¹⁾ Alternate operation of two boilers



Volume of Waste Generated & Recycling Rate





SOCIAL

At LFC, innovation starts with people. We are striving to enhance employees' satisfaction by nurturing human resources, providing a safe and pleasant working environment, and operating various systems to ensure a right balance between life and work. In addition, we are promoting more systematic and efficient supply chain management and win-win cooperation, recognizing our suppliers as partners with whom we will grow together. We are also concentrating our capabilities on creating differentiated customer value by improving quality continuously and responding promptly to customer needs.

IN THIS SECTION

Increasing Employee Value

In order to provide quality jobs to youth, we are operating a transparent and fair recruitment process such as an internship program and non-face-to-face recruitment. We are also nurturing human resources who can be active in the global market through educational programs consisting of a variety of curricula. Furthermore, we are building a corporate culture conducive to work for our employees by innovating the way we work and operating various programs and welfare systems that promote a sound work-life balance.

Creating a Health & Safety Culture

Recognizing safety management as a core element of our business activities, we have established a safety management system based on the ISO 45001. We are strengthening our safety capabilities by promoting various activities to internalize a safety culture to strengthen our preventive capabilities. Moreover, in line with the strengthening of related regulations, we strive to prevent safety accidents with our partners. We are doing our best to manage workplace safety so that all our employees and those of our partners can work in a safe environment.

Win-Win Growth with Partner Companies

We are seeking a win-win relationship with our partner companies by operating programs to enhance their competitiveness, such as financial and competency development support, based on fair and solid partnerships. In addition, we are actively operating communication channels such as win-win growth meetings to listen to the grievances of our partners and operate more practical support programs.

Quality Innovation and Customer Satisfaction

We have established a quality management system based on ISO standards to secure the highest level of quality using product quality perfection as the basis and driving force for growth. We are striving to create differentiated customer value by communicating with our customers through various channels, as well as promoting activities to enhance customer satisfaction, such as strengthening information protection.

Social Contributions

Under LCF's CSR vision of "Good partner making a sustainable future", we are creating social values through strategic CSR activities based on business focusing in five areas: children/youth and women; local community; local environment; linkage with the chemical industry; and linkage with diverse groups and related organizations.



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INCREASING EMPLOYEE VALUE

Human Resources Management

RECRUITING TALENTS

People of LFC | LFC operates a fair and transparent recruitment process to provide good-quality jobs to young people who are not afraid of failure, and who constantly do their utmost and pursue cooperation and win-win business relations, so that they can grow and develop individually along with the company's development.

LOTTE People

<p>Talented people who do not fear failure</p>	<ul style="list-style-type: none"> • Talents equipped with courage and the determination to try again without fear of failure • Talents who pursue change through creative thinking and constant innovation • Talents who prefer to achieve success by learning from creative failure rather than pursuing stability
<p>Talented people who are committed to making the best of their skills</p>	<ul style="list-style-type: none"> • Talents who constantly strive to achieve success based on their competences • Talents who pursue professionalism to become the best in a spirit of ownership and responsibility • Talents with perseverance and sincerity who can steadily build solid foundations for the next leap forward
<p>Talented people who cherish collaboration and win-win relations</p>	<ul style="list-style-type: none"> • Talents who use the virtues of cooperation and compromise to achieve their goals • Talents who communicate and seek harmony with their colleagues based on trust • Talents who appreciate and consider communities and neighbors with whom they can thrive together

Internship program | Since 2020, LFC has been running an internship program to secure talents who are suitable for the organization and its tasks in a timely manner. During the 8-week internship period, interns participate in job training, including on-the-job training and assignment presentations, as well as mentoring programs designed to support their adaptation to the organization and enable them to determine their organizational and job suitability by themselves.

Expansion of non-face-to-face recruitment | In order to secure human resources safely and effectively in response to the prolonged COVID-19 pandemic in 2021, LFC strengthened non-face-to-face recruitment. In addition to non-face-to-face interviews, we introduced a non-face-to-face written test (L-TAB, LOTTE Group's job/organizational suitability assessment) while making continued efforts to allow job applicants to access necessary information and apply for recruitment in a safer way. We used a metaverse platform to conduct recruitment consulting free from restrictions on physical space, while conducting the L-TAB online to ensure applicants' safety and convenience.

NURTURING TALENTS | LFC operates various systems and programs, including a female talent nurturing program, a job function training program, a global competency training program and a knowledge training program, thereby helping employees grow into business leaders. To foster such talents, we invested a total of KRW 699 million in education and training in 2021, providing approximately 29 hours of education per person.

Female talent development program | LFC is making a wide range of efforts to establish an organizational culture that values diversity and to foster female talents both quantitatively and qualitatively. We hold regular meetings for communication with female talents, as well as diversity forums designed to enable them to improve their personal development and leadership. Furthermore, since 2020, we have allowed pregnant staff members to work from home, and have run the "Working Mom Mentoring Program" to help female employees who return to work with their career development, soft landing, and networking.

In 2021, we introduced the "Female Leader Mentoring Program," which matches female talents with executives who offer practical mentoring on the qualities and skills required of leaders. We also conducted a company-wide survey targeting female talents to identify and reflect the education sessions and systems they needed, and subsequently conducted women's leadership diagnosis and training during the year.

Moreover, with the goal of building a systematic strategy for nurturing female talents, we participated in the Target Gender Equality Program hosted by the UN Global Compact, identified the current status of women's competency enhancement system and gender equality system, and share good practices of fostering female leaders. Based on these activities, we are making a wide range of efforts to foster female talent aimed at increasing the number of female leaders by 20% compared to the current level within three years.

Job training programs | LFC operates internal training programs such as EMBA courses for executives and job-related master's courses for outstanding employees to strengthen their specialized knowledge and job competencies, as well as supporting their training by outsourced professional organizations and acquisition of the relevant job certificates. In addition, we are continuously nurturing in-house job experts and conducting engineer training with in-house instructors, while running an onsite training technology academy to equip employees with safety and manufacturing competitiveness and the required knowledge base, and vocational training courses for new employees on-site. In cooperation with the Engineering Development Research Center of Seoul National University, we have introduced vocational training courses for smart digital engineering professionals in the field of chemical engineering.

Global competency training program | In order to help our employees enhance their global competencies, we run various internal and external language courses and pay their foreign language evaluation test fees. In 2021, we expanded our in-house language speech events, launched in 2020, to reinforce our employees' language skills and develop an organizational culture of learning. In 2021, we also offered a global online special lecture to support our employees' understanding and appreciation of foreign cultures and enhance their global business skills. Moreover, we hold expatriate forums, offer training to staff due to be dispatched overseas, and distribute global reports about global management and overseas business issues as part of our continuous efforts to help them improve their comprehensive global capabilities.



Metaverse platform to for recruitment consulting

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Knowledge training program I To ensure that our employees acquire the basic attitude and knowledge required as members of LFC, we provide training on the company's key values, anti-corruption training, sexual harassment prevention training, and training to improve their perceptions of the disabled, as well as offering leadership diagnoses, a SERICEO program, and a training course for newly promoted employees to strengthen our overall leadership competencies. In 2021, we operated female executive leadership courses, leadership courses for new team leaders, an online empathetic leadership course, coaching leadership courses, coaching qualification acquisition courses, and in-house counselor courses for the purpose of training next-generation leaders. We have also introduced a roadmap for nurturing talents to strengthen our digital transformation capabilities to provide related training sessions, while supporting our employees' attendance at forums in diverse fields so that they can identify the latest business and social issues and develop acute business insights. In addition, we have introduced the "LFC Morning" program, which consisted of special in-house lectures in various fields in the morning, as employees could not attend outside lectures due to concerns about COVID-19 infection. Furthermore, we launched "LFC DAY" as part of our organizational revitalization process to help our employees overcome the "Corona Blues" due to prolonged telecommuting by attending our horticultural and aromatherapy programs presented in a non-face-to-face mode.

Fine Company educational program I As part of our efforts to build a culture of integrity, LFC runs the "Fine Company" educational program, which includes legally mandated education courses, for our own employees and those of our major in-house partner companies. These courses consist of five classes covering the prevention of sexual harassment in the workplace; improved awareness of the disabled in the workplace; the prevention of workplace harassment; information security; and compliance management. We are striving to increase employees' engagement in the education by running it in tandem with an organizational revitalization program. We also ran the "Fine Company" program in September 2021 through non-face-to-face, real-time, online streaming in compliance with the social distancing and quarantine rules due to the spread of COVID-19, and held an in-house knowledge sharing speech event to encourage our employees to actively participate in our training programs and increase communication among them. In 2022, we plan to add a course on ethical management to the existing Fine Company program.

FAIR EVALUATION AND COMPENSATION To motivate our employees and deliver fair feedback, we have implemented a fair and transparent performance management system. In addition, we have put in place systems designed to ensure that fair compensation is provided according to individual and organizational evaluations. Fairness is guaranteed through a system that allows employees to raise objections about their performance compensation. In 2021, we linked "L-listen", an ad-hoc job evaluation and interview app launched in 2020, with the actual organizational KPIs in order to evaluate our employees' performance in a more in-depth way and to offer coaching and conduct interviews at any time.

Building a Great Workplace

INNOVATING THE WAY WE WORK The Fourth Industrial Revolution has brought about a new era in which change has become normal, with digital technology being applied ever more widely throughout both industry and society. In response, LFC is strengthening the fundamental competitiveness of its business by establishing company-wide strategies for promoting growth and improving efficiency through digital technology. To support the growth of its employees and improve work efficiency through digital innovation, LFC has introduced various business innovation measures, including smart factories, a customer relationship management platform, and robotic process automation (RPA). Going forward, we will increase our digital competitiveness by expanding successful cases of digital technology application, continuously promoting change management, and promptly responding to changes in the business environment. We will also promote the monetization of the value of the data we have accumulated through our business operations.

Establishment of smart factory I LFC is focusing on improving productivity through the establishment of smart factories. To improve the data collection/management infrastructure, which is the key to building a smart factory, LFC is promoting the introduction of a 5G wireless environment and the automation of its data collection process, while building a safe and efficient workplace by continuously upgrading the automation of its production lines and creating a non-face-to-face shipping system.

Introduction of a customer relationship management platform I In the marketing and sales fields, LFC has introduced a customer relationship management (CRM) platform whose role is to improve sales improvements based on the results of customer-oriented data management and analysis. Through CRM, we immediately record all information generated by our sales activities on the spot, and then analyze the accumulated information in real time to identify our sales trends and establish strategies for improving our work performance and customer service lead times.

Application of RPA I To improve our employees' work efficiency and increase added value by having them focus on their work itself, we actively discover standardized and repetitive tasks and apply RPA technology to them. In this way, we are continuously improving the efficiency of our office work by automating our employees' manual work.

Introduction of a free seating system I In order to create a flexible and open organizational culture, we have introduced a free seating system at our Seoul business site, thereby allowing our employees to change seats anytime and to choose to work freely at their desired location, such as a lounge or conference room, without any barriers between departments, based on a robust wireless network environment. In addition, we have removed the partitions separating employees, including team leaders, to create a work environment that facilitates smooth communication and build a horizontal and efficient organizational culture.

Expanding teleworking I Since the outbreak of COVID-19, we have implemented a teleworking system whenever necessary to secure the health of our employees by preventing the in-house spread of the virus. We operate the system for all employees (except essential accident prevention and safety personnel) at our manufacturing plants, and ensure that our employees can carry out non-face-to-face work more efficiently through our advanced telework infrastructure. We are also working hard to revitalize our organization and help our employees to manage their emotions by operating non-face-to-face healing activities in which they can participate with their family members, yet another advantage of working from home.

IMPROVING CORPORATE CULTURE In April 2021, to strengthen the execution power of the "Corporate Culture TF", which was launched with the goal of deriving and executing corporate culture innovation tasks to ensure the continuous growth of both the company and individual employees, LFC appointed its CEO the TF head to lead the reorganization. The reorganized Corporate Culture TF consists of a "Change Agent" who plans and leads all changes required in the process of innovating corporate culture, and a "Junior Board", a board of directors composed entirely of young executives, being separate from the company's BOD.

Change Agents are focused on improving efficiency in various business units largely through the will of employees devoted to change, with the core goal of eliminating the largest obstacles to work efficiency. In this process, they listen to the opinions of the employees and receive confirmation from the relevant departments, thereby serving as a catalyst in breaking stereotypes and leading changes aimed at making LFC a better company to work for.

The Junior Board is tasked with creating a rational and enterprising corporate culture that fits the trend of the times while promoting open communication by acting as a hotline for the CEO. The board delivers sincere and vivid voices from the field directly to the CEO, and the CEO listens to and reflects them in his decision-making. It also delivers a clear message from the CEO to employees under the name of "Leader's Message" to help build a trusting relationship between employees and management.



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WORK-LIFE BALANCE

Maternity care system I LFC is contributing to resolving the urgent social issue of the low birthrate by ensuring long-term work conditions for competent female workers through the expansion of our female employees' parental leave and child-rearing support programs, while institutionalizing a healthy work-family balance for our married male employees as well.

We actively support female employees so that they can take up to one year of optional parental leave in addition to the one-year statutory parental leave. We are also committed to creating a family-friendly corporate culture and to improving awareness of the male parental leave system by making it mandatory for male employees to take parental leave of at least one month within a year of the birth of their child.

Moreover, we provide full support for our female employees' safe childbirth by operating a work-hour reduction system and allowing time for checkups during pregnancy, as well as offering 10 days of paid paternity leave to their spouses in addition to newborn baby gifts. In addition, we allow female employees with a child who is about to enter elementary school to use the leave of absence system designed to take care of children entering school as part of our various leave systems. We are making diverse efforts to build a family-friendly work environment and help our employees strike a healthy work-life balance by promoting their early adaptation after returning to work through our online "EZ Learning" programs and "Working Mom One-on-One Mentoring" service. We also ensure that the use of parental leave does not lead to any discriminatory treatment or disadvantages in relation to one's employment, salary, or career path. We run a self-development support system that allows employees to use the online education site of the LOTTE Group even during a leave of absence.

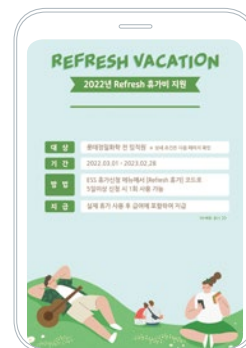
Certified as a family-friendly company I LFC has established a wide range of systems to help its employees strike the right balance between work and family life, and runs various programs that enable employees and their families to share a healthy, flexible organizational culture, such as attending a baseball match as a group from a business site, giving children of employees opportunities to participate in volunteer activities, helping employees send their parents on a tour, and holding a winter ski camp and the One Mind Festival. In recognition of these efforts, LFC was recertified in 2021 as a family-friendly company by the Ministry of Gender Equality and Family.

Flexible working system I LFC has put in place a flexible working-hours system that enables employees to adapt their work schedules to their childcare hours and self-development needs, thereby increasing their job satisfaction while boosting their work efficiency. Furthermore, we adopted the PC-off system in January 2019 to comply with the Labor Standards Act and to increase efficiency during work hours, and introduced an attendance management system in April of the same year to manage the 52-hour workweek system more effectively. In addition, in accordance with our "Pledge to Implement 10 Major Tasks for Work Innovation" of the Ministry of Employment and Labor, we are building a work environment in which overtime is reduced and contacting employees after work hours is strictly restricted.

Encouraging employees to take time off I To create an organizational atmosphere in which employees can freely take time off, we recommend setting the weekday between weekends and public holidays as company-designated vacation days as a way to make long-term breaks possible according to individual employees' wishes. In addition, we support our employees' need for sufficient rest through a system that pays their vacation expenses when vacations are used for more than five days. In 2021, we offered COVID-19 vaccination leave while actively encouraging employees to use family care leave to take care of children in need of assistance.

Certified as a leisure-friendly company I LFC was certified as a leisure-friendly company in 2019 by the Ministry of Culture, Sports and Tourism and the Regional Culture & Development Agency. This qualification will remain valid until 2022. The term "leisure-friendly company" refers to a model company that supports its workers in their efforts to strike a healthy balance between work and leisure. As of 2020, a total of 293 companies were listed as such companies in Korea. We will continue striving to create a corporate culture that values employees' work-life balance and to promote activities designed to support a leisure-oriented life style for our employees.

Outplacement program I LFC runs an outplacement program that provides support in various areas – including life planning, work competency, life management, and future planning – in conjunction with specialized education companies in order to strengthen the psychological stability and re-employment capacity of employees who have retired from our company. So as to broaden access to career change support training and enable more employees to design their post-retirement life, we provide support for taking the career consulting classes which have been newly introduced on LOTTE Group's online paid lecture site.



Encouraging employees to take time off



Introduction of a free seating system

CREATING A HAPPY WORKPLACE

Workplace daycare centers I To create an environment in which working parents can work free from worry, we have established a workplace daycare center, whose operations are entrusted to the Puruni Childcare Support Foundation, a specialized support organization for workplace daycare centers. As of 2021, the 4th year since its opening in 2017, the daycare center is caring for a total of 38 children aged 1-4 years old. We hold regular Daycare Management Committee meetings to listen to and reflect parental requirements.

One-Mind Festival I In March 2022, we held the One-Mind Festival for our employees as part of efforts to strengthen communication between different positions and generations, while creating a positive work environment through organizational revitalization. The event, which is designed for all employees, included information sharing and a Q&A on management status, special lectures by celebrities to revitalize the organization (ways to communicate with, respect, and deepen understanding of the MZ generation), content contests aimed at raising safety awareness and fostering loyalty to the company, and various quizzes. LFC will carry out follow-up work, such as sharing the winning works, to ensure that the event does not end up as a one-off event. We will continue offering communication programs in which any employee can participate without any burden.

Support for club operations I LFC operates a cultural life support system designed to create a pleasant work environment for employees and boost their satisfaction with life at the company. Employees can freely create their own clubs. LFC provides financial support to clubs that meet its internal criteria. As of March 2022, there are 21 clubs, including scuba diving, performance-viewing, soccer, and bowling clubs.

Support for condos and summer resorts I We support our employees' holiday accommodation needs by offering them stays in condominiums and summer resorts every year as part of our practical welfare system, which is designed to help them establish a healthy work-life balance. As of 2021, we have memberships for 19 condos nationwide, and are striving to provide benefits to all our employees by offering them a combined total of 1,715 nights of holiday accommodation. In addition, we supported our employees' summer vacations by offering them accommodation in four leading hotel and residence accommodation facilities in the country for 645 nights during the peak vacation season (July 24-August 23) in 2021.

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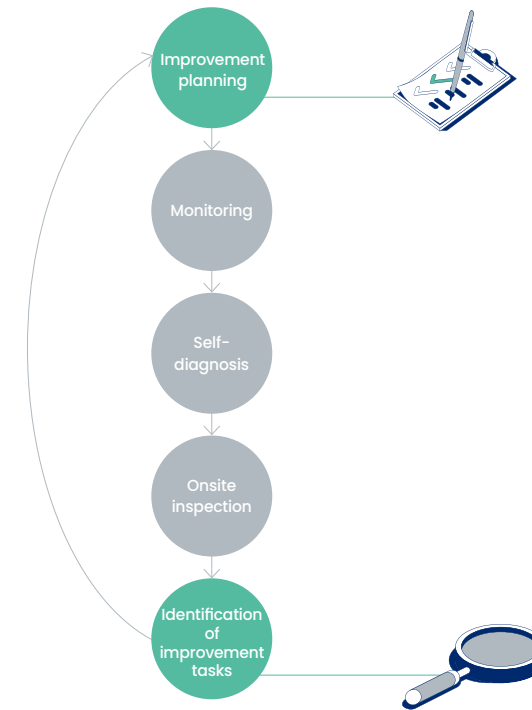
RESPECTING AND PROTECTING HUMAN RIGHTS LFC respects human rights, the basic fundamental rights and freedoms granted to everyone. To this end, we are doing our utmost to establish a sound organizational culture in which all members are fully respected anytime, anywhere, without fear of prejudice, coercion, or discrimination. Furthermore, as a member of the UN Global Compact (UNGC), LFC respects the protection of internationally declared human rights and strives to avoid complicity in human rights violations and to uphold human rights principles.

HUMAN RIGHTS MANAGEMENT SYSTEM LFC respects the human rights of each individual employee in accordance with its human-centered management philosophy and the basic rights regarding human dignity and value, as stipulated in the Constitution of South Korea, throughout all business operations. We prohibit forced and child labor; observe the Minimum Wage Act and Labor Standards Act requiring overtime payment among others; and strictly prohibit discrimination based on academic background, region of origin, gender, age, religion or race. In particular, LFC guarantees the fair treatment of all employees in HR and welfare systems, encompassing everything from employment and assignment, to promotion, wages, training, and retirement.

During the annual statutory training session to raise awareness of human rights, LFC provides human rights training to all its employees through the services of a lawyer to prevent workplace verbal abuse, as well as training on the Act on the Prevention of Workplace Harassment. In order to strengthen our human rights management, we enacted human rights policies for our stakeholders in each sector in 2021 and had the CEO himself elaborate on the contents to our employees to help them internalize the principles of our human rights management. As a result of these efforts, there were no cases of discrimination during the reporting period in 2021, and none of LFC’s business areas ran the risk of violating the freedom of collective bargaining. In 2022, we will conduct “Human Right Impact Assessment” in order to advance our human right management, through which we will assess human right impacts on stakeholders in our value chain and identify risks in advance, in our efforts to prevent related accidents and incidents from occurring.

OPERATING GRIEVANCE CENTER In order to receive reports and resolve various kinds of employee grievances, such as human rights violations, workplace harassment, and discrimination, we launched the Grievance Center, which runs both online and offline reporting channels, in 2019. A grievance counselor is assigned to each business site to ensure a prompt and active response to all reports of grievances. We keep the identity of whistleblowers strictly anonymous to protect them from possible disadvantages such as secondary damages or discrimination. In 2021, we incorporated the existing “Rules on the Handling and Prevention of Sexual Harassment” to enact the “Rules on the Handling and Prevention of Cases of Sexual Harassment in the Workplace” and launched the Grievance Committee to produce detailed procedures for the investigation and handling of such cases.

Working Condition and Human Rights Risk Management Process



LFC’s Human Rights Policies

Employees’ human rights	<ul style="list-style-type: none"> • Prevention of discrimination based on gender, race, religion, disability, or regional origin • Fundamental prevention of unfair labor practices such as forced labor and child labor • Compliance with all the labor principles (/health and safety, working hours, etc.) recommended by the International Labor Organization (ILO) and ratified by the state
Customers’ human rights	<ul style="list-style-type: none"> • Minimum request, record and storage of personal information for legal compliance • Establishment of an effective security system including encryption to prevent information leakage • Limited and responsible use of personal information for service/ marketing purposes
Local community’s human rights	<ul style="list-style-type: none"> • Active participation in social contribution activities in recognition of our corporate responsibility to promote community development • Measurement and management of the potential environmental and social impacts of business activities on local communities
Partner companies’ human rights	<ul style="list-style-type: none"> • Establishment of fair and equal business relationships as partners for win-win growth • Prohibition of discrimination against partner companies’ employees and prevention of forced and child labor in those companies

Grievance/Sexual Harassment Prevention & Handling Process



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Labor-Management Culture based on Mutual Trust

STRENGTHENING EMPLOYEE COMMUNICATION LFC has established a wide range of online and offline channels to cultivate a strong communication culture and an open and productive work environment, while striving to promote constant communication between labor and management with the aim of improving labor-management relations continuously.

Mentoring program | LFC runs an in-house mentoring program for new recruits to help them adapt to the organization as quickly as possible. The four-month program is designed to deepen new recruits' understanding of the company and their duties through various experiences in and outside the company. The mentors, who are chosen in consideration of the characteristics of the new recruits' work and job positions, share their insights with the new generation and also learn to communicate with them through a reverse mentoring program.

In-house communication portal | LFC shares management and company news, useful daily life information, and information on employees' family events and club events through "Soh-tong Insight", an internal online communication portal. Notably, employees can freely communicate with management and resolve their difficulties through "Soh-tong Avatar", an anonymous bulletin board. LFC also strives to communicate with customers and potential employees through various social media channels.

Employee events | LFC hosts employee events through the in-house communication portal to promote mutual communication among employees and spread a positive corporate culture. In 2021, we launched "YOULUCS" (YOU are my LUCKy Star), a quarterly event in which employees share messages of appreciation and praise other employees, while sharing outstanding stories on the intranet as part of the effort to build a corporate culture of praise and encouragement. In addition, we held various non-face-to-face events in consideration of the COVID-19 situation, such as the "Guerrilla Safety Culture Quiz" on mobile devices, as part of the programs designed to disseminate the company's major policies to employees more effectively in 2021.

Voice of employees | In order to listen to the voices of its employees, LFC conducts an annual survey of employees' satisfaction with the corporate culture and their work engagement, and then reflects the results in HR policies and employee training plans. In 2021, based on the results of the survey, we changed work clothes to casual wear, introduced a multi-faceted evaluation as required by employees, and offered job and leadership training sessions and organizational revitalization events in a non-face-to-face way in consideration of employees' educational needs and areas of improvement.

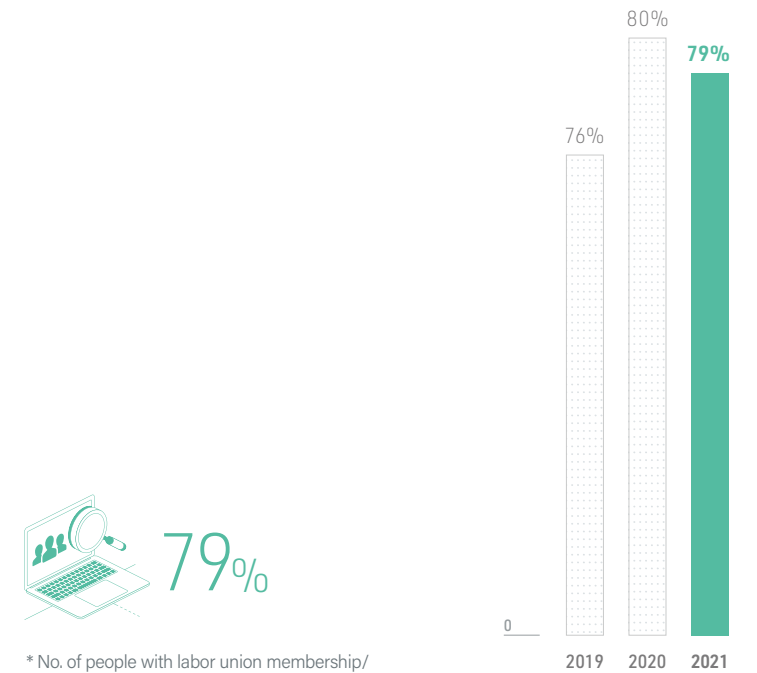
BUILDING A WIN-WIN LABOR-MANAGEMENT RELATIONSHIP

Labor union | Established in 1971, LFC's labor union continues to practice various labor-management joint programs aimed at promoting win-win labor-management relations under the vision of a "creative partnership". All employees in assistant manager or lower positions are eligible for membership pursuant to the collective agreement, and they can freely join and leave the union as and when they please. As of the end of 2021, the membership stood at 440, accounting for around 79% of the employees eligible for union membership.

In February 2022, marking the 50th anniversary of the establishment of the labor union, LFC held a commemorative event to establish an even stronger labor-management partnership for win-win growth. We held the event as a non-face-to-face online live broadcast to comply with the COVID-19 quarantine guidelines and prevent the spread of the virus. In addition to our employees, guests from all walks of life, including key figures from Ulsan's labor circles, attended the event and expressed their support for the company's development based on labor-management harmony.

Labor-management council | In order to promote dialogue between labor and management and to reflect the needs of its employees, LFC holds the Labor-Management Council, a regular labor-management communication channel, once a quarter. In 2021, the Council, which is composed of ten members from each of management and labor, respectively, discussed 27 items of agenda as well as various other practical topics and took the necessary follow-up measures. We also make concerted efforts to reflect voices in the field in our business management on the basis of constant communication and discussion between working-level personnel, among others.

Labor Union Membership



* No. of people with labor union membership / No. of employees eligible for union membership (assistant manager or lower positions)



Poster encouraging employee participation in "YOULUCS"

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CREATING A HEALTH & SAFETY CULTURE

Health and Safety Management

HEALTH AND SAFETY MANAGEMENT SYSTEM Based on the consensus of the company and all its employees on the importance of safety, LFC continues to improve its safety value by applying cast-iron safety standards based on our global-level on-site safety management practices. We have acquired the ISO 45001 health & safety management system certification, and operate our safety management system in accordance with international standards. In this respect, we are striving to realize our vision of “a workplace that is free of accidents, pollution, and illness” by introducing and implementing a clear and concise process for dealing with the causes of occupational accidents.

