

2023

LOTTE CHEMICAL ESG REPORT

EVERY STEP FOR GREEN

WE LEAD EVERY STEP FOR
A GREENER AND BETTER TOMORROW



ABOUT THIS REPORT

INTERACTIVE PDF

This report is published in both Korean and English and is available in an interactive PDF format to facilitate effective communication with global stakeholders.

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ESG Report



Homepage



Overview

LOTTE Chemical has been publishing annual ESG Reports since 2007 to transparently share our sustainability management efforts and major achievements to the public and actively communicate with our stakeholders. In June 2024, we released our 17th report, now called the 2023 LOTTE Chemical ESG Report. We will continue to communicate our ESG management strategy and performance through the report, gather feedback from stakeholders, and reflect them in our management activities.

Reporting Period, Scope, and Boundaries

This report covers the period of January 1, 2023 through December 31, 2023, with some qualitative performances also including activities from the first half of 2024 to take into account the timeliness of information.

As for quantitative performance, the report includes data of the last three years to illustrate recent annual trends.

The main scope of the report is LOTTE Chemical's Seoul headquarters, Future Technology Institute, LOTTE Chemical R&D Center, Uiwang Office, Incheon Plant, Yeosu Plant (Basic Chemicals), Yeosu Plant (Advanced Materials), Ulsan Plant, Daesan Plant, and Daegu Water Treatment Plant. The activities and performances of subsidiaries are also included in some categories. Any necessary information about the reporting scope and boundaries are provided in the footnotes.

Reporting Principles and Framework

This report has been prepared in accordance with the Global Reporting Initiative (GRI) Standards 2021, which is a worldwide standard for publishing ESG reports. The report also takes into account the recommendations from the Task Force on Climate-related Financial Disclosure (TCFD) and the Sustainability Accounting Standards Board (SASB), particularly for the chemicals sector. The financial data presented in this report were prepared based on the Korean International Financial Reporting Standards (K-IFRS) using consolidated financial statements.

Data Assurance

This report is published after being reviewed by the ESG Committee under the Board of Directors of LOTTE Chemical. In addition, British Standards Institution (BSI), an independent verification agency, verified the reliability of the writing process, data, and contents to enhance the credibility of the report.

The third-party assurance statement is available in the Appendices section (p. 146).

NAVIGATOR BUTTON



CONTENTS

INTRODUCTION

CEO Message	005
Business Portfolio & Value-chain	006
Global Network	010
Vision & Mission	011

OUR APPROACH TO ESG

ESG Strategy and Governance System	013
Key Product Sustainability Highlights	016
2023 ESG Performance Summary	020
Stakeholder Engagement and Communication	022
Double Materiality Assessment	023

ESG PERFORMANCE

Environmental

Eco-friendly Management	028
Response to Climate Change	035
Management for Resource Circulation	045
Creation of Green Ecosystem	049

Social

Enhance Safety and Health	053
Human Resources Management	063
Human Rights	074
ESG Risk Management of Supply Chain	077
Mutual Growth within Supply Chain	082
Product Responsibility Management	087
Local Community Impact	091
Reinforce Information Security	095

Governance

Sound Governance	099
Risk Management	103
Ethical Management	106
Compliance	110

APPENDICES

ESG Databook	114
GRI / TCFD / SASB Index / UN SDGs	138
Memberships	144
GHG Assurance Statement	145
Third-party Assurance Statement	146

INTRODUCTION

1

- CEO MESSAGE
- BUSINESS PORTFOLIO & VALUE-CHAIN
- GLOBAL NETWORK
- VISION & MISSION

2

3

4



CEO MESSAGE



**WE LEAD EVERY STEP FOR
A GREENER AND
BETTER TOMORROW**

"LOTTE Chemical creates
a better world and sustainable
future through chemistry."

June 2024
LOTTE Chemical CEO
Lee Hun-ki

Dear esteemed LOTTE Chemical stakeholders,
Amid growing uncertainties triggered by the rapidly changing competition landscape, increasing geopolitical risks, and restructuring of the global supply chain, 2023 was a year filled with more demands from our stakeholders for sustainable business management. In 2024, instability is continuing with the conflict in the Middle East, escalating tension between the U.S. and China, and rising trade protectionism drawing a bleak outlook for the global economy and industries. Despite such global anxiety, LOTTE Chemical is doing our utmost for our business to achieve sustainable growth along with society. Under our corporate vision of "Every Step for Green," we are developing new markets to secure growth engines through implementation of an advanced ESG management system and risk management.

LOTTE Chemical will apply innovation to our corporate portfolio to secure new growth drivers and enhance our corporate sustainability.

Since unveiling our mid-to-long-term growth vision in 2022, we have focused on fostering new businesses in battery materials and hydrogen energy in line with the paradigm shift towards an eco-friendly market. We plan to continue making timely investments for ongoing growth while strengthening our internal drive to secure a leading position in the global market and in developing next-generation clean technology. The current petrochemical market is undergoing structural change due to higher self-sufficiency rates in China and stricter environmental regulations in advanced markets. To address such change, we will strive to complete upgrading our business portfolio by achieving operational efficiency in our petrochemical business, strengthening our business fundamentals, and reinforcing our financial soundness.

LOTTE Chemical will build an unfaltering ESG management foundation to promise a sustainable future and growth for the company and our society.

We have established a governance system led by top management and our Board of Directors to achieve our ESG strategy of "Green Promise 2030" in connection to our corporate vision, and various councils for different purposes actively delivering our strategy.

In addition, recognizing the key ESG issues in the petrochemical sector such as curbing carbon emissions, increasing the use of renewable energy, and promoting a circular economy through plastic recycling, we have developed specific initiatives along with a process to monitor their progress by managing performance through KPIs. We introduced the ESG Management System in 2024 to take a more organized approach in managing our ESG data and performances. With the new system, we will double our efforts in communicating and building a consensus with our stakeholders by providing accurate and reliable information to our stakeholders in a timely manner.

LOTTE Chemical will listen to the voices of various stakeholders and endeavor to increase our corporate value and maximize overall social value by pursuing co-existence and mutual growth.

We have deeply realized that our corporate activities are inevitably intertwined with the nature of our planet and humanity. Therefore, we pursue co-existence and mutual growth in our business management to evolve in the direction towards improving social value. We will take the lead in building business processes that can better the environment and the people in it, forming cooperative ties with our business partners and local communities, and developing a business environment for mutual growth. Moreover, we will strengthen our internal systems to secure transparency, fairness, and expertise in our corporate activities, as well as nurture key talent through quality education and capability-building programs to lead the future.

Since our founding in 1976, LOTTE Chemical has seen success and failure throughout the years, growing along society even when faced with obstacles and tough times. We will take the challenging spirit and strong determination learned from such experiences as our motivation to turn crises into opportunities for growth as a leading sustainable business. We look forward to your interest and warm support for a new future shaped by LOTTE Chemical.

BUSINESS PORTFOLIO & VALUE-CHAIN

BUSINESS INTRODUCTION – VALUE CHAIN

1
BASIC
CHEMICALS



BASIC CHEMICALS

LOTTE Chemical's Basic Chemicals business,
LOTTE Chemical Titan Holding Berhad(LC TITAN),
LOTTE Chemical USA Corp.(LC USA),
LOTTE-GS Chemical and 5 other subsidiaries

The basic chemicals business is a large-scale process industry that produces petrochemical products. We produce and sell basic chemicals such as ethylene, propylene, and xylene produced from naphtha cracking facilities, as well as monomer products such as polyethylene (PE) and polypropylene (PP). We also carry out research and development while exporting our products to China and other various countries in Asia and Europe.

LOTTE Chemical has joint ventures with Hyundai Oil Bank and GS Energy and is sharpening our competitiveness through new cracking business in Indonesia, not to mention expanding our eco-friendly/specialty chemicals business that include organic solvents for batteries, membrane material business, and hydrogen energy business.

LOTTE Chemical recorded approximately KRW 19.9464 trillion in revenues as of end-2023. Revenues of each business division are comprised of 69.4% for Basic Chemicals, 25.3% for Advanced Materials, 8.9% for Fine Chemicals and 3.2% for Battery Materials.

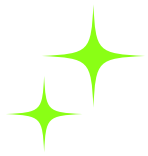
ADVANCED MATERIALS

LOTTE Chemical's Advanced Materials business, SambarkLFT,
LOTTE Chemical Hungary Ltd., and 14 other subsidiaries

The advanced materials business is a capital and technology-intensive industry that creates added value by offering additional functionality such as high heat resistance/rigidity/shock resistance to meet the demands of consumer goods (home appliances, IT, automotive, etc.) manufacturers. Leveraging SM, BD, and MMA feedstock, LOTTE Chemical produces and sells ABS, PC, and construction material, as well as conducts related R&D activities. With business sites across the globe such as in China, Mexico, Hungary, and Vietnam, we offer various products that tailor to the needs of global end consumers. We are also expanding specialty material for home appliances, IT, and automotive material with the vision to become a global, world-class specialty materials company.

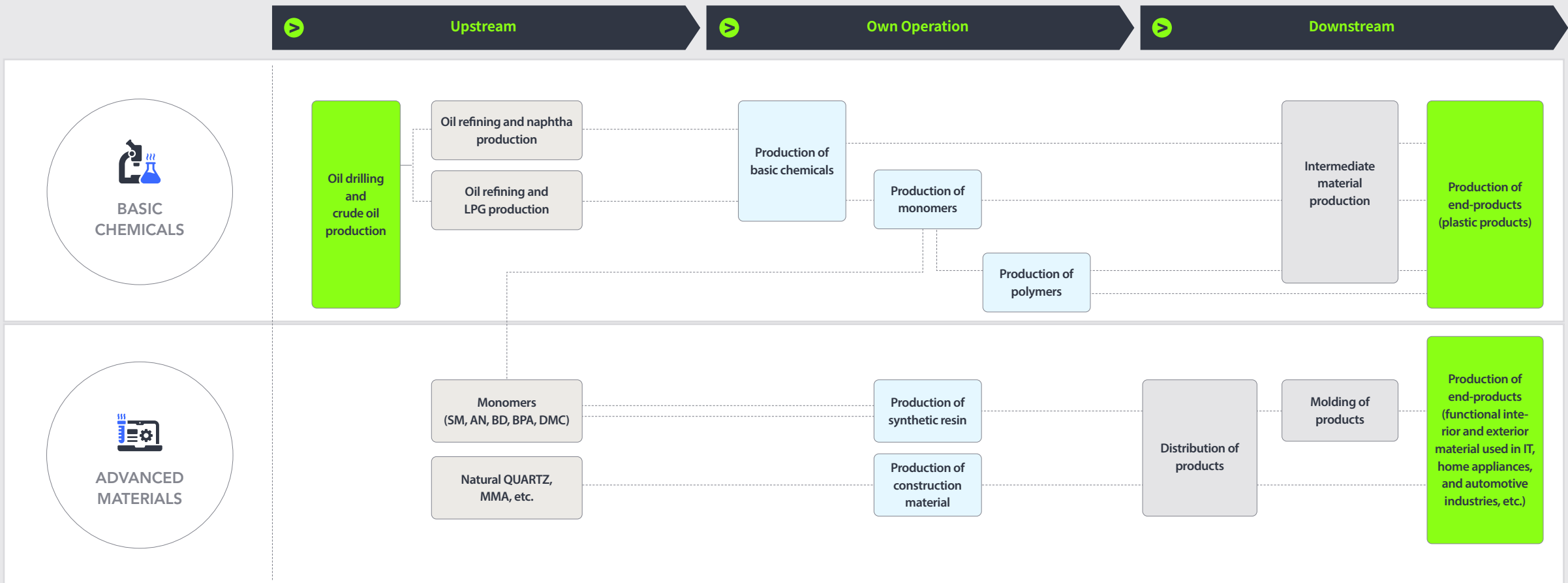


2
ADVANCED
MATERIALS

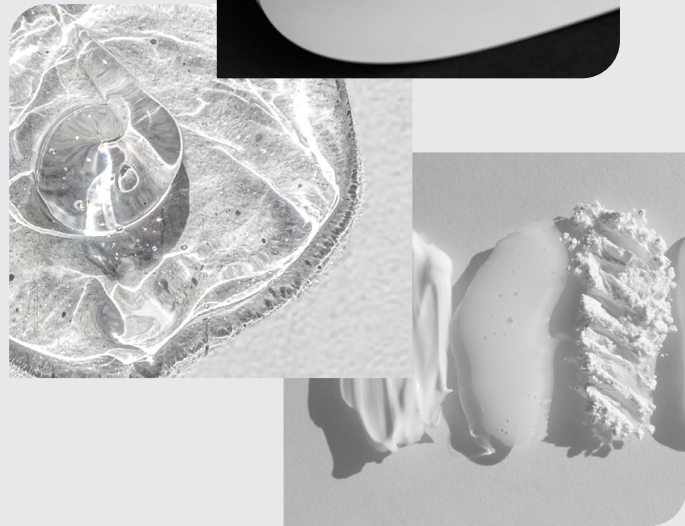


Business Value-Chain (Basic Chemicals, Advanced Materials)

LOTTE Chemical provides chemical products and advanced material solutions with a diverse product portfolio that ranges from common household products such as synthetic resin, basic petrochemicals, base chemicals, and construction/interior design material to applications for agriculture, industry, healthcare, automotive vehicles, and cutting-edge new materials. We are also continuously expanding to the hydrogen energy business, fine chemicals, and battery materials to secure sustainable growth engines.



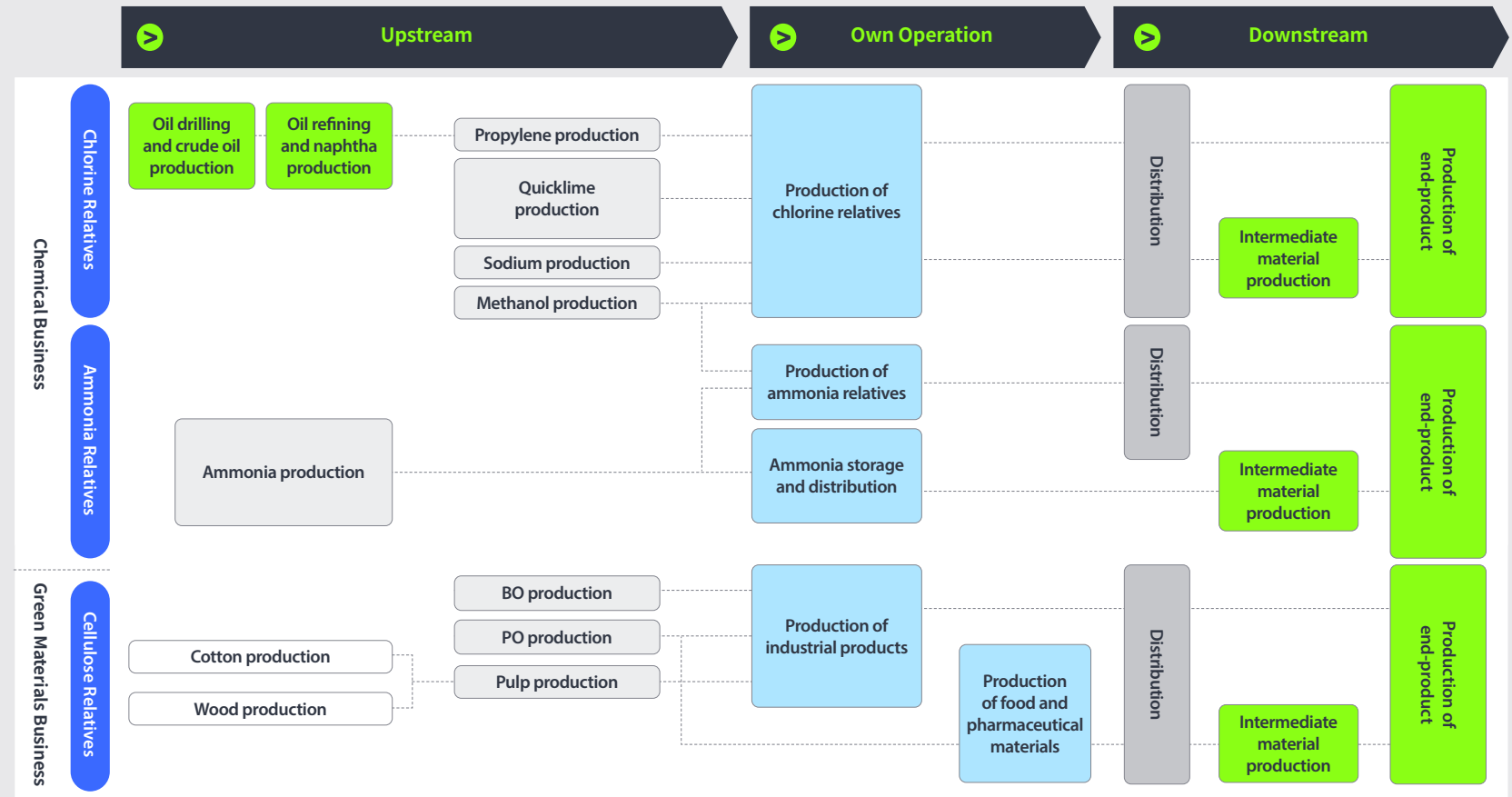
3
FINE
CHEMICALS



FINE CHEMICAL
LOTTE Fine Chemical

LOTTE Fine Chemical sells chlorine relatives, ammonia relatives, cellulose relatives, and related products. Among chlorine relatives, ECH is used as a feedstock resin for waterproof and anticorrosive paints while caustic soda is used as a basic material for various chemical products including textile, pharmaceuticals, paper, and surfactants. As for ammonia products under the ammonia relatives category are widely used in fertilizers, synthetic textiles and ABS resin. LOTTE Fine Chemical currently operates the largest ammonia storage facility in Korea.

Business Value-Chain (Fine Chemical)



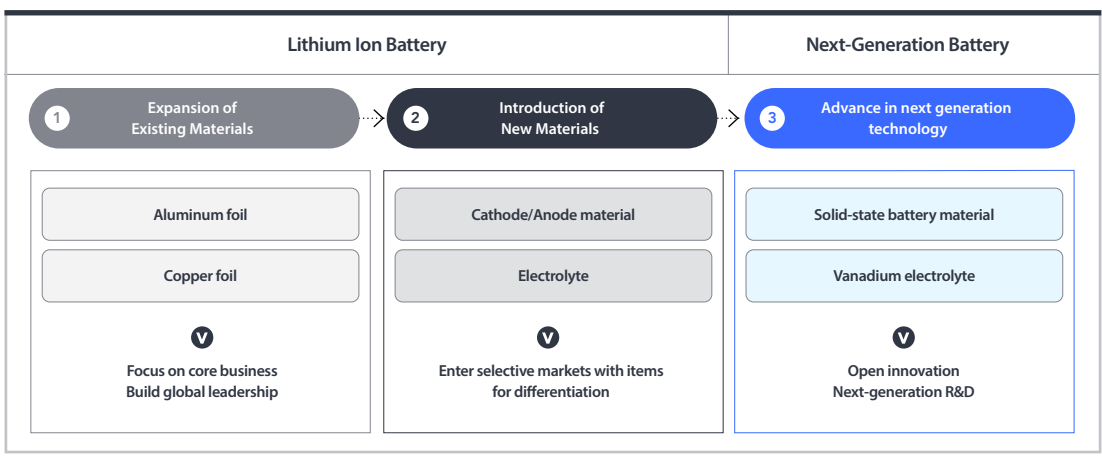
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BATTERY MATERIALS



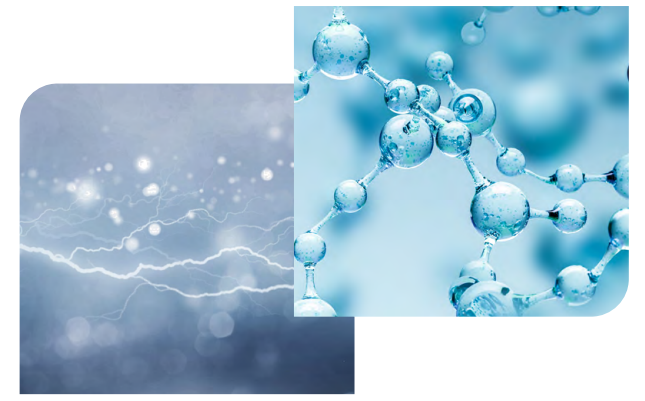
BATTERY MATERIALS
 LOTTE Energy Materials,
 LOTTE Battery Materials USA
 Corporation(LBM)

LOTTE Chemical is expediting our efforts to become a 'global leader in battery materials' and reach KRW 7 trillion in revenues by 2030. We are conducting and assessing the construction of a global production base for aluminum foil and copper foil which are a part of the battery materials business in our chemical unit. We are also in the process of establishing an integrated local supply chain network. Moreover, we are actively engaging in open business partnerships such as making early-stage investments and building cooperative ties with leading technology firms known for their cutting-edge battery material technology to enter the next-generation material business for lithium-ion batteries. We are also involved in technology developments and open innovation with various startups regarding lithium metal anode materials applied to solid-state batteries and vanadium-ion batteries to secure a leading position in the market.



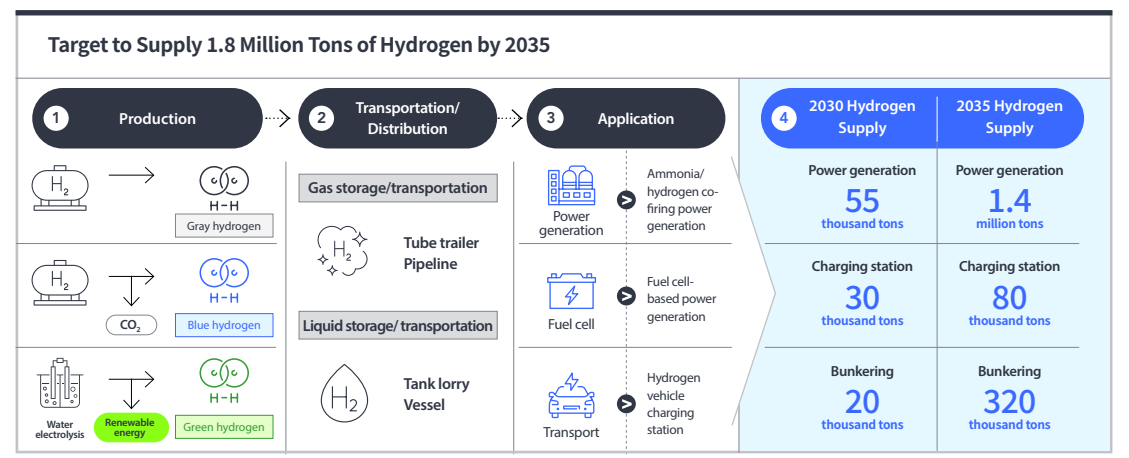
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HYDROGEN ENERGY

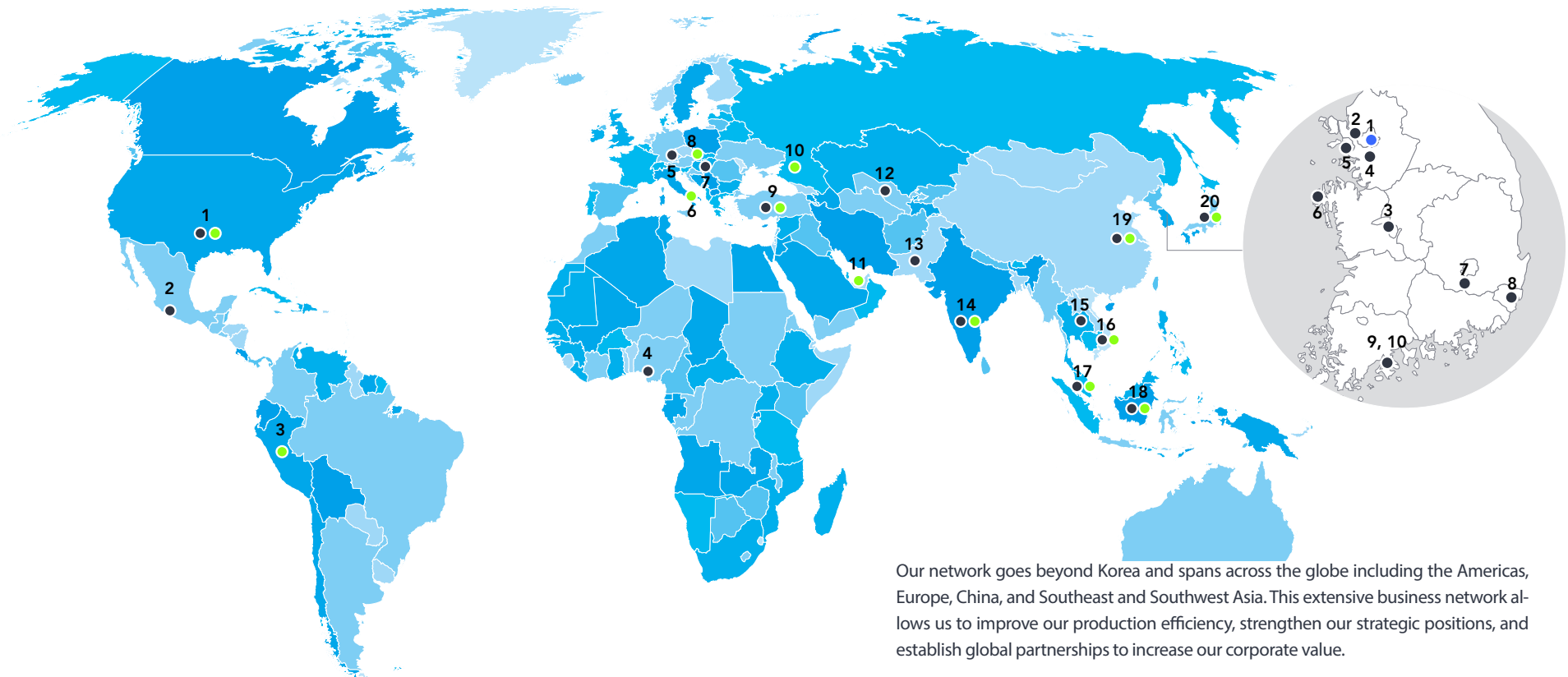


HYDROGEN ENERGY BUSINESS
 LOTTE SK Eneroot,
 LOTTE-Air Liquide Ener'Hy

LOTTE Chemical aims to seize business opportunities in responding to ESG trends by laying a foundation for future growth through taking the lead in the hydrogen market. Hydrogen energy is essential for expanding a carbon-neutral and eco-friendly energy market and a key factor in creating a shift in the energy paradigm. To this end, we plan to supply 600 thousand tons of hydrogen by 2030 and 1.8 million tons by 2035 for various applications while building infrastructure for the overall hydrogen business including hydrogen delivery centers and charging stations. Based on cumulative investments of KRW 3 trillion into various businesses, our goal is to achieve KRW 3 trillion in revenues by 2030. In the longer term, we aim to reach KRW 9 trillion in revenues by further expanding the business through cumulative investments of KRW 6 trillion by 2035.



GLOBAL NETWORK



● Corporation ● Branch/Sales Office

DOMESTIC

1. Seoul Headquarters
2. Future Technology Institute (Seoul Research Center)
3. LOTTE Chemical R&D Center (Daejeon)
4. Uiwang Office
5. Incheon Plant
6. Daesan Plant
7. Ulsan Plant
8. Daegu Water Treatment Plant
9. Yeosu Plant (Basic Chemicals)
10. Yeosu Plant (Advanced Materials)

OVERSEAS

1. United States – La Palma, San Diego, Detroit, Auburn, Westlake, Houston
2. Mexico – Tijuana
3. Peru – Lima
4. Nigeria – Lagos
5. Germany – Frankfurt
6. Italy – Milano
7. Hungary – Tatabánya
8. Slovakia – Bratislava
9. Türkiye – Manisa, Istanbul
10. Russia – Moscow
11. UAE – Dubai
12. Uzbekistan – Surgil
13. Pakistan – Karachi
14. India – Mumbai, Chennai, Gurgaon, Haryana
15. Thailand – Bangkok
16. Vietnam - Dong Nai, Bac Ninh, Hanoi, Ho Chi Minh
17. Malaysia – Kuala Lumpur, Johor
18. Indonesia – Jawa Barat, Jakarta
19. China – Shanghai, Tianjin, Shenzhen, Weihai, Suzhou, Qingdao, Dongguan, Jiaxing, Shenyang, Hong Kong
20. Japan – Tokyo

Countries entered

20

Export destination countries

120

LOTTE CHEMICAL GLOBAL NETWORK

	All business sites	Basic chemicals	Advanced materials	Battery materials
Overseas manufacturing & sales corporation	15	3	11	1
Overseas sales offices	6	2	4	-
Overseas branches	25	7	18	-

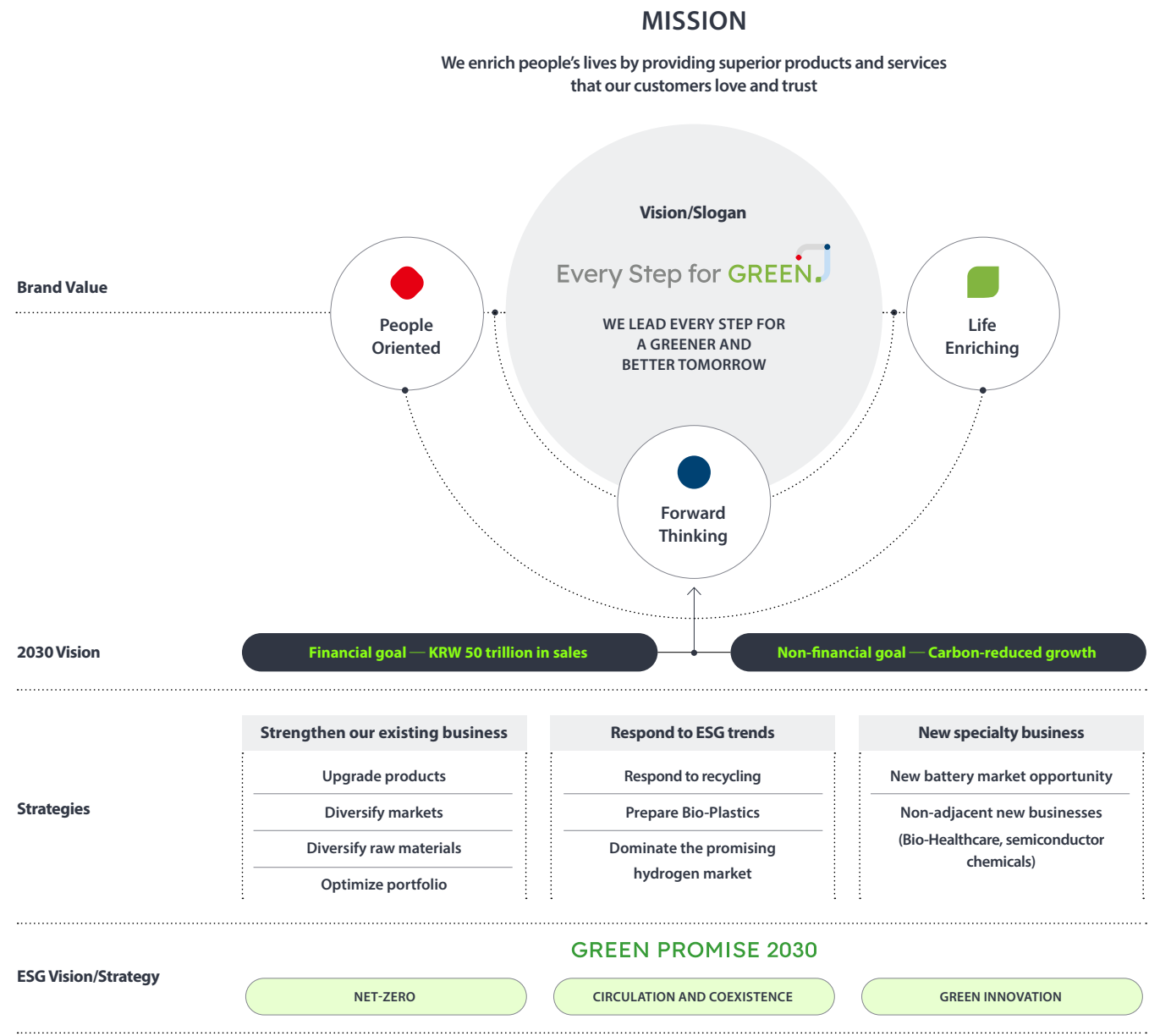
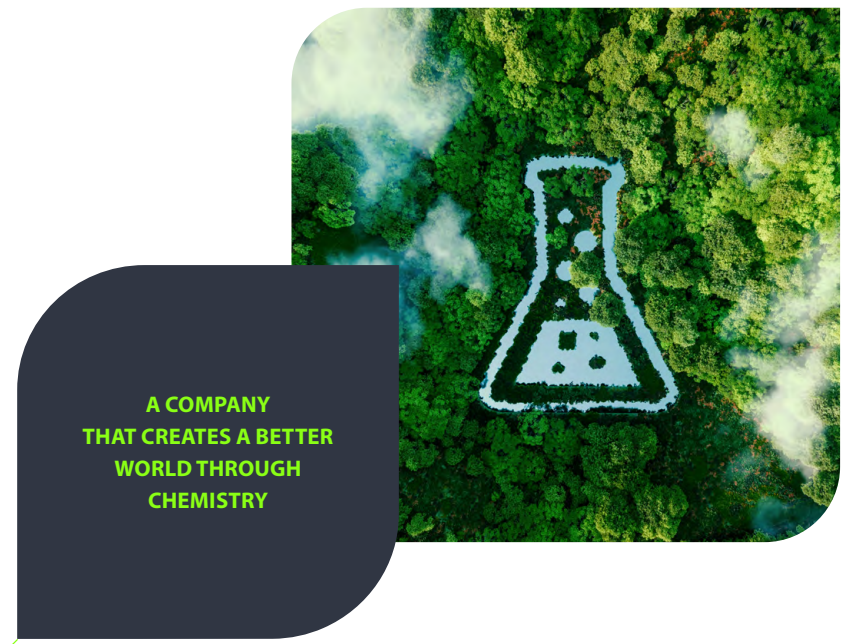
(Based on subsidiaries subject to consolidated reporting as of end-2023)

VISION AND MISSION

Corporate Vision

A Company that Creates a Better World through Chemistry

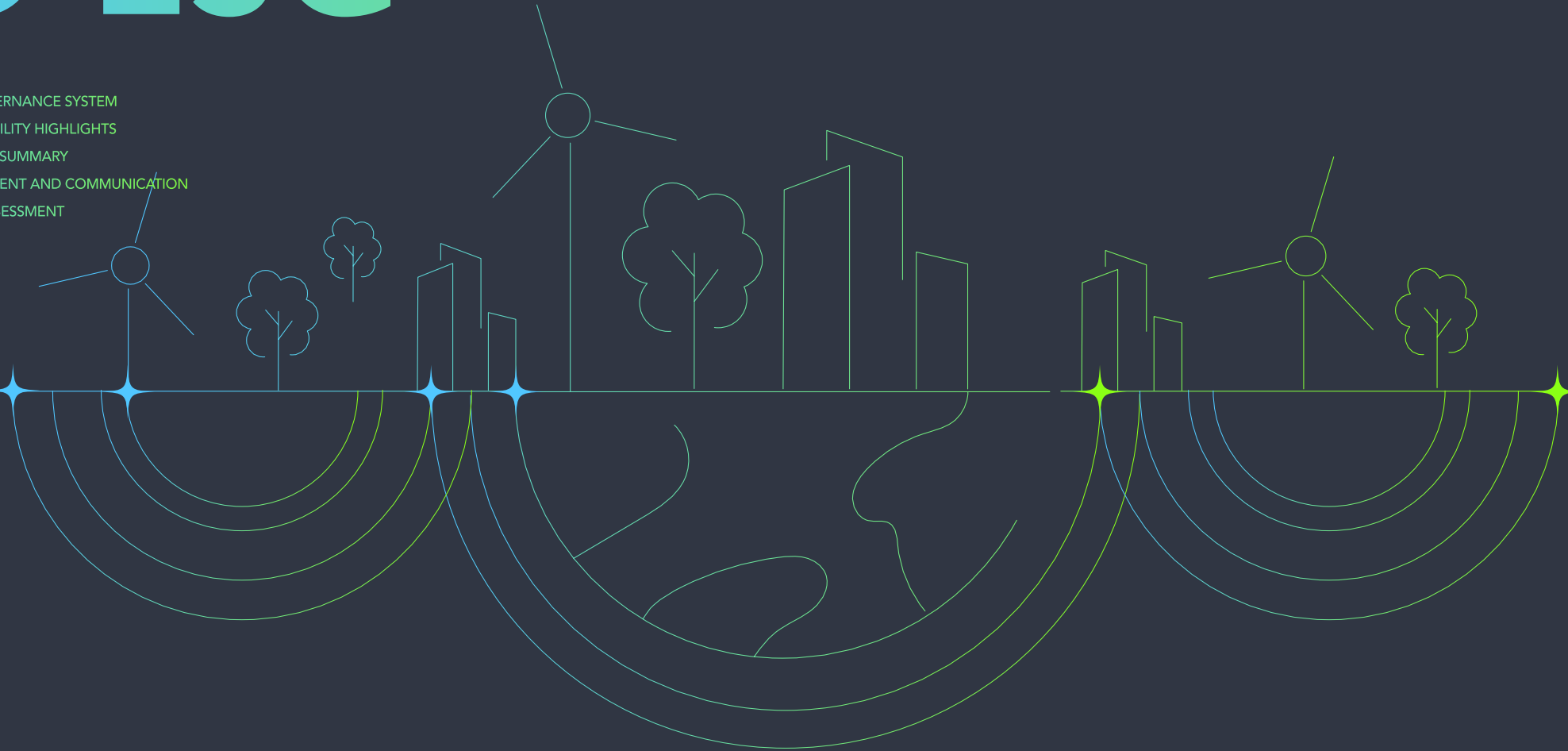
Founded in 1976, LOTTE Chemical is a leading company in Korea that has secured outstanding competitiveness through continuous business expansion and is building a stable business operation and an efficient business portfolio. In 2022, with the encouragement and attention from our stakeholders, we established our 2030 vision, "Every Step for GREEN" to strive for an abundant and green world with leading technologies.





