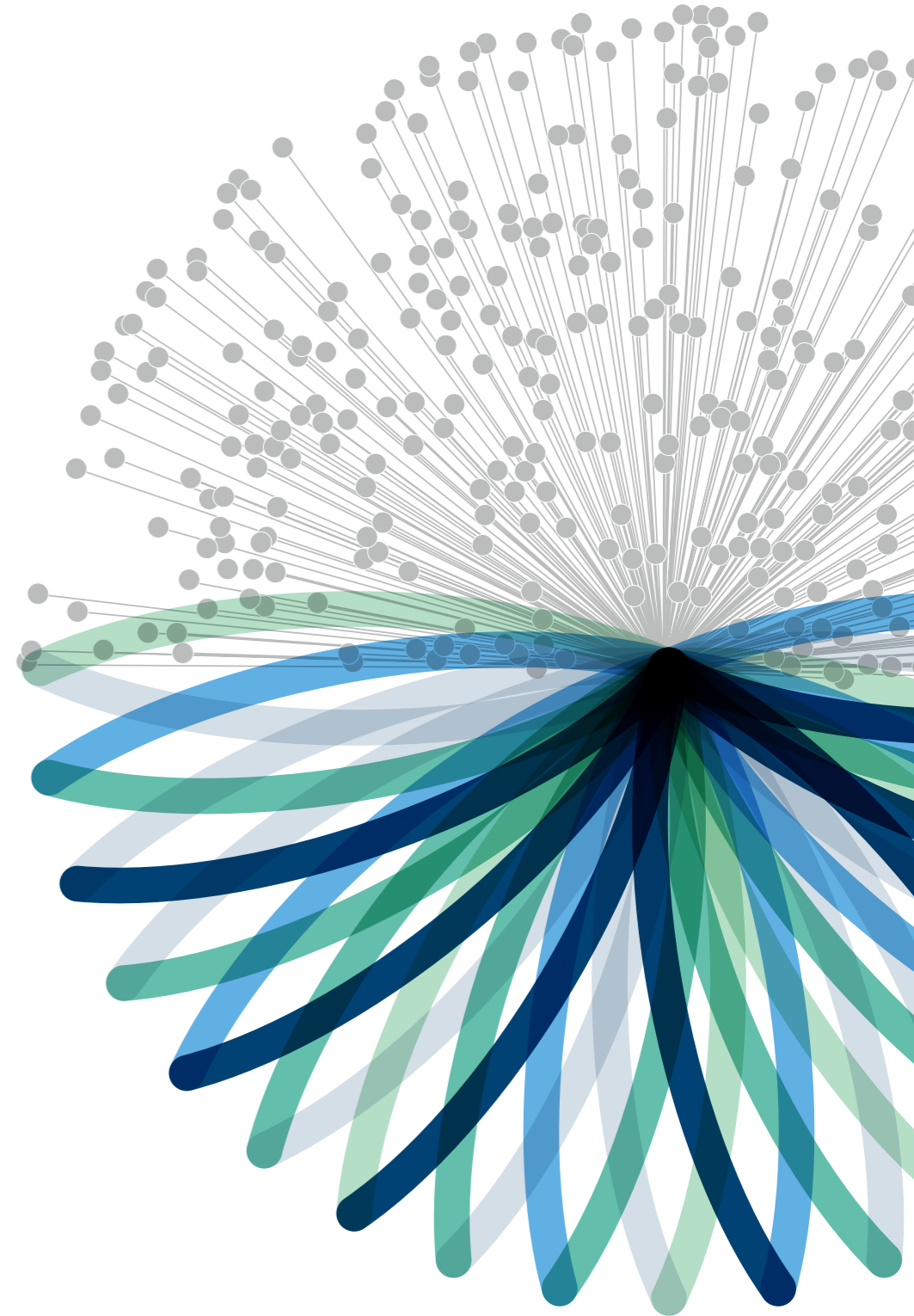


# SUSTAINABILITY

Sustainability Report 2022

# SPECTRUM



# SUSTAINABILITY IN EVERYDAY LIFE

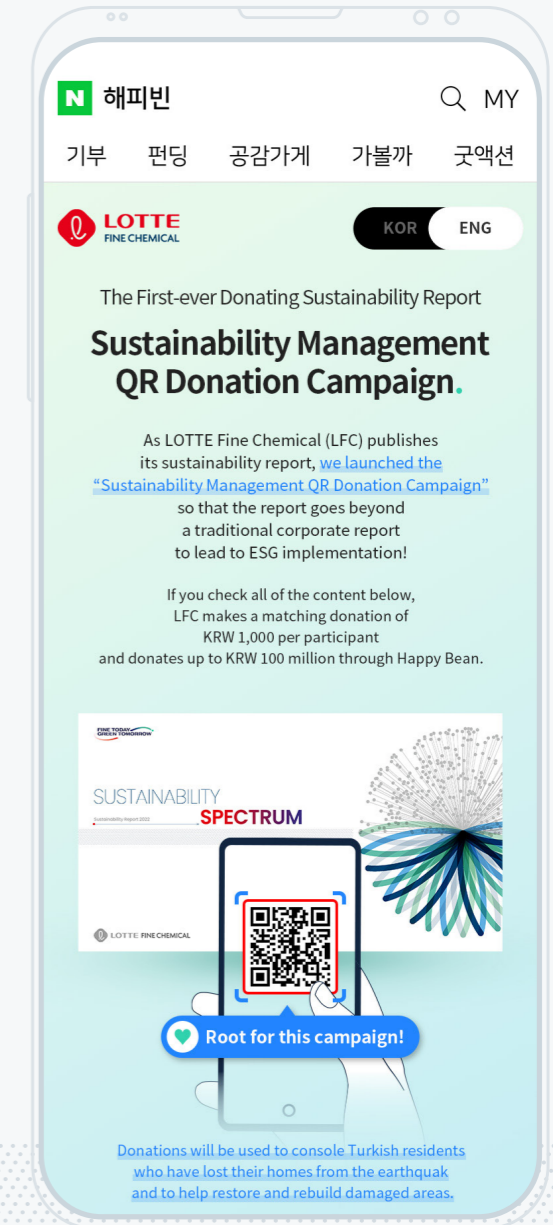
LFC strives to communicate with its stakeholders in implementing the ESG (Environmental, Social, Governance) management. We have been publishing the Sustainability Report every year since 2016. In 2022, we created the "ESG" category on our corporate website and more actively disclosed ESG-related information, thereby making focused improvements to transparency and timeliness in stakeholder communication.

The reason why we are making such significant efforts for stakeholder communication is because a sustainable future cannot be achieved by the efforts of a specific company or some countries alone. It is also because nobody can be free from the unprecedented crisis that humankind faces, including climate change and the pandemic. We therefore widen the stride of ESG management, we are also widening communication with stakeholders.

As we publish our eighth Sustainability Report, we are launching the **"Sustainability Management QR Donation Campaign"** so that our sustainability reporting itself can lead to actual ESG execution, rather than the report existing simply as a report.

A greater number of people can put ESG into action, with ease, through a single QR code scan. As such, we encourage you to check out our QR Donation Campaign right away. LFC will match KRW 1,000 per person in proportion to the total number of people who accessed the QR code and donate up to KRW 100 million. Donations will be used to console Turkish residents who lost their homes from the earthquake and to help restore and rebuild damaged areas.

**Going forward, LFC will continue to conduct this campaign every year in line with sustainability reporting to build a culture of practicing ESG that stands by the side of local communities and neighbors and considers the environment.**



**COVER STORY**

LFC is a specialty chemical company that delivers resonance to not only our daily lives but to a sustainable future as well, using materials that are so small that they are not visible to the naked eye.

The "DOT" and "LINE" that were used for the design of the report's cover are based on our brand identity and symbolize the infinite possibilities that are created by each small chemical atom and the dynamic future that LFC will shape. They also reflect the future path of LFC's ESG management, which seeks to lead our lives and the Earth's environment in a sustainable direction through materials that are like Nature and technologies designed for humankind.









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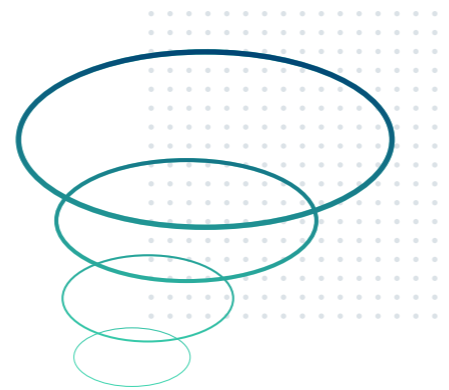


# SUSTAINABILITY IS SHIFTING FROM AN OBLIGATION TO AN OPPORTUNITY.

The abnormal climate that we never experienced before is further growing in intensity as well as frequency. The pandemic and war brought about unprecedented change and uncertainty to the global economy and supply chain. Tackling the “polycrisis”, companies must respond to the increasing social demand toward corporate roles and responsibilities. Also, a recent movement to make ESG disclosure mandatory is resulting in ESG becoming a burden to companies whose ESG management strategies and culture have not taken root.

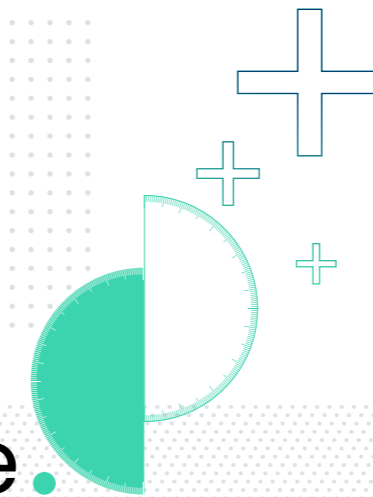
## **LFC looks for opportunities in such social demand and institutional changes.**

We define socially responsible management and carbon neutrality as activities and roles that we must naturally perform, and improve and execute business strategies in consideration of ESG values, while preparing for new growth. Through ESG management that thinks of the Earth (Green Planet), follows the basics (Green Basis), and grows together (Green Partnership), LFC is creating a better today and moving towards a sustainable tomorrow.



## Widen ●

We widen the spectrum of sustainable business to develop solid growth momentum.



## Explore ●

We explore the transition to an eco-friendly hydrogen economy by adding green technology to our business spectrum.



## Shape ●

We shape a better future by completing the business spectrum through sustainable technologies and products.



# WIDEN THE \_\_\_\_\_ SPECTRUM

**LFC is widening the spectrum of sustainable business and creating breakthrough innovation.**

Breakthrough requires firm belief. When we take on challenges and achieve innovation based on the belief that future-oriented technologies will bring about greater opportunities, accumulated capabilities turn to another outcome, which in turn leads to change a corporate culture. LFC creates high value-added business and builds a solid growth momentum based on technologies that are demanded by the market and its insight to understand customer needs. In our daily life, new and beneficial to all, lies LFC.



# CHEMICALS

The global economy fought hard against the COVID-19 pandemic for more than the last three years and now faces a different difficulty as it enters a polycrisis era where there is a prolonged sense of anxiety. Even in challenging circumstances in which uncertainty becomes commonplace, a company that sees the future breaks through such limitations with prepared capabilities. LFC is a specialty chemical company that leads the lives of humankind and the Earth's environment in a sustainable direction and brings about significant change using the world's smallest materials. In 2022, LFC continued strong growth based on its capability of developing key materials that serve as the foundation of various industries and increased the speed of innovation towards a "global specialty chemical company".

BUSINESS OVERVIEW - CHEMICALS →



In 2022, LFC maintained strong growth pace despite the global economic downturn. Sales grew significantly from KRW 1,263.6 billion in 2020 to KRW 1,780.3 billion in 2021 and then to KRW 2,463.8 billion in 2022, unprecedented achievement of record-high performance for two consecutive years. In particular, LFC recorded an operating profit of KRW 404.3 billion, proving that its business strategy of focusing on high value-added specialty chemicals was a right choice.

Rather than becoming complacent with short-term performance, we strive to further increase profitability with a longer perspective. In particular, we are increasing production capacity of TMAC, raw material for semiconductor developing solutions, which we already have the world's largest production capacity, in order to better respond to global semiconductor and display markets where continued growth is expected. TMAC is a raw material of TMAH (semiconductor developing solution) that is used in semiconductor and OLED circuit manufacturing processes. Demand is steadily increasing in downstream industries on the back of recovery of smartphone demand and expansion of devices that apply OLED. To preemptively respond to such an increase in TMAH demand, we began a 10,000-ton capacity expansion of the TMAC plant in August 2022 and will complete mechanical construction in December 2023.

Going forward, LFC will respond with agility to the changing business landscape and make bold investments based on thorough preparations to enhance competitiveness of the high value-added specialty chemicals business. This preemptive response is anticipated to further highlight the value of the high value-added products provided by LFC.



## SALES IN 2022

KRW 2,463.8 billion

Recorded KRW 1,780.3 billion in 2021 and KRW 2,463.8 billion in 2022, posting a record-high sales performance for two consecutive years



55,000<sub>MT</sub>

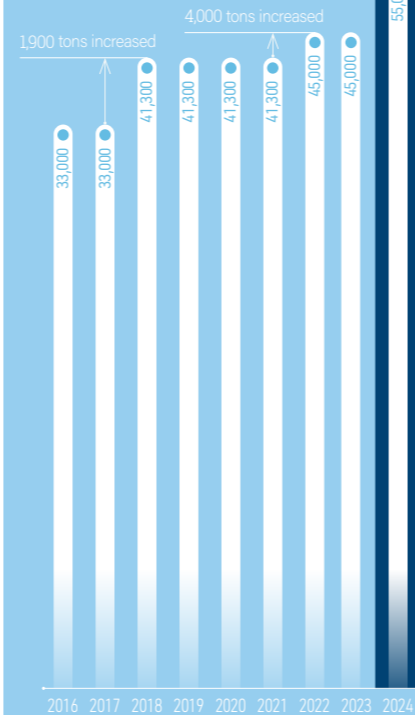
Planning to secure TMAC production capacity of 55,000 MT in 2024 through preemptive capacity expansion

## LFC's TMAC Production Capacity

(Unit: MT)

10,000 tons to be increased

Global No.1



## KEY R&D ACHIEVEMENT

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

In the chemical business environment where competition is growing in intensity, LFC is striving to enhance competitiveness based on continued R&D investments. In case of EUROX®, a catalytic reductant that reduces the amount of nitrogen oxide discharged from diesel engines, we are conducting continued research for quality improvements, through which we are providing top-level products, distinctive performance, and reliable technical support. To develop new downstream industry product technologies for our chlorine-based chemical business, we have adopted new technologies and are conducting research focused on mass production, leading to tangible outcomes. For existing chemical products, we are carrying out such tasks as diversification of the chemicals used in the chemical processes to enhance competitiveness through cost reductions. We will continue diverse efforts to develop new process technologies, based on which we will maintain a competitive edge and lead the market.



# GREEN MATERIALS

Riding the wave of ESG trends, which have become global agenda, a company's growth should move in the same direction as values that are beneficial socially and environmentally. LFC seeks to read the demands of the era and become a company that creates a today that is beneficial to humankind and goes beyond today to create a sustainable tomorrow of Earth. We will create a better today and a sustainable tomorrow through our advanced technologies and optimal products that consider positive values. In 2022, we paid attention to the growth of the food and pharmaceutical industries, and strived to discover new growth opportunities in ESG, with a clear focus on materials from nature and technological innovation for humankind.

BUSINESS OVERVIEW – GREEN MATERIALS →

According to the UN World Population Prospects, the population aged 65 or older is forecast to increase from around 800 million in 2022 to 1.5 billion in 2050. This signifies that the percentage of the elderly population will increase from 10% to 16% in 2050. Also, population aging is progressing at a faster pace in East Asia and some Western European countries. There is an increase in adult metabolic disease, including diabetes and high blood pressure, as we enter an aging society, in addition to increased interest in health after the COVID-19 pandemic.

Against this backdrop, the pharmaceutical excipient market is expected to grow to USD 12.25 billion, indicating a compound annual growth rate (CAGR) of around 6.6% from 2022 to 2028<sup>1)</sup>. In addition, an increase in vegetarians and greater interest in climate change and animal welfare will likely lead to continued increase in demand for functional additives for meat substitutes.

<sup>1)</sup> Source: Research & Market



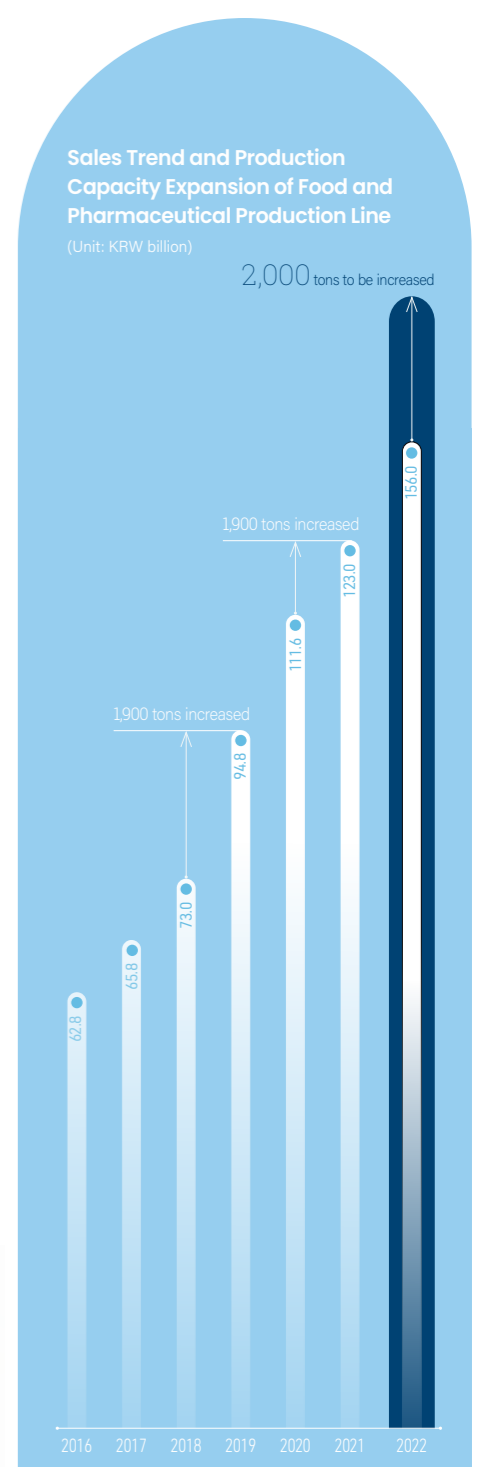
In response, LFC has been making investment in the production lines of the pharmaceutical additive AnyCoat® and the food additive AnyAddy with the aim of actively responding to increased demand in the food and pharmaceutical industries and strengthening profitability by enhancing competitiveness of the green materials business. We completed the capacity expansion of our food and pharmaceutical production line at Incheon Plant by 2,000 tons in May 2022, thus securing stable supply capabilities. At the same time, we further strengthened cooperative relations with customers and solidified our market position. In early 2023, we announced our investment plan for an additional expansion of our food and pharmaceutical production line with the goal of commercial production in the first half of 2025. We clearly communicated our intention of continuing preemptive, bold investments for continued growth of our food and pharmaceutical business.

We are making preemptive preparations for market growth and taking agile responses to changes in trends, resulting in continued solid growth in our green materials business. However, this is not all. Outstanding quality is also our competitiveness and driver of continued growth of the green materials business, including the introduction of various products composed of MECELLOSE® and HECELLOSE® that satisfy the needs of many customers while being used in extensive downstream industries as well as the excellent functions of AnyCoat® and AnyAddy® that add stability, shape retention, and binding strength. In addition to capacity expansion, we invest in R&D and strive to achieve sustainable growth by increasing the functionality of and adding eco-friendliness to our green material products.



**KRW 156 billion**

The food and pharmaceutical business maintained solid growth pace from sales of KRW 62.8 billion in 2016 to reach KRW 156.0 billion in 2022



## KEY R&D ACHIEVEMENTS



### Cellulose Derivatives

#### Development of a HECCELLOSE® grade for paint with improved workability

There is continually increasing interest in paint for Do It Yourself (DIY) construction where people repair and decorate their space themselves. Accordingly, paint with outstanding workability that enables easy painting by even non-experts is taking center stage in the market. In response, we developed and launched a premium HECCELLOSE® grade that made considerable improvements to all-direction paint spatters created during paint roller use. We are supplying it to global paint companies around the world, including North America. In addition, we are steadily conducting R&D to make additional quality improvements, and plan to continually expand the development of premium HECCELLOSE® grades that reflect the needs of various customers.

#### Development of a MECCELLOSE® grade for cement tile adhesives with excellent sag resistance

There is increased demand for high-quality cement tile adhesives with excellent sag resistance in accordance with the trend of using large tiles for decoration and wall finishing. We quickly responded to market demand by developing a new MECCELLOSE® HiEND grade that is a high-performance additive for construction use that increases tile adhesives' sag resistance and adhesive strength. There is an increase in sales mainly among large global customers. We will provide technical support and conduct R&D aimed at quality improvements to have the product fully develop into the highest-class premium additive in the cement tile adhesive market.

#### Development of a MECCELLOSE® grade for high-performance gypsum machine plaster

Lumps and sagging that frequently occur in gypsum machine plaster mortars are a major factor that hinders the progress of building works. Many customers continued to request for an additive that can minimize this disadvantageous characteristic of mortars. In response, we launched a new MECCELLOSE® grade for high-performance gypsum machine plaster. To minimize the occurrence of lumps in mortars, we adopted a new process in the existing MECCELLOSE® manufacturing technology. After many internal and external evaluation processes, we completed development of a new grade that even provides mortar's sagging resistance.



### Food and Pharmaceutical Materials

#### Development of pharmaceutical materials and formulation research

Four grade excipients of HPMC, developed by LFC especially for sustained-release tablets<sup>1)</sup>, are taking the lead in significantly increasing sales in the relevant area. 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. By doing so, we are striving to provide products and professional technical services that satisfy the needs of pharmaceutical companies – our major customers.

<sup>1)</sup> Sustained-release tablets: Tablets made to release an active ingredient slowly

#### Development of new uses for food and pharmaceutical materials

We are advancing into new markets by expanding technical capabilities and discovering new uses in our cellulose ether material business. 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 materials for alternative foods

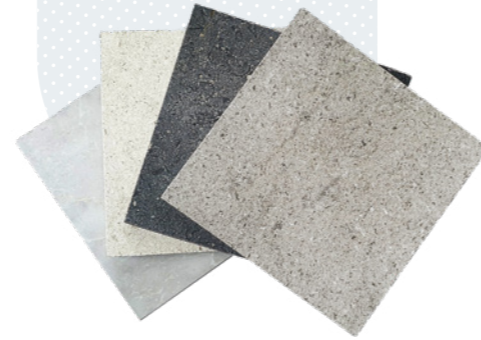
According to AT Kearney, the global plant-based meat analogue market will grow from around USD 120 million in 2025 to USD 450 million in 2030, and plant-based meat analogue will account for 25% of the global meat market in 2040. AnyAddy® is a food material that improves the properties of alternative foods, including meat analogues and gluten-free foods which have recently been growing rapidly. LFC is making diverse efforts to provide distinctive products and services, such as reflecting market trends and developing 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 alternative food and biological engineering, LFC is working together with external organizations equipped with various technologies and discovering promising startups and carrying out technological cooperation-based development, in addition to conducting our own research. Furthermore, to secure differentiated food and drug material technologies and products, we continue to expand innovation and diversity in the field of materials.





# EXPLORE THE GREEN SPECTRUM

**LFC explores a way to further widen the spectrum of sustainability through eco-friendly green technology.**

The world is preparing for a transition to a low-carbon society as it experiences the climate crisis that we suffer in our everyday life and pandemic that we have never experienced before. We have come to realize that reckless use of fossil fuels is making humankind and the Earth sick, and this is why hydrogen is garnering attention as a clean energy source for the future. LFC seeks to take the lead in producing and distributing hydrogen energy based on the experiences and technological capabilities that we have accumulated for more than 50 years as Asia's largest ammonia distributor. LFC takes the untrodden path, ahead of others, towards a clean future that is run on hydrogen energy.



GREEN PLANET

# ENVISION A GREEN FUTURE



## Ammonia – Green Energy that Considers Our Home Planet Earth

Hydrogen is gaining attention as clean energy for green growth. Although hydrogen is eco-friendly fuel with zero carbon emissions, it has a shortcoming in that its storage and transport are not easy. In overcoming this limitation, ammonia, which uses hydrogen as a raw material, performs an important role. The principle and process are as follows: First, once hydrogen, which is a raw material of ammonia, is created, ammonia is produced by the reaction between hydrogen and nitrogen. Afterwards, ammonia is transported and supplied to where it is needed or hydrogen is extracted for use as energy. This may look simple but the hydrogen value chain requires advanced technologies, capabilities, and infrastructure. LFC presents a blueprint for the transition to a hydrogen economy by leveraging its business competitiveness in the area of ammonia, which is receiving recognition for its potential as a means of hydrogen transport.

LFC is Asia's largest ammonia distributor that has accumulated technologies, experience, and know-how from carrying out its ammonia-related business for more than 50 years. The annual ammonia distribution amount that we handle totals 900 thousand tons, placing LFC at the world's No. 3 in terms of the amount purchased by a single company. Based on long-term cooperative relations with competitive suppliers located in Saudi Arabia and Indonesia, we established a stable ammonia supply chain. In addition, we have a large infrastructure at our Ulsan Plant that includes ammonia storage tanks and also secured sales channels to major sources of demand in different industries.



Based on this competitiveness, we are emerging as a new strong player in the hydrogen economy, and created a turning point in the establishment of a global clean hydrogen and ammonia supply chain by importing to Korea clean hydrogen and ammonia supply chain by importing to Korea clean ammonia that was commercially produced for the first time in the world in December 2022. Last October, we signed a clean ammonia import contract with SABIC, which is a subsidiary of Saudi Aramco, a Saudi Arabian public petroleum and natural gas company, and Ma'aden. Accordingly, we imported 25,000 tons of blue ammonia from each company with a total of 50,000 tons, thereby taking the lead in establishing a clean ammonia supply chain. The 50,000 tons of blue ammonia that we imported to Korea in 2022 have great significance in that the ammonia is clean ammonia that was the world's first to receive a global certification from Germany's TÜV, a global testing and certification organization.

We are also striving to diversify suppliers of clean ammonia. We are making continued efforts to secure an additional competitive supply chain outside of the Middle East, which is the existing major ammonia-supplying region. As part of these efforts, we signed an MOU with Tallgrass, an energy company in the U.S., in November 2022 on supplying an annual 500,000 tons of clean ammonia. The U.S. is a market that is anticipated to perform an important role as a major supplier of future clean ammonia based on the government's policy support, such as the Inflation Reduction Act (IRA). We are also making other diverse efforts to secure diversified global supply chains of clean ammonia, which will become a major energy source of Korea, thereby staying ahead of others for the paradigm shift to clean energy.



50,000 tons

Imported clean ammonia that was commercially produced for the first time in the world in Saudi Arabia to Korea



500,000 tons

Diversified suppliers to include the U.S., which is garnering attention as a major supplier of clean ammonia



“ I am happy to take our first step, which was meaningful and successful, in building a global clean hydrogen and ammonia supply chain. Using this as an opportunity, LFC will perform a leading role in the achievement of LOTTE Chemical HQ’s “2030 hydrogen growth roadmap”. Moreover, I hope we will contribute to enabling Korea to take the lead in the global energy transition.

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



“ World’s first commercial shipment of accredited blue ammonia supplied to LFC is the historic milestone in our journey toward carbon neutrality. We are proud of being part of this pioneering solution, paving the way for further decarbonization efforts.

**Abdulrahman Shamsaddin**  
CEO of SABIC Agri-Nutrients



**GREEN PARTNERSHIP**

EMPOWER THE GREEN GROWTH

**Partnership to Realize the Hydrogen Economy**

Realizing carbon neutrality calls for the collective effort. This is proven by the call for global cooperation by the Paris Agreement, adopted in 2015 to overcome the limitations of the Kyoto Protocol which requires commitment of industrialized countries and economies in transition to limit and reduce GHG emissions. To achieve carbon neutrality, it is essential to substantially reduce the use of fossil fuels and transition to eco-friendly energy sources. The journey towards carbon neutrality also requires cooperation by many parties. In response, many companies across the globe are making diverse efforts and gathering their strengths to facilitate the hydrogen economy.

**Partnership for Technological Development**

LOTTE Group is expanding the scope of cooperation in Korea and abroad to contribute to the facilitation of the hydrogen economy and achievement of carbon neutrality through clean hydrogen and ammonia. LFC, which is in charge of the central axis of clean ammonia, is also looking into ways for diverse cooperation to secure key technologies that are needed for the transition to hydrogen energy. As part of these efforts, LFC entered into a joint development agreement (JDA) with Plasmonics and LOTTE Chemical in August 2022 for joint demonstration of Syzygy Plasmonics’ ammonia photolysis technology. Established in 2017, Syzygy Plasmonics is a US-based venture company that designs and produces photocatalytic reactors and has a technology that uses the reactors to synthesize and break down ammonia. The ammonia photolysis technology activates facilities using electricity, without a combustion process, in the reaction process, resulting in quick operation and zero GHG emissions.



GREEN PARTNERSHIP

According to the International Energy Agency (IEA), around 900 million tons of carbon dioxide were emitted to produce 94 million tons of hydrogen in 2021. Hydrogen should be made in an eco-friendly way for hydrogen to become eco-friendly energy, in its truest meaning, and to realize carbon neutrality. Understanding the importance of low-carbon hydrogen production, LFC has joined hands with LOTTE Chemical to solidify cooperative relations with Syzygy Plasmonics. Major roles that LFC will perform for the joint demonstration are supply of ammonia and operation of production facilities. In addition, demonstration facilities will be set up at LFC's Ulsan Complex, and this is why we are providing support that is needed to design, purchase, and install the demonstration facilities and systems.

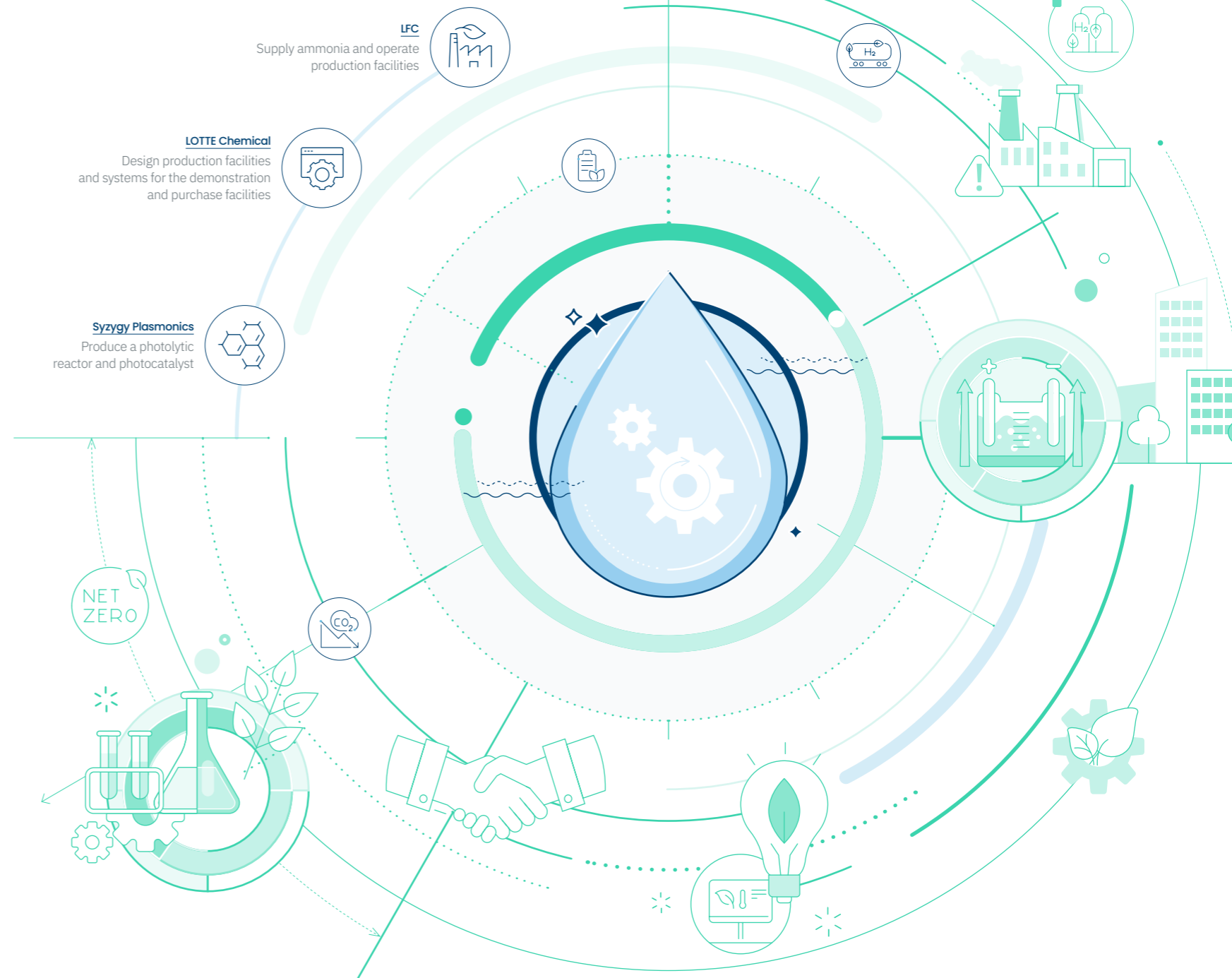
The LOTTE Chemical HQ, to which LFC belongs, has been conducting the world's largest ammonia pyrolysis technology demonstration project as a government-run project since 2021. This project, combined with the photolysis technology demonstration agreement in 2022, has enabled us to take a step further towards preoccupying technologies that are needed to take leadership in the future hydrogen industry. Based on these accomplishments, we seek to secure a solution that quickly and diversely supplies hydrogen that meets environmental and customer needs. We will supply clean hydrogen based on ammonia pyrolysis technology to parties that continually require large amounts of hydrogen, while supplying hydrogen that is produced by using ammonia photolysis technology to parties that require a small to mid-sized amount of hydrogen, thereby contributing to promoting hydrogen energy and clean ammonia in Korea.

Partnership for Business Development

In November 2021, the Korean government announced its plan to significantly reduce GHG emissions through ammonia co-firing power generation<sup>1)</sup> by 2030 and commercialization of hydrogen co-firing power generation by 2035 to achieve carbon neutrality by 2050. To this end, it will increase the number of power plants to which ammonia co-firing power generation is applied to 24 plants by 2030. Accordingly, ammonia demand is forecast to sharply grow from the current 1.4 million tons to approximately 10 million tons in 2030. To support the implementation of the government's policy on promoting the hydrogen economy, the LOTTE Chemical HQ signed an agreement with Korea Southern Power for joint development and use of a clean hydrogen and ammonia. According to the agreement, the three companies will join forces to develop overseas clean hydrogen and ammonia production facility; exchange information about ammonia infrastructure operation technologies; cooperate in businesses that use hydrogen and ammonia; and conduct joint R&D. LFC is establishing sales channels to supply ammonia to co-firing power plants<sup>1)</sup>, which are one of the key sources of demand for clean ammonia.

In implementing this agreement, LFC will use its large infrastructure operation and safety management know-how to collaborate with other parties in building the power plant's ammonia terminal and management system and also strive to secure a stable supply chain for clean ammonia that is produced overseas. In addition, it will engage in cooperation to build a hydrogen supply chain, in addition to ammonia, through the ammonia reforming and hydrogen production project that it is implementing, thereby performing leading roles as a reliable energy source supplier to domestic power generation companies. In addition, through smooth procurement of clean ammonia, based on the nation's top-ranking ammonia distribution infrastructure and ammonia management experience of more than 50 years, LFC will contribute to enhancing the nation's industrial competitiveness and energy security.

Major roles of each company in the joint demonstration of ammonia photolysis technology



Pilot plant model for clean hydrogen production from pyrolysis-based ammonia

<sup>1)</sup> Co-firing power generation: Power generation method in which ammonia and hydrogen are mixed with existing fossil fuels for combustion in a thermal power plant to reduce carbon emissions

# SHAPE

THE FULL  SPECTRUM  
OF SUSTAINABILITY TODAY,

FOR A **GREEN TOMORROW.**

GREEN PARTNERSHIP

GREEN BASIS

GREEN PLANET

### GREEN PLANET, GREEN BASIS, GREEN PARTNERSHIP

The direction of LFC's ESG management is clear. We will adopt upright management that is demanded by society as our fundamentals and achieve green growth that can protect our one and only Earth, and cooperate with various stakeholders throughout this process to grow together.

To many companies, ESG management has become a strategy that must be pursued rather than something good to do. To LFC, ESG management is not only a corporate strategy but also an opportunity to create sustainable business. Based on the belief that a better today and a sustainable tomorrow can be completed with ESG management, we will align our business direction with ESG value creation. We will continually communicate and keep in step with stakeholders, and complete the "Green Race" towards low-carbon, green growth.

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# CEO MESSAGE

## Dear LFC stakeholders,

LFC issued its Sustainability Report 2022 – our eighth report since we published our first Sustainability Report in 2016. I would like to take this opportunity to sincerely thank you for your unwavering support and interest.

In 2022, we experienced sharp raw material price increases, interest rate hikes, and the resulting economic downturn, mainly attributable to quantitative easing of major countries during the COVID-19 crisis and the Russia-Ukraine War. In the meanwhile, attempts to impose mandatory ESG disclosure have been made across the globe, along with declarations of carbon neutrality by countries around the world. Against this backdrop, corporate efforts to respond to the climate crisis is no longer a choice but a necessity.

In response to global trends towards carbon neutrality, LFC has established the foundation of a sustainable business system by working together with various institutions and companies in Korea and abroad, aimed at leading clean hydrogen and ammonia business based on its ammonia distribution infrastructure, one of the largest in East Asia. We further improved profitability by increasing sales of high value-added products, while minimizing cost burden through close cooperation with raw material suppliers and successfully completing preemptive capacity expansion for key businesses, resulting in significant sales growth. In 2022, we recorded sales of KRW 2,463.8 billion and an operating profit of KRW 404.3 billion, thus accomplishing a record-high performance for the second consecutive year. In addition, for full-fledged execution of ESG management, we announced the "Fine Today Green Tomorrow" – a new slogan based on our vision of "Creating a better today and moving towards a sustainable tomorrow through technology and solutions of LFC."

In 2023, we will solidify our mid- to long-term growth foundation as a specialty chemical company by expanding the size of key businesses and fully launching new business investments to develop sustainable growth drivers. Furthermore, we will advance ESG management and lead the clean hydrogen and ammonia market, ushering in new era of carbon neutrality.

For advancement of ESG management, we will implement the clean technology development and adoption roadmap that was established with the goal of realizing six key tasks in three major environmental areas (GHG reduction, water resource management, and reduction of hazardous substances and wastes) in the environmental (E) field. In the social (S) domain, we are making continued company-wide efforts to become one of the world's safest workplaces while also improving emergency response system and conducting regular emergency drills. In addition, we will continue carrying out win-win activities with local communities as a company that received Community Contribution Recognition Certification. Lastly, in the governance (G) area, we will practice transparent management by implementing various systems, such as advancing internal control, operating the ESG Committee under the BOD, and disclosing corporate governance reports.

LFC will celebrate its 60th anniversary in 2024. Even amid sharp changes in business conditions and competitive environment, we will continue to take on challenges just like we did in the last 60 years to achieve sustainable growth. In particular, we will do our utmost to position LFC as a company that practices ESG management on our way towards the era of carbon neutrality. I ask for anticipation and interest from all of you as LFC develops into a "global top 10 fine chemical company" based on a sustainable business system. Thank you.

June 2023



Even amid sharp changes in business conditions and competitive environment, we will continue to take on challenges just like we did in the last 60 years to achieve sustainable growth.



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

# COMPANY OVERVIEW

## FINE TODAY, GREEN TOMORROW

Based on advanced technologies and optimal products, LFC is leading the lives of people and the Earth in a sustainable direction and creating a better today and tomorrow. Even amid many changes and challenges, LFC has grown into a “specialty chemical company” through preemptive capacity expansion, increased internal efficiencies, cost reductions, quality improvements as well as steady new business development and R&D investments over the last 60 or so years. Leveraging capabilities and experiences we have accumulated on the global stage, we enhance competitiveness of existing businesses and develop future growth engines to grow into a global top-tier company. We are also doing our utmost to achieve sustainable development together with all stakeholders based on our creative labor-management culture.

Going forward, LFC will continue to create a living environment that is better today than yesterday and prepare a sustainable tomorrow for the Earth and generations to come.

## COMPANY PROFILE

### COMPANY NAME

LOTTE Fine Chemical

### CEO

Yong-Seok Kim

### ESTABLISHMENT

August 27, 1964

### HEADQUARTERS

19 Yecheon-ro  
217beon-gil, Nam-gu,  
Ulsan, Korea

### KEY BUSINESS AREA

Specialty chemicals

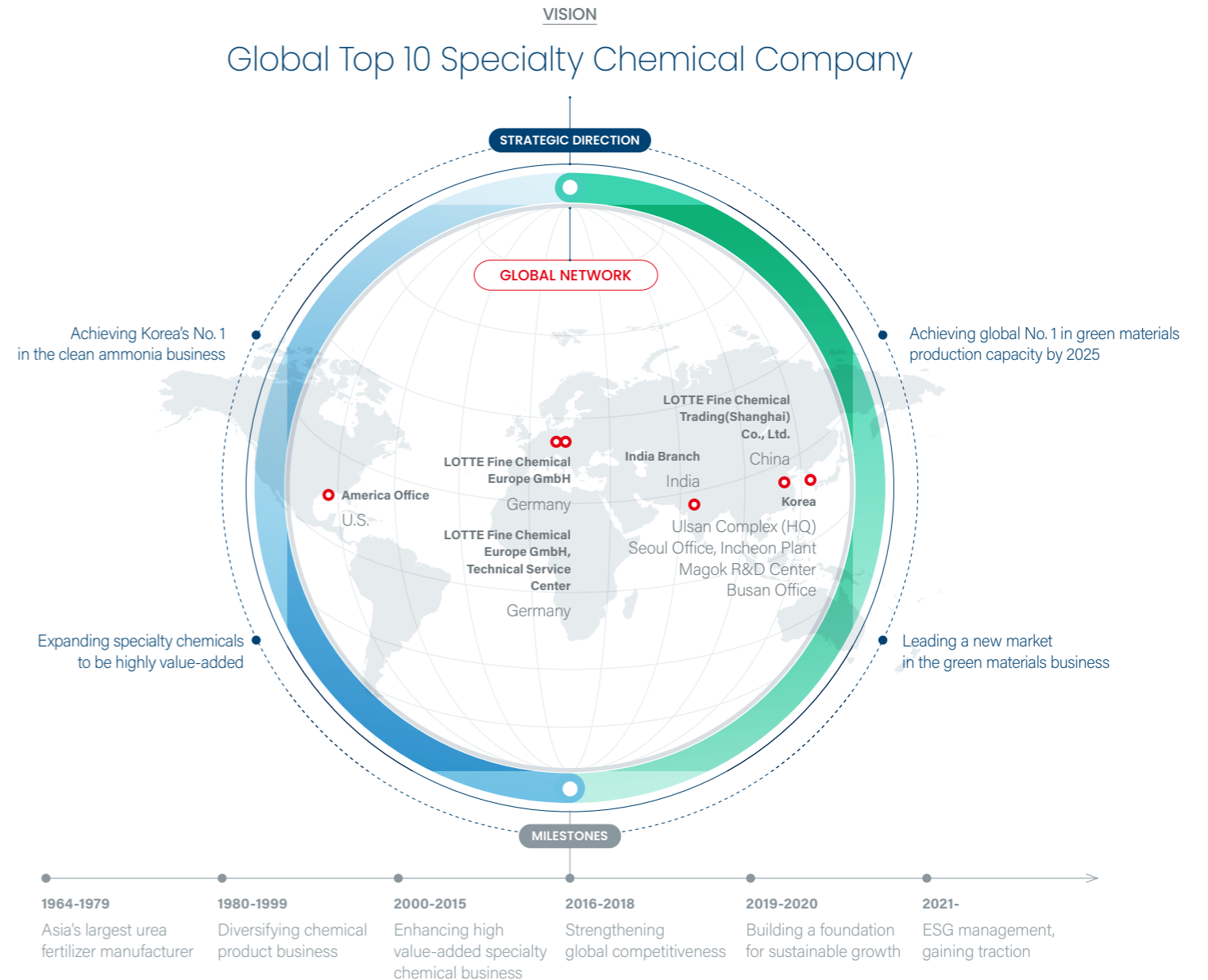
### CONSOLIDATED SUBSIDIARIES

LOTTE Fine Chemical  
Europe GmbH

LOTTE Fine Chemical  
Trading(Shanghai) Co., Ltd.