As industrial safety-related laws are being strengthened and corporate responsibility for safety is increasing, we aim to reinforce our health and safety management at the governance level by setting an annual health and safety plan and having it approved by the BOD, the company’s highest decision-making body. In 2022, we plan to reinforce our safety and environmental capabilities, which are crucial in the chemical industry, by focusing on three strategies – achieving zero serious accidents, building a safety culture, and improving partner companies’ safety level – in a drive to raise employees’ safety awareness, intensively promote improvement tasks by sector, and realize the safest workplace by leveling-up our safety management system.

HEALTH AND SAFETY ORGANIZATIONS In order to continuously advance our health and safety management and respond to the strengthening of safety-related laws such as the Serious Accident Punishment Act, in 2021 LFC appointed a Chief Safety Officer (CSO) directly under the CEO to establish and promote company-wide safety and environmental policies. The reorganization ensures that the CSO is in charge of company-wide safety and environmental management as the head of the SH&E Management Team. In addition, we launched the Safety and Health Management Committee to provide advice on health and safety management while checking the status of our responses to the Serious Accident Punishment Act and our system designed to fulfill the obligation to secure health and safety. We also formed an organization dedicated to environment and safety as an independent unit at each site to take charge of on-site health and safety management with the support of a Safety and Disaster Prevention Team.

Safety Management Directions to Strengthen Preventive Capabilities

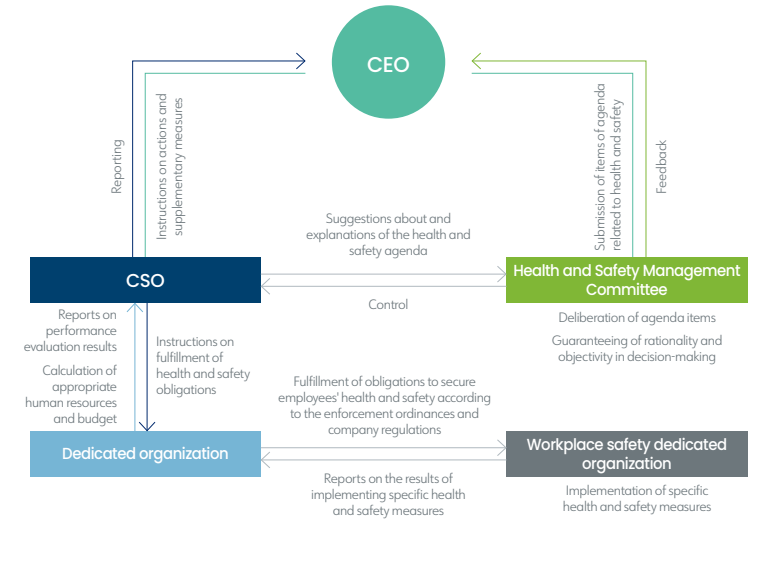
Increasing employees’ safety awareness and focusing on improvement tasks by sector	Realizing the safest workplace by levelling-up the safety management system
Fostering employees’ safety awareness/culture - Hold a safety week regularly (more than twice a year) - Intensify safety education and training for employees Promoting the CEO’s health and safety management activities - Establish and implement the CEO’s health and safety management activity plan - Simultaneously promote activities by the person in charge of business site management Promoting the CEO’s key improvement tasks - Select and implement improvement tasks among departments’ pending issues - Continue discovering key improvement tasks for each department Complementing the response system - Derive supplementary matters according to the results of consultation by law - Establish the health and safety management and fulfillment system	Enhancing engineers’ leadership in the field - Secure engineers’ plant operation capabilities - Reinforce the on-site safety patrol system Integrating the management of the health and safety system - Align legally required supplementary measures with the system - Use “365 Calendar” ¹⁾ to strengthen field activities Achieving regular disaster/accident-free maintenance activities - Operate the regular maintenance TF under the Manufacturing Group - Promote smart maintenance on a regular basis Upgrading safety evaluations - Promote the upgrade of LOTTE Group’s sustainability evaluation - Lay the foundation for upgrading the PSM - Manage the external ESG-related evaluation indexes

¹⁾ Registration of all tasks in the calendar system and management of their regular/periodic execution

2022 Plan for Health and Safety Management

Preventing serious accidents	Improving safety culture	Enhancing competencies of partner companies
<ul style="list-style-type: none"> • Intensive management of three major types of accidents <ul style="list-style-type: none"> - Hazardous material contact accidents: Apply an open work management plan - Fall accidents at height: Implement the “Safety STOP” system - Power machine injuries: Implement a third-party check of power status before work • Response to liabilities under the Serious Accident Punishment Act <ul style="list-style-type: none"> - Apply the compliance system - Respond to 14 types of responsibilities 	<ul style="list-style-type: none"> • Continuous enforcement of the basic safety rules <ul style="list-style-type: none"> - Start with the easiest rules in order to make safety a habit - Implement the “Comply with the Basic Safety Rules” campaign following “Walking Safety” in 2021 • Considering the application of DT-based safety technologies <ul style="list-style-type: none"> - Consider gas measurement in confined spaces, and management of education history • Epidemic management <ul style="list-style-type: none"> - Maintain ZERO in-house transmission by strengthening management according to the government’s quarantine guidelines 	<ul style="list-style-type: none"> • Expansion of standards for one-person works <ul style="list-style-type: none"> - Standardize work methods by individual - Conclude the application of green material partners for 2021 - Expand it to all partners in the first half of 2022 • Implementation of the safety manager certification system <ul style="list-style-type: none"> - Strengthen the competency of partner companies’ on-site safety managers - Issue certification upon completion of training and evaluation • Invigoration of Partner Company Development Council <ul style="list-style-type: none"> - Share safety information and conduct discussions (monthly) - Focus on resolving partner companies’ difficulties

Health and Safety Management Implementation System



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Safety & Health-related Councils

Meeting name	Hosted by	Frequency	Attendee	Main issues
Safety and Health Management Committee	CEO	Biannually	CEO, internal members (CSO, head of the Manufacturing Group, etc.), external members (lawyers, etc.)	System to fulfill the obligation to secure health and safety; and checking the status of responses to the Serious Accident Punishment Act
CEO-led Meeting	CEO	Weekly	CEO, Head of the Manufacturing Group, executives	Reporting on the implementation status of key execution tasks; sharing of key safety and environmental issues and trends
Plant Weekly Meeting	Head of the Manufacturing Group	Weekly	Head of the Manufacturing Group, executives, heads of departments	Reporting on the implementation status of detailed execution tasks
Reporting on the implementation status of Plant Safety & Environment Meeting detailed execution tasks.	Head of the Manufacturing Group	Monthly	Head of the Manufacturing Group, executives, heads of departments	Sharing of the KPIs of key safety & environmental performance and trends.
Occupational Safety and Health Committee ¹⁾	Occupational Safety and Health Committee	Quarterly	Labor-management members of the Occupational Safety and Health Committee	Discussions on the safety & environmental policy between labor and management, along with measures to correct deficiencies.
Working level meeting	Occupational Safety and Health Committee	As needed	Labor representatives of the Occupational Safety and Health and, members of the Safety Management Team	Examination and discussion of safety & environmental deficiencies.

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

Internalization of Safety Culture

OPERATING THE SAFETY CULTURE TF LFC launched the "Safety Culture TF" with the aim of improving its safety culture across all its business sites. In accordance with LOTTE Group's Chemical Unit's policy of levelling up its safety culture, LFC is promoting five major tasks including the formation of a dedicated organization, improvement of safety awareness, reinforcement of subcontracting management, renewal of safety regulations, and enhancement of facility management in vulnerable areas. In 2022, we plan to focus on basic safety protection and internalization of the safety culture for each position, while making it mandatory for all work processes to follow the safety rules.

INSPECTION OF CURRENT STATUS TO PREVENT MAJOR ACCIDENTS In order to effectively respond to the Serious Accident Punishment Act, which came into force on January 27, 2022, while checking the system designed to prevent serious accidents, LFC has assessed the status of its response to major accidents in conjunction with a law firm. We reviewed about 200 internal data related to safety and environment and conducted a self-diagnosis based on 189 risk factors involved with laws and regulations in order to derive 21 tasks. We are also striving to realize accident/disaster-free management by acting on them with a view of making continuous improvements and taking necessary improvement measures.

CONDUCTING SAFETY EDUCATION To raise our employees' safety awareness and encourage them to make voluntary safety management efforts, we set monthly themes, conduct regular safety training, and promote discussion about major safety-related issues. Moreover, through our internal communication channels, we send regular warnings to employees about health, safety, and environmental issues, as well as sharing and disseminating information on equipment maintenance and personal and public health so that they can respond promptly in the event of an accident. We will continue to implement safety education and promote information sharing in order to establish a "safety-first" culture and help minimize the occurrence of accidents due to human error.

SAFETY GOLDEN RULES Due to their innate characteristics, chemical plants have a high risk of large-scale accidents caused by minor mistakes. Recognizing that the cause of a large-scale accident is often a small mistake or simple disregard for the basic procedures and principles, LFC established the "Golden Rules of Safety" – eight safety principles that are the core principles of our on-site safety management – after considering the characteristics of our business and workplaces, so that we can build a voluntary safety culture and strengthen our preemptive safety management practices. We have increased the effectiveness and visibility of the Golden Rules of Safety by presenting them in the form of keywords and pictograms. We have made them highly visible throughout the company in an effort to actively encourage our employees to internalize them. Based on the newly-established Golden Rules of Safety, our employees are actually following rules which they chose and determined, rather than rules set by the Safety Management Division or according to the Group policy, and they are joining forces to establish the strongest safety culture in the industry.

Advancement of On-site Safety Management

OPERATING SAFETY INSPECTION THEMES We select four safety inspection themes and conduct intensive inspections according to the selected themes on a monthly basis. In 2021, we conducted inspections on 65 themes, including wastewater, gas equipment, firefighting equipment, filling equipment, and asbestos management, and detected 345 problems, all of which we have since resolved. To raise awareness of safety across the company, we summarize the results of our activities and post them on our in-house "Soh-tong Insight" portal as well as disseminating them via our regular health and safety training and e-mail. Going forward, we plan to establish and implement a detailed annual plan on monthly themes and activities related to the safety of our business sites, and we will also carry out themed training on the following month's activities during the regular safety training in an effort to raise employee's interest and participation in corporate activities.

SAFETY MANAGEMENT BASED ON BEHAVIOR BETWEEN TASKS The previous on-site work permit, which focused on the pre-work preparation status, left business sites open to risks of improper management after the commencement of work. Therefore, we shifted the focus of our attention on safety management from work preparation (unsafe state) to work performance (unsafe behavior) so as to achieve more intensive management of our work performance per se. By conducting safety inspections during work, we can now check our safety levels separately before, during and after work, thus enabling us to prevent the kinds of safety problems that could arise from such a practice and raise the level of work management. Furthermore, in order to minimize the risk of serious occupational accidents during work, we plan to simplify and clarify our standards for safety gear, operate a safety patrol focused on preventing fall accidents, and establish a safety management system to achieve zero accidents throughout our maintenance and repair services.

Incheon Plant Wins the Minister's Award at the Korea Safety Award

On October 14, 2021, the Incheon Plant won the Minister of the Interior and Safety Award at the 20th Korea Safety Award hosted by the National Fire Agency. The Korea Safety Award is given to corporate facilities that operate outstanding safety and environmental systems and exceptional safety culture practices, and have not suffered any fire-and-disaster-related damages in the previous three years, and whose industrial accident rate is below the industry average. Our Incheon Plant was granted the award in recognition of its achievements, such as the regular emergency training and drills it holds in collaboration with the Incheon Industrial Complex Fire Station, its provision of fire safety supplies to fire-vulnerable communities, its empowerment of partner companies to establish a health and safety culture, and its conduct of systematic internal safety level evaluations.



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Support for Partner Companies' Health & Safety Management

One very important element in minimizing occupational accidents at our business sites is the health and safety management of not only our employees but also that of partner companies. LFC has been therefore supporting the establishment of the health and safety management system (KOSHA 18001) at our in-house partner companies since 2014, with the goal of achieving accident-free business sites through win-win cooperation. Our health and safety management system enables the employees and teams of our partner companies to assess risks according to the scope and content of their work, to voluntarily establish and execute measures for reducing risks, and to examine their effectiveness using the "Plan-Do-Check-Action" cycle.

From 2014 to 2021, we supported the establishment of health and safety management systems for seventeen partner companies, while helping newly contracted partners to acquire certifications of their health and safety systems. We support follow-up and renewal evaluations so that our partner companies can properly maintain their health and safety management systems. We also provide incentives to outstanding partner companies according to the results of our quarterly inspection of their performance, thereby encouraging them to strengthen their commitment to health and safety management.

In 2021, LFC launched the "Safety Manager Certification System" under which safety management qualifications are granted only to those safety managers of our partner companies who have passed our safety education and assessment thresholds, as part of our efforts to help our partner companies enhance their safety managers' competencies. In addition, we are reinforcing the safety of our workplaces based on solid cooperation with our partners by offering incentives to those suppliers who discover their on-site risks and act on them on a monthly basis.

Employee Health Management

HEALTH MANAGEMENT PROGRAMS

Management of work environments I LFC has established specialized agencies to diagnose its work environments twice a year in order to identify and manage the level of employees' exposure to harmful factors at its workplaces. In addition, we are applying in-house standards that are higher than the legal standards so as to enable our employees to work confidently in pleasant and much improved work environments.

Health management support system I We support our employees with their medical expenses on an annual basis. We support comprehensive health check-ups for employees over the age of 30 and help them detect diseases early by allowing special tests to be added to suit their health status in addition to the basic test items. We also operate a comprehensive medical expense support system that covers not only our employees but also their spouses, direct relatives and lineal descendants. We have also improved the flexibility of our health support system so that our employees can opt either for case-by-case settlement or a semi-annual compensation system to further boost their satisfaction with the system.

Our Ulsan Complex runs a health management center where employees can undergo a health checkup or receive a health consultation whenever necessary. It appoints an occupational health care provider from a local university hospital to carry out employee health management and conduct education on occupational diseases for each department. As for the Incheon Plant, it is not required to appoint a health manager according to the Occupational Health and Safety Act, yet it has signed a contract with a specialized hospital in 2022 to conduct health counseling for its employees once a month, among other services, in a bid to secure health counseling and occupational healthcare for its employees.

Psychological counseling center I We operate the "Do Dream" psychological counseling center at our Ulsan Complex to help employees effectively overcome the various types of stress that can arise in their daily life both at work and home. Staffed by a professional counselor, the center not only offers psychological counseling but also conducts various types of psychological tests and runs organizational communication activation programs, meditation programs, and book rentals with the aim of supporting our employees' mental health. The counselor regularly visits our Seoul and Incheon business sites to eliminate any blind spots in our mental health support services. Upon request, the expert provides a wide range of company-wide services including psychological counseling programs for our employees' families as well. We also deliver information on mental health through a monthly internal mail and an online bulletin board, while providing information on, and offering, psychological tests and meditation programs. To take the COVID-19 situation into consideration, we have introduced a psychological counseling program, enabling our employees to receive counseling services anytime, anywhere.

Preventing the spread of COVID-19 I LFC is making concerted efforts to prevent the spread of COVID-19 and create a safe working environment. Based on our in-house disease control regulations, which exceed the government guidelines, we are striving to prevent the spread of the COVID-19 virus at our workplaces. As quarantine support activities, we provide various forms of material support including the regular disinfection of work spaces at each business site, installation of hand sanitizers for personal quarantine, distribution of masks, support for PCR test fees, and accommodation expenses associated with the separation of COVID patients. In addition, we are effectively preparing for emergencies by establishing and implementing business continuity planning (BCP) for infectious diseases to minimize disturbances caused by cases of COVID-19.



Psychological counseling center



Preventing the spread of COVID-19



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WIN-WIN GROWTH WITH PARTNER COMPANIES

Win-Win Growth System

LFC has implemented five key strategies aimed at promoting win-win growth – improving work processes, strengthening personnel capabilities, improving quality, reducing costs, and strengthening market sensing – in order to establish fair cooperative relationships and win-win growth with its partners. To ensure fair and transparent business transactions when trading with other companies, LFC applies a standard contract on major contract changes, etc. after receiving confirmation from the Compliance Department, while executing a fair trade agreement with them. In 2021, we selected regular meetings with our suppliers, the expansion of long-term contracts for stable business operations, and the provision of support for online learning as our priority tasks for win-win growth, and made concerted efforts to complete them.

Partner Company Evaluation

POST EVALUATION OF PARTNER COMPANIES In 2021, LFC selected outstanding business partners and offered them various incentives, including priority contract renewal, in order to consolidate good relationships with our partners and based on our commitment to win-win cooperation and joint growth. They were chosen according to the results of partner company post evaluation system, upgraded in 2020, mainly consisting of work performance, environment and safety, and cooperation. By considering each partner company's characteristics in configuring the evaluation items and allotted points, we are further enhancing the fairness of the evaluation.

Environmental impact assessments I We conduct environmental impact assessments of the activities of all our in-house and outsourcing partner companies that perform logistics, manufacturing management, manufacturing, or subcontract work based on their individual contracts with us. We provide outstanding companies with various incentives, such as priority in signing a contract, according to the results of their evaluation. For partner companies whose business operations have negative impacts on the environment, we assist them with establishing and implementing improvement and management measures aimed at preventing and reducing such impacts.

Business Partner Support Programs

FINANCIAL SUPPORT LFC pays in cash, not drafts, to expedite payments to its partner companies. In particular, for small and medium-sized enterprises (SMEs), it completes payment within 15 days of closing the tax invoice. In addition, we have introduced a system of early payment for suppliers that urgently need funds during the year-end, New Year holidays, and major other holidays. In 2021, we paid KRW 26.5 billion in advance to 283 SME partners at the Lunar New Year and Chuseok, which are two major traditional Korean holidays.

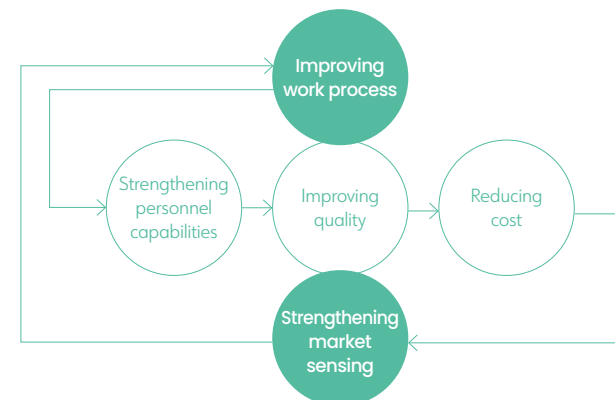
Win-win cooperation fund I To promote shared growth through win-win cooperation between large/medium/small-sized companies and financial institutions, LFC arranges for its recommended partner companies to receive financial support from the Win-win Cooperation Fund, which is created from loan funds. In March 2020, we signed an agreement with Woori Bank to provide financial support to our partner companies. According to the terms of this agreement, we deposit KRW 7 billion for one year at the interest rate, and deduct the preservation interest rate from the market real term deposit rate, so that the Bank can provide preferential loans and interest rates for our partner companies. Woori Bank provides loans to our partner companies with a limit of KRW 14 billion, which is double the amount deposited by us, and operates a preferential loan interest rate system in accordance with the Bank's preferential standards. Through this system, our partner companies are expected to secure financial resources for their operations and facilities at lower interest rates than those offered by the market.

SUPPORT FOR CAPACITY BUILDING LFC provides training on health, safety, and the environment to in-house partners working at its production sites in order to help them secure extensive business expertise and build a safe workplace. To improve the knowledge and competency of our partner companies' employees, we have been operating a new online training program called "Win-Win Growth Academy" since 2021. As of March 2022, we are providing 18 partner companies with various courses on business management, leadership, language studies, and intensive courses on job skills, in the hope of realizing win-win growth driven by partner companies' enhanced capabilities.

COMMUNICATION WITH PARTNER COMPANIES In order to strengthen communication with our partner companies as one of ESG initiatives, we have held win-win growth meetings to listen to the voices of the staff in charge of packaging, production, and manufacturing management since 2021. We endeavor to actively reflect the opinions and views they express in these meetings upon renewing their contracts with us, while promoting our new programs for strengthening our support for partner companies to increase their participation in them, and improving their access to the programs so as to ensure practical support.

In addition to win-win growth meetings, we collect partner companies' grievances through the "Shinmungo" online reporting system, managed by the Ethics Management Team. We guarantee the confidentiality of user's identity and reporting content, so that they can express their opinions without fear of disadvantages.

Win-win Growth Strategies



Items for Post Evaluation of Partner Companies

Category	Detailed evaluation items
Work performance	<ul style="list-style-type: none"> • No. of process and product issues • Level of productivity (yield) • Innovation efforts
Environment and safety	<ul style="list-style-type: none"> • Mandatory health and safety education • Emergency drills and preventive measures • Safety self-inspection and activities • Performance in environmental impact assessment
Cooperation	<ul style="list-style-type: none"> • Compliance with the settlement process • Cost reduction proposals

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QUALITY INNOVATION AND CUSTOMER SATISFACTION

Quality Management System

LFC has been making continued efforts to upgrade quality management system toward its goal of “Securing Global Top-tier Quality Competitiveness”. With the aim of securing the level of quality competitiveness essential for customer satisfaction, we maintain quality-related certifications such as ISO 9001, Halal, and Kosher, while further reinforcing our own quality management infrastructure and capabilities. At the same time, we are continuously strengthening our quality process audit activities, such as implementing measures to prevent the recurrence of customer complaints, managing production processes, and focusing on the improvement of nonconformities. Going forward, we will consolidate the foundations for proactive quality management as part of our efforts to stabilize quality and further improve our quality competitiveness.

Strategic Direction for Quality Management



Quality Improvement Activities

QUALITY PROCESS AUDITS To address customer complaints and inappropriate matters, we conduct quality process audits during which we reexamine our quality management system and inspect the way we work on our established quality assurance processes. In so doing, we also check whether our production activity-related processes, inspections, and operation processes are being effectively executed, thereby examining the reliability of the products and services we provide to our customers, as part of our efforts to establish a culture in which our employees perform according to well-established standards and procedures. As a result of the quality process audit conducted in 2021, we identified 37 areas of improvement and worked on resolving these issues properly. In the future, we will continue to conduct improvement activities based on our quarterly key themes as we conduct strict process audits.

STRENGTHENING QUALITY MANAGEMENT OF RAW AND SUBSIDIARY MATERIALS Each business division of LFC promotes quality management in consideration of the characteristics of raw and subsidiary materials, chemicals, and catalysts they use. Moving forward, we will continue establish and manage a quality verification system for raw materials and products in their early stages of introduction, while also applying it to a new materials/supplier certification process to strengthen our quality management of key raw and subsidiary materials as well as our management of the relevant partner companies.

We will also improve product quality and supply stability through rigorous quality verification in relation to the diversification of core raw materials sourcing companies.

EXPANDING PROCESS INSPECTION AND QUALITY MANAGEMENT

In 2021, we extended the use of the automatic on-site analyzers introduced in the previous year to all our green material plants in a drive to continuously improve our process quality management. The installation of the analyzers has eliminated risks involved with taking and moving product samples, thereby enabling us to establish a process that satisfies both safety and quality requirements.

SECURING CERTIFICATIONS THAT REFLECT THE NEEDS OF OVERSEAS CUSTOMERS

As of 2021, LFC maintains the Halal¹⁾ certification, a Muslim practice, for eight types of chemicals and two types of green materials. With the Halal certification, we have bolstered our product reliability by meeting the needs of Muslim customers, who make up 25% of the world's population. In particular, about 80% of the Muslim population resides in Asia and the Middle East. The maintenance of this certification is therefore essential for the promotion of green materials in new markets in those regions, and is also expected to contribute to expanding our market presence.

¹⁾ A generic term for products that are strictly produced according to Islamic law and allowed to be consumed by Muslims

Directions to Ensure Quality

2017	Strengthening of external quality certifications and expansion of leading quality management	Strengthening of quality certifications - Acquired the revised ISO 9001:2015 certification - Newly acquired the KOSHER, HALAL certifications for chemical products (ECH, PTAC 65%/69%, anhydrous DMA, DMA 50%, 60%)	Expansion of quality improvements - Improved chemical and toner quality indices - Expanded the application of leading quality management (products → raw materials) - Continued to implement quality improvement programs
2018	Quality verification of products produced at the newly expanded facility, and increased support for urea solution technology	Quality verification of products produced at the newly expanded facility - Chemicals: Completed creation of urea solution production and packaging line, and quality certification audit and product quality verification - Green materials: Completed capacity expansion of green materials such as MECCELLOSE® and HECCELLOSE®, and evaluation of quality uniformity and performance of initial products - Toner: Completed expansion of automation of toner manufacturing facilities, and verification of foreign substance blocking and quality equivalence before/after change	Increased support for urea solution technology - Supported analysis of urea solution in base tank and gas station - Provided support and guidance for the use of onsite concentration analyzer (refractometer) - Provided technical materials requested by customers
2019	Quick response to customer demands and strengthened support	Increased customer support by providing property and harmful substance-related materials	Strengthened response capacity to stricter international environmental regulations
2020	Enhancement of non-face-to-face quality management amid the COVID-19 crisis	Non-face-to-face inspection and management of raw material suppliers - Conducted remote inspections according to the characteristics of raw materials/ manufacturing methods	Introduction of process analyzer for each plant - Adopted automatic remote/real-time on-site gas analyzers for recovered gas in manufacturing green materials
2021	Strengthening of on-site quality control for quality improvement.	Improvement of the process/product quality check checklist and unannounced/planned inspections - Operated a regular consultative body to improve the results of on-site inspections	

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Enhancement of Customer Satisfaction

RESPONDING TO VOICE OF CUSTOMERS To respond promptly to voice of customers (VOCs), we have established a customer response system that links all areas such as sales, production, quality and research, while identifying the causes of problems and deriving methods for improving or resolving them based on a detailed analysis of the customer requirements thus collected. In 2021, we developed a checklist of measures for improving the claims raised by our customers over the previous five years and reflected it in our regular/unplanned on-site inspections, which resulted in a decrease in the number of customer complaints from 11 in 2020 to 2 in 2021. In particular, we will respond to the growing customer demand for urea in a timely manner while continuing to strengthen quality management system to improve customers' trust in all our product lines.

Better Response to Customer Feedback on EUROX® | We systematically manage VOCs for EUROX® received through such channels as the EUROX® website and the ARS in our EUROX® order management system, and make continuous improvements including the promotion of prompt VOC handling by our technical support personnel.

In 2021, six out of 87 consumer inquiries about EUROX®, urea solution for vehicles, concerned poor packaging. To address this issue, we upgraded 27 packaging processes from 2020 to 2021. We also evaluated the effectiveness of improvement measures implemented over the last five years, and are currently promoting their standardization and quarterly in-house audits to prevent the recurrence of the related issues. Furthermore, by conducting in-house audits, we improved 10 shortcomings in 2021, such as reducing the packaging defect rate by 83% compared to 2020, thereby further improving customer satisfaction.



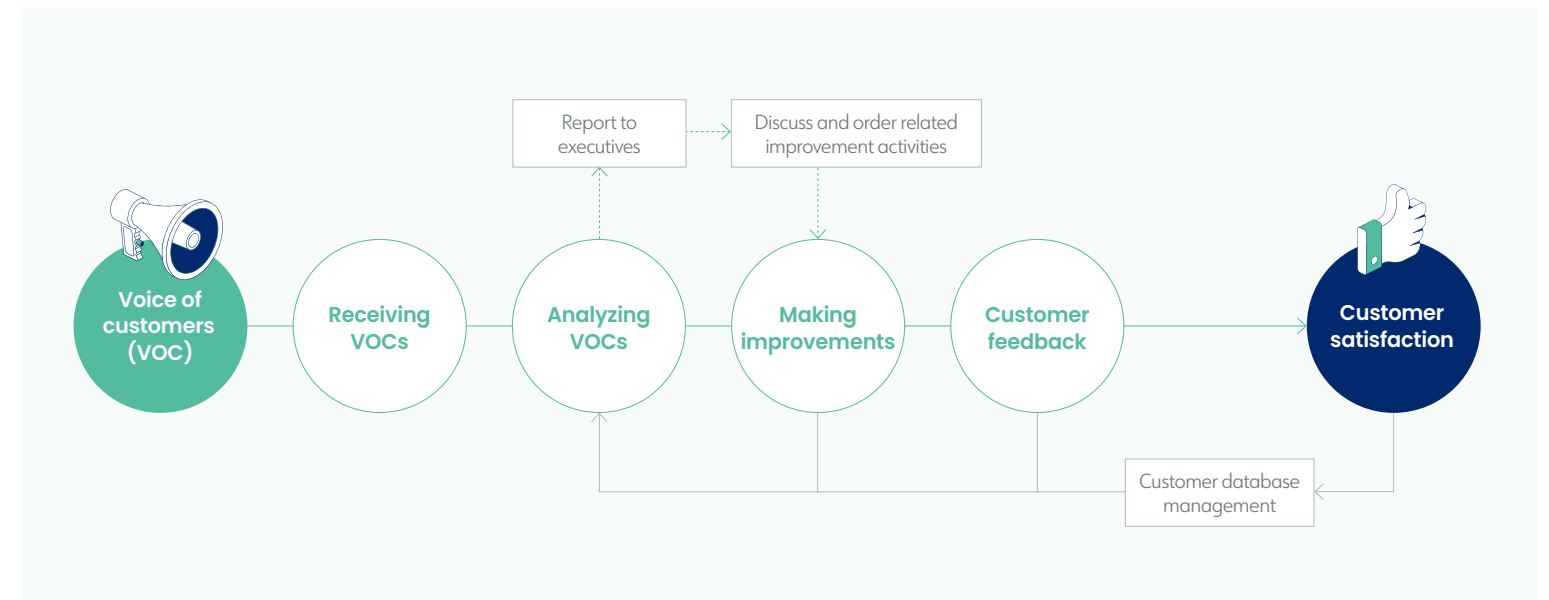
Customer Data Protection

As digital transformation has a significant impact on corporate competitiveness in line with the advent of Fourth Industrial Revolution and the prolonged COVID-19 pandemic, information protection is emerging as an important management issue while growing threats, such as cyber-hacking, are leading to stricter regulations. With the increasing risk of data breaches and misuse in line with the development of ICT, LFC has established a strong corporate information security policy and system that exceeds the legal requirements, with which all our employees strictly comply, while maintaining the ISO 27001 certification, an international standard for information protection systems, acquired in 2017.