OUR APPROACH TO ESG

- ESG STRATEGY AND GOVERNANCE SYSTEM
- KEY PRODUCT SUSTAINABILITY HIGHLIGHTS
- 2023 ESG PERFORMANCE SUMMARY
- STAKEHOLDER ENGAGEMENT AND COMMUNICATION
- DOUBLE MATERIALITY ASSESSMENT



1

2

3

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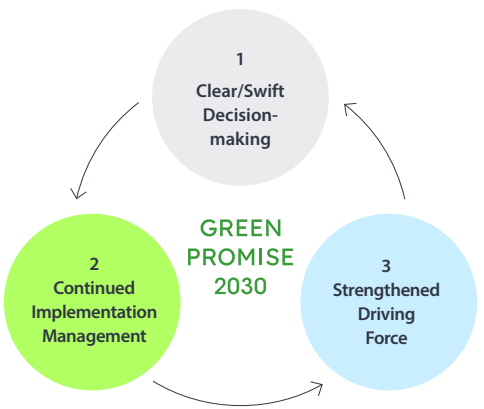
ESG STRATEGY AND GOVERNANCE

Our Sustainable Management Strategy, "Green Promise 2030"

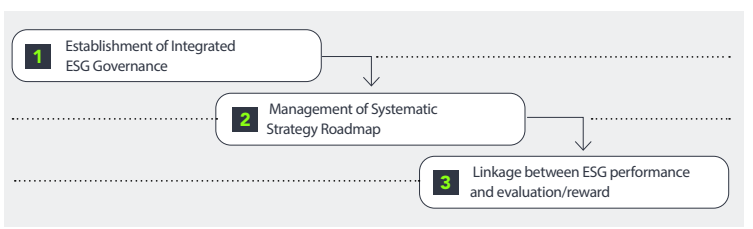
LOTTE Chemical's ESG Vision and Strategy

In 2022, LOTTE Chemical unveiled "Green Promise 2030," an ESG strategy aligned with our new corporate vision of "Every Step for GREEN." We aim to achieve future-oriented value growth by taking the lead in sustainable future industries, contributing to the environment and society by pursuing carbon neutrality, eco-management, and social value creation based on circulation and coexistence.

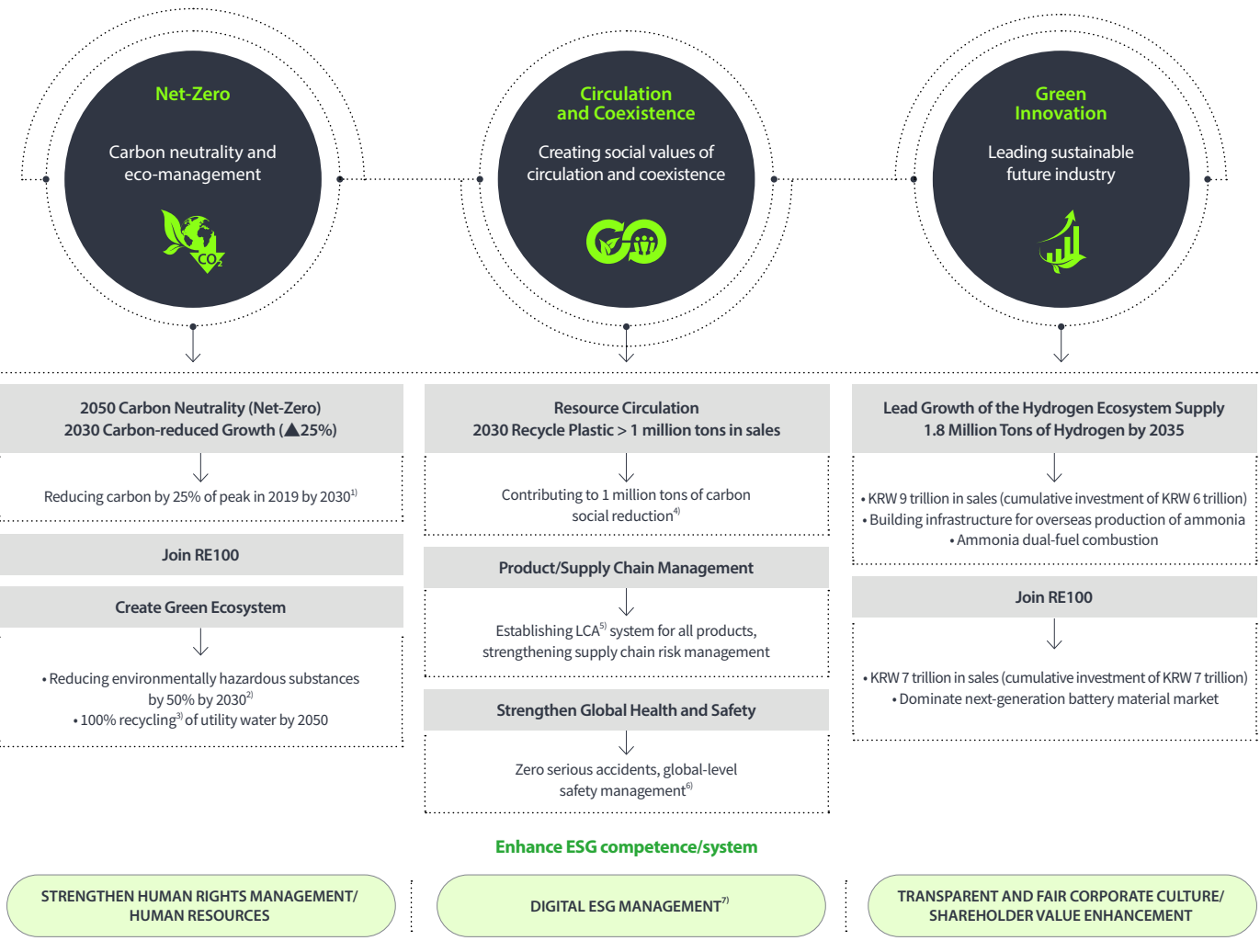
THREE ELEMENTS OF GREEN PROMISE 2030



GREEN PROMISE 2030 IMPLEMENTATION SYSTEM



GREEN PROMISE 2030



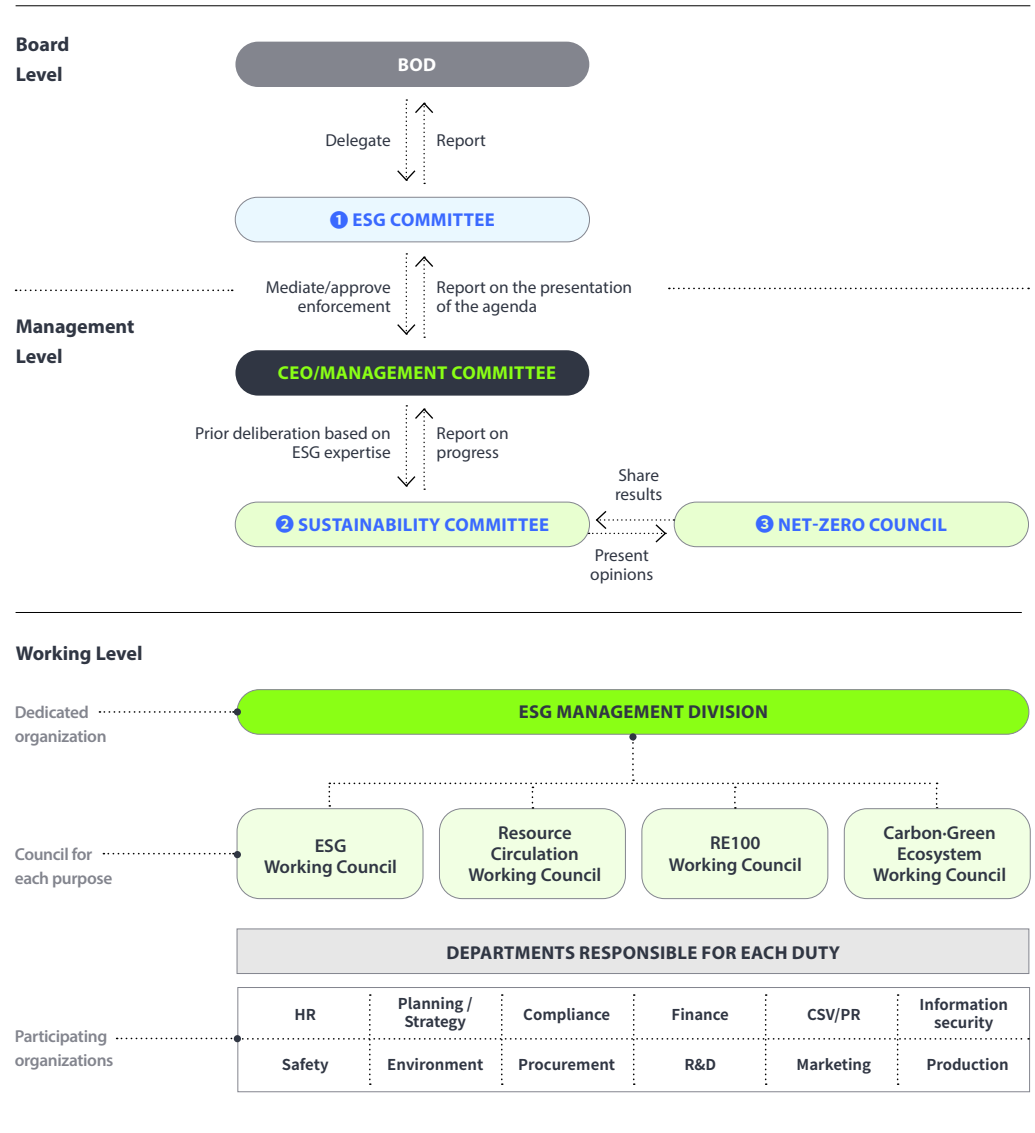
1) Domestic, based on Scope 1 & 2 2) Air, water quality, waste 3) 100% recycling of wastewater discharge (including purchase of recycled water)
 4) Expected social carbon reduction effect when 1 million tons of recycled plastic is sold 5) Life Cycle Assessment (across all processes)
 6) Introduction of global safety management indicators → LTIR (Lost Time Injury Rate, number of casualties per 100 people per year) 0.065 ↓ or less
 7) Advancement of internal management systems such as carbon and energy management and safety management/integrated ESG information management and disclosure system/ application of new IT technologies for process innovation (converging with AI)

Green Promise 2030 Implementation System

Establishing Integrated ESG Governance

In executing ESG strategies, clear and prompt decision-making and organic participation of all business units are required. Therefore, we have systematically established an integrated ESG governance at all levels of the BOD, management, and working-level organizations to achieve the “Green Promise 2030” goal. The BOD’s resolution in September 2021 led to the formation of the ESG Committee which supervises the direction and performance of sustainability management. Furthermore, in February 2023, we instituted the Sustainability Committee and the Net-Zero Council at the management level to guarantee continuous strategic task management and monitor regular ESG risk management. We have established councils under different purposes to support the work of higher-level committees while facilitating internal open innovation through collaboration and exchange between departments.

LOTTE CHEMICAL ESG GOVERNANCE STRUCTURE



1 ESG Committee

- Organization to supervise the direction and performance of sustainability management
- Key agenda: Approval of ESG management strategy, approval of ESG focus area goals and previous year’s performance, monitoring of critical ESG risks, reviewing materiality assessment, and approval of issuing ESG Report, etc.
- Frequency: At least every quarter
- Secretary/related working-level councils: ESG Management Division/ESG Working Council



2 Sustainability Committee

- Organization to review and supervise major sustainability management issues led by management
- Key agenda: Review of annual ESG strategic initiative plan and implementation performance, regular monitoring of ESG risks, materiality assessment, identification of stakeholder trends and issues
- Frequency: Semi-annual (regular), small occasional meetings by topic
- Secretary/related working-level councils: ESG Management Team under the ESG Management Division, ESG/Resource Circulation/RE100 Working Councils



3 Net-Zero Council

- Organization to manage and supervise carbon neutrality and eco-management targets of the Green Promise 2030 strategy
- Key agenda: Management of carbon neutrality roadmap, plan and review of annual strategic initiatives for carbon neutrality and green ecosystem creation, sharing case studies on technology applications, and discussion on issues
- Frequency: Once every quarter
- Secretary/related working-level councils: Environmental Management Team under the ESG Management Division, Carbon · Green Ecosystem Working Council

Systematic ESG Strategy Roadmap

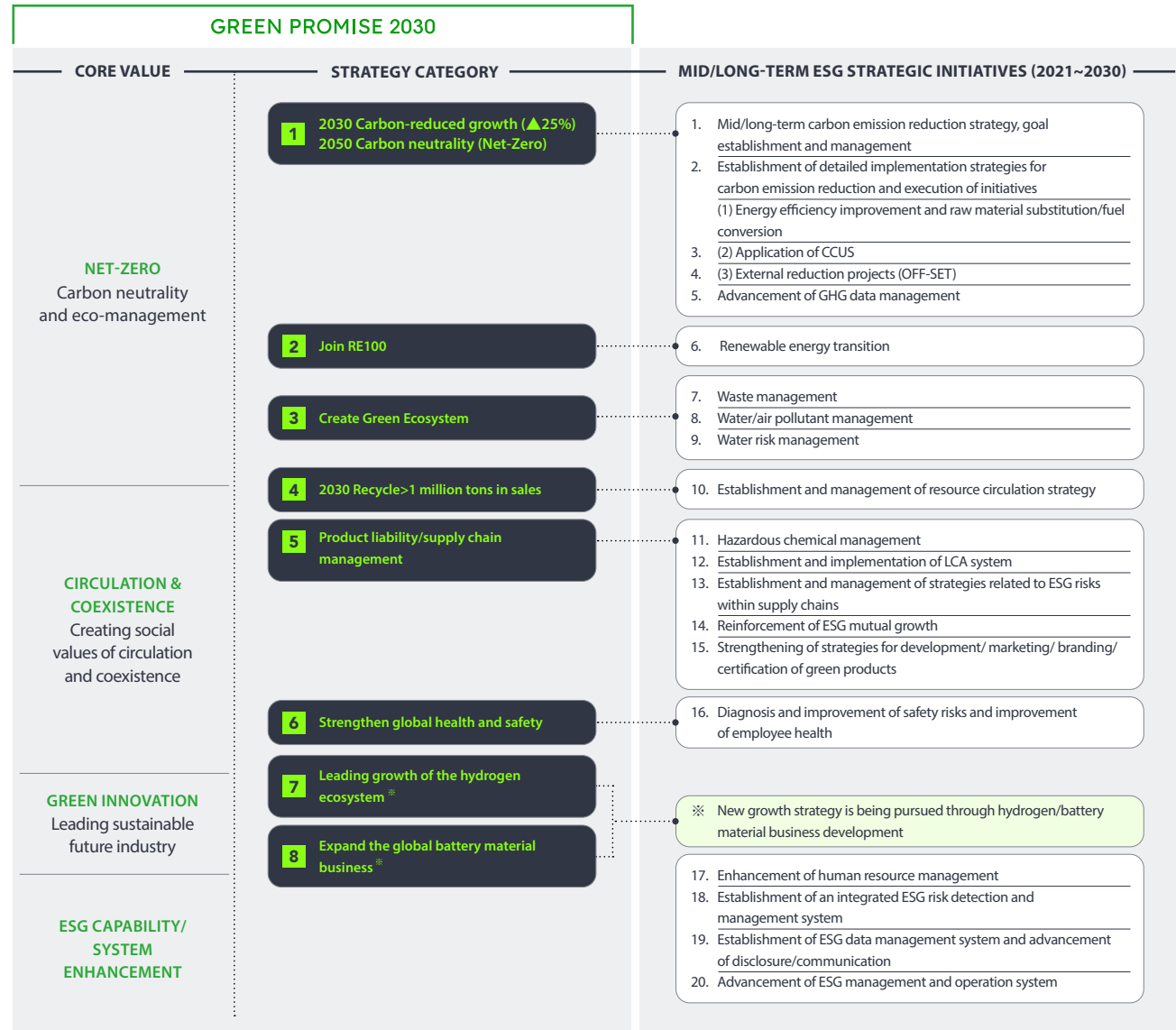
Management

We have developed 20 strategic initiatives and a roadmap to step up our efforts in achieving LOTTE Chemical's ESG strategy, "Green Promise 2030." In addition, we instituted an annual ESG initiative management process, set clear R&Rs and specific goals for each initiative, and are managing our annual plans and performance in connection to the integrated ESG governance system and our evaluation/reward system.

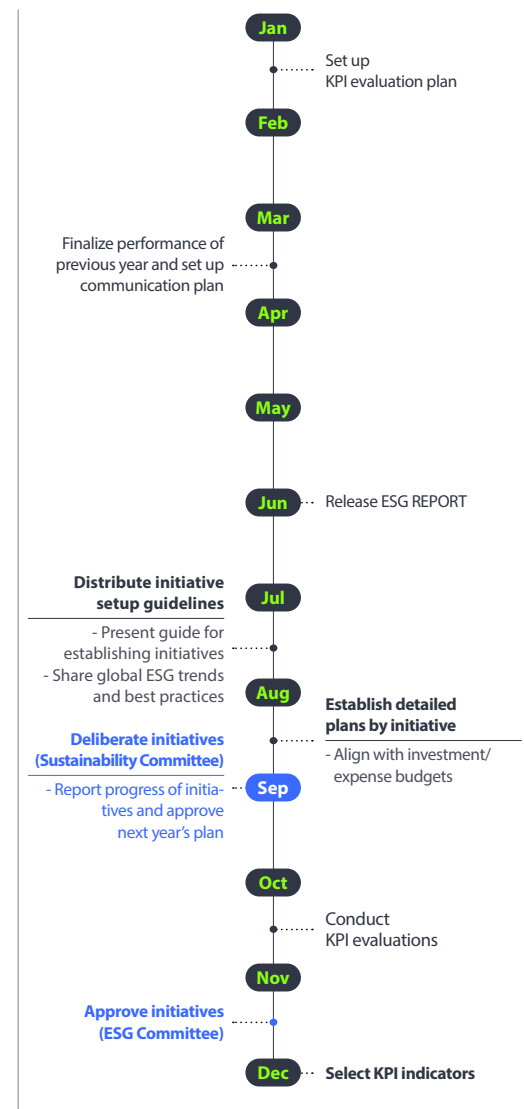
Linkage between ESG Performance and Evaluation and Compensation

In 2023, the Key Performance Indicators (KPIs) for LOTTE Chemical's CEO were comprised of 70% financial and strategy-related initiatives and 30% ESG-related initiatives. The evaluation included factors such as the development and implementation of the carbon neutrality roadmap, establishment of strategies and creating performance of key ESG metrics, and the strengthening of ethical management. Results of the evaluation are then reflected in the CEO's remuneration. Furthermore, we made it more systemized by aligning CEO KPIs with relevant working-level management and organization evaluations to ensure overall execution can be organically managed.

20 KEY STRATEGIC INITIATIVES TO ACHIEVE GREEN PROMISE 2030



PROCESS FOR ANNUAL ESG PLAN, PERFORMANCE MANAGEMENT, AND EVALUATION



KEY PRODUCT SUSTAINABILITY HIGHLIGHTS

Launch of ECOSEED Brand

In 2023, LOTTE Chemical launched "ECOSEED," an integrated brand for mechanically and chemically recycled materials and bio plastic materials (Bio-PET, biodegradable plastic). With the launch of the "ECOSEED" brand, we plan to expand our green business for plastic recycling and carbon reduction. We aim to supply 1 million tons of recycled plastic material "ECOSEED" by 2030.




"ECOSEED" means thinking about the environment starting from the smallest element for a future green earth, using a design that combines the infinite symbol with the initial 'e' that visualizes the shape of a seed to symbolize the circular economy.

Introduction of ECOSEED Products

Brand Category

RECYCLED PLASTICS



MECHANICAL RECYCLING

Raw plastic material that is mechanically recycled from plastic discarded from common everyday products.


CHEMICAL RECYCLING

Raw plastic material with enhanced purity and utility by chemically recycling plastic.

KEY MATERIALS

<ul style="list-style-type: none"> r-PC r-ABS r-PE r-PP 	<p>DEPOLYMERIZATION</p> <ul style="list-style-type: none"> r-PET / r-ABS <p>SOLVENT PURIFICATION</p> <ul style="list-style-type: none"> r-SAN / r-ABS <p>PYROLYSIS</p> <ul style="list-style-type: none"> r-ABS / r-PC / r-PP / r-PE / r-BD / r-SM / r-MMA
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BIO-PLASTICS



BIO-BASED

Ecoseed Bio-PET have a carbon emission reduction effect, utilizing Bio-MEG raw material derived from sugarcane.

BIO-DEGRADABLE

We are developing biodegradable plastics (PHA) based on petrochemicals

[Refer to p.19 for further information](#)

Introduction of Recycled Products



MECHANICAL RECYCLING

Today, plastic waste is overflowing in variety and volume, accumulating into islands of trash in the middle of the Pacific Ocean. ECOSEED uses compounding technology and rigorous quality control to provide a portfolio based on resource circulation that includes a wide range of mechanically recycled material such as r-PC, r-ABS, r-PE, and r-PP that can be used in everyday products. As well, r-PP and r-PE products have obtained GRS(Global Recycling Standard) certification, which proves that recycled materials have been used.



KEY PRODUCTS

ECOSEED r-PP

Based on its stable quality excellence, LOTTE Chemical's mechanical recycling solution offers a competitive ecofriendly plastic portfolio to global automotive original equipment manufacturers.

In addition, ECOSEED r-PP material has been applied to two high-functional products and their packaging of a leading Japanese cosmetics brand as well as the handle part of a popular toothbrush product in Korea.

ECOSEED r-PE

ECOSEED r-PE is used for the packaging of all PE and PP 25kg products produced at LOTTE Chemical's Yeosu and Daesan plants. While around 5,400 tons of plastic was used in 2023 at the two plants for packaging, using ECOSEED r-PE material is expected to be able to reduce annual plastic usage at Yeosu and Daesan by approximately 1,500 tons.



CHEMICAL RECYCLING

Chemical recycling is a reproduction process that takes used products or by-products and converts them through chemical reactions. Some of the benefits of chemical recycling include accommodation of colored flakes as feedstock, as well as having extensive applications including being used for food related products.



KEY PRODUCTS

+ Depolymerization

Depolymerization is a chemical recycling process that breaks down used products or byproducts into monomer raw material.

ECOSEED r-PET

ECOSEED r-PET is a product made by chemically decomposing hard-to-recycle colored and contaminated waste into raw material that is recycled into clean and high-quality PET. Free of harmful chemicals and environmental hormones, it shares high quality and properties equivalent to virgin PET and ensures safety in compliance with domestic/global food packaging standards.

Application Example

- **LOTTE Wellfood's entire 'Pasteur' Milk 750mL products**
- Estimated annual reduction of around 50t in plastic usage
- **LOTTE Fine Chemical's EUROX 10L diesel exhaust fluid products**
- Estimated annual reduction of around 210t in plastic usage

ECOSEED r-ABS

LOTTE Chemical is the first in the world to apply and succeed in the commercial production of transparent ABS using PMMA-based recycled materials in depolymerization process.

Application Example

- **Applied to the interior of foundation pacts and color powder cases of Japanese cosmetics player ALBION**
- Offering impact strength and liquid color rendering equivalent to general ABS material.

+ Solvent purification

Solvent-based recycling uses certain solvents to dissolve and extract polymer from various types of plastic waste for reuse. LOTTE Chemical applies recycled polymer to the polymerization process, improving uniformity compared to mechanical recycling. We have developed proprietary technology to reuse it for styrene products and are currently expanding product applications.

ECOSEED r-ABS

LOTTE Chemical has partnered with a major Korean electronics company, building a value chain where we collect EPS packaging waste gathered from electronic device and product installation processes to be used in the development of technology for ABS production.

+ Pyrolysis

We collect incinerated waste plastic and turn it into petrochemical feedstocks through pyrolysis and separation/purification. LOTTE Chemical is equipped with a pyrolysis naphtha supply chain that covers the entire process from naphtha and intermediates to polymerization and compounding.



Certified Products: PE, PP, BD, PET, EOA, BZ, PL, CS, C4R1, MMA, SM, H-RPG, ABS, PC compounds, etc.



Food packaging, household goods, electronic devices, apparel, home appliances, and automotive interior and exterior material etc.

* ISCC (International Sustainability and Carbon Certification) Plus Certification : A third-party certification that verifies that raw materials of eco-friendly products are managed appropriately along the value chain from suppliers to production to sales. The entire raw material supply chain must be ISCC certified for the final product to also acquire ISCC certification.

CHEMICAL RECYCLING

+ Bio-based

ECOSEED Bio-PET

ECOSEED Bio-PET emits less carbon emissions than petrochemical PET as it uses bio-MEG feed made from molasses, a byproduct remaining after sugar is refined from sugarcane.

Application Example

- Used in the packaging for 9 Ottogi sauces
- Increasing applications to Paris Baguette salad containers, etc.

+ Bio-degradable

We are developing petroleum-based biodegradable plastics (PHA) that can naturally decompose in soil and seawater, not to mention have excellent carbon emissions reduction effects in their production process compared to conventional plastics.



ECO-FRIENDLY CERTIFICATIONS



UL9789 20%



BP LABEL



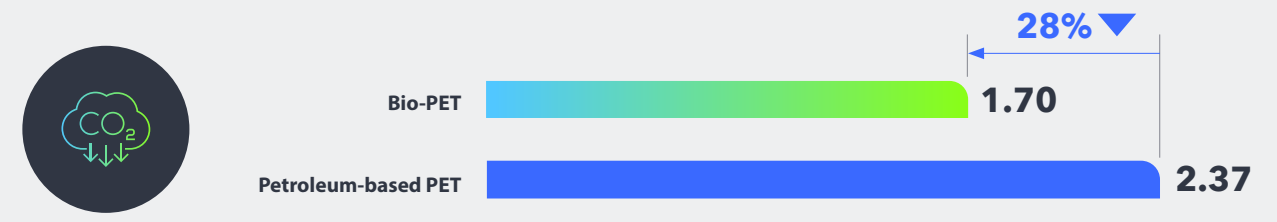
Korea Eco-Label



Korea EPD

BIOMASS PRODUCTS LCA (LIFE CYCLE ASSESSMENT) / CO₂ EMISSIONS

(Unit: kg CO₂/kg PET)





2023 ESG PERFORMANCE SUMMARY

February 2023

'Chemi Story,' an office café, opened to provide stable jobs to support the financial independence of the socially disadvantaged



CHEMI STORY

March 2023

Launch of LOTTE Energy Materials, a leading global elecfoil company



July 2023

Joined RE100, aiming for 100% transition to renewable energy by 2050



September 2023

Obtained Top Excellence grade in the 2022 Win-win Growth Index announced by the Commission for Corporate Partnership





2023 ESG PERFORMANCE SUMMARY

November 2023

Separator coating material technology with the stability of next-generation battery lithium metal anodes and 30% improved durability was developed



30%

December 2023

The 3rd term of Project LOOP Social that supports resource circulation social ventures, was launched

PROJECT LOOP SOCIAL

December 2023

PET CLEAR Packaging obtains Class A certification from Europe's RecyClass



March 2024

Packaging bags using ECOSEED's r-PE are expected to reduce annual plastic usage by around 1,500 tons



1,500

Tons/Year

STAKEHOLDER ENGAGEMENT AND COMMUNICATION

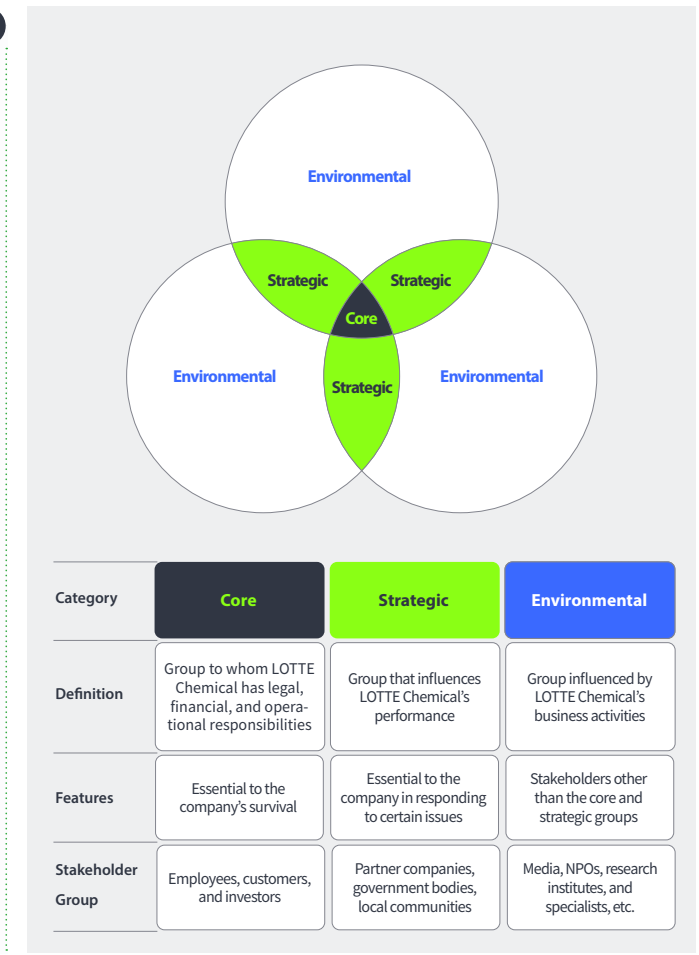
Stakeholder Classification and Response Activities

At LOTTE Chemical, we have identified our employees, customers, shareholders, investors, partner companies, government and related agencies, and local communities as our key stakeholders. Using the stakeholder classification criteria set forth by ISO 26000, we classified these stakeholders into the three groups of Core Stakeholder, Strategic Stakeholder, and Environmental Stakeholder based on their legal, financial, and operational responsibilities and influence. We attentively listen to their needs and incorporate them into our business strategies and corporate decision-makings while operating various communication channels according to the interest of each group. With stricter government ESG regulations and growing interest from investors on ESG management, ESG requirements are also being strengthened through mutual influence among stakeholders. We will continue our commitment to fair management practices and enhance transparency by actively communicating with all stakeholders.

Communication Channels by Stakeholder Group

Category	Stakeholder	Issues of Interest	Requirement	Communication Channel & Frequency	Our Activities	
Internal	Employees	Promoting health and safety and work-family balance of employees	Work-Life Balance/Work environment improvement	<ul style="list-style-type: none"> Employee Council (quarterly) Grievance Committee (ongoing) Organizational Culture TF (ongoing) HR Presentation (ongoing) Labor-Management Council (quarterly) Chemi-talk (quarterly) Newsletter (monthly) 	<ul style="list-style-type: none"> Promoting work-life balance Capability-building program Employee welfare and benefit program Work environment improvement activity Health and safety enhancement activity 	
		Customers	Product quality	Quality improvement	<ul style="list-style-type: none"> Customer satisfaction survey (annual) In-person visit (ad hoc) Customer Invitation program (annual) Customer complain processing (ongoing) Customer ESG survey, evaluation response, ESG management information provision (ongoing) 	<ul style="list-style-type: none"> Continued operation of a customer service digital platform (MaaS) Prompt response to product quality and transportation claims Conducting customer satisfaction surveys Conducting supply chain ESG risk assessments Developing new products Offering product LCA information Introducing renewable energy
			Supply chain stability	Supply chain ESG risk assessment		
R&D	Increase in share of recycled feedstock					
External	Government and related agencies	Offering ESG management information	Carbon data and carbon reduction for each product Use of renewable energy, etc.	<ul style="list-style-type: none"> National Assembly debate (ongoing) Government hearings (ongoing) Participation in other ESG councils (KEF, FKI, KBCSD, etc.)(ongoing) 	<ul style="list-style-type: none"> Reporting industry key issues Developing public-private cooperation projects Reviewing participation in state projects Identifying global ESG regulations and trends (ongoing) 	
		Shareholders and investors	Compliance with environmental/human rights/ safety legislations	Increase in environmental/human rights etc. regulations		
			Strengthening ESG-related trade compliance	Increase in impact of overseas regulations in the US/EU, etc.		
	Economic performance		ESG management activities and financial impact disclosure	<ul style="list-style-type: none"> Shareholder meetings (at least once a year) Non-deal roadshow (at least once a year) Earnings release (quarterly) Disclosure (ongoing) R conferences (ongoing) Posting investment info on website (ongoing) 	<ul style="list-style-type: none"> Adopting electronic voting system to shareholder meetings Disclosing mid-term shareholder return policies IR conference and NDR Operating BOD subcommittees CEO IR Day Disclosure in Korean and English 	
	Partner companies	Sound governance				
		ESG washing				
Local community	Communication with partner companies	Increase in communication channels	<ul style="list-style-type: none"> Meetings with partner companies (at least once a year) In-person visits to partner companies (ongoing) Hotline channels (ongoing)0 	<ul style="list-style-type: none"> ESG training support for partner companies Recruitment support Technical support and protection Financial, welfare, and productivity enhancement support 		
	Mutual growth	Increase in win-win programs	<ul style="list-style-type: none"> Alliances (ongoing) Meetings with local residents (ongoing) Environmental clean-up (ongoing) Charlotte Volunteer Group (ongoing) 	<ul style="list-style-type: none"> Communicating with local communities Social contribution activities 		

Stakeholder Mapping & Grouping

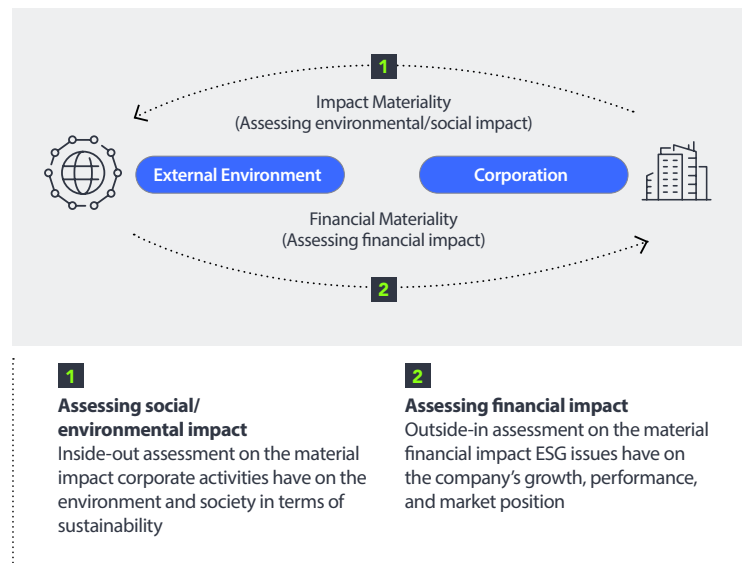


DOUBLE MATERIALITY ASSESSMENT

Overview

LOTTE Chemical used the concept of double materiality for our materiality assessment, taking into account ① Financial Materiality and ② Impact Materiality. Double materiality encompasses both the outside-in and inside-out perspectives of ESG's impact on enterprise value. This approach recognizes the external environmental and social factors that influence a company's financial performance, as well as the outward effects of the company's business activities. Building on the outcome of our materiality assessment, we will enhance our ESG management by refining our ESG strategy and disclosing the assessment process and its results in our ESG Report.