Skyscraper Long-term  
Strategic Private Equity Fund

## VISION & STRATEGY



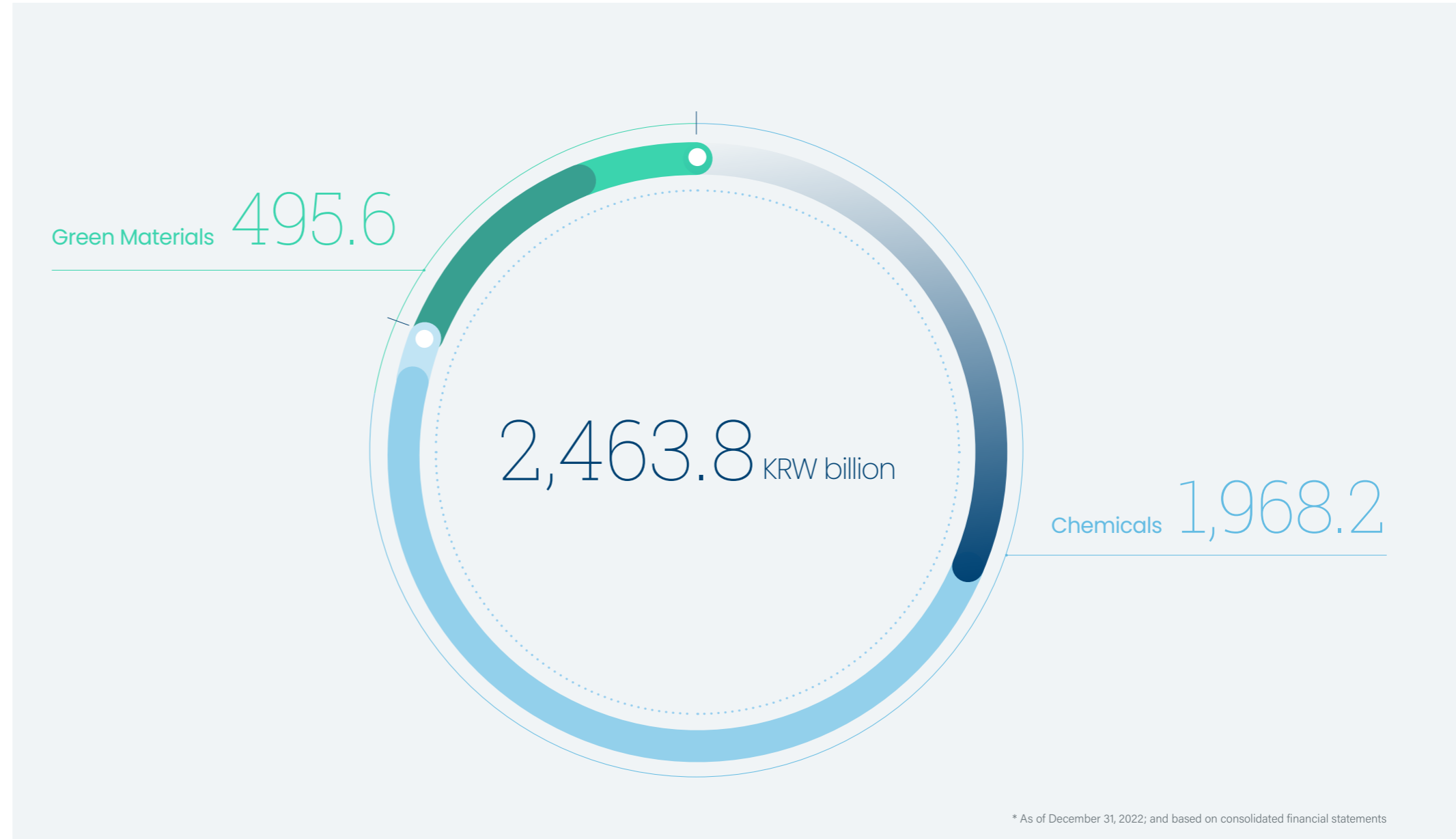


## BUSINESS OVERVIEW

LFC is continuing stable growth based on a balanced product portfolio of chemical and green materials businesses. Chlorine and ammonia-based products, used for diverse purposes in many parts of our daily lives, and green material products which enrich our daily lives are high-value-added, high functionality products. They are also key materials that contribute to the development of downstream industries not to mention LFC's sustainable growth drivers. LFC is making company-wide efforts to advance its products, including active R&D and preemptive establishment of additional facilities. We will further focus our capabilities on the new and renewable energy business, including clean hydrogen/ammonia and develop into a "global specialty chemical company" that leads a new market of high-value-added specialty green materials.

### SALES BY BUSINESS IN 2022

(Unit: KRW billion)



## Chemicals

Chlorine derivatives and ammonia derivatives are the major product groups of LFC's chemicals business, which is indicating steady growth amid increases in new demand in various industrial sectors. Chlorine derivatives consist of ECH, which is a raw material for epoxy resins, and caustic soda, which is an essential raw material of the chemical industry used for textiles, medicines, paper, and detergents. Ammonia derivatives include ammonia, for which LFC has the largest facilities in Korea and an excellent infrastructure, and EUROX®, LFC's own urea solution brand. LFC is supplying high-quality chemical products that are produced through strict quality control to various sectors and is focusing on expanding the eco-friendliness of products, thereby enhancing market competitiveness.



## 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. These high-value-added, high functionality products 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 grades tailored to meet customer needs. With regard to AnyCoat® and AnyAddy®, we have maintained a growth pace 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.

Our green materials business division achieved a record-high performance in 2022, recording sales of KRW 495.6 billion and an operating profit of KRW 88.2 billion, and further grew our specialty business. In line with steadily-increasing customer demand, we completed the establishment of a new food and pharmaceutical line in May 2022 and secured stable supply capacity. We plan to develop long-term growth capabilities of the green materials business as LFC's leading growth business, based on continued, close cooperation with customers, and develop into a global cellulose market leader through continued investments and business expansion.





## Chlorine Derivatives

LFC's chlorine derivatives product group is one of the company's major business lines and consists of ECH, a raw material for epoxy resins, caustic soda, which is used as a basic raw material for chemical products, and PTAC<sup>1)</sup>, which is used as a reinforcing agent for paper. ECH, the main material in waterproof and rustproof paints, is maintaining steady growth on the back of 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.

We are enhancing competitiveness of chlorine-based products in domestic and overseas markets by making diverse efforts, including expanding production capacity of TMAC plants, creating new markets, and reducing costs. In 2022, we achieved the highest profit ever for ECH on the back of rapid responses to changes in the global market environment. For caustic soda, we explored new export opportunities by continually monitoring international price fluctuations. Our continued sales activities that were aimed at profit generation contributed to increased profitability.

We anticipate steady growth for caustic soda in tandem with an increase in demand for secondary batteries that continues to rise along with development of electric vehicles, electronic devices, and communication. We also anticipate a continued rise in demand for ECH as a result of expansion of new and renewable energy, including wind power. To further increase profitability, we plan to focus on securing new demand and increasing exports of chlorine-based products.

<sup>1)</sup> 3-Chloro-2-hydroxypropyltrimethylammonium chloride

### APPLICATION

#### Epichlorohydrin (ECH)

Epoxy resins, hydro treatment, etc.



#### Caustic soda

Secondary battery cathode materials, surfactant, etc.



#### Tetramethylammonium chloride (TMAC)

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



## CHEMICALS



## 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. With the emergence of the global carbon neutrality era, ammonia is garnering attention as a means of transporting hydrogen, an eco-friendly energy source. Our continued efforts concerning clean ammonia led to the achievement of importing clean ammonia that was commercially produced for the first time in the world. Our short-term plan is to continually expand intermediary trade sales by establishing sales channels in markets outside our current Korean market, including China. In the mid- to long-term future, we will develop new growth drivers by making inroads into new energy-related businesses, including supply of raw materials for power generation, ship fuel bunkering, and raw material procurement for hydrogen production.

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 solutions continues to grow, we are strengthening our market dominance by increasing sales and enhancing product competitiveness based on thorough quality management. Despite a difficult business environment in 2022, including reduced freight vehicle operations owing to high oil prices and the economic downturn, we made the significant achievement of raising sales by expanding injection equipment and continuing with brand marketing activities.

### 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





GREEN MATERIALS

Cellulose Derivatives – Industrials

**MECELLOSE®**, **HECELLOSE®**

MECELLOSE® is used as an additive for construction for diverse uses, including cement mortar and tile cement. This high-functional additive is used for ceramic filter and polymerization in extensive downstream industries. HECCELLOSE® is a major additive that improves viscosity, water retention, lubricity, and stability of water-soluble paints, and is used for personal care and home care products as well as for special uses, including drilling of oil.

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. To develop more stable supply capabilities for HECCELLOSE®, we are constructing a new plant with the goal of completing mechanical construction in 2023 and commencing operation in 2024.

**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 used as a pharmaceutical capsule and tablet-coating material to improve the delivery of pharmaceutical products, while AnyAddy® is a food additive that enhances food texture, shape retention, and stability. We are expanding the global market share of Anycoat® and AnyAddy® by pioneering new markets through steady quality improvements and the development of new uses. We are maintaining strong growth on the back of stable supply of products of superior quality and enhanced technical support services.

To expand our food and pharmaceutical business, we completed the purchase of a new Incheon Plant site. We are establishing a new food and pharmaceutical line with the goal of commencing operation in 2025. We will continue to preemptively take responses and made bold investments from a customer-oriented perspective, thereby achieving continued growth.

**APPLICATION**

**AnyCoat®**

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



**AnyAddy®**

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



# FINANCIAL PERFORMANCE

## SALES BY BUSINESS IN 2022

(Unit: KRW billion)



### CHEMICALS

1,968.2



### GREEN MATERIALS

495.6



## FINANCIAL HIGHLIGHTS

### SALES



KRW 2,463.8 billion

(Year-on-year increase of 38.4%)

### OPERATING PROFIT



KRW 404.3 billion

(Year-on-year increase of 65.4%)

### DEBT RATIO



18.1%

(Year-on-year decrease of 5.8%p)

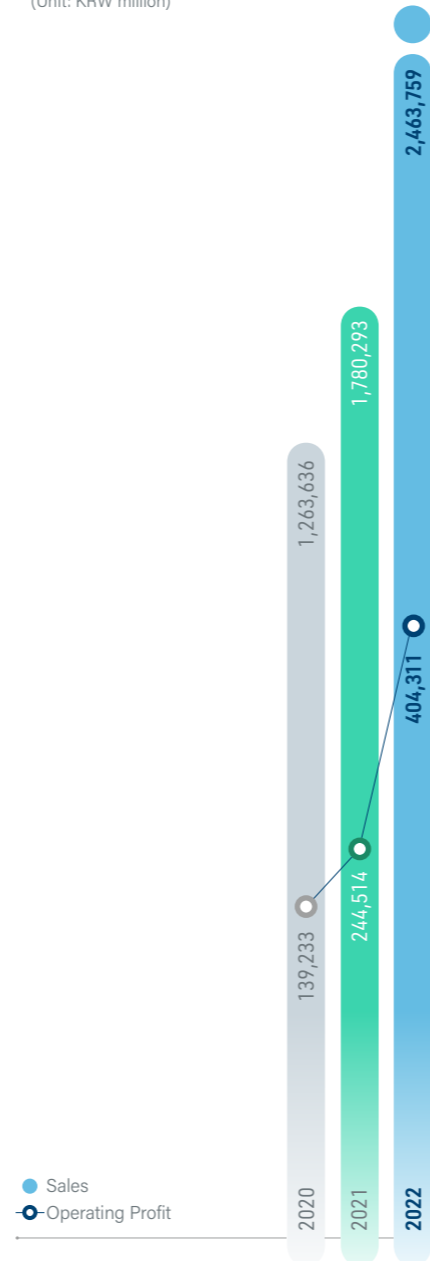
### DIVIDEND PER SHARE



KRW 3,500

## SALES & OPERATING PROFIT

(Unit: KRW million)



● Sales  
● Operating Profit

## KEY FIGURES

Classification	Unit	2020	2021	2022
<b>FINANCIAL POSITION</b>				
Total assets	KRW million	1,874,589	2,723,454	2,709,846
Total liabilities	KRW million	224,889	524,824	415,628
Total equity	KRW million	1,649,700	2,198,630	2,294,218
<b>INCOME</b>				
Sales	KRW million	1,263,636	1,780,293	2,463,759
Operating profit	KRW million	139,233	244,514	404,311
Net income	KRW million	198,792	585,458	146,159
<b>KEY RATIOS</b>				
Operating profit margin	%	11.0	13.7	16.4
Debt ratio	%	13.6	23.9	18.1
ROE	%	12.7	30.4	6.5

\* Based on consolidated financial statements

📄 Financial Information of LFC

📄 2022 Consolidates Financial Statements

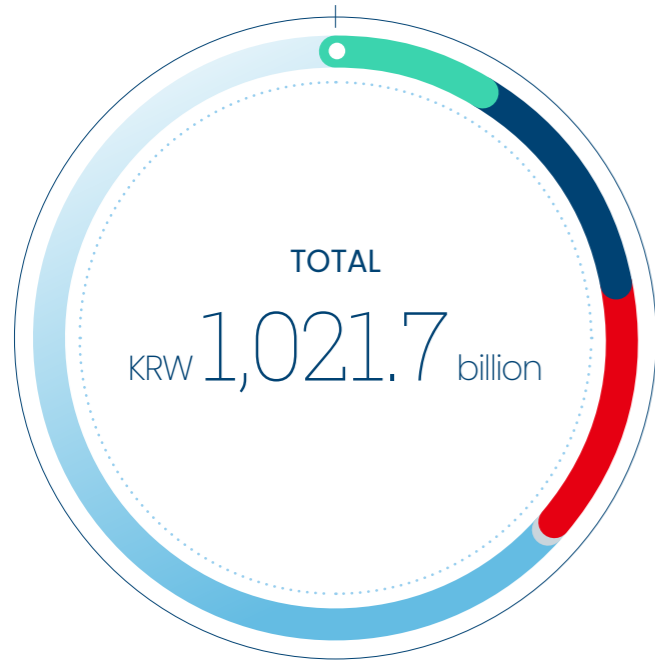
📄 Financial & Non-Financial Performance Summary - Financial Performance

\* As of December 31, 2022; and based on consolidated financial statements

# ESG PERFORMANCE

## DISTRIBUTION OF ECONOMIC VALUE IN 2022

(Unit: KRW billion)



### SHAREHOLDERS

89.7



### EMPLOYEES

135.8



### GOVERNMENT & PUBLIC INSTITUTIONS

145.9



### LOCAL COMMUNITIES

5.3



### BUSINESS PARTNERS

645.0



## ESG HIGHLIGHTS

### GHG EMISSIONS REDUCTION



5,445 tCO<sub>2</sub>eq

### WATER REUSE RATE



92.6%

### LTIR (LOST TIME INJURED RATE)



0.44

### ETHICAL MANAGEMENT TRAINING



All employees (897 persons)

100% participated

## ESG RATINGS



Overall **A**  
(2022)



**BB** Rating  
(2023)



Climate Change & Water Security

**B** Rating for each  
(2022)



**Gold Medal**  
(2022)

## KEY FIGURES

Classification	Unit	2020	2021	2022
<b>ENVIRONMENTAL</b>				
Energy consumption intensity	TJ/Product-Ton	0.0058	0.0060	0.0060
GHG emissions intensity	tCO <sub>2</sub> eq/Product-Ton	0.253	0.257	0.264
Water reuse	Ton	159,794,158	165,526,451	159,910,283
Waste recycling rate	%	90	93	91
Environmental investment	KRW billion	20.78	12.55	6.28
Employee participation rate in environmental education	%	100	100	100
<b>SOCIAL</b>				
No. of employees	Person	892	903	943
No. of female managers	Person	36	36	41
Average length of continuous service	Year	15.5	15.9	15.7
LTIR (Lost Time Injured Rate)	%	0.15	0.15	0.44
Percentage of improvement made to health & safety problems	%	83.8	94.9	82.9
Employee participation rate in anti-corruption education	%	100	100	100
Partner company purchase (Amount)	KRW billion	282.6	392.9	470.4
Customer data breach and theft	Case	0	0	0

📄 Financial & Non-Financial Performance Summary - Non-financial Performance

📄 Please refer to P. 68 of this Report to find more information about the distribution of economic value from 2020 to 2022

# ESG MANAGEMENT FRAMEWORK

## ESG Management System

### ESG MANAGEMENT ROADMAP

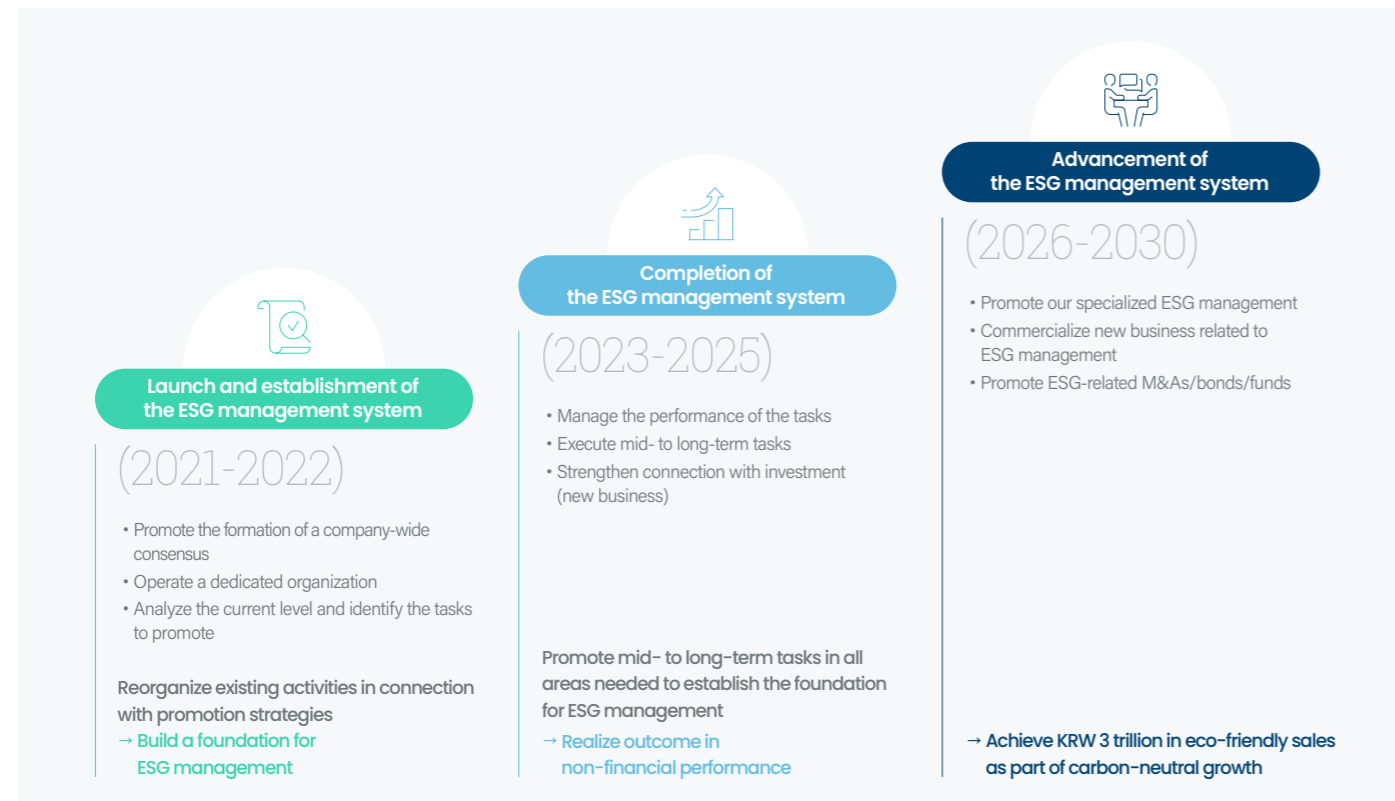
To LFC, ESG management is a key strategy for sustainable growth. Based on systematic ESG implementation strategies along with our commitment to think of the Earth and comply with the basics with our products and technologies, we are creating a better today and moving towards a sustainable tomorrow where we can all grow together.

LFC has been implementing sustainable management that considers environmental and social values in addition to financial performance in running our business. To more actively respond to diverse stakeholder and social demand for ESG management, we set a mid- to long-term roadmap for ESG management, and 2021 marked our first year of full implementation of ESG management. We established the ESG Committee under the BOD and the ESG Management Team, thereby building a foundation for ESG implementation. In 2022, we established various execution strategies and implemented detailed company-wide tasks, thus laying the foundation for sustainable growth for both the company and stakeholders. In 2023, when we enter the ESG management completion phase, we plan to implement detailed measures with the goal of realizing non-financial performance and achieving carbon-neutral growth.

### ESG MANAGEMENT STRATEGY

In February 2022, LFC established an “ESG management strategy system,” comprising of three major strategic directions – establishing eco-friendly management, building a trusted company, and providing ESG information through active communication. This is an upgrade to the existing sustainability management framework based on the latest ESG issues and internal situations. Based on the new strategy system, we will realize our unique, distinctive ESG management to create a better today and move towards a sustainable tomorrow through technologies and products.

### Mid- to Long-term Roadmap for ESG Management



### ESG Management Strategy System



# ESG MANAGEMENT FRAMEWORK

## ESG Management Governance

### ESG COMMITTEE

LFC established the ESG Committee under the BOD in July 2021, and thus manages ESG management at the company level, while raising efficiency and transparency of ESG execution. As the top decision-making body for ESG management, the ESG Committee reviews whether sustainability is internalized when the company makes management decisions and also manages ESG risks and opportunities. Its role is to present an ESG management direction with the goal of enhancing corporate value. An outside director serves as the chairperson to guarantee the ESG Committee's independence. The ESG Management Team performs assistant administrator roles for the Committee to support smooth Committee activities. The ESG Management Team also provides information on external ESG policies and trends to the ESG Committee and reviews internalization measures.

In 2021, the ESG Committee deliberated an agenda item concerning appointment and reported a strategy for green hydrogen/ammonia business, a future growth engine. Together with departments in charge, it made a report on a total of 12 agenda items during five meetings held in 2022, including GHG reduction strategies and human rights management system, by reflecting the policies of LOTTE Corporation and LOTTE Chemical HQ, committee inquiries, and stakeholder issues. The outcomes of our ESG activities, carried out under systematic ESG governance, are transparently disclosed in a timely manner through our Sustainability Report and website.

### Agenda Items of ESG Committee in 2022



### ESG MANAGEMENT ORGANIZATION

LFC formed the ESG Management Team, which is an organization dedicated to ESG management, and manages ESG management activities at the company-wide level. However, ESG cannot be implemented by a specific team alone. Cooperation and continued communication with relevant organizations are a prerequisite for successful ESG management. For this reason, we established a system that allows constant communication with relevant departments that perform major roles in different areas, including the Communication Team, Environmental Team, Safety & Health Management Team, Business Marketing Team, and Technical Engineering Team, with the ESG Management Team at the center. The teams closely work together and report major issues to the ESG Committee.

### ESG MANAGEMENT CONSULTATIVE GROUP

LFC is a key participant of the LOTTE Chemical HQ's working-level ESG consultative group and shares ESG performance with other chemical companies of the Group, including LOTTE Chemical. The consultative group performs important roles in that it promotes exchange among companies in the same industry group to understand each company's status and discover improvement measures. We began establishing a non-financial indicator management system together with LOTTE Chemical in 2022 and completed basic preparations for dissemination within the LOTTE Chemical HQ in 2023.

### ESG Management Organization





# ESG MANAGEMENT FRAMEWORK

## Stakeholder Engagement

LFC encourages stakeholder communication and engagement in sustainable value creation. To this end, we define 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 LFC, and operate various communication channels. Stakeholder opinions that are collected through our communication channels are reflected in our major business and management activities.

In September 2022, we reorganized our website to communicate with stakeholders more actively. In particular, we created the ESG category and ESG data platform to make constant notices on our various ESG activities and major news and disclose non-financial quantitative data. In addition, we transparently disclose, on our website, details on BOD meetings held and the activities of the BOD subcommittees, including the ESG Committee, Audit Committee, and Transparent Management Committee, and practice responsible management. We will further strengthen stakeholder communication and listen attentively to the opinions of a greater number of people to change and develop in a better direction.

### Stakeholder Communication and Engagement

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

Stakeholder group	Communication channel		Stakeholder opinion		LFC's response & actions	
<b>Customers</b> (Individual customers, Corporate customers)	<ul style="list-style-type: none"> <li>● Customer meeting</li> <li>● Product seminar</li> <li>● Voice of customers, website</li> <li>● Homepage and social media</li> </ul>	<ul style="list-style-type: none"> <li>● Onsite visit by the Technology Department</li> <li>■ Customer satisfaction survey</li> <li>■ Sustainability report</li> </ul>	<ul style="list-style-type: none"> <li>• Secure new growth engines</li> <li>• Strengthen R&amp;D</li> <li>• Manage product-related risks</li> <li>• Disclose the company's major performance</li> </ul>	<ul style="list-style-type: none"> <li>• Increase customer satisfaction</li> <li>• Actively respond to customers</li> <li>• Share information on environmental management performance</li> </ul>	<ul style="list-style-type: none"> <li>• Conduct market analysis and constant monitoring of customer needs</li> <li>• Discover new markets and develop new products</li> <li>• Operate the research center (in Magok) and make new facility investments</li> <li>• Manage the company's major news and notices</li> </ul>	<ul style="list-style-type: none"> <li>• Constantly respond to complaints related to product quality and shipping</li> <li>• Designate staff responsible for providing responses in relation to products, and regularly/frequently make onsite visits and provide training in relation to products</li> <li>• Establish an ESG data platform and disclose performance</li> </ul>
<b>Shareholders &amp; Investors</b>	<ul style="list-style-type: none"> <li>■ Annual general meeting</li> <li>■ Corporate briefing</li> <li>■ Business report</li> <li>■ Sustainability report</li> </ul>	<ul style="list-style-type: none"> <li>■ Corporate governance report</li> <li>● Results announcement</li> <li>● NDR</li> <li>● Conference call and meetings</li> </ul>	<ul style="list-style-type: none"> <li>• Innovate in areas of infrastructure, costs, etc.</li> <li>• Increase dividends and investments for new growth engines</li> <li>• Establish transparent governance</li> <li>• Expand IR activities</li> </ul>		<ul style="list-style-type: none"> <li>• Strive to maximize shareholder value</li> <li>• Establish systems to enhance soundness of governance</li> <li>• Increase transparency of company operations</li> <li>• Maximize shareholder value through management performance distribution strategies, including dividends</li> </ul>	
<b>Partner Companies</b> (Contractors, Material suppliers, Product OEMs)	<ul style="list-style-type: none"> <li>● Online Shinmungo</li> <li>● Training for partner companies</li> <li>■ Meetings with partner companies</li> </ul>		<ul style="list-style-type: none"> <li>• Ensure fairness in selecting partner companies</li> <li>• Provide benefits to excellent partner companies</li> <li>• Manage supply chain risks</li> </ul>		<ul style="list-style-type: none"> <li>• Expand support for partner companies regarding technology and personnel</li> <li>• Establish a process to respond to supply chain risks</li> <li>• Provide training related to safety and subcontracting transactions, and implement an internal incentive system</li> <li>• Provide support for technology development and protection, and dispatch experts</li> </ul>	
<b>Employees</b> (Including employees' families)	<ul style="list-style-type: none"> <li>● On-site communication system</li> <li>● Communication portal (Intranet)</li> <li>● Whistle LFC</li> <li>● Labor-Management Council</li> </ul>	<ul style="list-style-type: none"> <li>● Industrial Safety and Health Committee</li> <li>● Compliance management portal</li> </ul>	<ul style="list-style-type: none"> <li>• Share internal news and issues</li> <li>• Strengthen training on job capability, leadership, ethics, human rights, and safety</li> <li>• Improve the working environment</li> <li>• Respect labor-management agreements</li> </ul>		<ul style="list-style-type: none"> <li>• Establish a frequent bi-directional communication system</li> <li>• Guarantee the right balance between work and personal life</li> <li>• Develop capability-strengthening programs</li> <li>• Promote the company-wide internal reporting system</li> </ul>	<ul style="list-style-type: none"> <li>• Expand welfare benefits for employees</li> <li>• Strive to improve the working environment</li> <li>• Adopt a training system that is in line with the trend</li> </ul>
<b>Local Community &amp; Environment</b> (Government agencies and local governments, Local residents, NGOs)	<ul style="list-style-type: none"> <li>● Government hearings</li> <li>● Social contribution programs</li> <li>● Social contribution proposals</li> <li>● Participation in local councils</li> </ul>	<ul style="list-style-type: none"> <li>● Key association membership</li> </ul>	<ul style="list-style-type: none"> <li>• Participate in government policy</li> <li>• Expand social contribution programs</li> <li>• Increase investments for eco-friendly management</li> <li>• Strengthen ESG management</li> </ul>		<ul style="list-style-type: none"> <li>• Participate in national projects led by the government</li> <li>• Diversify areas of social contributions and related programs</li> <li>• Conduct continuous social contribution activities that leverage the company's expertise</li> </ul>	<ul style="list-style-type: none"> <li>• Run environmental conservation programs (Urban Box Farming Campaign, etc.)</li> <li>• Invest in eco-friendly process facilities</li> <li>• Join major associations, including UNGC, and manage ESG evaluation</li> </ul>

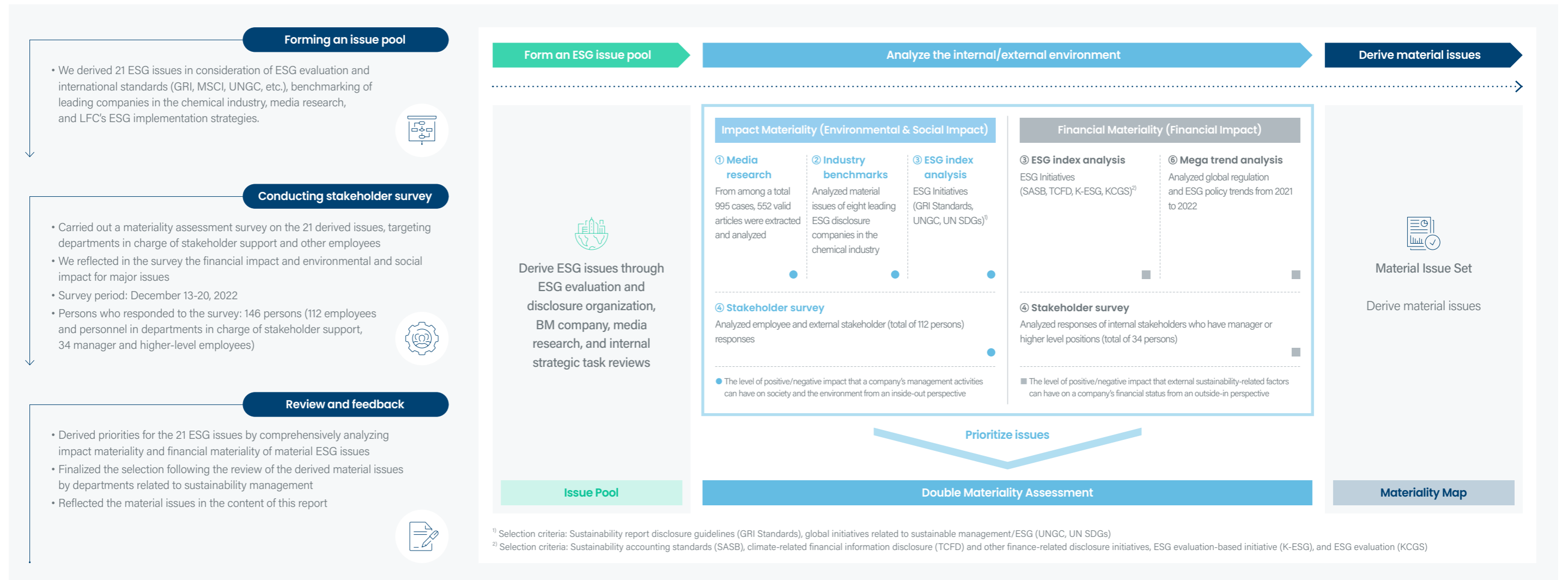
# ESG MANAGEMENT FRAMEWORK

## Double Materiality Assessment

### ASSESSMENT PROCESS

To identify issues that impact corporate management and matters of interest of stakeholders, LFC conducted a double materiality assessment by applying the GRI Standards and materiality concept, and derived material issues. The double materiality concept refers to the need to consider both internal and external perspectives, in other words, external sustainability-related environmental and social factors that impact a company's financial state and the external impact of a company's management activities.

Through this, we collected various stakeholder opinions and derived material ESG management issues that consider environmental and social impact and financial impact. We strived to faithfully disclose information on the background of key issues that were derived through the double materiality assessment, relevant activities, and outcomes.



# ESG MANAGEMENT FRAMEWORK

## ASSESSMENT RESULTS

As a result of double materiality assessment, five issues – Minimizing environmental impact, building a sustainable business model, climate change response, environmental management system, environmental monitoring, management of harmful chemical substances, protecting ecosystems – were chosen as being material in achieving sustainable growth and creating social value.

○ Low Impact ● High Impact

ISSUES			FINANCIAL MATERIALITY				IMPACT MATERIALITY				OVERALL	
NO.	ESG Areas	LFC's Issue Pool for 2022	Mega Trends	ESG Initiatives (SASB, TCFD, etc.)	Survey	Rank	Media Analysis	Material Issues of Benchmarking	ESG Initiatives (GRI, SDGs, etc.)	Survey	Rank	Rank
1	Environmental	<b>Minimizing environmental impact</b>	🟡	●	🟡	4	○	●	●	●	1	1
2		<b>Building a sustainable business model</b>	○	●	🟡	2	🟡	🟡	🟡	●	3	3
3		<b>Climate change response</b>	🟡	●	🟡	7	○	●	🟡	🟡	4	5
4		Environmental management system	🟡	●	🟡	6	○	🟡	🟡	🟡	13	9
5		Environmental monitoring	○	●	🟡	11	○	🟡	🟡	🟡	5	10
6		Management of harmful chemical substances	○	🟡	🟡	17	○	🟡	○	●	11	15
7		Protecting ecosystems	🟡	🟡	○	21	○	○	🟡	○	20	21
8	Social	<b>Safety and health management</b>	○	●	●	8	○	●	🟡	●	2	4
9		Supply chain ESG management and win-win growth	🟡	●	🟡	3	🟡	🟡	🟡	🟡	14	7
10		Human resources management	🟡	🟡	🟡	10	🟡	●	●	🟡	6	8
11		Human rights protection and diversity	🟡	🟡	🟡	18	○	🟡	●	🟡	7	14
12		Social contributions and local community engagement	○	●	🟡	20	🟡	🟡	🟡	🟡	15	16
13		Data security	🟡	🟡	🟡	19	○	○	🟡	○	19	19
14	Governance	<b>Integrated ESG (financial &amp; non-financial) risk management</b>	●	●	🟡	1	○	●	🟡	🟡	10	2
15		Response to ESG ratings and straightening of ESG disclosure	🟡	●	🟡	5	○	●	🟡	🟡	9	6
16		Ethics and compliance management	○	●	🟡	12	○	🟡	●	🟡	8	11
17		Governance	🟡	●	🟡	9	○	🟡	🟡	🟡	16	12
18		Evaluation and management of ESG performance	○	🟡	🟡	16	○	🟡	🟡	🟡	18	18
19	Protecting shareholder rights and interests	○	🟡	🟡	14	○	○	○	🟡	21	20	
20	Economic	R&D and product/technology innovation	🟡	🟡	●	13	●	🟡	🟡	🟡	12	13
21		Business performance creation	○	○	●	15	🟡	○	🟡	🟡	17	17

# ESG MANAGEMENT FRAMEWORK

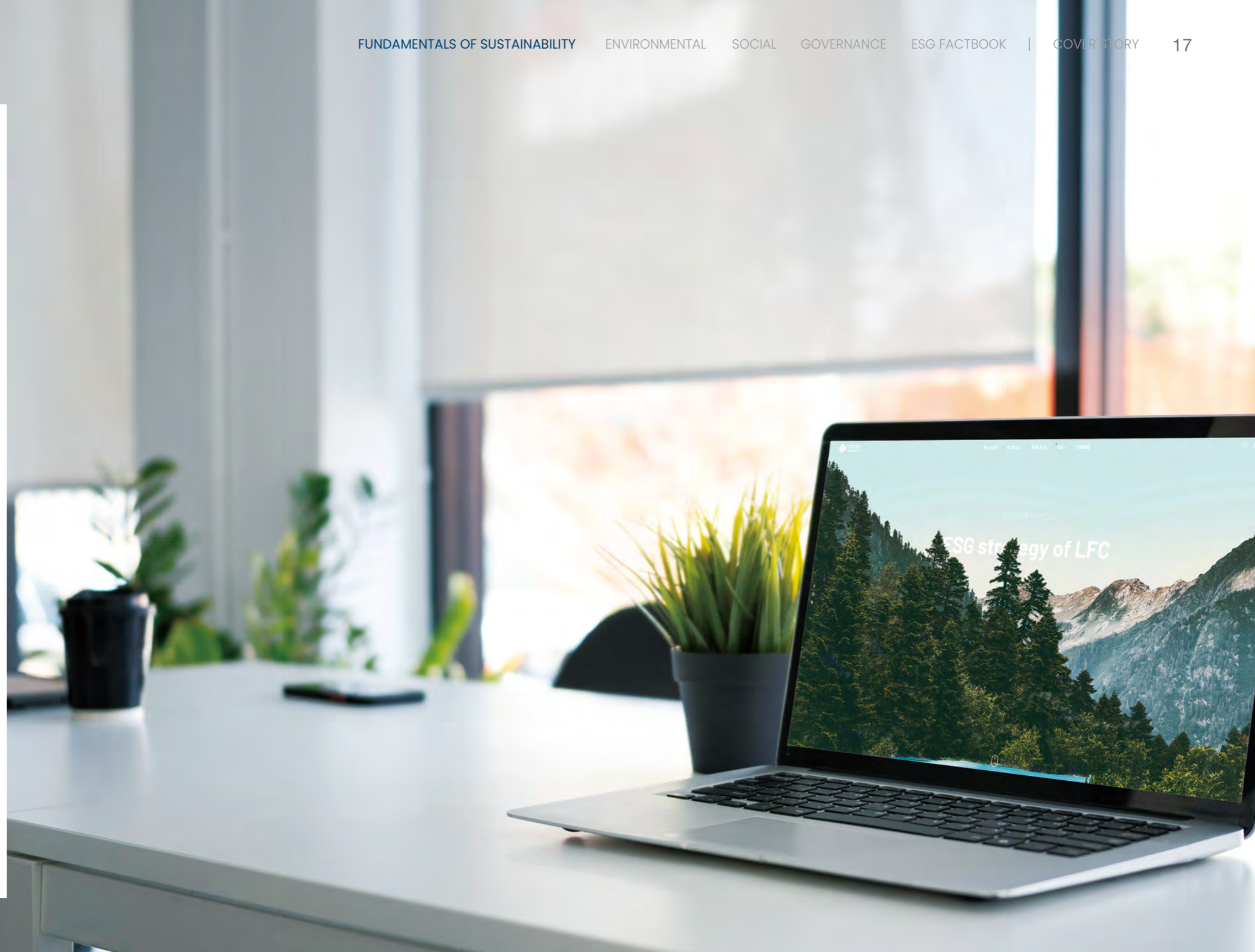
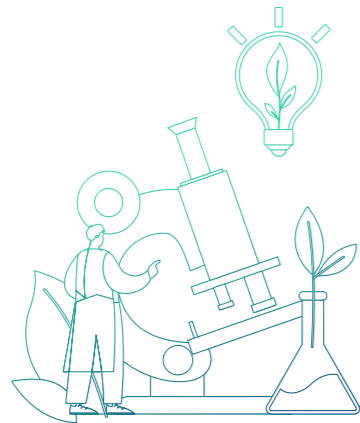
## MATERIAL ESG ISSUES

Issues	Background	LFC's response and management	GRI Standards	Page
<p><b>Minimizing environmental impact</b></p> 	<ul style="list-style-type: none"> <li>There is emphasis on the importance of a sustainable environment as well as a healthy, safe living environment. The international community and governments around the world are strengthening eco-friendliness-centered policies, and companies' environmental responsibilities are gaining more emphasis. According to this international trend, advanced companies are raising resource efficiency by maximizing energy efficiency, minimizing the generation of wastes, establishing a recycling process, and using eco-friendly alternative materials. By doing so, they are continuing efforts to minimize impact on the Earth and to lead the future where we can co-exist with nature.</li> </ul>	<ul style="list-style-type: none"> <li>We implement systematic environmental management based on ISO 14001 to minimize environmental impact throughout the entire process of business operations, ranging from product development to production and disposal.</li> <li>To advance environmental management, we established the "Environmental Management Statement" that specifies environmental management principles as well as a code of conduct and criteria of value judgment that all employees should observe throughout the process of management activities and business execution, and declared it in December 2022.</li> <li>To minimize environmental impact and raise corporate sustainability, we established the "goal on reducing substances that impact the environment" in August 2022 which reduces wastewater, waste, and air pollutant emissions to around 50% from 2019 levels by 2030. We are implementing short-term and mid- to long-term tasks to achieve the goal.</li> <li>Based on LOTTE Group's sustainable growth evaluation index (environmental management organization operation, performance regarding establishing and implementing environmental goals, pollutant management performance, and environmental training), we manage the environmental management status and performance every year.</li> </ul>	2-23, 3-3, 303-1	P26-27, 29-30
<p><b>Climate change response</b></p> 	<ul style="list-style-type: none"> <li>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 is strengthening related regulations to achieve the goal of realizing carbon neutrality by 2050. In line with this global trend, global companies are striving to realize carbon neutrality by investing in eco-friendly facilities and developing eco-friendly products in an effort to reduce their greenhouse gas (GHG) emissions, while enhancing corporate competitiveness and fulfilling social responsibilities.</li> </ul>	<ul style="list-style-type: none"> <li>To achieve carbon neutrality, LFC established and is implementing a long-term roadmap that is aimed at securing global energy competitiveness.</li> <li>In 2022, LFC established a mid- to long-term strategy for responding to climate change and reducing GHG emissions from the perspective of strengthened technological competitiveness and energy conversion, and implemented systematic and feasible countermeasures such as upgrading GHG emission management, analyzing future emission estimates, and deriving an eco-friendly portfolio to achieve carbon neutrality.</li> <li>Our production sites have set and manage energy efficiency and energy cost as key indicators, while deriving and applying annual energy-saving measures such as facility improvements to substantially reduce energy consumption. 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.</li> <li>In 2022, we submitted a report in the CDP Climate Change and Water Security categories. Each received a B Rating.</li> </ul>	2-23, 3-3, 302-1, 302-4, 305-1, 305-2	P18, 28
<p><b>Building a sustainable business model</b></p> 	<ul style="list-style-type: none"> <li>Uncertainty is growing in the global markets, including the chemical industry, due to rising oil prices and rapid changes in international political conditions. For companies to maintain a stable business foundation despite such market circumstances, they are required to strengthen the competitiveness of their existing businesses while building a sustainable business model through portfolio innovations that are in line with changes in the external environment. In particular, the importance of responding to climate change has grown in recent years, accelerating companies' efforts to realize carbon neutrality through eco-friendly business operations across countries and industries.</li> </ul>	<ul style="list-style-type: none"> <li>LFC is implementing business strategies in a sustainable manner by flexibly responding to management environment changes, such as carbon neutrality and growth of the markets for eco-friendly products, based on a balanced product portfolio.</li> <li>To reinforce our specialty chemical business, we are expanding our 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.</li> <li>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.</li> </ul>	2-6	C05-07, C09-11, P5-8, 47-48
<p><b>Safety and health management</b></p> 	<ul style="list-style-type: none"> <li>There is growing social demand for companies' strengthened management of safety at worksites and efforts to prevent accidents. In Korea, a comprehensive plan on occupational health and safety supervision was announced, demanding companies to perform obligations related to occupational health and safety and carry out their own diagnosis and improvement to risk factors based on the establishment of a safety management system. According to this trend, advanced companies established a safety and health management system to prevent possible occupational accidents and continue various activities, including a regular monitoring system, training, and health-related support.</li> </ul>	<ul style="list-style-type: none"> <li>Based on the health and safety management system ISO 45001, LFC is promoting various safety management activities throughout the value chain with the goal of reducing the occurrence of occupational accidents at worksites including those of its in-house partners to zero.</li> <li>We have appointed a CSO to establish and promote company-wide safety and environmental policies under the direct control of the CEO and formed an organization dedicated to health and safety 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.</li> <li>In 2022, we set our three major health and safety implementation strategies as "preventing serious accidents, improving the safety culture, and securing partner companies' safety management." We handled various tasks, such as establishing an open work management plan to manage frequent serious accident types and operating the "Safety STOP" system for working in high places, in addition to the partner company safety manager certification system, smart regular maintenance, and real-time work safety monitoring.</li> <li>As a result of continually improving our process safety management levels to realize safe worksites, we received the P Grade, the highest, in a PSM implementation status evaluation carried out by the Ministry of Employment and Labor in December 2022.</li> </ul>	3-3, 403-1, 403-3, 403-4, 403-5, 403-6, 403-7, 403-8	P39-43
<p><b>Integrated ESG risk management</b></p> 	<ul style="list-style-type: none"> <li>Discussions on ESG disclosure legislation are in full swing, leading to an emphasis on the establishment of a company-wide integrated ESG management system that is aimed at efficient access and management. Advanced companies are strengthening management by regularly monitoring ESG-related regulation trends and identifying and diagnosing possible non-financial risks. In particular, they are raising their executive ability in relation to responding to ESG regulations and strengthening internal competencies by establishing an integrated management process for advancements of the operational management system, establishing ESG management strategies and roadmap, and overhauling the organizational system.</li> </ul>	<ul style="list-style-type: none"> <li>We effectively manage financial/non-financial risks at the company-wide level based on BOD Operation Regulations and each BOD sub-committee's operating rules, with central roles performed by 6 BOD sub-committees (Management Committee, Audit Committee, Transparent Management Committee, Compensation Committee, ESG Committee, Independent Director Recommendation Committee).</li> <li>LFC identifies, in advance, potential financial/non-financial risks throughout the entire value chain and prevents crisis situations.</li> <li>To effectively respond to risks, we identified the risk level of financial/non-financial risks, and established and operate a response process according to the risk level.</li> </ul>	2-9, 2-10, 2-11, 2-12, 2-13, 2-14, 2-15, 2-16, 2-17, 2-18, 2-19, 2-20, 2-23	P11-12, 59-60

**ESG FOCUS AREA 1**

# RESPONDING TO ESG RATINGS AND EXPANDING DISCLOSURES

It is essential for companies to provide ESG information and communicate with stakeholders as a way to make ESG management lead to action rather than a mere declaration. LFC has been publishing its Sustainability Report every year since 2016 to inform stakeholders of the company's mid- to long-term strategies and goals, status of implementing ESG management strategies and detailed tasks, and outcomes. To implement more transparent and in-depth ESG management, we created the "ESG" category on our website in 2022 and disclosed relevant information, including our ESG management performance and plan. We also participated in CDP, an initiative on disclosure of climate change and water security information. To ensure easy and quick access to our ESG information by stakeholders, we will expand the information disclosure level and scope through various platforms and expand mutual communication.