INFORMATION PROTECTION IMPLEMENTATION SYSTEM

LFC has formed an organization dedicated to data protection and adopted the highest level of protection measures in accordance with the relevant laws including the Personal Information Protection Act. In addition, based on the LOTTE Group's integrated control system, we have established and operated a system that allows us to respond quickly and accurately to information security issues. We conduct IT vulnerability checks once a year to determine whether our website and established systems have any information security vulnerabilities, and take the necessary corrective actions immediately.

VOC Response System



VOC Status by Product

(Unit: Case)

	2019	2020	2021
Toner	23	9	10
Green materials	68	96	46
Chemicals	190	305	260
Total	281	410	316

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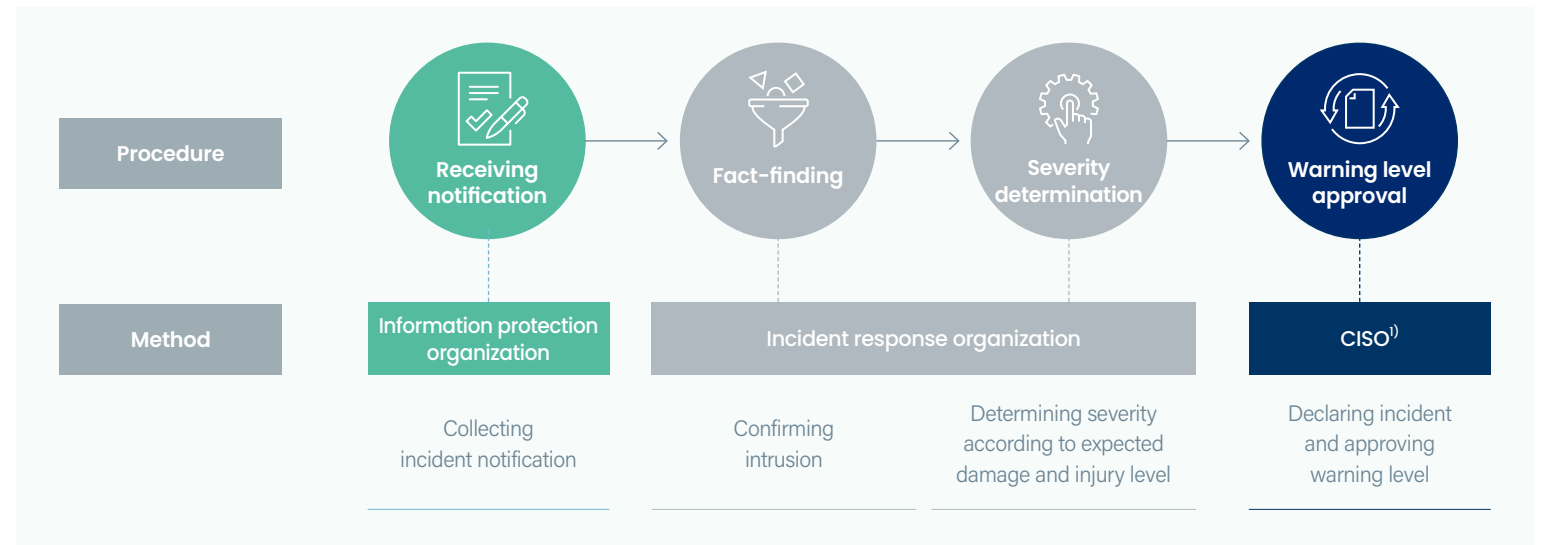
INTERNALIZING INFORMATION SECURITY To raise our employees' awareness of the overriding importance of information protection and to implement the safe management of personal information, we conduct thorough management and supervision along with regular training. We hold the quarterly "Clean Office Day" on which physical security inspections of document and facility security, among other things, are conducted in the workplace with the aim of encouraging our employees to practice security in their daily life, as well as conducting a quarterly phishing attack simulation to prevent the risks posed by infection with computer viruses. In addition, we have designated the first Monday of each month as "Information Protection Day" to share new incidents and precautions related to information security through the internal communication portal and company-wide e-mail messages and draw attention to the issue, thereby continue achieving zero security incident.

MONITORING CUSTOMER INFORMATION LEAKAGE LFC has built a personal information management system and monitors personnel responsible for handling personal information to prevent leaks, forgeries, and falsifications of personal information. We immediately notify customers in the event of data breaches and take all necessary measures to minimize the damages according to our established accident response plan. Thanks to these efforts, there was no incidents or accidents related to customer information leakage in 2021.



ISO 27001 certification

Response Process to Information Breach



¹⁾ Chief Information Security Officer



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SOCIAL CONTRIBUTIONS

CSR System

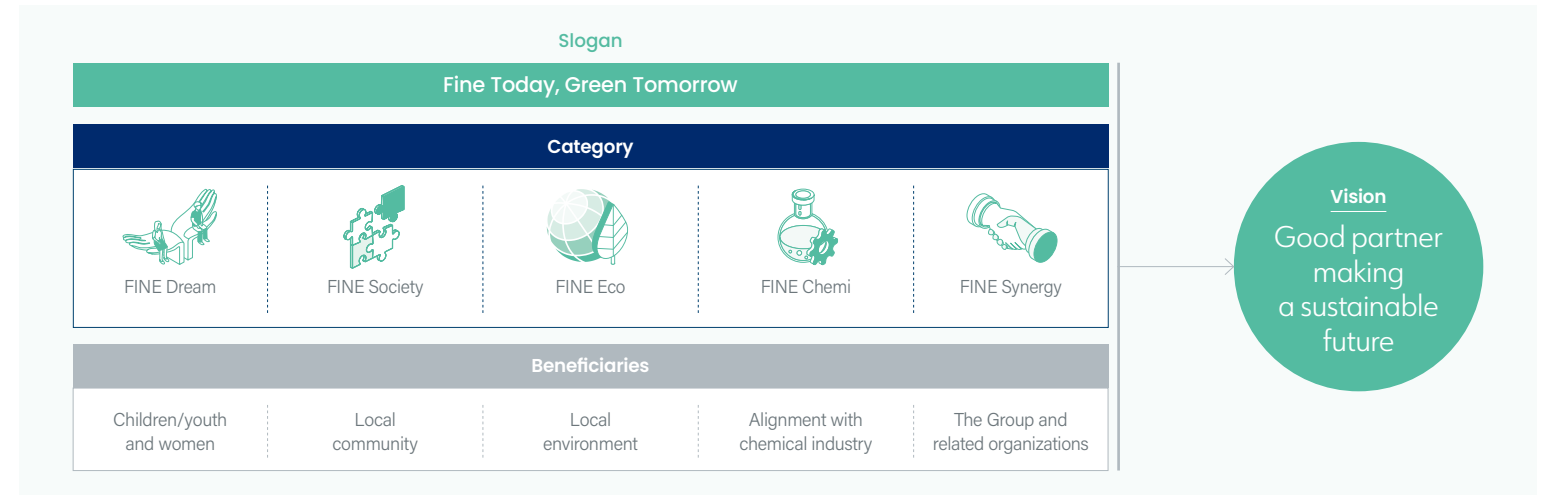
CSR IMPLEMENTATION STRATEGY To better respond to ESG management trends and in order to promote CSR activities by leveraging our business expertise, LFC established new CSR vision as a “Good partner making a sustainable future” at the end of 2020 and announced the related promotional strategies. We are carrying out systematic social contribution activities through customized support programs for each of the following five key areas – children/youth and women; local community; local environment; alignment with the chemical industry; and collaboration with LOTTE Group and other related organizations. In 2021, we diversified our CSR activities in line with the latest trends, expanded activities related to the chemical industry, and launched firefighting agency-linked projects to enhance safety in our local communities.

In 2022, beginning with the successful holding of “Idea Contest for Contribution to Local Communities”, we will develop new social contribution programs based on the opinions of local stakeholders. In addition, we will make plans and implement various programs designed to encourage employee participation which was reduced due to COVID-19, with an aim to increase the participation rate from 44% in 2021 to be more than 60% in 2022.

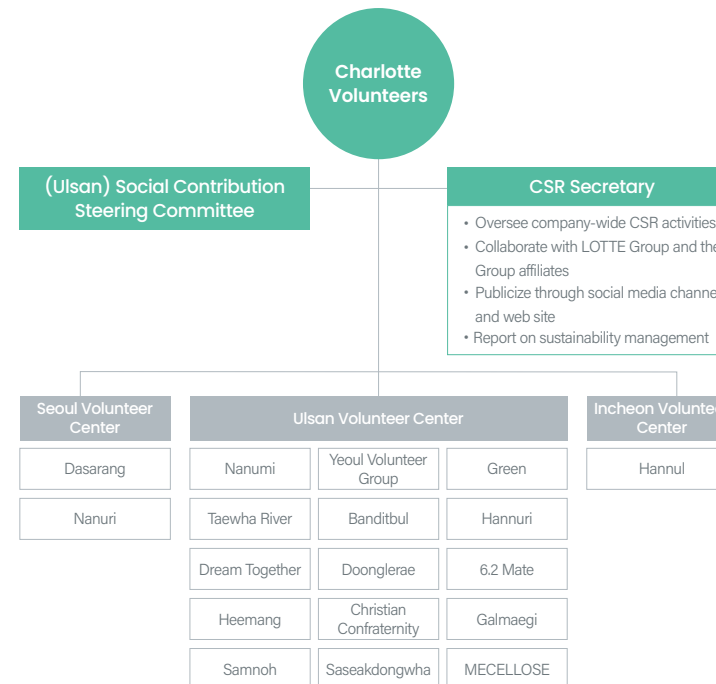
CSR ORGANIZATION At LFC, the CSR Secretary plays a central role in operating funds and setting strategies for social contributions, while each business site operates specialized volunteer teams for various CSR programs to carry out its CSR activities efficiently. Furthermore, to encourage employee participation in the company’s CSR activities, LFC holds the annual “Volunteer King Awards Ceremony” at which selected employees with an outstanding volunteering performance are presented with awards.

SOCIAL CONTRIBUTION FUND LFC’s Social Contribution Fund consists of “employee donations” and a “matching grant” with which the company provides funds equal to employee donations, and “other contributions made by the company” for national disaster relief and local community development. In 2021, we collected KRW 1,764 million in social contribution funds and used it for various social contribution activities.

CSR Strategy



Organization for CSR Activities



Social Contribution Fund



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Key CSR Activities



FINE Dream

Book donation I To improve children's reading environment and contribute to revitalizing the reading culture, we have donated 9,623 books (worth about KRW 94 million) to elementary/middle schools, local children's centers, community care centers, and social welfare institutions in Ulsan since 2017. We have also held book concerts aimed at encouraging children to read more books. The donated books include basic chemistry books, which we believe are instrumental in motivating children to increase their interest and understanding of chemistry in their daily lives, as well as books requested by teachers, students, and parents, such as learning collections and books on the humanities.

Happy Love House activities I To ensure that children live in a cleaner and safer space, LFC's volunteer group has joined hands with the MICOS Children's Center in Ulsan, where its business site is located, to select one low-income family every year and improve its living environment through such activities as providing new furniture and replacing old wallpaper and broken fixtures. In 2021, the volunteer group refurbished the house of two young brothers, being raised by their grandparents, who wanted to become a creator and a police officer. LFC will continue providing support so that children can dream of a hope-filled future in their safe homes.

Sponsorship for Ulsan Swings I LFC continues to support "Ulsan Swings", a multicultural little league baseball club established in 2014 in partnership with the Ulsan Nam-gu Social Welfare Center and Ulsan Nambu Police Station as part of its efforts to help children from multicultural families plan for a future full of hopes and dreams. In 2021, we provided them with an opportunity to improve their sportsmanship and train mind and body through theoretical education, basic sports training, basic physical training, and team building games by sponsoring a series of baseball classes. As a special event, we arranged for two Swings players to throw the first pitch and hit the first ball, respectively, presenting unforgettable memories to children whose dream is to become baseball players.

Supply of COVID-19 self-diagnosis kits to local children's centers I At the end of March 2022, we supplied COVID-19 self-diagnosis kits to 11 children's centers in Nam-gu, Ulsan to help reduce the difficulties of local children's centers suffering from the growing demand for the kits due to the rapid spread of the Omicron variant.



FINE Society

Improving fire safety in local communities I LFC selected the "enhancement of local community safety" as a priority social contribution initiative for 2021 and carried out various activities in cooperation with firefighting agencies located near its business sites. In order to support firefighters who work hard to keep their local communities safe, we collaborated with the Retired Korean Firefighters Association in launching a new project called the "Firefighters and Fire Agencies Sponsorship Project". As our first support measure, in November 2021 we supplied KRW 10 million worth of items, such as fire-fighting helmets and safety shoe dryers, to the Ulsan Nambu Fire Station which has jurisdiction over our Ulsan Complex to help improve the health and safety environment of firefighters. We have also set up a fund to support firefighters who are killed or injured while on duty and their families. In September 2021, we joined forces with the Incheon Industrial Complex Fire Station to supply fire extinguishers and install fire alarms for 185 low-income fire-vulnerable households in Namdong-gu, Incheon, contributing to preventing fire accidents in the local community.

Holiday and year-end hope sharing activities I LFC carries out annual hope-sharing activities in the communities surrounding its business sites in Ulsan and Incheon on New Year's Day, Chuseok (harvest festival), and at the end of the year. In 2021, we were not able to hold a holiday event due to the COVID-19 pandemic, but we delivered holiday items (New Year's Day food kits, cold weather supplies, etc.) to six organizations. At the end of the year, we participated in the "Santa Expedition Program" hosted by ChildFund Korea and the "Heart Temperature 37°C Campaign" hosted by LOTTE Group, providing Christmas gifts to children from low-income families and paying those families' heating bills.

Dietary support for low-income people with disabilities I Since 2016, LFC, in cooperation with the Ulsan 2nd Disabled Gymnasium, has held an annual ginseng chicken soup sharing event for people with disabilities to help them combat the hot summer. Because of the difficulties of holding such an event due to COVID-19, we have been supporting them through non-face-to-face channels since 2020. In 2021, to help them spend a healthier summer, we provided them with 330 sets of summer household necessities (worth KRW 4 million), including insect repellent, natural ointment, and natural soap.



FINE Eco

Urban Box Farming Campaign I Launched in 2010, the Urban Box Farming Campaign is our signature eco-friendly CSR activity through which we have delivered over 40,000 saplings and seedlings to local citizens over the past 12 years. In 2021, we delivered 8,420 orange trees, which are known for their air-purifying properties, to fifteen elementary schools in Ulsan. LFC will continue to promote the box farming campaign together with local citizens and take the lead in creating a "green Ulsan".

Incheon Coastal Clean-up Volunteer Activities I LFC carries out coastal clean-up activities in Incheon as part of its efforts to promote the sustainable preservation of marine resources. In 2021, as in 2020, we joined forces with the Incheon Port Authority to carry out environmental clean-up activities at Incheon New Port Bridge and the surrounding wetlands. Going forward, we will contribute to improving the marine environment by establishing more active cooperative relationships, such as promoting the signing of MOUs with related organizations such as the Incheon Port Authority and the Incheon Regional Office of Oceans and Fisheries.

Eco-friendly HANDS ON Activities I Since 2015, LFC's Charlotte Volunteers have been conducting "HANDS ON" volunteer activities in which they make and donate items during their spare time. In 2021, they set eco-friendliness as the theme of their hands-on activities, and accordingly made 300 eco-friendly foot mats using socks that were discarded by factories during the manufacturing process and delivered them to low-income senior families. In addition, they made 300 pop-up books with their family over a month, and donated them to local children. Designed to encourage readers to practice an eco-friendly life style by reducing carbon emissions in their daily life and commit themselves to protecting the health of the earth, these pop-up books helped local children to internalize the importance of eco-friendliness.

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FINE Chemi

In-kind Donation of Urea Solution to Rural Areas I As part of CSR activities we conduct by leveraging our business capabilities, we have partnered with the Korea Foundation for Cooperation between Large & Small Businesses, Rural Affairs to donate EUROX®, LFC's urea solution, to rural areas. In 2020, we donated about 40,000 liters of EUROX® to Gyeongbuk and Jeonbuk provinces, which was followed by the donation of 54,600 liters of EUROX® to 135 health centers and agricultural machine rental offices in Gyeongbuk and Jeonnam in 2021. The donated solution was used by quarantine vehicles and ambulances to prevent the spread of COVID-19 and to help residents in rural areas who were experiencing difficulties due to the shortage of laborers during the busy farming season.

Support for Chemistry Majors at UNIST I To contribute to fostering future talents in the chemical industry and support the dreams of students from disadvantaged households, LFC has joined hands with the Ulsan National Institute of Science and Technology (UNIST) to continuously support students majoring in chemical engineering. In 2021, we provided books and living expenses to 20 low-income chemical engineering students. As a new program, we held an awards ceremony for researchers who contributed notable papers related to eco-friendliness and new materials to major scientific journals at home and abroad in a bid to promote eco-friendly research in Korea.

Sponsorship of Children's Chemistry Class I In March 2021, LFC participated as a sponsor in the national elementary school children's chemistry classroom program hosted by Korea RC (Responsible Care) and co-sponsored by the Ministry of Trade, Industry and Energy, local education offices, and chemical companies. Through a non-face-to-face event designed for an online reporter group due to the spread of COVID-19, we created an environment in which participating children could learn about and discuss chemistry on their own, and encouraged them to increase their interest in chemistry and develop into outstanding chemists.



FINE Synergy

FINE-Package in partnership with LOTTE Medical Foundation I In 2021, LFC launched "FINE-Package" as a cooperative project with Bobath Memorial Hospital and Bobath Children's Hospital under the LOTTE Medical Foundation. The project consists of two programs – Mom's Happiness FINE Trip and FINE-Care. The former aims to increase the effectiveness of rehabilitation treatment by offering a break from treatment consisting of a travel-related package to families of children with few travel opportunities due to intractable disabilities. The latter is designed to strengthen family bonds by providing hospice care support for terminal cancer patients from low-income families. In 2021, we offered travel opportunities to the families of 15 children and provided care and treatment expenses to 11 terminally ill cancer patients.

LOTTE Group's Chemical Unit's Firefighter Family Cultural Event I LFC and other Group affiliates of LOTTE Group's Chemical Unit have been cooperating with the LOTTE Foundation for Arts and the Retired Korean Firefighters Association to sponsor cultural and artistic performances for the families of firefighters since 2019. In 2021, we resumed the performance viewing event – which was not held in 2020 due to the spread of COVID-19 – under strict quarantine rules, and presented sand art event that tells the stories of excellent firefighters and a pipe organ performance, a symbol of the LOTTE Concert Hall, to the families of 300 incumbent firefighters as well as those of firefighters who died on duty.

Support for LOTTE Foundation for Arts I In order to promote the domestic culture and arts industry and to participate in the social value creation activities of LOTTE Group, LFC has supported LOTTE Foundation for Arts since 2018. In 2021, we donated a total of KRW 1 billion to support the expansion of opportunities for citizens to enjoy culture through art exhibitions, world-class classical music performances, and diverse forms of contemporary art. We also supported programs designed to provide performance opportunities to up-and-coming artists who lacked a venue due to the COVID-19 pandemic. For its support of culture and arts, LFC was designated as an outstanding company in "Outstanding Culture and Arts Sponsorship Organization Certification System" hosted by the Ministry of Culture, Sports and Tourism in 2020 and 2021.

Support for the Korea Ski Association I In order to improve the poor environment for domestic snow sports and to support the growth of future hopefuls, LFC has continued to donate funds to the Korea Ski Association together with other Group affiliates. Korea's snow sports have continued to grow since the country won its first medal in the snowboarding event at the PyeongChang 2018 Winter Olympic Games, producing winners at the 2021-22 FIS Alpine Ski World Cup. LFC will continue to support the growth and development of athletes in less popular sports in Korea in cooperation with other affiliates of LOTTE Group.

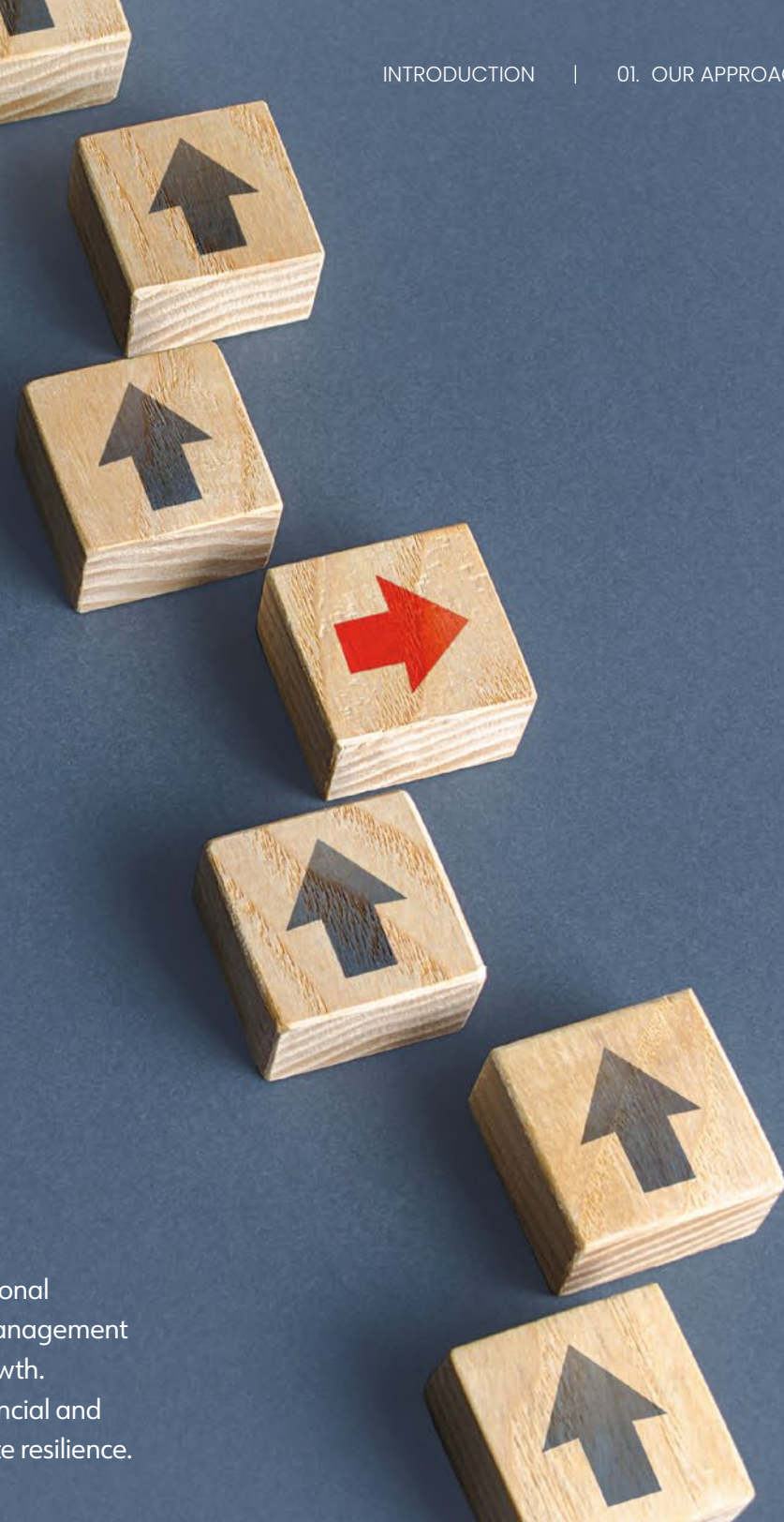


(2019-2021)
Community Contribution Recognition Certification



(2020-2021)
Outstanding Culture and Arts Sponsorship Organization Certification

GOVERNANCE



LFC has established advanced corporate governance based on a transparent and professional decision-making system centered on the BOD in order to carry out responsible business management based on ethical management and compliance awareness in its pursuit of sustainable growth. Furthermore, we are building an integrated risk management system that covers both financial and non-financial aspects to respond systematically to possible risks and enhance our corporate resilience.

IN THIS SECTION

Corporate Governance

LFC practices responsible management by ensuring that the BOD, the company's highest decision-making body, is composed of members with diverse backgrounds and have outstanding expertise, and by establishing an advanced governance structure based on a transparent and independent decision-making system centered on the board. In addition, we are strengthening our shareholder-friendly policies with the adoption of electronic voting, transparent disclosure of corporate information, and stronger efforts to protect shareholder rights and interests and enhance shareholder value.

Risk Management

In line with the growing uncertainty in the corporate business environment, we identify potential risks and establish a company-wide risk response process to prevent them in advance. This enables us to monitor both financial and non-financial risks in an integrated way, thereby responding to risks preemptively and systematically.

Building a Culture of Ethics and Compliance

In order to usher in a better tomorrow, LFC is carrying out activities aimed at promoting ethical management and raising compliance awareness at the company-wide level. We also operate an internal control system to protect corporate values from internal factors and external stimuli, while seeking to raise the trust of stakeholders and wider society in LFC by enabling our employees to follow internal controls and avoid being exposed to risks, thereby deploying trust as the basis for our reputable innovation.



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CORPORATE GOVERNANCE

Enhancing Shareholder Value

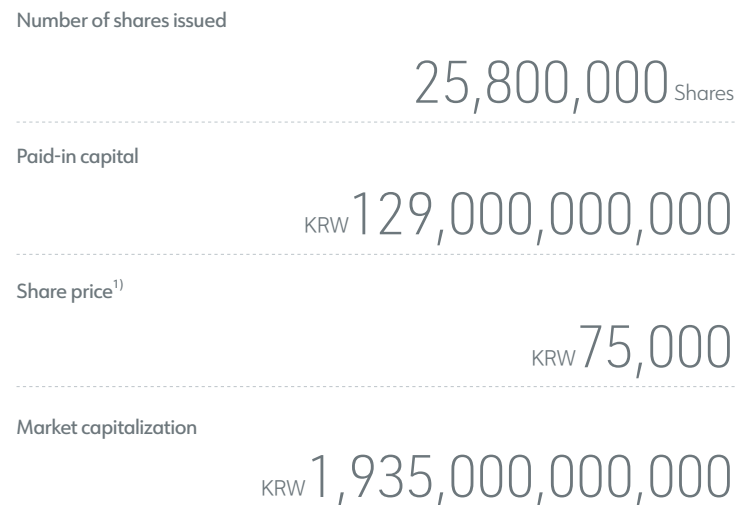
ANNUAL GENERAL MEETING LFC is making diverse and concerted efforts to protect the rights and interests of its shareholders and to enhance shareholder value, including the announcement of convocation of an annual general meeting (AGM) three weeks in advance, as opposed to the two weeks legally required, to enable its shareholders to devote sufficient time to deliberating the agenda prior to each meeting. In addition, to secure a quorum and make it easier for shareholders to exercise their voting rights, we make an effort to hold an AGM on a day on which many other companies hold AGMs. Shareholders may exercise their right to make a shareholder proposal by submitting a proposal to the agenda of an AGM in writing or electronically up to six weeks before the meeting.

STRENGTHENING SHAREHOLDER-FRIENDLY POLICIES LFC made a decision to introduce the electronic voting system at the 57th AGM held on March 19, 2021 in a bid to expand shareholders' voting rights and enhance their convenience, which was followed by a comprehensive resolution to introduce and implement the electronic voting system at the BOD meeting held on February 24, 2022. Accordingly, starting from the 58th AGM held on March 18, 2022, shareholders can now exercise their voting rights electronically without having to attend general meetings. In addition to e-voting, LFC will further strengthen trust in its relationship with its shareholders to increase corporate and shareholder value at the same time.