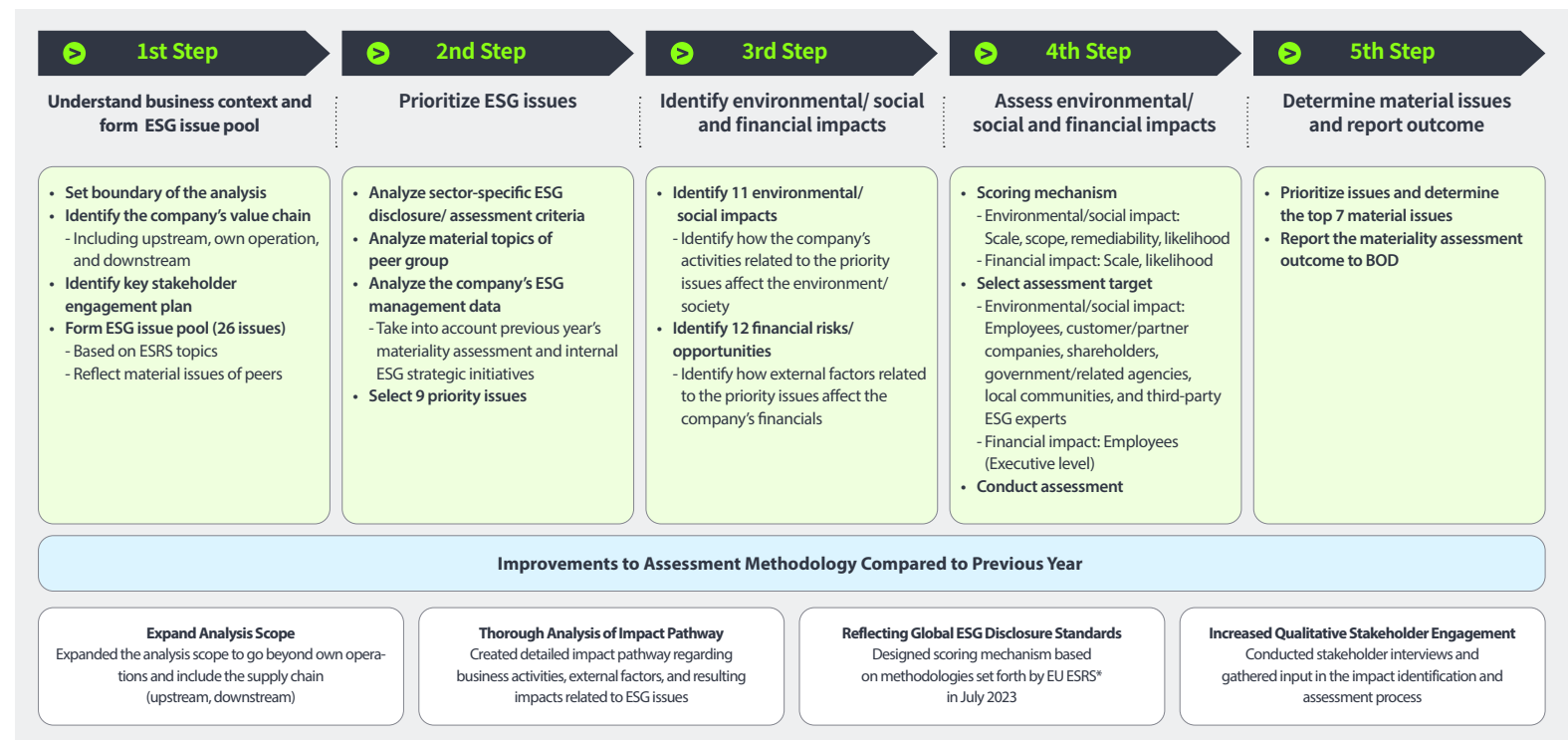
Double Materiality



Process

To identify ESG issues, we analyzed internal and external ESG trends and disclosure guidelines, benchmarked leading global players, reflected industry issues, and reviewed media research and internal issues to form a pool of 26 issues related to LOTTE Chemical in terms of ESG. Afterwards, 9 priority ESG issues were derived from the pool based on our internal direction for driving sustainability, requirements in the industry's disclosure/evaluation initiatives, peer's material issues, and

key issues in each stage of the value chain. Among the priority ESG issues, environmental/social and financial impact on the company were identified and assessed to draw out material issues. We plan to expand this Double Materiality Assessment process to subsidiaries in our consolidated financial statements to meet corporate sustainability reporting requirements.



*EU ESRS : EU's European Sustainability Reporting Standards

* ● (0-0.2), ●● (0.2-0.4), ●●● (0.4-0.6), ●●●● (0.6-0.8), ●●●●● (0.8-1.0)

Double Materiality Assessment Result

LOTTE Chemical reported issues derived from the double materiality assessment to the ESG Committee under the BOD for thorough review and determined the top 7 material issues based on the level of their financial and environmental/social impacts.

The importance of each issue was identified by looking at the impact on profits, costs, risks, and opportunities from a financial perspective, impacts within the value chain seen from an environmental and social perspective, and impact on stakeholder groups.

In the Environment Area, the result of the materiality assessment showed that the importance of 'Energy,' 'Hazardous Chemicals,' and 'Environmental Impact of Products' increased compared to the previous year. In the Governance Area, 'Strengthening Ethical/Compliance Management' was excluded from this year's material issues thanks to the operation of a stricter compliance system. Detailed analysis of material issues can be found in the LOTTE Chemical's Key Activities in the following pages of this report.

	ESG Issue	Environmental/Social Impact	Degree of Impact	Financial Impact	Degree of Impact
Material Issues	Climate Change	Climate change caused by GHG emissions generated with fuel and electricity consumption when operating production facilities	●●●●●	Extreme weather (heavy rain, heatwaves, typhoons etc.) caused by climate change can undermine production stability and lower revenues due to unstable supply of raw material (naphtha, LPG etc.) and plant operation setbacks	●●●
		Climate change caused by GHG emissions in the upstream value chain regarding raw material production/ procurement, etc.	●●●●●	Larger markets for eco-friendly energy and the resulting increase in hydrogen energy/battery material business revenues in response to growing demand from external stakeholders (shareholders/ investors/ customers, etc.) for transition to a low carbon portfolio	●●●●●
	Energy	Climate change caused by Scope 2 GHG emissions from using fossil fuel-based energy	●●●●●	Increased instability in the company's energy supply due to instability in the global energy supply which leads to higher costs for energy procurement and sourcing	●●●●●
	Pollution (Air/Water/Soil) and Waste	Pollution in nearby ecosystems and health harms to local communities when pollutant concentration levels in the product production process exceed guidelines	●●	Higher management and investment costs as pollution and waste management systems advance in response to stricter legislations and administrative actions on pollution and waste management	●●●
		Health harms to local communities caused by GHG emissions and pollutants released in waste landfilling/ incineration due to weak waste recycling activities	●	Legal expenses and rise in capital expenditures for safety facilities in line with stricter management of chemical substances as a result of stringent domestic/ overseas regulations on hazardous chemicals in case of hazardous chemical leak incidents	●●●
	Hazardous Chemicals	Destruction of nearby ecosystems and health harms to local communities in case of accidents related to hazardous chemicals during the product production process	●●●	Drop in revenues and capital inflow due to decline in product sales when failing to respond to external stakeholder (client, appraiser, etc.) demands on not using high-risk chemicals and transition to alternative material	●●
		Resource Circulation	Reduction of GHG emissions and climate change that can occur during the disposal of single-use plastic products when expanding the recycled materials business	●●●	Growth of the resource circulation market and resulting increase in revenues of the recycled plastic business in connection to the rise in demands of external stakeholders (shareholders/investors/customers, etc.) for reduction in the amount of waste plastic generated
			Reduction of microplastics and biodiversity loss resulting from the production and disposal of single-use plastic products when expanding the recycled materials business	●●●	Sharpened market competitiveness of relevant products and resulting increase in revenues and capital inflow in line with rise in external demands for low carbon products and LCA products
	Environmental Impact of Products	Climate change triggered by GHG emissions along the product lifecycle from sourcing raw material, manufacturing, and distribution to usage and disposal	●●●●	With stricter health and safety legislations, legal expenses (penalties and fines, etc.) and non-operating expenses (damage compensation costs, etc.) caused by setbacks in business operations in case of safety accidents at business sites of the company or within its supply chain	●●
Employee and Process Safety	Physical injury of employees/workers of partner companies or social losses incurred in case of industrial accidents due to poor health and safety management	●●●	Drop in revenues due to discontinued business operations when failing to secure stable water supply as a result of imbalance in global rainfall and severe water shortages	●	
General Issues	Water	Increased water stress and domestic water shortages in communities near business sites in case of lack of water sources due to water usage during business operations	●	Drop in revenues due to business setbacks from sanctions in the event of a violation in environmental, social, or governance laws and regulations	●●
	Ethical Management/ Compliance	Disturbances in the sound order of transactions across society caused by unethical/corruptive behavior such as unfair trade, embezzlement, and breach of trust	●●	Drop in revenues and capital inflow due to damaged company reputation and customer churn in the event of unethical and corruptive practices such as unfair trade, embezzlement, and breach of trust	●
Other Issues (17)	Marine resources, biodiversity, raw material, transition to low carbon industry, employee working conditions, employee's freedom of association and collective bargaining, employee human rights, employee diversity, employee capability-building, supply chain, local community, customer privacy and information security, customer satisfaction, safety of products/services, product/service accessibility, governance, political participation				

Priority Issues (9)

Other Issues (17)

Material Issue Management Activities and Performance

LOTTE Chemical objectively identifies and analyzes risks and opportunities by actively engaging with stakeholders on our seven key material issues. Based on this analysis, we define management goals and systematically align them with Key Performance Indicators (KPIs).

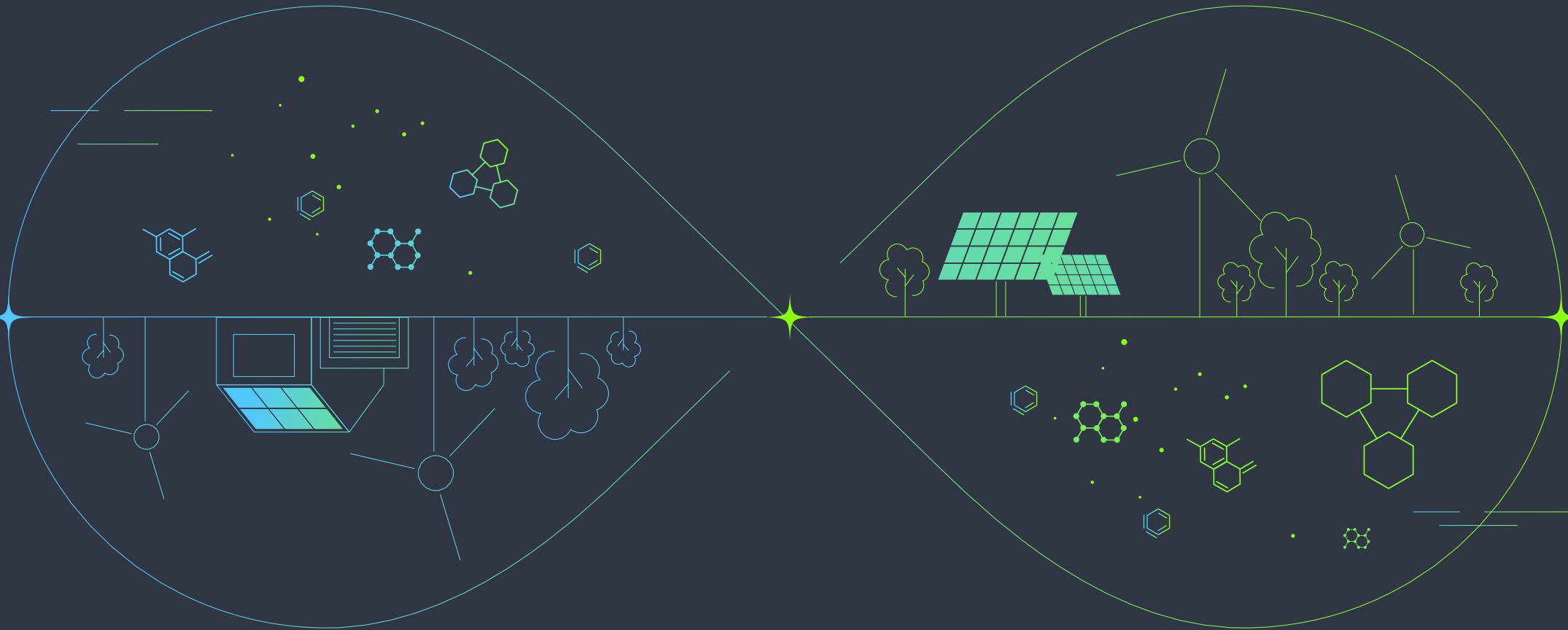
Material Issue	Risk and Opportunity Management	Strategic Initiative	KPI	2023 Performance	2024 Target	2030 Target	Page
Climate Change	Collection and disclosure of GHG emissions to respond to climate change, analysis of climate risks, 2030 carbon-reduced growth, development of 2050 net-zero targets and roadmap, management of implementation (GHG mitigation initiatives)	Implement carbon neutrality roadmap	Mitigation of GHG emissions	6.06 million tons/year (▲10.9% compared to 2019)	6.17 million tons/year (▲9.3% compared to 2019)	25% reduction compared to 2019 peak (6.8 million tons/year) (5.01 million tons/year)	39
Energy	Collection and disclosure of energy usage data, improvement in energy efficiency, joining RE100 and setting targets to increase renewable energy consumption, monitoring progress	Increase adoption of renewable energy	Increase of renewable energy adoption	Signed contract to adopt 136MW (solar energy)	Sign contract to adopt 250MW (solar energy)	Join and implement RE100 (increase share of renewable energy adoption to 60% by 2030 and 100% by 2050)	40
Pollution (air/water/soil) and Waste	Monitoring and minimization of air and water pollutants generated from business operations being released, management of pollutants through regular inspection of soil pollution, target-setting for reduction of waste discharge	Build and implement targets for managing water resource related risks	Reduction of wastewater discharge	12,509K tons/year (▲12.5% compared to 2019)	12,123K tons/year (▲15.2% compared to 2019)	Reduce wastewater discharge by 50% compared to 2019	50-51
		Build quantified targets to reduce pollutants and waste, and manage performance	Reduction in release of air/water pollutants and waste	(Air) 5,184 tons/year (▲60.7% compared to 2019) (Water) 930 tons/year (▲13.2% compared to 2019) (Waste) 14,516 tons/year (▲37.8% compared to 2019)	(Air) 5,274 tons/year (▲60.0% compared to 2019) (Water) 1,002 tons/year (▲6.5% compared to 2019) (Waste) 13,811 tons/year (▲40.8% compared to 2019)	Reduce environmental impact substances by 50% by 2030 compared to 2019	49-51
Hazardous Chemicals	Compliance with domestic and global regulations on hazardous chemicals including EU REACH and Korea's Act on Registration and Evaluation, etc. of Chemicals, monitoring hazardous chemical usage, execution of management measures for the reduction and disposal of hazardous chemicals, overall management activities such as inspection of facilities handling hazardous chemicals	Build and execute high-risk chemical substance transition plan	Transition and review of high-risk chemicals	Completed transition of 8 high-risk chemical substances	Additional transition of 8 high-risk chemical substances	Build and execute high-risk chemicals transition plan	88
Resource Circulation	Setup of resource circulation system to reduce plastic and expansion of the recycled plastic business (mechanical recycling, chemical recycling, pyrolysis)	Set targets and execute implementation of the recycling business	Achievement of sales target for recycled product	77,700 tons/year	130,800 tons/year	Sales of 1 million tons of recycled plastic by 2030	48
Environmental Impact of Products	Lifecycle assessment for product environmental management considering the internal supply chain and internal and external utilization measures, and measurement of product impact on the environment and resource and energy consumption, etc.	Strengthen strategies for eco-friendly product development, marketing, branding, and certification	ISCC Plus certification Eco-friendly brand launches	ISCC Plus certification (10 domestic and global subsidiaries) Calculated product LCA (advanced materials) Launch of eco-friendly brand (ECOSEED)	<ul style="list-style-type: none"> Increase eco-friendly certifications Aside from ISCC PLUS, add carbon footprint certification for products Expand products for LCA calculations (basic chemicals) operating eco-friendly brand (ECOSEED) 	Strengthen strategies for eco-friendly product development, marketing, branding, and certification	16-18, 48
Employee and Process Safety	Development of a health and safety management system, and overall activities related to creating a safe working environment and organizational culture by preventing occupational accidents through discovery and management of hazardous and harmful factors at business sites	Plan and drive safety innovation initiatives Increase investments to reinforce health and safety	Health and Safety investment executions*	KRW 22.6 billion/year	KRW 25.3 billion/year	Reinforce global health and safety (Lower LTIR to below 0.065)	54

※ Business sites subject to pollutant management : 4 main large-scale business sites in Korea, Yeosu Plant (Basic Chemicals), Yeosu Plant (Advanced Materials), Daesan Plant, and Ulsan Plant /
* Execution of costs for diagnosing and improving safety risks, and enhancing employee health



ESG PERFORMANCE

ENVIRONMENTAL
SOCIAL
GOVERNANCE



1

2

3

4

ENVIRONMENTAL

LOTTE Chemical continues to carry out eco-friendly management for the future of our planet. We are striving to build a sound and sustainable management through various programs such as curbing carbon emissions to strengthen our business fundamentals and implementing a resource circulation system along with citizens. Creating harmony with nature, we are making endless efforts to ensure a clean and healthy Earth for future generations. We believe that our small actions towards the environment will make a big difference.

A large, stylized black letter 'E' is centered within a circular graphic that has a green-to-blue gradient and a soft, glowing effect.

**ECO-FRIENDLY
MANAGEMENT**



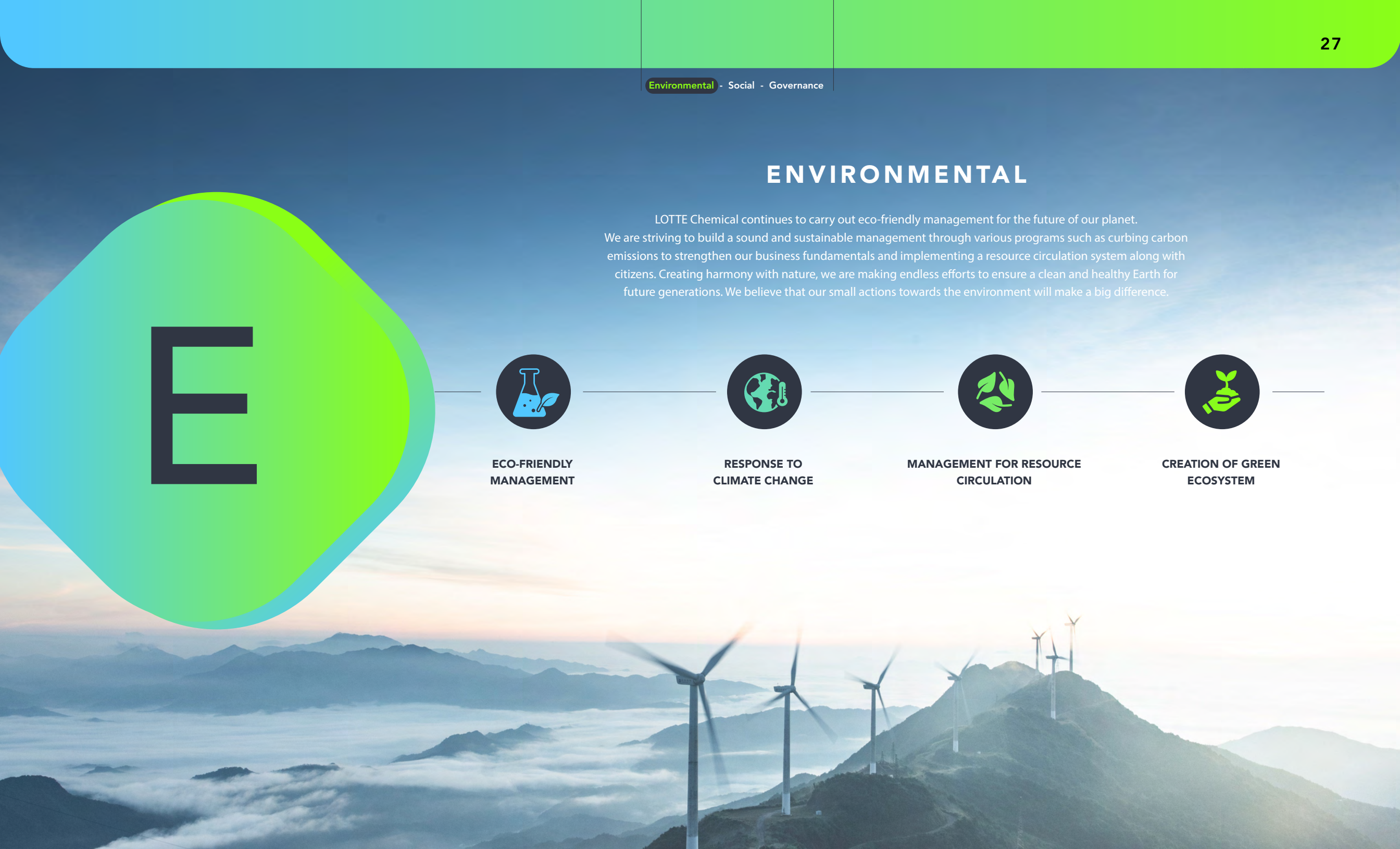
**RESPONSE TO
CLIMATE CHANGE**



**MANAGEMENT FOR RESOURCE
CIRCULATION**



**CREATION OF GREEN
ECOSYSTEM**



ECO-FRIENDLY MANAGEMENT

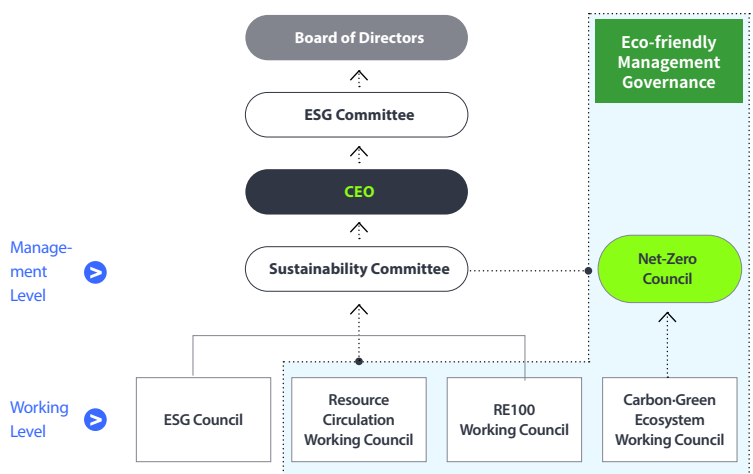
GOVERNANCE

Governance for Eco-friendly Management

LOTTE Chemical integrates our governance for eco-friendly management and ESG management, and also operates different working councils for specialized management of key environmental issues such as responding to climate change, creating a green ecosystem, adopting of renewable energy, and expanding resource circulation (recycling), etc. The BOD's ESG Committee makes decisions on major ESG strategies and target/performance management including environmental issues, and regularly reports the results to the Board of Directors. In addition, monitoring initiatives across ESG management and stakeholder risks are the key agenda of the Sustainability Committee composed of executives.

In particular, a separate Net-Zero Council was formed with members with relevant expertise to promote efforts on carbon neutrality and green ecosystem creation. Meetings are held on a quarterly basis to discuss relevant issues and manage targets, serving as a window for environmental management by sharing know-how among business sites to strengthen capabilities and encourage prompt decision-making among executives, etc.

ECO-FRIENDLY MANAGEMENT GOVERNANCE SYSTEM



Council	Role	Key Role	Frequency
Net-Zero Council	Manages/supervises carbon neutrality and eco-management targets on the field in relation to the GREEN PROMISE 2030 strategy	<ul style="list-style-type: none"> - Manage the carbon neutrality roadmap - Plan and review implementation of annual strategic initiatives for carbon neutrality and the creation of a green ecosystem - Share case studies of technology field applications and discuss issues 	Quarterly
Carbon Working Council	Reviews strategy and discusses issues to achieve carbon mitigation	<ul style="list-style-type: none"> - Discuss issues from a working-level standpoint and draw out improvement plans - Review performance of initiatives each quarter 	Quarterly
Green Ecosystem Working Council	Reviews strategy and discusses issues to reduce release of pollutants	<ul style="list-style-type: none"> - Discuss issues from a working-level standpoint and draw out improvement plans - Review performance of initiatives each quarter 	Quarterly

Council	Role	Key Role	Frequency
Resource Circulation Working Council	Implements company-wide cooperation to achieve the 2030 goal of selling over 1 million tons of recycled plastic	<ul style="list-style-type: none"> - Review target/performance and economics of the recycled materials business - Seek cooperative measures for implementing the recycled materials business value chain (collection/sorting/recycling/product provision) - Review recycling methods and early technology 	6 times a year
RE100 Working Council	Promotes interaction among LOTTE Group's chemical affiliates for the effective adoption of renewable energy	<ul style="list-style-type: none"> - Set standards for consistent adoption and management of renewable energy among LOTTE Group's chemical affiliates - Share current state and future plans for adopting renewable energy - Exchange information on policies/legislations and share best practices 	Twice a year

STRATEGY

Environmental Management Strategy and Guidelines

We manage the performance of our environmental management efforts not only based on compliance with legal requirements and regulation, but also by devising an eco-friendly strategy in line with “Every Step for Green” to achieve 2030 carbon-reduced growth (25% reduction compared to 2019), 2050 net-zero, and our goal to reduce environmentally hazardous substances by 50% by 2030 to create a green ecosystem at all of our business sites. Moreover, we are carrying out sales of recycled plastic through a resource circulation system. We are also aiming to make a transition to 60% renewable energy by 2030 and 100% by 2050 after joining RE100 in 2023.

[Environmental management policy](#)

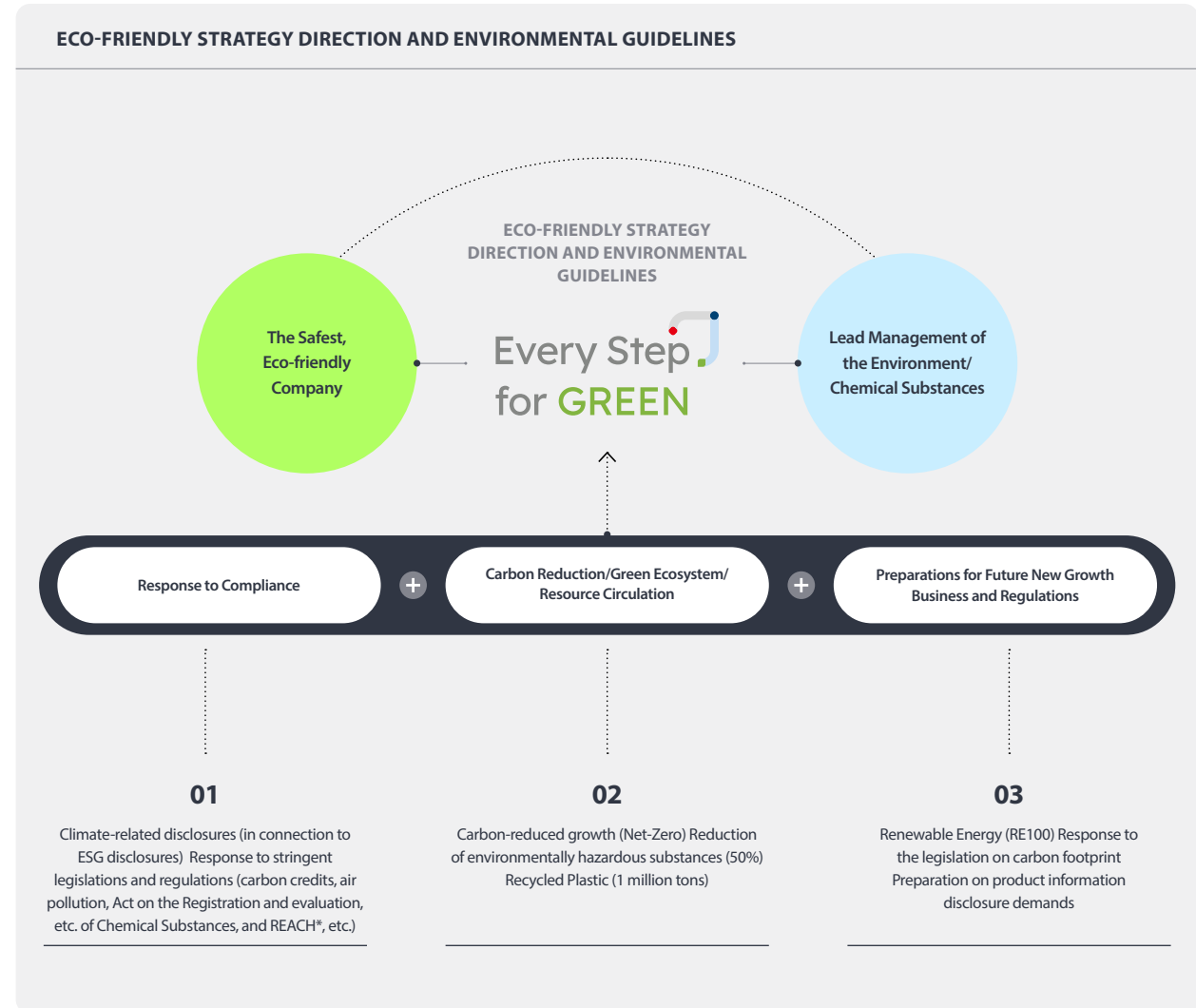
Implementation and Operation of an Environmental Management System (ISO14001)

We support and conduct various inspections and rigorously monitor compliance with environmental regulations to prevent violations. Accordingly, all of our business sites carry out environmental impact assessments and compliance evaluations regularly in line with ISO 14001 requirements and report the results. The Environmental Management Team at our headquarters works along with external environmental specialists and our own monitoring group to regularly diagnose our environmental compliance and support rigorous management of the environment at all business sites. The environment teams at each individual business site are also doing their utmost to enhance compliance with environmental regulations. In this process, we not only prepare against potential risks, but also contribute to internally and externally promoting a culture of environmental awareness through system improvement. LOTTE Chemical’s PDCA* for the environmental impact assessment can be verified through the third-party assurance and ISO 14001 certification.

* PDCA (Plan-Do-Check-Act) : An interactive process by organisations to achieve continuous improvement by planning, doing, checking, acting and then planning improved goals again.



Environmental Quality Guidelines



* REACH : EU Regulation on the Registration, Evaluation, Authorization and Restriction of Chemicals

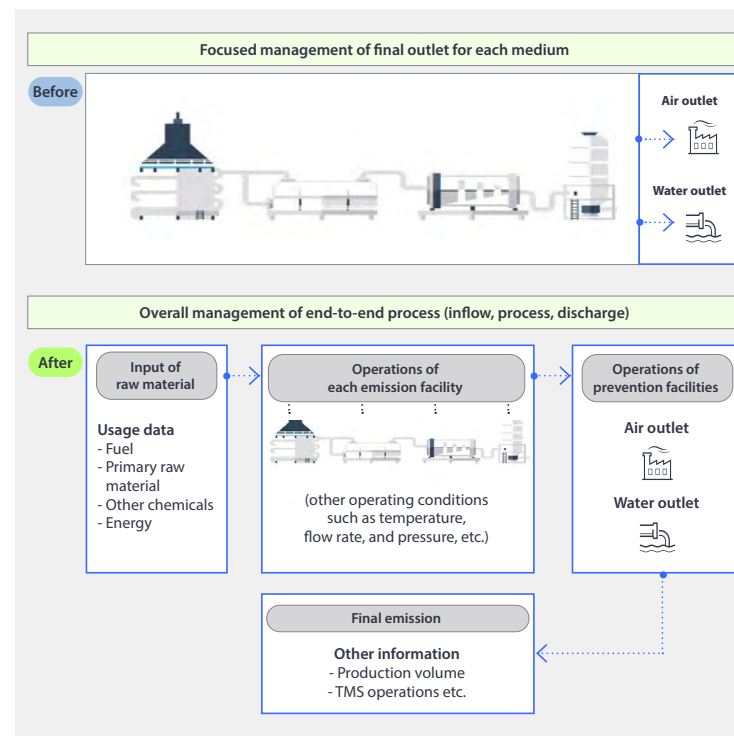
GROUP ENVIRONMENTAL MANAGEMENT CHECKLIST

No.	Checklist Item	
1	Operation Management	Operation of specialized environmental management organization
2		Availability of environmental management process
3		Employee training on environmental management
4		Climate change risk management system
5		Internal environmental audits
6		Regular reporting on climate change management
7		Regular reporting on environmental management (waste, water, water quality, air)
8		Application of Global environmental management process
9	Performance Management	Improvement (%) in carbon intensity (based on carbon emissions) vs. previous year
10		Achievement rate (%) of GHG reduction target based on the carbon neutrality roadmap
11		Investment execution rate (%) based on carbon neutrality roadmap
12		GHG reduction compared to GHG emissions (%)
13		YoY improvement rate (%) in energy usage
14		YoY improvement rate (%) in waste generation
15		YoY improvement rate (%) in water consumption
16		Green purchase performance management
17		Management of other environmental data - Track record in recycling water - Track record in recycling waste - Management of water quality data and meeting compliance targets - Management of air data and meeting compliance targets
18		Stakeholder Relations
19	Internal/external environmental preservation activities	
20	Management of violations of environmental laws/regulations	
21	Participation in initiatives and relevant activities	
22	Sharing internal/external ESG best practices	

EFFECT OF IMPLEMENTING THE ENVIRONMENTAL MANAGEMENT SYSTEM*

Item	Estimated Effect
Improved work convenience	Enhanced efficiency in preparing and managing record preservation documents through an automated system
Reduced compliance risks	Reduced risks such as human errors/mistakes in history management with a prior verifications system
Advanced management of integrated permits	Easy to respond to government inspections with collective management of massive data regarding permits
Unified company-wide environment managemen	System-based unified environment management Easy to build policies based on statistics/analyses

Response to new environment management system



*Current target sites : LOTTE Chemical [Basic Chemicals] Yeosu, Daesan, Ulsan

Advancement of Environmental Management System

LOTTE Chemical has been deploying an Environment Management System (EMS) since 2023 to respond to global ESG disclosure requirements by unifying various environment related data. The 1st phase of deployment to respond to the Act on the Integrated Control of Pollutant-Discharging Facilities has been completed with the 2nd phase for gathering and managing various environment data for 2024 ESG disclosures scheduled to be completed in June 2024. The EMS provides basic data such as release and usage of pollutants, as well an overall view on facility operations for integrated management of environment data across all business sites. We plan to review changes in the internal and external environment through the system and utilize it when making key decisions.

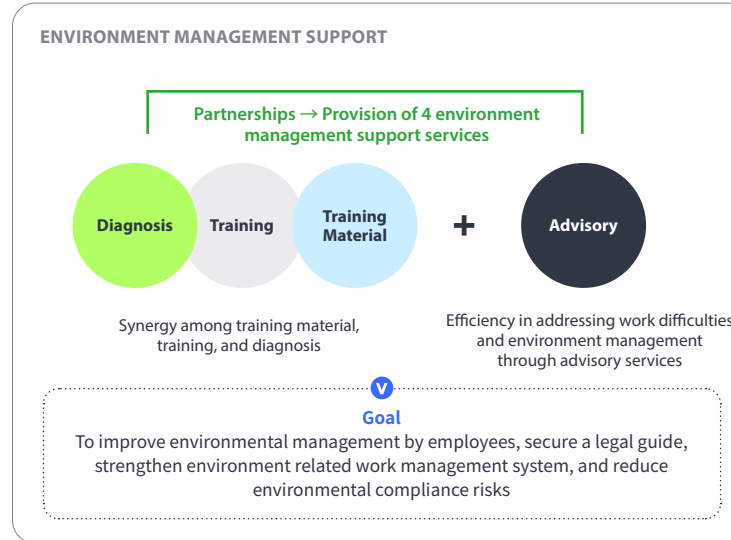
RISK MANAGEMENT

Environmental Risk Management

LOTTE Chemical regularly monitors the enactment and amendments of environmental laws and regulations, as well as relevant social issues, to understand the impact on our business and take preemptive measures against possible risks. Through the environmental management inspection of the Group's Eco-friendly Management Task Force team, environmental risk assessments are being carried out each year. Through such efforts, we are operating a practical environment management system that include risk management and a string of procedures for making improvements regarding the identified risks.