ESG FOCUS AREA 1

## Expansion of ESG Disclosure

### Creating the “ESG” Category on Website

Amid higher stakeholder interest in a company’s ESG management direction, activities, and performance, we created the “ESG” category on our website in September 2022 aimed at more proactive information provision to, and are disclosing relevant information, including our ESG management performance and plan. Our website is open to all, which enables visitors to find information on our ESG implementation system, ESG data, and ESG news anytime. They can also download our Sustainability Report published every year in Korean and English. By doing so, we enhanced transparency and timeliness of information disclosure, while stakeholders can quickly access information related to LFC’s ESG.

➔ ESG Category of LFC Website

### Adopting the Corporate Governance Charter and Publishing a Corporate Governance Report

We enacted and adopted the Corporate Governance Charter in April 2022 and also disclosed a Corporate Governance Report in May 2022 as part of our efforts to enhance management and governance transparency. The Report contains the status of our compliance with 10 key principles concerning shareholders, the BOD, and audit organization; reasons for non-compliance; and status of compliance with key indicators. Going forward, we will make continuous efforts to improve governance with a focus on the key principles. In addition, this Sustainability Report is a voluntary disclosure and is a part of our efforts to inform stakeholders of our ESG management status using a more impartial method.

### Increasing Participation in ESG Information Disclosure Initiatives

LFC submitted CDP Climate Change and Water Security reports in 2022, with each obtaining a B rating. We made a meaningful achievement of receiving a B rating in water resource management despite it being our first participation in the area. Receiving recognition for this achievement, LFC earned “Water Security Special Award” at the 2022 CDP Korea special Awards organized by the CDP Korea Committee.



### External Evaluation and Awards

LFC is implementing ESG management in a systematic manner by establishing detailed plans based on ESG management strategies and implementing them together with relevant departments; and disclosing activities and outcomes through various channels, including the Sustainability Report and website. As a result, our comprehensive MSCI ESG rating was improved to BB in 2022 and our Sustainability Report received an award at such global annual report contests as the ARC Awards and LACP Awards, proving its excellence. In addition, LFC made the achievement of being chosen as a company recognized for local community contribution, an excellent company in providing support for culture and arts, a leisure-friendly company, and family-friendly company.

### ESG Evaluation

Korea Institute of Corporate Governance and Sustainability in 2022 (Environmental A, Social A+, Governance A)	Overall <b>A</b>
Sustainvest in 2022	<b>A</b> Rating
EcoVadis in 2022	<b>Gold Medal</b>
MSCI in 2023	<b>BB</b> Rating
CDP in 2022	<b>B</b> Rating for each of Climate Change, Water Security

### Awards, Certifications, and Selection



**Received the Gold Award at the ARC Awards** | LFC’s Sustainability Report was chosen as an excellent report for the second consecutive year in 2022 at the ARC Awards and LACP Vision Awards, which are renowned overseas annual report awards systems. At the 2022 ARC Awards, participated by renowned companies in Korea and abroad, our Sustainability Report 2021 received awards in a total of six categories, including the Gold Award in the “Non-English: Sustainability Report (Asia Pacific)” category and two additional categories. It also ranked 50th among the “Top 100 Reports” at the LACP Vision Awards.



**Chosen as a Company Recognized for Local Community Contribution** | In recognition for its efforts toward diverse social contribution activities, LFC was chosen as a “company recognized for local community contribution” in 2022 once again. The local community contribution recognition system is where local communities recognize companies and organizations that carried out steady local community contributions in partnership with non-profit groups. We have been performing continuous social contribution activities that meet the needs of local communities, such as “L-ARTTI,” which supports the education of youths who are preparing to stand on their own feet, the “Urban Box Farming Campaign,” which has developed into a leading eco-friendly program in the Ulsan region, and “Ulsan Swings,” a little league baseball team for children from multicultural families. As a result, we were chosen as a company recognized for local community contribution for four years in a row since 2019.



**Excellent Company in Providing Support for Culture and Arts** | LFC carries out various support activities to boost the culture and arts industry in Korea and provide opportunities for citizens to enjoy culture and arts. As a leading example, we are holding a firefighter family cultural event every year. Since 2018, LFC has been making donations to the LOTTE Foundation for Arts every year and sponsoring world-class classical music performances and exhibitions of diverse forms of contemporary art. Based on such culture and arts support programs, LFC was chosen as an “excellent company in providing support for culture and arts” for three consecutive years in 2022. The culture and arts support certification system was created to support groups and companies that facilitate or set an example in carrying out sponsorship activities in the area of culture and arts. The Ministry of Culture, Sports and Tourism chooses an excellent company in providing support for culture and arts by annually examining groups and companies that have excellent expertise in supporting culture and arts and achieved outcomes.



**Leisure-friendly Company** | LFC was certified as a “leisure-friendly company” in 2019 by the Ministry of Culture, Sports and Tourism and the Regional Culture & Development Agency, and maintains this qualification as of 2023. 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 2023, a total of 378 companies were listed as such companies in Korea. Going forward, we will solidify our reputation as a leisure-friendly company by continually striving to create a corporate culture that values employees’ work-life balance and promoting activities designed to support a leisure-oriented lifestyle for our employees.



**Certified as a Family-friendly Company** | LFC operates a wide range of support systems to help employees strike the right balance between work and family life, and also 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, and helping employees send their parents on a tour. In recognition of these efforts, LFC was re-certified as a “family-friendly company” in 2021 and maintains its certified status as of 2023. This certification is provided to companies and public organizations that set an example in operating family-friendly systems, such as support for childbirth and child-raising, a flexible work system, and family-friendly work culture.

### Participation in Global Initiatives

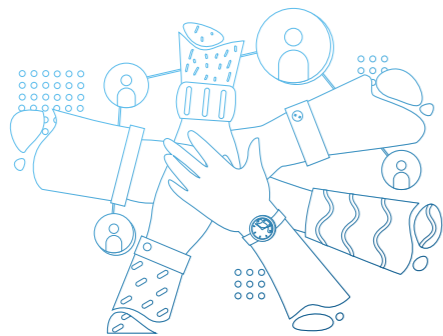
LFC takes part in programs organized by UN Global Compact Network Korea, including energy industry anti-corruption seminars and working-level meetings on advancing ESG data management. In 2022, we participated in the “Korea Leaders Summit” held in November, and will continue to observe the Ten Principles of the UNGC as a global corporate citizen in 2023 as well. Moving forward, we will also expand relevant activities, such as submitting a Communication on Progress (COP) report that describes our detailed commitment to taking actions and the current status.

**ESG FOCUS AREA 2**

# FULLY IMPLEMENTING ESG MANAGEMENT

To LFC, ESG management is a key strategy for sustainable growth. We have therefore established mid- to long-term strategies that consider financial performance as well as social and environmental values. Based on the strategic directions, we are implementing ESG management to create a better today and move towards a sustainable tomorrow where we can all grow together by thinking of the Earth and complying with the basics through our products and technologies.

In our efforts to fortify the foundation for ESG management execution, we established the ESG Committee under the BOD and an ESG-dedicated organization in 2021, giving concrete shape to our ESG execution strategies. For the full launch of ESG management implementation, we enacted the Environmental Management Statement, Human Rights Management Statement, and Code of Conduct for Partner Companies in 2022 and thus presented a future direction for ESG management so that employees consider ESG in their decision-making and behavioral standards while handling work. We also have set in place a corporate-wide cooperation system, built upon bi-directional communication between relevant departments and the Group affiliates, thereby internalizing ESG management as our organizational culture.



ESG FOCUS AREA 2

## Reinforcing ESG Management Execution

By enacting statements in different areas, we have clarified ESG actions and accelerating the implementation. We also disclose the enacted/amended statements, code of conduct, and guidelines to stakeholders through our Sustainability Report and website. Going forward, we intend to expand channels for sharing the information after discussions with relevant departments for effective delivery of information, through which we seek to spread awareness among internal/external stakeholders.

**Environmental Management Statement** | We established the Environmental Management Statement based on environmental laws in Korea and international environmental convention guidelines to present environmental management principles and establish behavioral and value judgment standards that all employees must observe in the process of management and business activities. We disclosed the Statement in December 2022 after reporting it to top management and the ESG Committee.

**Human Rights Management Statement** | LFC has joined hands together with LOTTE Group's efforts to strengthen human rights management policy, and thus disclosed its own Human Rights Management Statement in July 2022. The Human Rights Management Statement is based on international human rights principles and standards, including the Universal Declaration of Human Rights, UN Guiding Principles on Business and Human Rights, and OECD Guidelines for Multinational Enterprises. It provides details on matters that all employees should comply with and implement throughout the business process.

**Code of Conduct for Partner Companies** | LFC has set in place the Code of Conduct for Partner Companies and requests its business partners to fulfill corporate economic/social/environmental responsibilities for sustainable growth and social value creation. Our Code of Conduct for Partner Companies consists of environmental protection; respect for human rights; safety management; compliance and ethical management; prohibition of use of conflict minerals; and management systems, and is based on the Universal Declaration of Human Rights and OECD Guidelines for Multinational Enterprises.

**ESG Policy Book** | Our ESG Policy Book mainly consists of major ESG risk items on which LFC should clearly present its position to outside stakeholders, including the environment, human rights, safety and health, information protection declaration, and Corporate Governance Charter. Through the ESG Policy Book, we presented a future direction for our ESG management and established relevant internal standards and management plans.

## Consensus Building

For the successful execution of a company's ESG management, company-wide efforts should be made, along with cooperation from all employees. LFC therefore implements company-wide integrated ESG management based on bi-directional communication between relevant departments and the Group affiliates rather than unilateral communication of ESG implementation items.

ESG Committee agenda items begin with discussions between the ESG Management Team and the department in charge, followed by a proposal made by the department in charge and a report to top management and decision-making. This is a process of identifying issues and discovering an optimal way of making improvements and taking actions. In addition, CEO messages, employee training, and internal Intranets "Soh-tong Nuri" and "Soh-tong Insight" are utilized to share information with all employees on the ESG management direction that LFC pursues. In collaboration with LOTTE Corporation's ESG Team and LOTTE Chemical HQ, we are reflecting the characteristics of the Group and chemical industry in our strategies. Also, as a main participant of the Group's Net Zero TFT (Eco-friendly Management Task Force Team) and LOTTE Chemical HQ's working-level ESG consultative group, we are examining our ESG management direction and disseminating the Group's policy in LFC.

Moving forward, we will continue to share information on ESG management activities with all LFC employees and set clear roles and responsibilities to strengthen the consensus on ESG management, based on which we will systematically identify ESG risks and opportunities and engage in systematic cooperation to enhance ESG execution momentum and speed.



➔ ESG Policy Book

**Min-Gyu Song**  
ESG Management Team Leader,  
LOTTE Fine Chemical



We are making company-wide preparations for developing LFC's sustainable growth drivers.

LFC established the ESG Committee and formed a team dedicated to ESG for systematic ESG management. Based on our ESG vision, "Creating a better today and moving towards a sustainable tomorrow through technology and products of LFC," we established ESG management strategies and system and are executing detailed tasks. In 2022, we completed CDP responses, disclosure of our goal on reducing environmentally hazardous substances, and adoption of a human rights management system. We are currently carrying out continuous improvement activities. In 2023, we intend to calculate the Scope 3 emission, conduct life cycle assessment (LCA), and adopt a supply chain evaluation system. Going forward, we will continue company-wide efforts to advance ESG management.

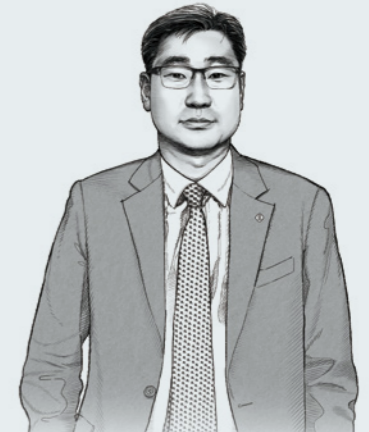
**Jae-Wan Ahn**  
Head, LOTTE Fine Chemical Europe GmbH



We will enhance our company's competitiveness by improving our corporate ESG management.

In Europe, which is at the forefront of changing ESG regulator landscape, the level and scope of demand required by our clients are steadily increasing. In response, LFC is establishing and executing relevant strategies so that we comply with the laws and policies of countries across the globe and appropriately respond to customer requests. Located at the front line, LFC's overseas subsidiaries are performing central roles in this process. The European subsidiary, in particular, is focused on advancing the response system with HQ by identifying market trends and ESG management trends, through which I hope to see LFC achieve new growth by changing the obligation of ESG regulations into opportunities.

**Geun-Yong Kim**  
Environment Management Team Leader,  
LOTTE Fine Chemical



We recognize environmental values as key elements of our business activities and practice environmental management.

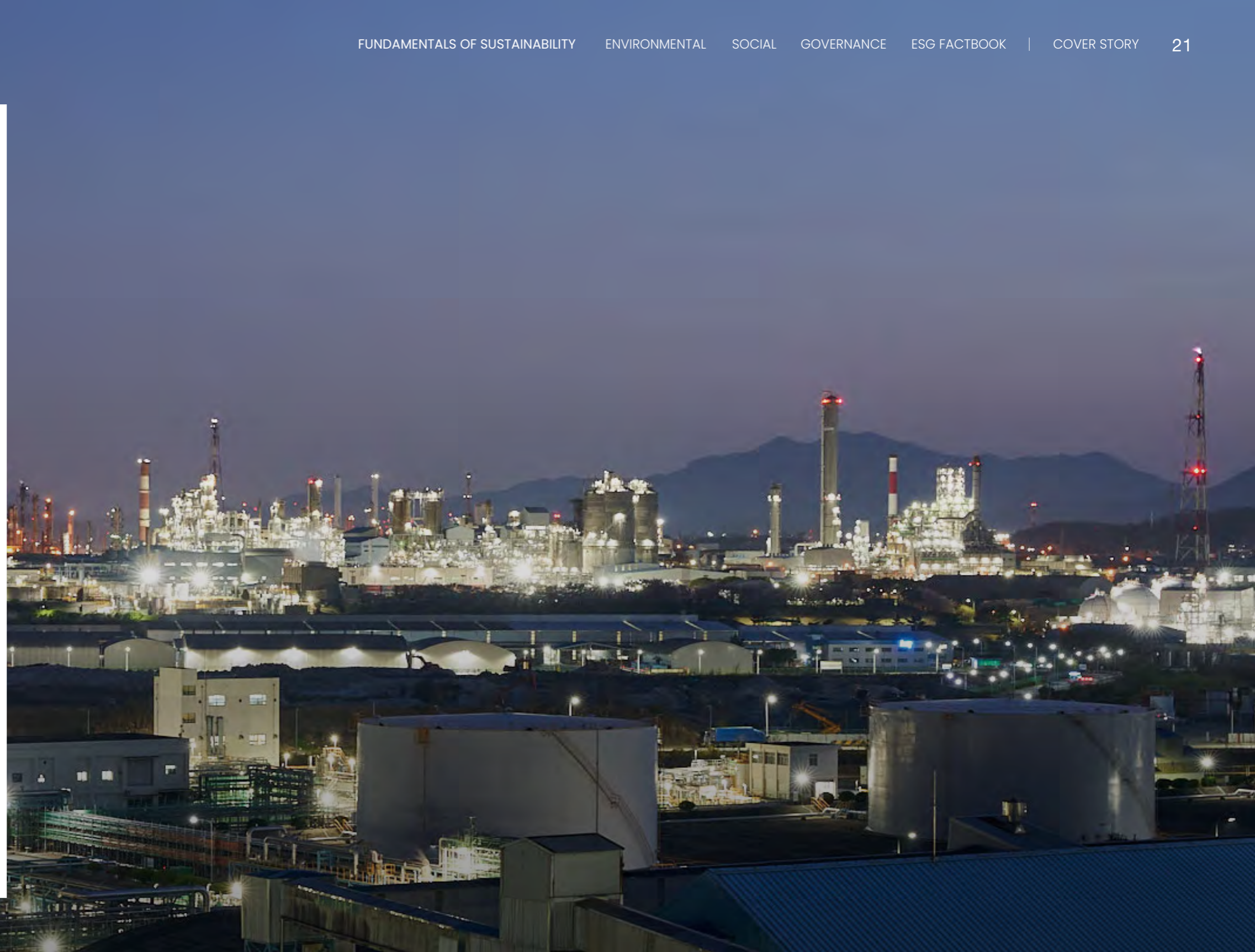
LFC is fully aware of the importance of environmental management. To widely communicate LFC's commitment to environmental management, we enacted the Environmental Management Statement and publicly announced it through our website. To raise corporate competitiveness, we are carrying out activities aimed at countering climate change, such as reducing energy consumption. In addition, we analyzed workplace water resource risks and are reviewing countermeasures by workplace. In addition, we comply with environmental laws in Korea and abroad and disclose environmental information through the environmental information system. We will continue to make environmental investments to enhance environmental management competitiveness which I believe will lead to improved corporate competitiveness.



**ESG FOCUS AREA 3**

# BUILDING SUSTAINABLE BUSINESS SITES

We consider environmental aspects throughout the entire process that ranges from product development to production and disposal. Based on an environmental management system and systematic decision-making system, we engage in eco-friendly activities, such as reduction of environmental pollutants and virtuous cycle of resources, and operate eco-friendly business sites. With a strong commitment towards environmental management, we adopt alternative energy, enhance energy efficiency, reuse/recycle wastes, reduce air pollution, and adopt clean technologies, while making continued investments to minimize impact on the natural environment and create a sustainable society for all.



**ESG FOCUS AREA 3**

## Adopting Clean Technologies

LFC has set key tasks in the environmental area, including reduction of GHG emissions, water resource management, and reduction of hazardous substances and wastes, and defined technologies needed to realize the core tasks as our unique clean technologies, with the goal of "establishing eco-friendly management," one of our strategic directions for ESG management. LFC's clean technologies consist of nine technologies (green hydrogen production; low-electricity electrolyzer; waste water reuse; carbon capture, utilization & storage (CCUS), etc.) in four major areas (alternative energy, energy efficiency, waste reuse/recycling, air pollution reduction).

In particular, to develop and adopt clean technology for the realization of six core tasks, we established a mid- to long-term investment plan that amounts to more than KRW 160 billion (cumulative) through 2030. Accordingly, we are in the process of technological development in some clean technology areas. By making preemptive investments for clean technology development, we will fully establish eco-friendly management, bolster corporate competitiveness, and solidify the foundation for sustainable growth. To this end, we established the Investment Road-map for Development and Introduction of Clean Technology that includes our clean technology development and investment plan, and disclosed it on our website in September 2022.



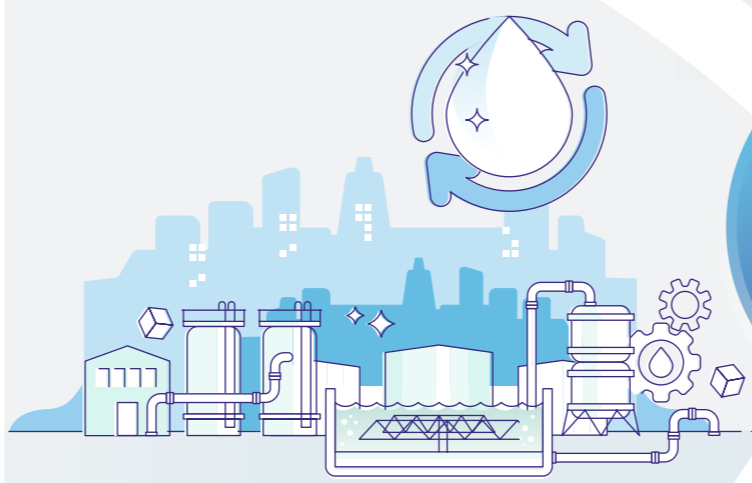
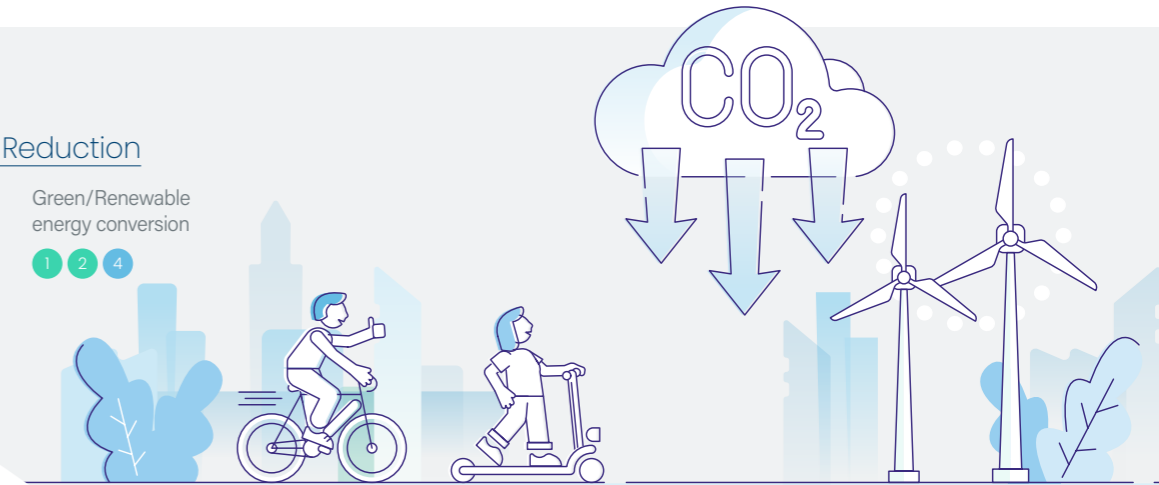
### Areas where LFC's clean technology can be used

#### Carbon Emissions Reduction

Carbon emissions reduction tech reinforcement



Green/Renewable energy conversion



#### Water Resources Management

Water resources risk management



Increase in water recycling rate



#### Toxic Emissions & Waste Reduction

Reduction of toxic substances



Waste reduction



ESG FOCUS AREA 3

## Minimizing Environmental Impact of Business Sites

### Target to Reduce Environmentally Hazardous Substances

ESG management has emerged as a major social topic, while environmental policies and laws are becoming stricter. In response, LFC set a goal for reducing environmentally hazardous substances in 2022, the main point of which is to reduce environmentally hazardous substances (wastewater, waste, air pollutants) by 50% by 2030 compared to the level in 2019. We also defined short-term and mid- to long-term tasks to achieve this goal. As the first step towards accomplishing this goal, we will establish a pollutant reduction plan and expand relevant activities by 2025. As the second step, we will adopt and develop additional new technologies by 2030 and reduce pollutants in stages. Our target to reduce environmentally hazardous substances is transparently disclosed through our website and Sustainability Report, and we plan to continually manage our reduction every year. By systematically and continually managing environmentally hazardous substances, we will minimize the environmental impact that arises in the corporate management process and realize green business sites.

### Target to reduce environmentally hazardous substances

Classification	Unit	2019	2025	2030
Wastewater	1,000 tons	9,051	7,035 (22% ▼)	4,526 (50% ▼)
Waste	ton	12,907	7,744 (40% ▼)	6,453 (50% ▼)
Air pollutants	kg	5,388	2,694 (50% ▼)	2,694 (50% ▼)

### Strategies for reducing environmentally hazardous substances

1 <sup>st</sup> Plan (- 2025)	2 <sup>nd</sup> Plan (- 2030)
<p>Reinforcement and expansion of pollutant reductio activities</p> <ul style="list-style-type: none"> <li>Reduce wastewater discharge through wastewater reuse (10,000 m<sup>3</sup>/day)</li> <li>Minimize pollutant emissions by improving air quality management facilities</li> <li>Minimize landfill/incineration treatment by continually expanding waste reuse</li> </ul>	<p>Introduction and development of new technologies</p> <ul style="list-style-type: none"> <li>Develop and introduce new technology for wastewater reduction processes</li> <li>Review the adoption of NOx (nitrogen oxide) treatment facility</li> <li>Review waste reduction process improvement</li> </ul>

### Analysis of Water Risks

The recently intensifying imbalance in precipitation has made stable supply of water resources difficult. As such, the Ulsan Complex, which uses considerable amounts of industrial water, can experience water shortage, leading to stoppage of plant operations. In addition, there is also a possibility of causing a negative impact on the local ecosystem due to wastewater discharged from the Ulsan Complex and Incheon Plant. As water resource management grows in importance, we conducted an analysis of water risks on the Ulsan Plant and Incheon Plant in 2022 and disclosed the results on our website. The risk analysis was performed by applying such international standards as Aqueduct Water Risk Atlas of the World Resource Institute (WRI) and Water Risk Filter of the World Wide Fund for Nature (WWF). Analysis results will be used as basic materials to establish a plan on mitigating and responding to water resource risks by business site. To first improve areas with high risks, we will identify tasks and take measures.

### Mitigating and responding to water resource risks

Risk	Ulsan	Incheon
<b>Flooding</b>	Development of an emergency plan for flooding (2022-)	
<b>Riverine Flooding</b>	<ul style="list-style-type: none"> <li>Irregularly: Gutter and PIT maintenance, Special gutter/drain inspection during the rainy season</li> <li>Regularly<sup>1)</sup>: Inspect gutters across the company, check and take measures for regularly flooded areas, inspect and repair building water leaks</li> </ul>	
<b>Coastal flooding</b>	Basin /natural environment restoration, compliance with effluent quality standards (2022-)	
<b>Biodiversity Eutrophication potential</b>	<ul style="list-style-type: none"> <li>1 Company-1 Stream Activity (Ulsan), Incheon New Port Environmental Purification Activity (Incheon), etc.</li> <li>In line with strengthening legal regulations, achieve around 50-80% against emissions standard (every year)</li> </ul>	
<b>Drought</b>	Review drought/water outage response scenarios (2022)	
<b>No sanitation</b>	Strengthen WASH (Water, Sanitation and Hygiene) services	
<b>Conflict</b>	Strengthen ties with local communities, comply with environmental regulations	
<b>Quality</b>	Maintenance of water treatment facilities/strengthening of chemicals management (2023)	

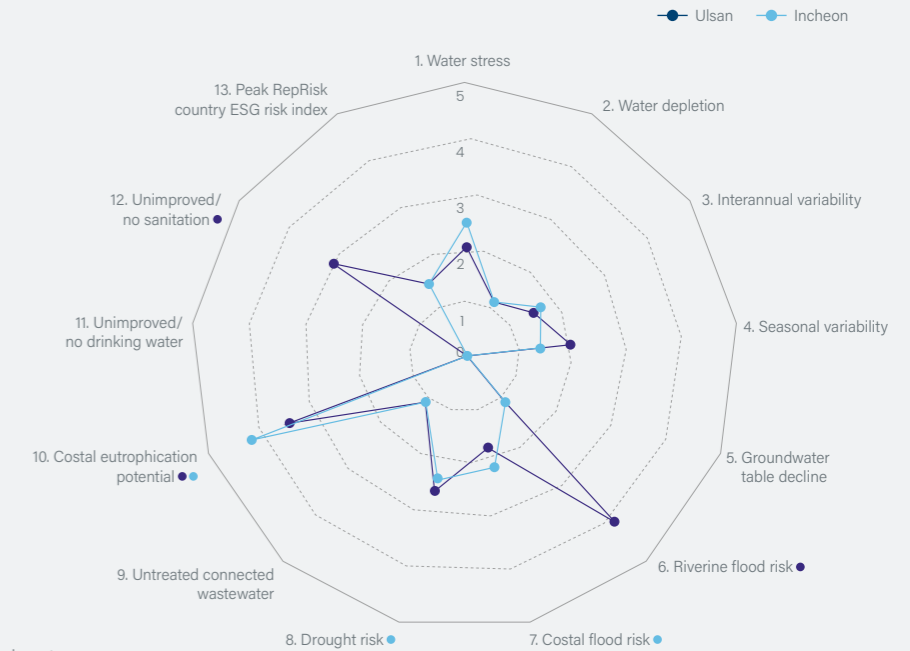
<sup>1)</sup> (Ulsan) Re-examine Yecheon Stream flooding/localized heavy rain response scenarios and inspect drain pumps (2022)  
 (Incheon) Review the installation of water barriers and drain pumps to prepare for localized heavy rain (2023)

### Analysis results of water risks

#### WRI: Aqueduct Water Risk Atlas



<sup>1)</sup> Sanitation risk: Ratio of population that processes sewage/refuse in nature



#### WWF: Water Risk Filter



<sup>2)</sup> Biodiversity: A region with many indigenous fish species or a high level of biodiversity has a higher risk

<sup>3)</sup> Conflict: Evaluated based on the number and records of negative incidents, criticisms, and controversies that occurred in the region in relation to water resources. Higher figures mean higher risks.



# → ENVIRONMENTAL

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Strengthening Environmental Management

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Responding to Climate Change

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Minimizing Negative Environmental Impacts



IN THIS SECTION

LFC hopes to enrich the lives of a greater number of people through better products. In addition, we seek to create value that is beneficial to humankind as well as the natural environment in all steps in which our products are made, used, and disposed. For this reason, we consider environmental aspects throughout a product's lifecycle, ranging from product development to production and disposal, and strive to minimize impact on Earth. Furthermore, we take the lead in opening the door to the carbon neutral era and prepare for a new future that will be shaped by green growth.

### Strengthening Environmental Management

We established the Environmental Management Statement to realize environmental value in the business execution process based on recognition of environmental value as a key factor of management activities. In addition, we established strong environmental management governance at the company-wide level, and are raising the level of environmental management by steadily implementing and continually examining environmental management activities based on the ISO 14001 environmental management system.



### Responding to Climate Change

As a consensus is formed in the international community towards the climate crisis, many countries and companies are establishing a carbon neutrality roadmap and strengthening relevant regulations. Against the backdrop of the irreversible global trend of low carbon, green growth, LFC is preemptively responding to change and exploring new opportunities. We comply with carbon neutrality-related systems, including the GHG emissions trading scheme, and established a long-term roadmap to secure global energy competitiveness, and are strengthening company-wide technological competitiveness and promoting GHG reduction activities from the perspective of energy conversion, thereby strengthening our climate change response capabilities.



### Minimizing Negative Environmental Impacts


LFC uses various chemical substances in the process of our business operations and production of products due to business characteristics. As such, we established a company-wide chemical substance management system that covers the entire process ranging from R&D to production and sales, and operate the LOTTE Chemical Management System (LCMS), which manages all inbound and outbound chemical substances from raw materials to products, to ensure safe management and use of chemical substances. In addition, we focus on appropriate treatment of wastes and pollutants to minimize environmental impact throughout business operations and production processes, and derive and execute tasks to achieve our goals on reducing substances that impact the environment.



# STRENGTHENING ENVIRONMENTAL MANAGEMENT

## Environmental Management System

**ENVIRONMENTAL MANAGEMENT STATEMENT** Going beyond managing substances that impact the environment, LFC seeks to lead the development of local communities and enhancement of corporate value by improving environmental management. To this end, we established the Environmental Management Statement that specifies environmental management principles as well as a code of conduct and criteria of value judgment that all employees should observe throughout the process of management activities and business execution, and declared it in December 2022. The Environmental Management Statement reflects environmental laws in Korea, international environmental agreement guidelines, and environmental management matters that should be implemented by employees.

 Please refer to P. 20 of this Report to find more information about the Environmental Management Statement

establishing company-wide safety and environmental policies and making decisions on related issues. In addition, we established the Environment Team within the Safety & Environment Division under the Manufacturing Group to handle eco-friendly management scheme planning, external affairs management, and eco-friendly activities aimed at reducing factory pollutants. The Technology & Process Team actively responds to environmental and climate change-related issues by practicing carbon management, including efforts to reduce GHG emissions and energy consumption. We report important environmental issues that arise in the corporate management process to the ESG Committee, which reviews, approves, and supervises the issues. At an ESG Committee meeting that was held in February 2023, a report was given on establishing an environmental life cycle assessment (LCA) system.


**ENVIRONMENTAL PERFORMANCE MANAGEMENT** Based on the Group's sustainable growth evaluation index, we annually identify the current status and performance of environmental management. We manage environmental performance using such indexes as environmental management organization operation, performance regarding establishing and implementing environmental goals, pollutant management performance, and environmental

training. By doing so, we identify improvement points and establish and continually implement improvement measures, leading to improvements in environmental management activities.

**ENVIRONMENTAL MANAGEMENT STATUS CHECK** LOTTE Group manages the environmental management system by conducting on-site inspections of each of its subsidiaries every year and solving related problems and taking necessary measures. In 2022, we reviewed the allocation of environmental management tasks and the content of procedures, based on recognition of internal/external environmental changes, to establish relevant work processes, and established or amended the procedures.

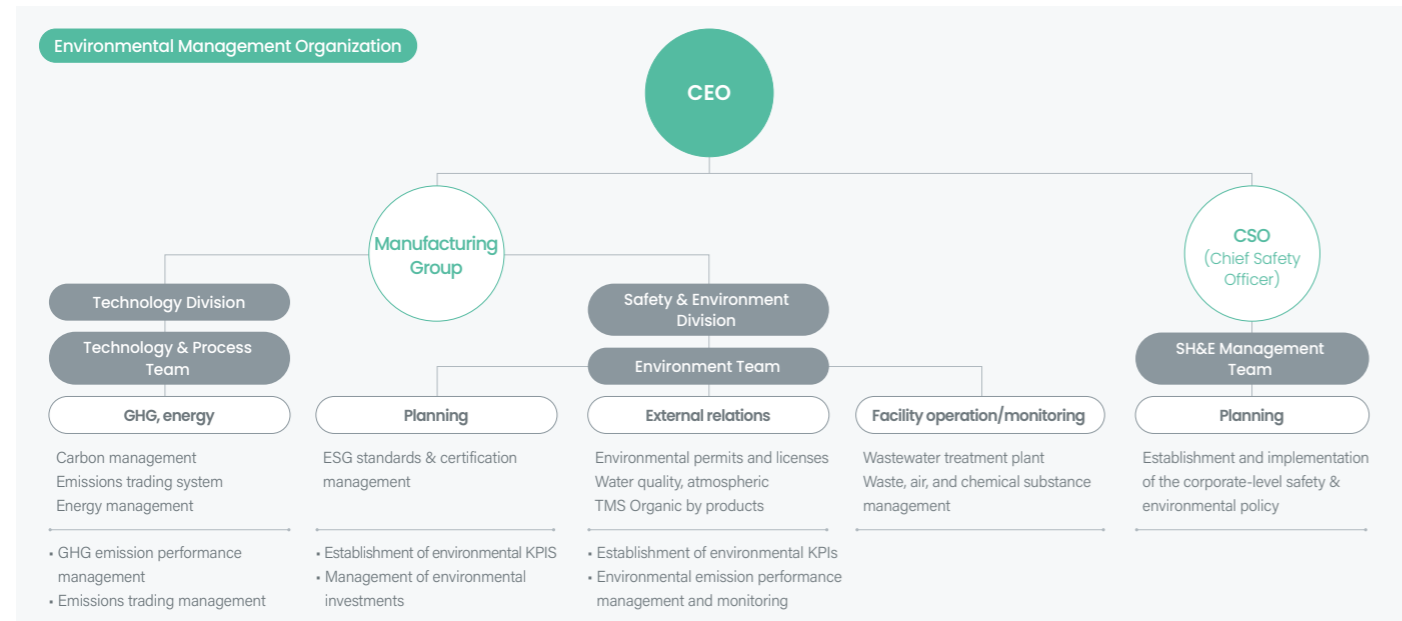
In addition, we launched an in-house verification system to review our management activities in each area of our environmental management on an annual basis and to improve any deficiencies in our processes. Furthermore, we have conducted systematic upgrades so as to identify any abnormality in the processes and establish countermeasures early on by collecting information on our monthly performance in the areas of water/air quality and waste discharge as well as water usage and disclosing it in-house.

**ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATION** LFC first obtained ISO 14001 certification for the environmental management system at the Ulsan Complex in 1996, and has been inspecting the status of environmental management system operation through a follow-up audit every year for 27 years and thus maintains the certification while further advancing its environmental management system. A renewal audit that is conducted every three years is planned in 2023. We plan to earnestly prepare for the audit to maintain certification. We will continue to implement systematic environmental management based on ISO 14001 and make increased efforts to minimize environmental impact throughout the entire process of business operations, ranging from product development to production and disposal.



**ISO 14001** Certification

Obtained for the first time in 1996, changed to ISO 14001:2015 certification in 2015



### Environmental Goals and Implementation Status

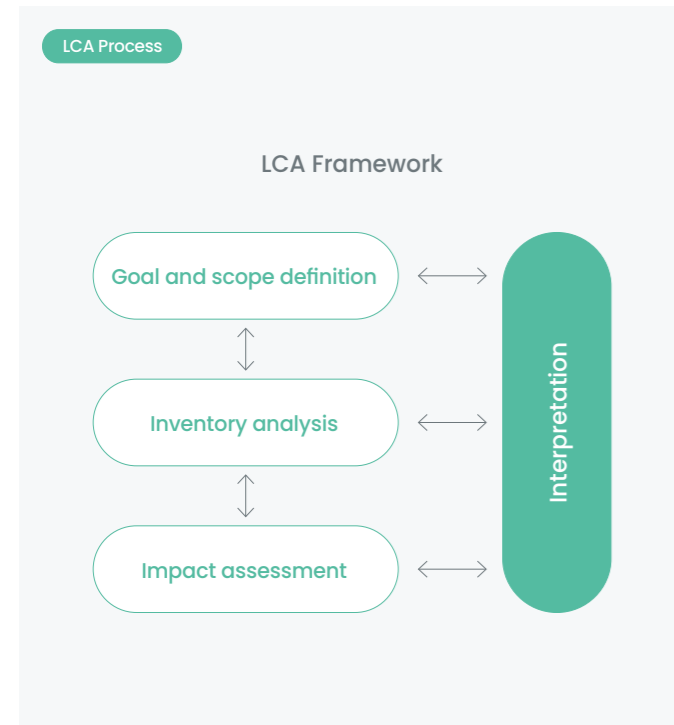
Classification	Goal	Plan	Outcome	Targets	Due
Achievements in 2022	Respond to the Chemical Accident Prevention Management Plan system	Integration of business units	Conformity certified	Completed	Jan. 2022
	Wastewater effluent reuse	Pilot testing	Pilot testing and optimization of operating conditions	Completed	Jun. 2023
Goals for 2023	Respond to the Act on Integrated Management of Environmental Pollution Facilities	Establish a follow-up management system	System establishment	In progress	Dec. 2023
	Invest in Wastewater effluent reuse	Main investment (Commence construction)	Reviewing investment	In progress	Dec. 2024
	Build an LDAR <sup>1)</sup> inventory monitoring system	Build an inventory	Completed an investment report	In progress	Mar. 2024
	Substance registration in relation to the Act On Registration And Evaluation Of Chemical Substances (100-1,000 tons)	Register 7 substances (Minimize registration costs)	Reviewing registration methods	In progress	Dec. 2024

<sup>1)</sup> Leak Detection and Repair, arsenic acid emissions management

# STRENGTHENING ENVIRONMENTAL MANAGEMENT

## Life Cycle Assessment

LFC choose products that are subject to life cycle assessment (LCA)<sup>1)</sup> in consideration of internal supply chain relations and internal/external implementation measures, aimed at measuring and management the environmental impacts of its products. We are now conducting LCA analysis based on ISO 14040 (LCA – Principles and framework) and ISO 14044 (LCA – Requirements and guidelines). As of 2023, we are establishing an LCA system for major products and intermediate process items of the Chemical Business Division and Green Materials Business Division, with the goal of completing the LCA for target products and obtaining domestic and overseas Environmental Product Declaration (EPD) certification for some products in the year. We plan to continue with LCA to expand R&D and production of products with reduced environmental impact. The environmental impact outcomes that are achieved as a result will be used in the process of making diverse decisions for environmental management, such as responding to climate change.



## Environmental Investment

Going beyond responding to environmental regulations, LFC strives to make continuous improvements, including reducing pollutants. To this end, we are expanding investments in the environmental sector to improve and increase the efficiency of each plant's processes and optimize plant intensity. From 2021 to 2022, we focused on establishing eco-friendly workplaces. We reduced air pollutant emissions by installing incinerators, in addition to reviewing investments in wastewater reuse technologies to reduce water use and wastewater and conducting a pilot test. In 2022, we especially focused on minimizing air pollutants by installing additional scrubbers, and established an unmanned IoT odor monitoring system and identified and addressed sources of odor at plants. In 2023, we plan to reduce water use and wastewater by making full-fledged mass production investments for wastewater effluent reuse. In this process, we will reduce the wastewater load factor by establishing more wastewater treatment facilities, thereby making investments so that there are no setbacks to new business. We will also continue carry out activities aimed at reducing hazardous substance and waste discharge to contribute to the establishment of a green ecosystem.

### Environmental Investments in 2022

Investment	Investment in 2022	Goal	Effects
Establish a green material scrubber	KRW 2,052 million	Improve air discharge facilities	Reduce emissions of substances that impact the environment
Establish an unmanned IoT odor monitoring system		Prevent odor	Preemptively respond to odor
Improve sedimentation tanks at wastewater treatment facilities		Stabilize treatment facility operation	Comply with wastewater-related laws and standards
Build WWT <sup>1)</sup> and TW <sup>2)</sup> supply pipes		Rationalize water use	Reduce water use
Install wastewater tanks		Reduce the amount of wastewater transport of wastewater treatment facilities	Reduce emissions of substances that impact the environment

<sup>1)</sup> Waste Water Treatment  
<sup>2)</sup> Treated Water

## Green Purchasing

LFC purchases eco-friendly, high-quality products at the best possible prices based on its green purchasing policy. In 2022, we invested KRW 10.76 billion, which is a year-on-year increase of KRW 2.57 billion, in the purchase of low-power electrodes and low-power separation membranes that can reduce energy consumption and minimize standby power, polyaluminium chloride (PAC) and LED lighting fixtures that are environmental mark products, and excellent recycled compressed pallets. For wood pulp, raw materials of our green material products, in particular, we buy products of business partners with FSC<sup>2)</sup> and PEFC<sup>3)</sup> certifications that enable confirmation of environmental impact on wood production as part of efforts to minimize negative environmental impact. We are examining systematic measures such as reviewing the granting of additional points in evaluation potential suppliers for those with green purchasing and/or ESG certifications in order to further expand green purchasing with the full implementation is scheduled to begin in the second half of 2023.

## Environmental Training

LOTTE Group conducts online education on ESG trends, carbon neutrality, and eco-friendly strategies for all its subsidiaries every quarter. In 2022, the Group provided education and training to its environmental management personnel to ensure that they respond effectively to ESG challenges, and environmental management personnel at LFC completed the training. 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 safety 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 and their employees who have higher possibility of being excluded from environmental training. As a result, the completion rate of hazardous chemical safety training for our employees and our major in-house partners has been 100% every year.

## Employee Suggestions System

Aiming for 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 optimizing factory operation, improving the environment, reducing the use of raw and subsidiary materials, and making work-related improvements, while the company continues to revitalize the system by selecting and awarding suggested ideas that lead to great effects. In 2022, our employees made 1,176 suggestions, which contributed to a product cost improvement of KRW 7.9 billion originating from improved productivity and reduced consumption of raw and subsidiary materials.

### 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

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



<sup>1)</sup> A technique that quantifies the amount of resource use and emissions throughout the entire process that ranges from acquisition of raw materials to product use and disposal, and thus tallies and evaluates potential environmental impact

<sup>2)</sup> Forest Stewardship Council

<sup>3)</sup> Programme for Endorsement of Forest Certification

# RESPONDING TO CLIMATE CHANGE

## Climate Change Response Strategy

Accelerated global warming and abnormal climate are resulting in frequent natural disasters, leading to larger unexpected damages to countries and companies. Against this backdrop, the climate crisis is being discussed as key agenda of the international community. Major countries across the globe, including Korea, have declared their goal of achieving net zero by 2050 and are strengthening the related regulations to respond to the climate crisis. Stakeholders are demanding companies to more actively reduce GHG emissions, establish measures on responding to climate change, and disclose relevant information.