Moreover, we pay dividends as a part of our shareholder returns after determining the amounts in consideration of investment, business performance, and cash flow status for the company's continuous growth in addition to dividends stability for shareholders. All shareholders are given equal voting rights according to the number of shares they hold.

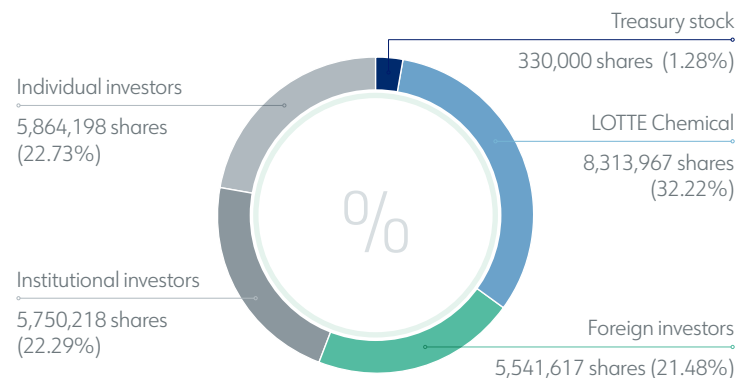
DISCLOSURE OF CORPORATE INFORMATION LFC provides various in-depth investor relations (IR) data to meet the information requirements of its shareholders, thereby helping them to understand the company and strengthen their trust in it. As a part of these efforts, we release quarterly reports on our earnings and hold regular conference calls or face-to-face meetings with our overseas institutional investors.

Stock Information



¹⁾ Based on the 2021 year-end share price

Major Shareholders



Board of Directors

COMPOSITION OF THE BOD The Board of Directors (BOD), LFC's top decision-making body, has voting rights on corporate management and overall business operations. We operate the BOD transparently in order to carry out our management activities based on rigorous checks and balances. As of March 2022, our BOD consists of three inside directors and four outside directors, all of whom are experts in their respective fields. Based on the principle of independence, the outside directors provide expert opinions on the company's major decisions from the perspective of sustainability, and also assess and review the company's performance.

BOD Profile

Classification	Name	Gender	Key profile
Inside Directors	Yong-Seok Kim	Male	<ul style="list-style-type: none"> • 2021-2020-2021: CEO, LOTTE Fine Chemical • 2019: CEO, LOTTE INEOS Chemical • 2018: Head of the Polymer Business Group, LOTTE Chemical • 2014-2018: Head of the Olefin Division, LOTTE Chemical • 2014-2018: CEO, Chinese subsidiary, LOTTE Chemical
	Woo-Chan Kim	Male	<ul style="list-style-type: none"> • 2021-2020-2021: Head of the ESG Management Group, LOTTE Fine Chemical • 2019-2020: Head of the Management Support Group, LFC • 2019-2020: Head of the HR Department, Basic Materials, LOTTE Chemical • 2017-2019: Head of the HR Department, LOTTE Chemical • 2013-2017: Head of the Administration Department, Daesan, LOTTE Chemical
	Jun-Hyuk Shin	Male	<ul style="list-style-type: none"> • 2021-2018-2021: Head of the New Business Development Division, LOTTE Fine Chemical • 2017-2018: Head of the Strategic Planning Division, LFC • 2016-2017: Head of the Purchasing Division, LFC • 2016-2017: Manager of the Material Purchasing Division, LFC
Outside Directors	Chang-Soo Lee	Male	<ul style="list-style-type: none"> • 2018-2019-2020: CEO of the Happy Space Tax Accounting Office • 2015-2016: Adjunct Professor, Graduate School of Industrial and Entrepreneurial Management, Chung-Ang University • 2012-2015: Adjunct Professor, Graduate School of Industrial and Entrepreneurial Management, Chung-Ang University • 2004-2012: CEO, KPMG Korea • 2004-2012: Deputy CEO, KPMG Korea
	Kyung-Hyun Ahn	Male	<ul style="list-style-type: none"> • 2009-2012: Professor, Department of Chemical and Biological Engineering, School of Engineering, Seoul National University • 2012-: Head of the Nano-structure Polymer Processing Center
	Mi-young Kim	Female	<ul style="list-style-type: none"> • 2013-2009-2013: Professor, Department of Materials Science and Engineering, Seoul National University • 2009-2013: Associate Professor, Department of Materials Science and Engineering, Seoul National University
	Nak-song Seong	Male	<ul style="list-style-type: none"> • 2020-2019-2020: CEO, Jiheon Law Firm • 2018-2019: CEO, Pyeong An Law Firm • 2016-2018: President, Judicial Research and Training Institute • 2016-2018: Chief Judge, Seoul High Court

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TRANSPARENCY AND INDEPENDENCE OF THE BOD As LFC's total assets amounted to less than KRW 2 trillion at the end of the previous year, we are not obligated to form an outside director candidate recommendation committee. However, in order to secure the fairness and independence of our governance structure, we established the Independent Director Recommendation Committee in February 2022, received recommendations for outside directors and appointed them as outside directors through a resolution at the general shareholders' meeting. Directors are required to satisfy the qualifications set forth in the relevant laws and Articles of Incorporation, demonstrate integrity, sound ethical awareness, and the proper work ethics, and represent the long-term, balanced interests of all shareholders and other stakeholders of the company. LFC therefore elects outside directors who have no significant personal interests in the company and can make independent decisions.

EXPERTISE AND DIVERSITY OF THE BOD LFC does not discriminate on the basis of gender or age in the appointment of directors, and guarantees diversity and expertise in the BOD, so as to allow its members to represent the rights and interests of shareholders and other stakeholders in a balanced way. Directors who are specialists endowed with extensive expertise and experience in the fields of business administration, economy, accounting, law, and technology provide opinions on their respective areas of expertise and support the company's rational decision making. At the AGM held in March 2022, we appointed a new female outside director to enhance the gender diversity of the BOD, in addition to a new outside director with expertise in the legal field who has also served as the president of the Judicial Research and Training Institute, among other posts.

ACTIVITIES OF THE BOD The BOD holds regular and extraordinary meetings as and when necessary and deliberates upon and resolves the company's major management issues as set forth in the relevant laws, the Articles of Incorporation, and the BOD Regulations. A meeting of the BOD is convened by its chairperson or a director appointed by the BOD. Notification of convocation is given seven days before a BOD meeting. Resolutions are made with the majority of the directors in attendance and with a majority of the votes of the directors present, except where otherwise stipulated in the relevant laws. In 2021, we held a total of eight board meetings, during which the BOD deliberated on, decided, and/or reported 29 items of agenda. The attendance rate of the outside directors was 100%.

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. In addition, we regularly disclose business reports and make prompt and accurate disclosures of information that could have a material impact on our shareholders and other stakeholders, as required by the relevant laws.

Major BOD Resolutions and Reports in 2020

Date	Key agenda	Decision	Director attendance (Total)	Outside director attendance (Total)
Feb. 4	<ul style="list-style-type: none"> • Agenda 1: Approval of the financial statements and business report for the 57th fiscal year (2020) • Report 1: Report on internal accounting control system operations in 202 	Passed -	6 (6)	3 (3)
Feb. 25	<ul style="list-style-type: none"> • Agenda 1: Decision on the holding of the 57th AGM and other items of agenda presented for discussion • Agenda 2: Donations • Report 1: Report on the audit of accounting and business in 2020 • Report 2: Report on the auditor's opinion on internal accounting control system operations • Report 3: Report on the results of compliance control and compliance with the fair trade regulations • Report 4: Investment in the LOTTE Chemical Innovation Fund No. 2 	Passed Passed - - -	6 (6)	3 (3)
Mar. 19	<ul style="list-style-type: none"> • Agenda 1: Commission of the directors' duties • Agenda 2: Appointment of the BOD's sub-committee members • Agenda 3: Approval of the limit on the remuneration of directors for the 58th fiscal year • Agenda 4: Approval of the remuneration limit for executives in 2021 • Agenda 5: Approval of the health and safety plan for 2021 	Passed Passed Passed Passed	7 (7)	3 (3)
Apr. 28	<ul style="list-style-type: none"> • Report 1: Business performance for the 1st quarter of 2021 and the outlook for the 1st half of the year 	-	7 (7)	3 (3)
Jul. 29	<ul style="list-style-type: none"> • Agenda 1: Establishment of the ESG Committee • Agenda 2: Amendment to the BOD operating rules • Agenda 3: Amendment to the Compliance Control Standards • Report 1: Business performance for the 2nd quarter of 2021 and outlook for the year • Report 2: ESG management plan and progress 	Passed Passed Passed - -	7 (7)	3 (3)
Oct. 21	<ul style="list-style-type: none"> • Agenda 1: Consignment production contract for the HECCELLOS 3 Factory 	Passed	7 (7)	3 (3)
Nov. 25	<ul style="list-style-type: none"> • Agenda 1: Appointment of the CEO • Report 1: Report on the promotion, retirement and transfer of executives • Report 2: Report on the reorganization of the Group's business management system 	Passed - -	6 (7)	3 (3)
Dec. 16	<ul style="list-style-type: none"> • Agenda 1: Establishment of the 2022 business plan • Agenda 2: Approval of comprehensive limits on transactions with major shareholders in 2022 • Agenda 3: Conclusion of a brand licensing agreement • Agenda 4: Approval of the 2022 health and safety plan (draft) • Agenda 5 Establishment of the Busan Office • Report 1: Changes in the company-wide organization 	Passed Passed Passed Passed -	5 (5)	3 (3)

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Sub-committees of the BOD

To enhance the expertise and efficiency of its management activities, LFC has formed various sub-committees of the BOD, including the Management Committee, Audit Committee, Transparent Management Committee, Compensation Committee, ESG Committee, and Independent Director Recommendation Committee.

AUDIT COMMITTEE The 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 the committee in accordance with their Articles of Incorporation. Even though it is not obligated to do so, LFC has preemptively established and is operating the Audit Committee in order to increase corporate transparency and business efficiency. In 2021, we held a total of seven Audit Committee meetings to deliberate upon, resolve and report a total of 24 agenda items, with the attendance rate of the audit committee members reaching 100%.

ESG COMMITTEE In consideration of the importance of ESG management, LFC launched the ESG Committee, the highest decision-making body for ESG management, under the BOD for the first time among the Group affiliates in July 2021. Composed of two inside directors and three outside directors with expertise in diverse fields, the ESG Committee presents the ESG management directions with the goal of internalizing sustainable management values and enhancing corporate value throughout the company's business activities, while acting on the company's major ESG risks and opportunities. Through the quarterly regular committee meetings and the ad hoc committee meetings held from time to time as necessary, the committee establishes mid-to-long-term goals and strategies for ESG management as well as annual plans and results, as well as dealing with matters concerning the occurrence of and response to major ESG-related risks, strategies/plans and investments related to environmental-friendliness in the workplace, performance review of eco-friendly management, enhancement of shareholder value, and major ESG-related disclosures, in a bid to review matters related to company-wide ESG promotion and exercise its decision-making authority in that area. At the first ESG Committee Meeting of 2021 held in October 2021, its chairperson was appointed and a report was presented on the progress of the green hydrogen-ammonia business, a future growth business of LFC. At the first ESG Committee Meeting of 2022 held in February 2022, a new ESG promotion strategy was reported.

EVALUATION AND REMUNERATION OF THE BOD At the end of the BOD directors' term of office, LFC conducts independent evaluations of their activities and performance, and reflects the results in its decisions on their re-appointment. Directors' remuneration is executed within the limit of the total remuneration for directors after obtaining the approval of an AGM. The remuneration for inside directors is calculated by reflecting the value of their job performance. Performance-based remuneration is paid by comprehensively evaluating measurable factors, such as sales, and unmeasurable factors, such as core tasks and mid- to long-term performance of expectations. Each outside director is offered the same amount of remuneration within the limit of the total remuneration for directors approved at an AGM. Annual remuneration for directors and auditors of more than KRW 500 million per person is disclosed in the business report in accordance with the relevant laws and regulations.

Composition of the sub-committees

Sub-committee	Composition	Member	Roles and responsibilities
Management Committee	3 inside directors	Yong-Seok Kim, Woo-Chan Kim, Jun-Hyuk Shin	<ul style="list-style-type: none"> Improve efficiency of management and operation Resolve matters delegated by the BOD
Audit Committee	4 outside directors	Chang-Soo Lee, Kyung-Hyun Ahn, Nak-song Seong, Mi-young Kim	<ul style="list-style-type: none"> Ensure the transparency and management efficiency of the company
Transparent Management Committee	2 outside directors 1 inside director	Nak-song Seong, Chang-Soo Lee, Woo-Chan Kim	<ul style="list-style-type: none"> Secure transparency in managing the company by establishing the fair trade compliance system
Compensation Committee	2 outside directors 1 inside director	Mi-young Kim, Kyung-Hyun Ahn, Woo-Chan Kim	<ul style="list-style-type: none"> Secure objectivity and transparency in calculating the remuneration of directors Determine the limit on the remuneration of registered directors to be submitted to the AGM Other matters as delegated by the BOD
ESG Committee	2 outside directors 2 inside director	Kyung-Hyun Ahn, Mi-young Kim, Woo-Chan Kim, Jun-Hyuk Shin	<ul style="list-style-type: none"> Set company-wide ESG management strategies and plans and make decisions on implementation matters Conduct monitoring of the performance of major tasks according to the ESG management strategies Make decisions to maximize ESG-based business opportunities and minimize risks
Independent Director Recommendation Committee	2 outside directors 1 inside director	Chang-Soo Lee, Nak-song Seong, Woo-Chan Kim	<ul style="list-style-type: none"> Recommend candidates for outside director at AGM

Audit Committee Activities in 2021

Date	Key agenda	Decision	Director attendance (Total)	Outside director attendance (Total)
Jan. 13	<ul style="list-style-type: none"> Report 1: Report on the interim audit results Report 2: Report on the results of the interim inspection of internal accounting operation status and future plans 	-	3 (3)	3 (3)
Feb. 4	<ul style="list-style-type: none"> Report 1: Report on the financial statements and business report of the 57th fiscal year Report 2: Report on the results of the financial audit at the end of the fiscal year 2020 Report 3: Report on the status of internal accounting control system operations in 2020 	-	3 (3)	3 (3)
Feb. 25	<ul style="list-style-type: none"> Report 1: Report on the status of internal accounting control system operations in 2020 Report 2: Report on the internal audit performance in 2020 and the plan for 2021 Agenda 1: Review of items and documents for the 57th general meeting of shareholders Agenda 2: Approval of the audit report on accounting and business performance in 2020 Agenda 3: Approval of the report on the evaluation of the operation of the internal accounting control system Agenda 4: Approval of the evaluation opinion on the operational status of the internal monitoring arrangements 	Passed Passed Passed Passed	3 (3)	3 (3)
Apr. 28	<ul style="list-style-type: none"> Agenda 1: Post evaluation of audit fees, audit hours, and human resources in 2020 Report 1: Report on the annual operation plan for the internal accounting control system in 2021 Report 2: Report on the results of the review of the 1Q financial statements and the quarterly report of the 58th fiscal year 	Passed -	3 (3)	3 (3)
Jul. 29	<ul style="list-style-type: none"> Report 1: Report on the interim results of the evaluation of the internal accounting design in 2021 Report 2: Report on the results of the review of the 2Q financial statements and the quarterly report of the 58th fiscal year 	-	3 (3)	3 (3)
Oct. 28	<ul style="list-style-type: none"> Report 1: Report on the analysis of changes in the financial statements for the 3Q Report 2: Report on the results of the 3Q 2021 review Report 3: Report on the internal control plan for new business operations Report 4: Report on the internal accounting control inspection results and plans 	- - - -	3 (3)	3 (3)
Dec. 16	<ul style="list-style-type: none"> Report 1: Report on the interim audit results for internal accounting management Report 2: Report on the appointment of the internal accounting manager Report 3: Report on the results of the evaluation of internal accounting management operations Report 4: Report on the plans for checking the operational status of internal accounting management 	- - - -	3 (3)	3 (3)

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RISK MANAGEMENT

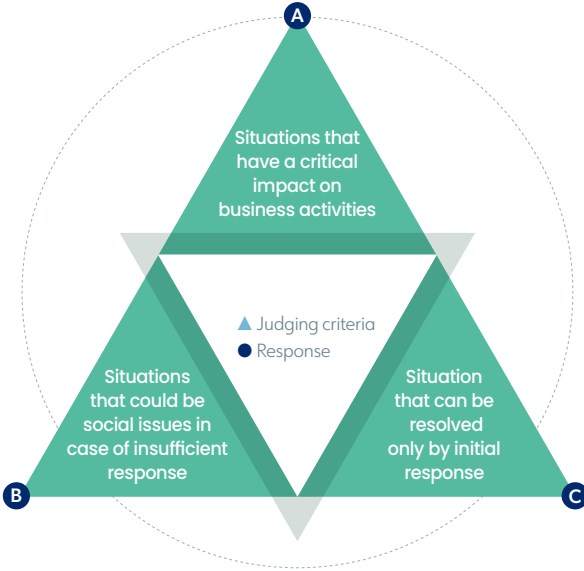
Risk Management System

In line with growing uncertainties in the business environment surrounding companies in such areas as international affairs, oil prices, industry-related policies and regulations, environment and safety, human rights, and supply chains, LFC monitors its financial and non-financial risks in an integrated way and responds to them through an effective response system. We define risks as all unintended internal and external factors that may cause financial, material, or personal losses to our company's management, and categorize risk management into enterprise-level risk management (financial and non-financial) and business-specific risk management, which enables us to respond flexibly to each situation.

RISK RESPONSE PROCESS LFC has established a risk response process according to the level of risks, based on which we promptly respond to risks that could hinder our corporate value, inflict economic losses, and damage corporate reputation. For level A and B risks with a high level of threats, the Risk Management Committee is convened in order to decide on and implement a company-wide response. For level C risks, which entail a relatively lower level of risk, the executive in charge responds quickly and submits a report to the Risk Management Committee.

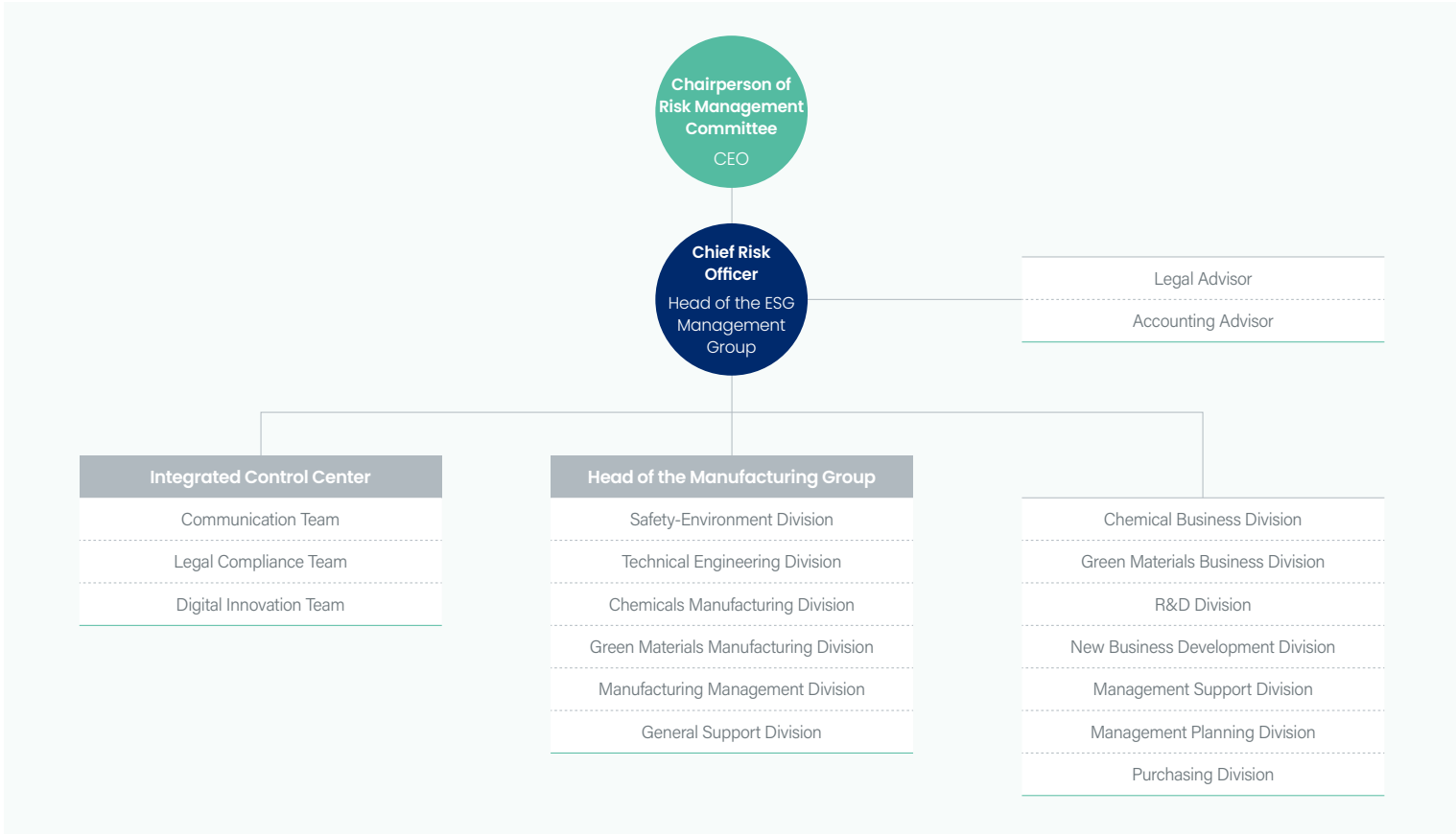
RISK MANAGEMENT ORGANIZATION Since launching a risk management organization in 2017, LFC has enacted risk management regulations and established risk management processes to reinforce its risk management and respond proactively and effectively to various threats at the company-wide level. When a risk arises, we follow the internal risk management process for prompt decision-making and early response while dealing with significant risks after obtaining approval from the BOD or the sub-committees within the board.

Risk Response Process



- A** Put all resources at the company level to minimize damage, recover corporate image, minimize legal problems, and restore rapidly
- B** Prevent the issue from becoming A level issue by restoring rapidly and responding to legal issues in advance
- C** Prevent the issue from becoming B level issue through quick problem-solving efforts by the responsible department

Risk Management Organization



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RISK MANAGEMENT AREAS LFC classifies its financial risks into four categories such as exchange rate, liquidity, interest rates, and credit while dividing its non-financial risks into seven categories including human resources and labor, purchasing, health and safety, environment, ethics and compliance, security, and public relations. We have set response plans for each of the risks as a way to do our utmost to manage risks.

Internal Control

LFC has established an effective internal control system supported by a series of internal accounting control regulations, improvement of the relevant systems, and the conduct of proactive audits and investigations. Based on this system, LFC makes continuous efforts to enhance its corporate value in the long term by monitoring and improving the company's performance. In addition, we have put an internal control system in place to prevent management or controlling shareholders from engaging in internal transactions or transactions with themselves for their own personal interest.

IMPROVING INTERNAL ACCOUNTING MANAGEMENT In accordance with Article 8 of the Act on the External Auditing of Stock Companies, amended in November 2018, the certification of an internal accounting control system has been strengthened from examination to external audit, and the Korean government has applied model standards that reflect the fully revised internal control concept system since 2020. The internal accounting control system is designed to provide reasonable assurance that the company's financial statements have been prepared and disclosed in accordance with the accounting standards in order to achieve the purpose of conducting internal accounting management. The system therefore refers to a process that is continuously implemented by all members of the organization, including the regulations and the organizations that manage and enforce the rules and regulations. Accordingly, LFC should accurately record all matters related to its business performance and financial condition in accordance with the relevant laws, accounting standards, and internal regulations, while all its accounting records must be supported by the appropriate accounting information. It also has an obligation to accurately inform stakeholders about the company's business situation.

LFC has therefore reorganized its internal accounting control system and the related regulations and formed a permanent organization to take charge of internal accounting control and enhance the reliability of its financial information. In 2020, we worked with an accounting firm to improve our internal accounting control system, secured such outputs as control descriptions, workflow charts, and descriptions, overhauled the related regulations, and established an operating system for effective evaluation and operation. Based on that, we conducted an evaluation of the design and operation of our internal accounting in 2021 and found that the system was effectively designed and operated from the viewpoint of materiality. Going forward, we will make continuous improvements based on evaluations of the system's operational status. We will also continue strengthening the level of our accounting transparency and risk management by constantly updating our internal accounting control system to respond to changes in the external environment, such as modifications of the laws and regulations, and to changes in the internal environment, such as business models, organizations, business procedures, and new systems.

ESTABLISHING AN ADVANCED AUDIT SYSTEM In 2020, we further enhanced our internal regulations related to auditing by enacting two additional regulations, including the regulation on the handling of disclosures by, and the protection of, whistleblowers, and the regulation on internal audits. In the former, such matters are included as exceptions from whistleblowing disclosure, disadvantageous measures, protection of reporters acting in the public interest, and the implementation of supportive measures. In the latter, we have added the Audit Committee to those persons and entities invested with the authority to conduct audits, specified the qualifications required of members of the audit department, and stipulated audit work procedures that allow fair and efficient auditing to be conducted.

In addition, LFC makes continuous efforts to improve unreasonable practices through audits by theme in connection with the Group policies and cooperation among the Group affiliates. Going forward, we will continue improving our corporate governance structure through the stable operation of the internal accounting control system and the Audit Committee. We will also strive to prevent the kinds of risks that can occur in areas vulnerable to corruption by reinforcing the preventive audit system, while building an advanced audit operation system by improving the expertise of the audit personnel through training conducted by external experts and by increasing external communication.

	Risk type	Response measures
Financial	Exchange rate Risk of loss due to a sharp fluctuation in the exchange rate	<ul style="list-style-type: none"> In case of current transactions and fund transactions, transactions are made in the local currency, or the currency of deposit and expenditure is matched to suppress the occurrence of exchange position Active exchanges of opinions with domestic financial institutions on foreign exchange risk management Realization of a sound, stable financial structure by establishing a foreign exchange management system that prohibits speculative foreign exchange transactions
	Liquidity Risk of loss due to liquidity management failures	<ul style="list-style-type: none"> Liquidity risk management and maintenance of proper liquidity level through periodic fund balance forecasting and adjustment Prediction and monitoring of liquidity at all times to maintain an appropriate level of unused borrowing limits and meet the demand for operating funds Flexible maintenance of funding capacity within the credit limit through active sales activities
	Interest rate Risk of loss due to volatility of interest rates	<ul style="list-style-type: none"> Reduction of interest rate uncertainty and minimization of financial costs through reduction of high interest rate borrowings and improvement of long/short-term borrowing structure Interest rate risk management through constant monitoring of domestic and international interest rate trends and establishment of countermeasures
Non-financial	Credit Risk of non-compliance with the contractual terms of the counterparty and financial institution	<ul style="list-style-type: none"> Credit risk management by systematically evaluating the financial credit rating of counterparties Maintenance of appropriate collateral for counterparties Report on the monthly collection delay status and countermeasures for financial assets whose collection has been delayed Adherence to the principle of working with banks that have high international credit ratings
	Personnel and labor Collapse of collaborative labor-management relations due to personnel/labor issues	<ul style="list-style-type: none"> Promotion of corporate culture improvement activities and implementation of programs to increase employee satisfaction Establishment of cooperative labor-management relations through regular labor-management consultations and communication channels
	Purchasing Loss in sales/production due to failure in the supply and demand for raw and subsidiary materials	<ul style="list-style-type: none"> Monitoring of international price trends of raw and subsidiary materials and operation of a flexible inventory Engagement in activities designed to foster friendly and cooperative relationships with suppliers and monitoring of supply chain trends at all times Diversification of supply chain to improve supply and demand stability
	Health and safety Property damage and personal injury, suspension of business, and decline of corporate image due to industrial accidents and disasters	<ul style="list-style-type: none"> Development of the ability to cope with similar situations by providing regular training for each situation in preparation for environmental disasters and factory accidents Compliance with the safety-related laws and regulations; and cooperation with external professional institutions to detect risk factors beforehand and implement improvement activities
	Environment Sanctions on production and decline of corporate image due to non-compliance with the environmental regulations and resulting in environmental pollution	<ul style="list-style-type: none"> Minimization of risks through regular implementation of legal and regulatory environmental risk assessment Establishment of environmental targets and execution of plans that exceed internal and external environmental management thresholds
	Ethics and compliance Risk of external sanctions for violations of ethics regulations and laws	<ul style="list-style-type: none"> Provision of information on laws and regulations, such as corporate legislation trends and corporate-related legislation issues, to employees as needed Prevention of possible legal violations through regular compliance training and frequent monitoring of compliance Establishment of a strict reporting process through permanent operation of the ethical management violation reporting system
	Security Business disruption and financial loss due to information security incidents	<ul style="list-style-type: none"> Provision of security training and constant monitoring under the supervision of a dedicated information protection organization Prevention of leakages of important company information with the introduction of an information protection program
	Public relations Deterioration of company's reputation due to negative media coverage	<ul style="list-style-type: none"> Sharing of company-related issues with employees and conduct of activities aimed at halting the spread of rumors Regular monitoring of company- and product-related media coverage and active response to negative reports

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BUILDING A CULTURE OF ETHICS AND COMPLIANCE

Enhancing Ethical Management

ETHICAL MANAGEMENT SYSTEM LFC has established an ethical management system that presents the basic procedures and standards that employees should follow in performing their work, with the goal of rendering ethical management an integral part of its corporate culture. When faced with an economic, legal, or ethical dilemma, any of our employees makes the right decision in the process of carrying out work based on the Code of Conduct and company rules while conducting business in a fair and transparent manner. They do not take any unfair personal gains or receive or provide inappropriate gifts or entertainment, and they respect and comply with the anti-corruption laws and regulations, at home and abroad, related to our business activities in the places where we operate.