Environment Management System

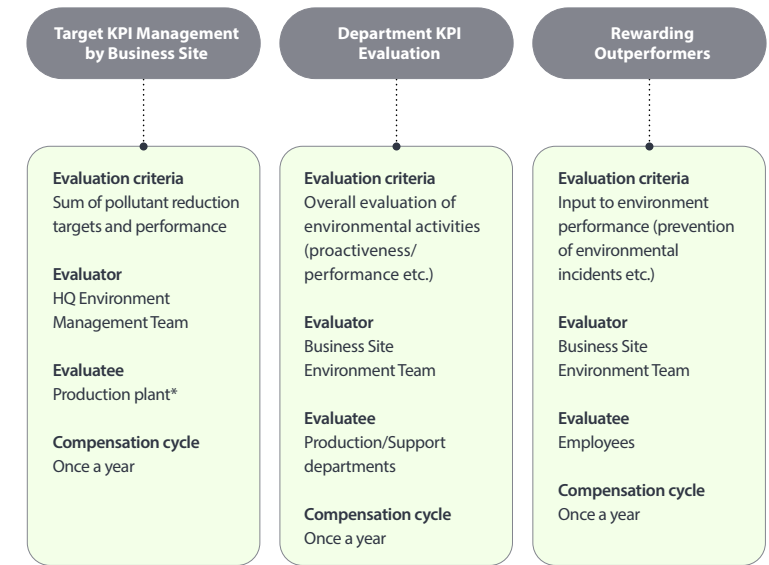
Acknowledging the need to enhance employee understanding of environmental laws and regulations, we been partnering with a professional environmental consulting firm since 2022 and providing 4 types of environment management support services (training, diagnosis, training material, advice), along with timely policies based on annual focuses and specialized items. In addition, we are identifying potential environment/safety/health related risks through M&A environmental risk reviews when carrying out mergers and acquisitions. Starting in the review stage of new investments, we also identify environment-related material issues and regulations.



Environmental Performance Evaluation

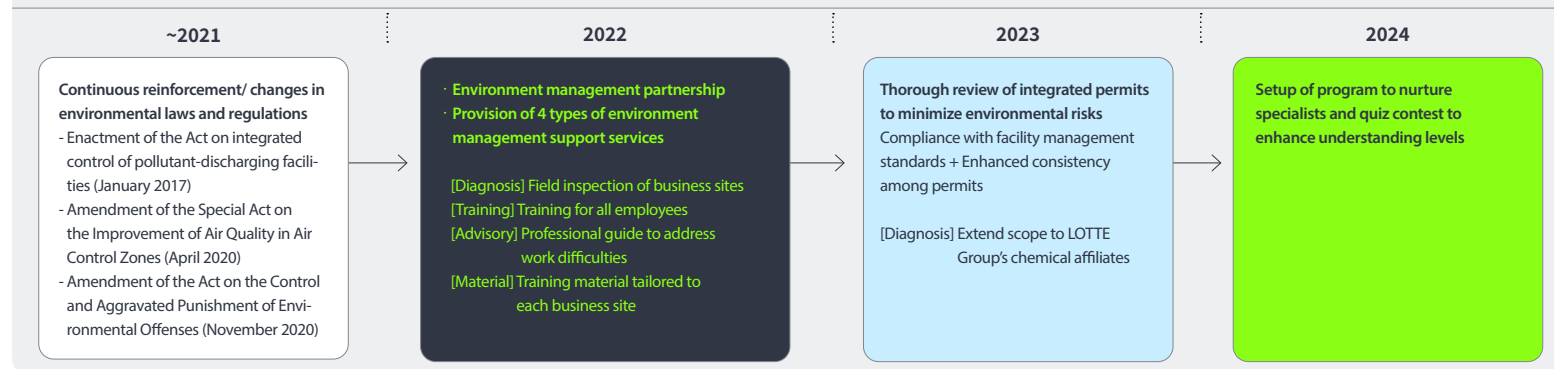
LOTTE Chemical selects various metrics to evaluate the environmental performance of the organization, and operates a compensation system based on the evaluation. This way, we encourage voluntary motivation from our employees for them to come together to work towards preserving the environment.

IMPLEMENTATION AND OPERATION OF COMPENSATION SYSTEM

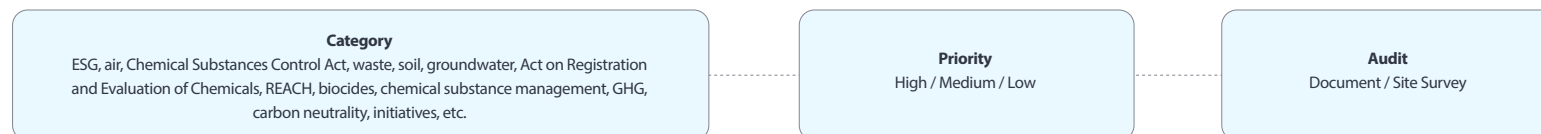


* Production plant : Basic chemicals (Yeosu/Daesan/Ulsan), Advanced materials (Yeosu Plant)

ENVIRONMENTAL MANAGEMENT ROADMAP



M&A DUE DILIGENCE QUESTIONS



METRICS AND TARGETS

We build environment investment plans each year to minimize release of pollutants and protect the natural environment. In 2023, we invested approximately KRW 91.9 billion in 'mitigating pollutants and complying with environmental laws and regulations.' We have a strong determination to make eco-friendly investments and announced "Green Promise 2030," our ESG strategy to pursue growth through pollutant and carbon mitigation by investing in eco-friendly facilities. In addition, we are striving to build eco-friendly business sites through assessments of environmental impact when reviewing and deliberating new businesses.

ESG Fund Performance and Plan

1 Formation of ESG Fund

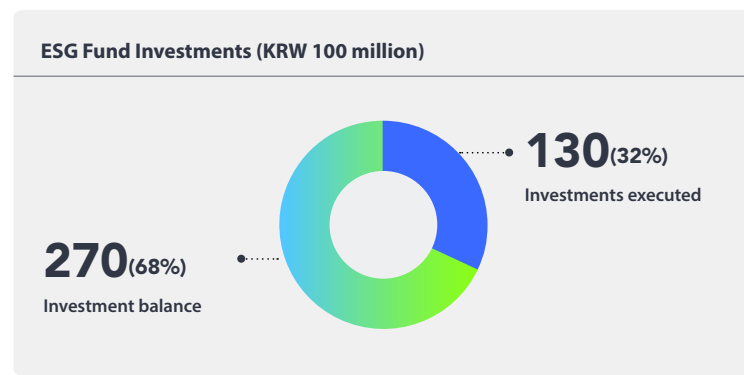
We formed and have been operating a KRW 50 billion ESG Fund since September 2021 to achieve our Green Promise 2030 vision. The purpose of the ESG Fund is to secure core carbon neutrality technologies related to hydrogen, CCUS (Carbon Capture Utilization and Storage), waste plastic raw materialization, and energy efficiency ahead of others. We were the first chemical company in Korea to create a dedicated fund for meeting carbon neutral targets and are looking forward to its role in improving our corporate image, as well.

2 Cases of ESG Fund Investments

Around KRW 13 billion worth of investments have been made until now from the ESG Fund to 7 promising companies. The invested companies have either direct or indirect collaborative ties with LOTTE Chemical. Airrane, a company with gas separation membrane technology, installed carbon capture facilities and carried out a pilot project at our Yeosu Plant while Waste Energy Solution, a waste plastic pyrolysis company, is partnering with us to supply pyrolysis naphtha using waste plastic. Also, Eco Marine, an inhouse venture spin-off, is building eco-friendly ships using LOTTE Chemical's HDPE products.

3 Overview of ESG Fund Investments

LOTTE Chemical has been executing investments each year through our ESG Fund. We will continue to use our ESG funds to secure new technologies related to carbon neutrality and take the lead in ESG activities.



※ Based on approximately KRW 40 billion after excluding estimated fund management fees

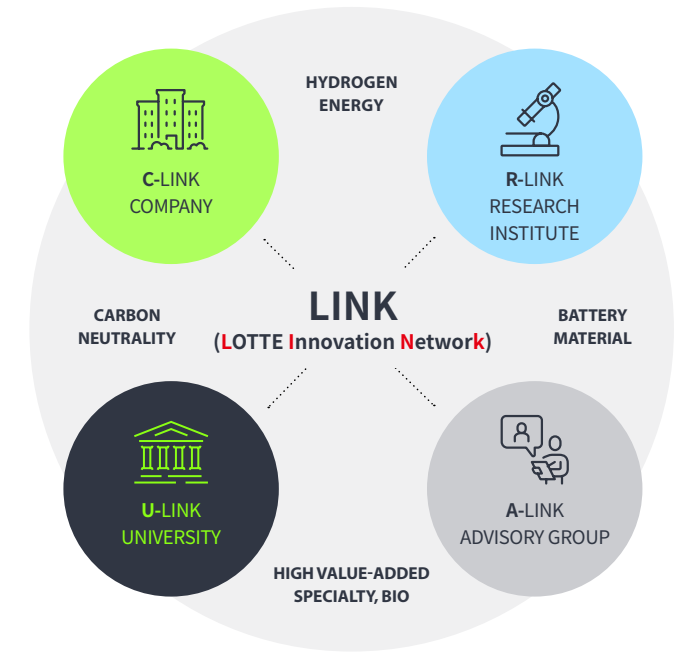


1. Airrane - Installation of carbon capture facility at Yeosu Plant
 2. Waste Energy Solution - Supply of pyrolysis naphtha using waste plastic
 3. Eco Marine - Production of eco-friendly ships

LINK (LOTTE Innovation Network) Project

In August 2022, LOTTE Chemical launched the LINK (LOTTE Innovation Network) project to secure core technologies and facilitate early commercialization in order to achieve "Green Promise 2030." The project was organized to proactively secure future technologies needed for our business and spread the technologies by cooperating with non-adjacent industries through open innovation research activities with universities (U-LINK), research institutes (R-LINK), companies (C-LINK), and advisory groups (A-LINK).

LINK (LOTTE Innovation Network)



In U-LINK, we are working with the KAIST Carbon Neutral Research Center. From 2022 to May 2024, 8 R&D projects have been carried out to develop advanced technologies for carbon neutrality and hydrogen/batteries, as well as conduct research on source technologies. In R-LINK, we are partnering with the Korea Research Institute of Chemical Technology (KRICT) for the development of syngas production technology via carbon dioxide reforming of methane. This study began with a transfer of technology from KRICT and is currently preparing for commercialization. In C-LINK, we are striving to secure world-class technologies and develop domestic CO₂ capture and utilization processes. We have formed a consortium with Hyundai E&C and the Korea Institute of Energy Research (KIER) for government initiatives where we are in charge of the development of membrane technology to capture CO₂. We look forward to such developments to lead to the production of blue hydrogen, GHG mitigations, and development of next-generation material.

LICORN Program

LOTTE Chemical has been operating an inhouse venture program called 'LICORN (LOTTE Chemical Inventive Unicorn)' since April 2021 to foster creative and challenging corporate culture and develop new growth engines. LICORN is an internal open innovation program that aims to spearhead new markets through inhouse innovation amid the rapidly evolving business environment, including the acceleration of ESG management and the advent of the 4th industrial revolution. Through the program, we are actively promoting the development and commercialization of various ecofriendly products. Five teams have been selected since 2021 based on creative ideas proposed by our employees with one team being spun-off, one team driving an internal business development, and one team having made a social contribution.

1 [Spin-off Case] Eco Marine Develops HDPE Material for Eco-friendly Vessels

Eco Marine, selected in LICORN's first year in 2021, developed Korea's first recyclable HDPE material for eco-friendly vessels. Realizing that most vessels relied on fiber glass reinforced plastic (FRP) that is hard to recycle and were later left abandoned due to high scrap costs, Eco Marine and its partner built a 16m-class HDPE boat named Possibility. Recognized for its eco-friendliness and innovation in using recyclable material, it won the Minister of Oceans and Fisheries Award at the 2022 Busan International Boat Show. Eco Marine was spun off in 2023 and has successfully attracted investments from multiple investors and continues to take on orders for eco-friendly-shipbuilding in cooperation with various government offices.

2 [Inhouse Business Development Case] Eco Box Develops Eco-friendly EPP Icebox

Also selected in LICORN's first year, Eco Box developed an eco-friendly insulated icebox using recyclable EPP (Expanded Polypropylene) material. While most iceboxes use PS material which is difficult to recycle, boxes using EPP material are outstanding not only in terms of cooling performance, but also in terms of eco-friendliness as it is recyclable. The team participated in the development of a special icebox used for transporting research samples and has also completed testing for iceboxes that can be used in the distribution of fresh food. After being approved as a business of the company In 2023, we are taking the initiative in spreading eco-friendly iceboxes with SambarkLFT currently in charge of production.

3 [Social Contribution Case] CLEARTH develops Eco-friendly Products with C-rPET

CLEARTH, selected in LICORN's 2nd year in 2022, develops educational toys and lab tools using C-rPET, a chemically recycled PET. While use of C-rPET was previously limited as it was not transparent when produced via injection molding, CLEARTH succeeded in the production of transparent C-rPET and manufactured a 'storage root observation kit' and has completed the production and testing for commercializing recyclable lab tools that can be used at research

labs. As an upcycling company, CLEARTH's C-rPET injection knowhow and dies can be borrowed for free to grow further as an eco-friendly enterprise that can contribute to our society.

Eco-friendly Research and Development

In line with eco-friendly trends, LOTTE Chemical is making endeavors in the field of research and development for resource circulation, carbon neutrality, and clean energy under the slogan, 'Every Step for Green.' First, we will expand our recycling business to create a sustainable plastic industry. We will increase mechanical recycling of materials for electronics/automotive vehicles/home appliances in the short-term while carrying out R&D for the commercialization of chemical recycling and pyrolysis technologies in the mid/long-term. We aim to achieve over 1 million tons in annual recycled plastic sales by 2030 with plans to make cumulative investments of KRW 1 trillion. Moreover, we are carrying out CCUS technology developments and research on process efficiency to achieve our 2050 Net Zero targets.

We are also researching clean hydrogen production technology for global widespread use of clean energy. To develop clean hydrogen technology such as pyrolysis/photodissociation/electrolysis, we plan to invest KRW 3 trillion by 2030 to supply 600 thousand tons of clean hydrogen.

Eco-friendly Technology Certifications (as of 2023)

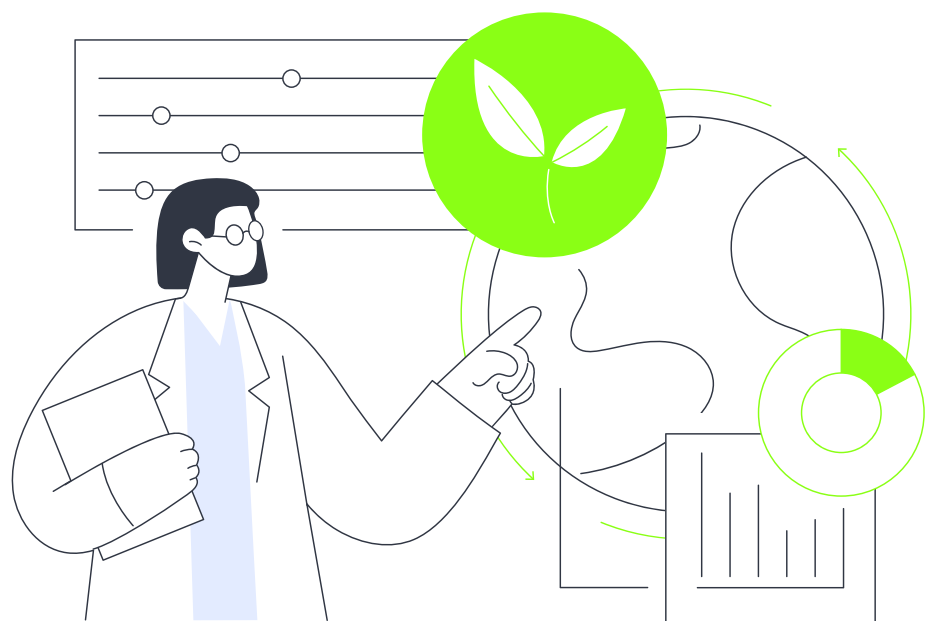
Nitrogen and phosphorus treatment technology using sludges treated with sodium hypochlorite (NaOCl) and submerged membranes (2016, Minister of Environment)

Smart Environmental Management Technology

LOTTE Chemical is managing air and water quality along with waste and reagents through the SHE (Safety, Health and Environment) system which supports the input/ viewing/analysis of environment-related data collected. A mobile reagent system was also introduced to allow hazardous chemical substances, inventory, and MSDS (Material Safety Data Sheet) information to be viewed via mobile and make handling environmental management tasks more convenient. The database is also being used in the healthcare sector to identify subjects for special health examinations.

Environmental Training

In addition to compulsory legal training, LOTTE Chemical operates an environmental training program that reflects the needs of different functions, employee levels, and responsibilities to offer all of our employees the opportunity to grow as an environmental specialist. We provide training on the enactment and amendments of key environmental laws and regulations while sharing inappropriate practices of other companies and continue to expand both online and offline training to meet the needs of our employees and raise environmental awareness.



ENVIRONMENTAL TRAINING



	Category	Topic	Participants	2023 performance
Company-wide Environmental Training	Strengthening business site response to stricter environmental laws and regulations	(1H) Raise awareness on the environment and key issues in legislations for each environmental medium (2H) Share recent diagnosis case studies	Business site executives and managers	8 sessions
	Environmental training tailored to field engineers	(1H) Case studies of inappropriate facility management and proper site management practices (2H) Share recent diagnosis case studies	Field engineers	16 sessions
	Intensive training on environmental management	Cultivate environmental management knowhow in relation to each legislation	Environment Team of each business site	4 sessions
	Key trends and responses in environmental laws and regulations	Act on the Control of Environmental Offenses, Act on the Integrated Control of Pollutant-discharging Facilities, Acts on Environmental Media Penalties related to key legislations	Environment Team of each business site	1 sessions
	Video training	Case studies of inappropriate facility management and proper site management practices	All employees	Ongoing
	Seminar for partner companies	PART1. Latest environmental legislations and response strategies PART2. Latest ESG regulatory trends and response strategies	80 employees from SME partner companies (attendance from total 61 partners)	1 session
Legal Education	Chemical Substances Control Act, Clean Air Conservation Act, Water Environment Conservation Act, Marine Environment Management Act, Waste Management Act	Cultivate environmental management knowhow in relation to each legislation	Designated person for each legislation	17 times

RESPONSE TO CLIMATE CHANGE

GOVERNANCE

Governance for Addressing Climate Change

1 BOD Supervision of Climate Risks

LOTTE Chemical set up an ESG Committee within our BOD to review the company's strategic direction and implementation plan for environmental management, discussing and making decisions on our goals and progress towards climate action and reducing energy use. The ESG Committee is the top decision-making body in the BOD in charge of developing internal policies and targets to lower dependency on fossil fuel and accelerate the transition to a low-carbon economy. The committee monitors carbon mitigation targets and performance twice a year and oversees the financial decisions made for key carbon reduction efforts such as transitioning to renewable energy.

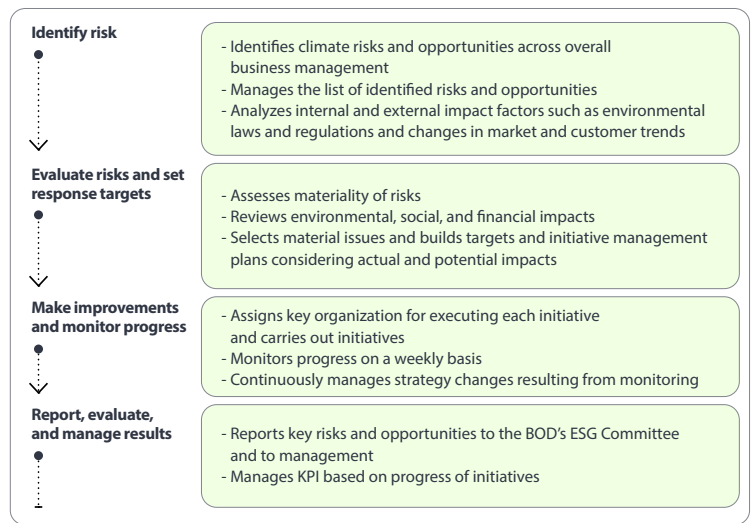
2 Role of Management

LOTTE Chemical has a Sustainability Committee made up of our executive members where the main agenda includes managing ESG management initiatives and stakeholder risks related to climate change. We have also established a Net-Zero Council armed with expertise to track our progress of carbon neutrality initiatives and improve our performance in a practical manner. The council manages quarterly targets, discusses relevant issues, and shares best practices among business sites. Our ESG Management Division, which directly reports to the CEO, is in charge of environmental and climate crisis issues. The Environmental Management Team within the ESG Management Division builds GHG abatement strategies, collects and analyzes data on energy use by facility, analyzes climate risks and opportunities, develops climate action strategies including emissions trading, and compiles information on our emissions reduction performance.

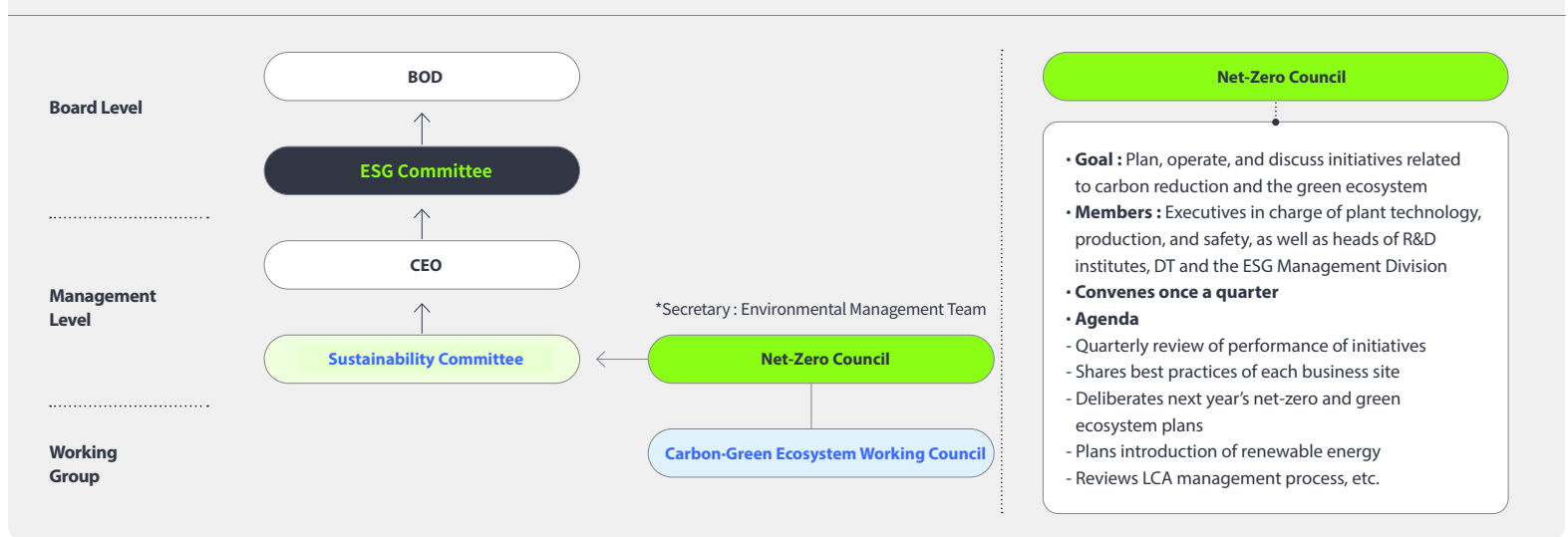
Key metrics such as carbon emissions and energy usage are reported to key executives including CEO on a monthly basis, and changes in key climate risks are shared timely through the many internal councils. LOTTE Chemical develops net-zero policies and relevant initiatives and targets (carbon emissions, amount of renewable energy adoption, improvement in disclosure of carbon data, etc.) each year, tying the performance to the CEO's KPIs and compensation. In addition, we are driving execution by linking results to the KPIs of the Environment Management Team under the ESG Management Division, as well.

RISK MANAGEMENT

PROCESS FOR IDENTIFYING AND EVALUATING CLIMATE CHANGE RISKS



GOVERNANCE STRUCTURE FOR CLIMATE ACTION



STRATEGY

LOTTE Chemical uses the TCFD framework to identify climate risks and opportunities and select those that are material considering the business model and value chain. The selected material risks and opportunities will be managed by analyzing relevant scenarios, reviewing business impacts and countermeasures, and incorporating them in key business strategies and financial planning.

Identification and Assessment of Physical Risks

We conducted a risk assessment of 34 business sites including global subsidiaries based on the SSP* scenarios set forth in the IPCC** 6th Assessment Report.

※ Utilization of CIP (Climate Impact Platform) Tool

<p>1 SSP 1-2.6</p> <ul style="list-style-type: none"> Assuming temperatures will rise by 1.9°C or more based on the Paris Agreement Sustainable low carbon emission scenario 	<p>2 SSP 3-7.0</p> <ul style="list-style-type: none"> Assuming absence of additional climate policies Projection that temperatures will rise by 4.3°C or more in 2100 Mid~high level carbon emission scenario 	<p>3 SSP 5-8.5</p> <ul style="list-style-type: none"> Assuming fossil fuel based economic growth continues Temperature rises by 5.2°C or more in 2100 High carbon emission scenario
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* SSP : Shared Socioeconomic Pathways

** IPCC (Intergovernmental Panel on Climate Change) : An organization of national experts under the United Nations to review comprehensive measures to address greenhouse gas emissions

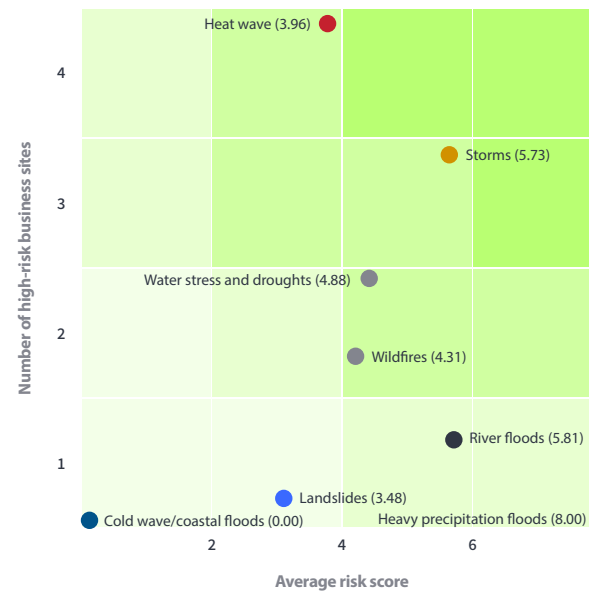
We aimed to prioritize risks based on geographical information and business impact, analyzing 9 climate drivers for the short-term (~2025), mid-term (~2030), and long-term (~2050).

CLIMATE DRIVERS

Acute				Chronic
Heat wave	Cold wave	Landslides	Wildfires	Water stress and droughts
Storms	River floods	Coastal floods	Floods due to heavy precipitation	

※ Consistent with the climate driver categories recommended in the UN Climate Risk Landscape Report and IPCC Report

EVALUATION OF CLIMATE DRIVERS



- Exposure to heat waves and storm risks were the highest for all scenarios and time frames
- Nearly all business sites are expected to be exposed to heat wave risks in the SSP5-8.5 scenario
- However, cold wave risks are projected to relatively plummet
- When business impact such as revenues are taken into account, the Yeosu Business Site (Basic Chemicals/Advanced Materials) in Korea and our business sites in India and Indonesia are estimated to have the highest integrated risks

[CASE STUDY] - TOP RISK BUSINESS SITE
- Yeosu Business Site (Basic Chemicals/Advanced Materials)

Heat wave – Current risk level is 'Very Low,' but scores are forecast to leap to 'Very High' levels in 2050 in the SSP5-8.5 scenario


Metric	Current	2050 (SSP-8.5)
Number of heat stress days	14.7	128.8
Highest annual temperature (°C)	34.9	37.1

Storms- 'Very High' risk levels are projected to be maintained across all timeframes and scenarios. Exposure is expected to rise across all of Korea as the amount of water evaporating from the sea into the atmosphere increases, creating stronger tropical cyclones moving to polar regions

Risk measurement of climate drivers by timeframe

Climate Drivers	Current Risk Scale	2030		2050	
		SSP1-2.6	SSP5-8.5	SSP1-2.6	SSP5-8.5
★ Heat wave	Very low (0.60)	⬇️ (1.74)	⬇️ (2.28)	⬇️ (2.40)	⬆️ (3.72)
Cold wave	Low (1.56)	⬇️ (0.92)	⬇️ (1.16)	⬇️ (0.80)	⬇️ (0.56)
★ Storms	Very high (5.28)	⬆️ (6.08)	⬆️ (6.24)	⬆️ (6.24)	⬆️ (6.64)
Wildfire	Very low (0.00)	⬇️ (0.00)	⬇️ (0.00)	⬇️ (0.00)	⬆️ (0.32)
Water stress & droughts	High (3.28)	⬇️ (3.12)	⬇️ (3.12)	⬇️ (3.28)	⬇️ (3.04)

※ Risk scale: Very Low (0~1), Low (1~2), Moderate (2~3), High (3~4), Very High (4~10)
 ※ Risk variation: ⬇️(-2 or less), ⬇️(-2~-1), ⬇️(-1~-0.25), ⬇️(-0.25~0.25), ⬆️(0.25~1), ⬆️(1~2), ⬆️(2 or more)



Location

LOTTE Chemical's Yeosu business site is located within the Yeosu Industrial Complex, situated on the Yeosu Peninsula along the southern coast, which features complex coastlines and tidelands. The surrounding mountain ranges stretch from east to south, characterized by steep slopes and limited level ground.

Climate

Belongs to the Southern Coastal climate zone where summers are relatively cool and winters are relatively warm.

Physical Risks and Reponses

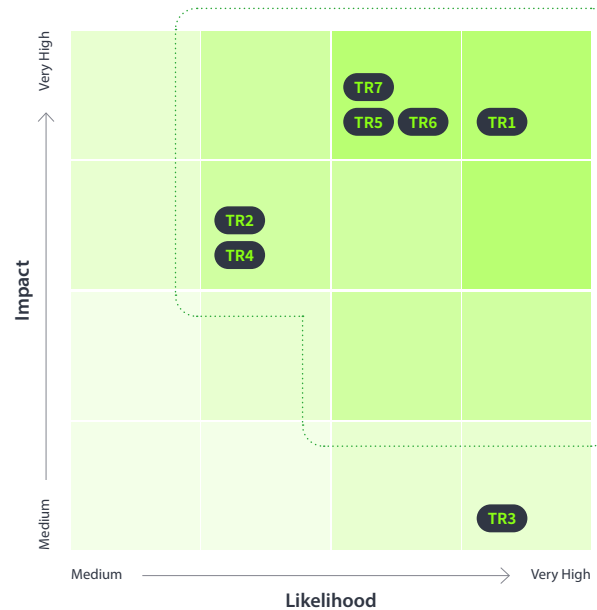
Climate driver	Response
★Heat wave	1. Supplied water and glucose supplements 2. Installed air conditioners in rest area for workers 3. Flexible workhours during heat waves 4. Installed canopies and tarps 5. Built employee health management response process for different levels of heat waves 6. Performed training on how to prevent heat related illnesses 7. Reviewed thermal imaging of equipment inside substations and electrical rooms (monthly)
Water stress and droughts	1. Filled as much water as reserve water tanks and cooling towers could accommodate to prepare for drought 2. Reviewed plants subject to some discontinued operations in the event of limited water 3. Reduced unnecessary water use from restraining measures (limit use of water within plants, increase cooling tower temperatures, etc.) 4. Minimized the amount of cooling tower blow downs* 5. Recovered Open Ditch** discharges and steam condensates at maximum capacity 6. Examined fire distinguishing pipes for leaks and reviewed maintenance plans 7. Increased water reuse within plants
★Storms/Floods	1. Checked for abnormalities in the Dike*** /rain waterway/wastewater tank 2. Inspected emergency goods, equipment, and supplies 3. Facility management 4. Removed waste and cleaned/organized the area 5. External experts regularly diagnose wind and floods
Landslide	Devised guidelines for preparation and response in emergency situations Set up a cascading system for responding to incidents
Wildfire	Partnered with local fire stations and responded by supporting dispatches

* Blow Down : The withdrawal of water from the cooling tower installed to cool, store, and circulate water, in order to manage water quality
 ** Open Ditch : An uncovered drainage made on the ground surface to divert water
 *** Dike : An embankment installed around the storage tank of raw material to hold back leaks

Identification and Evaluation of Transition Risks

LOTTE Chemical forms a pool of climate change risks and opportunities, drawing out key factors that may impact our business goals, financial performance, and operations based on peer analysis and literature searches. Afterwards, we apply the TCFD framework to identify the types of risks such as policy and regulations, technology, and market reputation in relation to climate change. Our Carbon Working Council holds discussions taking into account our business strategy, market trends, and competitiveness to determine material transition risks. This is followed by analyzing the business impact and likelihood of the material risks based on the International Energy Agency's (IEA) Net Zero 2050 (Below 1.5°C) scenario. Business impact is a financial conversion of the impact on the company's long-term strategy, activities, or reputation and is evaluated on a 4-level scale in proportion to revenues of the latest business year.

EVALUATION OF TRANSITION RISKS



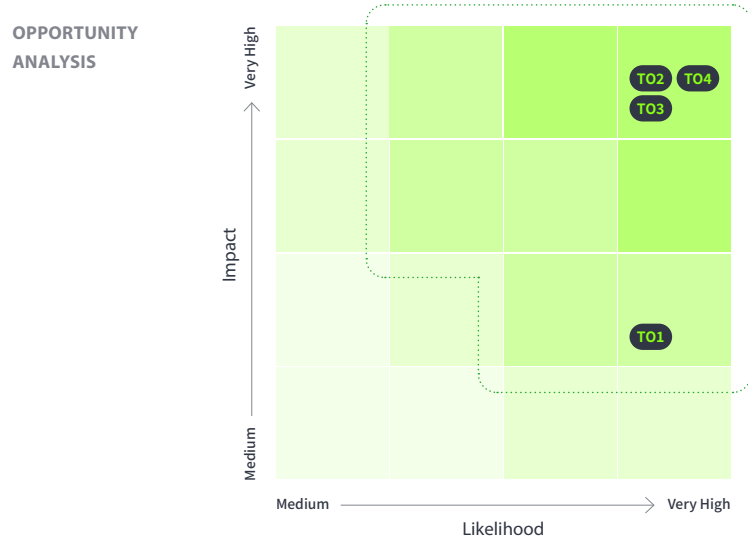
Likelihood of the material risks was also assessed using a 4-point scale based on recent records of likeliness to take place within 1 year, within 2 years, and within 5 years. As a result, increased use of carbon credits due to reinforced emissions trading was identified as imposing the highest risk. 3 high risks were also identified, including the growing demand for low carbon products, increased customer demand for information on eco-certified products, and weakened business competitiveness triggered by supply chain carbon regulations and carbon taxes.

Ref	Type	Risk Name
TR1	Policy and regulations	Increased use of carbon credits with reinforced emissions trading
TR2	Policy and regulations	Rise in freight costs with transition to low-carbon transportation market
TR3	Policy and regulations	Weak cost competitiveness due to global carbon tariffs
TR4	Policy and regulations	Higher raw material costs due to resource recycling mandates
TR5	Market	Growing demand for low-carbon products and customer demands for information on eco-friendly certified products
TR6	Market	Less competitive in the market due to carbon regulations and carbon taxes in the supply chain
TR7	Reputation	Increased needs for introducing renewable energy

Items classified as high risks

Identification and Evaluation of Opportunities Arising from Climate Transition

LOTTE Chemical analyzed the transition opportunities and impact resulting from climate change, using the same process as applied to the analysis of transition risks. Types of transition opportunities were identified in relation to climate change such as resource efficiency, products and services, market, energy source, and recovery with material transition opportunities selected through discussion by our Carbon Council.