Advanced companies are managing GHG emissions throughout their entire value chain and implementing climate change response strategies to achieve carbon neutrality. LFC has also established a long-term roadmap that is aimed at securing global energy competitiveness, complies with all the related regulations, including the GHG emission trading system, and preemptively responds to climate change.

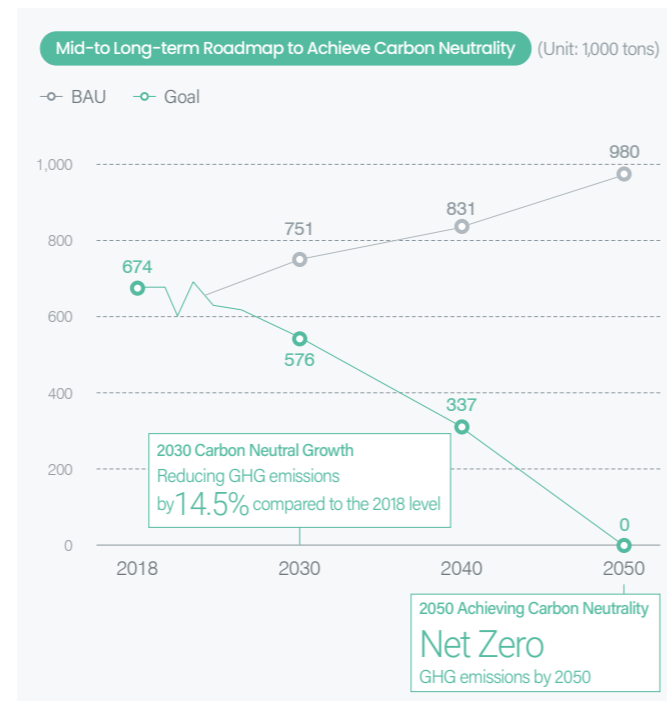
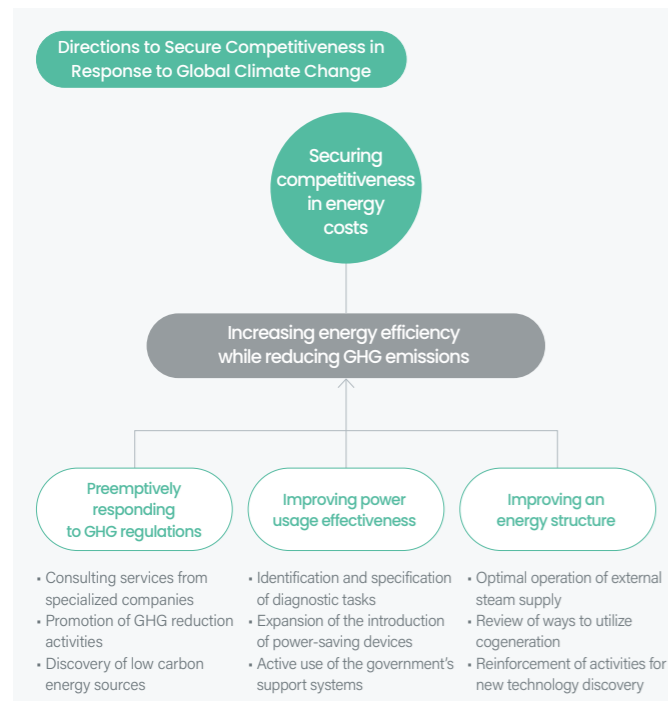
In particular, to achieve the emissions allowance of the GHG emissions trading system, we have assigned reduction targets to our production departments and are implementing our own reduction activities and trading mechanisms. In 2022, LFC established a mid- to long-term strategy for responding to climate change and reducing GHG emissions from the perspective of strengthening technological competitiveness and energy conversion, while identifying and executing 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 this climate change response strategy and activity outcomes, we responded to the Carbon Disclosure Project (CDP) and received the B Rating for each of Climate Change and Water Security categories.

## Energy Efficiency Management

LFC is focusing on reducing energy use of manufacturing processes. To this end, we formed an organization that is dedicated to raising energy efficiency, set energy efficiency and cost saving as the KPIs of our production departments, and are minimizing the rise in GHG emissions by reducing energy use of manufacturing facilities. By operating a knowledge suggestion system that is a part of a company-wide integrated innovation program and deriving energy efficiency improvement items, we are discovering employees' creative ideas and rewarding outstanding ideas to induce energy innovation activities. In 2022, we derived 12 energy conservation tasks and reduced energy consumption by 131 TJ. In 2023, we established and are implementing 19 energy-saving task execution plans with the goal of reducing energy consumption by 270 TJ, including reducing urea solution steam, reducing electric power use of ammonia storage tank refrigerators, and reducing energy use by improving utility intensity.

## GHG Reduction Activities

LFC is focused on reducing GHG emissions from the perspective of strengthening technological competitiveness and energy conversion at the company-wide level, as a way to enhance its competitiveness in responding to climate change. To this end, we upgraded our in-house regulations in accordance with the GHG and Energy Target Management Scheme and the Energy Use Rationalization Act, aimed at strengthening the measure, report, verify (MRV) system for real-time GHG emissions. In addition, each of our production departments is taking the lead in discovering and implementing tasks to reduce energy consumption and GHG emissions. Moreover, we are reviewing the adoption of new and renewable energy at our business sites to strengthen eco-friendly competitiveness.



## Energy Conservation and GHG Reduction Performance in 2022

Items	Reduction of energy consumption (TJ)		Reduction of GHG emissions (tCO <sub>2</sub> eq)	
	Plan	Performance	Plan	Performance
Reduce electricity costs by installing inverters				
Caustic soda power-saving task				
Chlorine power-saving task				
Power-saving through the optimization of urea solution transfer pump				
Reduce HEC steam				
Reduce steam through optimization of urea solution manufacturing temperature				
Cost reduction by minimizing high-voltage inverter drive loss	122	131	4,975	5,445
Optimization of IA compressor operation				
Optimization of the operating temperature of the electrolyzer				
Power-saving by improving the B-Line drying speed				
Electricity cost reduction by shutting down the hydrochloric acid transfer pump of the TMAC plant				
Reduction of transfer power for wet cake				



# MINIMIZING NEGATIVE ENVIRONMENTAL IMPACTS

## Advancing Chemical Substance Management

**MANAGEMENT OF CHEMICAL SUBSTANCES** LFC operates the LOTTE Chemical Management System (LCMS), based on which it tallies information, and thus manages/controls all the chemical substances that it receives and issues, thereby enhancing work efficiency.

In accordance with the Act on Registration and Evaluation, Etc. 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 and manufacture in excess of 1 ton each, in 2021, and have been registering seven chemical substances of which we handle 100-1,000 tons since 2022 with the goal of completing registration in 2024.

We act as the representative company of the consultative body for three materials among the seven substances, while we plan to register as a latecomer for four substances and implement a strategy to minimize registration costs through registration exemption. In addition, we are striving

to enhance safety of chemical substance management on a constant basis. We have continuously improved our hazardous chemical handling facilities in accordance with the Chemical Substances Control Act and received the "Conformity" grade as a result of a regular inspection of our facilities that takes place every year. We are also periodically examining, improving, and managing hazardous chemical handling facilities to prevent accidents such as chemical substance leakages.

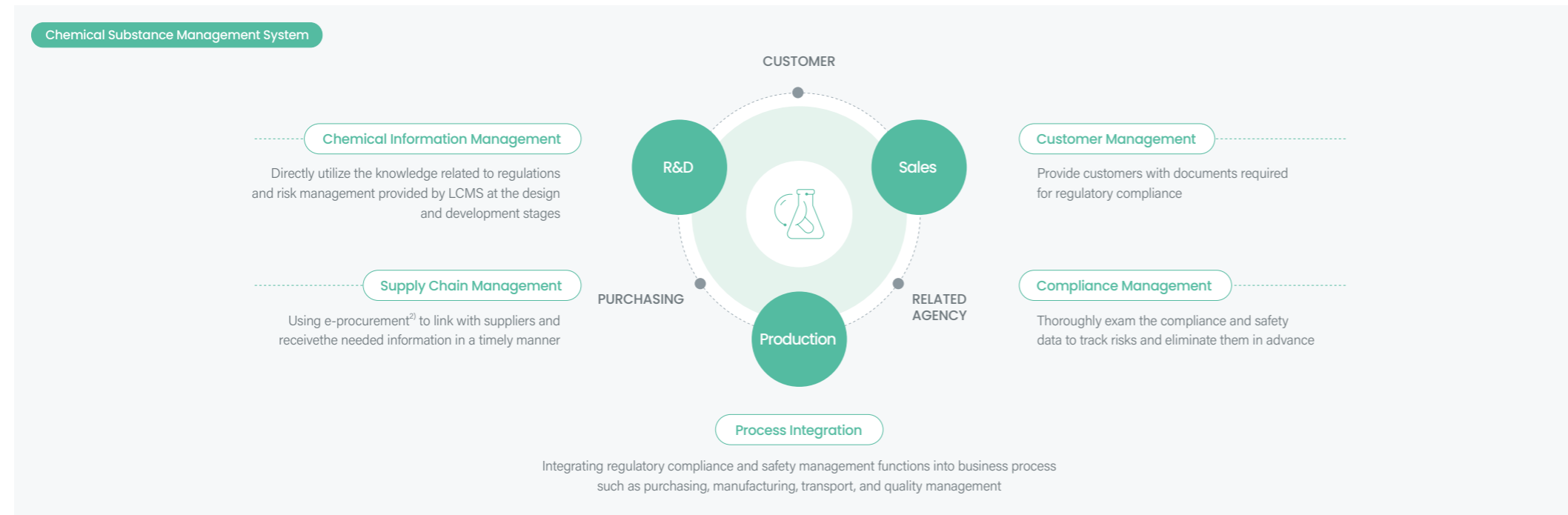
Since 2020, the Incheon Plant has been creating and managing a chemical substance inventory, implementing management measures for reduction/disposal of hazardous chemical substances, examining and reporting the amount of hazardous chemical substance use (every year), and conducting statistical research on chemical substances and reporting the results (every other year). In addition, it receives an evaluation on hazardous chemical substance management every year from the Korea Gas Safety Corporation, an external qualified agency, to secure objective appropriateness of the

management level, and is maintaining the conformity grade. In 2022, we registered two additional purposes pursuant to the Act on Registration and Evaluation, Etc. of Chemical Substances for raw materials of new products through discussions with suppliers, in addition to conducting a safety inspection on chemical substance handling and management for extended lines and amending the Material Safety Data Sheet (MSDS). Our plan for 2023 is to register DeNA (Denitrification agent) product pursuant to the Act on Registration and Evaluation, Etc. of Chemical Substances and to create an MSDS for new products and MSDS for overseas customers in their respective local language.

**REACH RESPONSE STRATEGY** Regulations on chemical substances are expanding, including REACH<sup>1)</sup>, a global environmental regulation that greatly affects not only companies within the EU, but also offshore companies that export chemical substances to the EU. To respond to chemical substance regulations that are strengthening in each country and

region, such as Korea's Act on Registration and Evaluation, Etc. of Chemical Substances, Turkey's "KKDIK," the UK's "UK-REACH," and Eurasia's "TR-EAEU," we established a company-wide response system. Together with sales-marketing-purchasing departments, we identify exported substances by region and carry out registration work according to each country's regulations. We handle maintenance work every year even after registration. In case of REACH, we are registering new substances with an increase in exported substances.

We completed pre-registration for chemical substance regulations by country-region of Turkey, Eurasia, and the UK, and identified the main registration schedule and are taking necessary measures. In line with the December 2023 registration deadline for KKDIK, which is the Turkey-REACH, we will check substance registration information and complete registration. In case of the TR-EAEU, which is the Eurasia-REACH, and UK-REACH, we will complete registration according to the schedule.



<sup>1)</sup> Registration, Evaluation, Authorization and Restriction of Chemical Substance. Chemical substance management system that stipulates the mandatory registration, evaluation, permission or approval of 1 ton or more of chemical substances manufactured in or imported into the EU.


<sup>2)</sup> In-house supply chain system

# MINIMIZING NEGATIVE ENVIRONMENTAL IMPACTS

## Strengthening Environmental Management at Business Sites

### TARGET TO REDUCE ENVIRONMENTALLY HAZARDOUS SUBSTANCES

LFC set a target to reduce environmentally hazardous substances in 2022 which aims to reduce wastewater, waste, and air pollutant emissions to around 50% from 2019 levels by 2030. With the goal of minimizing environmental impact and raising corporate sustainability, we are now implementing short-term and mid- to long-term tasks to achieve the goal.

 Please refer to P. 23 of this Report to find more information about the Target to Reduce Environmentally Hazardous Substances

### WATER RESOURCE MANAGEMENT

The water used at our business sites is supplied through water intake sources situated near each of our manufacturing plants that meet the standards for appropriateness of use. The utility department based at each of our business sites takes the lead in constant monitoring. In addition, process improvements are made to optimize our water consumption and expenditure. In-house wastewater treatment facilities are operated for real-time monitoring of the discharge amount by facility. In case of water discharged into shores, we remove pollutants as much as possible before directly discharging water by having water go through advanced treatment, such as filtering, after physical and chemical treatment. Even in cases where

water is treated in connection with the local government’s sewage treatment plant, we remove most suspended solids and dissolved organic matter by going through physical, chemical, and biological treatment.

We set our internal standard on water pollutant discharge to 80% of the permissible regulatory limit. To check the status of pollutant discharge, we conduct a daily internal analysis that conforms with the standard method, in addition to a regular analysis performed by an external measurement organization twice a month as part of our efforts to meet the emissions standard. As the treatment load factor of wastewater treatment facilities continues to rise, we are reviewing the adoption of new facilities for temperature control of wastewater treatment facilities, along with distribution of wastewater load by installing more wastewater treatment facilities.

We are exploring ways to increase reuse of wastewater to reduce water use and wastewater discharge and to reduce the discharge of water quality pollutants. We conducted pilot testing on two occasions to reuse effluent as industrial water by using the latest technologies, including Ultra Filter (UF) and Reverse Osmosis (RO), based on which we are planning to invest in wastewater effluent reuse facilities.

Our wastewater recycle performance in 2022 was 1,413,283 tons, a year-on-year increase of 2.8%, although this was not a result of increasing reuse but an outcome of an increase in the generated volume. However, we are making continued efforts to raise water usage efficiency, including continued pilot testing on wastewater reuse from 2021 to 2022. Our goal is to reuse around 25% (6,000 tons/day) of wastewater that is discharged to sewage treatment plants by 2024.

### WASTE MANAGEMENT

LFC manages the entire waste treatment process by using "Allbaro," an online comprehensive waste management system of the Ministry of Environment. When wastes are generated, we immediately check MSDS and create hazards information materials. We periodically conduct a component analysis at least once a year based on the standard method for wastes as part of our efforts towards safe waste management and treatment. To reduce the amount of wastes generated, we set a waste discharge target every year, make process improvements and investments, and carry out taskforce activities. In particular, by continually converting landfill and incinerated waste into recycled waste, we increased our recycling rate from 84% in 2019 to more than 90% in 2020 and continue to maintain that level.

### AIR POLLUTION MANAGEMENT

For stable plant operations, we set up the tele monitoring system (TMS)<sup>1)</sup> in our process facilities for constant measurement and management of air pollutant emissions. We periodically conduct a leak detection and repair (LDAR) inspection for nonpoint pollution source and arsenic acid leakage facilities that have a possibility of leakage to minimize air pollutant emissions. We plan to expand the application of this system to include items that are not hazardous air pollutants, and are improving phased pollutant treatment.

### SOIL AND ENVIRONMENT CONSERVATION

In an effort to prevent soil contamination due to our factory operations, 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.



Volume of Waste Generated & Recycling Rate

	Unit	2020	2021	2022
Waste volume	Ton	75,019	82,919	91,305
Recycling rate	%	90	93	91

<sup>1)</sup> A system that takes real-time measurements of air pollutants that are discharged from business site smokestacks using an automatic smokestack measuring device, and sends this information online to the Korea Environment Corporation and handles real-time management of the discharge status

# SOCIAL

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Contributing  
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Communities



IN THIS SECTION

LFC respects all stakeholders and pursues innovation that is beneficial to all. In particular, we make diverse efforts to enhance the value of employees, who are jointly accomplishing LFC's sustainable growth, and explore ways to win-win with partners, thereby expanding the scope of sustainable growth to the entire supply chain. We endlessly continue with innovation to provide distinctive value to customers, who are the reason for our existence, and deliver beneficial value to local communities as a "good partner making a sustainable future."

### Advancing Human Rights Management

We implement human rights management in accordance with our human-centered management philosophy and the basic rights regarding human dignity and value as stipulated in the Constitution of South Korea. To enhance our commitment to implementing human rights management, we enacted the Human Rights Management Statement, which is criteria for right behavior and value judgment that all employees must observe in the process of executing management activities and business, in July 2022.

### Improving Employee Value

We operate a transparent and fair recruitment process to select key talents who will take part in LFC's growth. We operate talent-nurturing systems and programs that consist of diverse curricula to nurture global talents who will be active in the global market. Furthermore, we are building a corporate culture conducive to work for our employees by innovating the way we work and focusing on achieving sound work-life balance.

### Integrated Health and Safety Management

We established a safety management system that is based on ISO 45001 for health and safety management systems, and are strengthening our safety capabilities by carrying out activities aimed at internalizing a prevention-centered safety culture. In 2022, we set our three major health and safety implementation strategies as "preventing serious accidents, improving the safety culture, and securing partner companies' safety management" and made diverse efforts to establish a work environment where everyone can work safely.

### Creating a Sustainable Supply Chain

LFC recognizes partner companies as our partners who will grow together with us, and actively supports their strengthening of competitiveness based on fair and strong partnerships. In 2022, we enacted the "Code of Conduct for Partner Companies" that specifies our ESG requests to partner companies, including environmental protection; respect for human rights; safety management; and compliance and ethical management, and called upon our partner companies to make joint efforts to establish a sustainable supply chain.

### Product Quality and Technological Innovation

We stay competitive in product quality by strengthening raw and subsidiary material quality control and inspection, striving to prevent recurrence of customer complaints, conducting system and data-based process management, and conducting quality process audit for customer satisfaction and quality improvement. In addition, by strengthening technology platform-centered R&D capabilities, we do our utmost to build competitiveness of existing businesses and enhance executive ability of new businesses.

### Enhancing Customer Value

We provide the best products and services by actively collecting customer opinions through diverse channels and create distinctive customer value by carrying out activities to protect customers' personal information.

### Contributing to Local Communities

Based on our CSR vision, "good partner making a sustainable future", we are carrying out strategic CSR activities by leveraging our business expertise, focusing on five major areas - Children/youth and women, local community, local environment, alignment with chemical industry, and collaboration with LOTTE Group and other related organizations.



# ADVANCING HUMAN RIGHTS MANAGEMENT

## Human Rights Management System

**HUMAN RIGHTS MANAGEMENT STATEMENT** LFC respects human rights, which are basic rights and freedom given to all people, and is creating an organizational culture that respects all employees at all times, irrespective of location, without any prejudice or discrimination. With this sense of commitment, we enacted and declared the "Human Rights Management Statement", which is criteria for right behavior and value judgment that all employees must observe in the process of executing management activities and business, in July 2022. This Statement is based on international human rights principles and standards, including the Universal Declaration of Human Rights, UN Guiding Principles on Business and Human Rights, OECD Guidelines for Multinational Enterprises, and UN Convention on the Rights of the Child. We pledge to faithfully abide by and practice the Human Rights Management Statement, and protect and promote stakeholders' human rights in the overall business value chain.

→ ESG News - LFC Human Rights Management Statement

📄 Please refer to P. 20 of this Report to find more information about the ESG Policy Book

**ESTABLISHMENT OF HUMAN RIGHTS MANAGEMENT SYSTEM** LFC practices human rights management that respects each individual employee according to its human-centered management philosophy and the basic rights regarding human dignity and value as stipulated in the Constitution of South Korea, through which it seeks to contribute to humankind's enriched lives by positively changing society. 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, and race. In particular, LFC guarantees the fair treatment of all employees in HR and welfare systems, encompassing everything from employment to assignment, promotion, compensation, training, and retirement.

For more systematic implementation of human rights management, we established human rights management regulations and rules in 2022, including the Human Rights Management Statement, and amended our rules on preventing and handling human rights violation, sexual harassment, workplace harassment. As a result of these efforts, there were no cases of discrimination in 2022, and none of our business sites ran the risk of violating the freedom of collective bargaining.

**HUMAN RIGHTS MANAGEMENT CERTIFICATION** LFC established a company-wide human rights management system and process based on global human rights management guidelines and guideline requirements. It then received an evaluation from a third-party authorized organization and received human rights management certification in October 2022 for manufacturing of fine chemical and electronic material products and services.

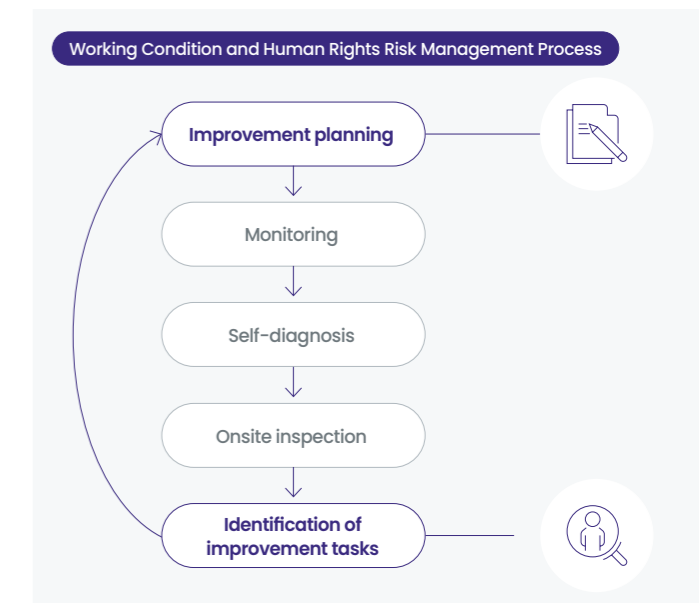
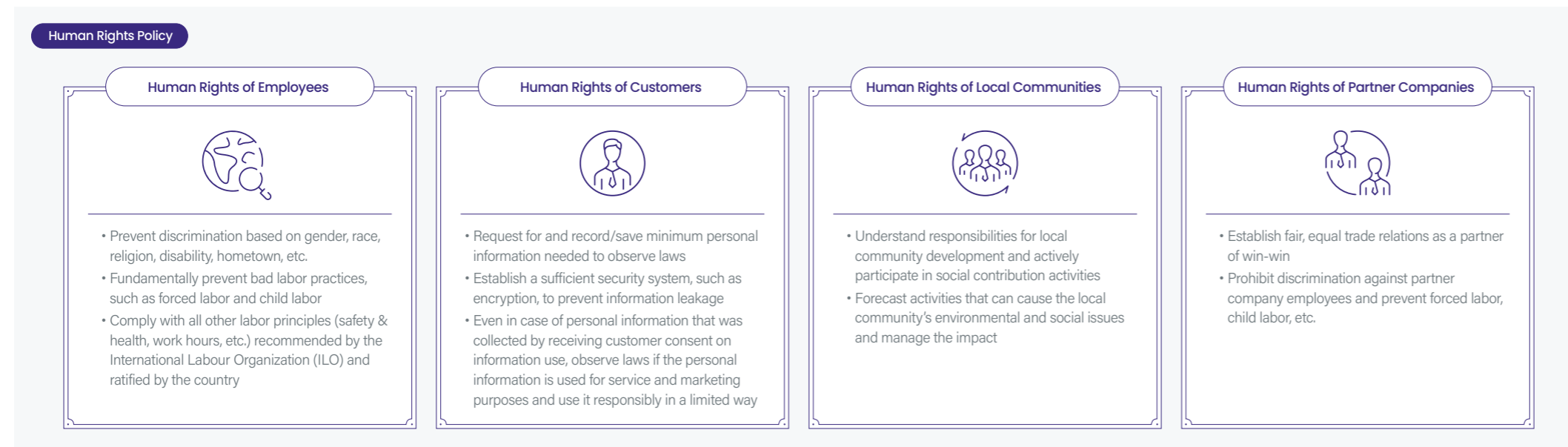


Human Rights Management Certification

## Human Rights Impact Assessment

LFC underwent a human rights impact assessment conducted by an external independent agency in August 2022 to identify human rights risks that may occur in the process of corporate operations and to establish a human rights management system, and disclosed the results on its website. Our comprehensive score after a human rights impact assessment is 84.4 points (A Grade), signifying that we are overall complying with human rights management and relevant regulations. Based on the assessment results, we will overhaul our human rights management system, establish an improvement plan that is connected to supply chain ESG evaluation, and take necessary measures.

We will continue to conduct human rights impact assessments on a regular basis to identify human rights risks in advance, while measuring stakeholder impact levels to derive improvement measures for vulnerable areas. Relevant information will be disclosed through our website as part of our efforts to prevent relevant incidents and accidents. In addition, we set our mid- to long-term human rights management goal as "achieving S Grade (very excellent) in human rights impact assessment" and "obtaining ISO certification in the human rights area" in 2025, through which we aim to strengthen our human rights management system.



# ADVANCING HUMAN RIGHTS MANAGEMENT

## Results of Human Rights Impact Assessment in 2022

Item	Assessment score	Major reasons for assessment	Remedy (improvement measures)
Establish a human rights management system	53.6	Insufficient human rights management system regulations (standards) and monitoring process	Enact the remedy/standards (completed) Establish a monitoring process (completed)
Non-discrimination in employment	91.3	Operating various discrimination-prevention policies	
Guarantee freedom of association and collective bargaining	97.3	Establishing a labor union and supporting its activities, carrying out regular collective bargaining	
Prohibit forced labor	66.7	Insufficient forced labor prohibition policy and monitoring of partner companies' human rights risks	Establish a partner company-related regulation (2023) * Aligned with the supply chain ESG evaluation system
Prohibit child labor	100	Prohibiting the hiring of minors and takes measures according to laws and standards	
Guarantee occupational safety	95.0	Operating the health and safety management system and conducts risk evaluations	
Responsible supply chain management	50.0	Absence of partner company evaluations, need for support activities	Establish a partner company-related regulation (2023) * Aligned with the supply chain ESG evaluation system
Protect local residents' human rights	100	Conducting activities to protect the human rights of local residents	
Guarantee environmental rights	92.0	Operating an environmental management system, providing information to stakeholders	
Protect customers' human rights	97.8	Conducting activities to protect customers' human rights	

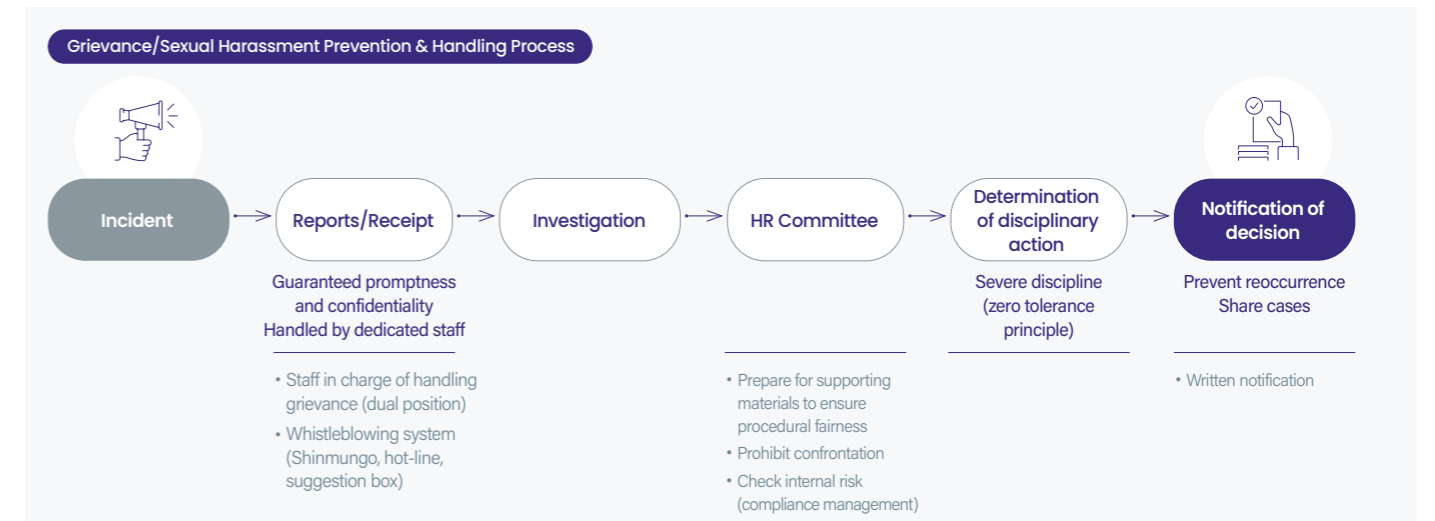
## Grievance Handling

LFC set in place various on/offline grievance receipt and reporting channels to receive reports on and resolve various types of grievances, including violation of employees' human rights, workplace harassment, and discrimination. 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. In 2022, we amended previous rules and established the "Rules on Preventing and Handling Cases of Human Rights Violation, Sexual Harassment, and Workplace Harassment". Through the Grievance Committee, we operated detailed procedures for the investigation and handling of relevant cases.



## Human Rights Education

During the annual statutory training session aimed at raising 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 2022, we established new human rights management regulations and rules of the company. In addition, the CEO directly educated employees on respecting human rights as part of our efforts to internalize human rights management.



# IMPROVING EMPLOYEE VALUE

## Human Resources Management

**RECRUITING TALENTS** LFC operates a transparent, fair recruitment process to provide many quality jobs to members of society and to help our employees grow together with the company's development. The non-face-to-face recruiting that we have been conducting was converted to face-to-face with the mitigation of COVID-19. We are operating a year-round rolling recruitment process in accordance with recruitment demand per position.

**RESPECTING DIVERSITY** LFC has been holding the "WOW Forum" for female leaders to nurture female talents since 2016, through which it is supporting self-development of female talents and providing them with networking opportunities. In 2022, we expanded the forum's themes and target and reorganized it to the "Diversity Forum". We held the Diversity Forum with the goal of improving perceptions and spreading the culture of respecting diversity, covering diverse subjects such as generation, gender, global, and disability. We shared and communicated about diversity issues

through online, real-time employee lectures, discussions, and open chatting, and enabled participation by all employees. We will continue to hold the Diversity Forum, through which we will strive to create an organizational culture where all LFC employees acknowledge each other's difference and be considerate of the difference.

To nurture female talents, we have allowed pregnant staff members to work from home and provide a mentoring program to employees returning from parental leave on an annual basis. We adopted and implemented the optional parental leave in addition to the statutory parental leave and elementary school child parental leave system. We actively recommend parental leave to male employees as well, and provide support so that employees can freely use parental leave irrespective of their gender. To increase worker diversity, LFC aims to comply with the statutory employment rates of persons with disabilities (3.1%) in 2023, following its compliance in 2022.

**People of LFC**

- Challenger**
  - Top talents with executive ability
  - Top talents in their respective field who challenge themselves to take on new opportunities and difficult tasks with initiative and passion
- Harmonizer**
  - Talents who respect diversity and harmonize
  - Talents who recognize the value that different perspectives and cultures give to the organization and who cooperate from a balanced point of view
- Expert**
  - Talents who understand the heritage of LFC and thinks strategically
  - Talents who predict future potential and strategically makes judgments based on market and business knowledge to achieve organizational goals
- Motivator**
  - Self-driven talents who have a sense of responsibility and motivate themselves
  - Talents who make utmost efforts to achieve organizational goals with a sense of responsibility based on ownership

**Employee training in 2022**

Total training costs  
**990** KRW million

Training hours per person  
**41** hours

**Major Human Resources Development Programs**

	Associate	Senior Associate	Manager	Senior Manager	Executive
Common knowledge training	Fine Company Prevention of sexual harassment, Prevention of harassment, Compliance, Information security program, Safety training				
	Support for online program learning				
	Organizational revitalization PG				
Class training	Introductory training				
	Mentoring				
	Promotion training Grade program				
	Training for employees subject to promotion				
	Leadership assessment/training				
	Support for key talents' degree course				
Job training	Learning support for an external job program				
	Support for obtaining a job certificate				
	Job qualification certification system Finance, Purchase				
	Technology Academy				
Global training	Digital transformation training				
	In-house language course				
	Tuition support system for external language institutes				
	Expatriate-nurturing PG Preliminary/returning to post				

# IMPROVING EMPLOYEE VALUE

**NURTURING TALENTS** LFC operates various talent-nurturing programs and systems in relation to strengthening job expertise, enhancing global capabilities, and developing knowledge, and helps employees develop into talents and business leaders who grow together with the company.

**Strengthening Job Expertise I** LFC helps employees develop professional knowledge that is needed for the respective job and strengthen relevant capabilities. To this end, we operate the Advanced executive Capability development Program (ACP) and Executive Capability development Program (ECP) for executives, and also provide internal MBA support for outstanding employees as well as other internal training programs. We also support their training by outsourced professional organizations and acquisition of job-related certificates. In addition, we are continuously nurturing in-house job experts and conducting engineer training with in-house instructors, while running the Technology Academy that provides systematic onsite training 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.

**Enhancing Global Competencies I** We run various internal/external language courses and pay employees' foreign language evaluation test fees to help employees enhance their global competencies. We operate various in-house language courses, including one-on-one language coaching and group language classes, to build a learning atmosphere, while offering a short-term intensive language course for employees who will be expatriates. Any employee can freely take an online English course and telephone foreign language course, and we also have set in place a system through which tuition fee support is provided to employees who need to attend an external language institute.

**Developing Knowledge 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, training to improve their perceptions of the disabled, and training to prevent harassment. In 2022, we newly adopted human rights education and provided it to all employees.

To strengthen leadership skills, we offer leadership diagnoses, a SERICEO program, a new team leader course, and a training course for newly promoted employees. In 2022, we expanded the target of leadership training from team leaders to employees with leader positions and provided a coaching leadership course for all leader position employees, in addition to offering new leadership training to enhance the leadership skills of team leaders and leader position employees across the company.

**Fine Company Program I** To build an organizational culture of integrity, we operate the "Fine Company" program that includes statutory training content for LFC employees and major in-house partner company employees. The Fine Company program consists of prevention of sexual harassment in the workplace, which is statutory training, prevention of workplace harassment, improved perception towards the disabled in the workplace, information security related to ESG management, and compliance management and compliance training. In 2022, we added human rights management and ethical management to training content, and all employees completed the Fine Company program provided online.

**FAIR EVALUATION AND COMPENSATION** LFC encourage its employees to be motivated and delivers fair feedback through a transparent and fair 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 2022, we improved our evaluation and compensation system in an effort to have employees receive performance-based compensation. Executive compensation levels are determined through the Compensation Committee, which is a BOD sub-committee, to ensure objectivity and transparency. Even in case of high-level officials, LFC fairly distributes performance and compensation through transparent, fair evaluations based on remuneration regulations.

## Building a Great Workplace

**INNOVATING THE WAY OF WORKING** To support the growth of its employees and improve work efficiency based on digital innovation, LFC has introduced and operates various business innovation measures, including smart factories and robotic process automation (RPA). Going forward, we will increase our digital competitiveness by expanding successful cases of digital technology application and promptly responding to changes in the business environment based on continued change management.

**Establishment of Smart Factories I** LFC is focused on improving infrastructure for data collection and management to establish smart factories. As a part of these efforts, we are promoting the introduction of a 5G wireless environment and the automation of our data collection process, while automating and upgrading production lines and creating a non-face-to-face shipping system.

**Expanded RPA Application 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. This has enabled us to automate automating our employees' manual work, thereby increasing their work efficiency.

**Customer Relationship Management Platform I** LFC adopted a Customer Relationship Management (CRM) platform as a way to allow its marketing and sales part to improve sales capability based on 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 time.

**Free Seating System I** In order to create a flexible and open organizational culture, we have introduced a free seating system at our Seoul Office. Employees change seats every day and choose to work freely at their desired location, without any barriers between departments.

**IMPROVING CORPORATE CULTURE** LFC operates the "Corporate Culture TF" with the goal of deriving and executing corporate culture innovation tasks to ensure growth of both the company and individual employees. LFC appointed its CEO the TF head to strengthen the executive ability of the Corporate Culture TF. In 2022, we actively operated the "Junior Board" to establish a more horizontal communication culture and to build relations of trust between top management and employees. Consisting of young working-level employees, the Junior Board contributes to establishing a rational and enterprising corporate culture that fits the trend of the times while leading open communication by acting as a hot line that delivers vivid and sincere voices from the field to the CEO.

As a result of these efforts, meaningful changes were quickly implemented, such as operation of Happy Hour, establishment of a field communication system, compliment relay, and improvements to PC specifications, which contributed to raising employees' work satisfaction. The Junior Board is more than a simple communication channel in that it suggests various ideas that can improve inefficiencies in the organization, and also breaks stereotypes and leads change to create a better company to work for. It also delivers a clear message from the CEO to employees under the name of "Leader's Message", thus contributing to building a trusting relationship between employees and management.





# IMPROVING EMPLOYEE VALUE

## ESTABLISHING A HAPPY ORGANIZATIONAL CULTURE

**Maternity Care System** | LFC is expanding the employee parental leave system and institutionalizing child-rearing support programs to ensure long-term work conditions for competent female workers and a healthy work-family balance for married male employees, thereby reducing the burden on parents and contributing to resolving the urgent social issue of the low birthrate.

Female employees can use an additional parental leave of up to one year in addition to the one-year statutory parental leave. In addition, we institutionalized male employees' parental leave, making it mandatory for male employees to take a statutory parental leave of at least one month within a year of the birth of their child. 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 for up to one year. In this way, female employees can help their child adapt to school life, while LFC strives to prevent career disruption of female talents. In addition, we provide online "EZ Learning" training even during an employee's period of leave to promote self-development, in addition to offering "Working Mom One-on-One Mentoring" and psychological counseling so that employees can quickly adapt to work after returning from their leave.

Furthermore, we provide support to female employees so that they can work two hours less a day during the pregnancy risk period (less than 12 weeks, after 36 weeks) for a safe and healthy pregnancy and childbirth. We also operate the "checkup time system" so that the health status of the fetus can be examined during pregnancy. For employees with infertility, we cover the cost of a procedure and provide a leave for a procedure. LFC is thus making diverse efforts to guarantee that there is no disadvantage or discrimination regarding employment, salary, and career path due to pregnancy and childbirth.

## Family-Friendly Systems

**Workplace Daycare Center** | To create a work environment in which working parents can work free from worry, we established a workplace daycare center in 2017. The LFC workplace daycare center's operation is entrusted to the Puruni Childcare Support Foundation, a specialized support organization for workplace daycare centers. As of 2022, the daycare center is caring for a total of 41 children aged 1-4 years old. We hold regular Daycare Management Committee meetings to listen to and reflect parental requirements.

**Certified as a Family-Friendly Company** | 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 for employee families, such as giving children of employees opportunities to participate in volunteer activities, helping employees send their parents on a tour, and holding an employee children's camp, the One Mind Festival, and sports events. In recognition of these efforts, LFC was recertified in 2021 as a family-friendly company by the Ministry of Gender Equality and Family.

## Leisure-Friendly Systems

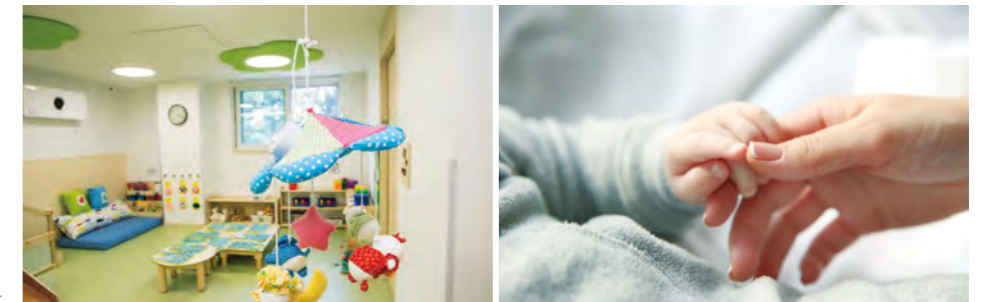
**Flexible Working System** | LFC has put in place a flexible working-hours system that enables employees to adapt their work schedules to their childcare hours and self-development needs, thereby increasing their job satisfaction while boosting their work efficiency. Furthermore, we adopted the PC-off system in January 2019 to comply with the Labor Standards Act and to increase efficiency during work hours, and also operate an attendance management system to manage the 52-hour workweek system more effectively.

**Certified as a Leisure-Friendly Company** | LFC was re-selected as a leisure-friendly company in 2022 by the Ministry of Culture, Sports and Tourism and the Regional Culture & Development Agency and maintains its certified company status.

**Support for Club Operations** | LFC is boosting employees' satisfaction with life at the company through its cultural life support system. Employees can freely create their own clubs. LFC provides financial support to cover club activity costs and cultural life costs to clubs that meet its internal criteria. As of 2022, there are 21 clubs, including scuba diving, performance-viewing, soccer, and bowling clubs.

**Encouraging Employees to Take Time Off** | To create an organizational atmosphere in which employees can freely take time off, we set the weekdays 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 2022, we newly adopted a lodging expense support system. Through the annual leave promotion system, we encourage all employees to come up with a vacation plan and enjoy sufficient rest.

**Support for Condos and Summer Resorts** | We manage a welfare system that guarantees practical benefits to all employees by offering them stays in condominiums and summer resorts every year. As of 2022, we have 18 condos nationwide, and are striving to provide benefits to all our employees by offering them a combined total of 1,717 nights of holiday accommodation. In addition, we supported our employees' summer vacations by offering them accommodation in five hotel and residence accommodation facilities in the country for 680 nights during the peak vacation season.



LFC Workplace Daycare Center

# IMPROVING EMPLOYEE VALUE

**Others | One-Mind Festival** In February 2022, we held the “One-Mind Festival” to strengthen communication between different positions and generations, while creating a positive work environment. The event, which is designed for all employees, included information sharing and Q&A on management status, special lectures by celebrities, and content contests aimed at raising safety awareness and fostering loyalty to the company. 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 vitalize it as an employee communication program in which any employee can participate without any burden.

**Outplacement Program** 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. In addition, we provided support for taking career consulting classes which have been newly introduced on LOTTE Group's online paid lecture site and also expanded the scope of employees subject to the program so as to broaden access to career change support training and enable more employees to design their post-retirement life.

## Trust-based Labor-Management Culture

### IMPROVING EMPLOYEE COMMUNICATION

**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 with the mentors, who are chosen in consideration of the characteristics of the new recruits' work and job positions.

**LFC DAY |** We operate the “LFC DAY” program, enabling employees to take a break from work to communicate with each other and revitalize themselves by engaging in diverse, timely experiences that are appropriate for the season, such as creating bouquets with the coming of spring, experiencing drip coffee, and creating Christmas wreaths.

**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. In February 2023, we newly established “Soh-tong Nuri” an onsite communication system at our Ulsan Complex, which will be followed by the creation of a showroom in June. LFC is thus striving to communicate with employees, partner companies, and customers.

**Labor-Management Council |** To create an arena for communication between labor and management and promote employee's participation and cooperation, LFC holds the Labor-Management Council (composed of 10 members each from of management and labor), a regular labor-management communication channel, once a quarter. The Labor-Management Council collects opinions on working condition improvements and personnel system in addition to wage negotiations and collective bargaining, and thus contributes to establishing a healthy organizational culture with the goal of achieving employee happiness. In 2022, the Council discussed 10 agenda items as well as various other practical topics, and necessary follow-up measures are underway. 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. The Manufacturing Group Cultural Improvement In-house Council was launched to communicate with job groups that are not labor union members and is used as a regular communication channel aimed at creating a happy workplace. In 2022, the first year of its establishment, the Committee collected agenda from different areas, took follow-up measures for chosen agenda, and strived to listen attentively to the various opinions of employees.