Moreover, we expect our various business partners to follow standards as stringent as our own Code of Conduct. Compliance with these standards is one of the most important factors we consider when deciding whether to work with them or not. Based on the ethical management system, we will continue to prevent unfair business handling and unethical behavior from taking place and identify and manage any matters that need improvement so that we can develop our ethical management practices into part of our organizational culture.

Code of Conduct for Business Ethics

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 Our Shareholders

People who grow together with LOTTE. We protect shareholder assets and increase their mid-to long-term values by running our business with integrity and transparency.

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 Implementation System



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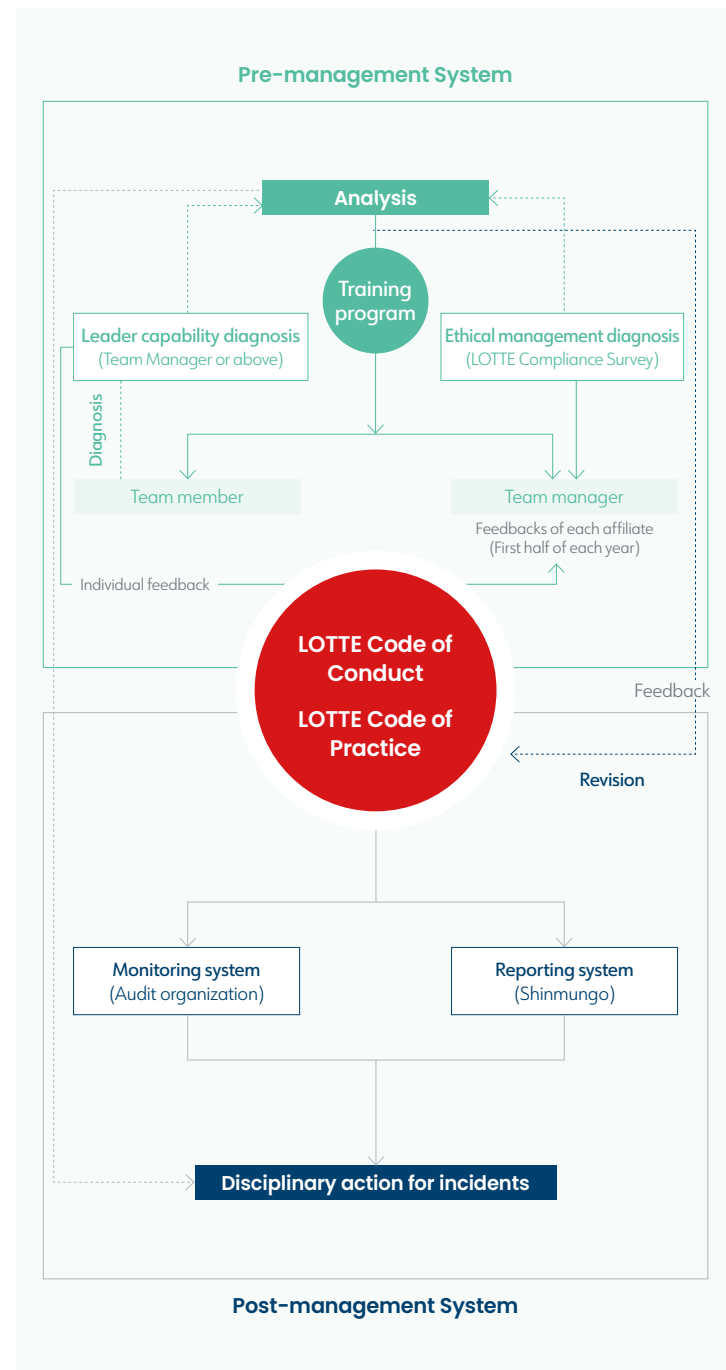
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Business Ethics Management System



ETHICAL MANAGEMENT CONSULTING AND REPORTING CHANNEL

LFC operates an online reporting channel, "Shinmungo" on its official website and the LOTTE Group "Shinmungo", so that its employees and partner companies can report any unfair business handling and unethical matters or propose improvements.

We keep the identity of whistleblowers and the contents of their reports strictly confidential to ensure that they do not suffer any disadvantages due to their reports. Besides whistleblowers, we equally protect all those who cooperate with us about relevant incidents by providing statements, data, etc.

Types of Corrupt Acts to Be Reported

- 01 Embezzlement of public money, bribery
- 02 Unfair handling of business
- 03 Violations of the fair trade rules by employees and affiliates
- 04 Requests for or offers of money or entertainment
- 05 Unfair stake participation in unlisted trading companies
- 06 Dual employment
- 07 Other matters that violate the Code of Ethics

Reporting Channels

Shinmungo of LFC

Shinmungo of LOTTE Group

E-mail lfcaudit@lotte.net

Phone +82-2-6974-4521

Fax +82-2-6974-4546

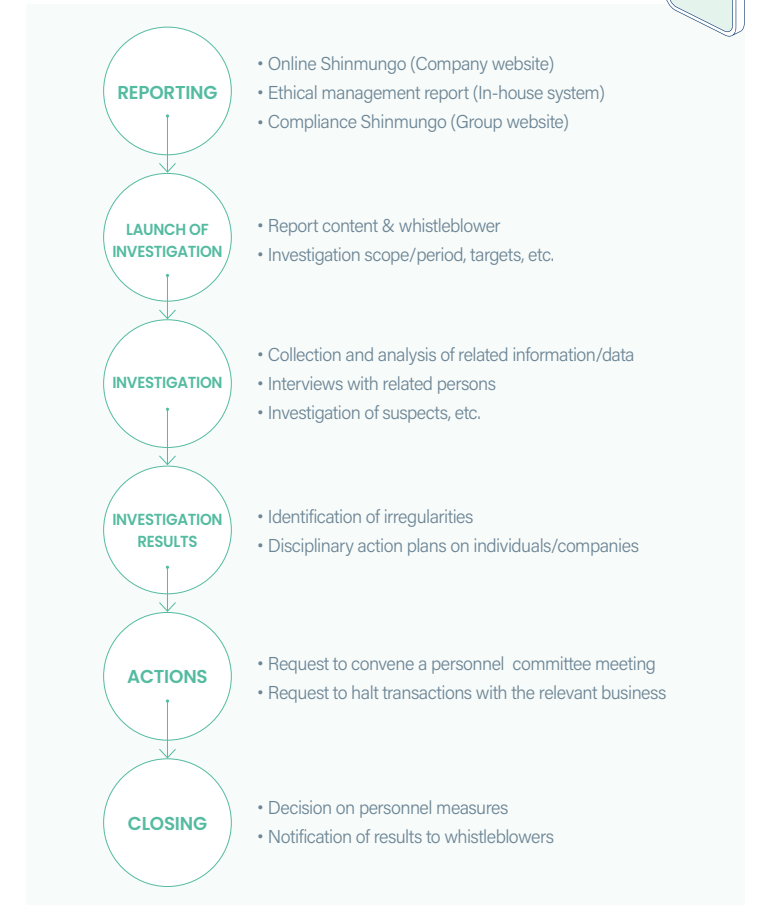
Status of ethical management reporting and handling (Unit: Case)

Classification	2019	2020	2021
Number of reports received	11	12	32
Number of reports resolved	11	12	32

We take all necessary measures, such as disciplinary action, in accordance with related laws as well as the Article 14 of the Company's Public Interest Reporting Regulations which meets the legal standards, in the event of a violation of the whistleblower's protection.

All reports are investigated according to the relevant procedures, and when irregularities are confirmed, corrective measures are taken, including disciplinary action, process improvement, and ethical management education, so as to prevent their recurrence. In the event of violations in which whistleblowers are in some way involved, they may be exempted from disciplinary action, or such action may be reduced.

Report Handling Procedure



* If an accusation is found to be unfounded, the relevant incident ends with a report on the investigation results.

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PARTICIPATING IN THE BIS ANTI-CORRUPTION PLEDGE LFC joined the UN Global Compact (UNGC) in 2020, and as part of member company activities, in March 2022, we participated in the pledge of support for Business Integrity Society (BIS), a global anti-corruption project launched in cooperation with the Korea Association of UNGC and the Korea Sustainability Investing Forum (KoSIF), as we did in 2021. BIS is a business ethics project that aims to promote transparency in business activities and establish a fair market environment by encouraging joint efforts to prevent corruption, proposing corporate anti-corruption system improvements and policies in cooperation with the National Assembly and government ministries, and supporting corporate capacity building.

Taking the pledge as an opportunity, we made know our commitment to eradicating corruption to strengthen corporate competitiveness; taking the lead in improving policies and systems related to anti-corruption; managing ethical and compliance risks based on ESG management to enhance transparency in business operations; and building trust with stakeholders.

ESTABLISHING A CULTURE OF BUSINESS ETHICS LFC continuously provides ethical management training based on the Code of Conduct and the Code of Practice of LOTTE Group while posting guidelines on ethical management for employees at its internal portal. Furthermore, we work tirelessly to establish a corporate-wide ethical management culture by conducting ethical management diagnosis and leader competency diagnosis for all our employees. We also send a letter of ethics management from the CEO to our partner companies in order to demonstrate our commitment to ethical management and create a transparent trading culture together.

In 2022, we plan to resume the ethics/compliance group training, which was restricted by external circumstances such as the COVID-19 pandemic, to raise employee awareness of compliance and business ethics, and carry out risk prevention activities more effectively.



Internalizing Compliance Management

COMPLIANCE MANAGEMENT SYSTEM In order to expand the efficiency and expertise of its compliance management, LFC has appointed a Head of the Legal&Compliance Department who oversees the Compliance Management Team, Ethics Management Team, and Internal Accounting Management Division. Meanwhile, the BOD has appointed the Compliance Officer as an executive in charge of presenting the overall direction of compliance management, such as establishing and implementing LFC's compliance management strategies. Specialized departments constantly monitor the status of our compliance management to prevent unethical conduct in advance. We also strive to prevent the recurrence of unethical acts and conduct by establishing a system of disciplinary measures for employees while carrying out various activities to raise their awareness of compliance.

COMPLIANCE MANAGEMENT TRAINING LFC offers various compliance management training programs every year, including mandatory training on compliance and ethical management for new recruits, while building a consensus on compliance among employees and leading them to practice it during their work. In 2021, to prevent the spread of COVID-19, we conducted compliance training for all our employees via real-time online broadcasting, and provided education on the amended Monopoly Regulation and Fair Trade Act for all our executives including the CEO. All our employees attended corporate-wide compliance management training in 2021 to enhance their commitment to compliance management.

Strengthening Compliance Management

OPERATING THE COMPLIANCE PROGRAM To strengthen voluntary compliance with the fair trade laws, LFC adopted the compliance program (CP)¹⁾ in 2006, and is striving to prevent unfair trade conduct and to build a fair trade culture. We systematically and efficiently operate the CP through collaboration between compliance officers in different divisions, with the central roles performed by the Legal Compliance Team, which oversees all work related to fair trade. LFC conducts internal diagnoses of the relevant departments and operates an internal system designed to identify and prevent the possibility of legal violations by having internal fair trade experts review the company's overall performance in new businesses, sales, and purchasing in particular. We create and distribute a fair trade handbook, which is used as a work manual, while operating various training programs for each core factor. To strengthen our fair trade capabilities, we provide systematic CP training to our employees in charge of fair trade and subcontracting according to each job function, as well as providing regular training to onsite departments on amendments to the relevant laws.

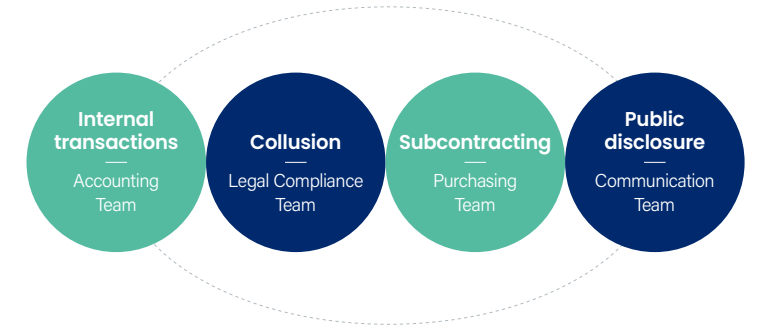
¹⁾ Compliance system and code of conduct internally established and operated to promote voluntary compliance with fair trade-related laws and regulations

In 2021, to improve the effectiveness of our training programs, we introduced new online lectures as well as various programs such as post-test and O/X quiz events. Moreover, targeting high-risk departments, including the sales and subcontracting-related departments, we examined compliance-related matters and reported the results to the top management, thereby raising awareness among the employees in charge and taking the necessary corrective measures.

Compliance Management Vision



Compliance Management Organization by Task



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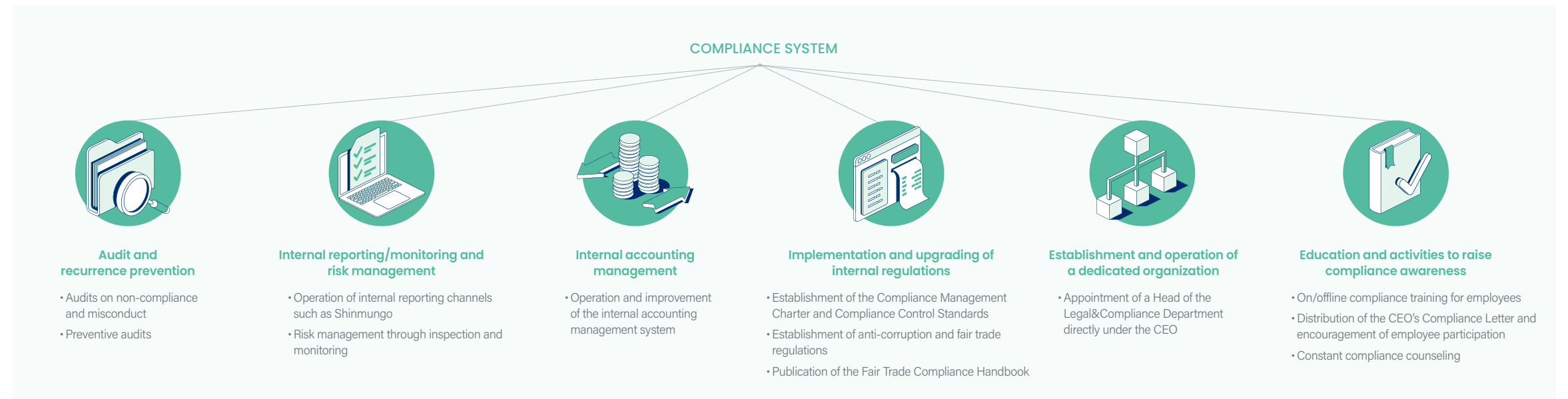
CONDUCTING COMPLIANCE MONITORING In March 2021, in collaboration with the Compliance Office of LOTTE Corporation, LFC conducted monitoring and compliance surveys of its employees to assess its corporate performance in the areas of compliance, fair trade, disclosure, and internal accounting. From the results, we identified supplementary tasks and reported improvement plans to the BOD and top management to ensure company-wide compliance management.

UPGRADING COMPANY RULES SUCH AS COMPLIANCE CONTROL STANDARDS In order to upgrade the "Compliance Control Standard" enacted in April 2012, LFC amended it in July 2021 after obtaining approval from the BOD. In addition, we amended the "Compliance Code of Conduct" in July 2021 so that appropriate sanctions can be imposed in the event of violations of the fair trade laws. We disseminated the amendment through an internal communication portal as well as mailings to ensure that all our employees recognize the importance of compliance management and apply the norm to their work performance.

HELPING PARTNER COMPANIES RAISE AWARENESS OF COMPLIANCE

As part of a fair trade practice program with our partners, we provide them with our compliance training materials, help them raise compliance awareness, and conduct regular inspections of on-site departments dealing with our partner companies. In addition, to ensure that our partners and counterparties comply with the relevant laws and eradicate corruption, we take various measures, including getting them to make a pledge to comply with the Foreign Trade Act and sign a contract with us to practice compliance management. We also strive to raise our partner companies' awareness of compliance management by including special provisions stipulating contract termination in the event of a serious violation of ethical management or compliance management in our standard contract. In 2022, we will set an ESG guidelines for all of our partner companies about labor standard, environment, anti-corruption, and ethical management, and publicly disclose them.

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Financial & Non-Financial Performance Summary

Classification	Unit	2019	2020	2021
SUMMARIZED FINANCIAL STATEMENTS				
Current assets	KRW million	860,530	516,803	866,863
Cash and cash equivalents	KRW million	10,561	9,072	228,813
Short-term financial instruments	KRW million	50,000	7,719	7,657
Financial assets at fair value through profit or loss	KRW million	398,005	142,557	64,480
Accounts receivable	KRW million	210,466	187,429	306,123
Other current financial assets	KRW million	3,779	8,455	2,827
Other current assets	KRW million	9,904	9,118	12,462
Inventories	KRW million	177,815	152,453	244,501
Non-current assets	KRW million	932,155	1,357,786	1,856,591
Long-term financial assets	KRW million	22	22	20
Financial assets at fair value through profit or loss	KRW million	0	347,994	690,135
Financial assets at fair value through other comprehensive income	KRW million	9,653	10,023	9,221
Other non-current financial assets	KRW million	1,907	754	1,860
Investment in associates and joint ventures ¹⁾	KRW million	208,763	192,778	335,538
Property, plant and equipment	KRW million	670,935	757,431	765,767
Investment properties, net	KRW million	8,816	3,531	3,332
Right-of-use assets	KRW million	7,954	19,089	22,482
Intangible assets, net	KRW million	24,104	22,887	20,382
Defined benefit asset, net	KRW million	0	3,260	7,813
Other non-current assets	KRW million	1	17	41
Total assets	KRW million	1,792,685	1,874,589	2,723,454
Current liabilities	KRW million	282,524	169,703	309,017
Non-current liabilities	KRW million	17,048	55,186	215,807
Total liabilities	KRW million	299,572	224,889	524,824

¹⁾ Index name changed due to new acquisition of an associated company in 2021 (LOTTE Chemical Innovation Fund 2)

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Financial & Non-Financial Performance Summary

Classification	Unit	2019	2020	2021	
Equity attributable to owners of the parent	KRW million	1,493,113	1,649,700	2,198,630	
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	(20,656)	(20,075)	(20,552)	
Retained earnings	KRW million	1,063,062	1,219,068	1,768,475	
Non-controlling shareholders' equity	KRW million	0	0	0	
Total equity	KRW million	1,493,113	1,649,700	2,198,630	
Sales	KRW million	1,311,271	1,263,636	1,780,293	
Operating profit	KRW million	189,666	139,233	244,514	
Net profit	KRW million	168,372	198,792	585,458	
Profit attributable to owners of the parent	KRW million	168,372	198,792	585,458	
Non controlling interest	KRW million	0	0	0	
Earnings per share	KRW	6,611	7,805	22,986	
Number of entities included in consolidation	Company	2	3	3	
Operating profit margin	%	14.5	11.0	13.7	
Debt ratio	%	20.1	13.6	23.9	
ROE ¹⁾	%	11.7	12.7	29.9	
CAPEX	KRW billion	70.1	460.3	119.5	
Sales portion by business	Chemical Business	%	75.6	72.4	77.5
	Green Material Business	%	24.4	27.6	22.5
Sales by business	Chemical Business	KRW billion	991.7	914.8	1,380.4
	Green Material Business	KRW billion	319.6	348.8	399.9
Portion of exports	Domestic sales	%	59	55	61
	Exports	%	41	45	39
Countries to which green material products are exported	Country	79	78	83	

¹⁾ Made adjustment for the 2020 figure according to the change in ROE formula

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	Classification	Unit	2019	2020	2021
Portion of export by region	Asia	%	25.4	29.7	30.8
	Europe	%	13.3	12.8	14.5
	China	%	12.1	11.6	9.1
	North & Central America	%	17.2	15.4	14.2
	Latin America	%	7.5	7.5	5.6
	Middle East & Africa	%	7.8	7.5	13.1
	Japan	%	13.6	12.3	9.9
	CIS	%	3.1	3.2	2.8
Number of shares issued		Share	25,800,000	25,800,000	25,800,000
Net profits		KRW billion	168.4	198.8	585.5
Capital ratio		%	83.3	88.0	80.7
Global market share of green materials business		%	8.9	10.1	10.8
R&D investment		KRW billion	11.4	12.0	13.2
Export portion of Green Materials Business Division		%	94	95	95
Fixed income securities		KRW billion	80.0	0	0

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Classification		Unit	2019	2020	2021
DISTRIBUTION OF ECONOMIC VALUE					
Shareholders	Dividend	KRW million	43,299	38,205	58,581
	Interest expense	KRW million	2,082	965	331
	Sub total	KRW million	45,381	39,170	58,912
Employees	Salaries & bonus	KRW million	90,953	92,064	101,106
	Employee benefits	KRW million	19,610	19,350	18,419
	Severance benefits	KRW million	7,305	8,339	8,248
	Training expenses	KRW million	914	704	699
	Sub total	KRW million	118,781	120,458	128,472
Government & public institutions	Corporate tax and other taxes	KRW million	60,236	51,225	86,757
	Sub total	KRW million	60,236	51,225	86,757
Local communities	Expenditures in social contributions	KRW million	2,300	2,138	1,764
	Membership fee	KRW million	222	142	259
	Sub total	KRW million	2,522	2,280	2,023
Business partners	Facility investment	KRW million	70,111	460,323	119,501
	Subcontracting costs	KRW million	21,771	22,732	25,606
	Purchasing costs ¹⁾	KRW million	314,400	282,581	392,885
	Advertising expense	KRW million	2,660	3,605	3,491
	Sub total	KRW million	408,942	769,241	541,483
Total		KRW million	635,862	982,374	817,647

¹⁾ Purchasing costs portion in 2021: 47% by domestic business partners and 53% by overseas business partners

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Classification		Unit	2019	2020	2021
ENVIRONMENTAL PERFORMANCE¹⁾					
Product	Production volume	Ton	2,547,089	2,485,371	2,671,990
	Total energy consumption ³⁾	TJ	14,988	14,495	15,978
	Direct energy consumption	TJ	733	251	375
	Indirect energy consumption	TJ	14,257	14,246	15,603
	Energy consumption intensity	TJ/Product-Ton	0.0059	0.0058	0.0060
	Reduction by executing tasks to reduce energy consumption ⁴⁾	TJ	169	96	73
	Steam (Energy sales)	TJ	8	7	8
Energy ²⁾	Total water consumption	Ton	12,345,719	12,121,393	13,130,091
	Water consumption intensity	Ton/Product-Ton	4.8	4.9	4.9
	Water reuse ⁶⁾	Ton	157,309,157	159,794,158	165,526,451
	Water reuse rate ⁷⁾	%	92.7	92.9	92.7
Water intake by source	Stream water	Ton	12,345,719	12,121,393	13,130,091
Wastewater	Total weight of wastewater	Ton	9,100,156	9,324,945	10,295,918
	Wastewater discharge intensity	Ton/Product-Ton	3.6	3.8	3.9
	Total emissions ³⁾	tCO ₂ eq	669,783	627,987	687,678
Greenhouse Gas (GHG) ⁸⁾	Direct emissions (Scope 1)	tCO ₂ eq	84,347	57,505	65,022
	Indirect emissions (Scope 2)	tCO ₂ eq	585,437	570,483	622,658
	GHG emissions intensity	tCO ₂ eq/Product-Ton	0.263	0.253	0.257
	Reduction by executing tasks to reduce energy consumption ⁹⁾	tCO ₂ eq	7,450	2,754	1,887
	NOx emissions	kg	15,054	9,061	11,546
Other air pollutants ¹⁰⁾	Actual emission concentration of NOx	ppm	14	8	0
	Legal limit of NOx emissions	ppm	130	60	60

¹⁾ Environmental performance is based on the aggregate data of our domestic workplaces (Seoul, Ulsan, Incheon)

²⁾ The figures for 2020 have been revised based on the "Report on GHG Emissions and Energy Consumption". The figures for 2021 are based on the third-party verification and the content of the report, but the final figures are subject to change

³⁾ Total consumption (emissions) is a numerical value based on the report, with a rounding difference

⁴⁾ Selected based on the tasks for 2021 registered in the company's cost innovation task system. Task effect (reduction amount) is calculated based on the FEA (accounting department) verification amount

⁵⁾ The figures for 2019 and 2020 have been revised due to changes in the data calculation range

⁶⁾ The reuse amount is the sum total of the "reuse amount" that is reused for the same purpose, and the "recycle amount" that is reused after physical and chemical treatment

⁷⁾ The calculation formula for the reuse rate: Reuse amount / (Reuse amount + Used amount)

⁸⁾ The figures for 2019 have been revised due to the change in the range of GHG emission calculations. The figures for 2020 have been revised based on the "Report on Greenhouse Gas Emissions and Energy Consumption". The figures for 2021 are based on the third-party verification and the content of the report, with the final figures subject to change.

⁹⁾ Selected based on the tasks for 2021 registered in the company's cost innovation task system, with the task effect (reduction amount) calculated based on the FEA (accounting department) verification amount when registering the cost innovation task system. The 2021 savings are all power-related and fall under Scope 2 emissions reductions.

¹⁰⁾ The 2019 and 2020 figures have been modified according to the confirmed data of the Ministry of Environment. Actual emission concentration and legally permissible criteria are based on the TMS at a cogeneration plant. Starting in 2021, new facilities such as organic matter incinerators and MECELLOSE G burners began to be added to the NOx measurement range.

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	Classification	Unit	2019	2020	2021
Other air pollutants	SOx emissions	kg	1,191	1,430	1,927
	Actual emission concentration of SOx	ppm	5	8	0
	Legal limit of SOx emissions	ppm	100	70	70
	Dust emissions	kg	11,834	8,771	9,383
	Actual emission concentration of dust	ppm	4	3	4
	Legal limit of dust emissions	ppm	25	15	15
Water pollutants ¹⁾	COD discharge	kg	301,586	332,845	335,265
	COD discharge intensity	kg/Product-Ton	0.12	0.13	0.13
	Actual discharge concentration of COD	ppm	33.12	35.57	32.60
	Legal limit of COD discharge	ppm	90 (Linked treatment) 40 (Direct discharge)	90 (Linked treatment) 40 (Direct discharge)	90 (Linked treatment) 40 (Direct discharge)
	BOD discharge	kg	41,397	39,645	66,093
	BOD discharge intensity	kg/Product-Ton	0.02	0.02	0.02
	Actual discharge concentration of BOD	ppm	4.6	4.0	6.4
	Legal limit of BOD discharge	ppm	80 (Linked treatment) 10 (Direct discharge)	80 (Linked treatment) 10 (Direct discharge)	80 (Linked treatment) 10 (Direct discharge)
	SS discharge	kg	172,130	153,671	178,890
	SS discharge intensity	kg/Product-Ton	0.07	0.06	0.07
	Actual discharge concentration of SS	ppm	19.01	16.43	17.4
	Legal limit of SS discharge	ppm	80 (Linked treatment) 10 (Direct discharge)	80 (Linked treatment) 10 (Direct discharge)	80 (Linked treatment) 10 (Direct discharge)
Waste	Total weight of waste	Ton	80,707	75,019	82,919
	Waste discharge intensity	Ton/Product-Ton	0.03	0.03	0.03
	General waste	Ton	79,893	74,478	82,268
	Specified waste	Ton	814	541	652
	Incineration	Ton	1,234	2,422	920
	Landfill	Ton	11,723	5,284	4,829
	Others	Ton	78	7	260
	Recycling	Ton	67,672	67,307	76,910
	Recycling rate	%	84	90	93

¹⁾ Emission quantities are disclosed according to the different standards that are applied to each emission facility

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Classification		Unit	2019	2020	2021	
Hazardous chemicals	Discharge of hazardous chemicals	Ton	64	62	63	
	Total	KRW million	3,081	20,784	12,554	
	Noise	KRW million	92	0	0	
	Chemical substance	KRW million	500	3,084	2,500	
	Environmental investment					
Environmental investment	Energy	KRW million	325	187	0	
	Water	KRW million	1,940	1,445	499	
	Air quality (including odor)	KRW million	224	16,068	9,543	
	Occupational accident prevention	KRW million	0	0	11	
Green procurement	Amount of green procurement	KRW million	5,458	892	8,190	
Environmental education	Percentage of employees having received environmental education	%	100	100	100	
Eco-friendly product sales		KRW billion	379.6	412.3	473.7	
Environmental law violations ¹⁾		Case	1	1	0	
SOCIAL PERFORMANCE						
Classification		Unit	2019	2020	2021	
Employees	Total number of employees	Person	861	892	903	
	Employees ²⁾	Male	Person	751	777	786
		Female	Person	110	115	117
	By employment type	Full-time	Person	826	841	842
		Part-time	Person	35	51	61
	By age	Under 30	Person	93	111	112
		30s	Person	354	354	347
		40s	Person	273	254	245
	By position	Over 50	Person	141	173	199
		Executives and above	Person	16	13	14
		Managers and above	Person	233	253	259
		Senior assistants and below	Person	612	626	630

¹⁾ Violation of the Clean Air Conservation Act (KRW 2 million) in 2019; and violation of the Chemical Substances Control Act ("administrative warning") in 2020

²⁾ Including all employees at domestic workplaces, contract workers (excluding expatriates), employees on leave of absence, external directors, and advisors/counselors. The 2019 figures were revised due to changes in the calculation criteria for the total number of employees. The 2020 figures were corrected to rectify a data error.