Ref	Type	Opportunity
TO1	Energy source	Reduction in operating costs by making transition to renewable energy
TO2	Products and services	Expansion of clean energy market with green hydrogen and ammonia production
TO3	Products and services	Increase in demand for low-carbon and recycled products
TO4	Market	Increase in demand for battery material due to growing demand for EV material and technology

Items classified as 'Very High' risks

As a result, 3 priority opportunities were determined; pursuing clean energy new business including green hydrogen and ammonia production, increasing profits by expanding supply of recycled products, and implementing a new business for battery materials.

Financial Impact of Risk & Opportunity and our Response

We have gained a qualitative understanding of the potential financial impact of each factor and have developed corresponding strategies based on risk and opportunity analysis conducted according to TCFD guidelines. Going forward, we will quantify the potential financial impact in the order of importance.

Category	Type	No.	Risk/Opportunity and its Potential Financial Impact	Response Strategy	Time horizon of Risk/ Opportunity		
					Short-term (~2025)	Mid-term (~2030)	Long-term (~2050)
Physical risk	Acute	PR1	Unstable supplies of raw materials (such as naphtha and LPG) and disruptions in plant operations due to increased storm risks, fueled by higher atmospheric water vapor from global warming, have undermined productivity and caused a drop in revenues	Conduct regular diagnosis of wind of floods at each business site by external experts and take preventive measures		●	●
	Chronic	PR2	Rise in safety management and operating costs when climate change triggers more risk of higher average temperatures and heat waves	1. Inspect operations of cooling facilities and thermal imaging of equipment inside substations and electrical rooms 2. Build health management procedures for workers based on different levels of heat wave		●	●
Transition risk	Policy and regulations	TR1	Increase in carbon credits costs due to reinforced emissions trading	1. Analyze impact of global carbon tariffs and regulations on the company and build marketing strategy 2. Set up internal decision-making system for internal carbon pricing		●	●
	Market	TR5	Drop in profits when failing to secure product competitiveness to respond to growing demands for low-carbon products and customer requests for information on eco-friendly certified products	1. Produce low-carbon, high value-added products by implementing Net-zero roadmap details 2. Build LCA systems and expand green certification	●	●	●
		TR6	Drop in profits due to undermined market competitiveness as a result of carbon regulations and carbon taxes in the supply chain		●	●	●
	Reputation	TR7	Rise in investment costs to address increasing needs for adopting renewable energy	Minimize fluctuation in electricity prices through self-generated solar energy and PPAs, and secure renewable energy sources	●	●	●
Transition opportunity	Products and services	TO1	Growth in revenues by pursuing new business for clean energy such as green hydrogen and ammonia production	1. Build infrastructure for overall hydrogen business including shipping centers and charging stations 2. Develop green ammonia and clean hydrogen technology		●	●
		TO2	Growth in revenues when securing product competitiveness by expanding supply of recycled products in line with increase in demand for low-carbon products	1. Increase development and sales of recycled plastic products 2. Develop and expand ECOSEED brand		●	●
	Market	TO3	Growth in revenues when pursuing new business for battery material in line with increase in demand for EV materials and technology	1. Enter the global business with aluminum and copper foil 2. Develop next-generation battery technology such as solid-state batteries and vanadium ion batteries		●	●

Net-Zero and RE100 Roadmap

LOTTE Chemical has set a goal to mitigate our carbon emissions by 2030 by 25% compared to peak levels in 2019. This is more ambitious than the government's industrial sector target (11.4% reduction from 2018) and represents a reduction of carbon emissions by 2.97 million tons compared to the BAU emissions* (emissions without any reduction measures) of 7.98 million tons. In the long term, LOTTE Chemical has set a target to curtail carbon emissions by 8.73 million tons compared to the BAU level by 2050 to achieve net-zero** and take part in the global movement to combat climate change***. We have built and announced eco-friendly policies and goals to achieve net-zero. One of our plans to reach carbon neutrality is to increase the use of renewable energy not only across all of LOTTE Chemical's businesses, but also at our subsidiaries where we have 50% or more stake. Based on such efforts, we joined the global RE100 initiative in 2023 and will steadily expand adoption of new renewable energy such as solar energy and wind power.

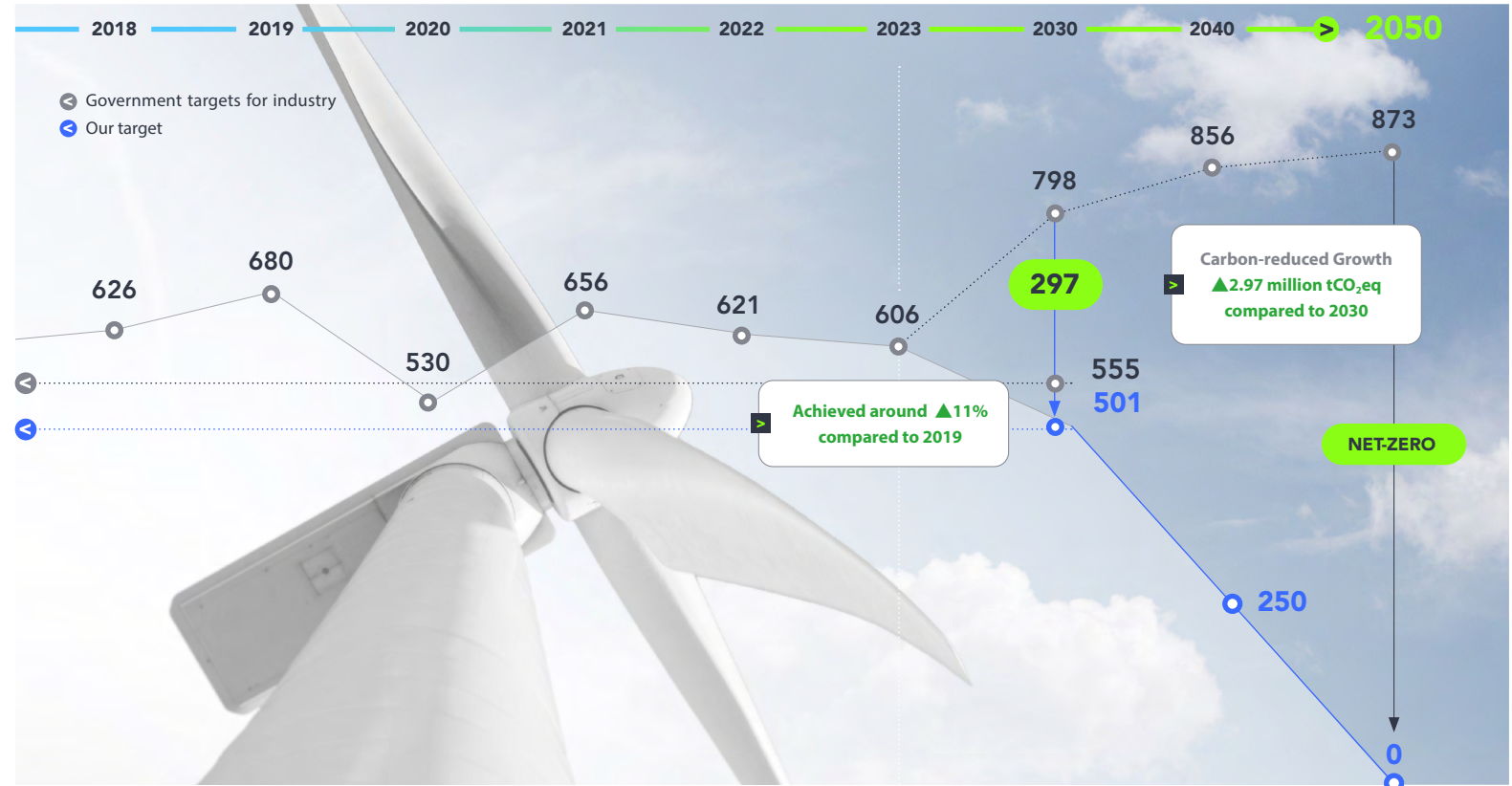
We plan to secure Power Purchasing Agreements (PPAs) and Renewable Energy Certificates (RECs) for our domestic business sites to increase use of renewable energy to 60% across all our business sites by 2030 and reaching 100% transition by 2050 through green hydrogen-fueled power generation facilities. To achieve our GHG mitigation goals, we have developed a short-term plan to improve our processes and construct zero-energy buildings. In the mid-to-long-term, we plan to transition to low carbon fuels (LPG) and eco-friendly fuels (LNG) and take a phased approach in achieving our carbon neutrality goals by securing new renewable energy through the installation of solar power plants and hydrogen fuel cell facilities. In addition, we are considering various carbon capture technologies including CO₂ capture through membranes, carbonization processes, and underground storage overseas.

* BAU (Business As Usual) Emissions : Emissions without reduction measures

** Net-Zero : Net-zero carbon emissions

*** LOTTE Chemical's Net-Zero target is limited to Scope 1 & 2 emissions

LOTTE CHEMICAL NET-ZERO PLAN (Unit: 10,000 tCO₂eq)



CARBON REDUCTION INITIATIVES AND TARGET EMISSIONS (Unit: tCO₂eq)

Initiative	Details	2030 Target Emissions	2050 Target Emissions
Energy efficiency improvement	Process improvements, zero-energy buildings (Daejeon, Uiwang)	39	330
CCUS	CO ₂ capturing membranes, adoption of carbonization processes, etc.	50	261
Raw material and fuel replacement	Conversion to low carbon fuel (LPG) and eco-friendly fuels (LNG), etc.	28	43
Renewable energy	Installation of solar power plants and hydrogen fuel cell facilities, etc.	180	239
Total		297	873

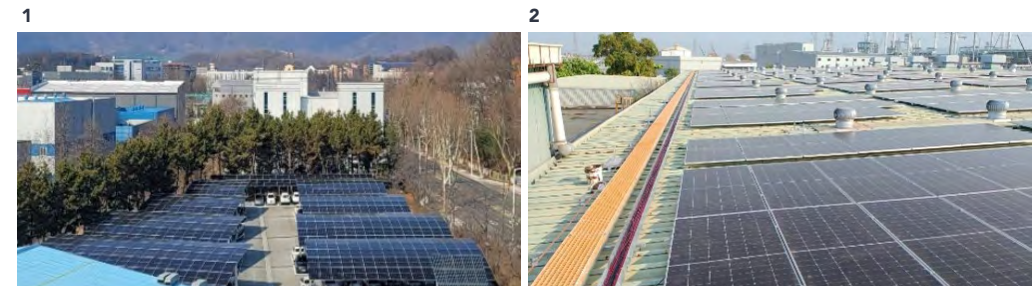
Renewable Energy Adoption Activities

1 Adoption of Renewable Energy at Domestic Business Sites

LOTTE Chemical uses various measures to introduce renewable energy. In 2023, we signed a long-term supply agreement for solar RECs with a 5MW solar power plant and are also reviewing PPAs with a wide range of solar-based renewable power plants. We are currently installing solar power generation facilities on the roofs and on idle space in parking lots at seven of LOTTE Chemical's domestic business sites which will be expanded to all sites in 2024. Installation of solar power generation facilities with a capacity of around 630kw have been completed at the LOTTE Chemical R&D Center in Daejeon to replace approximately 16% of the total electricity used at the Center with renewable energy. On top of this, we have plans to install ESS* in solar power generation facilities by 2024 to optimize the use of solar energy.

*ESS : Energy Storage System

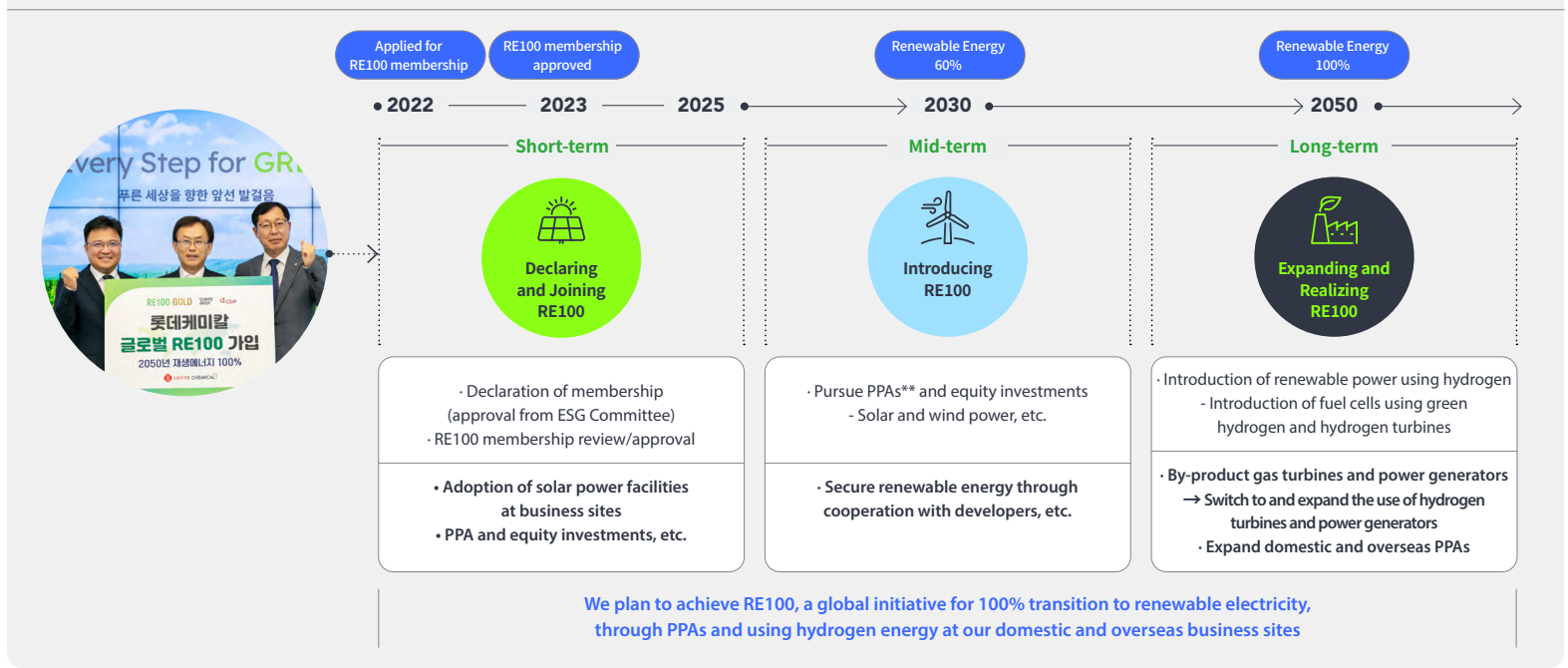
1. Installation of solar power facilities at idle space at parking lots (LOTTE Chemical R&D Center)
2. Solar power facilities at idle space on the roof of business sites (LC TITAN)



2 Adoption of Renewable Energy at Overseas Business Sites

LOTTE Chemical is reviewing and adopting renewable energy at each of the countries where we operate to achieve the global RE100 target. In Indonesia, we signed an MoU(Memorandum of Understanding) with domestic solar developers and PLN, Indonesia's state-owned power provider, in April 2004 to review deploying floating solar panels (around 100MW) to adopt renewable energy at local business sites. At LC Titan's plants, 0.9MW capacity solar power generation facilities have been installed in empty space on the roof of the business site to replace 0.7% of the site's total electricity consumption with renewable energy. At the Advanced Materials Business' compound manufacturing corporation in Vietnam, an agreement has been signed with a renewable energy power generation company and installed 0.9MW capacity solar power facilities in April 2022. This is equivalent to an annual 1,300MWh in electricity generated from renewable energy and 17% of the site's total power consumption.

RE100 Roadmap*



* RE100 (Renewable Energy 100%) : An initiative targeting for 100% use of electricity generated from renewable energy sources (solar, wind, hydro, locally obtained) by 2050 (60% by 2030)
 ** PPA (Power Purchase Agreement) : A type of contract that regulates the purchase and sales of power that is used as a means to secure renewable energy through agreements between renewable energy suppliers and end-users seeking to purchase electricity

Implementation of Renewable Electricity Supplier Platform

We plan to acquire additional renewable energy to relay supply not only within LOTTE Chemical, but also to our domestic subsidiaries, chemical affiliates, and other affiliates that have end-user demand within the LOTTE Group to contribute to their efforts in achieving Net Zero and RE100 goals. To carry out these plans, LOTTE Chemical obtained status as a renewable electricity supplier in March 2024 and is scheduled to consecutively provide electricity through PPAs to subsidiaries required to secure renewable energy.

Introduction of Zero-Emission Vehicles

LOTTE Chemical joined the Ministry of Trade, Industry, and Energy's Vehicle Purchase Target Management initiative to increase share of eco-friendly electric, hydrogen, and hybrid vehicles. We are also participating in the K-EV100 campaign led by the Ministry of Environment, striving to transition to 100% emission-free vehicles by 2030 and also building relevant infrastructure including charging stations for electric and hydrogen-fueled vehicles.

Voluntary Mitigation and Increased Carbon Credits for Carbon Offsetting

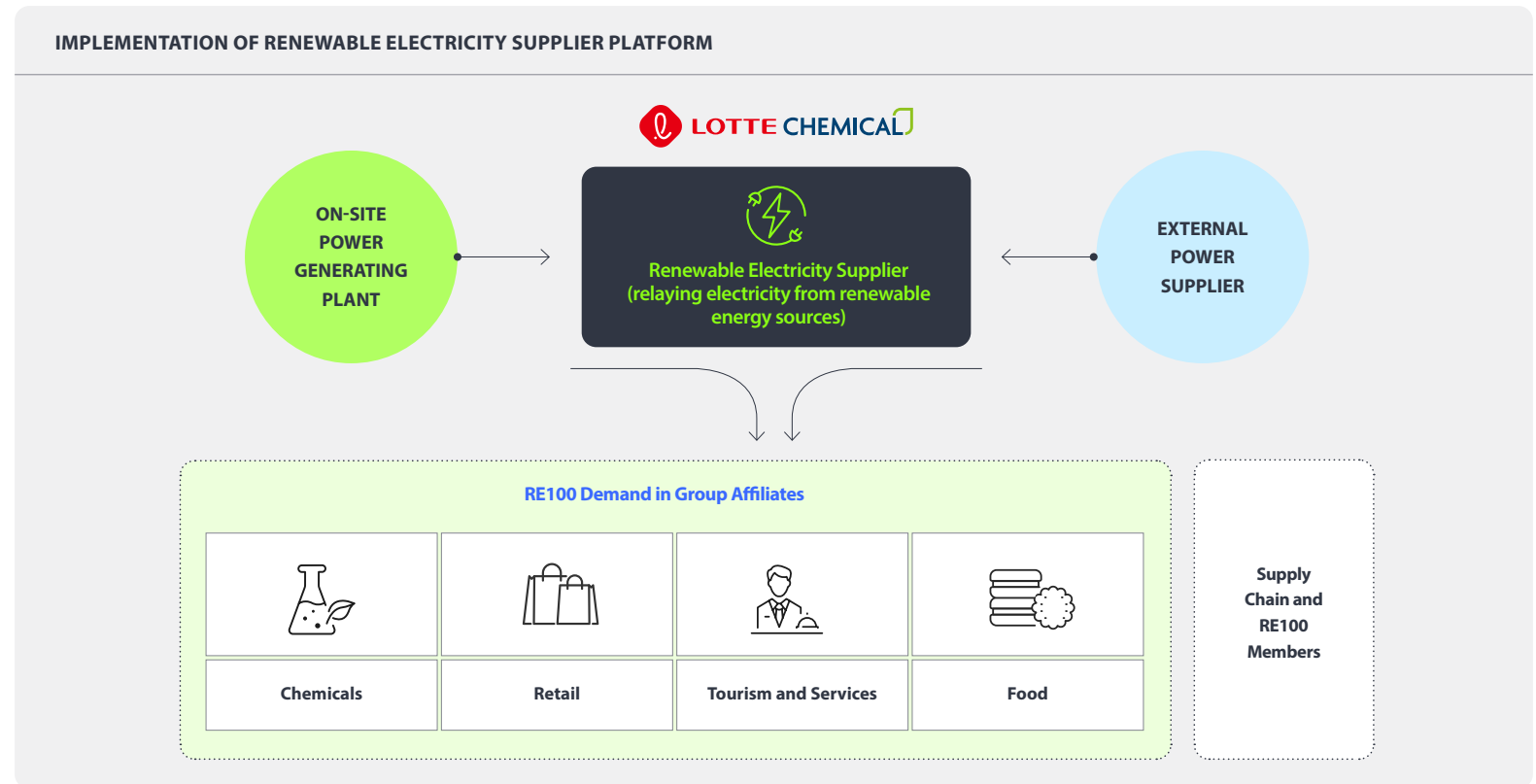
LOTTE Chemical is making voluntary endeavors to reduce our carbon footprint, both domestically and globally. In 2023, we purchased Korean offset credits (KOCs) through the overseas cookstove offset program. The completed purchases of 347,000 tCO₂eq over the course of 4 rounds can be converted to Korea Credit Union (KCU) emission allowances by 2028 based on domestic emission trading guidelines and will be used according to the company's strategy*.

* Carbon Offsets : A scheme where Korean Offset Credits (KOC), greenhouse gas offsets for external businesses approved by the Korean government, are earned and can be converted to Korea Credit Union (KCU) emission allowances to be used by controlled entities under the emissions trading system or traded in the emissions trading market.

Progress in the CO₂ Capture Business

LOTTE Chemical has completed a pilot project on Carbon Capture Utilization (CCU) facilities that use gas separator membranes and is in the process of commercialization. CCUS is a technology that captures CO₂ from the atmosphere or from exhaust gases and stores it safely for long periods to be used for industrial purposes. The captured CO₂ will be used to make high-purity ethylene carbonate (EC) for organic solvents in electrolytes for electric vehicle batteries, dimethyl carbonate (DMC), and polycarbonate (PC) plastics. We plan to sell the captured CO₂ for use in dry ice and semiconductor cleaning solutions.

CCU technology will also be applied to expanding our Yeosu Plant and production of green methanol. This way, we will increase our CO₂ capture and utilization scale to an annual 500,000 tons by 2030 and 2.61 million tons by 2050. Meanwhile, we have partnered with 10 global companies to conduct a business feasibility study on the offshore carbon capture and storage (CCS) business.



METRICS AND TARGETS

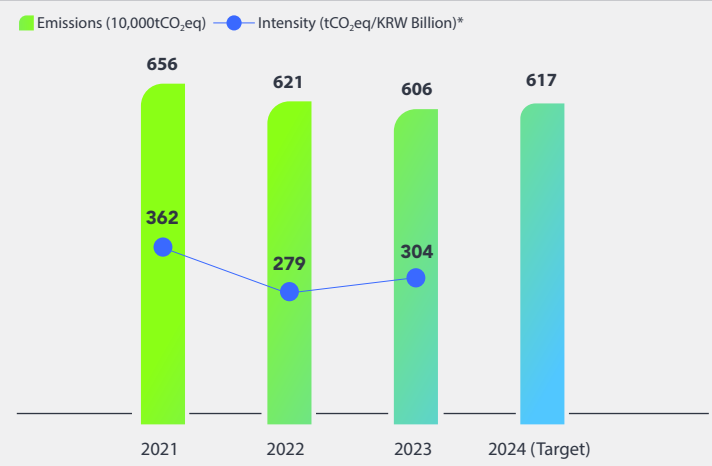
Scope 1&2 Reduction Targets

LOTTE Chemical adheres to the domestic emissions trading scheme, calculating annual GHG emissions for each business site based on guidance from the GHG Protocol* and completing third-party assurances. Calculations found that total Scope 1&2 emissions in 2023 recorded 6.06 million tCO₂eq while total energy usage reached 119,000 TJ. We have developed and are implementing key mitigation strategies to curb GHG emissions by 25% by 2030 compared to 2019 levels and achieve our 2050 Net Zero goals.

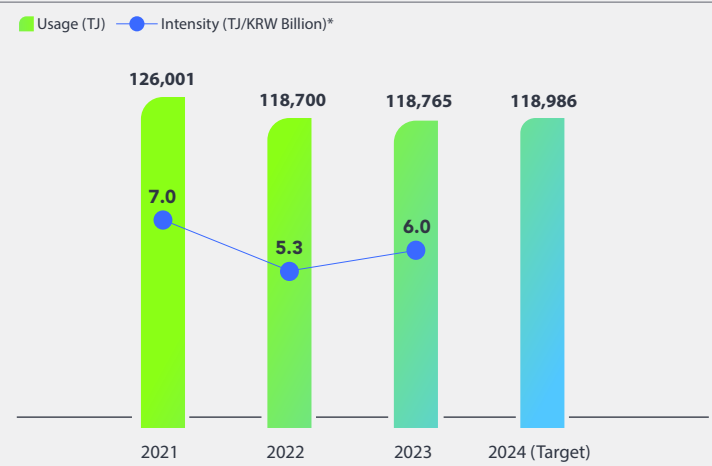
In 2023, we lowered GHG emissions by around 200,000 tCO₂eq through improved energy efficiency and fuel transitions. Key mitigation activities included drop in fuel consumption by optimizing process operations at the Ulsan Plant of Basic Chemicals division, waste heat recovery through MVR* operations at the Yeosu Plant of Advanced Materials division, and transition from naphtha to LPG, which is the primary raw material used at the Daesan and Yeosu Plants of Basic Chemicals division. In addition, we gather the energy conservation efforts of LOTTE Chemical and some of its subsidiaries to select and award best practices each year to cascade the practices across our business sites. After evaluations on energy efficiency, technology innovations, sustainability, and scalability, increasing steam production and cutting power costs through process optimization at the Ulsan Plant of Basic Chemicals division was selected and awarded as the Best Practice for carbon reduction.

* MVR (Mechanical Vapor Recompression) : A mechanical vapor recompression system that maximises energy recovery by exchanging low-temperature waste heat generated in the production process (tower, reactor) with low-pressure steam or waste low-pressure steam generated by heat exchange through an evaporator, and using it by increasing the pressure to the required pressure for the process through MVR

GREENHOUSE GAS EMISSIONS (SCOPE 1&2)



ENERGY USAGE



* Intensity based on sales in the main financial statements

Energy Reduction Activities and Goals

We have continued to take part in the government's Voluntary Energy Efficiency Target System pilot program and Korea Energy Efficiency Partnership (KEEP 30*) since 2021 and 2022, each respectively, to carry out systematic energy reduction efforts. Starting with the Basic Chemical's Yeosu Plant, we are reviewing productivity and profitability improvement projects at all of our production business sites in 2024 and plan to continue to develop additional energy reduction opportunities.

* KEEP 30 : Korea Energy Efficiency Partnership 30 where the 30 energy-intensive businesses that represent 57% of total industry energy consumption in Korea push to improve energy efficiency by 1% each year

Implementation and Operations of GEMS*

LOTTE Chemical introduced GEMS in 2010 as the industry's first system for managing greenhouse gases and energy. It remains operational today, having undergone system upgrades in 2013 and 2020. GEMS offers comprehensive management of energy and greenhouse gas related progress to manage climate actions by analyzing GHG data from each manufacturing process.

* GEMS : Greenhouse Gas & Energy Management System is a system for efficient management of greenhouse gases and energy to meet targets



Scope 3 Calculation and Reduction Targets

LOTTE Chemical has been calculating our Scope 3 emissions by category since 2022 based on the GHG Protocol. In 2022, GHG emissions for eight categories were measured based on 2021 data, and three categories among them obtained third-party assurance. In 2023, emissions were calculated for 11 categories based on 2022 data with third-party assurance received across all of the categories.

With extended scope of third-party assurance compared to the year before, methodologies were overhauled to secure data consistency. In 2022, Category 2 (emissions from capital goods) emissions were calculated using cost-based factors for each sector that were previously released by the Bank of Korea for our entire capital goods. In 2023, calculations were redefined by assessing the capital goods we own that are certified with the Environmental Product Declaration (EPD), thereby updating our emission figures. Moreover, Category 8, 13 (upstream/downstream leased assets), and 15 (investments) were newly added to calculations in 2023, increasing our Scope 3 emissions by 31% compared to last year.

Category 1 and 15 represented around 96% of the Scope 3 emissions measured in 2023. Therefore, we will strive to reduce Category 1 emissions by increasing production of recycled plastic products and support subsidiaries in building and executing GHG mitigation plans to address emissions subject to Category 15.

Changes to Category 12 end of life treatment of sold products

For Category 12, we have calculated and disclosed the emissions in 2022 and also calculated in 2023. However, the consistency in the ratio and emission factors for each country's disposal/treatment method has not been secured. We plan to refine our calculation methods in the future and disclose the data again after ensuring consistency.

Category ① Purchased goods and services

- Activity data: LCMS 2022 purchased raw material data & naphtha purchase volume & water withdrawals
- Emission factor: National LCI DB (Environmental Product Declaration)
- Formula: Raw material volume purchased × EPD emission factor of each raw material

Collect data from the LOTTE Chemical Management System (LCMS) on the type and volume (in weight) of purchased raw materials, multiplying it by the carbon emission factor* of each substance

Category ④, ⑨ Upstream and downstream transportation and distribution

- Activity data: Data managed by relevant departments in charge of transportation (including internally managed files and SAP system)
- Emission factor: National LCI DB (Environmental Product Declaration)
- Formula: Transport distance × weight × carbon factor of each transport means

Define departing and arrival locations for each means such as ships, planes, or trucks, etc. and calculate as freight weight × distance from (point of departure~arrival) × carbon factor

Category ① Purchased goods and services

- Activity data: Statements of companies subject to the domestic emissions trading system selected based on equity investment ratios in our business report and GHG emissions internally calculated by key overseas subsidiaries
- Emission factor: Emission factor based on 2022 Emission Report required by National GHG Management System
- Formula: Equity rate × total GHG emissions

Limited to overseas subsidiaries (LC TITAN, LC USA) with large-scale emissions among domestic entities and overseas subsidiaries, and calculated only for companies with 50% or more equity stake at year-end and companies subject to disclosing emission volumes

* Carbon Emission Factor : The Ministry of Environment's Environmental Product Declaration data was used. In case of no matching emission factor, average emission factors of basic chemicals were used.

SCOPE 3 EMISSIONS BY CATEGORY (Unit: tCO₂eq)

Category	Details	Emissions	
		2023 (FY2022)	2022 (FY2021)
Category ①	Purchased goods and services	8,647,375	8,365,478
Category ②	Capital goods	94,393	214
Category ③	Fuel and energy related activities not included in Scope 1&2	17,939	10,351
Category ④	Upstream transportation and distribution	268,001	359,749
Category ⑤	Waste generated in operations	29,168	41,768
Category ⑥*	Business commuting	854	134
Category ⑦**	Employee commuting	3,516	19
Category ⑧	Upstream leased assets	57	
Category ⑨	Downstream transportation and distribution	104,761	78,298
Category ⑬	Downstream leased assets	6	
Category ⑮	Investments	2,421,878	
Total		11,587,948	8,856,011

* Changes in 2023 data on Category 6 Business commuting : In line with the Environmental Product Declaration Guideline, departure and arrival points are classified from a city-city basis to a territory basis

** Changes in 2023 data on Category 7 Employee commuting : To enhance the verification methodology, the percentage of commuters by transport was calculated based on national statistics and applied to the number of employees

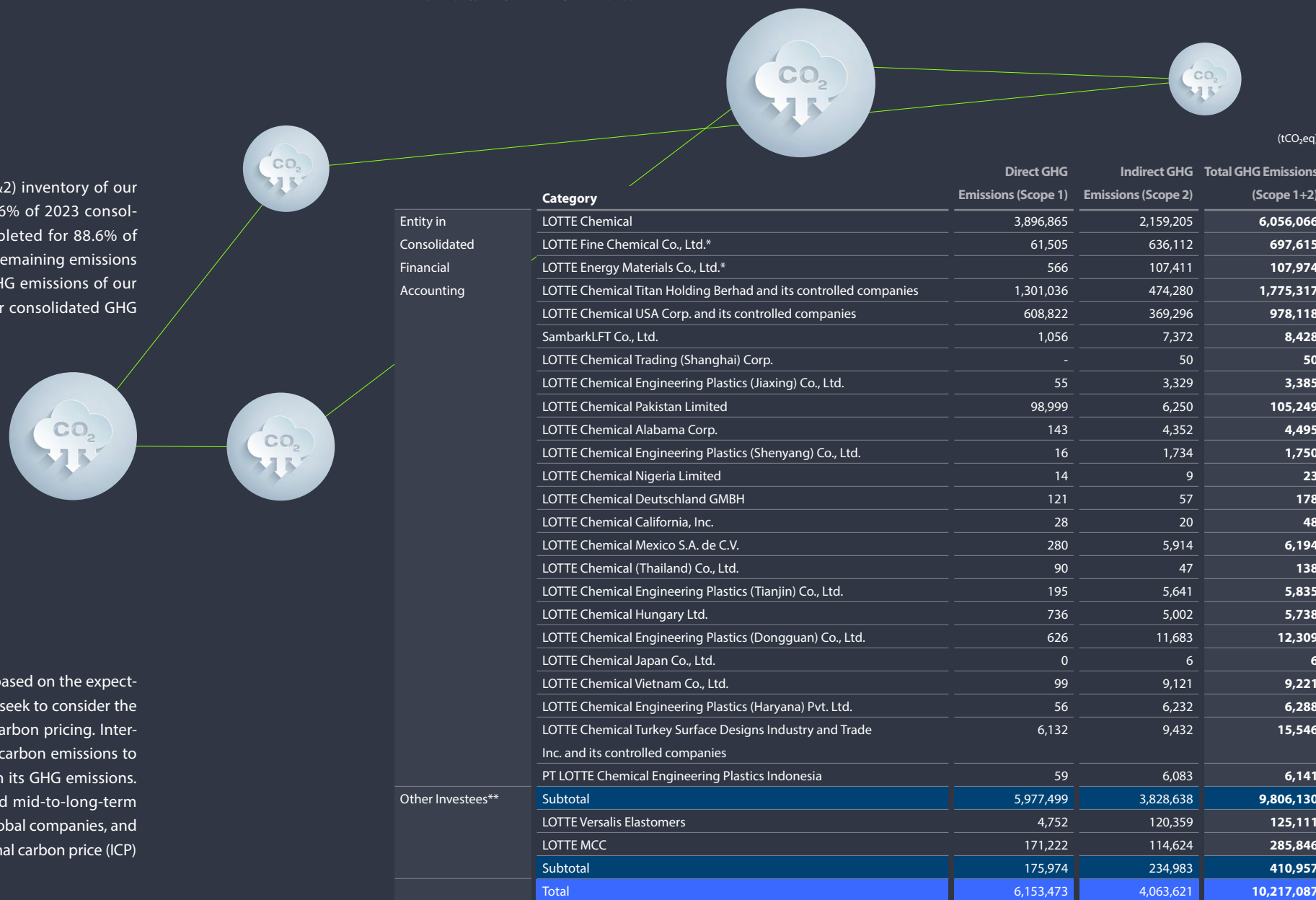


Environmental - Social - Governance

SPECIAL PAGE

Consolidated Data on Greenhouse Gas Emissions

LOTTE Chemical supported building the GHG (Scope 1&2) inventory of our consolidated subsidiaries for emissions relevant to 96.6% of 2023 consolidated revenues. Third-party assurance has been completed for 88.6% of total emissions and is expected to be completed for the remaining emissions within this year. We plan to continue to measure the GHG emissions of our consolidated subsidiaries and build a mitigation plan for consolidated GHG emissions (Scope 1&2).



Plans for Internal Carbon Pricing

On top of evaluating the economics of investment plans based on the expected rate of return compared to investments made, we also seek to consider the financial impact of GHG emissions by applying internal carbon pricing. Internal Carbon Price (ICP) is a value a company places on its carbon emissions to internally understand the economic costs associated with its GHG emissions. LOTTE Chemical plans to develop a short-term price and mid-to-long-term price based on IEA scenarios, ICP levels at domestic and global companies, and the current price gap of carbon credits by region. Our internal carbon price (ICP) project is currently underway since Q2 2024.

The ICP will be applied to long-term business plans and investment strategies to be used for identifying climate-related risks and opportunities, as well as making strategic decisions on capital investments.