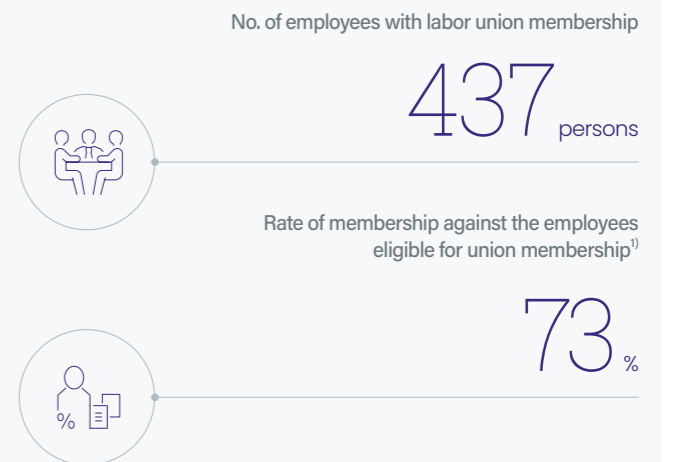
### Major Welfare Systems

System	Main Support Details
Housing-related loan support	Providing housing-related loan support for a stable residential environment
Lodging support for single employees	Providing lodging for single employees who are working outside their hometown
Support for family events	Providing a family occasion leave and funds for such family occasions as a wedding, childbirth, and funeral. Funeral support services are provided in case of funerals
Support for medical expenses	Providing support to cover an employee's and spouse's medical expenses, prosthodontics expenses, and hospitalization and medical treatment expenses
Support for health checkup	Providing support for health checkups of employees and their spouses for health management
Support for bringing up children	Providing support, for two years, for some of the kindergarten expenses of preschool children
Child tuition support	Providing support for a child's college entrance fee, college fees, and tuition
Welfare point	Providing welfare points that can be used for leisure life and self-development on an annual basis
LOTTE employee discount	Providing discounts at LOTTE Group affiliates through an employee certification or employee-only card

### BUILDING A WIN-WIN LABOR-MANAGEMENT RELATIONSHIP

**Labor Union |** Established in 1971, LFC's labor union continues to operate various joint labor-management 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. 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 union membership status in 2022



<sup>1)</sup> Assistant manager or lower positions

# INTEGRATED HEALTH AND SAFETY MANAGEMENT

## Health and Safety Management

### SAFETY, ENVIRONMENT, AND HEALTH MANAGEMENT POLICY AND RULES

LFC places top priority on employee safety and health in its corporate management. In 2016, we declared the "Safety, Environment, and Health Management Policy", reflecting our commitment to fulfilling our social responsibilities toward nearby companies and local communities, customers, and shareholders. The Policy is also aimed at achieving a workplace that is free of accidents, pollution, and illness. In addition, to implement this management policy in the process of conducting various businesses, we enacted the "Safety & Health Golden Rules" that should be practiced and observed in detail onsite. We also put up and share these management policy and rules across workplaces so that all employees can maintain their resolve and build a field culture that places top priority on safety, environment, and health.

### HEALTH AND SAFETY MANAGEMENT SYSTEM

To establish safe, pleasant workplaces and preemptively respond to health and safety-related risks, we operate a field-centered health and safety management system that is based on a global-level health and safety management system. 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 a workplace that is free of accidents, pollution, and illness by introducing and implementing a clear and transparent 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, when the Serious Accident Punishment Act took effect, we set our three major health and safety implementation strategies as "preventing serious accidents, improving the safety culture, and securing partner companies' safety management" and made diverse efforts to execute the strategies. As leading activities, we established an open work management plan to manage frequent serious accident types and implemented the "Safety STOP" system for working in high places, while handling various tasks, including the partner company safety manager certification system, smart regular maintenance, and real-time work safety monitoring. As a result, there were no serious accidents, serious industrial accidents, or serious industrial accidents and citizen-related disasters.

We plan to further develop our health and safety management system in 2023. To this end, we have established our implementation strategies as improving the health and safety culture and awareness; strengthening workplace execution ability; and establishing an accident prevention/response system. We will choose detailed tasks for each item and implement the tasks with focus, which will enable us to strengthen our health and safety capabilities with a goal of build the world's safest workplace.

#### Safety, Environment, and Health Management Policy



#### Safety & Health Golden Rules



#### Key Health & Safety Tasks for 2023

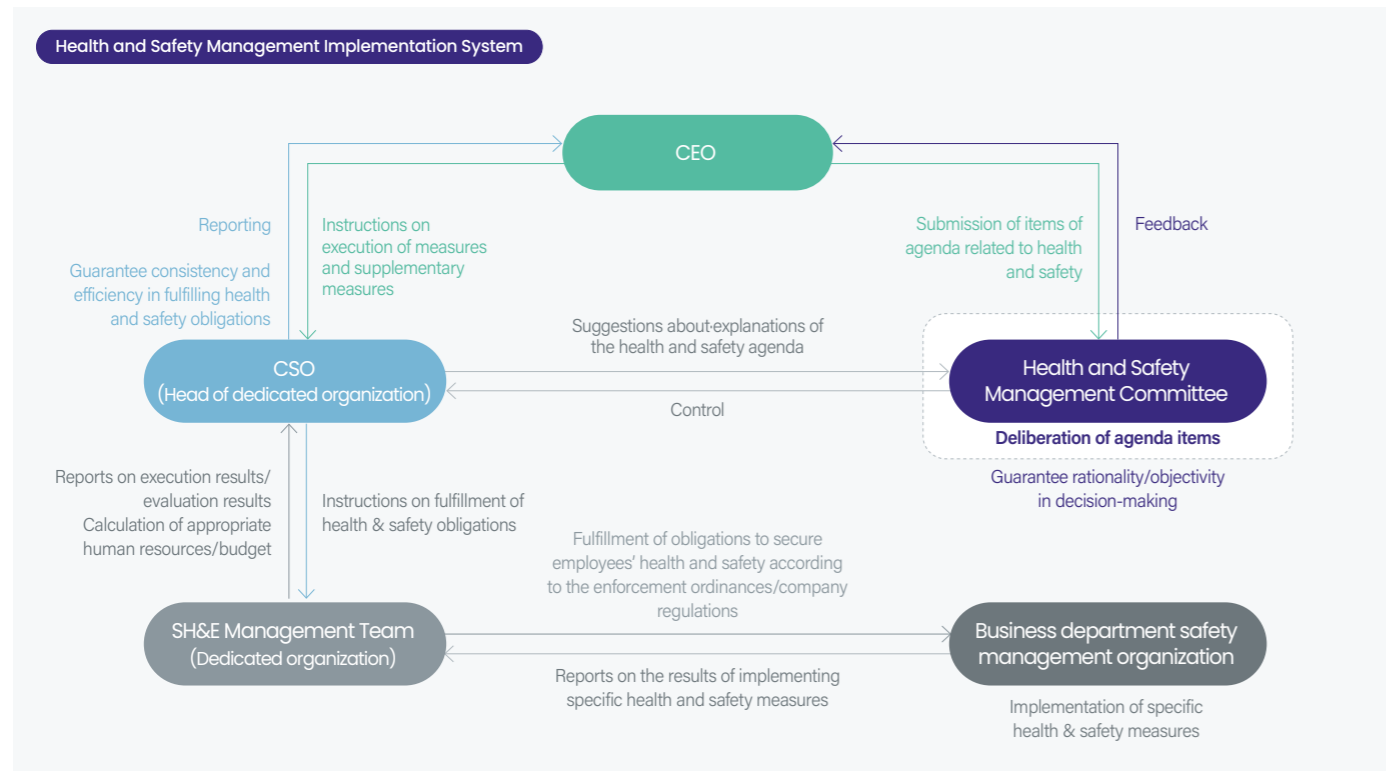


# INTEGRATED HEALTH AND SAFETY MANAGEMENT

**HEALTH AND SAFETY MANAGEMENT ORGANIZATIONS** In 2021, LFC appointed a Chief Safety Officer (CSO) directly under the CEO to establish and promote company-wide safety and environmental policies, and created the "SH&E Management Team" under the CSO for company-wide safety and environmental management. With this organization performing central roles, we are responding to strengthening safety-related laws, including the Serious Accident Punishment Act, and continually advancing health and safety management. In addition, we launched the "Safety and Health Management Committee" participated by outside experts for more objective and reasonable decision-making advice. This Committee is in charge of making fundamental responses in relation to serious accident prevention and examining and strengthening the system of having management supervisors fulfill their obligations to secure health and safety.

We also formed an organization dedicated to safety and environment as an independent unit at plant sites. The Ulsan Complex has the Safety & Health Management Team and Safety Innovation Team, while the Incheon Plant has the SHE(Safety, Health, Environment) & Technology Team to carry out professional and systematic onsite health and safety management that reflects each plant's characteristics as well as hazards and risk factors.

**HEALTH AND SAFETY MANAGEMENT SYSTEM CERTIFICATION** In 2020, LFC changed its international standard on health and safety management systems from OHSAS 18001 to ISO 45001. After first acquiring the 2018 version of ISO 45001 certification, we have been maintaining the certified status through internal and follow-up audit every year. The renewal audit that is held every three years will be carried out in 2023. We are striving to solidify relations of trust with our customers by maintaining our ISO certification.



**Safety and Health-related Consultative Bodies**

Meeting name	Hosted by	Frequency	Attendee	Main details
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, CSO, Head of the Manufacturing Group, executives	Reporting on the implementation status of key execution tasks; sharing of key safety and environmental issues and trends
Health and Safety Meeting	CEO	Quarterly	CEO, CSO, Head of the Manufacturing Group, executives, heads of production/manufacturing management/technology/safety/environment departments, working-level employees in safety/environment	Deliver the CEO's commitment towards health and safety management and leadership; company-wide sharing and timely response to pending matters/issues concerning health and safety
Plant Weekly Meeting	Head of the Manufacturing Group	Weekly	CSO, Head of the Manufacturing Group, executives, heads of departments	Reporting on the implementation status of detailed execution tasks
Occupational Safety and Health Committee <sup>1)</sup>	Occupational Safety and Health Committee	Quarterly	Labor-management members of the Occupational Safety and Health Committee	Discussions on the safety & health 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 Committee and members of the Safety & Health Management Team	Examination and discussion of safety & environmental deficiencies

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

# INTEGRATED HEALTH AND SAFETY MANAGEMENT

## Strengthening Onsite Safety Management

**SAFETY INSPECTION THEMES** LFC selects safety inspection themes and conducts intensive inspections according to the selected themes on a monthly basis. In 2022, we inspected scaffolds<sup>1)</sup> for working in high places as well as tools and devices. In case of scaffolds for handling work high above ground, we issued scaffold certificates and conducted a full inspection on scaffolds installed in process zones for working high above ground. In 2023, we will distribute the "SHE Guide (Workplace Safety Standard)" and operate a safety, environment, health theme inspection team on five key inspection items every month to provide guidance.

To raise awareness of safety across the company, we summarize the results of our safety inspection activities and post them on the "Soh-tong Nuri" which is an in-house communication system, and "Soh-tong Insight," which is an in-house portal, as well as disseminating them via our regular health and safety training and e-mail. In addition, we establish and implement a detailed annual plan on monthly themes and activities related to the safety of our business sites, and also carry out themed training on the following month's activities during the regular safety training in an effort to raise employees' interest and participation in the activities.

**SAFETY MANAGEMENT FOCUSING ON BEHAVIOR DURING TASKS**

We adopted work performance (unsafe behavior) as our key area of safety management and conduct safety inspections during work. To raise the level of work management and prevent safety issues, we check the status before, during, and after work for focused management. To minimize the risk of serious occupational accidents, we operate a safety patrol and clarified and simplified our standards for safety gear. To preemptively identify and respond to risk factors that exist in workplaces, we re-identify potential risk factors, review the appropriateness of risk assessments, and are establishing a safe work environment.

**FULL ESTABLISHMENT OF THE PROCESS SAFETY MANAGEMENT SYSTEM**

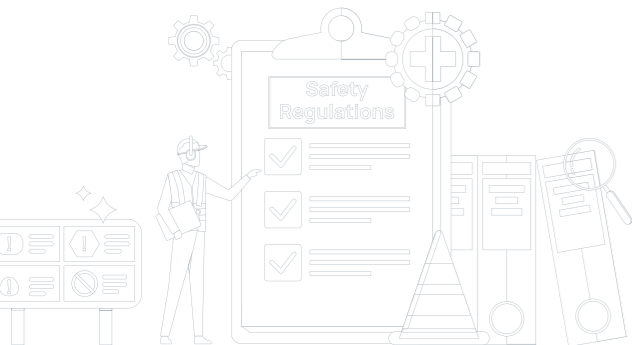
LFC provides safety capability training to develop safety leadership of team managers and leaders and to raise the process safety management expertise of engineers. In addition, we conduct quantitative risk assessments to strengthen onsite drivers' safety capabilities and to identify fire/explosion accident risks. On the back of these efforts, we are internalizing Process Safety Management (PSM) system<sup>2)</sup>, while identifying and eliminating serious risk factors and systematically managing processes. As a result, we received the "P Grade," which is the highest grade, in a PSM implementation status evaluation carried out by the Ministry of Employment and Labor in December 2022. We will continue to improve our PSM level to realize safe workplaces.

**ADOPTION OF A NEW SAFETY SYSTEM**

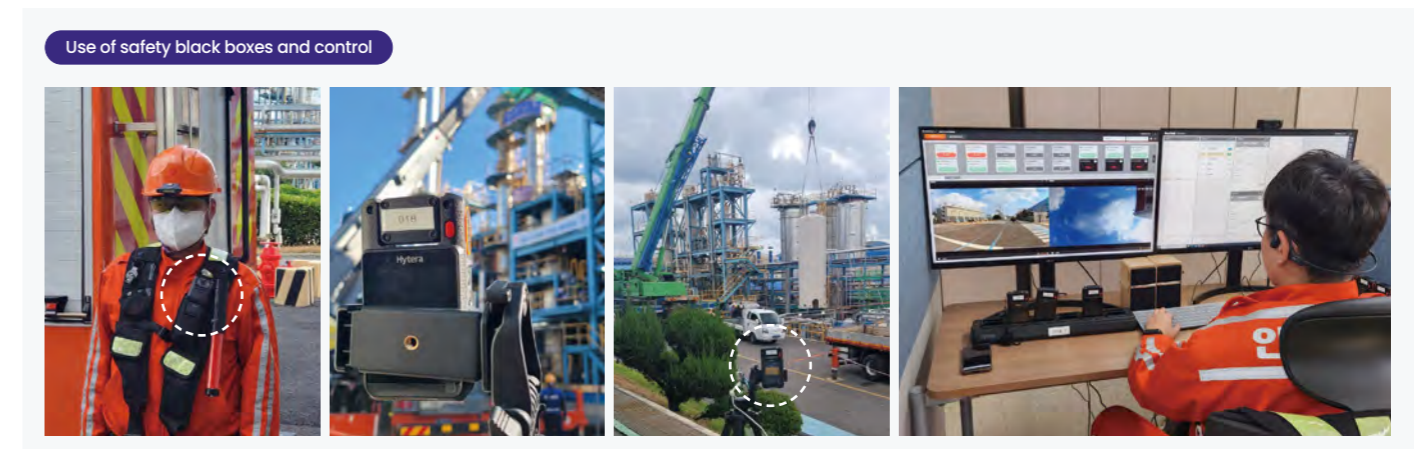
In line with the "Smart Safety" direction implemented at the Group level, LFC adopted smart gas detectors and safety black boxes that applied new digital technologies in 2022 to prevent safety accidents. We use smart gas detectors when working in confined areas that increases all at once during the regular maintenance period, thus preventing serious accidents, such as suffocation. Installed in a confined area, a smart gas detector takes real-time measurements of harmful gas concentration levels during work, and sends a warning alert to the smartphones of onsite managers, including leaders and work supervisors, in case of an abnormal situation, enabling real-time confirmation of the situation and quick measures. In addition, we adopted safety black boxes to strengthen high-risk work and onsite control, thereby preventing accidents that are caused by worker negligence. Furthermore, we installed safety black boxes in work areas with a high level of risk and CCTV blind spots to observe workers' unsafe behavior, such as non-compliance with work standards, use of unapproved paths, and failure to wear safety gear. When unsafe work or behavior is observed, immediate improvements are requested for corrective action.

**REGULAR EXCHANGE MEETINGS AMONG THREE CHEMICAL COMPANIES IN ULSAN**

There is growing social demand for companies to strengthen safety and environment management with the enforcement of the Serious Accident Punishment Act, spread of ESG management, among others. Amid such external circumstances, there was greater need for synergy generation among LOTTE Group's chemical subsidiaries by taking joint measures. Exchange meetings were held among the three Group affiliates located in Ulsan (LFC, LOTTE CHEMICAL's Basic Chemicals Business, LOTTE INEOS CHEMICAL) only temporarily in the past but were regularized starting in February 2023. We are enhancing relevant work effectiveness by exchanging information on inspection, evaluation, assessment, and other matters relevant to industry characteristics. In particular, we are sharing safety and environment management know-how and best practices and conducting cross-inspections for upward standardization of management levels. The exchange meetings are now focused on safety, health and environment, but will include manufacturing management and production management to widen the scope of cooperation.



<sup>1)</sup> Temporary installation for working high above ground  
<sup>2)</sup> System of creating/submitting a process safety report to prevent serious occupational accidents caused by leakage of major dangerous substances, fire, explosion, etc. and receiving evaluation/confirmation



# INTEGRATED HEALTH AND SAFETY MANAGEMENT

## Building Safety Culture

### ASSESSMENT OF THE STATUS OF RESPONDING TO SERIOUS ACCIDENTS

Before the Serious Accident Punishment Act took effect in January 2022, LFC received serious accident-related compliance consulting with a law firm in 2021 to prevent serious accidents, examine the overall status of preparedness for the law, and make improvements. As a result of the consulting, we derived around 20 improvement tasks: appoint a CSO, define regulations on the obligations and responsibilities of management supervisors, establish and operate an organization dedicated to health and safety, examine the implementation of laws related to health and safety, process of confirming partner companies' health and safety, etc. We completed making improvements in 2022, thereby establishing a health and safety management system that is called for by the Serious Accident Punishment Act and laying the foundation for achieving our ultimate goal, which is to prevent serious accidents.

In the second half of 2022, we outsourced an external professional organization to check implementation of health and safety-related laws which consisted of defining laws related to the company, conducting onsite inspections, examining documents and processes, and interviewing senior employees related to health and safety for around a month. As a result, we were able to confirm, from an objective perspective, whether we were implementing requirements specified in 11 laws, including the Serious Accident Punishment Act; Occupational Safety and Health Act; Chemical Substances Control Act; High-Pressure Gas Safety Control Act; and Act On

Installation and Management of Firefighting Systems. A total of 135 cases were pointed out, of which 129 cases (95.6%) completed recommended improvements earlier than planned. The six cases that are in progress are planned to be completed by November 2023 in connection with plant operation and relevant investment schedules. We are thus making efforts to establish safe workplaces by further reinforcing the implementation levels of 11 laws related to health and safety.

### SAFETY PRINCIPLES AND SAFETY TRAINING

**Safety Golden Rules I** Due to their innate characteristics, chemical plants have a high risk of large-scale accidents that are caused by minor mistakes. LFC established the "Safety Golden Rules", which refers to eight safety principles that are the core principles of our onsite safety management, after considering the status of its workplaces and business characteristics, and is strengthening safety management levels across its overall corporate culture, including workplaces and partner companies. The Safety Golden Rules consist of pictograms and keywords that deliver increased effectiveness and visibility. We made them highly visible throughout the company, including our communication systems, to always remind our employees that small mistakes are the beginning of large accidents. Employees are following the Safety Golden Rules that they chose and determined, rather than rules set by the Safety Management Division or according to company policy, thereby building a culture of safety that they voluntarily put into practice together with others.

**Safety Training and Education I** To raise our employees' safety awareness and encourage them to make voluntary safety management efforts, we conduct regular safety training that reflects monthly themes and promote discussion about major safety-related issues. In 2022, we provided such regular training as the monthly regular health and safety training for all employees (16,368 hours per year), managing supervisor training for 103 managing supervisors (1,440 hours per year), and training of Chief Safety & Health Officer (6 hours per year). We also operated professional, specialized training courses when required, including health and safety training for new recruits, special health and safety training for staff in charge of work permission, special safety training for regular maintenance, and training for confined space supervisors. In 2023, we are facilitating collective training and training at outside training institutions with the easing of COVID-19. In March, we provided first aid training to all employees.

Through our internal communication channels, we send notices to employees about health, safety, and environmental issues, as well as sharing and disseminating information on equipment maintenance and personal/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 fully establish a safety culture and minimize the occurrence of accidents.

**Emergency Drills I** LFC established a response system that consists of three steps – unit plant, workplace, local community – based on diverse scenarios, including fire, explosion, and toxic gas leakage. Based on that, we conduct emergency drills every year to minimize personnel/material damages by taking prompt, precise responses in the event of an emergency. In 2022, we held joint government training on leakage of harmful chemical substances together with three relevant organizations, the local government, Ulsan Metropolitan Police, and Ulsan Joint Chemical Disaster Prevention Center. After the training, we evaluated and analyzed training results to identify issues and resolved the issues.

**Health & Safety Week I** To spread the culture of safety, we designate a "Health & Safety Week" every year and hold various events and programs. The Health & Safety Week in 2022 was held for two weeks in February. We held employee participation-based events, including the LFC Surprise Quiz, Safety Content Contest, and Safety Culture Golden Bell, in addition to such PR activities as the safe commute campaign, safety observation system, and focused management of seven major areas where accidents frequently occur. We plan to hold the Health & Safety Week between July and August in 2023. Going forward, we will operate the Health & Safety Week every year, thereby leading the internalization of a safety culture.

Major Safety Training in 2022

Training	Target	Frequency	Main content	No. of employees who completed the training
Regular health & safety training (Ulsan Complex)	All employees	Quarterly (6 hours)	Training on work safety, accident cases, etc.	682 persons
Regular health & safety training (Incheon Plant)	All employees	Monthly (2 hours)	Matters on occupational safety and accident prevention	28 persons
Training for managing supervisors	Managing supervisors	Annually (16 hours)	Training on managing supervisors' duties and roles	103 persons
Training for Chief Health & Safety Officer	Head of the Manufacturing Group	Annually (6 hours)	Training on the roles of Chief Safety & Health Officer	1 person
Special safety training on regular maintenance	Employees and partner company managers	Annually (2 hours)	Training on work permits and work supervision, safety training that includes cases of accidents during the regular maintenance period	141 persons
Training for partner companies' safety managers	Partner companies' safety managers	Quarterly (2 hours)	Training on the roles of safety managers and safety management measures for high-risk work	224 persons

Emergency drills



# INTEGRATED HEALTH AND SAFETY MANAGEMENT

## Supporting Partners' H&S Management

### SUPPORT FOR ESTABLISHING A HEALTH & SAFETY MANAGEMENT SYSTEM

One very important element in minimizing occupational accidents at our business sites is the health & safety (H&S) management of partner companies. LFC has been therefore supporting the establishment of the health and safety management system (KOSHA MS) at our in-house partner companies since 2014, with the goal of achieving accident-free business sites through win-win cooperation. The KOSHA MS 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 2022, we supported the establishment of health and safety management systems for 19 partner companies. We also help newly contracted partners acquire certifications of their health and safety management systems, while supporting follow-up and renewable evaluations to maintain certifications. In 2022, we supported new KOSHA MS certification, extension, and follow-up evaluation for 10 in-house partner companies. We plan to provide support for health and safety system certification to existing and new partner companies in 2023.

We also provide incentives to outstanding partner companies according to the results of our inspection of their performance, thereby encouraging them to strengthen their commitment to health and safety management. In 2022, we carried out quarterly partner company inspections and chose four outstanding partner companies, to which incentives were provided, including LOTTE CINEMA movie tickets. We plan to continue with partner company inspections in 2023.

When a partner company development consultative group is formed every month, we provide health and safety information, and also receive and handle partner company suggestions. We make prompt improvements to risk factors that LFC needs to address and that were derived according to the results of a partner company risk assessment that is conducted semi-annually. Based on trust that is formed through this process, we are realizing safe workplaces through strong cooperation.

### H&S MANAGEMENT OF PARTNER COMPANIES

In relation to expansion of health and safety management of partner companies that is emphasized in relevant laws, including the Serious Accident Punishment Act, LFC improved the health and safety management process by March 2023, including a prior evaluation on the vendor list<sup>1)</sup>, bidding/contract, onsite examination, and inspection/follow-up evaluation.

Major improvement items include separate evaluation of safety items and participation by the Safety & Health Management Department during prior and follow-up evaluations of partner companies, quantitative evaluation using a checklist, and onsite inspection by the Safety Management Department when the construction project is of a certain size. For in-house partner companies, we provided external online health and safety training to all employees of partner companies (around 530 employees of 13 companies) to improve their safety management capabilities. We also helped them nurture safety management personnel and obtain KOSHA-MS certification for health and safety management systems. We will continue to manage and support partner companies' health and safety using standards that are identical to ours.

### SAFETY MANAGER TRAINING

LFC created the "safety manager certification system" in 2021 and fully implemented it in 2022 as a way to support the strengthening of capabilities of partner company safety managers. This system grants safety management qualifications only to those safety managers of our partner companies who have passed our safety education and assessment thresholds. In 2023, we will carry out safety manager certification when an in-house partner company is changed.



<sup>1)</sup> Vendor List: Partner companies that can carry out subcontracted work, consigned work, and service in line with the company's internal standards

## Promoting Employee Health

### WORKING ENVIRONMENT MANAGEMENT

LFC measures the work environment status on 67 harmful factors through an outside professional organization twice a year to identify and manage the level of employees' exposure to harmful factors at its workplaces. In addition, we are applying in-house standards (30% of standards specified in relevant laws) that are higher than the legal standards. If work environment measurement results do not satisfy internal standards, we carry out improvement measures, such as improvements to facilities and changes to work methods. In addition to work environment measurements, we will examine product sample boxes and onsite health and safety facilities and make systematic, prompt improvements to unfit matters to build a more pleasant working environment.

### HEALTH MANAGEMENT SUPPORT

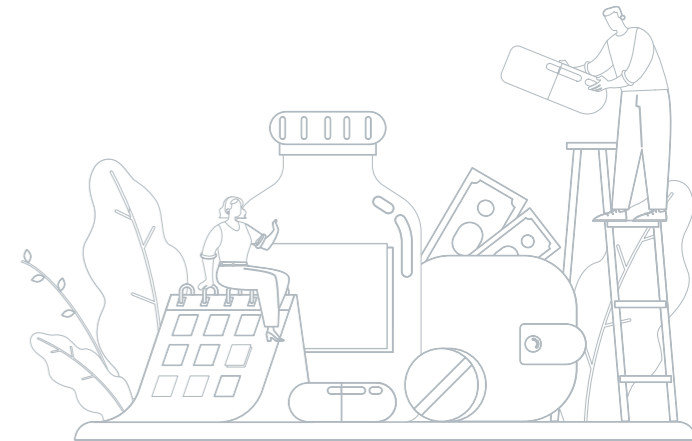
LFC carries out diverse activities to prevent employee illness and support employees' healthy lives. We provide flu shots every year, and support comprehensive health check-ups for employees over the age of 30 and their spouses to help them detect diseases early (by allowing special tests to be added to suit their health status in addition to the basic test items). For employees with a serious illness, we cover all relevant medical expenses. 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.

The Ulsan Complex runs a health management center where there is a nurse, providing employees with scar treatment and first-aid medicine and helping employees undergo a health checkup such as by measuring blood sugar, blood pressure, and cholesterol levels and analyzing body composition or receive a health consultation. Employees are provided with individual health information according to health checkup results and carry out health promotion activities, including quitting smoking and walking. At the Incheon Plant, an industrial physician has been visiting since 2022 and providing health consultation to employees with abnormal health checkup results, while also offering illness prevention education and conducting work suitability evaluations. When it is determined during a health consultation that an additional checkup or detailed checkup is needed, a request is made to a professional institution for treatment. In 2023, two industrial physicians were appointed who will provide health consultation and visit departments to provide education.

### PSYCHOLOGICAL COUNSELING CENTER

For employees' mental health, we operate the "Do Dream" psychological counseling center at our Ulsan Complex to help employees effectively manage, with the help of an expert, 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, Incheon, and Magok 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 have introduced a psychological counseling program through video conferences, enabling our employees to receive counseling services anytime, anywhere. When drug treatment is required, we help our employees receive treatment in connection with a nearby psychiatric clinic and provide them with relevant materials and books. We also deliver information on mental health regularly through a monthly internal mail and an online bulletin board.



# CREATING A SUSTAINABLE SUPPLY CHAIN

## Pursuing Win-Win Growth

LFC is establishing fair cooperative relationships for win-win with its partners, focusing on five key strategies aimed at promoting win-win growth – “improving work processes, strengthening personnel capabilities, improving quality, reducing costs, and strengthening market sensing.” In 2022, we held a meeting with our partners and strengthened communication, such as by sharing information on difficulties and jointly exploring solutions, thus building a foundation for win-win growth. By providing online learning and other types of support, we contributed to enhancing partners’ capabilities. Going forward, we will continue to provide various programs based on win-win growth strategies to lead enhancement of partner competitiveness, and thus expand the percentage of long-term contracts to increase supply chain stability.



## Supply Chain ESG Management

**CODE OF CONDUCT FOR PARTNER COMPANIES** In 2022, LFC enacted the “Code of Conduct for Partner Companies” that presents our ESG requests to suppliers and partner companies, including environmental protection, respect for human rights, safety management, and compliance & ethical management. The Code of Conduct of Partner Companies reflects global standards, including the Universal Declaration of Human Rights, UN Guiding Principles on Business and Human Rights, OECD Guidelines for Multinational Enterprises, UN Convention on the Rights of the Child, ILO Fundamental Conventions, and Responsible Business Alliance Code of Conduct. In addition to suppliers and partner companies, we anticipate all lower supply chain companies that deliver various parts and raw and subsidiary materials and provide packaging, toll processing, transport, and other services to comply with the Code of Conduct and achieve sustainable development by participating in ESG management together with LFC. We are also seeking for supporting and working together with diverse partner companies.

🔗 ESG News – Code of Conduct for LOTTE Group Partner Companies

## SUPPLY CHAIN ESG EVALUATION

**Post Evaluation of Partner Companies I** Based on a partner company post evaluation system, we evaluate job capabilities and choose outstanding companies. The evaluation mainly consists 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. We choose outstanding companies based on evaluation results and provide them with priority contract renewal and monetary incentives, thereby consolidating good relationships with our partners and establishing long-term partnerships.

**Environment and Safety Assessments of Partner Companies I** We conduct environmental impact assessments of our in-house and outsourcing partner companies that perform work at our business sites based on their individual contracts with us. We choose and 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.



## Items for Post Evaluation of Partner Companies

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



# CREATING A SUSTAINABLE SUPPLY CHAIN

## Partner Company Support Programs

### FINANCIAL SUPPORT

**Payment Principle I** 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.

**Early Payment System I** We put in place a system of early payment for partners that urgently need funds during the year-end, New Year holidays, and the Lunar New Year and *Chuseok*, which are two major traditional Korean holidays. In 2022, we paid KRW 8.3 billion in advance to 159 partners at the Lunar New Year and *Chuseok*.



**Win-win Cooperation Fund I** Since 2020, we have been operating the Win-win Cooperation Fund worth KRW 14 billion after signing an agreement with Woori Bank to provide financial support to our partner companies. SME partner companies can receive loans at lower interest rates than those offered by the market by using the Win-win Cooperation Fund when they need funds for operations and facility investments.

### Outcome of Win-win Cooperation Fund Operation in 2022

Deposit	Total ceiling for loan support	Support ceiling per company	Interest rate support per company
KRW 7 billion	KRW 14 billion	KRW 1 billion	1%

### TECHNOLOGY AND TRAINING SUPPORT

**Support for Capacity Building I** LFC provides training on health, safety & environment to in-house partners in order to help them secure extensive business expertise and build a safe workplace. To realize win-win growth by improving the knowledge and competency of our partner companies' employees, we have been operating an online training program called "Win-Win Growth Academy" since 2021. We provide constant training on various subjects, including business management, leadership, language studies, and intensive courses on job skills.

**Industry Transformation Joint Training Center I** In July 2022, LFC was chosen as a new organization for the "Industry Transformation Joint Training Center" that is organized by the Ministry of Employment and Labor and Human Resources Development Service of Korea and participated by a total of 15 organizations in such areas as energy, automobile, chemistry, and shipbuilding. This large company-SME win-win program has the mid- to long-term goal of "nurturing professionals to transition to a future, eco-friendly chemical industry and promoting sustainable growth by jointly enhancing technological competitiveness with companies with which agreements were signed". To this end, it reorganizes the industrial structure of member companies through job training and consulting, in response to industrial structure changes, while also providing preemptive and comprehensive support for workers' job transition.

After being selected, we opened a dedicated training center in the company that is equipped with diverse experiential equipment and provided education and training for industry transformation to the employees of a total 15 companies with which we signed an agreement on such subjects as safety & environment, new and renewable energy, and low-carbon businesses. We also provided job design and industry transformation consulting programs for win-win with the companies, thus offering comprehensive support for the establishment of a new industry ecosystem of companies.

**MOU on Jointly Practicing ESG I** In August 2022, LFC signed an MOU on Jointly Practicing ESG with Incheon Port Authority and the Korea Environmental Industry & Technology Institute to spread ESG management and support technological growth of SMEs. Together with organizations participating in the MOU, we will conduct an ESG open innovation program, support technological growth of outstanding SMEs in the environmental sector, spread ESG management among local SMEs, and pursue large company-SME win-win growth. As our first program, we conducted "ESG open innovation," a collaborative win-win growth program that is based on a network between public organizations and large companies. As a result, we successfully completed development of an eco-friendly recycled pallet in January 2023. We will discover additional projects and continue to run this program in 2023.

### INCREASING COMMUNICATION

**Win-Win Growth Meetings I** In order to strengthen communication with our partner companies as one of our ESG initiatives, we have held win-win growth meetings every year 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.

**Grievance Handling for Partner Companies I** LFC collects partner companies' grievances through the "Shinmungo" online reporting system and takes measures according to a grievance-handling process. We guarantee the confidentiality of user's identity and reporting content, so that they can express their opinions without fear of disadvantages.

Please refer to P. 63 of this Report to find more information about "Shinmungo", a grievance receipt channel for partner companies

### ESG Open Innovation to Resolve Local Environmental Issues

- 1. Project** Develop a recycled pallet for export by using discarded vinyl waste
- 2. Project period** August 2022 – January 2023
- 3. Project goal** Produce an eco-friendly pallet for export by using discarded vinyl waste and other industrial waste from Incheon Port and LFC's Incheon Plant. Repurchase the produced pallet to realize an upcycling model
- 4. LFC's role** Supply vinyl waste for testing, provide technological advice and a testbed
- 5. Progress** Supplied 2 tons of vinyl waste (test quantity), field application test of the produced pallet
- 6. Anticipated effects** Reduce carbon emissions by reusing vinyl waste. Flexural strength that is around 47% better than products in the market (based on product test score results)



# PRODUCT QUALITY AND TECHNOLOGICAL INNOVATION

## Quality Management System

**QUALITY MANAGEMENT STRATEGIES** LFC focuses on strengthening its quality management infrastructure and capabilities by maintaining certifications from quality-related authorized organizations in Korea and abroad and expanding certified items, along with establishing a relevant process, building a Quality Assurance (QA) system, and deriving cases of defect improvements. For continuous quality improvements and expansion of customer-centered communication, we are strengthening raw and subsidiary material quality management and inspections, examining measures on preventing customer complaint recurrence, carrying out phased process management that is based on system and data, and conducting quality process audits for customer satisfaction and quality improvements.

In 2022, we focused on preventing customer complaints and stabilizing quality of the MECELLOSE® capacity expansion plant. To prevent customer complaints from occurring and the recurrence of previous complaints, we created a checklist based on customer complaint improvement measures that were implemented in the last five years and conducted random/regular onsite inspections, resulting in an 80% reduction in customer complaints from 2020. In addition, we also carried out a verification, ranging from a test run to mass productivity, for early acquisition of mass production quality for the MECELLOSE® capacity expansion plant.

With the goal of improving customer satisfaction, we plan to expand quality management and audit in areas outside the company for urea solutions and also advance analysis technologies. In addition, we plan to expand our market by obtaining Passover certification<sup>1)</sup>, which is the highest Kosher grade, for ECH products and also focus on establishing a quality infrastructure for the new Yeosu HECELLOSE® plant and securing mass production quality at an early stage.

**QUALITY MANAGEMENT ORGANIZATION** B2C products such as urea solution and toner have recently been indicating growth in their business proportion and require professional quality management as well as prompt, precise response capabilities for customer opinions. We plan to create an organization in charge of quality assurance that consists of experts under the Quality Management Team to carry out product-tailored quality management and enhance quality assurance efficiency in 2023. By using the professional capabilities of the organization in charge of quality assurance, we will make continued efforts to satisfy customers from the customer perspective and gain their trust.

<sup>1)</sup> Jewish Passover certification. This highest Kosher grade certification is to certify that grains that ferment (alcohol) are not contained.

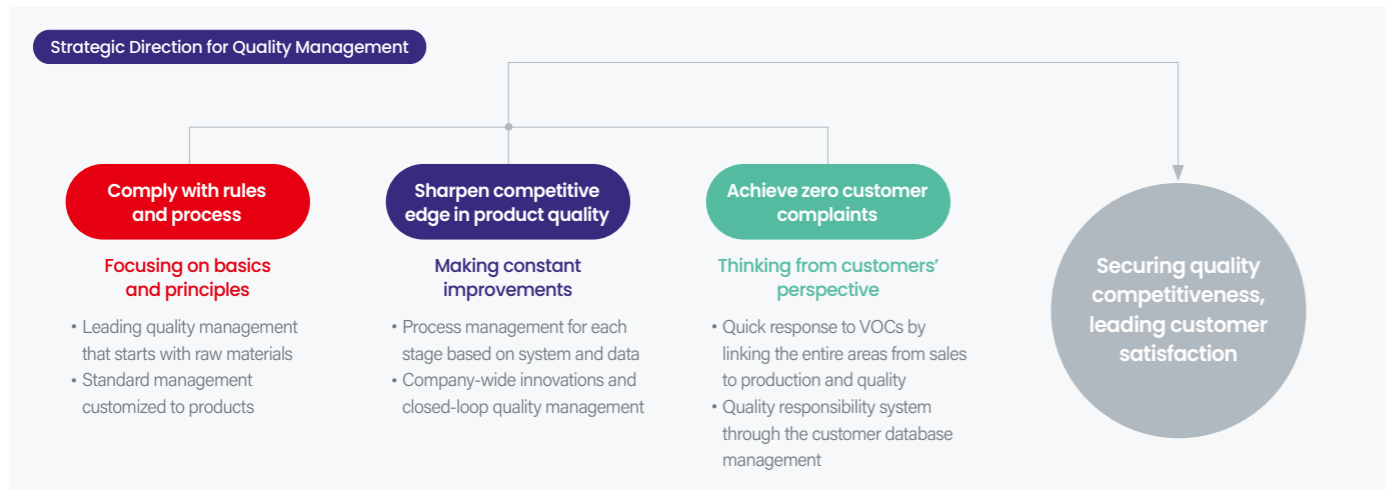
## Quality Assurance Activities

**QUALITY PROCESS AUDITS** To address customer complaints and nonconformity, we conduct quality process audits during which we reexamine our quality management system and inspect the way we execute 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 a result of the quality process audit conducted in 2022, we identified 38 areas of improvement and worked on resolving these issues properly. We established measures on preventing recurrence of customer complaints and examined manufacturing (production) process management and nonconformity improvements. We will continue to make quality improvements through strict process audits.

**RAW & SUBSIDIARY MATERIALS QUALITY MANAGEMENT** Each business division of LFC is strengthening quality management in consideration of the characteristics of raw and subsidiary materials, chemicals, and catalysts they use. In 2022, we strengthened the quality verification system for raw materials that are in their early stages of introduction and carried out a regular face-to-face and non-face-to-face due diligence on a total of 11 suppliers, aimed at strengthening supplier management for key raw and subsidiary materials.

In addition, we completed diversification for 12 raw materials, thereby improving quality and increasing stability in the supply of raw and subsidiary materials. We will choose raw and subsidiary materials subject to key management in 2023 and continue with production process management, due diligence on the quality management system, and diversification for supply stability. We will make utmost efforts so that improved quality of raw and subsidiary materials leads to product quality improvements.

**PROCESS INSPECTION AND QUALITY MANAGEMENT** In 2022, we verified accuracy of the automatic onsite analyzers that were applied to all our green material plants, through which we secured real-time monitoring and outcome credibility, while continuously improving our process quality management. In addition, we adopted an online sampling system for the purpose of improving analysis credibility of chemical amine products and improving sampling risk. By doing so, we simultaneously secured safety and quality by developing analysis credibility and removing risks that arise while collecting samples.



## Directions to Ensure Quality

Year	Direction	Key Activities
2020	Enhancement of non-face-to-face quality management amid the COVID-19 pandemic	<ul style="list-style-type: none"> <li>Non-face-to-face inspection and management of raw material suppliers</li> <li>Conducted remote inspections according to the characteristics of raw materials/manufacturing methods</li> <li>Introduction of process analyzer for each plant</li> <li>Adopted automatic remote/real-time on-site gas analyzers for recovered gas in manufacturing green materials</li> </ul>
2021	Strengthening of on-site quality control for quality improvement	<ul style="list-style-type: none"> <li>Improvement of the process/product quality check checklist and unannounced/planned inspections</li> <li>Operated a regular consultative body to improve the results of on-site inspections</li> </ul>
2022	Strengthening improvement activities to achieve "zero" customer complaints	<ul style="list-style-type: none"> <li>Strengthen internal audits and expand targets</li> <li>Increase the frequency (1 time/year → 2 times/year)</li> <li>Conduct quality management of areas outside the company for urea solutions and add internal audits</li> </ul>

# PRODUCT QUALITY AND TECHNOLOGICAL INNOVATION

**ACQUISITION OF GLOBAL QUALITY CERTIFICATIONS** LFC first obtained the ISO 9001 (2015 revised version) certification for quality management systems in 1996 and continues to maintain the certification. After the most recent renewal audit in 2020, we are conducting internal and follow-up audits every year. In 2023, we plan to successfully complete the renewal audit that is carried out every three years to maintain the certification.

As of 2022, LFC maintains the Halal<sup>1)</sup> certification, a Muslim practice, for eight types of chemicals and six types of green materials. We maintain the Jewish law-related Kosher<sup>2)</sup> certification for eight types of chemicals and four types of green materials, while maintaining food additive certification for four types of chemicals and two types of green materials. Halal and Kosher are certifications for products that were manufactured using raw materials appropriate for Islam and Judaism, and are essential to sell products to countries and consumers who believe in the respective religion. LFC uses the certifications for market promotions targeting Muslims and Jews. In 2023, we will work on acquiring "Passover," which is the highest Kosher grade. This is anticipated to improve customer trust and contribute to market expansion of chemicals and green materials.

## Strengthening R&D Capabilities

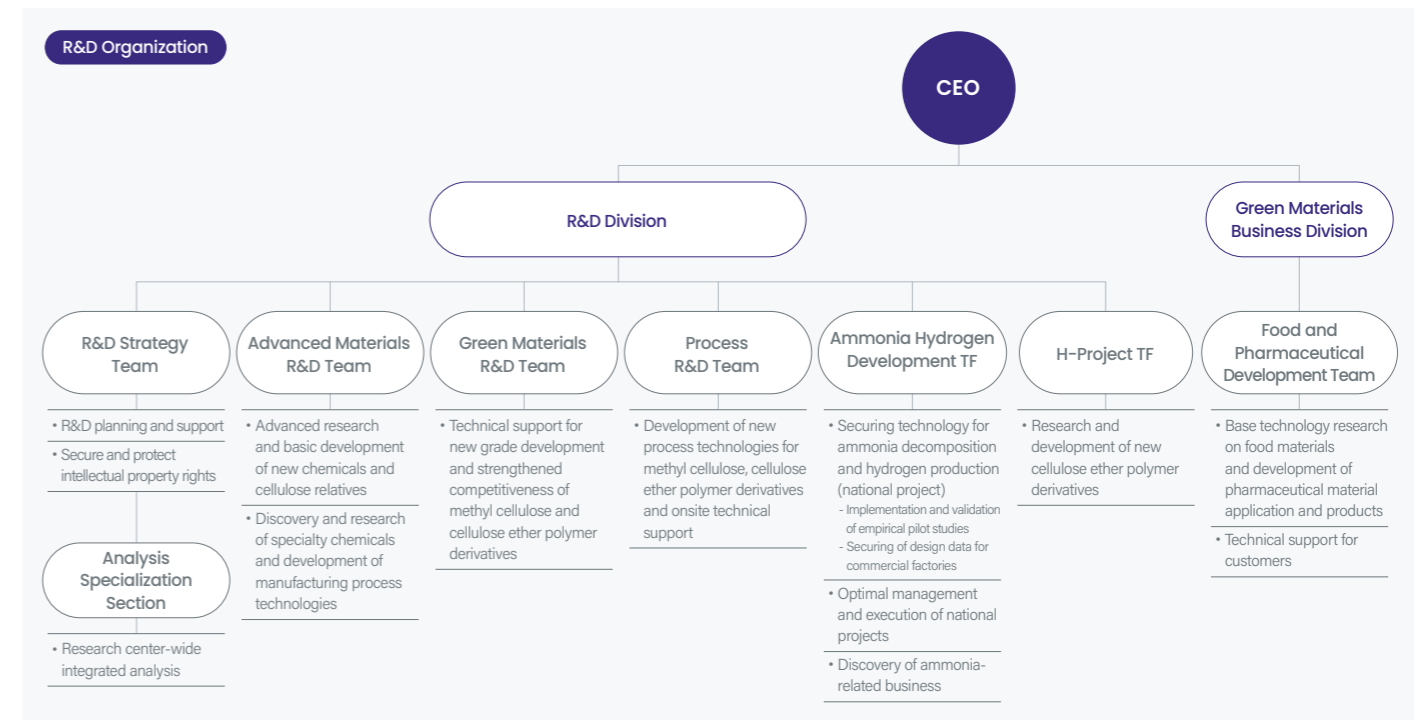
**R&D STRATEGY** LFC set R&D as a business area with competitiveness similarly to production and supply of products and focuses on enhancing its competitiveness in existing businesses and improving execution capabilities in new business areas by strengthening technology platform-centered R&D capabilities. In particular, we established a new R&D strategy with the goal of "securing specialty R&D capabilities", based on which we strive to take the lead in securing technologies for hydrogen economy. We also strive to strengthen our external research activity network to develop future new growth engines, develop specialty products, and enhance competitiveness of existing businesses.