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Financial & Non-Financial Performance Summary

Employment

Total number of employees	Business site	Unit	By business site	By gender		By employment type			By working hours		
				Male	Female	Full-time	Indefinite employment contract	Part-time	All day	Short-time working	Leave of absence
903	Ulsan	Person	690	640	50	655	10	25	683	0	7
	Seoul	Person	183	121	62	170	11	2	172	0	11
	Incheon	Person	30	25	5	27	1	2	30	0	0

*As of December 31, 2021

New hires and turnover	Business site	Unit	By business site	By gender		By Age		
				Male	Female	Under 30	30-50	Over 50
New employee hires	Ulsan	Person	30	21	9	22	8	0
	Seoul	Person	4	3	1	2	1	1
	Incheon	Person	2	0	2	1	1	0
Employee turnover ¹⁾	Ulsan	Person	10	8	2	9	1	0
	Seoul	Person	6	1	5	1	4	1
	Incheon	Person	2	2	0	1	0	1

*As of December 31, 2021

¹⁾ Excluding those whose contracts were terminated, other part-time workers, and advisors

Classification	Unit	2019	2020	2021	
				2021	2021
New employee hires	Total No. of newly hired employees	Person	30	47	36
Employee turnover	Employee turnover rate ¹⁾	%	1.2	0.4	1.6
Employment	No. of employees eligible for parental leave (Male)	Person	24	26	33
	No. of employees eligible for parental leave (Female)	Person	9	12	5
	No. of employees on parental leave (Male)	Person	19	22	26
	No. of employees on parental leave (Female)	Person	9	12	5
	Parental leave rate (Male)	%	79	85	79
	Parental leave rate (Female)	%	100	100	100
	Return-to-work rate (Male)	%	100	100	100
Return-to-work rate (Female)	%	100	100	100	

¹⁾ Excluding employees who are transferred to the Group companies/affiliates or employees who have left the company for childcare

²⁾ Based on those who have worked for the company for more than 12 months after returning to work from parental leave

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Classification		Unit	2019	2020	2021	
Employment	Parental leave	Retention rate after parental leave (Male) ¹⁾	%	100	100	100
		Retention rate after parental leave (Female) ¹⁾	%	100	100	100
	Occupational accident (LFC)	No. of occupational accidents	Case	4	1	1
		Occupational accident rate	%	0.5	0.1	0.1
Loss time		Hour	624	2,400	3,648	
Employment	Occupational accident (In-house supplier)	Loss time injury frequency rate (LTIR)	-	0.32	0.15	0.15
		No. of occupational accidents	Case	5	8	2
		Occupational accident rate	%	1.0	1.5	0.3
		Loss time	Hour	3,224	8,500	1,344
	LTIR	-	0.70	1.63	0.47	
	Employee education/training	Total hours of employee education/training	Hour	31,124	25,566	24,299
		Hours of education/training per person	Hour	39	31	29
		Expenditures in education/training per person	KRW 10,000	113	86	83
Length of service	Average length of continuous service	Year	15.3	15.5	15.9	
	Average length of continuous service (Male)	Year	16.5	16.7	17.1	
	Average length of continuous service (Female)	Year	7.5	7.8	8.1	
Wages and benefits	Same wage	Average wages for workers (women's wages as a percentage of men's wages)	%	100	100	100
	Employee benefits	Percentage of welfare cost to sales	%	1.5	1.5	1.0
	Retirement pension subscription rate	Subscription rate	%	96.0	95.0	95.0
		No. of subscribers	Person	824	848	856
Diversity	Female	No. of female leaders (Managers and above)	Person	34	36	36
		Proportion of female employees among full-time workers	%	11.0	10.9	10.2
		Proportion of female employees among contract workers	%	54.3	45.1	50.8

¹⁾ Based on those who have worked for the company for more than 12 months after returning to work from parental leave

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Classification			Unit	2019	2020	2021
Diversity	Minority groups	Persons with disabilities	Person	23	26	28
		Recipients of patriots & veterans benefits	Person	43	43	45
		Foreigners	Person	1	1	1
Human rights	Human rights training	Hours of human rights training	Hour	1	1	1
		Percentage of employees having received human rights training	%	100	100	100
Ethical management	Internal reporting channel	No. of reporting received	Case	11	12	32
		No. of reporting handled	Case	11	12	32
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	1	0
		No. of disciplinary actions or dismissals due to corruption	Case	0	1	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		
Safety & health	Safety & health assessment	Percentage of product/ service categories having received industrial safety assessment	%	100	100	100
		Regulatory compliance	Fines for violation of industrial safety regulation	KRW million	0.5	7.6
	Deficiencies in safety & health	No. of cases identified	Case	3,643	4,048	2,189
		No. of cases improved	Case	3,039	3,393	2,077
		Percentage of improvement	%	83.4	83.8	94.9
Safety training	Safety training hours	Hour	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

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Classification		Unit	2019	2020	2021	
Customer satisfaction	Complaints	Receiving and handling of VOCs	Case	281	410	316
		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
	Data protection education	No. of employees received the training	Person	834	864	873
		No. of trainees (staff in charge of handling personal information)	Person	72	86	82
	PSM rating	Ulsan Complex	Rating	S	S	S
Incheon Plant		Rating	S	S	S	
Labor union	No. of labor union members	Person	411	432	440	
		Person	540	536	559	
	Percentage of union members compared to employees eligible for union membership	%	76	80	79	
		Person	3	3	3	
	Collective agreement application rate	%	100	100	100	
		%	72.5	38.5	44.0	
Social contributions	Employee participation rate in social contributions	Hour	3.1	3.5	2.8	
		KRW million	222	353	549	
	Investment in education and scholarship	KRW million	0	10	20	
		KRW million	78	69	80	
	Others	KRW million	2,000	1,706	1,115	
		KRW billion	314.4	282.6	392.9	
Supply chain management	Partner company purchase	%	54	57	55	
		%	31	27	33	
	Percentage of business partners' purchase	%	3	3	2	
		%	5	6	6	
	Utility	%	5	2	2	
		Chemicals	%	2	5	2

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GHG Verification Statement

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

Terms of Engagement

LRQA was commissioned by LOTTE FINE CHEMICAL CO., LTD (LFC) to provide independent assurance on its Greenhouse Gas (GHG) Inventory Report for the calendar year 2021 (the report) against "the guidelines on emission reporting and certification under the GHG emissions trading system" and the monitoring plan for the calendar year 2021 using "the verification guidelines for GHG emissions trading system".

The report relates to direct GHG emissions and energy indirect GHG emissions.

Management Responsibility

LRQA's responsibility is only to LFC. LRQA disclaims any liability or responsibility to others as explained in the end footnote. The management of LFC 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 LFC.

LRQA's Approach

LRQA's assurance engagement has been carried out in accordance with our verification procedure using "the verification guidelines for GHG emissions trading system" 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 2021.

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%.

LRQA's Opinion

Based on LRQA's approach, except for the effect of the matter as below, we believe that the report is prepared in accordance with GHG Emission Trading System Scheme for quantification and reporting of GHG emissions in Korea and "Monitoring Plan of calendar year 2021" using "Verification guideline for GHG emission trading system in Korea" and the GHG emissions data in the Table 1 is materially correct:

- AC Tar and ECH Tar used for hydrochloric acid manufacturing facility (#2 ECH) (Serial No. 26) shall be analyzed at least every month as required component analysis cycle, but the analysis of November did not meet the requirement. Therefore, the emission factor was recalculated conservatively according to the guidelines of conformity assessment.
- Wastewater incinerated at the organic incinerator (Serial No. 40) shall be analyzed at least every month as a required component analysis cycle. However, moisture (H2O) analysis was missing during the component analysis of wastewater facilities from January to April. Therefore, the emission factor was recalculated conservatively according to the guidelines of conformity assessment.
- According to the conservative recalculation procedure, the GHG emission from the use of AC Tar and ECH tar (#2ECH, serial number 26) and incineration of wastewater (organic incinerator, serial number 40) was recalculated and presented as approximately 23,676 tCO₂eq. The error caused by this is estimated less than the level of materiality.



Il-Hyoung Lee
 LRQA
 17th Floor, Singsong Building, 67 Yeouinaru-ro, Yeongdeungpo-gu, Seoul, 07327, Korea
 LRQA Reference: SEO6019655

Dated: 31 March 2022

Table 1. Summary of GHG emissions		Unit: tCO ₂ eq
Scope of GHG emissions		Year 2021
Direct GHG Emissions		65,022.012
Energy Indirect GHG Emissions		622,657.903
Total GHG Emissions		687,678

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Independent Assurance Statement

Dear Stakeholders of LOTTE FINE CHEMICAL,

KFQ has been engaged by LOTTE FINE CHEMICAL to provide independent assurance on the 2021 Sustainability Report for LOTTE FINE CHEMICAL (the 'Report'). It is our responsibility to provide an independent assurance statement in accordance with the standards and scope of assurance as specified below. LOTTE FINE CHEMICAL has sole responsibility for the preparation of the Report.

Standards and Scope of Assurance

- **Standards:** AA1000AS(v3), AA1000AP(2018)
- **Type:** Type 2, covers the assessment of adherence to the Accountability principles of inclusivity, materiality, responsiveness, impact; and reliability and quality of disclosed information on sustainability performance.
- **Level:** Moderate, limited evidence has been obtained to support our assurance statement
- **Scope:** GRI Standards(2020) Core option
 - Reporting Principles
 - Universal Standards
 - Topic Specific Standards

Topic	GRI Disclosure	Topic	GRI Disclosure
Management Approach	103-1, 103-2, 103-3	Labor Management Relations	402-1
Economic Performance	201-1	Occupational Health and Safety	403-1, 403-2, 403-4, 403-5, 403-6, 403-9
Procurement Practices	204-1	Training and Education	404-1, 404-2
Anti-Corruption	205-1, 205-2	Diversity and Equal Opportunity	405-1
Anti-competitive Behavior	206-1	Non-discrimination	406-1
Energy	302-1, 302-3, 302-4	Human Rights Assessment	412-2
Water and Effluents	303-1, 303-3	Local Communities	413-1
Emissions	305-1, 305-2, 305-4, 305-5, 305-7	Marketing and Labeling	417-2, 417-3
Waste	306-3, 306-4	Customer Privacy	418-1
Employment	401-1, 401-3	-	-

Methodology

In order to assess the reliability of disclosures about the sustainability performance in the Report by applying the standards, we reviewed sustainability-related processes, systems, internal control procedures, and available data. The documentation reviewed during the assurance engagement includes:

- **Non-financial information e.g.:** Data provided to us by LOTTE FINE CHEMICAL, disclosed Business Reports, 1and information obtained from media and/or the internet; and
- **Financial information i.e.:** Financial statements reported on the DART (Data Analysis, Retrieval and Transfer System, <http://dart.fss.or.kr>), the Electronic Disclosure System managed by Financial Supervisory Service.

The assessment was performed by document review and onsite inspection. We interviewed employees who are responsible to prepare the Report, where we evaluated the validity of the materiality assessment processes, a stakeholder-centric approach to select material issues, data collection and management procedures, report preparation procedures, and validation of claims stated in the report. It was confirmed that errors, inappropriate information, and ambiguous expressions identified during the assessment were properly corrected prior to the Report being published.

Competency and independence

The assurance team was organized 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 to the LOTTE FINE CHEMICAL business.

Limitations

The completeness and responsiveness of sustainability performance represented in the Report have inherent limitations due to its nature and the methodology used to determine, calculate and estimate its performance. In accordance with the terms of the contract, we assessed the information and evidence provided by the company. We did not perform any further assessment procedures on raw data.

Findings and Conclusions

As a result of the assessment, we confirm that the Report fulfills the 'Core options' requirements of GRI Standards, adheres to the AA1000AP(2018)'s Accountability principles, and demonstrates a Type 2 assurance level, as evidenced by reviewed data and information. Based on the assessment, nothing has come to our attention to suggest that the Report provides material errors or misstatements and does not properly describe the adherence to the Accountability principles.

Inclusivity LOTTE FINE CHEMICAL is gathering opinions from various stakeholders including customers, shareholders and investors, partner companies, employees, local communities through communication channels such as Voice of Customers, product seminars, the internal communication channel with employees, and social contribution activities. Nothing came to our attention to suggest that the main stakeholders are not stated in the Report.

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Materiality LOTTE FINE CHEMICAL identifies important issues by conducting a materiality assessment in terms of stakeholders' interests and business impacts, followed by prioritization. It is confirmed that the Report properly describes the identified issues resulting from the materiality assessment without any omission.

Responsiveness LOTTE FINE CHEMICAL consistently engages with stakeholders to respond to their feedback and main interests. Nothing came to our attention to suggest that its responses and performance are inappropriately described in the Report.

Impact We found during our assessment that LOTTE FINE CHEMICAL is identifying and monitoring impacts relating to stakeholders and reporting them to the extent possible. Nothing came to our attention to suggest that it does not properly assess and report impacts relating to material issues.

Reliability and quality of disclosed information on sustainability performance We assessed the reliability of specified environmental and social performance data related to sustainability. We conducted an interview with managers responsible for the Report preparation, where we reviewed internal data on a sample basis and publicly available documentation, and confirmed the reliability of the processes for collating qualitative and quantitative sustainability data described in the Report. Nothing came to our attention to suggest that intentional misstatements and/or material non-conformities in data are presented during the assessment.

Recommendation for improvement

KFQ recommends following developmental approaches in order to systematize sustainability management in the future and to disclose the results of the report effectively.

- The sustainability report for LOTTE FINE CHEMICAL presented quantitative indicators to represent a variety of issues. We look forward to seeing the company's impacts on stakeholders and business-specific data will be continuously and appropriately covered in the upcoming report.
- In the future, we hope that LOTTE FINE CHEMICAL regularly discloses its activities for the mid-and-long-term ESG roadmap, and hence stakeholders could confirm the company's well-developed ESG management strategy and achievements that meet their expectations.



May, 2022
 Seoul, Korea
Ji Young Song, CEO
 Korean Foundation for Quality (KFQ)

Ji Young Song

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Universal Standards

GRI 102: General Disclosure							
GRI STANDARD		DISCLOSURE	PAGE	GRI STANDARD			
GENERAL DISCLOSURES							
Organizational Profile	102-1	Name of the organization	4	Reporting Practice	102-45	Entities included in the consolidated financial statements	57, Refer to page 34 of LFC Business Report 2021
	102-2	Activities, brands, products, and services	7-11, 75-76		102-46	Defining report content and topic boundaries	19-21
	102-3	Location of headquarters	4		102-47	A list of the material topics identified in the procedure for defining report content	19-21
	102-4	Location of operations	4, 79		102-48	Restatements of information	No significant change
	102-5	Ownership and legal form	46		102-49	Changes in reporting	No significant change
	102-6	Markets served	4, 7-11, 17		102-50	Reporting period	79
	102-7	Scale of the organization	4, 62-63		102-51	Date of most recent report	June 2021
	102-8	Information on employees and other workers	62-64		102-52	Reporting cycle	1 year
	102-9	Supply chain	38		102-53	Contact point for questions regarding the report	79
	102-10	Significant changes to the organization and its supply chain	No significant change		102-54	Claims of reporting in accordance with the GRI Standards	79
	102-11	Precautionary Principle or approach	24-26, 49-50		102-55	GRI content index	70-71
	102-12	External initiatives	74		102-56	External assurance	68-69, 79
	102-13	Membership of associations	78		Management Approach	103-1	Explanation of the material topic and its boundary
102-14	Statement from senior decision-maker	3	103-2	The management approach and its components		21, 26, 27, 35-37, 51-54	
102-16	Values, principles, standards, and norms of behavior	51-54	103-3	Evaluation of the management approach			
Ethics and Integrity	102-17	Mechanisms for advice and concerns about ethics	52				
	102-18	Governance structure	16, 46, 48				
Governance	102-40	List of stakeholder groups	18				
	102-41	Collective bargaining agreements	66				
	102-42	Identifying and selecting stakeholders	18				
	102-43	Approach to stakeholder engagement	18				
	102-44	Key topics and concerns raised	19-21				
	102-44	Key topics and concerns raised	19-21				

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Topic-specific Standards

Economic Performance (GRI 200)			
GRI STANDARD		DISCLOSURE	PAGE
Economic Performance	201-1	Direct economic value generated and distributed	59
Procurement Practices	204-1	Proportion of spending on local suppliers	59
Emissions	205-1	Operations assessed for risks related to corruption	52-54
	205-2	Communication and training about anti-corruption policies and procedures	53
Anti-competitive Behavior	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	No violation
Environmental Performance (GRI 300)			
Energy	302-1	Energy consumption within the organization	26, 60
	302-3	Energy intensity	60
	302-4	Reduction of energy consumption	26, 60
Water and Effluents	303-1	Interactions with water as a shared resource	28
	303-3	Water withdrawal	60
Emissions	305-1	Direct (Scope 1) GHG emissions	26, 60
	305-2	Indirect (Scope 2) GHG emissions	26, 60
	305-4	GHG emissions intensity	60
	305-5	Reduction of GHG emissions	60
Effluents and Waste	305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	60-61
	306-3	Significant spills	28, 61
	306-4	Transport of hazardous waste	28, 61

Social Performance (GRI 400)			
GRI STANDARD		DISCLOSURE	PAGE
Employment	401-1	New hires and employee turnover	63
	401-3	Parental leave	32, 63
Labor/Management Relations	402-1	Minimum notice periods regarding operational changes	At least 30 days in advance
	403-1	Occupational health and safety management system	35
	403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	35-36, 65
	403-4	Worker participation, consultation, and communication on occupational health and safety	35-36
Occupational Health and Safety	403-5	Worker training on occupational health and safety	36-37, 64
	403-6	Promotion of worker health	37
	403-9	Work-related injuries	64
Training and Education	404-1	Average hours of training per year per employee	64
	404-2	Programs for upgrading employee skills and transition assistance programs	30-31
Diversity and Equal Opportunity	405-1	Diversity of governance bodies and employees	62-64
Non-discrimination	406-1	Incidents of discrimination and corrective actions taken	33
Human Rights Assessment	412-2	Employee training on human rights policies or procedures	33, 64
Local Communities	413-1	Operations with local community engagement, impact assessments, and development programs	42-44, 66
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	65
Customer Privacy	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	41, 65

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SASB Index

Topic	Accounting Metric	Page & Content
Sustainability Disclosure Topics & Accounting Metrics		
Greenhouse Gas Emissions	RT-CH-110a.1	(1) Gross Scope 1 emissions (2) Percentage covered under emissions-limiting regulations (eg. K-ETS)
	RT-CH-110a.2	(1) Discussion of long term and short term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets
Air quality	RT-CH-120a.1	Air emissions of the following pollutants: (1) NOX (excluding N2O) (2) SOx (3) Volatile organic compounds (VOCs) (4) Hazardous air pollutants (HAPs)
	RT-CH-130a.1	(1) Total energy consumed (2) Percentage grid electricity (3) Percentage renewable (4) Total self-generated energy
Water management	RT-CH-140a.1	(1) Total water withdrawn (2) Total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress
	RT-CH-140a.2	(1) Number of incidents of non-compliance associated with water quality permits, standards, and regulations
Hazardous waste management	RT-CH-140a.3	(2) Description of water management risks and discussion of strategies and practices to mitigate those risks
	RT-CH-150a.1	(1) Amount of hazardous waste generated (2) Percentage recycled
Community relations	RT-CH-210a.1	(1) Discussion of engagement processes to manage risks and opportunities associated with community interests
Workforce health and safety	RT-CH-320a.1	(1) Total recordable incident rate (TRIR) (2) Fatality rate for direct employees and contract employees
	RT-CH-320a.2	(1) Description of efforts to assess, monitor, and reduce exposure of employees and contract workers to long-term (chronic) health risks

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Topic	Accounting Metric	Page & Content
Product design for use-phase efficiency	RT-CH-410a.1 (1) Revenue from products designed for use phase resource efficiency	(1) KRW 473.7 billion(Based on sales of eco-friendly products, such as EUROX® and green materials)
Safety and environmental stewardship of chemicals	RT-CH-410b.1 (1) Percentage of products that contain Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Category 1 and 2 Health and Environmental Hazardous Substances (2) Percentage of such products that have undergone a hazard assessment	(1) P. 27 (2) LFC controls and manages substances with high product-related health/ environmental hazards to minimize the risks.
	RT-CH-410b.2 Discussion of strategy to (1) manage chemicals of concern (2) develop alternatives with reduced human and/or environmental impact	(1) P. 27 (2) ESG Magazine P. 4-6
Genetically modified organisms	RT-CH-410c.1 (1) Percentage of products by revenue that contain genetically modified organisms (GMOs)	(1) LFC does not use any processes in which genetically modified substances are directly injected into its product manufacturing process.
Management of the legal and regulatory environment	RT-CH-530a.1 (1) Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry	(1) LFC continuously monitors governmental regulations and policies at home and abroad related to environmental and social factors, and reflects them in its corporate management activities. It is an active member of various councils and associations, such as the consultative body for three substances (DMA, PTAC, TMA-HCl) in relation to the amendment to the Act on the Registration and Evaluation of Chemical Substances, and presents its own positions and opinions on issues that affect its business operations.
Operational safety, emergency preparedness and response	RT-CH-540a.1 (1) Process Safety Incidents Count (PSIC) (2) Process Safety Total Incident Rate (PSTIR) (3) Process Safety Incident Severity Rate (PSISR)	(1) Zero (2) Index which is not managed as of current (3) Index which is not managed as of current
	RT-CH-540a.2 (1) Number of transport incidents	(1) Zero

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UNGC & UN SDGs

In December 2020, LFC joined the UN Global Compact (UNGC) and declared its commitment to observe The Ten Principles on human rights, labour, environment, and anti-corruption. We will continue to comply with the principles and disclose our performance results.

In 2015, the UN and its member countries announced 17 Sustainable Development Goals to solve the economic, environmental, and social problems facing humanity. As a global corporate citizen, LFC aims to contribute to the achievement of the UN SDGs through its business operations.

UN Global Compact – 10 Principles

	Principles	Related activities	Page
Human Rights	<ol style="list-style-type: none"> 1. Businesses should support and respect the protection of internationally proclaimed human rights; and 2. Make sure that they are not complicit in human rights abuses. 	<ul style="list-style-type: none"> • LFC requires all its employees to attend human rights education aimed at preventing verbal abuse and bullying in the workplace. • LFC enacted a human rights policy for all its stakeholders, including employees, customers, local communities, and partner companies, and conducted employee training led by the CEO in 2021. • LFC collects grievances, including human rights violations, workplace bullying, and acts of discrimination, through the on/offline grievance center, while grievance counselors at each workplace promptly investigate each case and take the appropriate measures. 	33
Labour	<ol style="list-style-type: none"> 3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining; 4. The elimination of all forms of forced and compulsory labour; 5. The effective abolition of child labour; and 6. The elimination of discrimination in respect of employment and occupation. 	<ul style="list-style-type: none"> • LFC runs a labor union for assistant managers and below according to a collective bargaining agreement, with anyone eligible allowed to freely join or leave it. • LFC holds a quarterly meeting of the Labor-Management Council (composed of 10 councilors each from management and labor) to share feedback from worksites. • LFC complies with the Labor Standards Act, while prohibits forced and child labor as well as discrimination on the grounds of educational background, region of origin, gender, age, religion, race, etc. 	33-34
Environment	<ol style="list-style-type: none"> 7. Businesses should support a precautionary approach to environmental challenges; 8. Undertake initiatives to promote greater environmental responsibility; and 9. Encourage the development and diffusion of environmentally friendly technologies. 	<ul style="list-style-type: none"> • LFC operates an environmental management system based on the ISO 14001 environmental management system. • Through its in-house environmental work verification system, LFC inspects its performance in each environmental field once a year and makes the necessary improvements. • To make continuous improvements in the environmental sector, LFC increased its investment in the following areas in 2021: reduction of environmental pollutants, installation of incinerators to reduce air pollutant emissions, running of pilot tests to reduce water consumption and wastewater discharge, installation of external organic by-product facilities to reduce energy consumption and expand waste recycling, and improvement of air emission facilities for green materials. 	24-28
Anti-Corruption	<ol style="list-style-type: none"> 10. Businesses should work against corruption in all its forms, including extortion and bribery. 	<ul style="list-style-type: none"> • LFC makes the right decisions and conducts its business in a transparent and fair manner based on its Code of Conduct, company rules and regulations, and ethical management system. • LFC operates the online “Shinmungo” and LOTTE Group’s “Shinmungo” on its website as channels for reporting unfair business practices and unethical matters by its employees and the members of its partner companies, while conducting investigations according to established processes and, upon confirmation of misconduct, taking disciplinary action, making process improvements, and offering ethical management education in order to prevent the recurrence of violations. • LFC has supported and participated in BIS (Business Integrity Society), a global anti-corruption project. 	51-53



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Product List

Category	Product Name	Abbreviation	Chemical Formula	CAS No.	Characteristic / Purity	Packing	Application	Others
Cellulose Ethers	MECELLOSE®	MC	-	9004-67-5		20kg: Paper bag with PE inner liner 350kg: PP Jumbo bag with PE inner liner	Construction, paints, ceramic, thickening agent	-
		HPMC	-	9004-65-3		-	-	-
		HEMC	-	9032-42-4		-	-	-
	HECELLOSE®	HEC	-	9004-62-0	White or yellowish powder	25kg: Paper bag with PE inner liner 450kg: PP Jumbo bag with PE inner liner	Paints, household goods, construction, oil field	-
		HPMC	-	9004-65-3		20kg, 25kg: Fiber drum with PE double inner bag or paper bag with PE inner liner	Tablet coating, capsule making, thickening agent	Certificate: Kosher, ISO 9001, DMF
	AnyCoat®	HPMC-P	-	9050-31-1		-	Enteric coating	-
		HPMC-AS	-	71138-97-1		-	-	-
AnyAddy®	MC	-	9004-67-5		20kg, 25kg: Fiber drum with PE double inner bag or paper bag with PE inner liner	Foods, dietary supplements	Certificate: FSSC 22000 (GFSI)	
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% ap. 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	Colorless, 35% ap. solution	Cylinder, Tank lorry	Agrochemicals, pharmaceuticals	Domestic only
	Methyl Chloride	MC(Methyl Chloride)	CH ₃ Cl	74-87-3	Colorless, liquefied gas, 99.9% min.	940kg cylinder	Agrochemicals, organic synthesis, quaternary ammonium salt	-
	Methylene Chloride	MCL	CH ₂ Cl ₂	75-09-2	Colorless, clear, volatile liquid, 99.9% min.	250kg steel drum, ISO-tank, tank lorry, bulk vessel	Electric material solvents, pharmaceutical synthesis solvents, flexible polyurethane foams	
	Chloroform	CFM	CHCl ₃	67-66-3	Colorless, clear, volatile liquid, 99.9% min.	250kg steel drum, ISO-tank, tank lorry, bulk vessel	Pharmaceuticals, solvents, fluorocarbon refrigerants (R-22)	-
	Methaclean	Methaclean	CH ₂ Cl ₂ +α	75-09-2	Colorless, clear, volatile liquid	250kg steel drum, tank lorry	Cleaning agents, foaming agents, drying agents	
	Epichlorohydrin	ECH	C ₃ H ₅ OCl	106-89-8	Colorless liquid, 99.9% min.	240kg 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)	230kg PE drum, 11MT IBC, flexibag, tank lorry	Additives for starch, high-quality pulp, surface active agent	EU REACH registered

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Category	Product Name	Abbreviation	Chemical Formula	CAS No.	Characteristic / Purity	Packing	Application	Others
Ammonia Derivatives	Monomethylamine	MMA	CH ₃ NH ₂	74-89-5	Colorless liquid, 40% ap. solution	170kg steel drum, 20MT ISO-tank, tank lorry	Pharmaceuticals, alkylalkanolamines (MDEA), soil fumigant, pesticide	
	Dimethylamine	DMA	(CH ₃) ₂ NH	124-40-3	Colorless, 50%, 60% ap. solution, 99.8% gas	160kg steel drum, 19MT ISO-tank, tank lorry, high-pressure ISO tank	Rubber vulcanization accelerator, agrochemicals, surface active agent, water treatment	
	Trimethylamine	TMA	(CH ₃) ₃ N	75-50-3	Colorless, 30% ap. solution	Tank lorry, ISO-tank	Surface active agent, anion exchange resin, agrochemicals	
	Trimethylamine-HCL	TMA-HCL	(CH ₃) ₃ NHCl	593-81-7	57% ap. solution	Tank lorry	Livestock feed, pharmaceutical intermediates, anti-static agent, additives for starch	
	EUROX®	-	(NH ₂) ₂ CO	57-13-6	Colorless urea solution, 32.5%, 40%	10L PET, 3.5L PET, EBD V1.5, bulk vessel, tank lorry, IBC, Flexibag, PE drum	Selective catalytic reduction (De-Nox) in diesel engine (32.5% for automobile, 40% for industry)	
	Ammonia	-	NH ₃	7664-41-7	Colorless, 99.5%	Tank lorry, pipe	Urea, caprolactam, acrylonitrile, hydrazine	
	Tetramethyl Ammonium Chloride	TMAC	(CH ₃) ₄ NCl	75-57-0	Colorless, 58% ap. solution	20MT ISO-tank, tank lorry	TMAH raw material, oil & gas industry	
	Tetramethyl Ammonium Hydroxide	TMAH	(CH ₃) ₄ NOH	75-59-2	Colorless, 20%, 24.9% ap. solution	190kg PE drum, 20MT ISO-tank, tank lorry	Photoresist development, anisotropic etchant	

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History



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
- 2008 Construction of EUROX® plant, completed
- 2009 Production of polymer toner, commenced
- 2010 The China subsidiary, established
- 2011 HECCELLOSE®, 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 HECCELLOSE® 2 plant, completed



2019-2020

Building a foundation for sustainable growth

- Apr. 2019 Construction of AnyCoat® D plant, completed
- Dec. 2019 Chosen as a leisure-friendly company
- Dec. 2019 Chosen as a company recognized for local community contribution
- Dec. 2019 Received the USD 600 Million Export Tower Award
- Sep. 2020 Invested as a limited partner of a private equity fund for the acquisition of Solus Advanced Materials
- Dec. 2020 Received the Prime Minister's Citation at the Korea New Growth Management
- Dec. 2020 Continued to be chosen as a company recognized for local community contribution
- Dec. 2020 Recognized as an excellent company in providing support for culture and arts



2021

Fully implementing ESG management

- Mar. Opened the Food and Pharmaceutical R&D Center in Magok, Seoul
- Mar. Capacity of MECELLOSE® plant expanded
- Mar. Capacity of AnyCoat® plant expanded
- Jul. Established the ESG Committee
- Nov. Selected to participate in the national Technological Development of Reformed Hydrogen from Clean Ammonia Project
- Nov. Received the Minister of Interior and Safety's Prize at the Korea Safety Award
- Dec. Received the Minister of Health and Welfare's Prize for its Community Contribution Recognition Certification System.
- Dec. Received the Minister of Foreign Affairs' Prize at the Korea Social Contribution Awards.