* For LOTTE Fine Chemical Co., Ltd. and LOTTE Energy Materials Co., Ltd., the data excludes subsidiary companies

** Among the 17 non-consolidated subsidiaries, data for two subsidiaries that are subject to domestic GHG emissions trading schemes are disclosed in the 2023 ESG Report

※ GHG third-party verification is expected to be completed in July 2024, which may result in some differences between the GHG emissions and the verified numbers.

MANAGEMENT FOR RESOURCE CIRCULATION

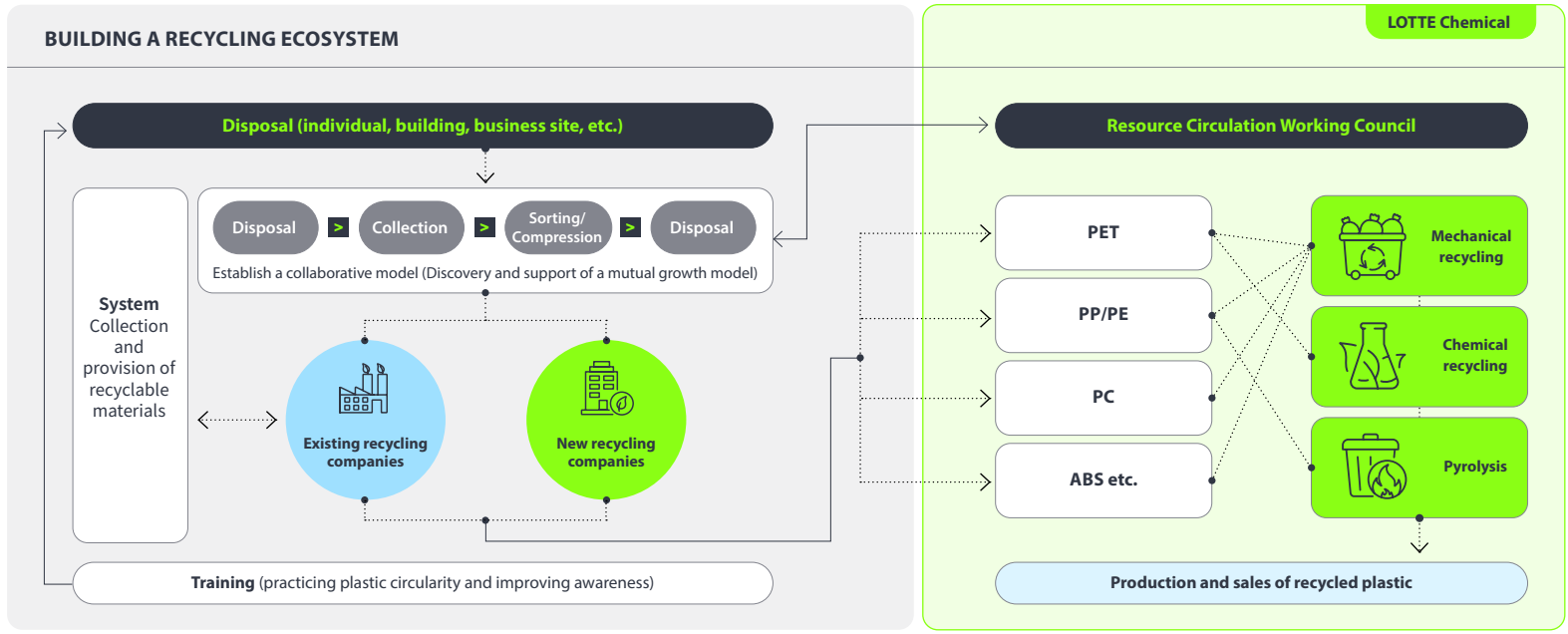
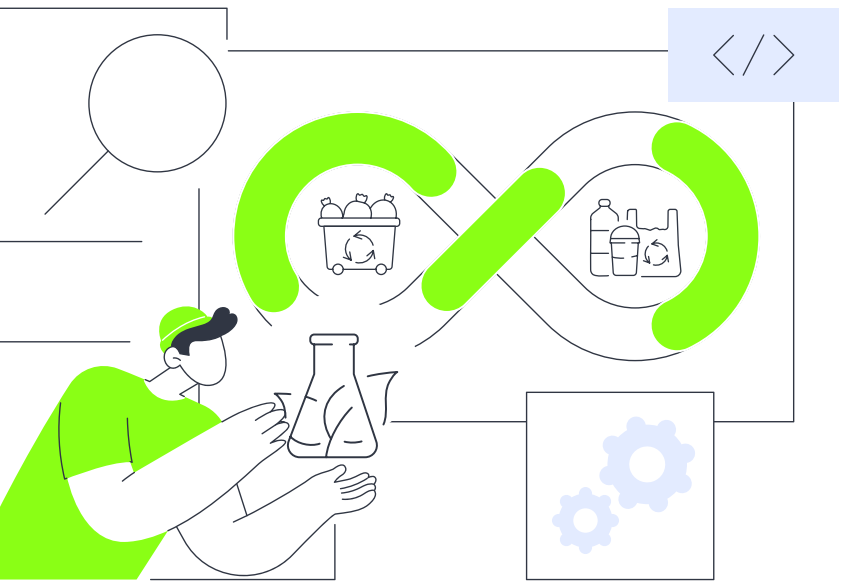
STRATEGY

Resource Circulation Strategy

Plastic has contributed to humanity by increasing convenience, preserving natural resources, and improving safety, but it has also triggered environmental issues due to low recycling rates after being disposed. How can we approach the issue of plastic usage in modern society where there is no other resource that can substitute plastic 100%? One of the possible answers to this question is completing a sustainable plastic recycling loop.

As a company primarily engaged in the production of feedstock for plastic, LOTTE Chemical is supporting and strengthening the establishment of a recycling ecosystem for sustainable business operations and growth. Connecting the beginning and end of the plastic recycling loop depend on how waste plastic is separated and processed to maintain sustainability. While this is an essential area, it is also difficult to directly take part in, so we partnered with various stakeholders to build a domestic plastic recycling loop through our Project LOOP strategy. Through LOOP Cluster, LOOP LOTTE, and LOOP Alliance, and LOOP Social, we are sharing the outcome of the solutions we planned and implemented for recycling waste plastic to take them to the next level.

The plastic recycling loop can be divided largely into three parts: feed sourcing (waste plastic), production (recycled material), and consumption (recycled product). We continue to invest in R&D for recycling technology that can be applied to the sourced waste plastic, but for these efforts to yield results and enhance our national competitiveness, active collaborative models are needed in the sourcing and consumption stages. Therefore, we will build a sustainable recycling ecosystem by connecting and cooperating with various stakeholders.







※ Refer to following pages for further details on each Loop projects [Loop LOTTE, Loop ALLIANCE \(p.47\)](#) [Loop Cluster, Loop Social\(p.94\)](#)

Roadmap for Resource Circulation

As advanced countries around the world mandate the use of recycled material and global companies strengthen environmentally sustainable practices, demand for recycled materials is steadily on the rise among clients in the electric, automotive, and home appliance sectors. Thus, LOTTE Chemical aims to continuously expand our recycled plastics business to over 1 million tons in annual sales and KRW 2 trillion revenues by 2030. The recycled plastics business can be divided into mechanical recycling, chemical recycling, and pyrolysis. In mechanical recycling, we have the capacity to manufacture high-quality and high-performance resins required by global IT, home appliance, and automotive industries. We are continuously expanding our market presence by meeting global customer demands for recycling with recycled material of equivalent quality to virgin plastic.

Our goal is to sell over a total 440,000 tons of products made with mechanical-recycled material and to take the knowhow we acquired through decades of stable operations of PET production facilities at our Ulsan plant to commence commercial production of 110,000 tons of recycled PET by 2027. Going forward, we plan to convert the entire PET line in Ulsan to a chemical recycling plant by 2030 to produce 340,000 tons of r-PET. Meanwhile, efforts are also underway to develop measures for producing recycled products with pyrolysis naphtha, targeting to expand the pyrolysis business to 150,000 tons by 2030.

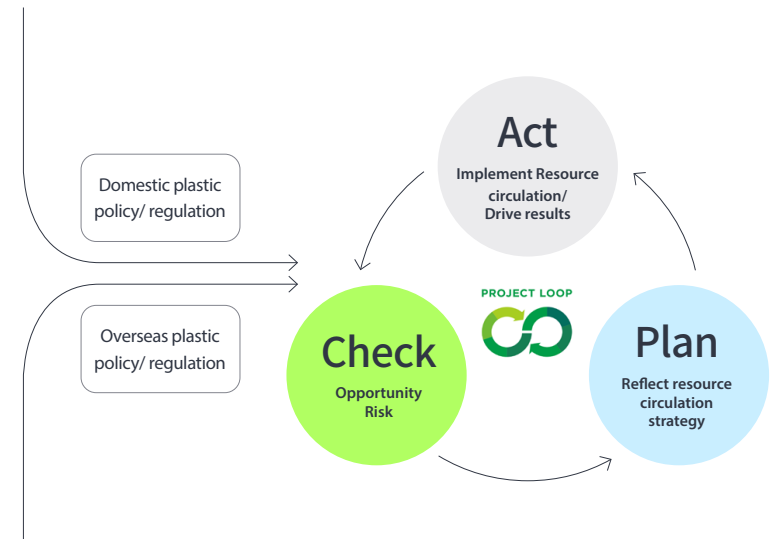
ROADMAP AND GOALS FOR THE RECYCLED PLASTIC BUSINESS

	2021~2023	2024~2027	2030 Target	2030 Goal
 Mechanical recycling	rPC, rABS, rPP 13.5 Kilo Ton(KT)	rPP product expansion	Expand existing PCR* business 440KT	 Recycled Plastics Annual sales of over 1 million tons (KRW 2 trillion revenues, and KRW 1 trillion cumulative investments)
 Chemical recycling	Ulsan rPET reform Pilot production of 4KT Review introduction of other technologies (rPE/PP/SM etc., 2022)	rPET Commercial production of 110KT Build other production facilities (~2027)	rPET Full conversion of 340KT Others 70KT	
 Pyrolysis	Pilot operation of pyrolysis of naphtha (2022)	Review commercial production of pyrolysis naphtha	Expansion of pyrolysis business 150KT	

* PCR : Post Consumer Recycle

RISK MANAGEMENT

Risk Management Process



Convention on Plastic Pollution

In March 2022, a resolution was adopted at the 5th session of the UN Environment Assembly (UNEA) to develop a mandatory international convention to eradicate plastic pollution and has been followed by 5 rounds of discussions by the Intergovernmental Negotiating Committee (INC) on Plastic Pollution. Being legally binding, implications are expected across all industries related to plastic. LOTTE Chemical is attending closely to such policy developments regarding plastic through various channels and communicating with internal and external stakeholders to turn the developments into opportunities, not risks.

METRICS AND TARGETS

Resource Circulation Activities

1 LOOP Alliance

As transportation represents the largest amount of costs in the collection of plastic waste, we are operating a pilot project for small compressors with Kokkiri-gongjang, a social venture, as a means to lower these costs. We are monitoring how logistics costs are lowered by compressing PET bottles sorted and disposed at Kokkiri-gongjang's Upcycling Research Center (Ulsan) and ESG Center (Busan) to be transported directly to plants that convert them into recycled raw material. To promote plastic recycling, such inefficiencies in the recycling value chain must be eliminated and the price competitiveness of recycled raw material must be strengthened. Through the pilot project, we hope to contribute to the recycling ecosystem by sharing how we can achieve stable compressor operations and lower logistics costs.

2 LOOP LOTTE

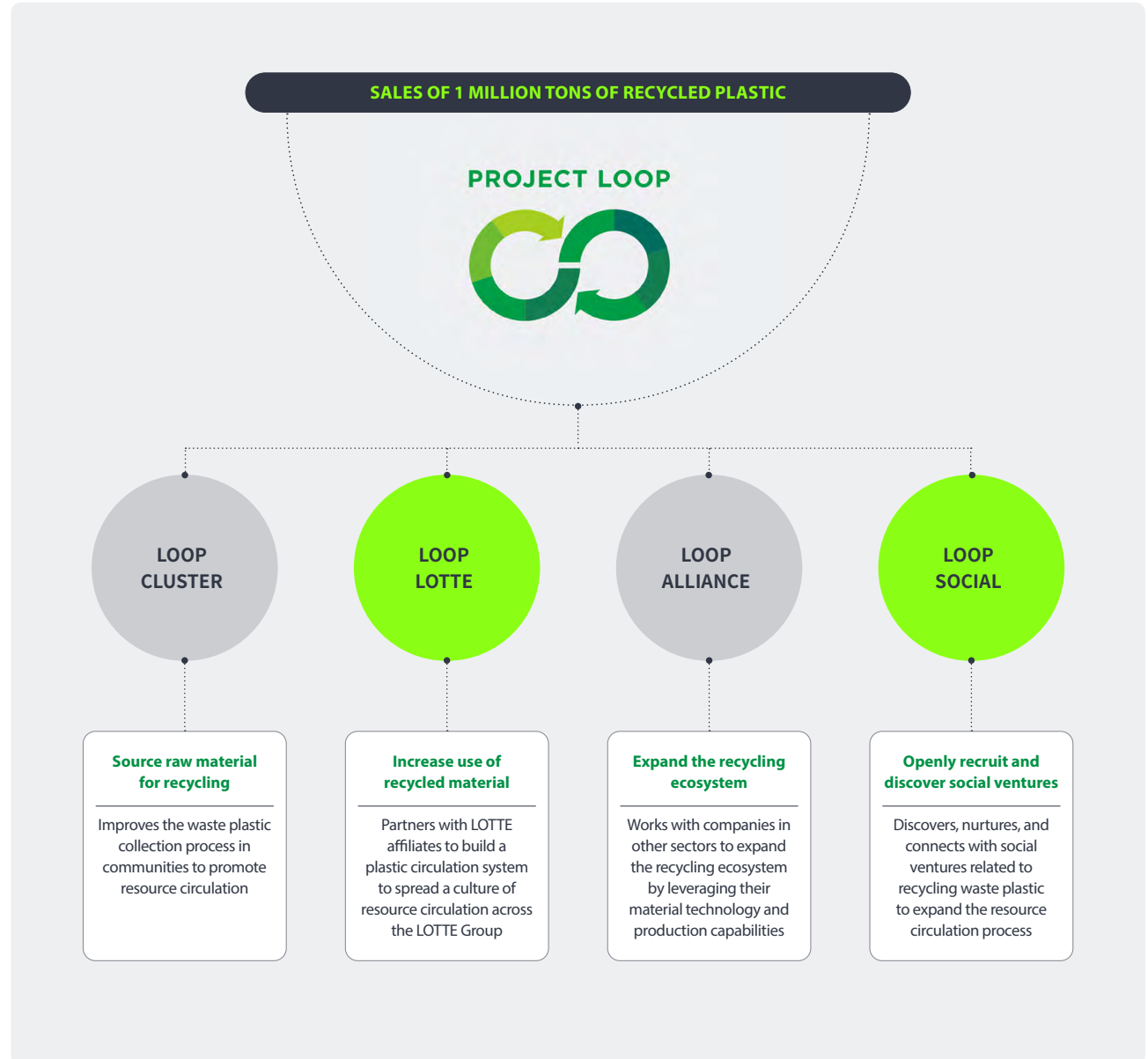
At LOTTE Chemical, we are making endeavors to build a resource circulation system by working with Group affiliates on a project to manufacture and promote products made with recycled plastic material. In September 2023, we partnered with LOTTE Giants to make windbreakers using waste PET and donated them to Little League teams in the Busan area. We invited around 100 senior citizens in the Senior Job Placement Program who collect waste PET across Busan to the Giant's home game and presented them with windbreakers, too. Members representing the Little League and senior citizens also took in the ceremonial first pitch and hit at the game. In front of the stadium, a special event to experience resource circulation was also set up to raise awareness. In addition, we partnered with LOTTE Museum of Art, preparing recycled souvenirs and an upcycling program during the 'Austin Lee: Passing Time' exhibition that was held from September to December 2023. LOWLIT COLLECTIVE and Kokkiri-gongjang, which were among the first group of social ventures supported by Project LOOP, created various souvenirs made from waste plastic and helped with the resin art upcycling booth. We plan to continue working closely with our affiliates on collaborative projects to generate synergy in building an effective resource circulation system.



1. Kokkiri-gongjang Waste PET Compressor_ESG Center (Busan)
2. Kokkiri-gongjang Waste PET Compressor_Upcycling Research Center (Ulsan)



1. Lotte Giants Windbreaker Donation Ceremony
2. Recycled Goods of 'Austin Lee: Passing Time' Exhibition
3. Upcycled resin craft workshop



Refer to the Local Community Impact section for details on Loop Cluster, Loop Social (p.94)

Sales of Eco-friendly Products

Based on our ESG vision of Green Promise 2030, LOTTE Chemical aims to expand our green business for carbon neutrality and reach 1 million tons in sales of recycled plastic through resource circulation to create social values of circulation and coexistence. We will leap as a leading global player with licenses for resource circulation technology to secure a premium position for eco-friendly products..

Product LCA (Life Cycle Assessment)

Global customers have been requesting LCA data for each product to obtain quantitative figures on the environmental impact, resource use, and energy consumption. In 2023, LOTTE Chemical calculated and provided approximately 231 cases of LCA information which is for around 11.3% of our entire products. These LCA assessments will be recognized in the voluntary carbon reduction market to be leveraged to increase reliability and accuracy in lowering carbon emissions.

ISCC Plus Certification

LOTTE Chemical received and renewed its ISCC Plus certification, an international green product certification, for synthetic resin products produced using ISCC-certified pyrolysis oil naphtha obtained from chemical recycling of waste plastic. Certification was renewed for 7 synthetic resin products and newly acquired for 13 products. We will continue to increase certification for our green products in 2024.

Environmental Product Declaration (EPD) and Eco-label Certification

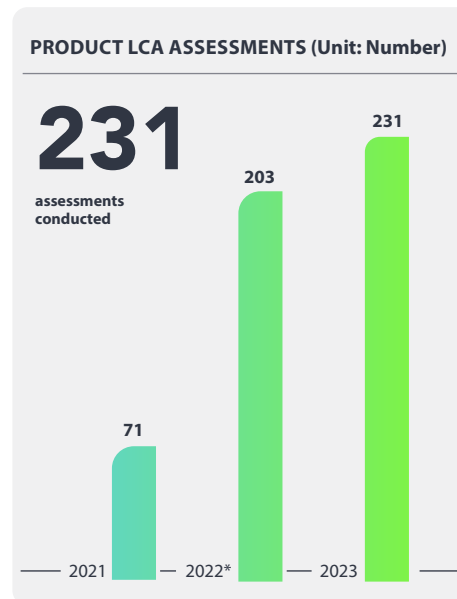
LOTTE Chemical has established an overall evaluation system for products and is actively responding to customer requests for information. As a result, our PC compound products that use recycled PC (Poly Carbonate) have received UL EPD*, and our engineered stone, acrylic artificial marble products used in construction/interior design have obtained SCS EPD**. In addition, our Bio-PET products that use bio-derived material have received EPD along with eco-label certification.

* UL EPD : EPD issued by Underwriters Laboratories (UL), a US-based global product safety certification organization

** SCS EPD : EPD issued by Scientific Certification Systems (SCS), a US-based sustainability and third-party certification organization

ECO-FRIENDLY PRODUCT SALES PERFORMANCE

Division	2021		2022		2023	
	Sales (ton)	Revenues (KRW 100m)	Sales (ton)	Revenues (KRW 100m)	Sales (ton)	Revenues (KRW 100m)
Basic	r-PET	1,320	59	-	-	-
	Bio-PET	13,548	13,912	13,350		
	r-PO	132	437	2,154		
	Subtotal	14,999	14,407	15,505		
Advanced	r-PC	11,997	39,426	68,606		
	r-ABS	1,942	2,603	5,033		
	r-PP	1,793	2,492	1,572		
	Subtotal	15,731	44,521	75,212		
Total	30,730	880	58,928	2,276	90,716	3,122



* Adjustments made due to data errors in the 2022 product name system
 ※ 2023 performance details: Mobility 100, PC 71, ABS 60

Contribution to Reducing Social Carbon Emissions Through Resource Circulation

The carbon (GHG) market is divided into a carbon regulation market that is strictly controlled under mandatory mitigation obligations and a voluntary carbon market where parties voluntarily take part in carbon reduction projects and make credits that can be traded. The carbon regulation market is enforced on companies that are mandated to curb carbon emissions under the 'Act on Allocation and Trading of GHG Emission Permits,' but the voluntary carbon market is one in which companies, institutions, and individuals voluntarily take part to fulfill their social responsibilities and contribute to environmental protection. Voluntary carbon reduction credits can also be applied to carbon mitigation through plastic recycling for a circular economy. LOTTE Chemical leverages POPLE*, a voluntary carbon trading platform in Korea, to quantify the impact of our carbon reductions through recycled products, to vitalize related markets. In addition to such efforts in 2022, we are reviewing data sophistication to meet the advancement demands of POPLE's voluntary reduction market in 2023.

* POPLE : Voluntary carbon reduction credit trading platform

PROCESS FOR ACKNOWLEDGING GHG EMISSION REDUCTIONS BASED ON USE OF RECYCLED MATERIAL



CREATION OF GREEN ECOSYSTEM

STRATEGY

Water Resource Management

1 Water Use and Recycling

LOTTE Chemical responds to the global issue of water resources by building an efficient water resource management system to reduce wastewater discharge and water inflow. To this end, we have implemented a system for retrieving coolants that can be reused with relatively little treatment to be reused and recycled. Moreover, we are doing our utmost in managing water resources through efforts such as reusing rainwater gathered and cooling tower discharge as fire extinguishing water for the company.

2 Community Partnerships

In 2023, LOTTE Chemical joined hands with the Chungnam Provincial Government, where our Daesan business site is located, to cut down on water usage to ensure efficient utilization of limited water resources and address the rising demand for industrial water. Not only did we conduct a survey on water consumption and voluntary reduction efforts, but we are also attending meetings to discuss the installation of 4 wastewater treatment facilities near the Daesan Petrochemical Complex. In Yeosu, we are cooperating with the Korea Water Resources Corporation and provincial governments for conglomerates in the Gwangyang Bay area to adopt water demand reduction measures, carry out eco-friendly activities such as using wastewater sustainably, securing eco-friendly water sources through rainwater and sewage recycling, and desalinating seawater to discover alternative water resources.

3 Consistent Water Resource Management Policies

Through the following processes, LOTTE Chemical is working to ensure that direct and indirect activities which affect water resources management policies are in line with our water policies and commitment. We work closely with policymakers to analyze how water related policies impact society and business operations and help shape appropriate policies. At LOTTE Chemical, the ESG Management Division reports directly to the CEO to strengthen our compliance with water resource management policies and we operate our organization and councils to make sure our policy engagement goals are in line with the overall water strategies defined by the CEO, BOD, and ESG Committee. Policy engagement goals are designed with consideration of the company-wide organization including each business unit to highlight its corporate significance. When discrepancies are found, internal processes and policies are reviewed and revised to confirm alignment with our water commitment with such changes being reviewed and approved by the BOD.

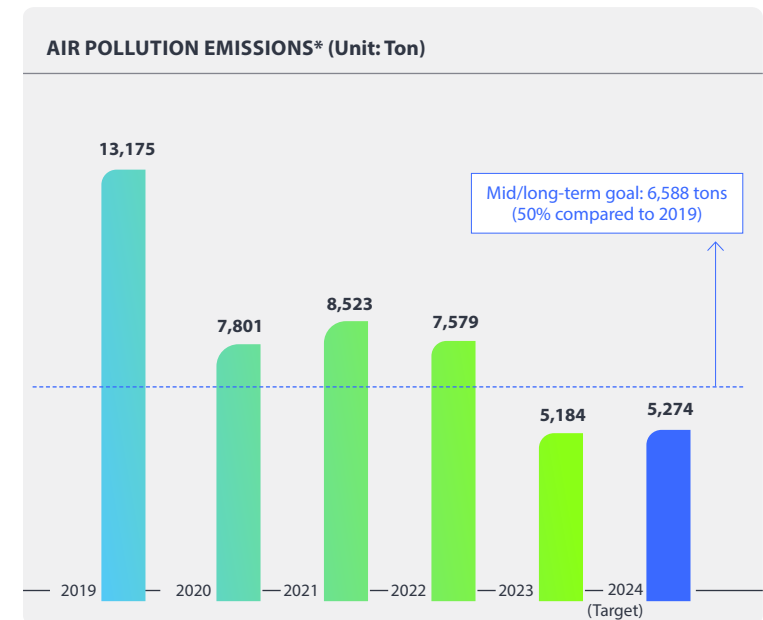
Air Pollution Management

1 Management of Air Pollutants

LOTTE Chemical assigns numbers to the vents of each facility to manage the release of air pollutants. We apply stricter standards than legal requirements to manage the concentration level of pollutants and have built internal guidelines to ensure higher standards are met than what is demanded by law when making investments in environmental facilities to lower the release of pollutants. The LDAR (Leak Detection & Repair)* system we have put in place to manage air pollutants across all of our plants to strengthen monitoring and maintenance of pollutants is also an example of our efforts to reduce air pollutants. In relation to the Green Ecosystem, we have set inhouse targets to decrease air pollutants by 50% by 2030 compared to 2019 levels.

We are taking part in a wide range of activities to achieve the common goal of improving the nation's air quality through agreements (Voluntary Agreement on Emission Caps for Air Pollution Control etc.) and MOUs (participation in government research initiatives etc.) with government agencies.

* LDAR System: A system that effectively manages equipment such as valves by attaching tags and listing them to monitor the location and volume of unintended leaks for quick repairs



* 9 types of pollutants in total including NOx, SOx, etc.

2 Noise and Odor Management

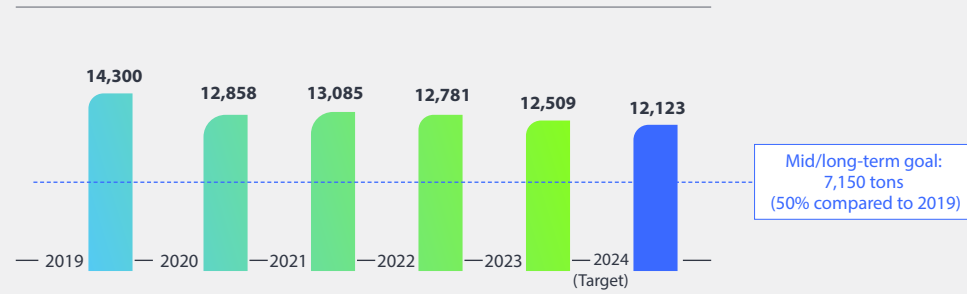
We install soundproof covers over relatively loud equipment to prevent and manage noise and set up soundproof fences along the outline of our business sites. We also survey nearby communities and measure noise levels annually at points where noise impact is expected to be the greatest to minimize consequences on areas near our business sites.

To reduce odors, we operate stationary odor meters at production plants for realtime monitoring and also use handheld meters to measure odor levels at worksites. When odors are expected such as during regular maintenance periods, we plan ahead and prepare deodorizers/waste containers etc. and handle waste promptly to minimize odor emissions.

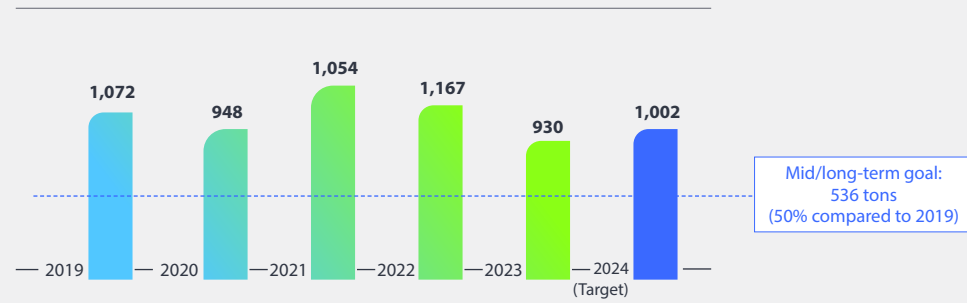
Water Pollution Management

LOTTE Chemical separates rainwater and wastewater generated from plant production activities and manages them under separate systems. We directly discharge natural and uncontaminated rainwater, but this process is monitored by installing pH sensors and oil detectors on rain drainages with an emergency shutdown system to prevent water pollutants from leaking when unexpected situations where anomalies are detected. As for wastewater from our plant processes, bumps and dikes are set up on concrete pavement to block water pollutants from spilling outside or into groundwater. Wastewater gathered here is treated through our own wastewater treatment plant, and internal standards that are stricter than legal requirements are applied for when the treated water is discharged. Wastewater can be discharged after being re-treated at the final wastewater treatment plants at the Yeosu and Ulsan Industrial Complexes, but we encourage them to be pre-treated at our business sites to reach levels that qualify for final emissions before being sent to the final wastewater treatment facilities. Our system prevents environmental accidents caused by wastewater by immediately blocking discharge when there is possibility of water pollutant concentrations exceeding permitted levels and retrieving it for re-treatment.

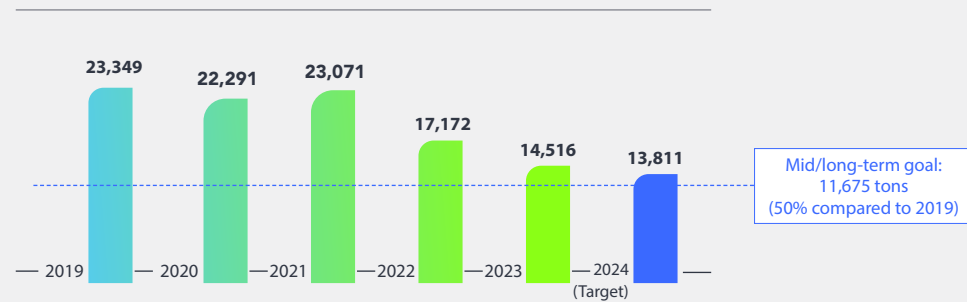
WASTEWATER VOLUME (Unit: 1,000 Tons)



WATER POLLUTANT DISCHARGE* (Unit: Tons)



WASTE VOLUME (Unit: Tons)**



* 19 types of pollutants in total including TOC, SS, TN, TP, etc.

** Waste figures of 2023 differ from those in the 2022 ESG Report due to internal revisions of calculation methodology
Projected increase of waste from new plant operation in 2024 is not included in waste target (If included, 17,514 ton/year)

Waste Management

1 Current Waste Management

LOTTE Chemical has strict management practices for waste generated from our business, tracking and analyzing the entire process of waste from its source to disposal and conducting regular inspections on waste treatment companies to check if waste treatment is being carried out appropriately. In addition, we continue to make process improvements to minimize waste generation and develop recycling partners to convert waste that goes to incinerators and landfills to be recycled to promote green management through strict waste sorting and recycling. Through our 'Allbaro System,' waste discharge and waste volume are managed and reported regularly to the Korea Environment Corporation. Meanwhile, we are also striving to increase resource circulation rates by closely managing whether waste from our company is being recycled through the 'Resource Circulation Information System.'

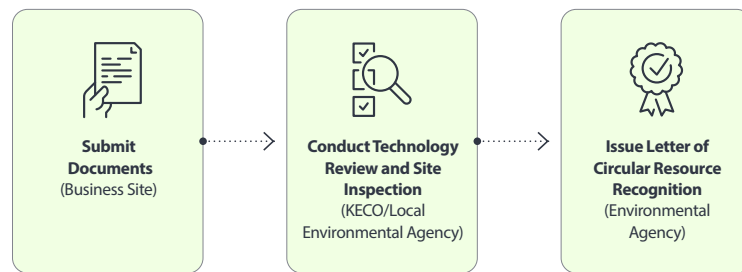
With regard to the Green Ecosystem, we have set standards and targets to reduce waste sent to incinerators and landfills by 50% by 2030 compared to 2019 levels.

Recognition of Waste as Circulated Resource*

LOTTE Chemical actively participates in the Ministry of Environment's Circular Resource Recognition Program to promote the circular economy through our business sites (Yeosu, Daesan, Ulsan). 7 types of waste have been recognized as circulated resources by the Ministry as of January 2024 by meeting designated criteria. Upon being recognized, we are striving to make transitions to circular resources by selecting general players instead of waste treatment companies as a pilot effort. We aim to achieve recognition for one additional circular resource within 2024.

* Circular Resource Recognition Program: Waste that has usage value and is not harmful to the human body and environment are recognized as circular resources and exempt from regulations under the Waste Control Act for unrestricted disposal/transport/storage and charging them for sales.

PROCESS FOR RECOGNIZING WASTE AS CIRCULAR RESOURCES



Item	Current Progress
PE Scrap, PP Scrap, PC Scrap, PET Scrap-1, PET Scrap-2, PC Scrap, Sludge	Received recognition as circular resource (24/11/2023, 8/1/2024)

METRICS AND TARGETS

LOTTE Chemical set a target to reduce four types of environmentally hazardous substances (air pollutants, waste, water pollutants, and wastewater) by 50% by 2030 compared to 2019 levels to create a green ecosystem. To this end, we are continuously monitoring pollutants and expanding the development of mitigation technologies. We plan to continue investing in air pollutant reduction facilities such as Ultra-Low-NOx burners and regenerative catalytic oxidizers to lower air pollution and develop new recycling partners to increase the amount of recycled waste to reduce waste.

We are also reviewing the introduction of new wastewater treatment sites and wastewater recycling facilities to ease water pollution. With new plants added to our business sites in Yeosu and Daesan in 2024, there is possibility of pollutants generated increasing compared to 2023, but we plan to meet our goal of curbing pollutants by 50% by 2030 compared to 2019 levels through continuous investments and technology developments.

CATEGORY	2019	2023			Cause of In-/Decrease	2024		2030
		Annual Target	Performance	Achievement Rate*		Annual Target	Reduction Measure	
Air	13,175	7,360	5,184	142%	<ul style="list-style-type: none"> Active investment in pollutant reduction facilities (Ultra-Low-NOx Burner, etc.) Process Improvement: Fuel change for incineration facilities, etc. Fuel that generates relatively less pollution (C9/NAR → Methane) 	5,274	<ul style="list-style-type: none"> Invest in pollutant reduction facility Ultra-Low-NOx Burner and regenerative catalytic oxidizer, etc. 	6,588
Waste	23,349	16,537	14,516	116%	<ul style="list-style-type: none"> Active waste recycling 	13,811**	<ul style="list-style-type: none"> Increase recycled waste volume Develop waste property analysis and recycling players, etc. 	11,675
Water	1,072	1,219	930	131%	<ul style="list-style-type: none"> Efforts to increase use of recycled water Facility investment (heat exchanger etc.) 	1,002	<ul style="list-style-type: none"> Invest in pollutant reduction facility Install new waste treatment sites 	536
Wastewater	14,300	13,362	12,509	107%	<ul style="list-style-type: none"> lower temperature of wastewater flowing into wastewater treatment sites Lower temperature → Improved purification 	12,123	<ul style="list-style-type: none"> Review and consider wastewater recycling Pilot test of recycling facilities etc. 	7,150

* Achievement Rate (%) = Annual Target / Performance X 100

** Waste : Estimated increase due to utilization of new plants in 2024 (3,703 tons/year, Yeosu Hecellose 1,906 tons/year + Daesan ES Project 1,797 tons/year) were excluded from the target scope (total 17,514 tons/year)

SOCIAL

Pondering the social responsibility of businesses, LOTTE Chemical has continuously evolved to create social value. We are committed to driving sustainable growth by creating a safer and sound working environment for employees, nurturing talent for the future, and pursuing mutual growth with our partners and communities to build a future where we can grow together based on strong trust from various stakeholders by setting forth strategic directions that consider social value and expanding our business model.