**R&D ORGANIZATION** LFC's R&D Division consists of the R&D Strategy Team that is in charge of research planning and support as well as analysis, one R&D team that focuses on developing technologies for clean ammonia and hydrogen, and five R&D teams dedicated to research and development in specialty chemicals, including cellulose ether polymers for industrial use and food and pharmaceutical use. The R&D Division, which is LFC's cradle of next-generation technology development, has focused on promoting technological innovation and securing sustainable growth engines to realize our future vision by concentrating its R&D on specialty products related to cellulose derivatives, food and pharmaceutical materials, and eco-friendly materials. 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.

We understand the importance of strengthening relevant organizations and recruiting and retaining outstanding talents to secure global-level R&D capabilities. As such, we are working on expanding and systematizing the organization to improve our research project execution and management capabilities. To this end, we are focusing on forming detailed organizations, specializing each organization's roles, building an infrastructure that is appropriate for organizational size and circumstances, and preemptively recruiting key talents to prepare for future businesses. We are making diverse efforts to recruit key outstanding talents, such as targeting necessary personnel based on new business plans and diversifying recruitment methods.

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

<sup>2)</sup> Certifies products that use raw materials and manufacturing processes chosen according to Jewish law



# PRODUCT QUALITY AND TECHNOLOGICAL INNOVATION

## R&D PERFORMANCE

**Development of Technologies to Lead Hydrogen Economy** | LFC seeks to take the lead in the commercialization of clean hydrogen and ammonia, garnering attention as a future, eco-friendly energy source, by continuing R&D efforts and making active investments.

We are conducting demonstration projects to secure ammonia decomposition and hydrogen production technology, which can be regarded as being essential for the use of ammonia as a hydrogen carrier. We are working on a national project for “development of demonstration plant technology for 1,000 Nm<sup>3</sup>/hr ammonia decomposition and clean hydrogen production” organized by the Ministry of Trade, Industry and Energy. We completed the basic design and risk evaluation of a pyrolysis-based technology demonstration plant. Considering that there is no safety standard on ammonia-based hydrogen extraction facilities stipulated in the Hydrogen Economy Promotion And Hydrogen Safety Management Act, we made a special case application and received approval in September 2022. We are also making preparations for a demonstration to secure photolysis technology, which can be regarded as a new technology. In August 2022, we signed a joint business development agreement with Syzygy, a US-based venture company that has ammonia photolysis technology, together with LOTTE Chemical, and are now carrying out process design. We made a special case application for the same reason as pyrolysis and received approval in March 2023.

Please refer to C10-11 of this Report to find more information about the development of hydrogen photolysis technology

**Research on Eco-friendly Specialty Chemicals** | LFC seeks to lead the eco-friendly specialty chemicals market by realizing the development of eco-friendly technologies that help the Earth's environment, together with the company's vision. In line with changes in overall industry and wider society where eco-friendly industries are expanding and relevant policies are becoming stricter, such as the transition of petrochemicals to eco-friendly products and RE100 climate change response, we are focusing on strengthening our R&D capabilities regarding eco-friendly materials.

Eco-friendly specialty chemicals that we are developing include new cellulose derivatives, based on fine chemical product manufacturing technologies and key capabilities, and use of the derivatives for development of eco-friendly super absorbent resins, thermoplastic resins, and biodegradable coating agents. We are currently in the lab-scale basic performance verification or key performance evaluation phase, but seek to achieve commercialization as soon as possible through continued R&D and investments. In addition, we are expediting R&D that is aimed at supplying functionally outstanding products that also provide a solution for various environmental issues, such as micro-plastics caused by petroleum plastics.

**Research on Cellulose Derivatives** | To enhance competitiveness of cellulose water-soluble polymer products that are used in extensive industrial areas, we are further intensifying relevant research. We are expanding grades in consideration of customer demands that are steadily becoming segmented and specialized, unlike general-purpose products. In addition, we are working on new high-efficiency process development and commercialization to raise manufacturing competitiveness.

As a leading example, we are researching new cellulose derivatives that are widely used in the construction industry and using them to develop new grades of MECELLOSE® for construction use, while developing new grades of HECELLOSE® that improve paint workability and efficiency. In addition to developing a new high-efficiency process to strengthen the competitiveness of cellulose water-soluble polymer products for industrial use, we are focusing on researching and developing new high-quality, high value-added derivatives for food and pharmaceutical use that are in line with customer demands and reflect market trends.

**Research on Pharmaceutical and Food Materials** | LFC is developing high value-added pharmaceutical materials by applying cellulose polymers whose properties diversify, while researching food application technologies that lead new market trends. Since pharmaceutical and food materials are directly absorbed into the body, we place top priority on safety when we conduct research. At the same time, we reflect the social demand of pursuing environmentally-beneficial consumption and are exploring ways that benefit the lives of humankind.

To diversify and expand food and pharmaceutical products as a key research area, we are developing pharmaceutical excipients that have a high level of stability and synergies with cellulose products. For that, lab-scale tests are completed and will make continuous R&D efforts for commercialization.



# ENHANCING CUSTOMER VALUE

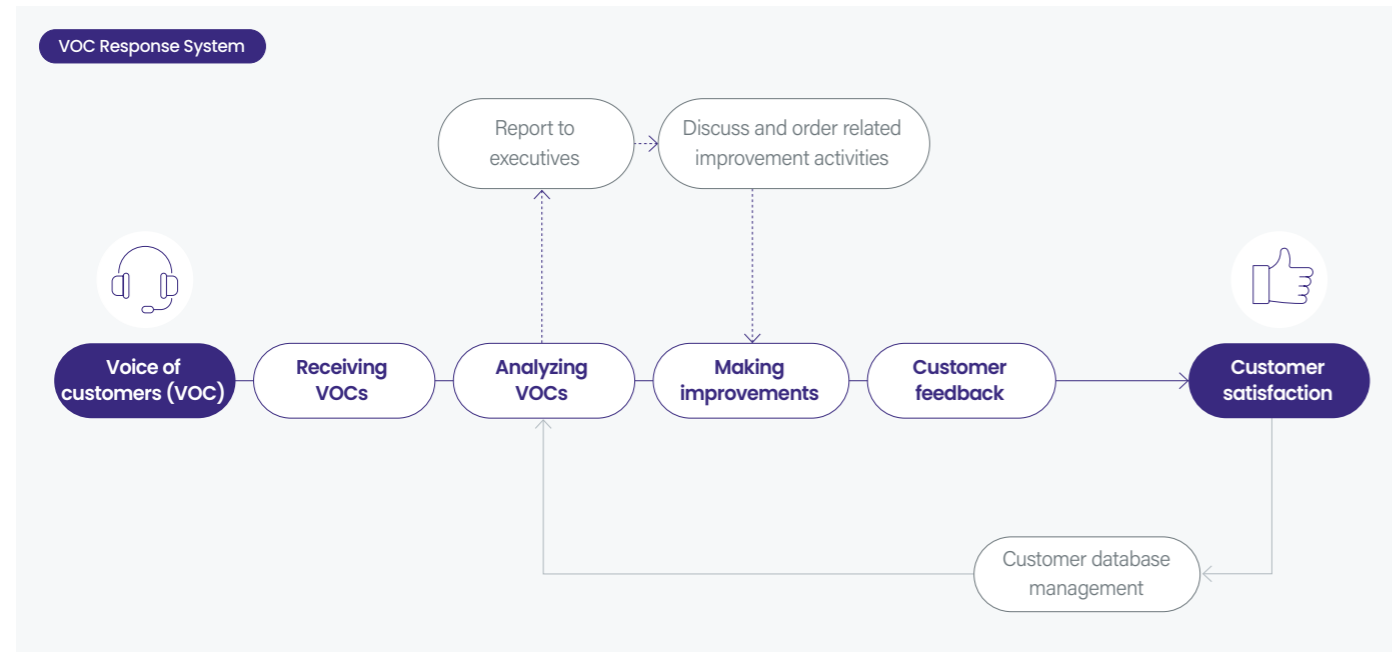
## Responding to Voice of Customers

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 and applying methods for improving or resolving them based on a detailed status check and analysis of the customer requirements. In 2022, we improved a checklist of measures for improving the claims raised by our customers over the previous five years and reflected it in our regular and unplanned on-site inspections, which were increased from the previous once a year to twice a year. To address customer opinions regarding urea solution and raise customer satisfaction, we added regular inspection activities for external urea solution tanks, thanks to which the number of customer complaints (claims) substantially decreased from 11 in 2020 to two in 2021, and remained at two in 2022. Aiming at “zero” customer complaints, we will more actively respond to customer opinions in 2023 and continually strengthen our quality management system.

LFC's Incheon Plant established a system that can respond to various customer opinions in line with the Good Manufacturing Practice (GMP) and applies it to its work. The Incheon Plant's customer opinion response process is in line with domestic and overseas standards, including the GMP, International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use (ICH), and International Pharmaceutical Excipients Council (IPEC), and is receiving recognition for its excellence from globally renowned customers. In 2022, we built a system that can identify and improve vulnerabilities for each type of customer complaints previously received.

**Better Response to Customer Feedback on EUROX®** | We systematically manage VOCs for EUROX®, our catalyst (urea solution) brand for vehicles, that are received through diverse channels, including the product website, telephone, and system, through our “EUROX® order management system.” To promptly handle VOCs, we designate a Technical Support (TS) personnel other than the sales employee in charge as part of our efforts to continually improve in a better direction.

In 2021, most of the consumer inquiries about EUROX® (48 out of a total 57) concerned the vehicle warning light and EUROX Bulk Dispenser (EBD). To make improvements, we expanded urea solution quality management points to include external tanks and EBD manufacturers from 2021 to 2022, and strengthened voluntary quality management capabilities to immediately respond to quality issues that occur outside the company. As a result of these efforts, consumer inquiries concerning urea solution indicated a year-on-year improvement of around 20% in 2022. We plan to continually strengthen quality management in 2023 to raise customer satisfaction.



VOC Status by Product

Classification	Unit	2020	2021	2022
Toner	Case	9	10	16
Green materials	Case	96	46	73
Incheon Plant (AnyCoat®)	Case	295	320	384
Chemicals	Case	305	260	267
<b>Total</b>	<b>Case</b>	<b>705</b>	<b>636</b>	<b>740</b>

# ENHANCING CUSTOMER VALUE

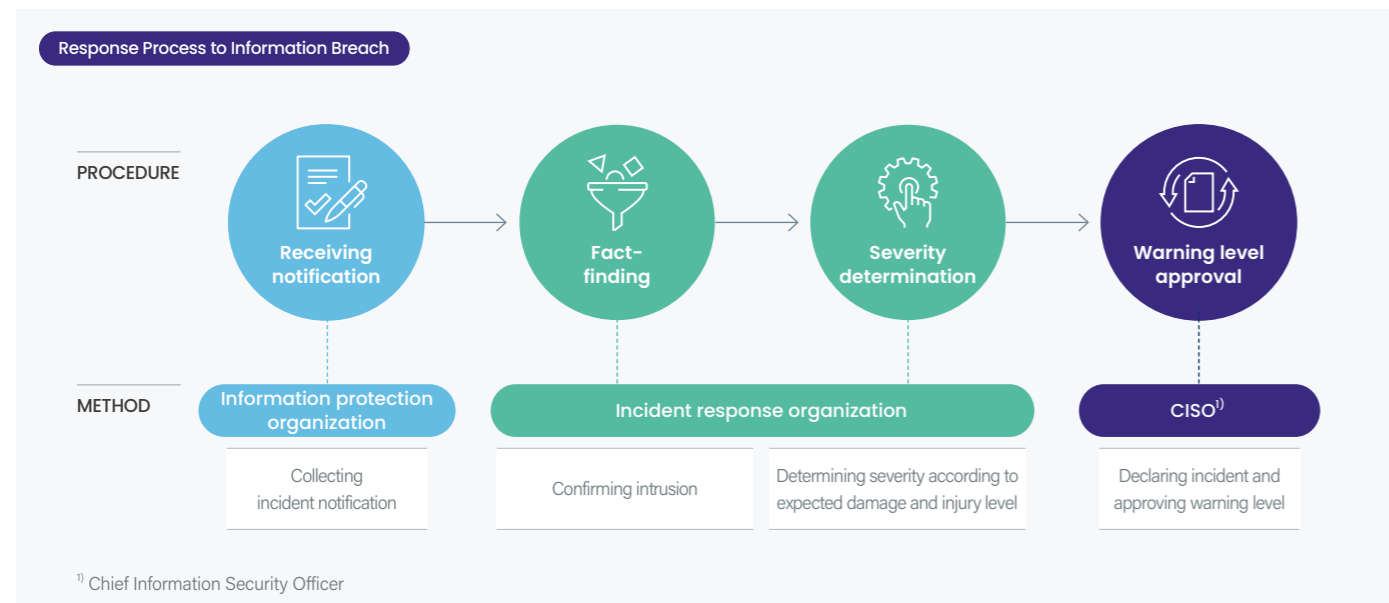
## Customer Data Protection

**INFORMATION PROTECTION SYSTEM** Digital transformation is having a significant impact on corporate competitiveness, while cyber hacking and other threats are on the rise. Against this backdrop, regulations on information security and personal information protection are becoming stricter and corporate responsibilities are increasing. To prevent the risk of external leakage and misuse of corporate and customer information, LFC has established a strong corporate information security policy and system that exceeds the legal requirements, with which all our employees strictly comply. In addition, we obtained the ISO 27001 certification, an international standard for information protection management systems, in 2017, thus establishing an advanced information protection management system. We maintained the certification in 2022.

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 operate 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 corrective actions immediately, if necessary. In 2022, we conducted an IT vulnerability check on our website and established systems, and plan to perform a check every year.

**MONITORING INFORMATION LEAKAGE** To prevent personal information leaks and forgeries and falsifications, we established an integrated log management system in 2022 based on which we are monitoring personnel responsible for handling personal information as well as security solutions. In the event of a data breach despite these efforts, we immediately notify customers 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 2022.

**INTERNALIZING INFORMATION SECURITY** LFC safely manages personal information based on strict management and supervision, and provides relevant training to raise employee awareness of information security. 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. We will continue activities aimed at internalizing information security to solidly maintain "zero" security incident.



**Major Information Security Training in 2022**

Training	Target	Frequency	Type	Main content	No. of trainees
Information security training	All employees	Once a year	Online	Information security and personal information protection	897
Training on preventing information leakage	Employees	When it occurs	Offline	Prevent leakage of trade secrets and information	380
Training to employees handling personal information	Employees handling personal information	Once a year	Offline	Protection of personal information	63
Information security training to new/transferred employees	New/transferred employees	When it occurs	Online	Company's information security-related policy and personal information protection	103

# CONTRIBUTING TO LOCAL COMMUNITIES

## CSR System

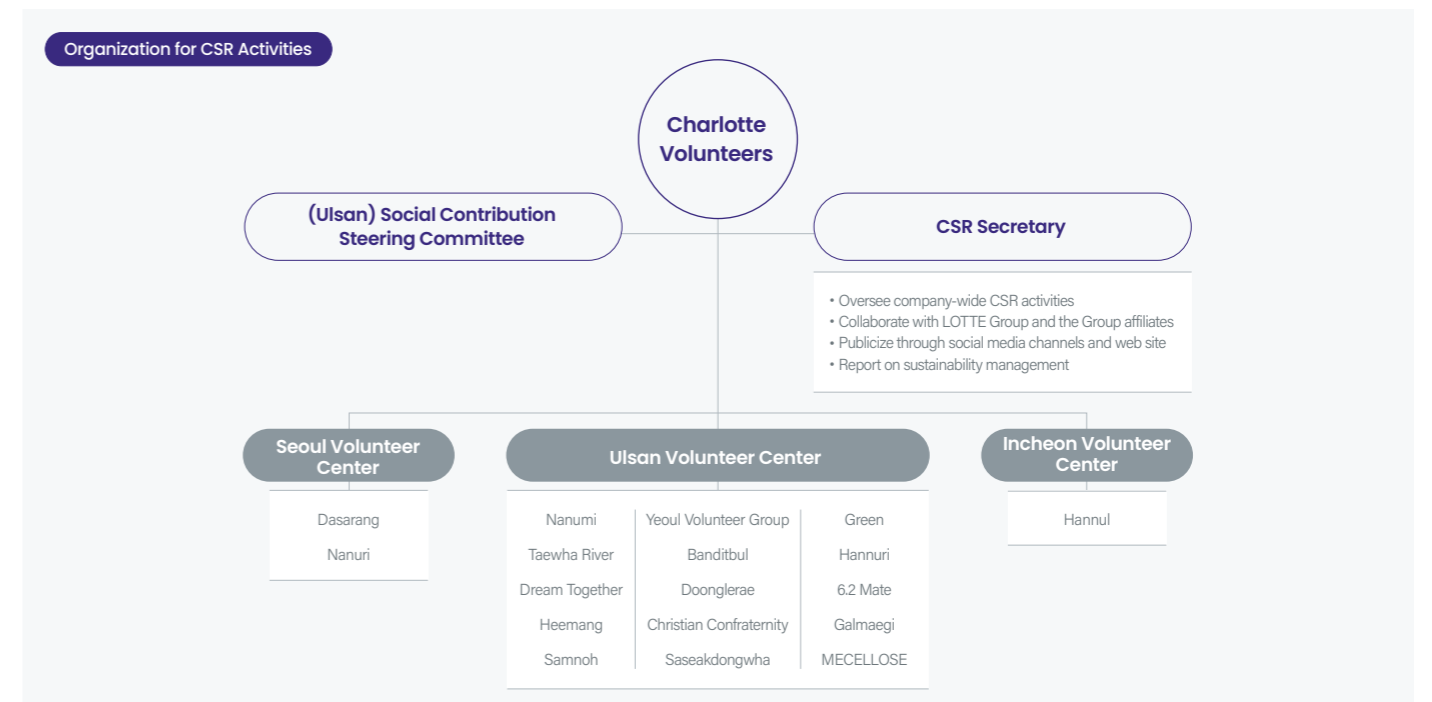
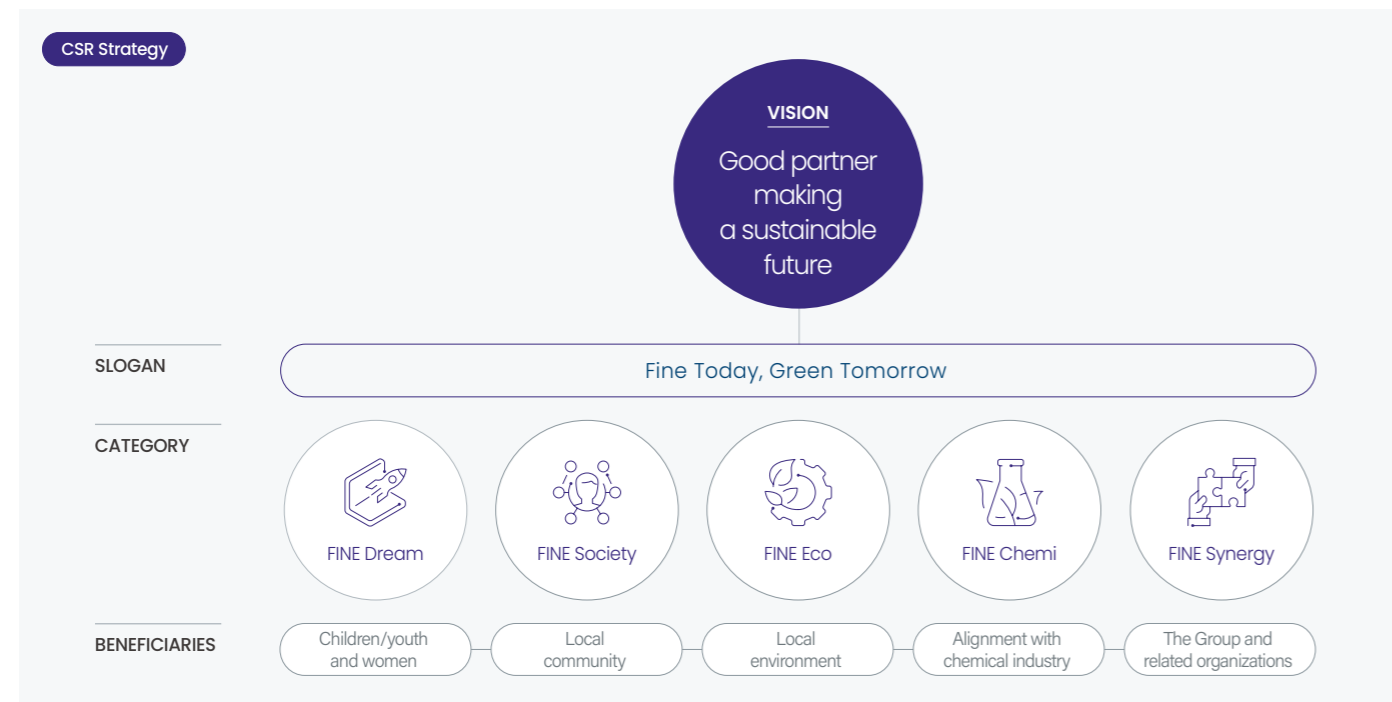
**CSR STRATEGY AND GOAL** To promote win-win with local communities and stakeholders and contribute to the creation of social value, we are operating local community development programs at all of our workplaces in Korea based on our CSR vision, “good partner making a sustainable future”; and implementation strategy. To this end, we are carrying out systematic social contribution activities through customized support programs for each of the following five key areas – Fine Dream (children/youth and women); Fine Society (local community); Fine Eco (local environment); Fine Chemi (alignment with chemical industry); and Fine Synergy (collaboration with LOTTE Group and other related organizations) – based on the slogan, “Fine Today Green Tomorrow”.

**CSR IMPLEMENTATION 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 will hold the “LFC CSR Awards” at the end of 2023 at which selected employees with an outstanding annual volunteering performance will be presented with awards.

**CSR ACTIVITY SUGGESTION SYSTEM** LFC newly adopted the “CSR activity suggestion” system in 2022 and is providing relevant information on its website to enable participation by all employees and anyone who is interested in CSR activities. Based on ideas that will benefit the world, we will use our resources and capabilities to spread positive impact on local communities.

**SOCIAL CONTRIBUTION FUND** LFC’s Social Contribution Fund consists of employee donations, 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 2022, we collected KRW 5,045 million in social contribution funds and used them for various social contribution activities.

In particular, we aim to run more than one program which can be participated by respective local communities where we operate (Seoul, Ulsan, Incheon) in 2023 and increase the number to more than two for each local community by 2025 as part of our efforts to fulfill our responsibility for local communities. We also plan to disclose the activities annually.



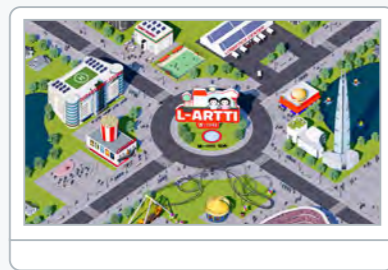
# CONTRIBUTING TO LOCAL COMMUNITIES

## CSR Activities



**“L-ARTTI” Program to Support Youths’ Independence** | Around 2,600 youths need to leave protective facilities every year after turning 18. To help these youths stably advance into society, LFC launched “L-ARTTI,<sup>1)</sup>” a program that supports self-reliance through a metaverse campus, together with Korea Welfare Services in May 2022. In consideration of Generation Z’s characteristic of being accustomed to IT and trends and the privacy of youths preparing for independence, we made a metaverse space into the L-ARTTI online campus, and provided education to youths who were finding future planning difficult, including residence, anxiety, employment, and school admission. The education included a virtual life experience, professional psychological counseling, and consulting on planning the future path. We also helped them build a social safety net, including employee mentoring and establishment of a network among youths preparing to become independent.

The satisfaction level was high among the 110 youths who participated in the L-ARTTI program in 2022. As such, we plan to double the number of participants and the period in 2023 and support a total of 200 youths preparing for independence for ten months from March to December. In particular, we plan to strengthen support programs in 2023 and divide the participants into a five-month employment preparation group and general group in the second half of the year to provide tailored, in-depth education. To motivate the participants, we will provide them with an opportunity to visit and take a look at LOTTE’s infrastructure and provide outstanding participants with scholarships. We will expand diverse support over the long term that is needed for youths’ foundation and planning for self-reliance so that youths can develop their dreams further.



<sup>1)</sup> Compound word of “L” that symbolizes LOTTE and “Artti” that means a close friend

### Book Donations

To improve children’s reading environment and contribute to revitalizing the reading culture, we donated basic chemistry books, books requested by teachers, students, and parents, such as learning collections, and books on the humanities to elementary and middle schools, local children’s centers, community care centers, and social welfare institutions in Ulsan. We also held book concerts aimed at encouraging children to read more books.

#### SUPPORT

- Donated around 12,000 books (worth about KRW 120 million) to 19 schools and organizations from 2017 to 2022

### Happy Love House

To ensure that children live in a cleaner and safer home, 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 replacing old wallpaper, repairing broken fixtures, and purchasing and assembling furniture.

#### SUPPORT IN 2022

- Improved living environment for a boy whose dream is to run a Turkish ice cream shop

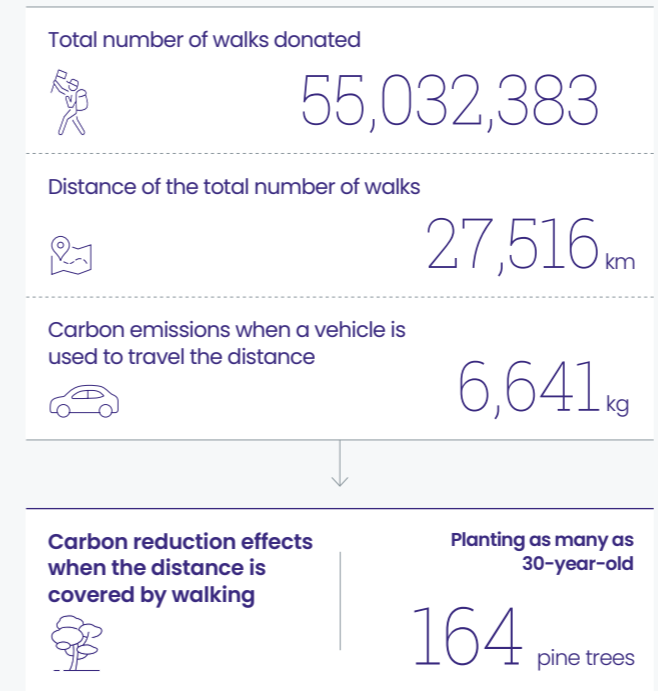
### Sponsorship for Ulsan Swings

LFC established “Ulsan Swings”, a multicultural little league baseball club, in 2014 in partnership with the Ulsan Nam-gu Social Welfare Center and Ulsan Metropolitan Police so that children from multicultural families can interact through baseball and plan for their future full of hopes and dreams.

#### SUPPORT

- Supported around 200 children from multicultural families from 2014 to 2022
- Provided education on baseball theories and game rules, basic physical training, and position training, including batting and defense. Held a friendly baseball match with a local little league baseball club, and had a member hit the first ball at a professional baseball game of the Lotte Giants.

**“DO! Fine Walk” - Walk Fundraising Campaign** | Being faced with difficulties in carrying out face-to-face volunteer activities due to COVID-19, we ran the “DO! Fine Walk” campaign, a non-face-to-face walk fundraising, so that employees and their families could practice the act of sharing in daily life. Donations were raised when participants donated to this campaign the number of steps that was measured during their daily life through the step donation application “bigwalk”. Held for a month from September 19, 2022, the DO! Fine Walk campaign was participated by 186 people and achieved around 55 million steps. Donations amounting to KRW 35 million were raised according to the cumulative number of donated steps and were donated to MIRAL Welfare Foundation. The donations will be used for programs carried out by the company.



### Fire Safety in Local Communities

In collaboration with fire agencies located near our Ulsan Complex and Incheon Plant, we carried out CSR activities that enhanced local community safety.

#### SUPPORT IN 2022

- The Incheon Plant joined forces with the Incheon Industrial Complex Fire Station to supply custom fire extinguishers, light-using devices to guide evacuation, and other fire-fighting equipment to 246 fire-vulnerable households (cumulative)

### Holiday and Year-end Hope Sharing Activities

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.

#### SUPPORT IN 2022

- To prevent COVID-19, we delivered items (holiday food kits, cold weather supplies, cookie gift sets, etc.) without direct contact to children, women, the disabled, and seniors. We also participated in 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

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.

#### SUPPORT IN 2022

- On Chobok (the first day of the hottest season in the Korean calendar in July), we resumed the ginseng chicken soup sharing event that was suspended due to COVID-19 after three years and provided healthy chicken soup to 300 disabled seniors (worth around KRW 4.5 million).



# CONTRIBUTING TO LOCAL COMMUNITIES



**Urban Box Farming Campaign** | To facilitate urban greening of Ulsan, an industrial city, and to publicize the importance of a green environment to local residents, LFC launched the Urban Box Farming Campaign in 2010 and delivered around 50 thousand blueberry, rubber, and other trees to citizens for the past 12 years. It has become our leading eco-friendly CSR activity. In 2022, we delivered orange trees, which have excellent air-purifying capabilities and are easy to care for indoors, to 7,500 students at 15 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.



Urban Box Farming Campaign  
Eco-friendly HANDS ON Activities



## Incheon Coastal Clean-up Volunteer Activities

LFC joined hands together with the Incheon Port Authority as part of our continued coastal clean-up activities in Incheon. Accordingly, we clean up beaches in Incheon, Incheon New Port Bridge, and the surrounding wetlands to promote the preservation of marine resources.

### ACTIVITIES IN 2022

- We signed an MOU on jointly practicing ESG with the Incheon Port Authority and Korea Environmental Industry & Technology Institute and contributed to more active ocean environment improvements.

## Eco-friendly HANDS ON Activities

Since 2015, we have been running "HANDS ON" volunteer programs in which we make and donate items during our spare time to support the independence of single parents (unmarried mothers).

### ACTIVITIES IN 2022

- Produced environmental pop-up books for children: Employees and their families created 250 pop-up books that encourage readers to practice an eco-friendly lifestyle and commit themselves to protecting the health of the Earth and delivered them to children in the local community.
- Produced pot holders using upcycled waste glass: We upcycled waste glass to produce pot holder decorations and donated them to single parent households. We contacted an instructor who is a single parent with a crafts certificate to provide education, thus promoting the creation of jobs for unmarried mothers.

## Ulsan Complex's Bamboo Shoot Protection Campaign for the Taehwa River Simni Bamboo Grove

As our biodiversity and environmental protection activity that was launched in 2005, we have been caring for the Ulsan Taehwa River National Garden and Simni Bamboo Grove and carrying out protection activities to prevent damages to bamboo shoots.

### ACTIVITIES IN 2022

- In the Environmental Month, we partnered with Simni Bamboo Grove Protection Volunteer Association and carried out patrols, cleaned up the environment, and provided information on usefulness of bamboo shoots and bamboos (prevention of damage and unauthorized collection) from June 13 to 30.



## Established the LOTTE-KAIST "R&D Center & Design Center" |

Together with LOTTE Group, LFC made a donation to KAIST in August 2022 and took part in the construction of an R&D Center and Design Center. Aiming to complete construction in the second half of 2025, the R&D Center will be developed into an industry-academia cooperation-based research cluster to fight against climate change and realize carbon neutrality. It will carry out comprehensive research on systems metabolic engineering, biofuel and plastics, green hydrogen, new and renewable energy, and battery, focusing on three themes - bio sustainability, carbon-neutral materials and energy, and nutrition and healthcare. The Design Center will handle zero waste design that minimizes the discharge of wastes and research and development of futuristic products and services that integrate the virtual and reality. It will also contribute to the establishment of a testbed that will be open to college campus and local community members.



## In-kind Donation of Urea Solution to Rural Areas

As part of CSR activities we conduct by leveraging our business capabilities, we have been donating EUROX®, LFC's urea solution, to rural areas since 2020. The donated solution was used by COVID-19 quarantine vehicles and ambulances and to help residents in rural areas who were experiencing difficulties due to the shortage of laborers during the busy farming season.

### OUTCOME OF SUPPORT

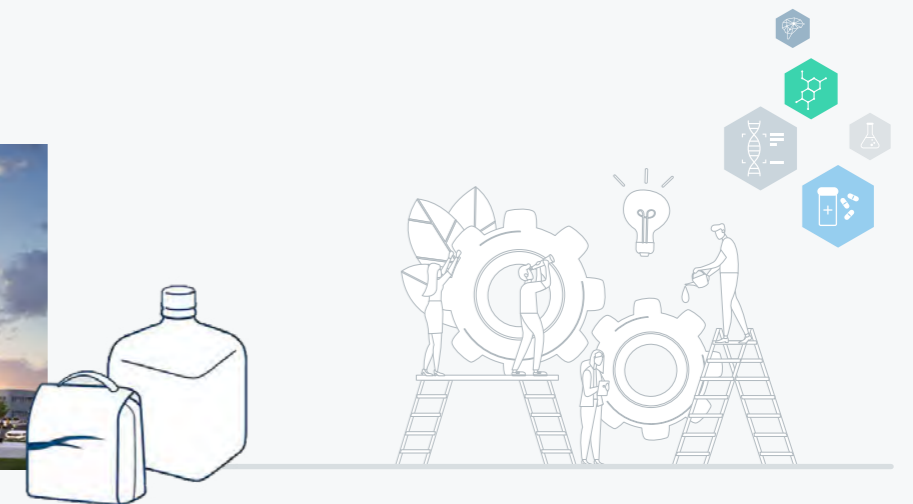
Donated 94,600 L of EUROX® to 135 public health centers in North Gyeongsang Province, North Jeolla Province, and South Jeolla Province as well as agricultural machinery rental centers since 2020

## Program to Nurture Chemistry Talents

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 support students majoring in chemical engineering.

### OUTCOME OF SUPPORT

Provided scholarships and eco-friendly research funds to 114 (cumulative) students majoring in chemistry as of 2022



# CONTRIBUTING TO LOCAL COMMUNITIES



**Donated Emergency Plugs** | LFC, which has been sponsoring firefighters since 2021, donated six Emergency plugs, which are used to respond to electric vehicle accidents, to Incheon Fire Services in December 2022 that amounted to around KRW 20 million. When an EV brake plug is connected to a charging terminal, an EV battery is deactivated, thus preventing secondary accidents such as sudden unintended acceleration that can happen due to a battery malfunction at car accident sites. By providing equipment that can offer practical help to firefighters and emergency rescuers when they are extinguishing electric vehicle fire, we are contributing to increased safety at rescue sites.

**FINE-Package in Partnership with LOTTE Medical Foundation**  
LFC carried out "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 detailed programs – "Mom's Happiness FINE-Trip" and "FINECare". 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 provides nursing fees to underprivileged hospitalized patients who are experiencing care-related difficulties from long-term hospitalization to ease their financial burden as well as stress levels of patients and their guardians caring for them.

**SUPPORT**

- In 2022, families of sick children traveled to 15 locations. We also provided funds to cover nursing and treatment costs to five underprivileged patients hospitalized for a long time.
- Sponsored a total 41 families (172 people) and 16 patients since its launch in 2020

\* FINE-Trip was launched in 2020, while FINECare was launched in 2021

**Firefighter Family Cultural Event of the LOTTE Chemical HQ**

The LOTTE Chemical HQ, including LFC, has been sponsoring cultural and artistic performances for the families of firefighters since 2019. LOTTE Corporation also participated in 2022, expanding the program to a Group-level CSR program.

**SUPPORT IN 2022**

- We solely planned the "Pixar in Concert", a Pixar animation orchestra performance, and invited around 400 families (1,450 people) of incumbent firefighters as well as firefighters who died on duty (increased by more than 100 families from the previous year)

**Support for LOTTE Foundation for Arts**

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. For its efforts to support 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 2021 and 2022.

**SUPPORT IN 2022**

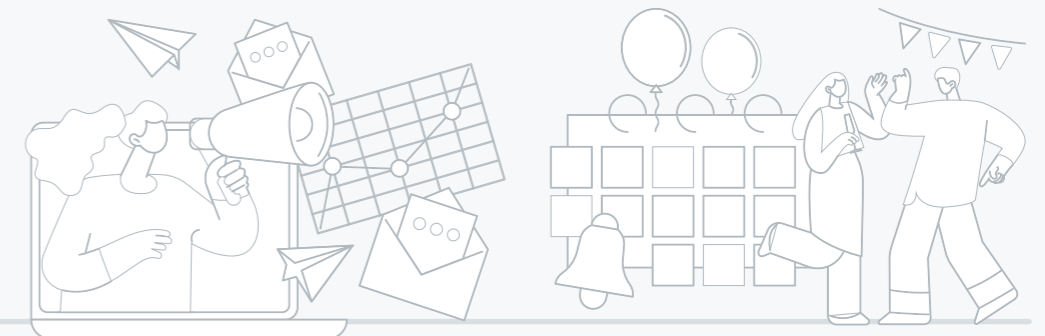
- Delivered a total KRW 1.2 billion in sponsorship funds to increase citizen opportunities to enjoy culture. Also supported programs that provide performance opportunities to up-and-coming artists who were unable to perform on stage due to the spread of COVID-19.

**Support for the Korea Ski Association**

In order to improve the environment for domestic snow sports, which are not popular, and to support the growth and development of future hopefuls, LFC has continued to donate funds to the Korea Ski Association together with other Group affiliates.

**OUTCOME OF SUPPORT**

- The country won its first medal in the snowboarding event at the PyeongChang 2018 Winter Olympic Games. In 2022, the country produced a World Cup overall champion for the first time.



# GOVERNANCE

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Cultivating a Culture of  
Ethics and Compliance

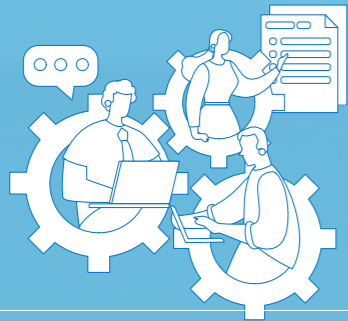


IN THIS SECTION

LFC established sound and solid governance and is achieving sustainable growth. Even amid a permanent crisis period in which instability and uncertainty extend over a long period, we are bringing together our wisdom and capabilities to grow in an economically, socially, and environmentally right way by turning obstacles to opportunities based on advanced governance, while using our relations of trust with stakeholders as a driving force.

### Corporate Governance

LFC established advanced corporate governance that is based on an independent decision-making system, and carries out responsible management activities. To this end, we formed and operate a BOD that consists of directors with diverse backgrounds and extensive expertise, and focus on establishing fair, transparent governance that serves as the basis of sustainable growth. In particular, we enacted the Corporate Governance Charter in 2022 to develop into a trusted company that shares corporate value with diverse stakeholders.



### Strengthening Risk Management

Amid steadily increasing uncertainty in the management environment, LFC is making company-wide efforts to minimize risk impact while raising corporate resilience. We established a company-wide risk response process that enables us to preemptively identify and respond to risks and we manage financial and non-financial risks in an integrated and systematic way, through which we seek to maintain corporate soundness and enhance sustainable value.



### Cultivating a Culture of Ethics and Compliance

LFC makes a wide range of efforts to enhance the sense of ethics aimed at ensuring fair, transparent handling of business. Our employees 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 that apply in relation to our business activities. We also operate an internal control system to protect corporate value from internal factors and external stimuli, through which we seek to raise the trust of stakeholders and wider society in LFC and use this as the basis for innovation with integrity.



# CORPORATE GOVERNANCE

## Corporate Governance Principle

We enacted the Corporate Governance Charter in April 2022 and disclosed it on our website to develop into a trusted company that shares corporate value with diverse stakeholders by establishing fair and transparent governance, which is the basis of continued growth. In addition, we disclosed our Corporate Governance Report in May 2022 that describes the status of observing (total of 10) key principles concerning shareholders, the BOD, and audit organization, reasons for non-compliance, and status of compliance with key indexes as part of our efforts to enhance management and governance transparency. We will continue our efforts to improve governance with a focus on the key principles.

➔ Governance Charter

## Enhancement of Shareholder Value

**SHAREHOLDER AND CAPITAL COMPOSITION** Pursuant to LFC's Articles of Incorporation, the total number of shares that can be issued is 50,000,000 shares (face value per share: KRW 5,000). As of the end of December 2022, the total number of issued shares is 25,800,000 shares, and all of them are common shares. Fair voting rights were given in accordance with the number of shares.

**SHAREHOLDER-FRIENDLY SYSTEM** LFC makes decisions in the direction of guaranteeing, as much as possible, shareholders' rights on matters that bring about significant changes to the company's existence and shareholder rights. To enhance shareholder value, we are actively improving policies and expanding various support activities. A comprehensive resolution was approved on adopting an electronic voting system at the BOD meeting held in February 2022 to expand shareholders' exercise of voting rights and increase convenience which was followed by adoption in the Articles of Incorporation. Accordingly, during the 59th annual general meeting (AGM) that was held

on March 22, 2023, shareholders were able to exercise voting rights using an electronic method without attending the AGM. We will continue to further strengthen relations of trust with shareholders and simultaneously raise corporate and shareholder value.

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

**ANNUAL GENERAL MEETING** LFC is making diverse efforts to protect the rights and interests of shareholders and to enhance shareholder value. To meet the financial authorities' demand to disperse days on which AGMs are held to facilitate AGMs as well as to secure a quorum and make it easier for

shareholders to exercise their voting rights, we have been holding the AGM on days when AGMs are not concentrated every year since the implementation of the AGM dispersion program. Moreover, we announce the convocation of an AGM three weeks in advance, as opposed to the two weeks legally required, to enable our shareholders to devote sufficient time to deliberating the agenda prior to each meeting. We provide information on the AGM date and time, venue, and agenda. Shareholders may exercise their right to make a shareholder proposal by submitting a proposal to the agenda of an AGM in writing or electronically no later than six weeks before the meeting.

**DISCLOSURE OF CORPORATE INFORMATION** To raise understanding of the company and solidify relations of trust, we provide various in-depth Investor Relations (IR) data in Korean and English to shareholders in Korea and abroad. We release quarterly reports on our earnings and hold regular conference calls or face-to-face meetings with our overseas institutional investors.

### Stock Information

Number of shares issued  
25,800,000 shares

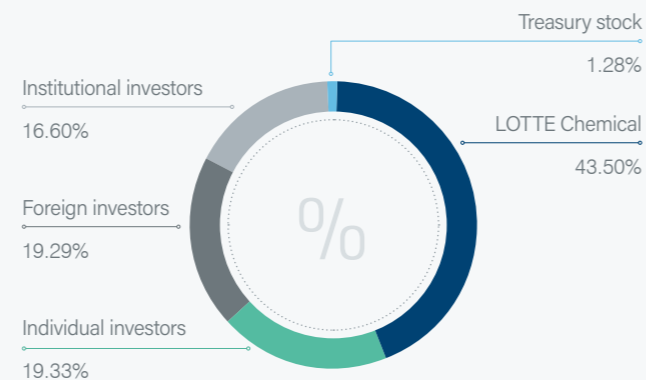
Paid-in capital  
KRW 129,000,000,000

Share price<sup>1)</sup>  
KRW 56,700

Market capitalization  
KRW 1,462,860,000,000

<sup>1)</sup> Based on the 2022 year-end share price

### Major Shareholders



Shareholder	No. of shares owned	Ownership (%)
LOTTE Chemical	11,223,000	43.50
Treasury stock	330,000	1.28
Foreign investors	4,975,918	19.29
Institutional investors	4,283,906	16.60
Individual investors	4,987,176	19.33
<b>Total</b>	<b>25,800,000</b>	<b>100.00</b>

\* As of December 31, 2022

### Dividend per Share

Classification	Unit	2020	2021	2022
Dividend per share	KRW	1,500	2,300	3,500
Total dividends	KRW million	38,205	58,581	89,145
Dividend payout ratio <sup>1)</sup>	%	23.8	22.1	23.1

<sup>1)</sup> Based on separate financial statements

# CORPORATE GOVERNANCE

## Board of Directors

**COMPOSITION OF THE BOD** LFC's BOD is our top decision-making body that performs the function of making decisions concerning the company's management and the function of supervising top management. It has comprehensive authority over corporate management. We transparently run the BOD and carry out management activities based on checks and balances. As of March 2023, our BOD consists of seven directors (three inside directors, four outside directors) who are experts in different 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. To ensure that the BOD performs its functions by maintaining actual independence from top management and controlling shareholders, we have outside directors account for at least a majority of all directors.

A BOD meeting is held regularly according to an annual operation plan. If urgent decision-making is required, an extraordinary BOD meeting can be convened. When the BOD votes on agenda, we restrict voting rights if a director has an interest in a specific agenda item pursuant to the Commercial Act and BOD Regulations to prevent conflicts of interest.