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Southern Fire Safety Promotion Council	The Federation of Korean Industries
Korean Nurses Association	KISANHYUP
Korea Industrial Safety Association	National Emergency Plan Association
Ulsan Branch of the Emergency Plan Council	Clean Ammonia Council
Korea Association of Occupational Health Nurses	Korea Responsible Care Council
Yeochon Industrial Complex Plant Head Council	Korea Economic Research Institute
Reserve Forces Commander Council	Fair Competition Federation
Ulsan Plant Head Council	Korea Customs Logistics Association
Environmental Protection Council of the Ulsan Prosecutor's Office	Korea Management Association
Ulsan Chamber of Commerce and Industry	Korea International Trade Association
Ulsan Safety Communication Committee	Korea Industrial Technology Association
Ulsan Yangsan Enterprises Federation	Korea Listed Companies Association
Ulsan Yecheon Safety Association	Korea Fire Safety Institution
Ulsan Electric Association	Korea Hydrogen Industry Association
General Affairs Department Association of Major Large Enterprises in Ulsan	Korea Electric Engineers Association
Ulsan Civil Defense Working Council	Korea Electric Engineers Association
Ulsan R&D Head Council	Korea Specialty Chemical Industry Association
Ulsan Environmental Engineering Association	Korea Chlor Alkali Industry Association
Ulsan Shipper Logistics Council	Korea Chemicals Management Association
Global Compact Network Korea	Volunteer Fire Department Specializing in Chemicals
Incheon Environmental Volunteer Association	Ammonia Energy Association
Incheon Environmental Engineering Association	Drymix. Info
Ulsan Chief Manager Council	

* As of December 31, 2021

Task Force Members for the 2021 LOTTE Fine Chemical Sustainability Report

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About This Report

LFC has published the 2022 Sustainability Report, its seventh since it began publishing the report in 2016, in order to inform its stakeholders of its mid- to long-term strategies and goals, as well as the status of its ESG (environmental, social, and governance) management. This report focuses on our key business performance and achievements in 2021 and our future growth plans in terms of the economic factors on which revenue generation and growth are based, as well as in terms of the social and environmental factors that boost corporate sustainability. Based on such integrated and transparent reporting of both our financial and nonfinancial performance, LFC will continue to pursue sustainable growth while increasing its stakeholders' trust in the corporation.

Reporting Period and Scope

This report presents data about the company's performance from January 1 through December 31, 2021, and some data include activities conducted by March 2022. 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 is prepared in accordance with the Core Option of the GRI (Global Reporting Initiative) Standards and reflects the UN Sustainable Development Goals (SDGs) and the SASB (Sustainability Accounting Standards Board) Standards. This report has also considered the business model elements of the Integrated Reporting Framework established by the International Integrated Reporting Council (IIRC).

Reporting Cycle

LFC issues its sustainability report every year, and the latest issuance date is June 2021.

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 v3 and AA1000APS (2018).

A separate assurance took place for greenhouse gas data.

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Fine Today, Green Tomorrow.

LOTTE FINE CHEMICAL ESG Magazine 2021



Redefine sustainable chemistry of tomorrow, today.



As lines made of dots give shape to the physical universe, chemical components made of diverse atoms define human lives. Chemistry confirms unlimited possibilities at every leap forward we make in our daily life.

LOTTE Fine Chemical is unlocking the full potential of chemistry, creating a better future for the Earth and mankind. Outlining a sustainable future with specialty chemicals that improve the quality of human life, we will complete the painting with rainbow colors of ESG values we create through eco-friendly green chemistry and “fine” chemistry of growing together with stakeholders.

IN THIS ISSUE

HOW CAN CHEMISTRY SHAPE THE FUTURE?

The inaugural issue of "ESG Magazine", which presents LFC's approaches to ESG management in a unique way, starts with an appropriate question. How should chemicals in general and LFC in particular change for the future to become more sustainable? In the process of finding answers, LFC is redefining green chemistry and leading the fine chemistry with stakeholders. ESG Magazine, detailing LFC's efforts to create a sustainable future, raises another key question at the outset.

Q. How has ESG become mainstream?

Why not?

Although ESG has become mainstream of late, the concept itself is nothing as new for it has been around since the early 2000s. It is just that interest in ESG management has been growing as corporate social roles and responsibilities have become more important in solving common problems of humanity, such as the climate crisis and the COVID-19 pandemic. Essentially, LFC has been proactively building and upgrading the ESG management system in step with global ESG trends.



For more details, please refer to "Our ESG Commitment" in this magazine.

Q. Isn't making a profit the sole reason for corporate existence?

Yes, But No!

The pursuit of profit has long been the conventional reason for corporate existence. However, companies focusing only on profit have no future at all as investors are increasingly turning their backs on companies blind to ESG values, while consumers are embracing value consumption more and more. An era is fast approaching in which companies adding ESG values to their growth strategies will stay ahead of peers. For its proactive ESG management practices, LFC is gaining growth momentum that will lead to solid performances.



For more details, please refer to "Our ESG Value Creation" in this magazine.

Q. Is LFC ready, then?

Sure.

Yes, of course. Since the beginning of the 2020s, the spread of ESG has been dramatic in the corporate world. LOTTE Group also has been promoting ESG management throughout its operations, declaring ESG as a new goal for 2021, while LFC has overhauled its ESG management system, realigning business strategies in the direction of environmental and social value creation. In particular, LFC became the first Group affiliates to establish the ESG committee under the BOD and clearly defined strategies in preparation for a new future to come.



For more details, please refer to "Our ESG Governance" in this magazine.

OUR ESG COMMITMENT

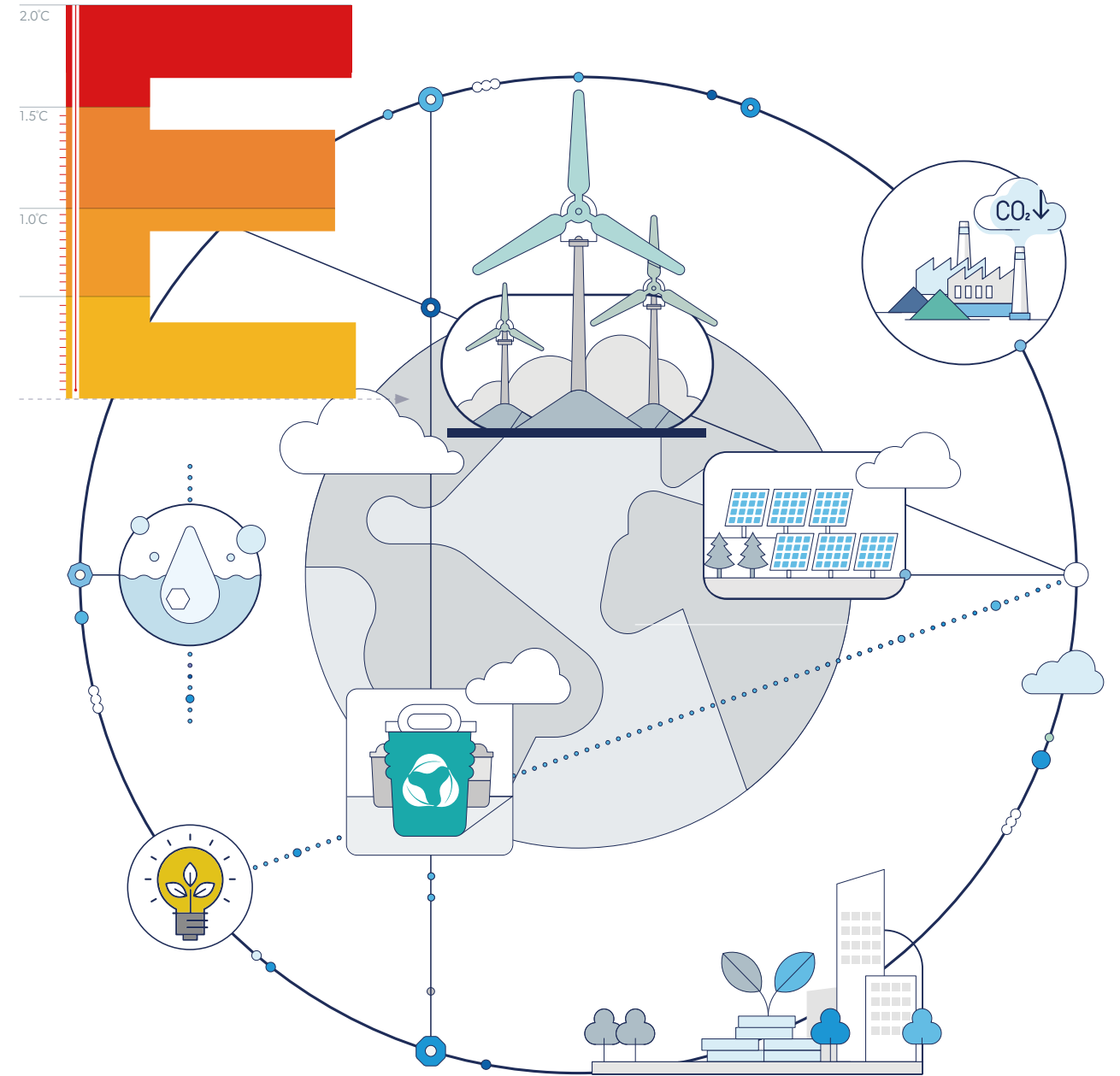
LFC seeks solutions for coexistence, which is as important as growth, in ESG management.

We owe our corporate growth to our home base called Earth and have grown into a company stakeholders trust for we have long been true to the basics. In line of our industry's business nature of interacting with other diverse industries, we have been communicating closely with stakeholders, including customers. Continuing the course of our ESG management, we will fulfill our promise to "create a better today and a sustainable tomorrow with finest technologies and products."

ENVIRONMENTAL VALUE CREATION

How can an energy-intensive industry keep in line with the global shift toward carbon neutrality? How should a fine chemical company respond to toughening environmental regulations and changing investment criteria around the world? These are difficult questions, but LFC has actively sought answers to them. We comply with domestic and global environmental laws and regulations, focus on creating eco-friendly workplaces based on environmental management, and strive to minimize the environmental impact of its products throughout their life cycles. Having acquired the ISO 14001 certification for the environmental management system at the Ulsan Complex in 1996, we expanded the scope to include the Incheon Plant, as part of our continued effort to improve environmental management. Also, by setting up and placing an environmental management system under an environment and safety promotion unit of Production Division and by establishing work processes, we are identifying potential environmental risk factors and promptly acting on them.

As nations are paying the price for developing their economies at the expense of climate crisis, carbon neutrality has become a common task for mankind. Following the Korean government's declaration of carbon neutrality by 2050, LOTTE Group declared "2040 Carbon Neutrality" in 2021 and has since been implementing a 10-year environmental sustainability plan at the Group level. In these group-, nation- and world-wide concerted efforts, LFC is taking part with its eco-friendly knowhow and will. To this end, we have established an organization dedicated to energy efficiency as well as a long-term roadmap for securing energy competitiveness, while complying with related regulations such as carbon emissions trading systems and proactively responding to climate change. In addition, we are taking the lead in producing and distributing green ammonia to be used for transporting hydrogen in the hydrogen energy ecosystem, which will replace existing fossil fuel-based energy systems, thereby accelerating to the transition to the hydrogen society.



SOCIAL VALUE CREATION

Two of the most powerful forces driving LFC toward sustainable growth are employees, the main agent of corporate management, as well as suppliers. Despite growing uncertainties over a persistent COVID-19, climate change and other challenges, we will seize opportunities through open communication and solidarity. LFC therefore fosters future leaders of the Korean chemical industry through talent nurturing programs and organizational culture campaigns. In particular, as safety is an integral part of CSR, we have set and applied a meticulous and robust safety management system to every production stage. Respect for humans and safety risk management, both of which have become part of employee thoughts and actions, are firm enough to be manifested as our environmental and safety management philosophy.

In addition, LFC transforms the competence of suppliers into positive energy. With such energy, we resolve diverse issues, achieve win-win growth, and solidify our status as a global fine chemicals company, which in turn enables us to support the stable operation of suppliers with financial assistance and knowhow sharing, long-term contracts extensions for outstanding suppliers and win-win program expansions. We will continue to be aware that the path to social harmony and to stronger competitiveness starts with suppliers firmly established as a partner conducting diverse roles, including making the history of the Korean chemical industry.



ESG GOVERNANCE SYSTEM

As uncertainty grows in the business surrounds of corporations, so does the importance of responsible management. LFC, having learned the importance of responsible management over the decades of its history, has established a governance structure that is independent and competent, in a concerted effort to conduct business in a sustainable manner. Such an advanced governance structure serves as the basis for making rational decisions and swift actions based on a careful analysis of various risks and opportunities surrounding us.

Fundamentals-based ESG management is linked to ethical and compliance management as well. All of us at LFC is therefore handling dilemmas we encounter in a preemptive and wise manner guided by the code of conduct we should comply when conducting our jobs with one another as well as with customers, partner companies, shareholders and local communities. We take preemptive remedial steps to prevent any unfair business practices or unethical behavior from occurring. LFC will continue to implement a compliance culture based on integrity and transparency as well as to pursue good corporate governance in order to grow into a global company that is trusted and loved by all stakeholders.



REDEFINE GREEN GROWTH THROUGH GREEN CHEMISTRY

The chemical industry, the backbone of many industries, has grown with the development of the global economy, introducing new technologies that add value to human lives at every turn in the growth history of the industrial revolution. Economic growth and technological advances have brought mankind many benefits as byproducts, chiefly, the climate crisis. Limiting global warming to 1.5 °C would require rapid, far-reaching and unprecedented changes¹⁾, and we are living in an era where we should act to avoid a climate catastrophe.

Now, LFC seeks to share the benefits it has secured with the global community. For which, we will focus more on the “green ammonia” business to help safely store and efficiently transport hydrogen, a crucial step to realizing the hydrogen economy. With green materials, we will facilitate eco-friendly value conscious consumption. In particular, AnyAddy® is an additive in meat substitutes which are gaining attraction as a sustainable food, with great potential to contribute to reducing carbon emissions and resolving the food crisis. LFC will lead the creative innovation in which both mankind and nature can be winners in the face of the climate crisis with **GREEN CHEMISTRY**.

¹⁾ Source: Global Warming of 1.5°C (IPCC Special Report 2018)

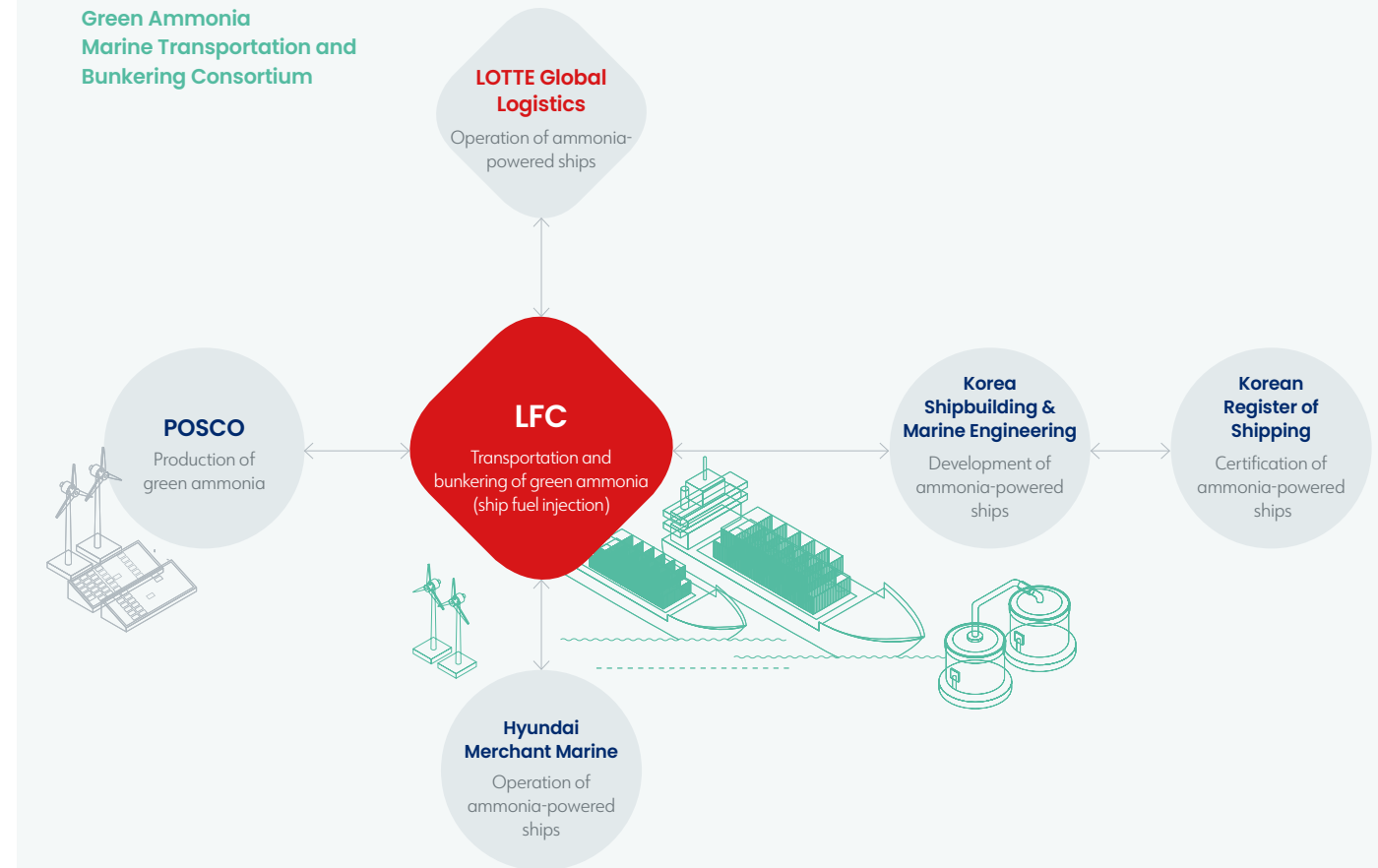
HYDROGEN SOCIETY POWERED BY INFINITE CLEAN ENERGY

The hydrogen economy refers to an economic and industrial structure that uses hydrogen as its main energy source. In other words, it is an economic system that mainly utilizes hydrogen as an alternative to the fossil fuel-centered energy system. As the cost of producing, storing and transporting the clean energy of infinite supply is unrealistically high, new industries and markets will be created to capitalize on economic opportunities such technical challenges entail. The Hydrogen Council, a global consultative body of CEOs of corporations related to the hydrogen economy, anticipates that global hydrogen consumption will reach 546 million tons in 2050, an amount equivalent to 13.26 billion barrels of oil in energy generation, or about 20% of global demand for energy. An economy powered by infinite clean energy hydrogen is becoming a reality.

Being aware that hydrogen is the energy source crucial to reaching carbon neutrality, LOTTE Group has been securing hydrogen competitiveness, spearheaded by LOTTE Group's Chemical Unit, to which LFC is affiliated. In the hydrogen ecosystem, composed largely of production, distribution, storage and utilization, LFC is engaged in distribution and storage. Hydrogen is bulky and explosive so that long-distance transportation poses considerable technical and business challenges. As the idea of storing hydrogen in ammonia is gaining traction as a viable solution, LFC seeks to secure a new growth engine based on the know-how and competitiveness as well as the solid infrastructure it has built up across all ammonia industry value chains and, taking a step further, to contribute to the realization of the hydrogen economy.

20%

Estimated share of hydrogen energy in global energy demand by 2050



ZERO

Green ammonia produced from renewable energy-based hydrogen without CO₂ emissions

As part of its efforts, LFC joined forces with five large domestic partners and institutions¹⁾ to launch "Green Ammonia²⁾ Marine Transportation and Bunkering Consortium" in May 2021. In November, LFC and Korea Shipbuilding & Marine Engineering acquired an approval in principle (AIP) on two models of ammonia-powered carriers, 38,000 CMB and 60,000 CBM, from the Korean Register of Shipping. Developed as an eco-friendly means of transportation for it uses carbon emissions-free green ammonia as a fuel, the two ships will be used for ammonia transportation and bunkering. LFC will keep strengthening the consortium partnership and speed up its voyage towards the blue ocean of green ammonia.

¹⁾ LOTTE Global Logistics, POSCO, Korea Shipbuilding & Marine Engineering, Korean Register of Shipping, Hyundai Merchant Marine
²⁾ Ammonia produced using renewable energy-based hydrogen without CO₂ emissions

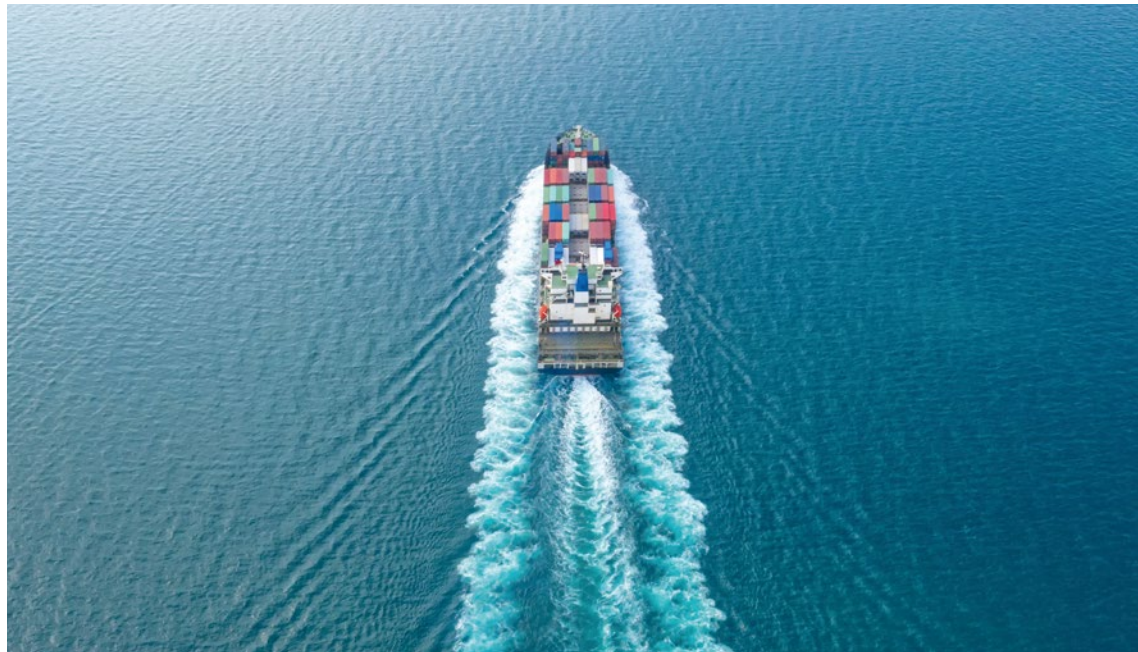
GREEN AMMONIA – A NEW DRIVING FORCE OF GREEN GROWTH

LFC has been improving its business model of importing ammonia for domestic distribution since 1984 when it launched ammonia business. In 2017, we expanded business to include intermediary trade by operating a 40,000-ton liquid gas container (LGC). LFC also leads peers in infrastructure – as of the end of 2021, we have eight tanks capable of storing 93,000 tons of ammonia. Based on our largest ammonia infrastructure in Asia, we have emerged the largest ammonia distributor in Northeast Asia, supplying two-thirds of domestic ammonia demand¹⁾. With the infrastructure further bolstered by growing ties with various partners at home and abroad as well as by synergetic collaborations with other LOTTE Group affiliates, LFC is gaining competitiveness in all ammonia industry value chains.

To further fortify our ammonia supply chain network, we signed an MOU with Trammo on supply of green ammonia in September 2021. The world's largest ammonia trader with an extensive global supply network, Trammo has agreed to expand the scope of cooperation based on the mutual trust we have built up over the past 10 years or so. In addition, as domestic and overseas demand for ammonia will likely continue to grow and fuel the growth of infrastructure, LFC participated in the "Consortium to Foster an Overseas Green Hydrogen (Ammonia) Supply Base" led by Ulsan Port Authority in July 2021.

No.1 

LFC's share of the Northeast Asian ammonia distribution market



93,000 tons

Storage capacity of LFC's ammonia infrastructure



Aimed at making hydrogen the first energy source led by Korea, the government launched "Concept Map for Overseas Development of Clean Hydrogen (H2 STAR Project)" in October 2021. The project centers on producing hydrogen overseas by Korean corporations using solar, wind, and other eco-friendly energy sources, transporting hydrogen absorbed in ammonia on Korean-owned eco-friendly vessels to Korea, having the hydrogen separation process done by LFC and other domestic leaders of green ammonia, and finally distributing the hydrogen to domestic industries. In December, we participated in a consortium composed of nine industry, university and private research institutes, including LOTTE Chemical and the Korea Institute of Energy Research, to carry out a pilot project to demonstrate extraction of hydrogen from ammonia. As the government-sponsored project centers on constructing a pilot plant capable of producing 800 tons of ammonia-based hydrogen per year at our Ulsan Complex and on developing a design package for a 16,000-ton production plant, we will do our best as a key player of the project, deploying our knowhow and resources, to accelerate the country's transition to a hydrogen society.

For hydrogen to become a truly eco-friendly energy source, the whole process must be free of any carbon traces, from production to distribution, storage to utilization. LFC will nurture green ammonia business into one of its core operations by securing green ammonia production and supply chains overseas, by expanding storage, and developing new markets for bunkering, as well as by securing core technology, thus contribute to realizing low-carbon, green growth of the Korean economy.