ENHANCE SAFETY AND HEALTH



HUMAN RESOURCES MANAGEMENT



HUMAN RIGHTS



ESG RISK MANAGEMENT OF SUPPLY CHAIN



MUTUAL GROWTH WITHIN SUPPLY CHAIN



PRODUCT RESPONSIBILITY MANAGEMENT



LOCAL COMMUNITY IMPACT



REINFORCE INFORMATION SECURITY

ENHANCE SAFETY AND HEALTH

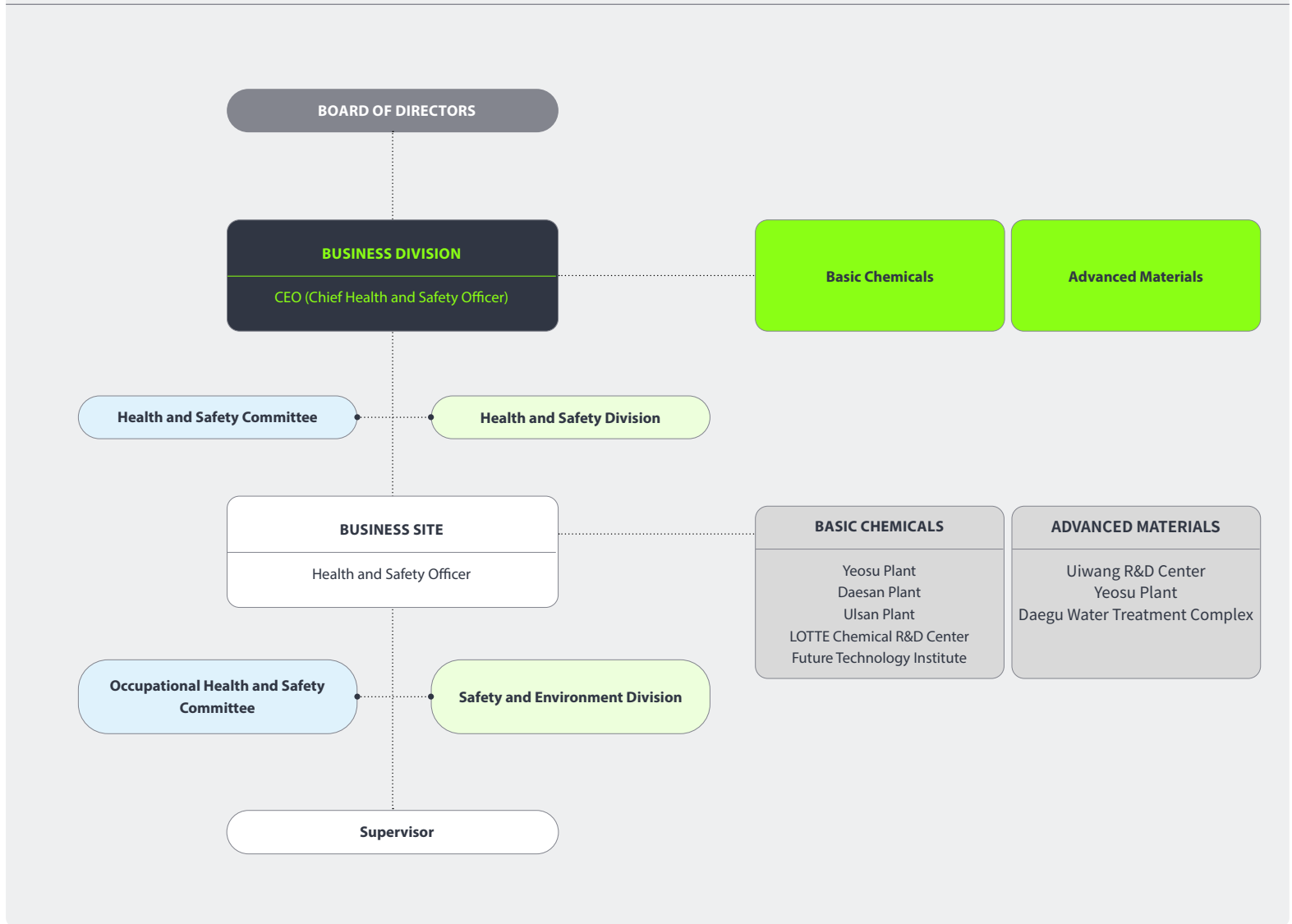


GOVERNANCE

Health and Safety Management System

LOTTE Chemical built our health and safety management system with the vision to become the healthiest and safest company in the world. The CEO of each business division who are responsible for business management also serve as the chief health and safety officers, looking over all areas related to the health and safety of the company. Organizations dedicated to health and safety are positioned directly under the CEO while health and safety organizations are also in place within the Safety and Environment Divisions directly supervised by the Health and Safety Officers of each business site. Deliberation and resolutions on health and safety guidelines, management organizations, budget, facilities, relevant activities, and key plans are carried out each year by the BOD. Meanwhile, the Health and Safety Committee that supports management in fulfilling their health and safety obligations and making decisions regarding health and safety are held quarterly along with the Occupational Health and Safety Committee where labor and management discuss and decide on health and safety matters at each business site.

LOTTE CHEMICAL HEALTH AND SAFETY MANAGEMENT SYSTEM



Health and Safety Committee Led by CEO

LOTTE Chemical formed the Health and Safety Committee to support the CEO in making decisions to practice its health and safety obligations, convening each quarter. The committee appoints CEO as chair and health and safety officers from each business site as its members to deliberate and make decisions on key health and safety agenda including relevant guidelines, workforce, and budget, etc.

Occupational Health and Safety Committee

LOTTE Chemical holds quarterly meetings of its Occupational Health and Safety Committee in order to deliberate and make decisions on health and safety matters at business sites to prevent risks and health hazards for our workers. The committee is composed of the same number of employer and employee members for effective communication between labor and management of each business site. Employee representatives actively engage in communications as they are involved in making decisions related to occupational health and safety while also voicing their opinions on work related accidents and response measures. Outcomes of committee meetings are shared with all employees while deliberations, resolutions, and other proposals made to improve health and safety are continuously managed and monitored.

ITEMS FOR DELIBERATION AND RESOLUTION BY THE HEALTH AND SAFETY COMMITTEE

<p>1 Health and Safety Plan (report to BOD)</p>	<p>4 Risk Response Measures on Key Health and Safety Issues</p>
<p>2 Workforce Investment based on Health and Safety Guidelines</p>	<p>5 Internal Health and Safety Regulations and Revisions</p>
<p>3 Outcome of Practicing Obligation of Securing Health and Safety</p>	

ITEMS FOR DELIBERATION AND RESOLUTION BY THE OCCUPATIONAL HEALTH AND SAFETY COMMITTEE

<p>1 Development of an Occupational Accident Prevention Plan</p>	<p>6 Investigation on Cause of Serious Accidents and Development of Prevention Measures</p>
<p>2 Preparations and Amendments to the Health and Safety Management Regulations</p>	<p>7 Recording and Managing Statistics on Occupational Accidents</p>
<p>3 Training on Worker Health and Safety</p>	<p>8 Health and safety measures when introducing harmful or dangerous machinery, equipment or facilities</p>
<p>4 Review and Improvement of Work Environments including Measuring Work Environments</p>	<p>9 Other matters necessary to maintain and promote the health and safety of workers at the workplace</p>
<p>5 Health Management including Worker Health Examinations etc.</p>	

Health and Safety Consultation Activities

Name	Target	Cycle
Health and Safety Committee	Management / Health and Safety Officers	Quarterly
Health and Safety Steering Committee	Heads of Health and Safety Division /Safety and Environment Division	Bimonthly
Occupational Health and Safety Committee	Employer/Worker representatives	Quarterly
Partner Companies Council	LOTTE Chemical and partner companies	Monthly
Health and Safety Councils by purpose (Central Safety Committee, Team Safety Committee, PSM Subcommittee etc.)	Health and Safety Officers / Department Heads / Health and Safety Departments etc.	Monthly

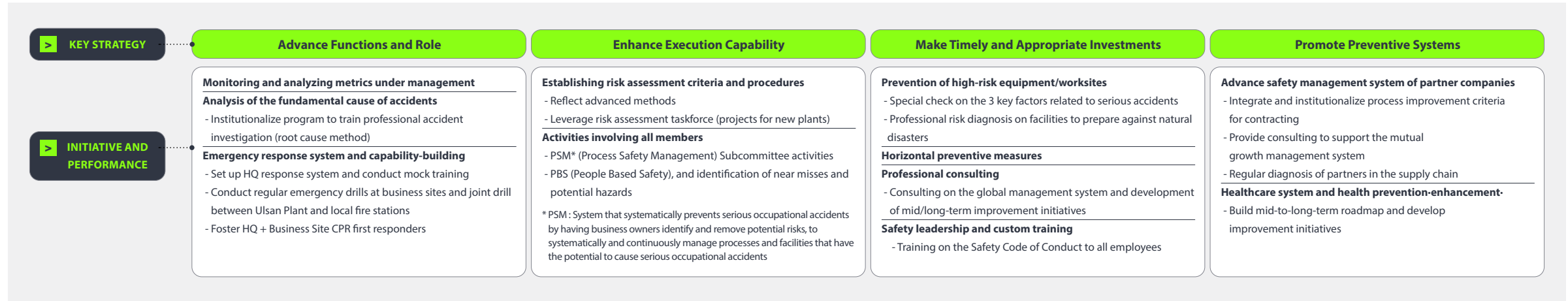
STRATEGY

Health and Safety Management Strategy

Recognizing that a safe environment is essential to the petrochemical industry, LOTTE Chemical devised our health and safety vision in 2021 to become ‘the Safest and Healthiest Company in the World.’ As a bridge to achieve our mid-to-long-term quantitative targets set in 2022 to lower LTIR* to under 0.060, we built 4 key strategies and initiatives in 2023 to reach zero serious accidents and reduce LTIR to under 0.07 in order to not only for prevention purposes, but also to strengthen our health and safety management system. We are committed to creating a working environment where safety always comes first and contributing to improved safety across our industry.

* LTIR (Lost Time Injury Rate) : Number of workers experiencing incidents occurred per 100 workers in a year (closing for 1 or more days in the event of a fatality)

2023 INITIATIVES BY KEY STRATEGY TO PROMOTE SAFETY INNOVATION



Advancing Health and Safety Management System

LOTTE Chemical's Health and Safety Management System applies to all employees and partner companies involved in production and service provision including those working at our headquarters and continues to be compliance with ISO 45001, the globally acknowledged standard for health and safety management systems (continued certification from OHSAS-18001* in 2008~2020 to ISO45001 in 2020~). We did not stop here and are currently carrying out an evaluation and analysis of our internal health and safety management system to upgrade it into a more advanced world-class system. Taking this analysis, we plan to develop improvement initiatives and take a phased approach in implementing them to establish an advanced health and safety management system that meets global standards.

*OHSAS-18001 : Organizations with OHSAS 18001 certification transitioned to ISO 45001 when it was issued as a new international standard for health and safety management

Health and Safety Guidelines and the Safety Code of Conduct

LOTTE Chemical developed and announced our Health and Safety Guidelines to establish a sustainable safety culture that meets global standards and demonstrate our commitment to health and safety management to our employees and stakeholders. The guidelines are applied to employees at all of our business sites, as well as our partner companies. In addition, we enacted the Safety Code of Conduct in 2020 to build a sound safety culture by supporting all employees to make decisions based on safety. We have online training in place for continuous education to internalize the Safety Code of Conduct. Training contents are based on LOTTE's core values of Challenge, Respect, and Originality, and reflect the company's health and safety policies and safety message from top management. Instead of simply covering concepts and theory, the contents are filled with actual success and failure cases to make it easier to relate to. While online training of the contents developed for employees to internalize the code of conduct was completed in 2023, we plan to continue carrying out training and keeping contents up-to-date to ensure the Code of Conduct does not merely as a statement.



1. Health and Safety Guidelines
 2. Safety Code of Conduct
 3. Online training for the Safety Code of Conduct

RISK MANAGEMENT

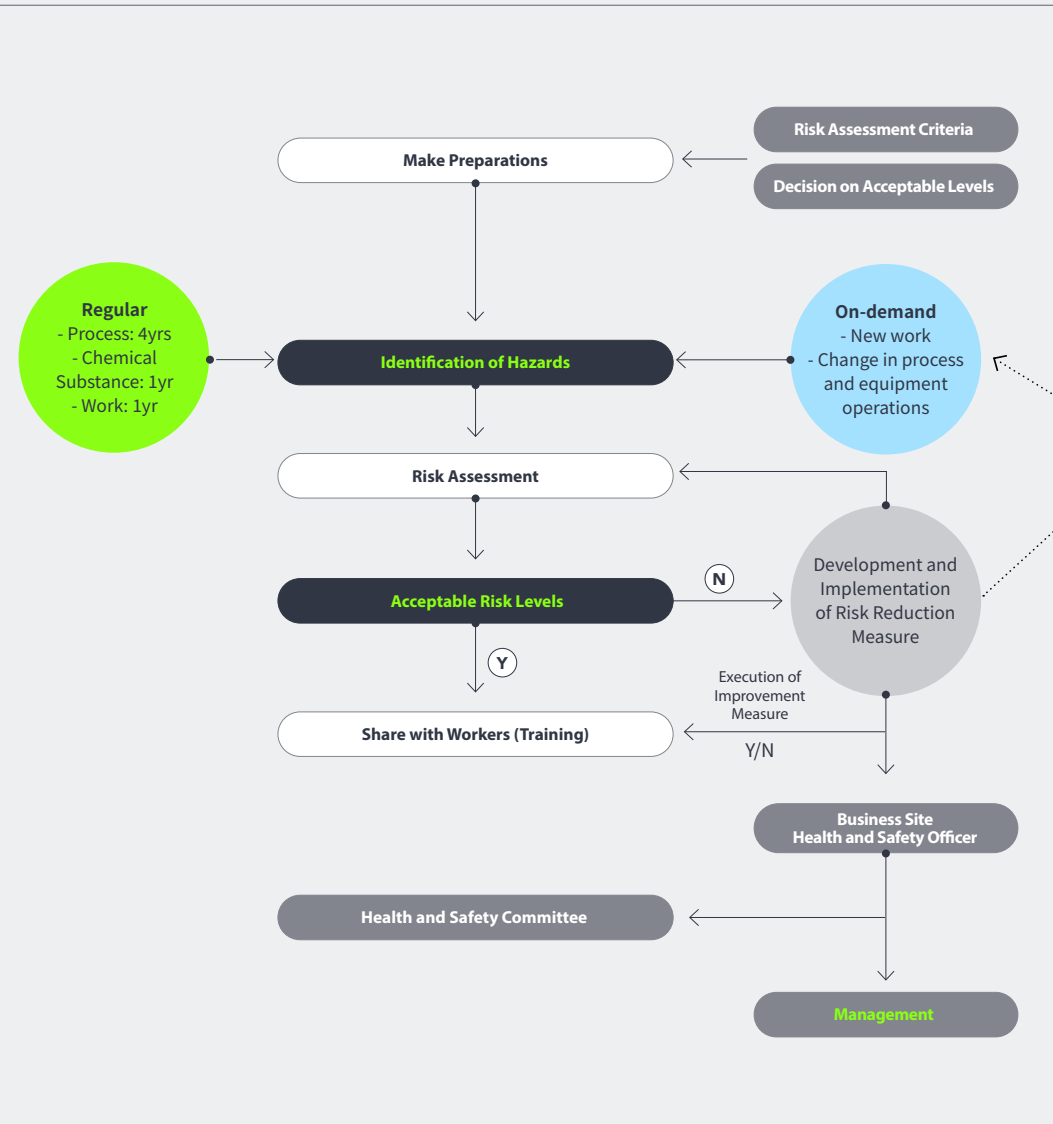
Risk Assessment

LOTTE Chemical conducts regular and non-scheduled risk assessments as part of our efforts to improve health and safety. Regular assessments are carried out each year following initial assessment, mainly regarding undermined performance due to outdated machinery, instruments, and equipment, changes in knowledge and experience caused by changes in employees, and the validity of current risk mitigation measures. Non-scheduled assessments for changes or new adoption of machinery, instruments, equipment, or raw material, or prior to convening modified work methods and procedures. In 2023, we went one step further and reestablished internal risk assessment methods to promote process and work safety along with building a self-regulation system through risk assessment. The existing 3x4 risk matrix based on intensity and frequency was broken down into a 5x5 matrix and carries out assessment from the human life, environment, and property standpoints. Moreover, post-improvement risk assessment has been added to strengthen stability. Our Risk Assessment Team composed of internal experts was also formed to enhance safety and soundness of new plants based on our own technology, and 360 measures were taken regarding the 373 identified areas where improvements were recommended through a 3-week assessment to take preemptive measures and reduce risk for safe plant operations.

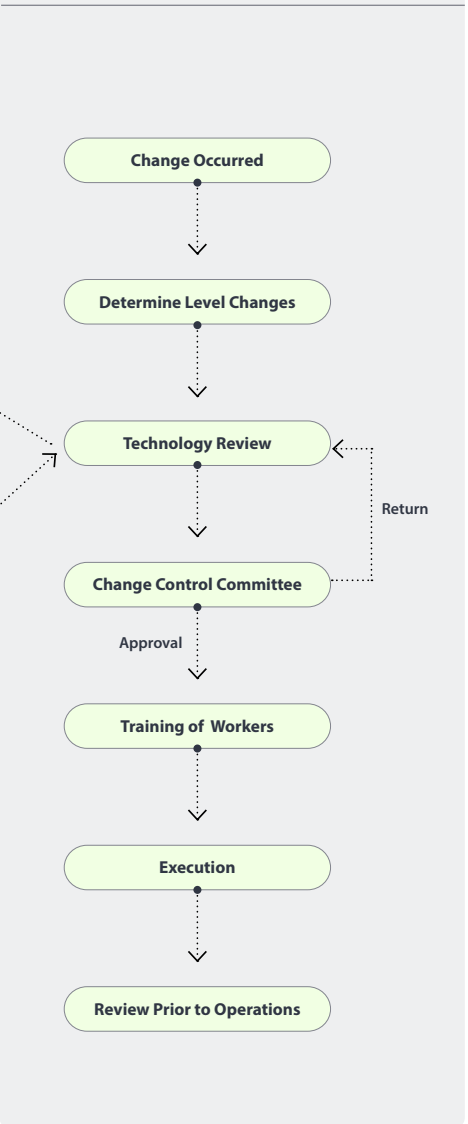
SAFETY REVIEW TF



RISK ASSESSMENT PROCESS



CHANGE MANAGEMENT PROCESS

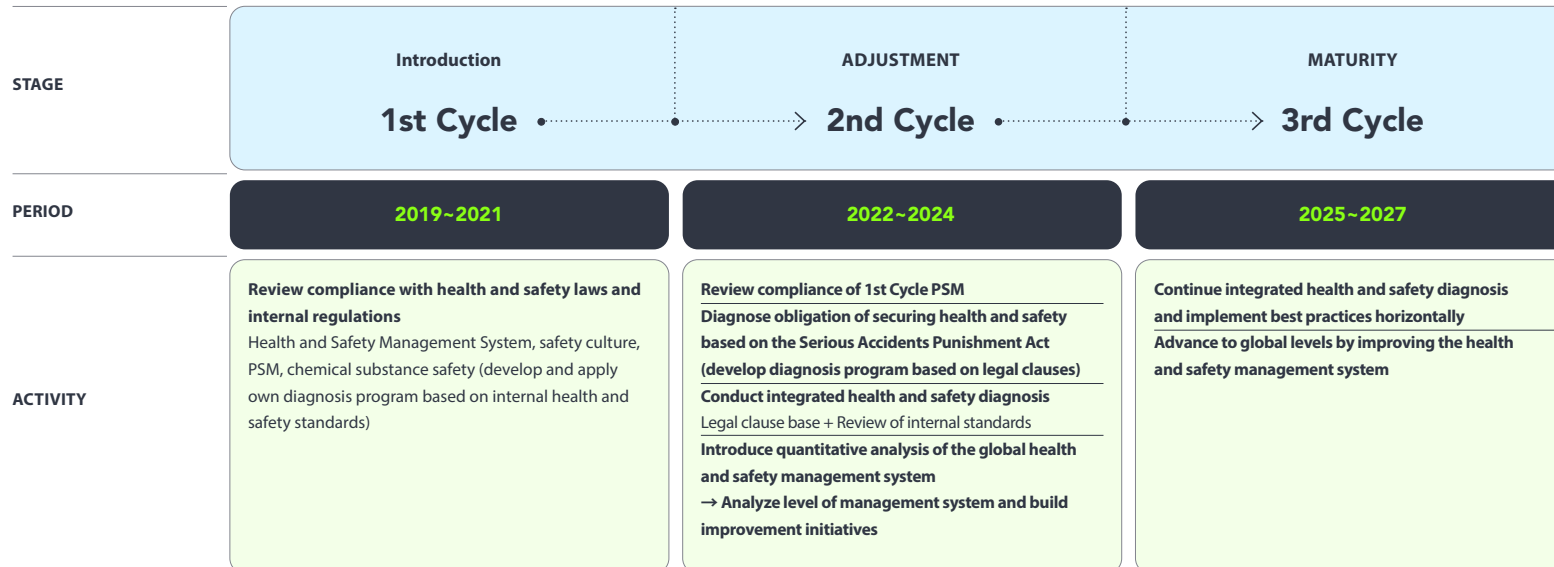


SAFETY REVIEW TF

Category		Performance (Number of Nodes)		Improvement Measure
HAZOP (Hazard & Operability)		34 Nodes		373 Identified (360 completed)
RISK CLASSIFICATION		BEFORE IMPROVEMENT	AFTER IMPROVEMENT	REDUCTION RATE
Risk Level 5	Unacceptable risk	0	0	-
Risk Level 4	Significant risk	2	0	100%
Risk Level 3	Normal risk	58	31	47%
Risk Level 2	Acceptable risk	264	230	13%
Risk Level 1	Minor risk	208	271	-

Business Site Health and Safety Diagnosis

GOAL **Advance Health and Safety Management to Global Levels Lead Domestic Occupational Safety Standards**



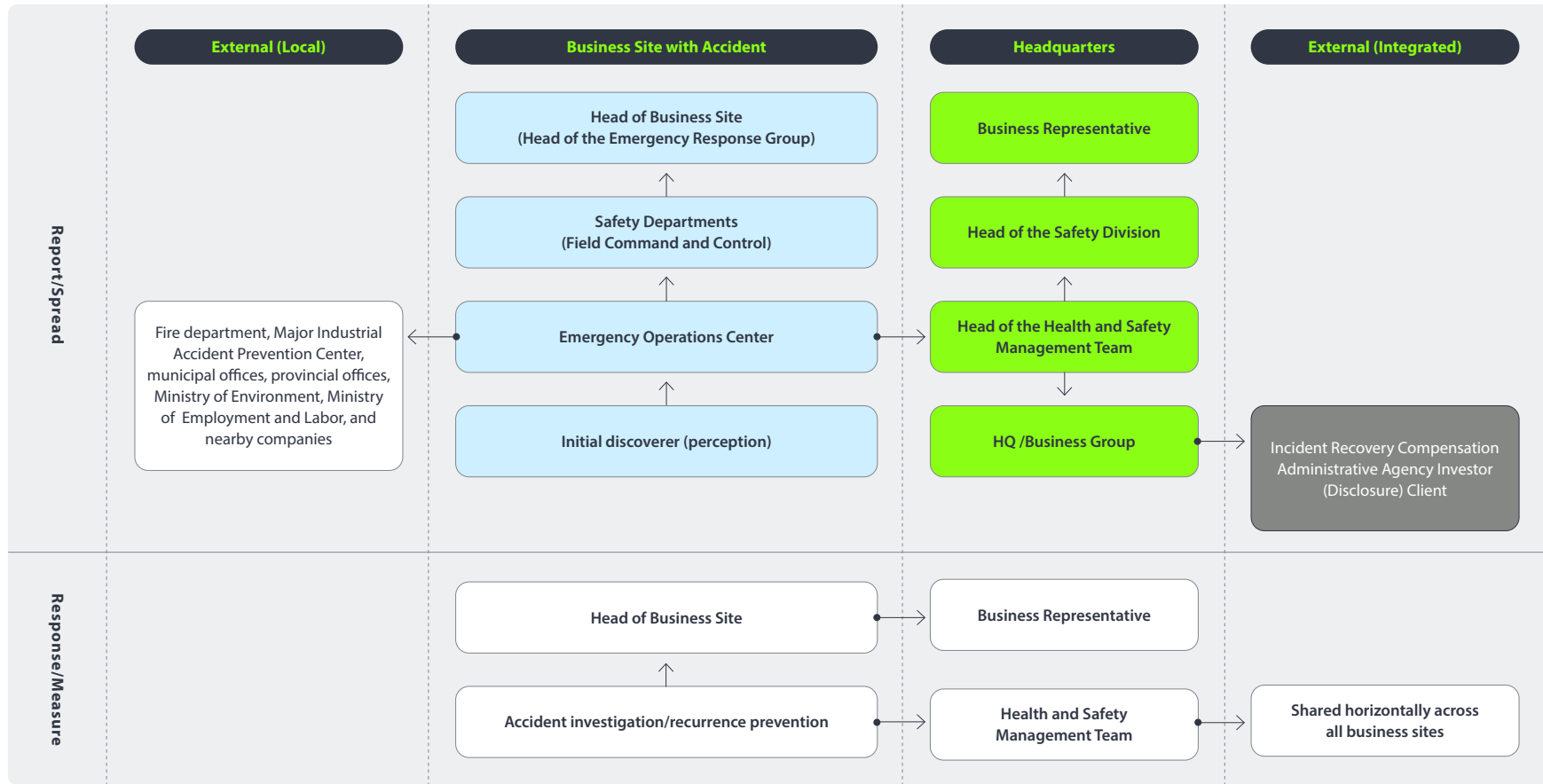
METRICS AND TARGETS

Response to Health and Safety Accident Investigations

LOTTE Chemical responds systematically to accidents based on predetermined principles by operating an accident investigation process that is divided based on type and materiality of the accident such as safety accidents, environmental accidents, and process accidents to quickly form Accident Investigation Teams when accidents occur. We have established a cascading system where when an employee (initial reporter) perceives an emergency situation and contacts the Emergency Operations Center, the Center leverages Xroshot* to send messages to those within the system including business representatives within 15 minutes depending on the materiality level (accident level). Afterwards, initial and response measures are taken in line with the emergency response procedures. Moreover, processes are prepared at each business site that for each stage of handling accidents including initial response immediately following breakout of accidents and execution of necessary measures to prepare against chemical spills.

* Xroshot: Delivery function that sends the same message to multiple recipients at once

Based on internal materiality standards (accident level), the business site where accident broke out forms its own accident investigation team to carry out investigations and report the outcome to business representatives. For low-level accidents, departments where accident broke out investigates the accident and reports to the head of the business site. Results of accident investigations are spreaded horizontally across all business sites to prevent similar accidents from recurring.



Response to Emergencies

- Responds to process/safety/environmental accidents in accordance with a segmented emergency response plan based on field and severity
- Makes prompt reports on accidents based on the cascading system (Xroshot/fixed and mobile lines)
- Takes measures to inform stakeholders through headquarters and business groups when an accident shared with headquarters is found to cause property damages expected to have material impact on the company our our customers

Immediate Report Principle to Emergencies (Accidents)

- All employees shall report accidents immediately upon perception to the Emergency Operations Center or to the lead organization of the given accident and their senior managers
- The Emergency Operations Center (Safety Department) shall give reports on given areas 15 minutes within the breakout of the accident
- Basic guidelines of the accident report must be abided by, and when in violation, possible disciplinary actions based on mandatory safety rules may follow

CRITERIA FOR EMERGENCY XROSHOT



Preventive Health and Safety Programs

1 Safety Management at Worksites

LOTTE Chemical's Ulsan Plant underwent regular maintenance for 66 days from October 9 to December 13, 2023. Regular maintenance calls for a high level of safety management as it involves more work than usual. We built Health and Safety Management Regulations for Regular Maintenance and Safety Management Plans prior to regular maintenance to concentrate on strengthening safety training and safety management capabilities.

The regular maintenance was massive in scale with 95 partner companies joining our employees, and the total cumulative number of people entering the site during the period reaching 39,879. Prior to the job, we prepared the Health and Safety Management Regulations and Safety Management Plan, not to mention a Safety Guidebook that was distributed to all employees and partner companies to strengthen safety training and safety management. In addition, we conducted an accident prevention and safety campaign to raise awareness on safety, sending earmuffs and protective gear to partner companies, and putting up a banner around the plant to promote safety during the maintenance period that was selected from a safety slogan contest. We positioned Safety Team managers and safety supervisors at each of our plants to focus management of blind spots and key work areas while reinforcing safety management through site inspections during vulnerable work hours. Wireless smart gas monitoring systems were also adopted for real-time management of closed spaces along with mobile CCTV systems for enhanced efficiency in safety management.



39,879

Cumulative number of workers who entered the Ulsan Plant in 2023 for regular maintenance

2 Special Theme Inspections for the Top3 Serious Accidents

LOTTE Chemical analyzes the types of disasters by analyzing recent accidents and conducting a special theme inspection organized by headquarters. In 2023, special inspections were held across all business sites for falls and entrapments which is one of the top 3 types of serious accidents, identifying 299 risk factors and making improvements related to falls, entrapments, and other risks. Outcomes of the inspection including safety best practices were shared horizontally across business sites to elevate the impact of such improvements. Each individual business site is also striving to prevent accidents by conducting their own safety inspections under the same theme and learning from other disasters.

3 Campaign to Eliminate 8 Risks for the Top3 Accident Types

LOTTE Chemical's Yeosu Plant strengthened its on-site capabilities to prevent serious accidents through a 3-month campaign to eliminate 8 key risk factors associated with the top 3 accident types. Safety messages were posted using posters, banners, and screensavers to raise employee awareness on safety and intensive training was provided to supervisor (team leader, leader, shift leader). We increased participation from the field to improve safety levels by introducing a proposal system where ideas on safety for accident prevention and risk factors can be submitted and rewarded. As a result, 2,810 ideas were received, and outstanding departments were rewarded.



Campaign to eliminate 8 key risk factors associated with the top 3 accident types

MID-TO-LONG-TERM ROADMAP FOR THE HEALTH AND SAFETY MANAGEMENT SYSTEM

4 Professional Diagnosis of Risk-based Facilities

As part of our ESG safety management practices, we conducted safety diagnoses at all of our business sites to prepare against natural disasters such as storms, floods, and earthquakes through a risk management partnership with Samsung Fire & Marine Insurance. Simulations were carried out on potential flooding regions and avalanche areas of each business site based on precipitation volumes and diagnoses of seismic performance of structures, machinery, and equipment were conducted along with ground assessments. We plan to take the results and build mid-to-long-term safety management plans to prepare against natural disasters and enhance safety management of high-risk facilities at our business sites.

5 Smart Dispenser for Safety Gear

LOTTE Chemical supplies personal protective gear such as safety helmets and safety joggers to our business sites for employee safety and have gear needed for different work tasks available on site for provision. Personal safety gear such as helmets and joggers are immediately replaced when requested due to wear and tear, damages, or when lost. Managers are assigned for respirators, airline masks, and heat resistant clothing to inspect them regularly and manage them to make them available for immediate use. In addition, an unmanned smart dispenser for personal safety gear was introduced and being tested at the Daesan Plant to address difficulties in providing gear during holidays and nighttime. It is equipped with personal protective gear including various safety gloves such as cut-resistant gloves, goggles, gas mask filters, respirators, and safety belts to improve access through enhanced efficiency for provision managers and streamlined provision processes and expectations for more efficient inventory management. Validation on the effectiveness of the dispenser is underway with plans to extend usage to other business sites depending on the outcome after a 3-month pilot period.

BUILD HEALTH MANAGEMENT SYSTEM

- Develop and update health management guidelines
- Clarify health management R&Rs
- Prepare health management evaluation system

BUILD TARGET-BASED PERFORMANCE SYSTEM

- Set up health performance evaluation system
- Activate performance system based on employee demands on health management
- Devise health management IT system development plan

BUILD SELF-REGULATORY HEALTH MANAGEMENT SYSTEM

- Set up a self-regulatory health management at sites based on health risk assessment
- Create occupational disease screening and monitoring system
- Select outstanding business sites in terms of health promotion activities



BUILD HEALTH RISK ASSESSMENT SYSTEM

- Strengthen management of health exam follow-ups
- Strengthen management of cerebrovascular and cardiovascular diseases
- Strengthen management of noise exposure risk assessment
- Strengthen management of chemical substance risk assessment
- Strengthen management of survey on harmful factors to musculoskeletal system

STRENGTHEN HEALTH MANAGEMENT CAPABILITIES

- Complete development of a health management IT system
- Review adoption of a smart health management system
- Strengthen field-engagement health management

6 Mid-to-long-term Health Management Roadmap

As part of Green Promise 2030 and our mid-to-long-term ESG strategic initiatives, LOTTE Chemical carried out a consulting project with a group of professionals to advance our current health management system and take preemptive measures against health risks to improve the health of our employees. Through internal and external surveys and a SWOT analysis* over the course of 3 months, we developed a mid-to-long-term health roadmap until 2028 along with relevant initiatives to focus on building a strong self-regulatory prevention management system in health management.

* SWOT Analysis : A marketing method that analyzes Strengths, Weaknesses, Opportunities, and Threats based on the internal and external environment

7 Health and Safety Communication

LOTTE Chemical provides information on harmful risk factors at worksites through postings and training. We operate Tool Box Meetings* before work to communicate directly with workers on the risks involved in the given work process and have procedures in place to suspend work in case of imminent dangers to prevent safety incidents for workers including our partner companies. Moreover, we built principles to ensure there are no disadvantages when having to evacuate due to a reasonable cause. A corporate health and safety online e-suggestion box using QR codes and offline suggestion boxes at each business site are being operated to serve as a window for employees and partner companies to voice their opinions freely on health and safety matters. Instead of waiting for workers to come to us, we also go and regularly visit each business site to listen to the difficulties faced by the field in terms of health and safety and take measures for necessary improvements.

* Tool Box Meeting : Workers discuss the work schedule, procedures, safety checks, precautions, etc. before working on site

Internalization of Health and Safety Culture

1 Improve Safety Leadership

LOTTE Group's corporate culture seeks creating greater value by having all of its employees share their hearts and thoughts which is at the basis of LOTTE Chemical's safety culture. In April 2023, we completed diagnosis and coaching with external experts on our safety leadership, drew out safety actions through a safety leadership guide, and defined clear roles and responsibilities regarding safety tasks to strengthen our safety practices. Based on the guide, health and safety evaluations are carried out for all of our business sites and continuous monitoring is conducted by incorporating the results into performance evaluations such as KPIs and MBO. Through such evaluations, we support all employees to recognize the importance of safety and encourage them to actively apply safety to their daily work.

2 Custom Safety Training

LOTTE Chemical offers continuous training to strengthen health and safety capabilities of our employees. We conduct safety training for each function and special training for new joiners, transferred employees, and employees involved in hazardous and harmful work. In accordance with the Health and Safety Management System, we offer not only job training for health and safety management leads and individual health and safety managers, but also regular training for supervisors. Various training programs are also operated to strengthen health and safety capabilities, as well as form a safety culture. We offer curriculums that range from introductory to intensive courses for each staff level that help employees gain better understanding of legislations and technologies related to process safety, PSM and SMS* while also improving safety at the individual and business site levels. LOTTE Chemical carries out regular training on our Safety Code of Conduct to build our own unique advanced safety culture, offering essential parts of our training in Korean, English, and Chinese for distribution. We share safety accident case studies and key trends with safety leaders and spread our safety culture through special training on safety mindsets. Moreover, we offer support for external training that meet the different needs of employees of each of our business sites with the company covering all expenses related to the training.