**TRANSPARENCY AND INDEPENDENCE OF THE BOD** 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. We therefore adopted a principle of not appointing people who are responsible for damaging corporate value or violating shareholder rights or interests as directors. We appoint outside directors who have no significant personal interests in the company and can make independent decisions. To secure the fairness and independence of our governance structure, we established the Independent

Director Recommendation Committee in February 2022 even though we are not obligated to form the committee. We received recommendations for outside directors at our 2003 AGM and appointed them as directors through a resolution at the AGM.

**EXPERTISE AND DIVERSITY OF THE BOD** We are enhancing diversity in our BOD composition to flexibly respond to changes in the business environment based on diverse perspectives and experiences. 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. As a principle, we do not compose the BOD with directors with a specific gender

in accordance with the Articles of Incorporation. At the AGM that was held in March 2023, we appointed an additional female outside director and had female outside directors account for 50% of outside directors, thereby securing gender diversity. Moreover, we appointed Professor Hye-jung Youn, an expert in the field of cellulose, which is highly related to our green materials business, as an outside director, through which we anticipate to further increase our products' technical expertise. Also, director Kyu-seon Yoon, who formerly served as the CEO for five years at Hana Capital, which is a major financial institution, was appointed as an outside director, thus securing BOD expertise.

To raise outside directors' understanding of the company and support them in their performance of duties, we operate an outside director training program at least once a year that includes a field trip to a workplace. Outside directors can request for information that is needed to perform duties. If needed, an outside director can receive advice from an outside expert by going through an appropriate process to receive LFC support for expenses.

### BOD Composition

Classification	Name	Gender	Key Profile	Position and Committee Activity	Date of Appointment or Reappointment	BOD Attendance Rate in 2022
Inside Directors	Yong-Seok Kim	Male	(Former) CEO, LOTTE INEOS Chemical	CEO, BOD Chair, Management Committee (Chairperson)	Appointed on March 18, 2022	100%
	Woo-Chan Kim	Male	Head of the ESG Management Group, LOTTE Fine Chemical	Management Committee, Transparent Management Committee, ESG Committee, Independent Director Recommendation Committee	Reappointed on March 22, 2023	100%
	Jun-Hyuk Shin	Male	Head of the New Business Development Division, LOTTE Fine Chemical	Management Committee, ESG Committee	Reappointed on March 24, 2022	90.9%
Outside Directors	Nak-song Seong	Male	CEO, Jiheon Law Firm	Audit Committee, Transparent Management Committee (Chairperson), Compensation Committee, Independent Director Recommendation Committee	Appointed on March 24, 2022	100%
	Mi-young Kim	Female	Professor, Department of Materials Science and Engineering, Seoul National University	Audit Committee, Compensation Committee (Chairperson), ESG Committee	Appointed on March 18, 2022	100%
	Kyu-seon Yoon	Male	(Former) CEO, Hana Capital	Audit Committee, Transparent Management Committee, Independent Director Recommendation Committee	Appointed on March 22, 2023	Not applicable (Newly appointed in 2023)
	Hye-jung Youn	Female	Professor, Program in Environmental Materials Science, College of Agriculture and Life Sciences, Seoul National University	Audit Committee, Compensation Committee, ESG Committee	Appointed on March 22, 2023	Not applicable (Newly appointed in 2023)

\* As of March 31, 2023  
 \* A director's tenure is until the end of an AGM regarding the final settlement term within two years  
 \* A directors and officers insurance policy was purchased for all directors (compensation limit: KRW 20 billion)

### Outside Director Training in 2022

Date	Provided by	Main training content
Apr. 27	LFC Communication Team	<ul style="list-style-type: none"> <li>• Provided information on LFC's Incheon Plant</li> <li>- Explained about the company's management performance and outlook</li> <li>- Provided information on the company's food and pharmaceutical business and products</li> </ul>
May 02	Korea Listed Companies Association	<ul style="list-style-type: none"> <li>• Understanding the consolidated internal control over financial reporting</li> </ul>
Nov. 22	Compliance Office of LOTTE Corporation	<ul style="list-style-type: none"> <li>• Roles of parent company and subsidiary auditors under the consolidated internal control over financial reporting</li> <li>• Analysis of fund control cases, and inspection items of auditors to prevent corruption incidents</li> </ul>

# CORPORATE GOVERNANCE

**BOD ACTIVITIES** The BOD holds a regular meeting once a month (the meeting is not held if there is no submitted agenda or report item) and an extraordinary meeting that is held according to the need. The BOD 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 no later than seven days before a BOD meeting. A director can attend a BOD meeting by means of remote communication. 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.

LFC transparently discloses information on the BOD, including its composition and performance, as well as its major resolutions, on the company website. In addition, by providing business reports and other information, we make prompt and accurate disclosures of notices that are required by relevant laws and information that could have a material impact on our shareholders and other stakeholders. In 2022, we held a total of 11 board meetings, during which the BOD deliberated on, decided, and reported 32 items of agenda. The attendance rate of the inside and outside directors was 97% owing to differences in the completion of the term of office of some outside directors and the resulting non-attendance.

**SUB-COMMITTEES OF THE BOD** LFC established and operates six sub-committees of the BOD that perform specific functions and roles to ensure quick, efficient decision-making. Matters concerning a sub-committee's composition, operation, and authority observe each sub-committee's regulations that are separately determined. LFC provides sufficient resources for efficient execution of activities by the sub-committees.

**BOD EVALUATION AND REMUNERATION PRINCIPLE** LFC fairly evaluates the BOD's management activities and appropriately reflects the results in remuneration. To this end, 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 AGM approval. 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.

## BOD Activities in 2022

Classification	BOD
No. of meetings held	11
Agenda items	24 resolution items, 8 reporting items

Classification	Total Average	Inside Directors	Outside Directors
BOD attendance rate	97%	97%	98%

➔ Please refer to our website (Board of Directors under Governance) to find more information about the BOD meetings

## Composition of the Sub-committees

Committee	Roles and responsibilities	No. of meetings held in 2022	Chairperson: ● Committee Member: ○					
			Yong-Seok Kim (Inside Director)	Woo-Chan Kim (Inside Director)	Jun-Hyuk Shin (Inside Director)	Nak-song Seong (Outside Director)	Mi-young Kim (Outside Director)	Kyu-seon Yoon (Outside Director)
Management Committee	<ul style="list-style-type: none"> <li>Improve efficiency of management and operation</li> <li>Resolve matters delegated by the BOD</li> </ul>	8	●	○	○			
Audit Committee	<ul style="list-style-type: none"> <li>Ensure the transparency and management efficiency of the company</li> </ul>	7				○	○	○
Transparent Management Committee	<ul style="list-style-type: none"> <li>Secure transparency in managing the company by establishing the fair trade compliance system</li> </ul>	1		○		●		○
Compensation Committee	<ul style="list-style-type: none"> <li>Secure objectivity and transparency in calculating the remuneration of directors</li> <li>Determine the limit on the remuneration of registered directors to be submitted to the AGM</li> <li>Other matters as delegated by the BOD</li> </ul>	3				○	●	○
ESG Committee	<ul style="list-style-type: none"> <li>Set company-wide ESG management strategies and plans and make decisions on implementation matters</li> <li>Make decisions to maximize ESG-based business opportunities and minimize risks</li> </ul>	5		○	○		○	○
Independent Director Recommendation Committee	<ul style="list-style-type: none"> <li>Recommend candidates for outside director at AGM</li> </ul>	1		○		○		○

\* As of March 31, 2023

## Major Agenda Items of BOD Sub-committees in 2022

Committee	Major agenda
Management Committee	<ul style="list-style-type: none"> <li>Purchasing Incheon Plant site, increasing the production capacity of the TMAC plant, etc.</li> </ul>
Audit Committee	<ul style="list-style-type: none"> <li>Approval of the audit report on accounting and business performance in 2021, amending audit fee, audit hours, human resources documentation items, etc.</li> </ul>
Transparent Management Committee	<ul style="list-style-type: none"> <li>LOTTE E&amp;C's credit agreement, etc.</li> </ul>
Compensation Committee	<ul style="list-style-type: none"> <li>Amending executive remuneration regulations, passing the 59th director remuneration limit approval for submission to AGM, etc.</li> </ul>
ESG Committee	<ul style="list-style-type: none"> <li>ESG implementation strategies, establishment of a company-wide human rights management system, establishment of a supply chain ESG evaluation system, etc.</li> </ul>
Independent Director Recommendation Committee	<ul style="list-style-type: none"> <li>Recommendation of outside director candidates, etc.</li> </ul>

# STRENGTHENING RISK MANAGEMENT

## Integrated Management of Financial and Non-Financial Risks

**IDENTIFYING AND RESPONDING TO RISKS** LFC identifies, in advance, potential financial and non-financial risks throughout the entire value chain and prevents crisis situations, thereby enhancing stability in corporate operations. LFC classifies its financial risks into four categories - exchange rate, liquidity, interest rates, and credit - while dividing its non-financial risks into seven categories - 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.

### Prior Risk Analysis Area in 2022

We understand the importance of water resources as a shared resource and analyzed water resource risks for the Ulsan Complex and Incheon Plant. Analysis results were used as basic materials to establish mitigation and response plans for water resource risks of each workplace.

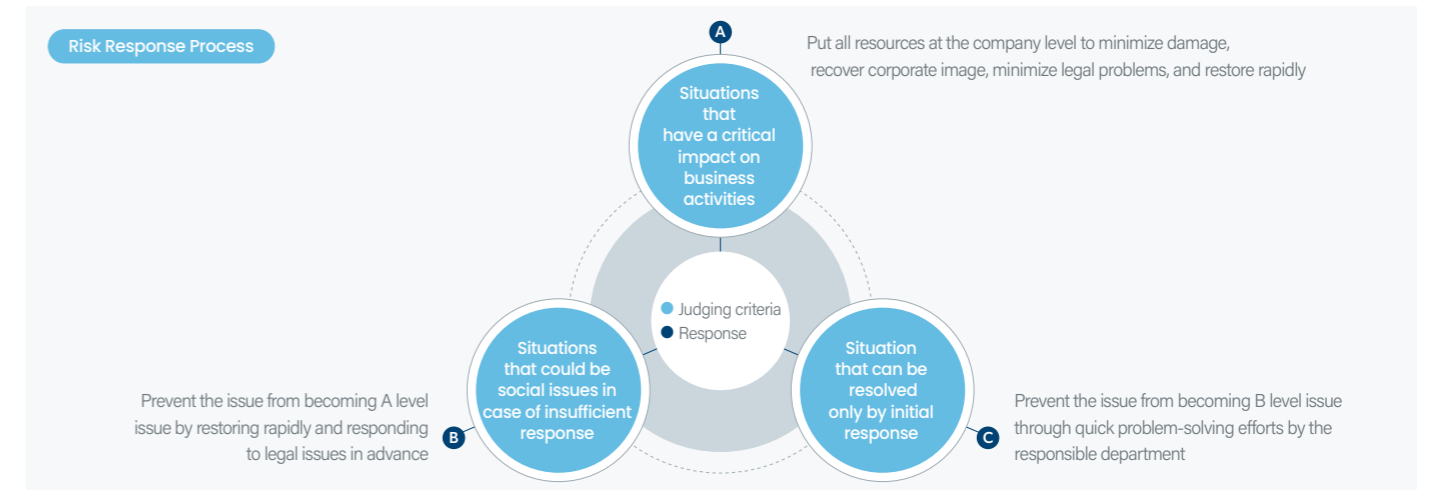
Please refer to P. 23 of this Report to find more information about the analysis of water resource risk management

### Risk Management Areas

Risk type	Response measures
Exchange rate	<ul style="list-style-type: none"> <li>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</li> <li>Active exchanges of opinions with domestic financial institutions on foreign exchange risk management</li> <li>Realization of a sound, stable financial structure by establishing a foreign exchange management system that prohibits speculative foreign exchange transactions</li> </ul>
Liquidity	<ul style="list-style-type: none"> <li>Liquidity risk management and maintenance of proper liquidity level through periodic fund balance forecasting and adjustment</li> <li>Prediction and monitoring of liquidity at all times to maintain an appropriate level of unused borrowing limits and meet the demand for operating funds</li> <li>Flexible maintenance of funding capacity within the credit limit through active sales activities</li> </ul>
Interest rate	<ul style="list-style-type: none"> <li>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</li> <li>Interest rate risk management through constant monitoring of domestic and international interest rate trends and establishment of countermeasures</li> </ul>
Credit	<ul style="list-style-type: none"> <li>Credit risk management by systematically evaluating the financial credit rating of counterparties</li> <li>Maintenance of appropriate collateral for counterparties</li> <li>Report on the monthly collection delay status and countermeasures for financial assets whose collection has been delayed</li> <li>Adherence to the principle of working with banks that have high international credit ratings</li> </ul>
Personnel and labor	<ul style="list-style-type: none"> <li>Promotion of corporate culture improvement activities and implementation of programs to increase employee satisfaction</li> <li>Establishment of cooperative labor-management relations through regular labor-management consultations and communication channels</li> </ul>

**RISK RESPONSE PROCESS** Amid growing uncertainties in the business environment surrounding companies, we established a risk response process according to the level of financial and non-financial risks to effectively respond to risks. For level A-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. Based on this systematic risk management process, we timely identify and quickly respond to various risks that could hinder our corporate value, inflict economic losses, and damage corporate reputation.

**RISK MANAGEMENT ORGANIZATION** We effectively manage risks at the company-wide level based on BOD Operation Regulations and each BOD sub-committee's operating rules, with central roles performed by the six BOD sub-committees (Management Committee, Audit Committee, Transparent Management Committee, Compensation Committee, ESG Committee, Independent Director Recommendation Committee).



Risk type	Response measures
Purchasing	<ul style="list-style-type: none"> <li>Loss in sales/production due to failure in the supply and demand for raw and subsidiary materials</li> <li>Monitoring of international price trends of raw and subsidiary materials and operation of a flexible inventory</li> <li>Engagement in activities designed to foster friendly and cooperative relationships with suppliers and monitoring of supply chain trends at all times</li> <li>Diversification of supply chain to improve supply and demand stability</li> </ul>
Health and safety	<ul style="list-style-type: none"> <li>Property damage and personal injury, suspension of business, and decline of corporate image due to industrial accidents and disasters</li> <li>Development of the ability to cope with similar situations by providing regular training for each situation in preparation for environmental disasters and factory accidents</li> <li>Compliance with the safety-related laws and regulations; and cooperation with external professional institutions to detect risk factors beforehand and implement improvement activities</li> </ul>
Environment	<ul style="list-style-type: none"> <li>Sanctions on production and decline of corporate image due to non-compliance with the environmental regulations and resulting in environmental pollution</li> <li>Minimization of risks through regular implementation of legal and regulatory environmental risk assessment</li> <li>Establishment of environmental targets and execution of plans that exceed internal and external environmental management thresholds</li> </ul>
Ethics and compliance	<ul style="list-style-type: none"> <li>Risk of external sanctions for violations of ethics regulations and laws</li> <li>Provision of information on laws and regulations, such as corporate legislation trends and corporate-related legislation issues, to employees as needed</li> <li>Prevention of possible legal violations through regular compliance training and frequent monitoring of compliance</li> <li>Establishment of a strict reporting process through permanent operation of the ethical management violation reporting system</li> </ul>
Security	<ul style="list-style-type: none"> <li>Business disruption and financial loss due to information security incidents</li> <li>Provision of security training and constant monitoring under the supervision of a dedicated information protection organization</li> <li>Prevention of leakages of important company information with the introduction of an information protection program</li> </ul>
Public relations	<ul style="list-style-type: none"> <li>Deterioration of company's reputation due to negative media coverage</li> <li>Sharing of company-related issues with employees and conduct of activities aimed at halting the spread of rumors</li> <li>Regular monitoring of company- and product-related media coverage and active response to negative reports</li> </ul>



# STRENGTHENING RISK MANAGEMENT

## Tax Strategy

LFC complies with tax laws, faithfully files tax returns, fulfills payment obligations, and contributes to national and local government finance while also contributing to society.

**CONTRIBUTING TO LOCAL COMMUNITIES** LFC faithfully fulfills its roles as an honest taxpayer and investor of local communities. We contribute to job creation in local communities and use our produced products as much as possible to contribute to the vitalization of local economies. We honestly report and pay national taxes, including corporate tax, value-added tax, and withholding tax. Also, we contribute to the development of local communities by generating local tax revenues, including corporate local income tax, acquisition tax, and property tax, of four local governments, including Ulsan.

**TAX RISK EVALUATION AND MANAGEMENT** We strive to prevent all tax risks that may occur in the process of enhancing competitiveness of existing businesses and carrying out business activities, such as trading goods and services related to business, implementing new businesses, and changing trade structure. In the process of managing tax risks, we conduct thorough internal reviews and, if needed, receive advice from outside experts and taxation authorities, based on which we make final decisions. Immediate improvements are made in relation to issues that arise.

## Enhancing Internal Control

**ESTABLISHMENT OF AN INTERNAL CONTROL SYSTEM** To enhance corporate value from a long-term perspective based on effective internal control system operations, we continue to establish internal accounting control regulations, improve relevant systems, and conduct proactive audits and investigations. In addition, we operate internal control standards to put in place internal control mechanisms that prevent management or controlling shareholders from engaging in internal transactions or self-dealing for their own personal interest. We adopted and manage a process of conducting mandatory prior reviews on external work contracts, agreements, and others through the compliance management portal system.

**ADVANCEMENT OF THE INTERNAL ACCOUNTING CONTROL SYSTEM** In accordance with Article 8 of the Act On External Audit of Stock Companies that was 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. In response, LFC received consulting from an accounting firm and secured such outputs as control descriptions, workflow charts, and also established an operating system for effective evaluation and operation, including overhaul of related regulations, thereby advancing our internal accounting control system.

**OPERATION OF AN ADVANCED AUDIT SYSTEM** To further enhance our internal regulations related to auditing, we are continually enacting and amending such regulations as 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 whistleblowers acting in the public interest, and the implementation of support policies. 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 2022, a total of seven Audit Committee meetings were held and relevant information is transparently disclosed on our website.

LFC makes continuous efforts to improve unreasonable practices through audits by theme in connection with the Group policies and collaboration among the Group affiliates. 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 external communication.

### Tax Management Policy

- Employees in charge of taxes at LFC and subsidiaries comply with each country's tax laws in accordance with our tax strategy and carry out work based on the principle of maintaining transparent relations with taxation authorities.
- LFC does not abuse the international tax system and conduct transactions that transfer income between countries. LFC faithfully fulfills tax payment obligations in compliance with tax laws.
- We conduct prior reviews of various tax risks that arise in the business process to comply with current tax laws. When we review risks, we make decisions based on advice from outside tax experts and taxation authorities.

### Tax Risk Evaluation Steps



We examine the effectiveness of our internal accounting control system every business year, and report the operation status of the internal accounting control system to the Audit Committee, BOD, and AGM. The Audit Committee evaluates the report on the operation status of the internal accounting control system from an independent position, using model standards on internal accounting control system evaluation and reporting as evaluation criteria. In addition, we plan to continually update our internal accounting control system to respond to changes in the external environment, such as laws and regulations, and changes in the internal environment, such as business models, organization, work processes, and adoption of new systems.

In 2023, it became mandatory for a company with assets of KRW 2 trillion or more to establish a consolidated internal accounting control system and receive external audits. To address loopholes in our internal accounting control system and carry out change management, we received consulting from an accounting firm in 2022 on establishing a consolidated internal accounting control system. We plan to strengthen internal control systems and improve processes of subsidiaries in Korea and abroad, thereby securing accounting transparency and improving credibility.

LOTTE FINE CHEMICAL	LOTTE FINE CHEMICAL
<p><b>조세정책</b></p> <p>롯데정밀화학은 '세법 준수·성실한 세부신고·납부의무 이행 및 국가 지방 자치단체 재정에 기여 및 사회에 공헌을 실현하고 있습니다.</p> <p><b>1. 세부신고의 정책</b></p> <p>(1) 롯데정밀화학 및 자회사의 세부신고 및 납부의무는 세무정책에 따라 각국의 세부납규를 준수하며, 과세당국과 투명한 관계를 유지한다는 원칙 아래 엄밀히 수행합니다.</p> <p>(2) 롯데정밀화학은 국제 조세예외를 적용하여 국가간 소득을 이전하는 거래를 하지 않으며, 세부 납규를 준수하여 납세의무를 성실히 수행하고 있습니다.</p> <p>(3) 롯데정밀화학의 사업과정에서 발생하는 각종 세무리스크는 사전적으로 검토하여 위험재발을 준수하고 있습니다. 리스크 검토 시, 외부 세무전문가 및 과세당국의 자문을 근거로 하여 의사결정을 하고 있습니다.</p> <p><b>2. 지역사회 기여</b></p> <p>롯데정밀화학은 지역사회의 발전에 남세력 및 투자자로서 역할을 충실히 수행하고 있습니다. 지역사회의 고용창출에 기여하며, 생산된 제품을 최대한 활용하여 지역경제 활성화에도 기여하고 있습니다. 법인세와 부가가치세, 관세 등 국세는 성실하게 신고·납부하고 유산을 포함하여 총 4개의 지방 자치단체의 법인지방소득세, 취득세, 재산세 등 지역세무 정책을 통해 지역 사회 발전에도 기여하고 있습니다.</p>	<p><b>3. 세무리스크 평가 및 관리</b></p> <p>롯데정밀화학은 기존 사업의 경쟁력 강화 및 사업과 관련한 재화와 용역의 거래, 신사업 추진, 거래구조 변경 등 사업활동 과정에서 발생할 수 있는 모든 세무상의 리스크를 방지하기 위해 노력하고 있습니다. 또한 세무리스크 관리 과정에서 철저한 내부검토, 필요 시 외부 전문가 및 과세당국의 자문 등을 근거로 최종 의사 결정하고 있으며, 발생하는 조세재원은 즉시 갹납하고 있습니다.</p> <p><b>(4) 세무리스크 평가 단계</b></p> <p>1단계: 사업관계에 대한 전반적인 분석 및 판단 2단계: 국내외의 관련 세무법규 및 과세관청 검토 3단계: 발생 가능한 세무리스크의 다양성 검토 4단계: 필요 시 외부 전문가 및 과세당국의 자문 요청 5단계: 향후 발생할 수 있는 세무리스크에 대한 대응방안 수립</p>

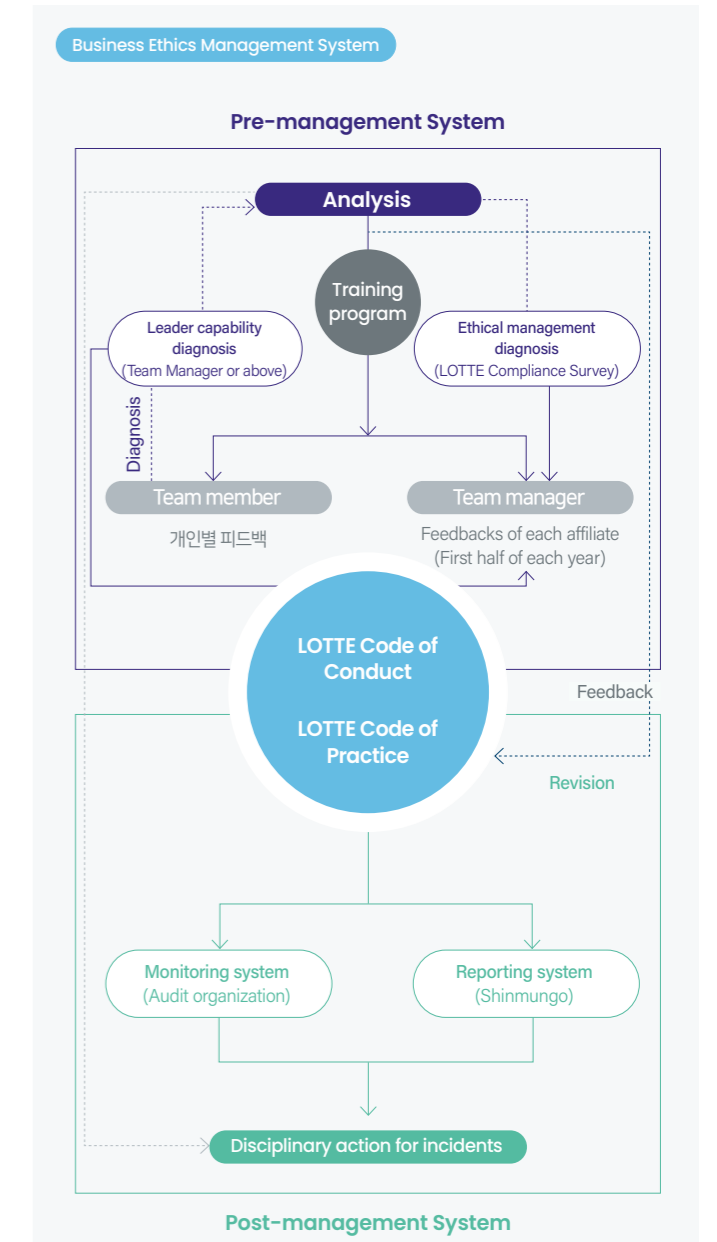
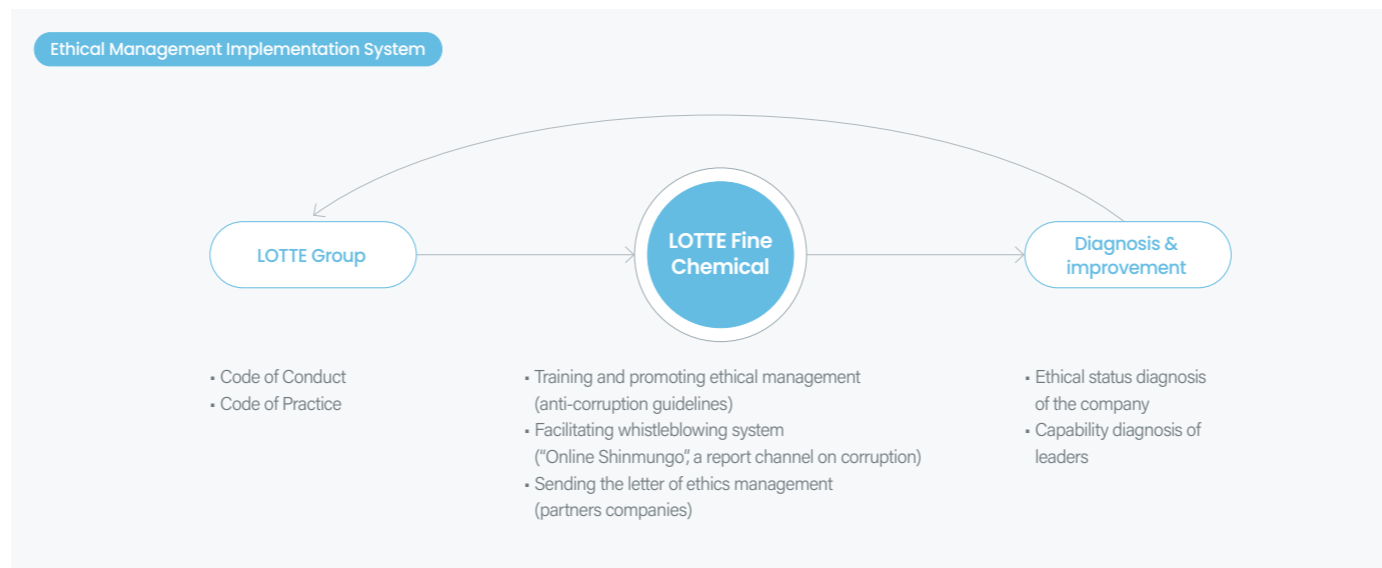
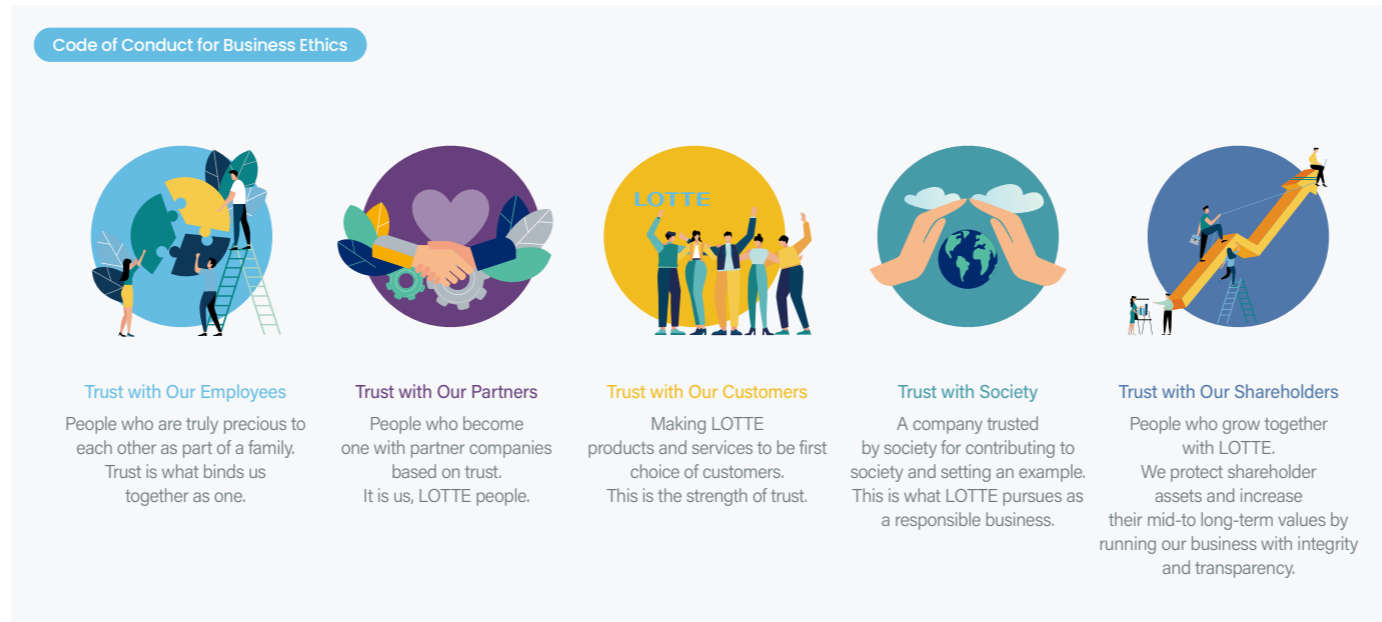
# CULTIVATING A CULTURE OF ETHICS AND COMPLIANCE

## Advancing Ethical Management

**Ethical Management System I** LFC employees conduct business in a transparent and fair manner based on the ethical management Code of Conduct and company rules, and do not take any unfair personal gains or receive or provide inappropriate gifts or entertainment. They respect and comply with the anti-corruption laws and regulations that apply in relation to our business activities in the places where we operate.

LFC established an ethical management implementation system that includes basic procedures and standards that employees should follow in performing their work as well as a prior and follow-up management system, and is thus internalizing ethical management in our work processes and fully establishing it as our organizational culture. 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. Based on this strong 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 a part of our organizational culture.

➔ LOTTE Personnel Code of Conduct



# CULTIVATING A CULTURE OF ETHICS AND COMPLIANCE

## ETHICAL MANAGEMENT CONSULTING AND REPORTING CHANNEL

**Online Shinmungo** | LFC operates an online reporting channel, the "Online Shinmungo," to receive diverse opinions from its employees and partner companies on any unfair business handling, unethical matters, or areas that need improvement. We keep the identity of whistleblowers and the contents of their reports strictly confidential and make sure they are not disclosed against the whistleblowers' intentions to ensure that whistleblowers 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, and using other means.

We take all necessary measures, such as disciplinary action, in accordance with related laws as well as Article 13 "Obligation to Guarantee Confidentiality of Public Interest Whistleblowers, etc." of the company's Public Interest Reporting Regulations that 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. There were no ethical management violations reported through the Online Shinmungo in 2022.

**Whistle LFC** | We adopted "Whistle LFC" in 2022 to establish a clean, healthy organizational culture by facilitating company-wide internal reporting. Whistle LFC receives reports on ethical management violations from an anonymous profile in a one-on-one open chatting room of KakaoTalk. This mobile Shinmungo has further strengthened anonymity and increased the speed at which reports are received and handled. We are periodically informing employees of the channel to raise internal employees' awareness of Whistle LFC and to facilitate reporting.

improvements and policies in cooperation with the National Assembly and government ministries, and supporting corporate capacity building. Based on our participation in the pledge, we are eradicating corruption to strengthen corporate competitiveness and actively improving policies and systems related to anti-corruption. In addition, we pledge to manage ethical and compliance risks based on ESG management to enhance transparency in business operations and build trust with stakeholders.

**PARTICIPATION IN ANTI-CORRUPTION PLEDGE** | LFC joined the UN Global Compact (UNGC) in 2020 and participates in the pledge of support for Business Integrity Society (BIS) as part of member company activities. BIS is a global anti-corruption project that was launched based on cooperation between the Korea Association of UNGC and the Korea Sustainability Investing Forum (KoSIF). BIS 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

**FULL ESTABLISHMENT OF ETHICAL MANAGEMENT CULTURE** | To fully establish an ethical culture, we continue to provide ethical management training that is based on the Code of Conduct and Code of Practice of LOTTE Group. In 2022, we resumed the ethics and compliance group training, which was restricted by external circumstances such as COVID-19, to raise employee awareness of compliance and ethical management, and carried out risk prevention activities. In addition, we send a letter of ethical management from the CEO to all suppliers and partner companies twice a year to demonstrate our commitment to ethical management and create a transparent trading culture.

### Reported Matters

#### Reported Matters

- 01 Corrupt behavior, such as embezzlement, dereliction of duty, bribery, improper solicitation, and provision of benefits to a third party
- 02 Accounting fraud, such as violation of internal accounting control regulations
- 03 Human rights violation, such as workplace harassment and sexual harassment
- 04 Illegal or illicit act in relation to the environment, such as environmental infringement
- 05 Unfair handling of business or fair trade violation
- 06 Unfair stake participation in unlisted trading companies
- 07 Dual employment
- 08 Other matters that go against laws, company rules, internal standards, or Code of Conduct

#### Reporting Channels

**Phone**  
+82-2-6974-4524

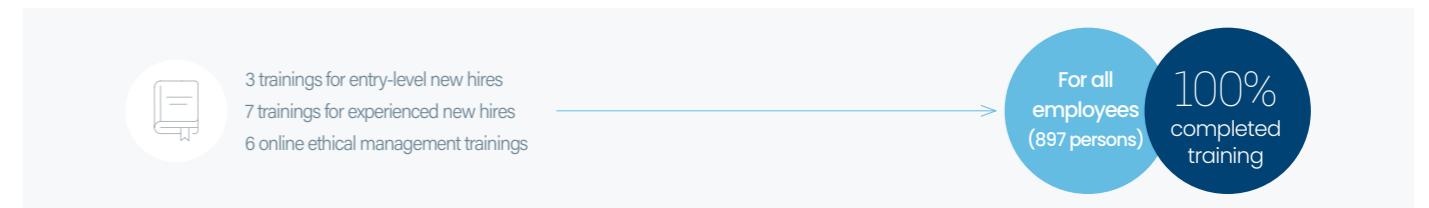
**Email**  
lfcaudit@lotte.net

**Fax**  
+82-52-270-6129

### Report Handling Procedure



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



### Major Ethical Management Training in 2022

Classification	Program	No. of times offered	Content
Prevention of sexual harassment	[Rules for workplace] Training on preventing sexual harassment	2	<ul style="list-style-type: none"> <li>• Meaning of sexual harassment and making judgments</li> <li>• Responding to and preventing sexual harassment</li> </ul>
Improving perception towards the disabled	[Rules for workplace] Improve perception towards the disabled in the workplace	2	<ul style="list-style-type: none"> <li>• Understanding disability</li> <li>• Understanding employment of the disabled and relevant systems</li> </ul>
Prevention of workplace harassment	[Rules for workplace] Prohibit workplace harassment	2	<ul style="list-style-type: none"> <li>• Understanding workplace harassment correctly</li> <li>• Preventing workplace harassment</li> </ul>
Information security	Training on personal information protection (company)	3	<ul style="list-style-type: none"> <li>• What is personal information</li> <li>• Users' personal information</li> <li>• Measures to protect personal information</li> </ul>
Compliance management	Lawyer Soo-ho Son's field lessons: Improper Solicitation And Graft Act	2	<ul style="list-style-type: none"> <li>• Understanding the Improper Solicitation And Graft Act</li> <li>• Preventing improper solicitation</li> </ul>
Ethical management/human rights management	Lawyer Soo-ho Son's field lessons: Human rights management and ethical management	5	<ul style="list-style-type: none"> <li>• Preventing human rights violation</li> <li>• Education that builds character</li> <li>• Ethical management</li> <li>• Addressing power tripping practices in the workplace</li> <li>• Responding to power tripping practices of customers</li> </ul>

# CULTIVATING A CULTURE OF ETHICS AND COMPLIANCE

## Internalizing Compliance Management

### COMPLIANCE MANAGEMENT SYSTEM

**Compliance Management Charter** | Based on the mission, "We enrich people's lives by providing superior products and services", LFC seeks to grow into a company that is loved by citizens and that fulfills social responsibilities, and pledges to comply with the following Compliance Management Charter.

➔ LFC Compliance Charter

**Compliance Management Execution Organization** | To enhance compliance management-related work expertise and to practice a compliance mindset that befits a global company, LFC appointed a Head of the Legal&Compliance Department directly under the CEO who oversees the Compliance Management Team, Ethics Management Team, and Internal Accounting Management Division. The Compliance Officer was appointed 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. They also carry out various activities to raise employee awareness of compliance.

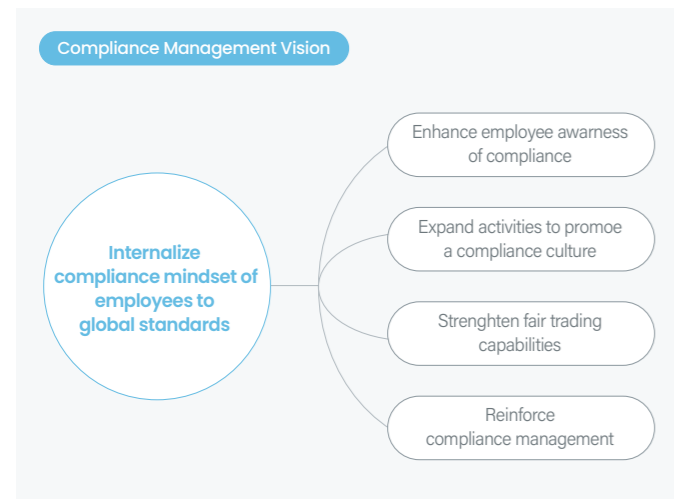
**ENHANCING EMPLOYEES' COMPLIANCE MINDSET** | LFC identifies potential risk factors related to compliance and prevents risks, while operating various systems for internalization of a compliance mindset among all employees and continuously sharing information on the enactment and amendment of relevant laws, including the Monopoly Regulation and Fair Trade Act. The "CEO Compliance Message" was sent out at the company-wide level in April and July 2022 to encourage continued interest in and execution of compliance management among employees. We plan to deliver the CEO compliance message twice a year to enhance employees' compliance mindset.

LFC offers various compliance management training programs, 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 2022, we provided online compliance training to all employees. Trade secret protection training, anti-corruption training, and company-wide compliance management training recorded 100% participation by all employees. In addition, we hold a quiz event based on training content to increase employee participation and level of interest, and to help them remind themselves of compliance even after training.



CEO Compliance Message  
- Regulatory Compliance



### Compliance Training in 2022

Training	Target	Cycle	Content	No. of people who completed training
Fine Company Training	All employees	1 year	Human rights, ethics, and compliance management training, including anti-corruption, fair trade, and information protection	Completed by 100% of employees (897 persons)
Training of new employees	New employees with and without previous career experience	Frequently	Human rights, ethics, and compliance management training, including anti-corruption, fair trade, and information protection	100% (103 persons)
Intensive training by job	Employees in charge of relevant jobs	Frequently	Training on trade secret protection, training on the Fair Transactions in Subcontracting Act, training on the Fair Agency Transactions Act	100% (21 persons)

# CULTIVATING A CULTURE OF ETHICS AND COMPLIANCE

## DISSEMINATING COMPLIANCE MANAGEMENT AMONG PARTNER COMPANIES

As part of our fair trade practice program, we hold compliance work exchange meetings with the CEOs and major executives of partner companies to support them in raising compliance awareness. We also continue various activities to disseminate compliance management, such as conducting inspections of onsite departments dealing with our partner companies. In addition, to ensure that our partners and counterparties comply with the relevant laws and eradicate corruption, we receive a pledge to comply with the Foreign Trade Act and an agreement to practice compliance management. In addition, in our standard contract for subcontracting, we specify that the other party comply with anti-corruption laws in Korea and abroad, including the Improper Solicitation And Graft Act and Act On Combating Bribery of Foreign Public Officials In International Business Transactions in Korea, the U.S. Foreign Corrupt Practices Act, and U.K. Bribery Act. In addition, we include a special compliance clause related to ethics and compliance management, such as operating compliance programs and providing anti-corruption training, to prevent violation of anti-corruption laws during the contract period. In this way, we are raising awareness of practicing compliance management.

We provide compliance training through the “partner company meeting” that is participated in by executives of suppliers and partners. In addition, we provide training with regard to precedents in relation to strengthened monitoring obligations of directors, global trend of demanding supply chain management, the need to establish an ESG evaluation system for the supply chain, code of conduct of partner companies, and fair trade in an effort to fully establish a compliance culture throughout our value chain. In 2022, we enacted the “Code of Conduct of Partner Companies” that states our ESG requests to suppliers and partner companies, including the environment & safety, human rights, and compliance & ethical management, and disclosed it on our website.

 Please refer to the ESG Policy Book on P. 20 of this Report to find more information about the Code of Conduct for Partner Companies

## Establishing a Culture of Fair Trade

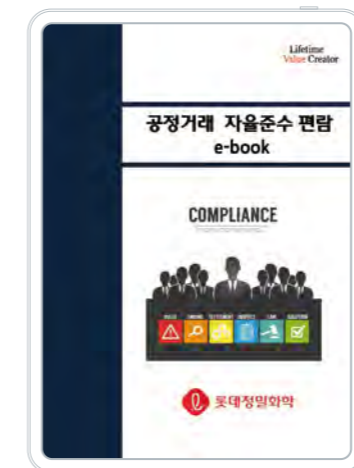
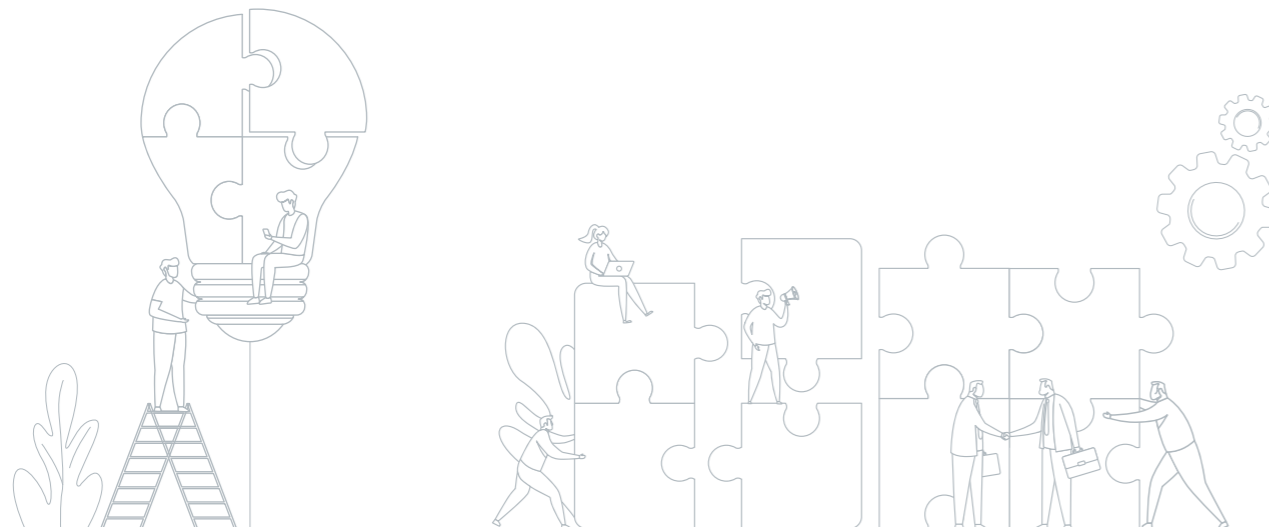
**OPERATING THE COMPLIANCE PROGRAM** LFC adopted the Compliance Program (CP) in 2006 to strengthen voluntary compliance with the fair trade laws, prevent unfair trade conduct, and build a fair trade culture. We systematically operate the CP through collaboration among compliance officers in different 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.

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 and also offer regular training to onsite departments on amendments to the relevant laws. In 2022, we raised training effects by implementing diverse programs, such as a follow-up test and quiz event, along with on/offline training. Moreover, targeting high-risk departments, including the sales and subcontracting-related departments, we examined compliance-related matters and reported the results to top management, thereby raising awareness among the employees in charge and leading them to take the necessary corrective measures in a timely way.