¹⁾ Based on LFC's estimates

SUSTAINABLE FOODS THAT ENHANCE THE QUALITY OF LIFE




Food technology was one of the new technology trends highlighted at the CES¹⁾ 2022 held in Las Vegas, USA. Such keen interest reflects growing social concerns over health, environmental and food crises amplified by the COVID-19 pandemic. Euromonitor International, a global market research company, has selected “climate changers” as one of the top 10 consumer trends of 2022, claiming that 35% of global consumers made genuine efforts to reduce their personal carbon emissions during 2021.

As people are increasingly paying attention to the notion of valuable life, the growing voice of animal rights protesters and vegetarians combined is stimulating a keen interest in meat substitutes, which are made from plant-based proteins from soybeans or mushrooms or proteins developed with microbial fermentation technology. According to the Korea International Trade Association, the meat substitute market will be bigger than the traditional meat market, being estimated to be 60% of total by 2040²⁾. In particular, the market has been growing steadily at an annual rate of 7%, with the North America and Europe markets playing leading roles, and is expected to continue to grow as meat substitutes are expanding into the pet foods market.

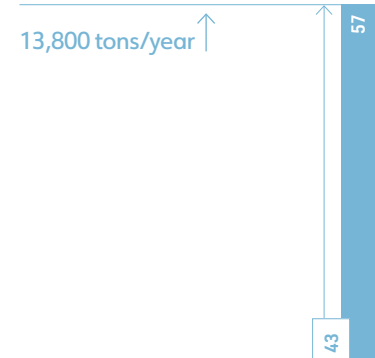


Green Materials Facility Status and Investment

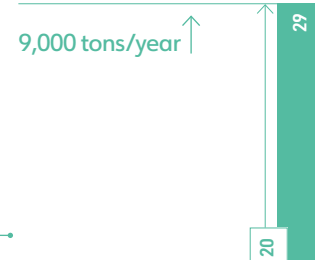
(Unit: 1,000 tons)

-  HECCELLOSE®
-  MECELLOSE®
-  AnyCoat®

Amount of investment
 KRW **115.0** billion
 13,800 tons/year ↑



Amount of investment
 KRW **144.6** billion
 9,000 tons/year ↑



Amount of investment
 KRW **23.9** billion
 1,900 tons/year ↑



As the winds of ESG management is stirring up the food industry, LFC's green products are attracting attention. LFC's green materials business consists of MECELLOSE® and HECCELLOSE® for industrial use; and AnyCoat® and AnyAddy® for foods and pharmaceuticals. In particular, AnyAddy®, an additive in meat substitutes, is expected to thrive as a growth driver on the back of an increasing growth momentum of meat substitutes. To meet an increase in demand from downstream industries, LFC is laying the groundwork for expanding sales while continuing to invest in production facilities. In 2021, we invested KRW 115 billion and KRW 23.9 billion in the expansion of MECELLOSE® and AnyCoat® plants, respectively. By investing KRW 37 billion, we will complete the expansion of foods and pharmaceuticals production lines by the first half of 2022³⁾. We also plan to finish the development of standards for the second-generation meat substitutes, which we started in March 2019, and start commercial production and sales by the end of 2022. Based on such proactive responses and accumulated competitiveness, we aim to become the world's second largest company in the field of food additives for meat substitutes.

The growing popularity of meat substitutes is not a fad, but one of global trends represented by value consumption, which is connected with the type of ESG management LFC practices. To secure sustainable growth engines through market pre-emption and to enable consumers to easily participate in low-carbon green growth in their daily life, LFC will continue to conduct R&D, improve product quality, expand facilities, and achieve greater economies of scale.

¹⁾ Consumer Electronics Show: Consumer electronics trade show featuring major worldwide technology trends

²⁾ Source: Trends and Implications of Alternative Protein Foods (Institute for International Trade of Korea International Trade Association, 2021)

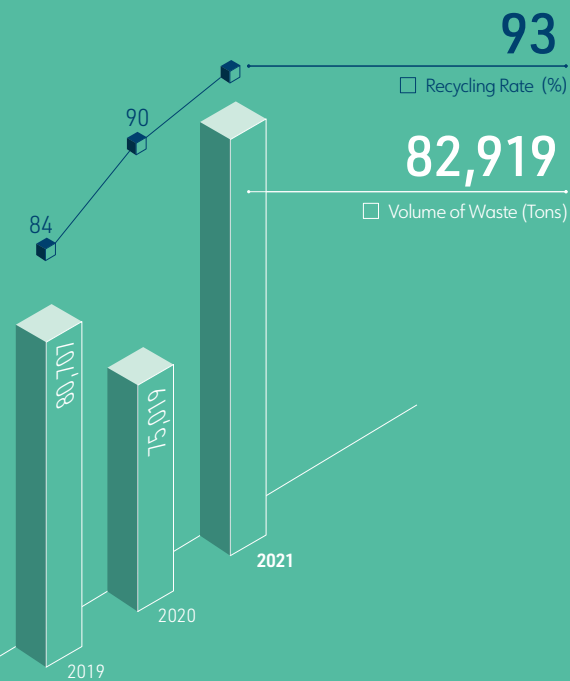
³⁾ The final investment amount may be adjusted/alterd according to prevailing internal and external conditions.

Creating positive impact for our planet

Global cooperation is more necessary than ever for protecting the Earth's environment and supporting a sustainable existence of mankind. As a global company, LFC has established an eco-friendly management system and, based on such a system, manages the outcomes of environmental management in a systemic manner and proactively responds to crises and opportunities brought on by climate change.



Waste discharge & Recycling



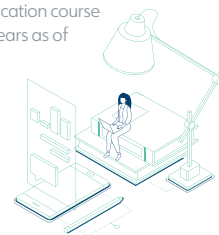
* As of December 31, 2021

For more details, please refer to "Environmental" part of the LFC Sustainability Report 2021.

Employee participation rate in environmental education

100%

All employees completed the environmental education course for 3 consecutive years as of 2021 year-end



Eco-friendly product sales

KRW 473.7 billion in the sales of eco-friendly products¹⁾, up 15% YoY

¹⁾ Based on sales of EUROX® and green materials

KRW 473.7 billion

Green purchasing

KRW 8,190 million

Purchasing of green products such as low-power LEDs, low-power electrodes and separators



Reduction of energy consumption and GHG emissions

Reduced energy consumption and GHG emissions by 73 TJ and 1,887 tCO₂eq, respectively, in 2021 by optimizing the operating temperature of the electrolyzer in electrolyte water generators, improving SM line traps, upgrading wet cake transfer, and refining the B-Line drying process.

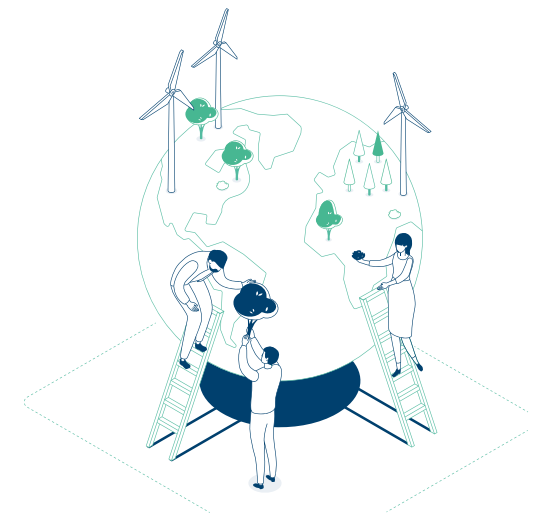
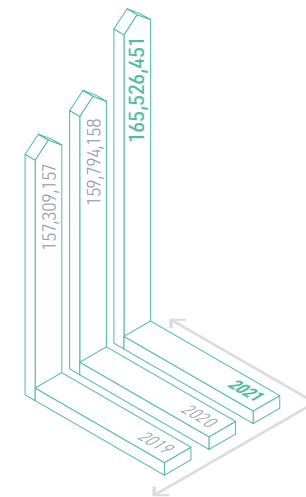
73 TJ & 1,887 tCO₂eq

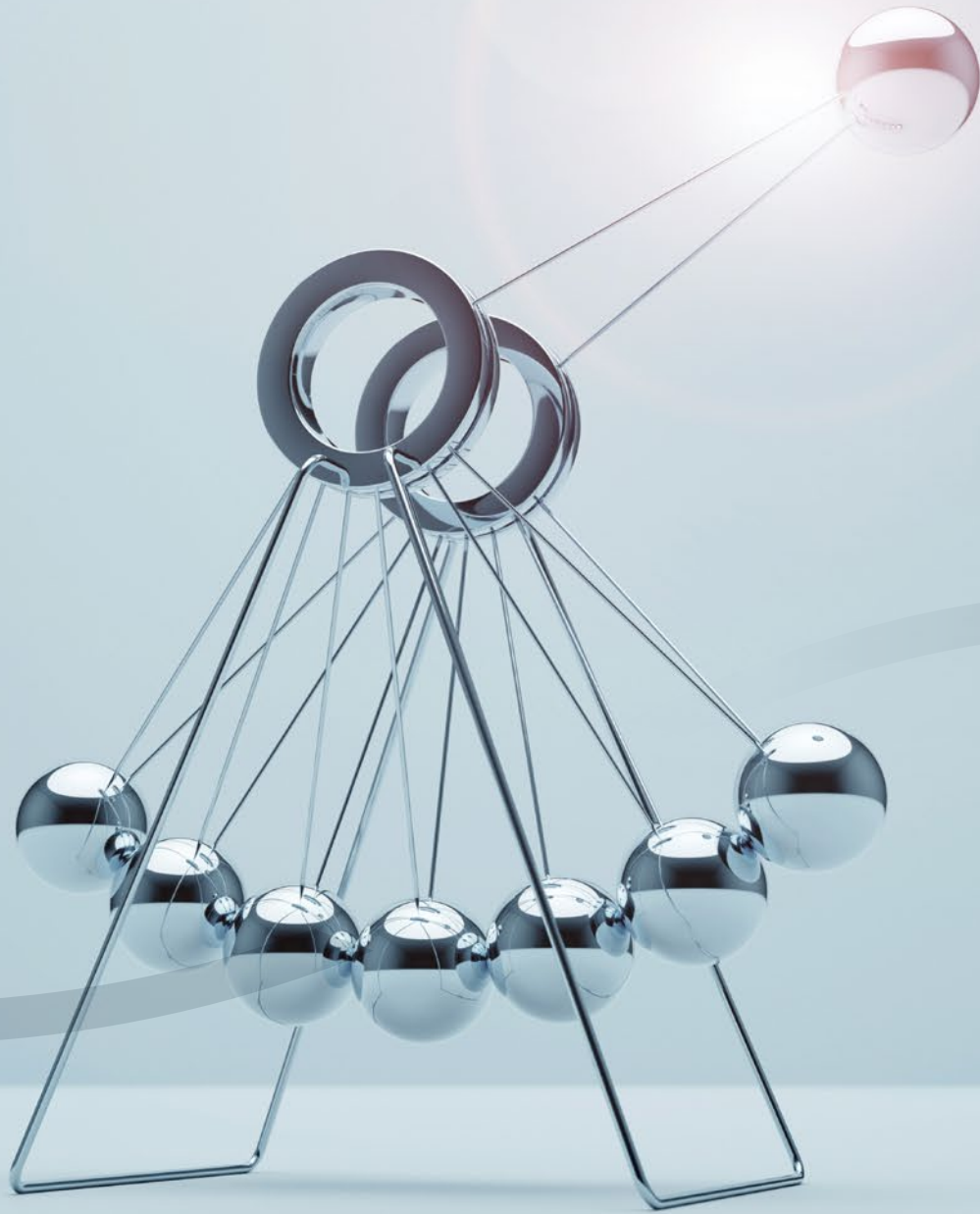
Water reuse

(Unit: ton)

92.7%

Reuse rate in 2021





REDEFINE INCLUSIVE GROWTH THROUGH FINE CHEMISTRY

Sustainable growth based on social stability is not possible without inclusive growth. The K-shaped income disparity, which has become more pronounced since the outbreak of COVID-19, attests to the importance of inclusive growth. In a society that takes inequality and disparity for granted, the economy can neither develop in a sustainable manner nor overcome conventional huddles. In order to build a better future and achieve sustainable growth for all, we must first implement inclusive and shared values. As we grow our capabilities together, communicate with one another, care for the environment, and share values and beliefs, we become one, dream the same dreams and prepare a future that is beneficial to the next generation as well.

LFC treasures everyone's dreams. We support their dreams by building spaces for learning and take the lead in creating a better world by making fine change every day. We listen to voices of many and care about the welfare of all stakeholders. When stakeholders are happy and safe, when their boundless trust engulfs us, and when we all grow together, then we can dream bigger, which is why LFC pursues sustainable growth that benefits all through **FINE CHEMISTRY**.



FINE CHEMISTRY OF GROWING TOGETHER WITH PARTNER COMPANIES

At LFC, partner companies are not just services providers but partners for sustainable growth. Therefore, partner companies and we respect each other and together explore ways to grow win-win based on the fair cooperative relationships we have forged together. In particular, believing that the competitiveness of partner companies leads to LFC's competitiveness, we operate diverse support programs in accordance with win-win strategies with focus on enhancing work processes, strengthening workforce capabilities, raising quality standards, reducing costs, and fine-tuning market sensing.

📄 For more details, please refer to "Win-Win Growth with Partner Companies" part of the LFC Sustainability Report 2021.

Win-win Growth Academy

In October 2021, we launched "Win-Win Growth Academy" to help partner companies lagging in educational infrastructure, offering job competency and safety, environmental and other ESG-related courses to employees of in-house partner companies. They can choose courses according to their job category and competency. As of March 2022, 559 employees of 18 partner companies have participated in the training program. By expanding the selection of the training courses at the Academy, we will continue to help our partner companies improve their employee competencies, thereby achieving win-win growth.

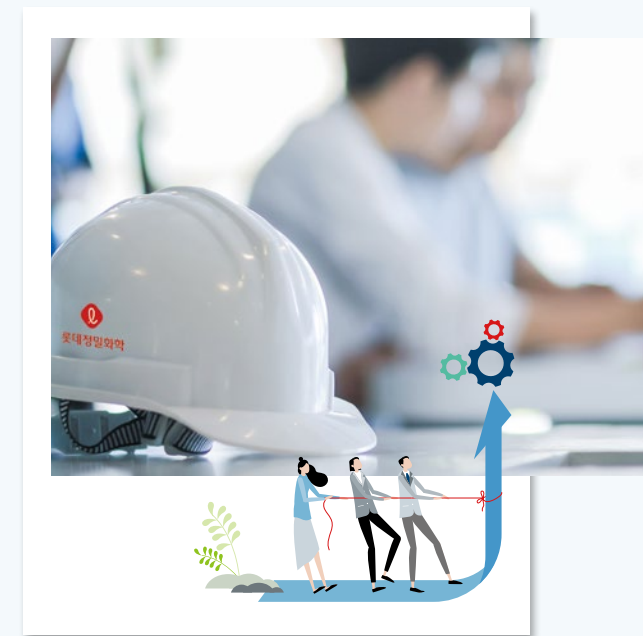
Win-win Growth Conference

We regularly hold "Win-Win Growth Conference" with partner companies handling packaging, production and official work, sharing status on win-win growth programs and strengthening relationships. Also at the meeting, we together explore options to find optimal solutions to issues they raise. At the meeting of 2021, in which 18 partner companies participated, we listened to their difficulties and discussed ways of achieving win-win growth. Continuing to communicate with partner companies through the conference and other channels, we will plan and operate various win-win growth programs and realize the value of win-win.

Helping partner companies with safety management

LFC practices and internalizes safety management to protect the safety and lives of workers and keep its workplace accident-free. Also, for partner companies to attain health and safety management measures equivalent to ours in effectiveness, we have been helping them build and improve their health and management system since 2014. As of the end of 2021, a total of 17 partner companies have in place health and safety management systems on the back of our support.

The January 2022 enforcement of the "Serious Accident Punishment Act", aimed at preventing serious workplace accidents, has further highlighted the importance of safety management in which field workers, including those of suppliers, participate. To prevent accidents or minimize resultant damages, LFC actively encourages and helps in-house partner companies to secure safety management certifications and accreditations, including those related to fostering competent safety managers, as well as operate employee safety associations. Going forward, we will continue to introduce and operate various support and cooperation programs for partner companies so that they can deploy the same level of safety management capabilities as LFC's.





FINE CHEMISTRY OF COEXISTENCE WITH LOCAL COMMUNITIES

LFC seeks to become a partner to all local community members working together to build a sustainable future. We systematically carry out business projects at the company level to bring about “fine changes” to their lives, with our employees proactively participating in various programs aimed at realizing the benefits of sharing. Notably, concentrating on protecting ecosystems surrounding our business sites, supporting younger generations who will be sharing their future with LFC, and conducting CSR activities connected to our products and technologies, we are meeting the needs of local communities.

For more details, please refer to “Social Contributions” part of the LFC Sustainability Report 2021.

KEY ACTIVITIES

Sponsorship for Ulsan Swings

To help future generations nurture their dreams and to contribute to creating a society that embraces many appearances of difference in diversity, in 2014 LFC launched Ulsan Swings, the first multicultural little league baseball team in the region, in cooperation with the Ulsan Nam-gu Social Welfare Center and Ulsan Nambu Police Station in Ulsan, a home base to its flagship plant. In supporting the baseball team, we select some 20 children every year, teach them the basics of baseball, and give basic physical and position training, as well as various baseball equipment. Playing baseball and sharing common interest with friends from diverse cultures, the children of a multicultural background learn about sportsmanship and teamwork, develop self-esteem, and grow into a sound-minded citizen of Korean society.

Number of participants
(Unit: Person)



6,218

Project expenses
(Unit: KRW million)



85.8

* As of 2021 year-end; and cumulative figure since 2014

Support for firefighters' health and safety

In appreciation of the hard work of firefighters protecting people from the danger and damage of fire as well as in helping improve their work environment, LFC carries out various activities in cooperation with firefighting agencies and fire stations located near its business sites. In 2021, we launched “Firefighters and Fire Agencies Sponsorship Project” in cooperation with the Korean Society of Retired Fire Officers. In November, we provided KRW 10 million worth of items, such as fire-fighting helmets and safety shoe dryers, to the Ulsan Nambu Fire Station, thus contributing to the firefighters' health and work environment.



Urban Box Farming Campaign

In 2010, LFC launched “Urban Box Farming Campaign” in cooperation with Ulsan Life Forest and Ulsan KBS to promote urban greening in the city of Ulsan, where its main plant is based, and to inform Ulsan citizens of the importance of a green environment. The campaign has distributed companion plants to citizens over the past 12 years, thus contributing to keep the Earth green and healthy. In 2021, it delivered hope and comfort through companion plants to citizens struggling against a persistent COVID-19 crisis. In addition, we delivered to 15 elementary schools some 8,420 potted citrus trees, a plant known for its ability to purify the air and induce a sense of tranquility, and taught the students the proper care of the trees. Potted citrus plant is often called a plant that feeds three birds with one seed for it produces fragrant flowers and fruits; purifies the air and controls humidity; and brightens up indoor surroundings. In addition, the pot of donated plant is made from recycled coffee grounds to promote plant growth.

Plant sharing performance



40,000+

Project expenses
(Unit: KRW million)



650

* As of 2021 year-end; and cumulative figure since 2010



KEY ACTIVITIES

Nurturing chemical industry talent, supporting eco-friendly research

Leveraging its business capabilities, LFC nurtures future leaders of the chemical industry as well as of eco-friendly R&D. Since 2020, we have been supporting students majoring in chemical engineering at the Ulsan Institute of Science and Technology (UNIST). In 2021, we donated KRW 20 million to the UNIST Department of Energy and Chemical Engineering. Of the sum, KRW 10 million is designated to be used as a scholarship fund for chemical engineering undergraduates from low-income households, and the rest for master's and doctoral students of chemical engineering with a focus on energy research who have submitted to prominent academic journals quality research papers on the environment.

Amount of scholarships
(Unit: KRW million)



30

No. of beneficiaries
(Unit: Person)



69

* As of 2021 year-end; and cumulative figure from 2020-2021

EUROX® donation to rural areas

LFC donated a total of 54,600L of its urea solution product EUROX® to rural areas in 2021 as in 2020. Urea solution, which dissolves harmful nitrogen oxides emitted by diesel engines into water and oxygen, thereby significantly reducing fine dust and soot, is essential to production of new diesel vehicles and agricultural machinery. The donated EUROX® was used for residents of Gyeongsangbuk-do and Jeollanam-do, as well as for fumigation and patient transporting vehicles operated to help prevent the spread of COVID-19.

EUROX® donated



95,200L

No. of beneficiary institutions
(Local public health centers and agricultural machine rental offices)



455

* As of 2021 year-end; and cumulative figure from 2020-2021

Supporting "FINE-Package" project of the LOTTE Medical Foundation

In March 2021, LFC donated KRW 30 million to the LOTTE Medical Foundation's Bobath Memorial Hospital in support of the "FINE-Package" project. We launched the FINE-Package project in 2021 in cooperation with Bobath Memorial Hospital and Bobath Children's Hospital, under the LOTTE Medical Foundation. The project consists of two programs - "FINE Trip" and "FINE-Care". The former, which LFC had begun sponsoring in 2020, is a family travel support program developed for children and their families suffering from a long-term medical treatment to recharge themselves. The newly launched "FINE-Care" aims to lower the financial burden, and improve the quality of the lives, of inpatients at Bobath Memorial Hospital and their family members, with support for medical expenses and the cultural and art programs at the hospital.

Project expenses
(Unit: KRW million)



80

No. of benefitted families



38

* As of 2021 year-end; and cumulative figure from 2020-2021

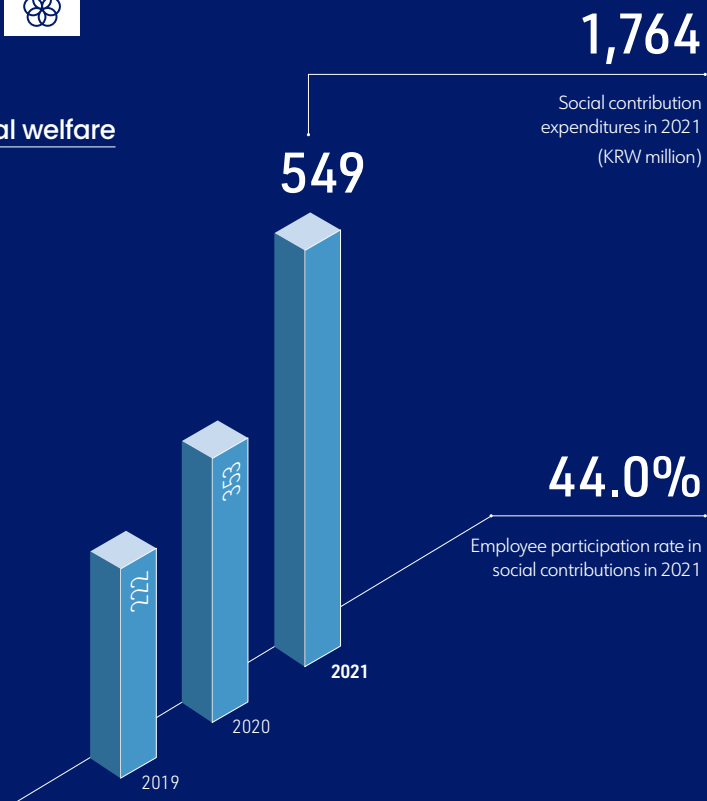
Amplifying positive impact for our society

Corporate interactions with employees, partner companies, and local communities, conducted in the framework of win-win growth and respect for each other, opens a door to a brighter future, which captures the essence of LFC's ESG competitiveness. We respect all our stakeholders and strive to grow together. Also, sharing the fruits of growth, we amplify positive influence on society in general.



Investment in social welfare

(Unit: KRW million)



1,764
Social contribution expenditures in 2021 (KRW million)

44.0%
Employee participation rate in social contributions in 2021

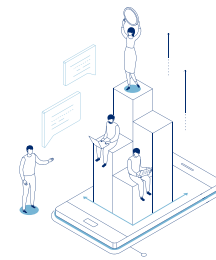
* As of December 31, 2021

For more details, please refer to "Social" part of the LFC Sustainability Report 2021.

LTIR¹⁾

0.15

¹⁾ Lost Time Incident Rate: No. of incidents X 200,000 / (No. of employees X Work days X 8 hours)



Cases of corruption

No cases of corruption or disciplinary action or dismissal due to dishonest behaviors in 2021

ZERO

Customer satisfaction

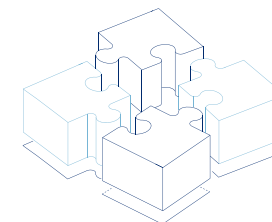
316

316 VOCs were received and handled through the VOC response system in which sales, production, quality, R&D, and other areas are all connected

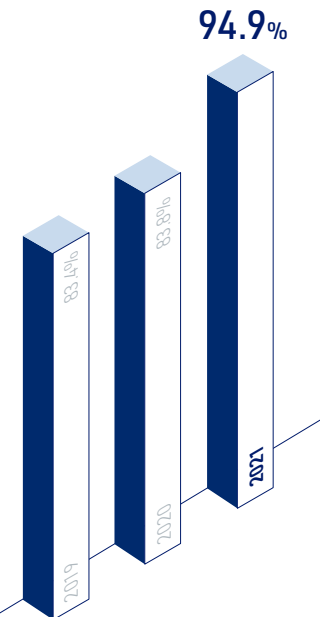
Purchasing from partner companies

KRW **392.9** million

Year-on-year increase of 39.0%



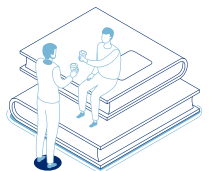
Percentage of improvement to deficiencies in safety & health



Employee participation rate in human right education

100%

All employees completed the human right education course for 3 consecutive years as of 2021 year-end



OUR ESG GOVERNANCE

LFC has been practicing sustainable management by aligning business strategy with creating social and environmental values. Also, to make such strategy led to action, we have implemented ESG governance systems, internalizing ESG management.

In 2021, we launched a ESG committee, the highest decision-making body in ESG management, and ESG Management Team in order to design and implement ESG management from a more systematic and long-term perspective. After joining the UNGC, the world's largest corporate citizenship initiative, in December 2020 and thus pledging to abide by The Ten Principles on human rights, labour, environment, and anti-corruption, we established mid- to long-term ESG management roadmaps and initiatives, declaring 2021 the first year of fully implementing ESG management. We are thus embarking on the journey of ESG management beyond slogan toward realistic objectives.

ESG management governance

In July 2021, LFC established an ESG Committee under its BOD for the first time among listed companies of LOTTE Group and began to conduct ESG management at the board level. The ESG Committee sets directions for ESG management and manages major ESG risks and opportunities in line with its goals of internalizing sustainable management values and enhancing corporate value. In addition, for its ESG management goals, the committee establishes strategies and action plans and monitors corporate performances related to major ESG tasks underway. The committee also seeks new business opportunities from an ESG point of view as well as ways to minimize risks. In 2021, for the committee to perform its roles to its full potential, we educated external directors on how to supervise ESG management as a BOD and created ESG Management Team tasked with assisting the committee.

Mid- and long-term ESG management strategy

In February 2022, LFC established a mid- and long-term ESG management strategy comprising three objectives - establishing eco-friendly management, building a trusted company, and providing ESG information through active communication. The strategy is an upgrade to the existing sustainability management framework reflective of latest ESG issues and internal situations. In 2022, we plant to identify and execute tasks deemed crucial to achieving ESG management objectives such as adopting renewable energy sources, supporting partner companies' ESG management, responding to the Serious Accident Punishment Act, and strengthening human rights management. In implementing core tasks, we will stay focused on internalizing ESG management in the way we have operated our business, thus set our ESG management distinctive, in a bid to continue improving the present and making the future more sustainable with our technology and products.



ESG management is a major challenge we must overcome in order to grow in a sustainable manner as well as a force that drives systems through which mankind can achieve sustainable development.

LFC is practicing ESG management from a systematic and long-term perspective, establishing LOTTE Group's first ESG committee of the BOD in 2021. The company ensures that the growth goals it pursues support ESG values at the BOD level, thereby setting the direction to follow. For 2022, LFC has established a mid- to long-term ESG vision and set "E.S.G." as three pillars for its strategic direction. The sustainable growth LFC has been pursuing will be visible in sight as it continues to keep promises, cherishes values beneficial to society and the environment, makes decisions in a fair and transparent manner, and strives to internalize ESG values.



Kyung-Hyun Ahn
Chairman, ESG Committee of LFC



Embracing sustainable growth through sustainable chemistry of tomorrow, today. ●

Although the world order has changed for various complex reasons, LFC's principles and beliefs remain unchanged.

We will add value to human lives with new technology and products.

We will create new solutions to protect the Earth for all.

We will make clear criteria that benefit mankind and the planet both.

Through creative innovation represented by "Green Chemistry" and "Fine Chemistry," we will align fruits of our growth with the Earth, share them with all our stakeholders, and usher in sustainable tomorrow, a change for the better.