**EVALUATION OF COMPLIANCE RISK AREAS** We chose 10 major compliance-related risks that may arise in the corporate management process, evaluated risk levels in consideration of the possibility of occurrence and impact in case of occurrence, and categorized risks into different areas. Based on this risk analysis data, we planned and are implementing annual compliance activities, including training and monitoring.

**LOTTE GROUP’S COMPLIANCE ASSESSMENT** LOTTE Group conducts a “compliance assessment” to check the overall compliance level of Group affiliates. The compliance assessment consists of the “practice index” that asks whether there was a compliance violation regarding detailed themes of the “Code of Conduct” that should be observed in the process of conducting business and the “foundation index” that takes multilateral measurements of a company’s level of organizational culture preparation, such as determination & strategy, full establishment of a culture, and schemes & systems. As a result of an assessment in 2022, LFC received overall 94 points and was assessed as having a sound level of compliance. Based on assessment results, we will derive improvement measures and take necessary measures to raise our compliance level.

**ENACTMENT OF TRADE SECRET MANAGEMENT REGULATIONS** Trade secret infringement issues are emerging as a social issue, going beyond a matter of corporate survival. Accordingly, legal conflicts are also on the rise. LFC enacted the “Trade Secret Management Regulations” in September 2022 and notified all employees. We also held a quiz event on protecting information, including trade secrets, and raised awareness of trade secret infringements. We also conducted a “trade secret inspection” twice a year so that caution be taken when handling business.



# ESG → FACTBOOK

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# FINANCIAL & NON-FINANCIAL PERFORMANCE SUMMARY

## Financial Performance

### Summarized Financial Statements

Classification	Unit	2020	2021	2022
Current assets	KRW million	516,803	866,863	1,316,299
Cash and cash equivalents	KRW million	9,072	228,813	577,991
Short-term financial instruments	KRW million	7,719	7,657	8,964
Financial assets at fair value through profit or loss	KRW million	142,557	64,480	132,404
Accounts receivable	KRW million	187,429	306,123	293,556
Other current financial assets	KRW million	8,455	2,827	1,162
Other current assets	KRW million	9,118	12,462	15,949
Inventories	KRW million	152,453	244,501	286,273
Non-current assets	KRW million	1,357,786	1,856,591	1,393,547
Long-term financial assets	KRW million	22	20	20
Financial assets at fair value through profit or loss	KRW million	347,994	690,135	136,974
Financial assets at fair value through other comprehensive income	KRW million	10,023	9,221	11,436
Other non-current financial assets	KRW million	754	1,860	1,915
Investment in associates and joint ventures	KRW million	192,778	335,538	331,637
Property, plant and equipment	KRW million	757,431	765,767	798,600
Investment properties, net	KRW million	3,531	3,332	5,069
Right-of-use assets	KRW million	19,089	22,482	22,578
Intangible assets, net	KRW million	22,887	20,382	22,605
Defined benefit asset, net	KRW million	3,260	7,813	33,647
Other non-current assets	KRW million	17	41	30
Deferred tax assets	KRW million	0	0	29,036
<b>Total assets</b>	<b>KRW million</b>	<b>1,874,589</b>	<b>2,723,454</b>	<b>2,709,846</b>
Current liabilities	KRW million	169,703	309,017	397,001
Non-current liabilities	KRW million	55,186	215,807	18,627
<b>Total liabilities</b>	<b>KRW million</b>	<b>224,889</b>	<b>524,824</b>	<b>415,628</b>

Classification	Unit	2020	2021	2022
Equity attributable to owners of the parent	KRW million	1,649,700	2,198,630	2,294,218
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	(20,075)	(20,552)	(18,977)
Retained earnings	KRW million	1,219,068	1,768,475	1,862,488
Non-controlling shareholders' equity	KRW million	0	0	0
<b>Total equity</b>	<b>KRW million</b>	<b>1,649,700</b>	<b>2,198,630</b>	<b>2,294,218</b>
Sales	KRW million	1,263,636	1,780,293	2,463,759
Operating profit	KRW million	139,233	244,514	404,311
Net profit	KRW million	198,792	585,458	146,159
Profit attributable to owners of the parent	KRW million	198,792	585,458	146,159
Non controlling interest	KRW million	0	0	0
Earnings per share	KRW	7,805	22,986	5,738
Number of entities included in consolidation	Company	3	3	3
Operating profit margin	%	11.00	13.7	16.4
Debt ratio	%	13.6	23.9	18.1
ROE <sup>1)</sup>	%	12.7	30.4	6.5
CAPEX	KRW billion	460.3	119.5	143.2
Sales portion by business	%			
Chemical Business	%	72.4	77.5	79.9
Green Material Business	%	27.6	22.5	20.1
Sales by business	KRW billion			
Chemical Business	KRW billion	914.8	1,380.4	1,968.2
Green Material Business	KRW billion	348.8	399.9	495.6
Portion of exports	%			
Domestic sales	%	55	61	61
Exports	%	45	39	39

\* As of 2022 year-end; based on consolidated financial statements

<sup>1)</sup> Made adjustment for the 2021 figure according to the change in ROE formula

# FINANCIAL & NON-FINANCIAL PERFORMANCE SUMMARY

## Financial Performance

### Summarized Financial Statements

Classification	Unit	2020	2021	2022	
Countries to which green material products are exported	Country	78	83	83	
Portion of export by region	Asia	%	29.7	30.8	33.9
	Europe	%	12.8	14.5	10.1
	China	%	11.6	9.1	6.3
	North & Central America	%	15.4	14.2	24.8
	Latin America	%	7.5	5.6	6.1
	Middle East & Africa	%	7.5	13.1	10.1
	Japan	%	12.3	9.9	6.8
	CIS	%	3.2	2.8	1.9
Number of shares issued	Share	25,800,000	25,800,000	25,800,000	
Net profits	KRW billion	198.8	585.5	146.2	
Capital ratio	%	88.0	80.7	84.7	
Global market share of green materials business	%	10.1	10.8	9.8	
R&D investment	KRW billion	12.0	13.2	14.6	
Export portion of Green Materials Business Division	%	95	95	94	
Fixed income securities	KRW billion	0	0	0	
Research project support fund <sup>1)</sup>	KRW million	-	-	912	

### Distribution of Economic Value

Classification	Unit	2020	2021	2022	
Shareholders	Dividend	KRW million	38,205	58,581	89,145
	Interest expense	KRW million	965	331	531
	Sub total		39,170	58,912	89,676
Employees	Salaries & bonus	KRW million	92,064	101,106	107,588
	Employee benefits	KRW million	19,350	18,419	19,885
	Severance benefits	KRW million	8,339	8,248	7,367
	Training expenses	KRW million	704	699	990
	Sub total		120,457	128,472	135,830
Government & public institutions	Corporate tax and other taxes	KRW million	51,225	86,757	145,861
	Sub total		51,225	86,757	145,861
Local communities	Expenditures in social contributions	KRW million	2,138	1,764	5,045
	Membership fee	KRW million	142	259	301
	Sub total		2,280	2,023	5,346
Business partners	Facility investment	KRW million	170,173	117,719	142,025
	Subcontracting costs	KRW million	22,732	25,606	28,396
	Purchasing costs	KRW million	282,581	392,885	470,385
	Advertising expense	KRW million	3,605	3,491	4,160
	Sub total		479,091	539,701	644,966
<b>Total</b>		<b>692,223</b>	<b>815,865</b>	<b>1,021,679</b>	

\* As of 2022 year-end; based on consolidated financial statements

<sup>1)</sup> Began to collect data in 2022



# FINANCIAL & NON-FINANCIAL PERFORMANCE SUMMARY

## Non-Financial Performance

### Environmental Performance

Classification	Content	Unit	2020	2021	2022
Product	Production volume	Ton	2,485,371	2,671,990	2,436,933
	Total energy consumption <sup>1)</sup>	TJ	14,495	15,975 <sup>2)</sup>	15,005
Energy	Direct energy consumption	TJ	251	375	349
	Indirect energy consumption	TJ	14,246	15,603	14,657
	Energy consumption intensity	TJ/Product-Ton	0.0058	0.0060	0.0060
	Reduction by executing tasks to reduce energy consumption	TJ	96	73	131
	Steam (Energy sales)	TJ	7	8	9
	Total water consumption <sup>4)</sup>	Ton	12,127,987	13,139,276	12,790,124
	Water consumption intensity	Ton/Product-Ton	4.9	4.9	5.2
Water <sup>3)</sup>	Water recycle <sup>5)</sup>	Ton	951,158	1,374,451	1,413,283
	Water reuse <sup>6)</sup>	Ton	158,843,000	164,152,000	158,497,000
	Water reuse rate <sup>7)</sup>	%	92.9	92.6	92.6
Water intake by source <sup>3)</sup>	Stream water	Ton	12,127,987	13,139,276	12,790,124
Wastewater <sup>3)</sup>	Total weight of wastewater <sup>8)</sup>	Ton	9,326,543	10,297,405	9,785,326
	Wastewater discharge intensity	Ton/Product-Ton	3.8	3.9	4.0
Other air pollutants	NOx emissions	kg	9,061	11,546	11,575
	Actual emission concentration of NOx	ppm	8	0	0
	Legal limit of NOx emissions	ppm	60	60	60
	SOx emissions	kg	1,430	1,927	1,954
	Actual emission concentration of SOx	ppm	8	0	0
	Legal limit of SOx emissions	ppm	70	70	70
	Dust emissions	kg	8,771	9,383	6,146
	Actual emission concentration of dust	ppm	3	4	4
	Legal limit of dust emissions	ppm	15	15	15

<sup>1)</sup> Total consumption is a numerical value based on the report, with a rounding difference

<sup>2)</sup> The figures for 2021 have been revised based on the Report on GHG Emissions and Energy Consumption. The figures for 2022 are based on the third-party verification and the content of the report, but the final figures are subject to change.

<sup>3)</sup> Based on domestic workplaces

<sup>4)</sup> The figures for 2020 and 2021 have been revised due to changes in the data calculation

Classification	Content	Unit	2020	2021	2022	
Greenhouse Gas (GHG)	Total emissions <sup>9)</sup>	tCO <sub>2</sub> eq	627,987	687,673	643,201	
	Direct emissions (Scope 1)	tCO <sub>2</sub> eq	57,505	65,017	60,533	
	Indirect emissions (Scope 2)	tCO <sub>2</sub> eq	570,483	622,658	582,670	
	Reduction of GHG emissions	tCO <sub>2</sub> eq	2,754	1,887	5,445	
	GHG emissions intensity	tCO <sub>2</sub> eq/Product-Ton	0.253	0.257	0.264	
	Indirect emissions (Scope 3) <sup>10)</sup>	tCO <sub>2</sub> eq	-	813,422	796,309	
	Upstream	Purchased goods and services	tCO <sub>2</sub> eq	-	566,237	550,366
		Capital goods	tCO <sub>2</sub> eq	-	2,081	3,096
		Fuel- and energy-related activities	tCO <sub>2</sub> eq	-	48,094	49,425
		Upstream transportation and distribution	tCO <sub>2</sub> eq	-	49,438	43,878
		Waste generated in operations	tCO <sub>2</sub> eq	-	10,793	11,680
		Business travel <sup>11)</sup>	tCO <sub>2</sub> eq	-	207	373
	Downstream	Employee commuting <sup>11)</sup>	tCO <sub>2</sub> eq	-	843	849
Upstream leased assets <sup>12)</sup>		tCO <sub>2</sub> eq	-	171	177	
Downstream transportation and distribution		tCO <sub>2</sub> eq	-	9,164	9,779	
Processing of sold products <sup>13)</sup>		tCO <sub>2</sub> eq	-	1,836	1,488	
Downstream leased assets		tCO <sub>2</sub> eq	-	200	201	
Investments	tCO <sub>2</sub> eq	-	124,357	124,997		

<sup>5)</sup> Reused after physical/chemical treatment

<sup>6)</sup> Water is reused for the same purpose

<sup>7)</sup> The calculation formula for the reuse rate: (Recycled amount + reused amount total)/(Recycled amount + reused amount + used amount)

<sup>8)</sup> Revised due to changes in the data calculation

<sup>9)</sup> There is no new & renewable energy usage amount. Total emissions amount is a numerical value based on the report, with a rounding difference. The calculation criterion is the guidelines on emission reporting and certification under the GHG emissions trading system.

<sup>10)</sup> This is the sum of the values calculated for 12 categories from among the 15 categories of Scope 3. Third-party verification was completed for five categories (Purchased goods and services, Fuel- and energy-related activities, Upstream transportation and distribution, Waste generated in operations, Upstream leased assets)

<sup>11)</sup> Country where HQ is located

<sup>12)</sup> Includes overseas assets

<sup>13)</sup> Calculated only for B2C products

# FINANCIAL & NON-FINANCIAL PERFORMANCE SUMMARY

## Non-Financial Performance

### Environmental Performance

Classification	Content	Unit	2020	2021	2022	
Water pollutants	COD/TOC discharge <sup>1)</sup>	kg	332,845	335,265	254,261	
	COD/TOC discharge intensity <sup>1)</sup>	Kg/Product-Ton	0.134	0.125	0.104	
	Actual discharge concentration of COD/TOC <sup>1)</sup>	ppm	35.57	32.60	26.00	
	Legal limit of COD/TOC discharge <sup>1)</sup>	ppm	90 (Linked treatment) 40 (Direct discharge)	90 (Linked treatment) 40 (Direct discharge)	50 (Linked treatment) 25 (Direct discharge)	
	BOD discharge	kg	39,645	66,093	26,049	
	BOD discharge intensity	Kg/Product-Ton	0.016	0.025	0.011	
	Actual discharge concentration of BOD	ppm	4.0	6.4	2.7	
	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	153,671	178,890	91,406	
	SS discharge intensity	Kg/Product-Ton	0.062	0.067	0.038	
	Actual discharge concentration of SS	ppm	16.43	17.4	9.3	
	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	75,019	82,919	91,305
		Waste discharge intensity	Ton/Product-Ton	0.030	0.031	0.037
General waste		Ton	74,478	82,268	90,664	
Specified waste		Ton	541	652	642	
Incineration		Ton	2,422	920	1,615	
Landfill		Ton	5,284	4,829	6,440	
Others		Ton	7	260	158	
Recycling		Ton	67,307	76,910	83,093	
Recycling rate		%	90	93	91	

Classification	Content	Unit	2020	2021	2022
Hazardous chemicals	Discharge of hazardous chemicals	Ton	62	63	62
	Total	KRW million	20,784	12,554	6,277
Environmental investment	Noise	KRW million	-	-	-
	Chemical substance	KRW million	3,084	2,500	2,375
	Energy	KRW million	187	-	-
	Water quality	KRW million	1,445	499	1,347
	Air quality (including odor)	KRW million	16,068	9,543	2,375
	Occupational accident prevention	KRW million	0	11	0
	Green procurement	Amount of green procurement	KRW million	892	8,190
Environmental education	Percentage of employees having received environmental education	%	100	100	100
Environmental law violations <sup>2)</sup>		Case	1	0	2

<sup>1)</sup> Changed the method to calculate TOC in 2022

<sup>2)</sup> Violation of the Chemical Substances Control Act ("administrative warning") in 2020; and two violations of the Malodor Prevention Act ("administrative order") in 2022

# FINANCIAL & NON-FINANCIAL PERFORMANCE SUMMARY

## Non-Financial Performance

### Social Performance

Classification	Content	Unit	2020	2021	2022	
Employees	Total number of employees <sup>1)</sup>	Person	892	903	943	
	By gender	Male	Person	777	786	814
		Female	Person	115	117	129
	By employment type	Full-time	Person	841	842	908
		Part-time	Person	51	61	35
	By age	20s	Person	111	112	147
		30s	Person	354	347	322
		40s	Person	254	245	254
		Over 50	Person	173	199	220
	By position	Executives and above	Person	13	14	16
		Managers and above	Person	253	259	268
		Senior assistants and below	Person	626	630	659

### 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 <sup>2)</sup>	All day	Short-time working	Leave of absence
943	Ulsan	Person	722	666	56	698	0	24	704	9	9
	Seoul	Person	192	124	68	183	1	8	185	0	7
	Incheon	Person	29	24	5	27	0	2	29	0	0

\* As of 2022 year-end

### New Hires & Employee Turnover

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	78	67	11	65	12	1
	Seoul	Person	20	9	11	15	5	0
	Incheon	Person	5	1	4	5	0	0
Employee turnover	Ulsan	Person	22	20	2	16	6	0
	Seoul	Person	14	8	6	6	8	0
	Incheon	Person	7	3	4	3	4	0

\* As of 2022 year-end

<sup>1)</sup> Including all employees at domestic workplaces, contract workers (excluding expatriates), employees on leave of absence, and advisors/counselors

<sup>2)</sup> Including short-time working workers

# FINANCIAL & NON-FINANCIAL PERFORMANCE SUMMARY

## Non-Financial Performance

### Social Performance

Classification	Content	Unit	2020	2021	2022	
Employment	New employee hires	No. of newly hired employees Person	47	36	103	
	Employee turnover <sup>1)</sup>	Employee turnover rate <sup>2)</sup> %	0.4	1.6	4.5	
	Childcare leave	No. of employees eligible for childcare leave (Male)	Person	26	33	15
		No. of employees eligible for childcare leave (Female)	Person	12	5	21
		No. of employees on childcare leave (Male)	Person	22	26	7
		No. of employees on childcare leave (Female)	Person	12	5	21
		Childcare leave rate (Male)	%	85	79	47
		Childcare leave rate (Female)	%	100	100	100
		Return-to-work rate (Male)	%	100	100	100
	Return-to-work rate (Female)	Person	100	100	100	
	Retention rate after childcare leave (Male) <sup>3)</sup>	Person	100	100	100	
	Retention rate after childcare leave (Female) <sup>3)</sup>	Person	100	100	100	
	Occupational accident (LFC)	No. of occupational accidents	Case	1	1	6
Occupational accident rate		%	0.1	0.1	0.6	
Loss time		Hour	2,400	3,648	4,896	
Loss time injury frequency rate (LTIR)		-	0.15	0.15	0.44	
Occupational accident (Suppliers)	No. of occupational accidents	Case	8	2	4	
	Occupational accident rate	%	1.5	0.3	0.6	
	Loss time	Hour	8,500	1,344	2,304	
Employee education/training	Loss time injury frequency rate (LTIR) <sup>4)</sup>	-	1.63	0.47	0.44	
	Total hours of employee education/training	Hour	25,566	24,299	37,294	
	Hours of education/training per person	Hour	31	29	41	
Length of service	Expenditures in education/training per person	KRW 10,000	86	83	108	
	Average length of continuous service	Year	15.5	15.9	15.7	
	Average length of continuous service (Male)	Year	16.7	17.1	17.0	
	Average length of continuous service (Female)	Year	7.8	8.1	8.0	

Classification	Content	Unit	2020	2021	2022
Wages and benefits	Same wage	Average wages for workers (women's wages as a percentage of men's wages) <sup>5)</sup> %	100	100	100
	Employee benefits	Percentage of welfare cost to sales %	1.5	1.0	0.8
	Retirement pension subscription rate	Subscription rate No. of subscribers Person	95.0	95.0	96.8
Diversity		No. of female leaders (Managers and above) Person	36	36	41
	Female	Proportion of female employees among full-time workers %	10.9	10.2	12.7
		Proportion of female employees among contract workers %	45.1	50.8	50.0
	Minority groups	Persons with disabilities Person	26	28	31
		Recipients of patriots & veterans benefits Person	43	45	44
		Foreigners Person	1	1	1
Human rights	Human rights training <sup>6)</sup>	Hours of human rights training Hour	-	-	1
		Percentage of employees having received human rights training %	-	-	100
Ethical management	Internal reporting channel	No. of reporting received Case	12	32	9
		No. of reporting handled Case	12	32	9

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

<sup>2)</sup> Excluding employees who are transferred to the Group companies/affiliates or employees who have left the company for childcare

<sup>3)</sup> Based on those who have worked for the company for more than 12 months after returning to work from parental leave

<sup>4)</sup> Workers who are not employees as defined in LTIR are in-house partner company workers. Combining workers at the Ulsan Complex and Incheon Plant totals 629 persons.

<sup>5)</sup> There is no difference in the same job group.

<sup>6)</sup> Began human rights education in 2022

# FINANCIAL & NON-FINANCIAL PERFORMANCE SUMMARY

## Non-Financial Performance

### Social Performance

Classification	Content	Unit	2020	2021	2022	
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	1	0	1
		No. of disciplinary actions or dismissals due to corruption	Case	1	0	1
		No. of contracts terminated, or not renewed due to corruption	Case	0	0	1
	No. of lawsuit against the company or its employees	Case	0	0	0	
Safety & health <sup>1)</sup>	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	7.6	14.7
	Deficiencies in safety & health	No. of cases identified	Case	4,048	2,189	1,132
		No. of cases improved	Case	3,393	2,077	938
		Percentage of improvement	%	83.8	94.9	82.9
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
Customer satisfaction	Complaints	Receiving and handling of VOCs	Case	705	636	740
		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	864	873	897
		No. of trainees (staff in charge of handling personal information)	Person	86	82	63
PSM rating	Ulsan Complex	Rating	S	S	P	
	Incheon Plant	Rating	S	S	S	

Classification	Content	Unit	2020	2021	2022	
Labor union	Labor union	No. of labor union members	Person	432	440	437
		No. of employees eligible for union membership	Person	536	559	603
		Percentage of union members compared to employees eligible for union membership	%	80	79	73
		No. of full-time union members	Person	3	3	3
		Collective agreement application rate	%	100.0	100.0	100.0
Social contributions	Social contributions	Employee participation rate in social contributions	%	38.5	44.0	51.3
		Employee volunteer hours per person	Hour	3.5	2.8	3.3
		Investment in social welfare	KRW million	353	549	1,084
		Investment in education and scholarship	KRW million	10	20	53
		Investment in culture and environment	KRW million	69	80	908
Supply chain management	Partner company purchase <sup>2)</sup>	Others	KRW million	1,706	1,115	3,000
		Amount of purchase	KRW billion	282.6	392.9	470.4
		Chemical business	%	57	55	54
		Green materials business	%	27	33	32
		Others	%	3	2	2
		Packaging supplies	%	6	6	5
		Utility	%	2	2	2
Chemicals	%	5	2	5		

<sup>1)</sup> Occupational Health & Safety Management System applied to all employees

<sup>2)</sup> Percentage of purchase form partner companies in 2022: Domestic (45%), Overseas (55%)

# GLOBAL INITIATIVES

## GRI STANDARD INDEX

Universal Standards_GRI 2 (General Disclosures)				
GRI STANDARD	Disclosure		Page	
	No.	Title		
The organization and its reporting practices	2-1	Organizational details	4	
	2-2	Entities included in the organization's sustainability reporting	83	
	2-3	Reporting period, frequency and contact point	83	
	2-4	Restatements of information	67-73	
	2-5	External assurance	78-79	
Activities and workers	2-6	Activities, value chain and other business relationships	5-8, 44-45	
	2-7	Employees	71-72	
	2-8	Workers who are not employees	71-72	
GRI 2: General Disclosures 2021	2-9	Governance structure and composition	57-59	
	2-10	Nomination and selection of the highest governance body	58-59	
	2-11	Chair of the highest governance body	58-59	
	2-12	Role of the highest governance body in overseeing the management of impacts	58-59	
	2-13	Delegation of responsibility for managing impacts	58-59	
	2-14	Role of the highest governance body in sustainability reporting	58-59	
	2-15	Conflicts of interest	58-59	
	Governance	2-16	Communication of critical concerns	58-59
		2-17	Collective knowledge of the highest governance body	58-59
		2-18	Evaluation of the performance of the highest governance body	59
		2-19	Remuneration policies	36, 59
		2-20	Process to determine remuneration	36, 59
Strategy, policies and practices	2-21	Annual total compensation ratio	"Refer to Business Report 8. Matters on Executives and Employees (LFC Business Report)"	
	2-22	Statement on sustainable development strategy	3	
	2-23	Policy commitments	26-27, 28, 30, 33, 60-61, 64	
	2-24	Embedding policy commitments	3, 20, 64	
	2-25	Processes to remediate negative impacts	13, 16	
	2-26	Mechanisms for seeking advice and raising concerns	63	

Universal Standards_GRI 3 (Material Topics)				
GRI STANDARD	Disclosure		Page	
	No.	Title		
GRI 3: Material Topics 2021	2-27	Compliance with laws and regulations	64-65	
	2-28	Membership associations	82	
	Stakeholder engagement	2-29	Approach to stakeholder engagement	14-16
		2-30	Collective bargaining agreements	73
	Disclosures on material topics	3-1	Process to determine material topics	14-16
		3-2	List of material topics	14-16
3-3		Management of material topics	28, 29-30, 33-34, 39-43, 62-65	

Topic-specific Standards_Economic Performance (GRI 200)			
GRI STANDARD	Disclosure		Page
	No.	Title	
GRI 201: Economic Performance 2016	201-1	Direct economic value generated and distributed	68
	201-4	Financial assistance received from government	68
GRI 204: Procurement Practices 2016	204-1	Proportion of spending on local suppliers	73
GRI 205: Anti-corruption 2016	205-2	Communication and training about anti-corruption policies and procedures	64-65
	205-3	Confirmed incidents of corruption and actions taken	72
GRI 206: Anti-competitive Behavior 2016	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	No violation in 2022
GRI 207: Tax 2019	207-1	Approach to tax	61
	207-2	Tax governance, control, and risk management	61
	207-3	Stakeholder engagement and management of concerns related to tax	61

# GLOBAL INITIATIVES

## GRI STANDARD INDEX

Topic-specific Standards_Environmental Performance (GRI 300)				
GRI STANDARD	Disclosure	No. Title		Page
GRI 302: Energy 2016	Energy	302-1	Energy consumption within the organization	69
		302-2	Energy consumption outside of the organization	69
		302-3	Energy intensity	69
		302-4	Reduction of energy consumption	28
GRI 303: Water and Effluents 2018	Water and Effluents	303-1	Interactions with water as a shared resource	30
		303-3	Water withdrawal	69
		303-4	Water discharge	69
		303-5	Water consumption	69
GRI 305: Emissions 2016	Emissions	305-1	Direct (Scope 1) GHG emissions	28
		305-2	Energy indirect (Scope 2) GHG emissions	28
		305-3	Other indirect (Scope 3) GHG emissions	69
		305-4	GHG emissions intensity	69
		305-5	Reduction of GHG emissions	69
GRI 306: Waste 2020	Waste	305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	69
		306-1	Waste generation and significant waste-related impacts	30
		306-2	Management of significant waste-related impacts	30
		306-3	Waste generated	30
		306-4	Waste diverted from disposal	30
306-5	Waste directed to disposal	70		

Topic-specific Standards_Social Performance (GRI 400)				
GRI STANDARD	Disclosure	No. Title		Page
GRI 401: Employment 2016	Employment	401-1	New employee hires and employee turnover	71
		401-3	Parental leave	72
GRI 402: Labor/Management Relations 2016	Labor/Management Relations	402-1	Minimum notice periods regarding operational changes	At least 30 days in advance

Topic-specific Standards_Social Performance (GRI 400)				
GRI STANDARD	Disclosure	No. Title		Page
GRI 403: Occupational Health and Safety 2018	Occupational Health and Safety	403-1	Occupational health and safety management system	39-40
		403-2	Hazard identification, risk assessment, and incident investigation	39-42
		403-3	Occupational health services	39-43
		403-4	Worker participation, consultation, and communication on occupational health and safety	39-40
		403-5	Worker training on occupational health and safety	42-43
		403-6	Promotion of worker health	43
		403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	43
		403-8	Workers covered by an occupational health and safety management system	73
		403-9	Work-related injuries	72
GRI 404: Training and Education 2016	Training and Education	404-1	Average hours of training per year per employee	35-36, 72
GRI 405: Diversity and Equal Opportunity 2016	Diversity and Equal Opportunity	404-2	Programs for upgrading employee skills and transition assistance programs	35-38
GRI 405: Diversity and Equal Opportunity 2016	Diversity and Equal Opportunity	405-1	Diversity of governance bodies and employees	71-72
		405-2	Ratio of basic salary and remuneration of women to men	72
GRI 406: Non-discrimination 2016	Non-discrimination	406-1	Incidents of discrimination and corrective actions taken	33-34
GRI 411: Rights of Indigenous People 2016	Rights of Indigenous People	411-1	Incidents of violations involving rights of indigenous peoples	No incidents of violation
GRI 413: Local Communities 2016	Local Communities	413-1	Operations with local community engagement, impact assessments, and development programs	51-54
		413-2	Operations with significant actual and potential negative impacts on local communities	No such site
GRI 415: Public Policy 2016	Public Policy	415-1	Political contributions	No political contributions
GRI 416: Customer Health and Safety 2016	Customer Health and Safety	416-1	Assessment of the health and safety impacts of product and service categories	73
		416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	73
GRI 417: Marketing and Labeling 2016	Marketing and Labeling	417-1	Requirements for product and service information and labeling	29
		417-2	Incidents of non-compliance concerning product and service information and labeling	No violation related to product offering
		417-3	Incidents of non-compliance concerning marketing communications	73
GRI 418: Customer Privacy 2016	Customer Privacy	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	50

# GLOBAL INITIATIVES

## UN GLOBAL COMPACT

UN calls for precipitating in supporting The Ten Principles of the UN Global Compact (UNGC), composed of Human Rights, Labour, Environment, and Anti-Corruption; as well as 17 Sustainable Development Goals to solve the economic, environmental, and social problems facing humanity. LFC joined the UNGC in December 2020, has been making continuous efforts to comply with the Ten Principles, and discloses its performance. As a global corporate citizen, LFC also aims to contribute to the achievement of the UN SDGs through its business operations.



### UN GLOBAL COMPACT – TEN PRINCIPLES

Principles	Page
Human Rights	P.20, 33-34, 72
Labour	P.33-34, 37-38, 73
Environment	P.26-30, 69-70
Anti-Corruption	P.62-65, 72



# 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 2022 (the report) against “the guidelines on emission reporting and certification under the GHG emissions trading system” and the monitoring plan for the calendar year 2022 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 2022.

## 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, we believe that the report is prepared in accordance with “the guidelines on emission reporting and certification under the GHG emissions trading system” and the monitoring plan for the calendar year 2022 using “the verification guidelines for GHG emissions trading system” and the GHG emissions data in the Table 1 is materially correct.

Dated: 31 March 2023



### Il-Hyoung Lee

LRQA

2nd Floor, T Tower, 30, Sowol-ro 2-gil, Jung-gu, Seoul, Republic of Korea

LRQA Reference: SEO6019655

## Table 1. Summary of GHG emissions

		(Unit: tCO <sub>2</sub> eq)
Scope of GHG emissions		Year 2022
Direct GHG Emissions		60,532.927
Energy Indirect GHG Emissions		582,670.213
<b>Total GHG Emissions</b>		<b>643,201</b>

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# GHG VERIFICATION STATEMENT



## Verification Statement on 2022 Scope3 Greenhouse Gas Emission Report

### Verification Target

Korean Foundation for Quality (hereinafter 'KFQ') has conducted a verification of Scope3 Greenhouse Gas Emissions (hereinafter 'GHG Inventory') of LOTTE Fine Chemical Co., Ltd. for 2022.

### Verification Scope

The verification Scope covered the emission categories selected by the company and the emissions between January 1st, 2022 to December 31st, 2022.

### Verification Criteria

"WBCSD/WRI, Corporate Value Chain (Scope 3) Accounting and Reporting Standard", "Guidelines for Preparation of Environmental Performance Statements (MOE Notification 2021-65)", and "ISO14064-3".

In addition, the following criteria and coefficients used by the company were applied.

- **Emission Factor**
  - 2006 IPCC Guidelines for National Greenhouse Gas Inventories
  - Korea LCI database 2021
  - Ecoinvent database (Ver 3.6)

### Level of Assurance

The verification was performed in accordance with the procedures specified in ISO 14064-3 and the assurance level of the verification was performed to satisfy the limited assurance level.

### Verification Limitation

This verification is not intended to verify the validity of the calculation criteria set by the company itself. Assurance results contain inherent limits of uncertainty inherent in the company's own calculation standards. Depending on our own calculation standards, significant differences may occur in the emission calculation results, which may affect comparability.

### Verification Opinions

Through the verification process according to the 'ISO 14064-3:2006' KFQ could obtain reasonable basis to express following conclusion on the Greenhouse Gas Emission Report.

- 1) Scope 3 emissions for 2022 of LOTTE Fine Chemical Co., Ltd. were properly calculated according to the verification standards.
- 2) For Scope 3 emissions, no material errors or omissions were found, except for emissions information not considered within the selected category range.
- 3) The criteria and process established or estimated/assumed by the company to calculate emissions were transparently reflected in the internal calculation process.

June 13th, 2023

CEO Ji-Young Song  
Korean Foundation for Quality

### Appendix A. Summary of Scope3 GHG Emission Results

Organization  
LOTTE Fine Chemical Co., Ltd.

Emission calculation period  
The emission calculation period is from January 1st to December 31st, 2022.

		(Unit: tCO <sub>2</sub> eq)
	Category	Scope 3 Emissions
1	Purchased goods & services	550,366
3	Fuel- and Energy-Related Activities Not Included in Scope1 or Scope2	49,425
4	Upstream Transportation and Distribution	43,878
5	Waste Generated in Operations	11,680
15	Investments	124,997
<b>Total</b>		<b>780,346</b>

# INDEPENDENT ASSURANCE STATEMENT

Dear Stakeholders of LOTTE FINE CHEMICAL,

Korean Foundation for Quality (further 'KFQ') has been requested by LOTTE FINE CHEMICAL to conduct an independent assurance on the 2022 Sustainability Report for LOTTE FINE CHEMICAL (further the 'Report'). KFQ has 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

- **Verification Criteria:** AA1000AS(v3) and AA1000AP (2018)
  - **Verification Type:** Type 2 [Verification of compliance of 4 reporting principles and Reliability of Data Collection Method]
  - **Verification Level:** Moderate [Verification based on limited evidence collected]
  - **Verification Scope:** Compliance with the 4 reporting principles according to AA1000AP and the GRI Standards 2021 reporting requirements
    - GRI Standards (2021) Reporting Principles
    - Universal Standards
- Reporting in accordance with GRI Standards (2021), compliance with the following requirements

Requirements	Compliance	Page
1. Reporting principles	○	-
2. General Disclosures	○	74
3. Determine material topics	○	14-16
4. Report the disclosures in GRI 3: Material Topics 2021	○	74
5. Report disclosures from the GRI Topic Standards for each material topic	○	74-75
6. Provide reasons for omission	○	All requirements reflected
7. Publish a GRI content index	○	74-75
8. Provide a statement of use	○	84
9. Notify GRI	○	Completed

- Topic Standards

Requirements	GRI Standards/Topic Disclosure
Reporting material issues according to the GRI Topic Standards	GRI 201: Economic Performance 201-1, 201-4
	GRI 204: Procurement Practices 204-1
	GRI 205: Anti-Corruption 205-2, 205-3
	GRI 206: Anti-Competitive Behavior 206-1
	GRI 207: Tax 207-1 ~ 207-3
	GRI 302: Energy 302-1 ~ 302-4
	GRI 303: Water and Effluents 303-1, 303-3, 303-4, 303-5
	GRI 305: Emissions 305-1 ~ 305-5, 305-7
	GRI 306: Effluents and Waste 306-1 ~ 306-5
	GRI 401: Employment 401-1, 401-3
	GRI 402: Labor/Management Relations 402-1
	GRI 403: Occupational Health and Safety 403-1 ~ 403-9
	GRI 404: Training and Education 404-1, 404-2
	GRI 405: Diversity and Equal Opportunity 405-1, 405-2
	GRI 406: Non-Discrimination 406-1
	GRI 411: Right of Indigenous People 411-1
	GRI 413: Local Communities 413-1, 413-2
	GRI 415: Public Policy 415-1
GRI 416: Customer Health and Safety 416-1, 416-2	
GRI 417: Marketing and Labeling 417-1 ~ 417-3	
GRI 418: Customer Privacy 418-1	

## Methodology

In order to assess the reliability of the sustainability performance in the Report against above mentioned criteria, the assessment team reviewed sustainability-related processes, systems, internal control procedures, and available performance data. The documentation the assessment team reviewed during the verification includes:

- **Non-financial information e.g.,** data provided to us by LOTTE FINE CHEMICAL, 2021 LOTTE FINE CHEMICAL Sustainability Report, and information obtained from media and/or the internet; and
- **Financial information i.e.,** Data disclosed in the electronic disclosure system (dart.fss.or.kr) of the Financial Supervisory Service and data posted on the homepage were used, but these contents are not included in the scope of verification.

The assessment was performed by document review and interview with the person in charge during site visit. The validity of the materiality assessment process, selected major issues, data collecting and management, and report preparation and contents in the Report were assessed through interview with the person in charge, but external stakeholder interviews were not conducted. Afterwards, it was confirmed that some errors, inappropriate information, and unclear expressions found in the above steps were appropriately supplemented before publishing the report.

# INDEPENDENT ASSURANCE STATEMENT

## 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 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, the assurance team assessed the information and evidence provided by LOTTE FINE CHEMICAL. The assurance team did not perform any further assessment procedures on raw data.

## Findings and Conclusions

As a result of the verification, the Report was prepared in accordance with the requirements for 'in accordance with GRI standard 2021' and the assessment team found reasonable objectives to guarantee the AA1000AS(V3) Type 2 assurance level. The assurance team also found no significant errors or inadequacies in the report regarding compliance with reporting principles.

## Inclusivity

LOTTE FINE CHEMICAL is gathering opinions from various stakeholders including customers, shareholders and investors, partner companies, 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 the assurance team's attention to suggest that the mail stakeholders are not stated in the Report.

## Materiality

LOTTE FINE CHEMICAL identifies important issues by prioritizing them after conducting a criticality assessment of related issues according to social (stakeholder) interest and business impact. the assurance team confirmed that the issues identified through the criticality assessment process were disclosed in the report without omission.

## Responsiveness

LOTTE FINE CHEMICAL consistently engages with stakeholders to respond to the needs and key concerns gathered from stakeholders. Nothing came to the assurance team's attention to suggest that its responses and performances are inappropriately described in the Report.

## Impact

We found that LOTTE FINE CHEMICAL is identifying and monitoring impacts relating to stakeholders and reporting them to the extent possible. Nothing came to the assurance team's 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

The assurance team assessed the reliability of specified environmental and social performance data related to sustainability. The team conducted an interview with managers responsible for the Report preparation, where the team 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 the team's 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.

- KFQ hopes that the opinions of external stakeholders (communities, customers, partners, etc.) will be added to the selection of critical issues when conducting the next materiality assessment.
- KFQ hopes that LOTTE FINE CHEMICAL's ESG management will continue to be internalized through continuous performance evaluation and improvement activities for presenting practical codes of conduct for the promotion of ESG management in 2022 and disclosing the results of practical activities for the operation of the enterprise-wide cooperation system.



July 2023  
Seoul, Korea  
**Ji Young Song, CEO**  
Korean Foundation for Quality (KFQ)

# PRODUCT LIST

## Chemicals (Chlorine & Ammonia Derivatives)

Category	Product Name	Abbreviation	Chemical Formula	CAS No.	Characteristic / Purity	Packing	Application	Others
Chlorine Derivatives	Sodium Hydroxide	-	NaOH	1310-73-2	Liquid, 25%, 50% ap. solution	Tank lorry, bulk vessel, pipe	Secondary battery cathode materials, surfactant	-
	Sodium Hypochlorite	HYPO	NaOCl	7681-52-9	Colorless or slightly yellow liquid, 12% ap. solution	Tank lorry	Bleaching agent, disinfectant	Domestic only
	Hydrogen	-	H2	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)	CH3Cl	74-87-3	Colorless, liquefied gas, 99.9% min.	940kg cylinder	Agrochemicals, organic synthesis, quaternary ammonium salt	-
	Methylene Chloride	MCL	CH2Cl2	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	CHCl3	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	CH2Cl2+a	75-09-2	Colorless, clear, volatile liquid	250kg steel drum, tank lorry	Cleaning agents, foaming agents, drying agents	-
	Epichlorohydrin	ECH	C3H5OCl	106-89-8	Colorless liquid, 99.9% min.	240kg steel drum, ISO-tank, tank lorry, bulk vessel	Epoxy resin, water treatment chemicals	EU REACH registered
S-Quata® (3-chloro-2-hydroxy PropylTrimethyl Ammonium Chloride)	PTAC	C6H15Cl2NO	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	
Ammonia Derivatives	Monomethylamine	MMA	CH3NH2	74-89-5	Colorless liquid, 40% ap. solution	170kg steel drum, 20MT ISO-tank, tank lorry	Pharmaceuticals, alkylalkanolamines (MDEA), soil fumigant, pesticide	-
	Dimethylamine	DMA	(CH3)2NH	124-40-3	Colorless, 50%, 60% ap. solution, 99.8% gas	160kg steel drum, 19MT ISO-tank, tank lorry, high-pressure ISO tank	Epoxy curing accelerator, agrochemicals, surface active agent, water treatment	EU REACH registered
	Trimethylamine	TMA	(CH3)3N	75-50-3	Colorless, 30% ap. solution	Tank lorry, ISO-tank	Surface active agent, anion exchange resin, agrochemicals	-
	Trimethylamine-HCL	TMA-HCL	(CH3)3NHCl	593-81-7	57% ap. solution	Tank lorry	Livestock feed, pharmaceutical intermediates, anti-static agent, additives for starch	-
	EUROX®	-	(NH2)2CO	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	-	NH3	7664-41-7	Colorless, 99.5%	Tank lorry, pipe	Urea, caprolactam, acrylonitrile, hydrazine	-
	Tetramethyl Ammonium Chloride	TMAC	(CH3)4NCl	75-57-0	Colorless, 58% ap. solution	20MT ISO-tank, tank lorry	TMAH raw material, oil & gas industry	-
Tetramethyl Ammonium Hydroxide	TMAH	(CH3)4NOH	75-59-2	Colorless, 20%, 24.9% ap. solution	190kg PE drum, 20MT ISO-tank, tank lorry	Photoresist development, anisotropic etchant	-	

# PRODUCT LIST

## Green Materials (Cellulose Derivatives)

Category	Product Name	Abbreviation	Chemical Formula	CAS No.	Characteristic / Purity	Packing	Application	Others
Cellulose Derivatives	MECELLOSE®	MC (Methyl Cellulose)	-	9004-67-5	White or yellowish powder	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		25kg: Paper bag with PE inner liner 450kg: PP Jumbo bag with PE inner liner	Paints, household goods, construction, oil field	-
	AnyCoat®	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
		HPMC-P	-	9050-31-1		-	Enteric coating	-
	AnyAddy®	HPMC	-	9004-65-3		20kg, 25kg: Fiber drum with PE double inner bag or paper bag with PE inner liner	Foods, dietary supplements	Certificate: FSSC 22000 (GFSI)
		MC	-	9004-67-5		15kg, 20kg, 25kg: Fiber drum with PE double inner bag or paper bag with PE inner liner	Foods	

## MEMBERSHIP

Southern Fire Safety Promotion Council	Ulsan Chief Manager Council
Korean Nurses Association	The Federation of Korean Industries
Korea Industrial Safety Association	KISANHYUP
Ulsan Branch of the Emergency Plan Council	National Emergency Plan Association
Korea Association of Occupational Health Nurses	Clean Ammonia 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 Specialty Chemical Industry Association
Ulsan R&D Head Council	Korea Chlor Alkali Industry Association
Ulsan Environmental Engineering Association	Korea Chemicals Management Association
Ulsan Shipper Logistics Council	Volunteer Fire Department Specializing in Chemicals
Global Compact Network Korea	Ammonia Energy Association
Incheon Environmental Volunteer Association	Drymix. Info
Incheon Environmental Engineering Association	

## TASK FORCE MEMBERS FOR THE 2022 LOTTE FINE CHEMICAL SUSTAINABILITY REPORT

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Gyeong Hoon Lee	Jae Woo Lee	Jae Ho Lee	Jeong Han lee	Jong Hyun Lee (Safety)	Jong Hyun Lee (Quality)
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# ABOUT THIS REPORT

## ABOUT THIS REPORT

LFC 2022 Sustainability Report is the eighth sustainability report of the company 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. LFC aims to expand stakeholder communication and thus build trust by continuing to disclose its key management activities and performance in a transparent manner through a sustainability report.

## REPORTING CYCLE

LFC has been publishing a sustainability report every year since 2016, and the previous report was published in June 2022.

## REPORTING PERIOD

This report covers financial and non-financial performance undertaken from January 1st, 2022 to December 31st, 2022, including some ESG activities and performance conducted until April, 2023 to enhance information timeliness. As for quantitative performance, if the results need to be tracked continuously, we have used data for the past three years (2020-2022) and disclose them through the ESG Factbook.

## REPORTING SCOPE

Financial information is based on the Korean International Financial Reporting Standards (K-IFRS). Non-financial information is mainly on the economic, environmental, and social performance 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 in accordance with the Global Reporting Initiative (GRI) Standards 2021 and reflects The Ten Principles of UN Global Compact, a global initiative for business sustainability.

## THIRD PARTY ASSURANCE

The financial information provided in this report has been audited by an independent auditor. Also, in order to ensure the objectivity and reliability of non-financial information, a third party assurance was undertaken in accordance with international AA1000AS v3 and AA1000APS (2018) by Korean Foundation for Quality (KFQ), and a separate assurance took place for greenhouse gas data.