*SMS (Safety Management System): System that improves efficiency of safety management based on qualitative and quantitative safety evaluation of gas facilities for the fundamental prevention of gas accidents and analysis of the safety management work process

KEY OUTCOMES OF THE CONSULTING PROJECT FOR STRENGTHENING SAFETY LEADERSHIP

HQ Tasks for Improving Corporate System

- **Improve Safety Performance Evaluation System**
Build evaluation measures linked to safety leadership activities by job title (KPI and MBO)
- **Build and Implement Site Inspection System (s-Patrol)**
- Develop implementation measures including s-Patrol checklist and implementation cycle reflecting the characteristics of business sites
- Develop s-Patrol tools for each business site
- **Make Recommendations on Building System to Drive Safety Activities**
- Support establishment of penalty & reward system for business site safety activities
- **Propose Improvements for the Safety Training Evaluation System**
- Support evaluation methods for safety training

Business Site Tasks for Safety Leadership Change Management

Plan	Coaching 1. Coach and Improve Building Autonomous Safety Management Plan (average plan excellence rate) Yeosu 27%→51% / Uiwang 100%
Do	Coaching 2. Strengthen Risk Assessment (by CTO) (average risk assessment change rate) Yeosu 73% / Uiwang 56%
Check	Coaching 3. Strengthen s-Patrol (average s-Patrol participation rate*) Yeosu 125% / Uiwang 69%
Act	Coaching 4. Operate Safety Meeting Body (average meeting excellence rate) Yeosu 91% / Uiwang 93%
	Coaching 5. Set up Safety Leadership Interview System (interview rate of Division Heads) Yeosu 100% / Uiwang 100%

* s-Patrol participation rate based on Feb-Mar 2023
(c.f. In Uiwang office, s-Patrol became regular in Apr 2023)

KEY HEALTH AND SAFETY TRAINING (OCCUPATIONAL HEALTH AND SAFETY ACT)

Title	Audience	Cycle	
Statutory Training	Regular training	All employees	Quarterly
	Regular training for supervisor	Supervisors	Quarterly, on-demand
	Training for new recruits	New recruits	At time of recruitment
	Training for changes in work	Relevant persons regarding work changes	At time of work changes
	Special training	Workers involved in hazardous/harmful work	Prior to work
	MSDS training	Workers that handle MSDS substances	Prior to handling
	Training for health and safety manager	New	Within 3 months of appointment
		Follow-up	Within 6 months after 2 years of training completion
	Training for safety manager/health manager/health and safety manager	New	Within 3 months of appointment
		Follow-up	Within 6 months after 2 years of training completion
Inhouse Training	Training on safety mindset	All employees	Once a year
	PSM introductory training	New joiners	Once a year
	PSM training (regular evaluations/reviews/audits, etc.)	Departments subject to PSM	At least once a year
	Training on near misses and accident examples	All departments	When incidents occur
	Specialization training	Target for each training	On-demand
	Training on Safety Code of Conduct	All employees	Once a year
	Training on accident case studies	All employees	When incidents occur

3 Employee Health Improvement Program

LOTTE Chemical strives to be safest and healthiest company in the world. To this end, we operate employee health examinations and health improvement programs. Certified healthcare professionals are appointed as health managers and separately manage employees in need of observations and those with findings of disease while other various health improvement programs are carried out at each business. Moreover, we encourage participation from our employees and partner companies by providing incentives when targets are met

Program	Details
Hearing Loss Management	Earmuff fit factors are tested to prepare custom earmuffs (add new double layer earmuffs)
Therapy Outreach	Specialists from external counselling and therapy centers visit and offer weekly therapy to manage job stress
Alcoholism Prevention	Professional training and consultations on the harmful effects of alcohol
Metabolic Management	Neutral fat management via voluntary blood collection, inbody scans, diet consultations, and stretching exercises
Lunchtime Walk Challenge	Apply and take on challenge to win souvenir when reaching 300,000 steps



Employee health enhancement program

4 Increase Emergency Response Capabilities

In addition to emergency drills to prepare against emergency situations at business sites, LOTTE Chemical carried out evacuation drills based on emergency guidelines and scenarios at headquarters where only office workers are stationed to respond to emergencies related to natural disasters and fires. Evacuation guides were designated for each floor and assigned roles for efficient and safe evacuations. The guides also took part in CPR training to be prepared for skills needed to address emergency situations.



Emergency drills

Reinforcement of Health and Safety at Partner Companies

1 Mutual Growth Programs to Support Health and Safety of Partner Companies

LOTTE Chemical operates support programs for mutual growth with our partner companies. After selecting partner companies without health and safety management systems such as ISO45001 and KOSHA MS*, we support them with diagnosis, training, and follow-up consulting to acquire certified health and safety management systems. The 2nd round of this project ended in success with 3 partner companies obtaining certification in July 2023 and recording high satisfaction levels from our partner companies.

* KOSHA MS: Occupational Health and Safety Management System jointly announced by the Korea Occupational Health and Safety Agency (KOSHA) and International Organization for Standardization (ISO)

2 Operation of Partner Council

LOTTE Chemical operates a monthly Partner Council where we support health and safety training and efforts to promote safety awareness while also making improvements based on to the issues raised by our partner companies regarding health and safety issues. We also share case studies on accidents and near losses while providing guidance and information to our partner companies through accident prevention training. Regular joint emergency response trainings with partner companies are carried out to upgrade their capacity to respond to emergencies.

3 Regular Safety Diagnosis of Partners in our Supply Chain

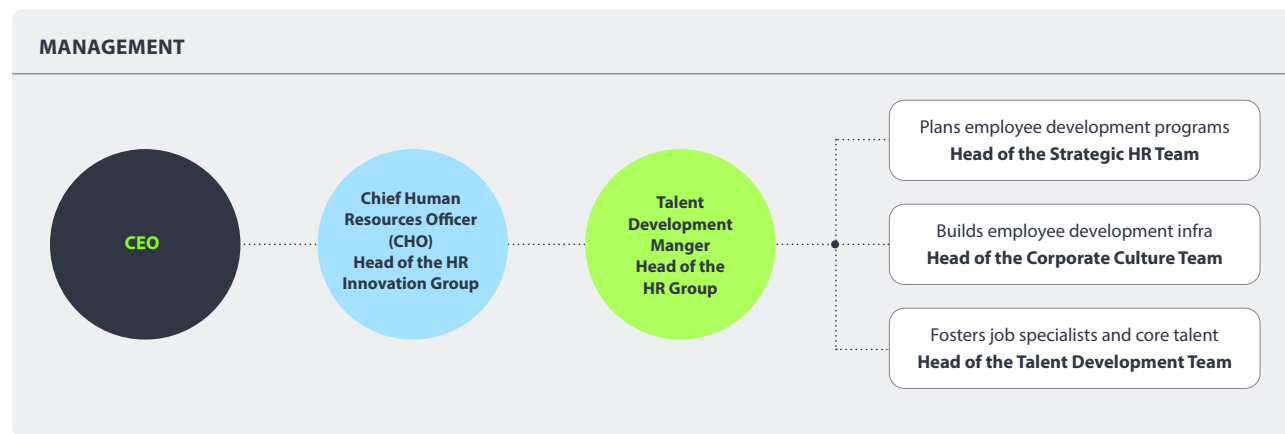
LOTTE Chemical encourages improvement in safety capabilities and safety levels of our partner companies through regular safety diagnoses of partners in our supply chain. 113 companies related to chemical substances, construction, manufacturing, services, and land transportation were evaluated in 2023 and supported with health and safety advisory services. Such support helped strengthen our partnership for mutual safety and brought about effective disaster prevention to improve the overall safety management level across our business sites.

113

Partner companies subject to regular safety diagnosis

HUMAN RESOURCES MANAGEMENT

GOVERNANCE



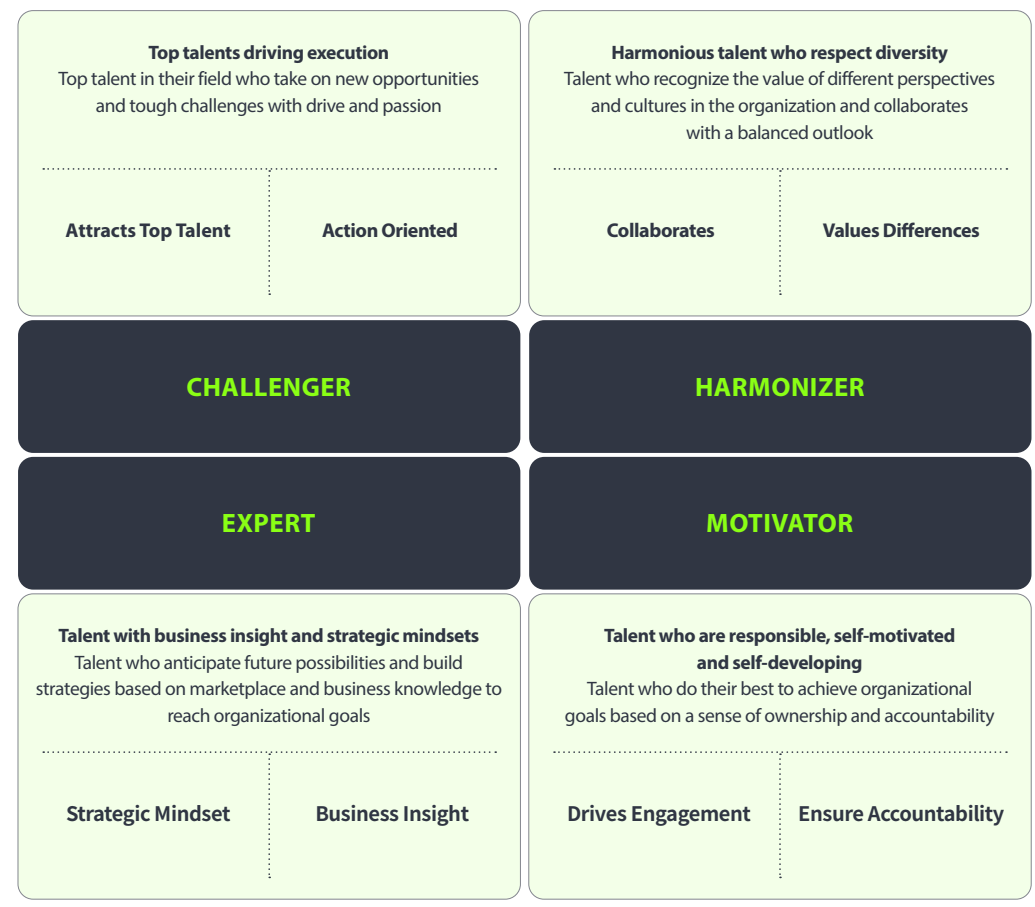
STRATEGY

Talent Development Policy

LOTTE Chemical puts more weight on future potential and actively supports our employees through talent development programs where employees can grow along with the company. The company and our leaders strive to provide a systematic growth guideline and continuous feedback, so employees can take the initiative in setting their own career goals and achieving them. We plan to continue to work on employee capability-building and create results such as improvement in HCROI* through enhanced engagement and satisfaction levels based on our self-directed talent development system.

* HCROI (Human Capital Return on Investment) : Value added by employees in relation to investments made to employees

DESIRED QUALITIES IN OUR EMPLOYEES

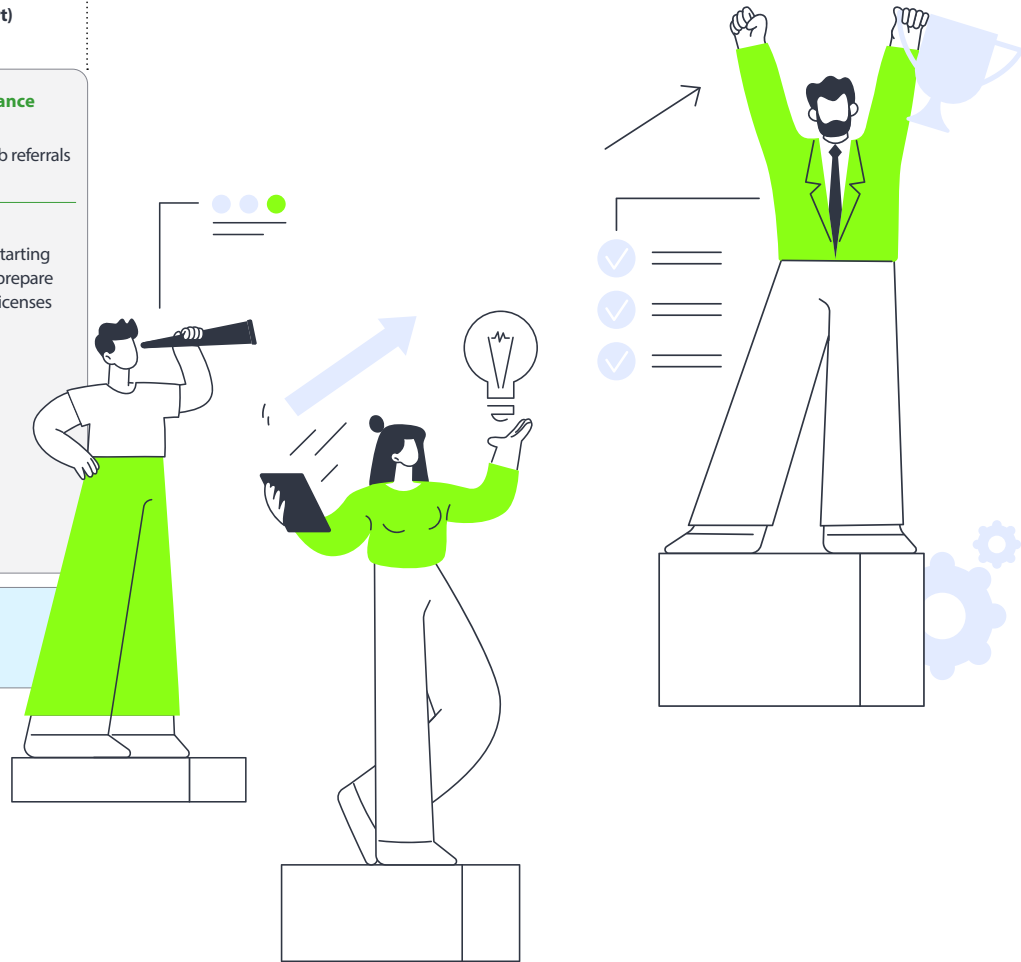


Talent Development System

	Leadership	Job Skills/Career	Core Talent	Global	Lifelong Education
GOAL	Building leadership in each stage	Nurturing professional experts and supporting career development	Developing next-generation leaders	Increasing global role	Planning 2 nd career (2 nd life Support)
PROCESS	<p>New Joiners</p> <ul style="list-style-type: none"> - Onboarding course - Onboarding buddy (mentoring) <p>Leadership in each level</p> <ul style="list-style-type: none"> - Executive capability-building (New CEO/Executive/VP) - Executive leadership coaching, Leaders Forum - S/M/SA Grade courses, S Grade promotion eligibility course 	<p>Developing professional job skills</p> <ul style="list-style-type: none"> - Production process technology course - Information security, data specialist course - Finance qualifications, HR expert, compliance capabilities <p>Support for acquiring job certifications</p> <ul style="list-style-type: none"> - Production/Technology/Safety/Environment/Management/DT, etc. <p>Career certification</p> <ul style="list-style-type: none"> - Communicator/Coach/Interviewer/PM certification course 	<p>Developing business leaders</p> <ul style="list-style-type: none"> - Hi-Potential Leader course - Hi-T & Successor mentoring <p>Specialized training support</p> <ul style="list-style-type: none"> - LOTTE MBA, external MBAs - Academic training and professional graduate schools 	<p>Expatriate program</p> <ul style="list-style-type: none"> - Course for new/returning expatriates, expatriate safety management course, global school - Platform for sharing expatriate knowledge/knowhow <p>Global capability-building</p> <ul style="list-style-type: none"> - Exchange programs with overseas subsidiaries, regional specialists - Operation of Inhouse language courses and support for external foreign language programs 	<p>Reemployment assistance services</p> <ul style="list-style-type: none"> - Career planning and job referrals for retirees <p>Career consulting</p> <ul style="list-style-type: none"> - Money management, starting businesses, courses to prepare for obtaining certified licenses

Online/Mobile Training Infrastructure: LOTTE Group LMS* Platform, EDRC**

*LMS: Learning Management System
 **EDRC: Engineering Research Development Center



Talent Development Program

LOTTE Chemical is developing various programs to cultivate human resources in effective and innovative ways and encouraging active participation from our employees. We operate courses based on staff level for tailored capability-building, courses on job skills to foster professional experts, core talent and leadership courses, and support learning to nurture global talent.

We also leverage LEP, a learning experience point system, to motivate self-directed learning while offering various types of contents for learning through our education platform EZ Learning.

1 Key Capability-building Programs

Category	Key Program	Description	Training Type	Number of completions (person)	
				2022	2023
Common	LMS	EZ Learning	Voluntary	4,078	4,582
		Acropolis	Voluntary	1,645	1,365
	LEP (Learning Experience Point)	Voluntary	4,176	4,905	
	EDRC	Voluntary	281	322	
Job Skills	Production Process Technology Course	Online course based on internally developed teaching plans to nurture skilled experts in Yeosu, Daesan, and Ulsan to disseminate tacit and explicit knowledge on each production process in a standard manner	Mandatory/Voluntary	627	512
	Financial Qualifications Certification	Course for developing financial talent for the mid-to-long-term, offering practical, in-depth, and strategy courses on topics such as basic financial accounting, risk management, ethical management and compliance, and the new role of CFOs	Mandatory	3	7

Category	Key Program	Description	Training Type	Number of completions (person)	
				2022	2023
Job Skills	Support for Obtaining Certifications	Provides programs and supports expenses for employees who need to obtain or maintain certifications for their jobs in production, technology, safety, environment, business management, and DT, etc.	Voluntary	31	167
Leader Development	Leadership Course	Continuously plans and operates programs such as on leadership skills, coaching, and organization revitalization, supporting managers to use leadership diagnosis to be aware of the gap between self-evaluations and evaluations from others and strengthen their leadership	Mandatory/Voluntary	277	318
Core Talent	External MBA / LOTTE MBA	Provides in-depth training on overall management capabilities in strategy, finance, marketing, and HR to sharpen strategic thinking and business management capabilities for prospective leaders, and supports internal and external MBA programs for networking and synergy creation among outstanding talent	Voluntary	11	6
Global	Training for New and Returning Expatriates / Buddy Program	Training for newly appointed expatriates before departure to understand the role of expatriates and receive support on how to adjust, and training for returning expatriates to assist them in readapting to the Korean working environment along with a 'Buddy Program' to support quick adjustment	Mandatory/Voluntary	13	20
	Inhouse Language Course	Languages courses to cultivate global competency in employees that include not only English, Chinese, and Japanese, but also various strategic languages such as Indonesian, Russian, Spanish, and French, etc.	Voluntary	458	390
	Language Course	Support for External Courses	Offering convenience in learning by supporting various methods that can be used by employees to build language skills based on their schedules including external language academies, online language lessons, and microlearning contents, etc.	Voluntary	71

* EDRC, Production Process Technology Course, and Leadership Courses include redundant figures for sub-courses

2 Self-directed Career Development

The **IN Career system** is an internal talent transfer system between LOTTE Group affiliates that offers an opportunity for self-directed career development through a simple process where employees can apply for jobs of their choice. The process is held frequently through the Group's internal system when there are job openings at a Group affiliate and contributes not only to active career development of individuals who transfer to different jobs or affiliates through IN Career, but also to Group affiliates securing outstanding talent.

Career Registration system is a 1:1 online communication channel with HR where employees can organize their work history in the system and design career plans so that they can explore their directions in terms of growth and develop their career. Registered data is used in connection to various talent development programs such as for transfers within the organization, forming expatriate pools, building development strategies, providing education and training, and improving the corporate culture to build an environment that can drive personal growth of each of our employees.

3 Reemployment Assistance Services

LOTTE Chemical offers reemployment services to employees scheduled to leave the company due to non-voluntary reasons (full/early retirement, etc.). Based on a contract with an agency specializing in job training and career transition support services, we identify the reemployment needs of individuals and provide timely recruiting information to assist job seeking activities. We strive to extend practical assistance such as recruiting information tailored to individual demands identified through in-person interviews with professional consultants. When necessary, the number of consultation sessions can be increased to ensure sufficient assistance is provided. A total 70 people took part in the career transition services in 2023.

4 Strengthening Development of Female Talent

LOTTE Chemical makes strong efforts to create working conditions and a corporate culture where all employees, regardless of their gender, can fully demonstrate their capabilities. Not only do we make improvements to policies and programs regarding female talent, but we are also increasing the recruiting and capability-building of female talent and operating female leadership programs to support female talent from a mid-to-long-term perspective, so they can achieve stable growth in our organization.

	Minimize career breaks	Promote growth of leaders
Female Talent Development Program	<ul style="list-style-type: none"> Female leader mentoring program 	<ul style="list-style-type: none"> Female leader pipeline Diversity management in HiPO (high potential leader)
Work-Family Balance Program	<ul style="list-style-type: none"> 2 years maternity/paternity leave, 1 year family care leave Company childcare center Shorter working hours and work-from-home programs for pregnant employees 	

METRICS AND TARGETS

Talent Recruitment

1 Recruiting Policy and Process

LOTTE Chemical is strengthening our systematic and reliable recruiting process that leverages various recruiting channels to secure talent who can drive new growth engines in today's age of uncertainty in a timely manner.

Transparent and Fair Recruiting

LOTTE Chemical introduced on-demand recruitment to create an environment where outstanding talent can be recruited when needed by being flexible in when recruiting is held (time/frequency) and leveraging various recruiting channels such as recent college graduates, professional internships, industry-sponsored scholarship programs, and Target Lab, etc. In addition, we are breaking away from one-size-fits-all recruiting and taking advantage of various evaluation tools to verify job skills and enhance fairness in our job-based recruitment process. In addition to adopting AI-based testing to assess capabilities for some job positions, we are enhancing transparency in the recruiting process through blind hiring where basic information on applicants such as their educational and regional backgrounds are not provided to interviewers for objective and effective capability verification. We are also making endeavors to increase the satisfaction of applicants such as operating Interviewer courses at the Group level to improve interviewing capabilities of interviewers to provide fair and objective evaluations. In particular, internal audits are carried out for all hiring processes for regular monitoring to ensure fair and transparent recruiting.

Recruitment of People with Severe Disabilities

LOTTE Chemical employs people with severe disabilities to work from home and perform jobs such as business support, data management, and inhouse web designs, etc. In 2023, we opened an in-house café at our headquarter offices and the LOTTE Chemical R&D Center in Daejeon where the entire barista staff are made up of people with severe disabilities. We continue to strive to discover jobs where people with disabilities can be hired to increase our employment of people with disabilities.

Recruitment of Local Talent

LOTTE Chemical has been operating a local talent recruitment program for talent in Seosan where our Daesan Plant is located since 2022 to strengthen partnership for win-win growth with local communities. We also signed an MOU with the City of Yeosu in 2023 to promote the recruitment of local talent.

Gen MZ Interviewers

In 2023, LOTTE Chemical started nurturing so-called 'Gen. MZ interviewers,' who are staff and associate level employees, to carry out culture-fit interviews on fellow Gen. MZ new joiner applicants to embrace diverse perspectives in recruiting talent fit for our organization. Piloted in the second half of 2023 for annual recruiting of new joiners, the program is also being actively utilized to help talent adjust to the organization.

Providing Transparent Recruiting Information

LOTTE Chemical provides timely recruiting information and has been operating a separate recruitment website that contains various contents related to our business since 2023 to enhance convenience for applicants. In addition to the LOTTE Group's Job Café, we are actively participating in job fairs and briefing sessions at universities, academic societies, and employment centers to reach out to prospects. We are especially supporting career development in R&D by inviting R&D specialists to the R&D Conference held in 2023 to promote our vision for research and provide employment consultation.

2 Performance of Development/Training Programs

Academic Training Programs

Since 1994, we have been continuously offering academic training programs to support employees in obtaining master's and doctorate degrees. We foster core talent and sharpen our R&D through these programs to nurture skilled experts with both experience and theory.

Program	Total	Operations	
		2022	2023
Doctoral	4	1	3
Master's	1	-	1
Combined Master's-Doctoral	2	2	-
Total	7	3	4

Measuring Impact of Capability-building Programs

LOTTE Chemical diagnoses employee satisfaction and accomplishment rates regarding capability-building programs to check on its effectiveness and make continuous improvements. In particular, the 'ON-DEMAND Course' launched in 2023 where new courses based on employee training needs are opened and made available to anyone who is interested. Courses reflect the interests and growth desires of different generations, aiming to contribute to enhancing employee engagement and performance.

Performance Evaluation and Compensation

1 Fair Evaluations

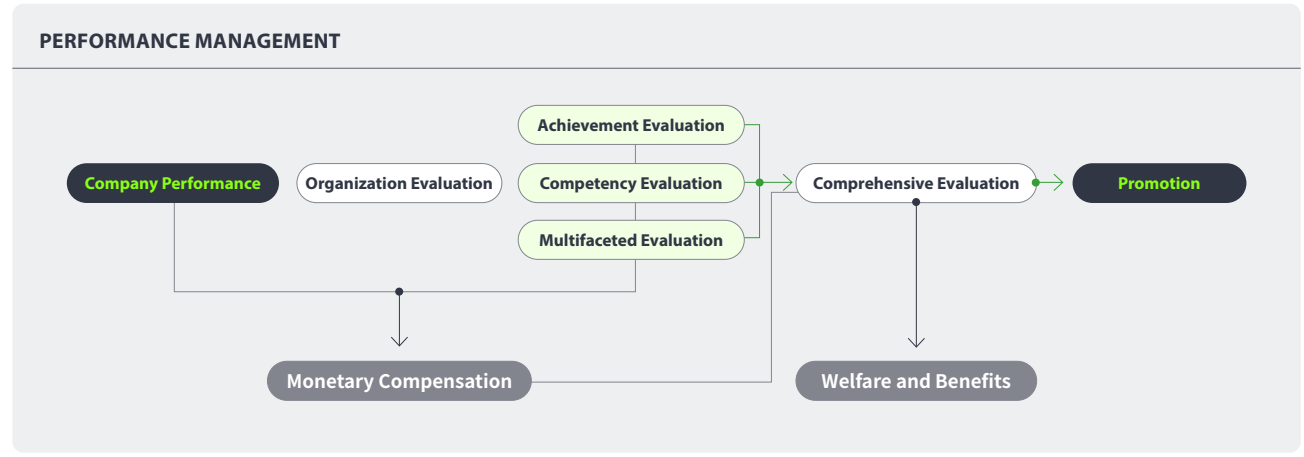
LOTTE Chemical supports the personal growth and development of our employees and carries out performance management through MBO-based performance evaluations, 360 degree multifaceted evaluations, and ongoing feedback between leaders and team members to ensure fair and objective evaluations.



ON-DEMAND COURSES

Course	Details	Positive impact	Participants	Effectiveness*
Smart Chemical	One point lessons on employee work to improve engagement and job skills 1. Improve business document writing skills 2. Business communication	<ul style="list-style-type: none"> Actual improvement in work performance (productivity, planning) Obtaining habit of reporting and documenting records 	59	4.6
Global Chemical	Learn effective relationship-building for global business situations and understand DEI policies of global corporations	Enhanced understanding of global partners and work efficiency by practicing communication skills for different DEI and business scenarios	30	4.5
Healthy Chemical	Improve health and engagement through programs that meet employee demands (yoga/Pilates)	Positive impact of improved health increasing concentration levels when working	172	4.9

* Responses on whether the courses helped improve work performance and meeting targets given by participants based on comparison of before and after course participation were measured (5-point scale)



Achievement Evaluation and Ongoing Performance Management

LOTTE Chemical implements ongoing performance management where individuals set MBO-based work targets at the beginning of each year and receive feedback on their progress continuously throughout the year. Team members and leaders are on the same page in terms of performance progress through 1:1 meetings while support and development plans are shared to strengthen competency through interactive performance management for talent development. Final grades are given at the end of the year after reviewing how effectively team members have met targets. This process involves in-depth interviews between the field and HR which enables comprehensive and fair evaluation that reflects various perspectives.

Competency Evaluation

Competency evaluation consists of general competencies based on the Group's core values and job specific competencies. Employees are evaluated based on how much they meet the competency levels expected in them by job title. The results are used as standards for further developing talent into tomorrow's leaders.

360 Degrees Multifaceted Evaluation (by Leader/Peers)

To compensate for top-down vertical evaluation between leaders and team members, we incorporate various opinions on specific areas related to leadership and collaboration in our evaluations. This enhances fairness in the evaluation process with results being used as reference for HR appointments and promotions.

2 Reasonable Compensation

LOTTE Chemical strives to operate a reasonable compensation system in line with the roles of each individual and their personal and organizational performance based on transparent and fair evaluations.

Individual salary system	Performance based compensation where individual salary raises are determined in connection to personal evaluations which are also used for providing other compensation such as bonuses
PS (Profit Share)	Performance-based profit-sharing program where the company's excess earnings from business management are distributed to members each year
Position-based allowance	As managers in the organization are assigned authority and responsibilities, compensation is given equivalent to the respective roles
LOTTE Chemical Awards	Best practices are selected and officially awarded to provide clear compensation and motivation to employees to contribute to the company's performance
Core talent compensation	Outstanding talent are selected and actively supported in terms of capability-building and creating results through monetary and non-monetary compensation

Employee Welfare Program

1 Work & Life Balance

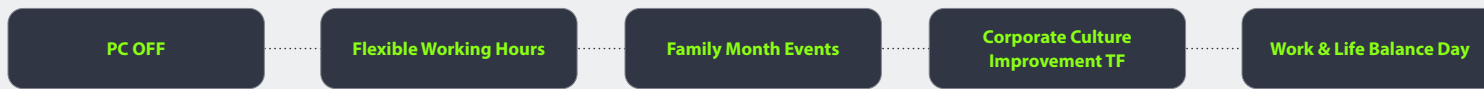
LOTTE Chemical operates various programs that support self-directed working environments to allow employees to focus on their personal lives after work.

Smart Work: Working hours and methods

Flexible working hours	Flexible working hours where employees can decide when to begin and end work and plan daily working hours within the scope of total monthly work hours to allow employees to manage work hours to meet their needs Creates a flexible working environment and contributes to improving productivity through autonomous schedule management taking into account individual workloads
PC OFF system	System where PCs are shut down after automatic reminder pop-up when reaching end of the workday preset by individuals to promote flexible working hours and a culture where employees can get off work on time
WFH (Work-from-home)	Supports employees to take advantage of WFH when necessary, based on work fitness and working environment to balance work and family

WORK-LIFE BALANCE CULTURE

An organizational culture that places the happiness of our employees first in line with changing times where striking a balance between work and life is essential. We believe our employees and their families must be happy for our company to grow. Therefore, LOTTE Chemical is a pioneer in actively supporting family-friendly programs and adopting work systems that suit individual lifecycles.



Active implementation of childbirth and childcare policies (automatic maternal leaves for women (2 years) and mandatory paternal leaves for men, etc.)

Lifestyle with Rest : Employee Leave Programs

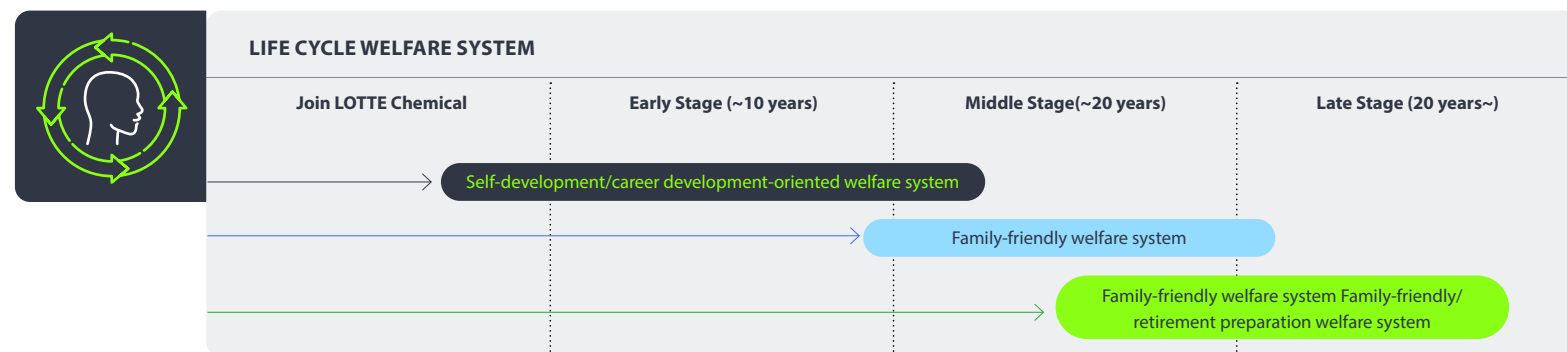
Creative Leave	Sabbatical program that gives a 1-month vacation and vacation fees to employees to obtain various experiences and trends while resting to return to contribute to the organization's creative and change-leading culture (once per staff level)
Refresh Leave	Vacation expenses are supported for refresh leaves where 5 consecutive days of vacation are used by employees to rest sufficiently and recharge (twice a year)
Saved Leave	Saved leaves give employees the option to choose a leave rather than overtime allowances when working past their work hours or on holidays to guarantee exhausted employees get sufficient rest and maintain a work-life balance
Team Leader Day Off	Monthly 'team leader day-off' for all team leaders at headquarter offices to give team leaders a chance to recharge to improve their concentration levels and work efficiency while allowing team members to become leaders for a day and take the initiative in performing tasks
Other leave support programs	Work-Life Balance Day (annual day-off for the entire company aligned with holidays to allow employees to rest) Special Day (e-coupon is given when taking paid time off to celebrate special occasions such as anniversaries or birthdays) Accommodation expenses are supported when using affiliated nationwide condos/resorts during annual leaves

Family-friendly Management : Employee Family Care and Maternity Protection Programs

Life Time Welfare	Lifetime welfare program offers welfare benefits tailored to the needs of employees in each lifecycle stage to improve quality of life and work satisfaction with a manual available on the internal HR system to make it easy for employees to look up and utilize Welfare programs are focused on self-development and career development during the early stages at the company (first 10 years), family-friendly benefits during the middle stage (10~20 years), and family-friendly benefits and retirement preparation for the late stage (20 years or more)
Max. 2-year childcare leave	Automatic childcare leave following childbirth without having to separately apply for leave to support work-family balance for female employees Childcare leaves are extended to as long as 2 years
Mandatory paternal leave	First company in Korea to introduce mandatory paternal leaves to take minimum 1-month leave within 3 months of the birth of their child
Tuition support for children	Relieves financial burden related to educating children to enhance work engagement Tuition for children under school age (3 years-old ~ before entering school) and college tuitions for children
Inhouse daycare center	Company daycare center with high quality faculty and facilities to strengthen employee engagement when working
Family medical expenses support	Subscribes to collective accident insurance (disease/accident coverage etc.) to create an environment where the health and safety of employees is guaranteed for employees to focus on their jobs Support for actual medical expenses of spouse/parent/child Comprehensive health examinations for employee and spouse/parents
Various maternal protection leaves and work programs	Shorter working hours during pregnancy (during first 12 weeks or after 36 weeks) and childcare period to ease the burden of pregnancy, birth, and parenting Childcare leave when children reach school age and when balancing work and parenting becomes tough (1 year) Pregnancy leave (10 months), infertility leave (1 year), and gifts for pregnancies and childbirth
Support for family affairs	Congratulatory allowance and leaves to celebrate special family events Support for weddings/child birth/70th birthday/deaths/funeral services
Living support	Company housing for each business site and support for mortgage loans (ceiling of KRW 100 million)
ESOP	Employee Stock Ownership Plan (ESOP)

2 Welfare and Benefits

LOTTE Chemical believes that our employees and their families must be happy for the company to grow. Based on this belief, we operate welfare programs tailored to each stage of employee lifecycles from recruitment to retirement to boost their happiness.



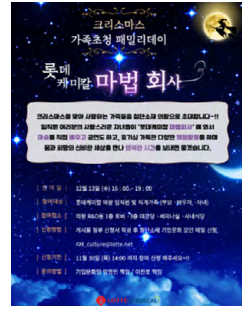
VARIETY OF WELFARE PROGRAMS

Housing/Living Support	Childcare/Education Support	Healthcare	Self-development/Leisure support
<ul style="list-style-type: none"> - Mortgage loans - Provision of company housing/ single-person accommodations - Support for personal pensions - Support for family affairs (congratulatory and condolatory) 	<ul style="list-style-type: none"> - Maternal and parental leaves - Inhouse daycare center - Tuition support for children - Culture events for employee families 	<ul style="list-style-type: none"> - Comprehensive health examinations - Regular health checkups - Group accident insurance - Medical expenses support - Support for infertility care (leaves and treatment expenses) 	<ul style="list-style-type: none"> - Support for inhouse club activities - Support for external language courses - Support for condo/resort reservations - Welfare benefit points - LOTTE Group affiliate credit card (W Card) - Refresh leavea - Sabbatical (executives) - Summer leave



COUNSELING

Individual Counseling	Family Counseling	Group Program	Group Program
<ul style="list-style-type: none"> - Personal topics: Emotional regulation (depression, anxiety, anger), self-understanding (character), family communication - Company topics: Conflicts in relationships, work stress, vocational adaptation and career development 	<ul style="list-style-type: none"> - Couples: Understanding spouse, conflict resolution, improved communication - Parents: Diagnosis of parenting stress and attitude, parent coaching - Children: Understanding emotional and psychological stance, character, and learning features 	<ul style="list-style-type: none"> - Department: Improved teamwork, communication, mutual understanding, and stress management (meditation) - Parents: Communication techniques for parents and children, parent coaching 	<ul style="list-style-type: none"> - Detection of risk signals in mental health (fostering lifeguards for suicide prevention (gatekeepers)) - Psychological stability through meditation (relieve stress, depression, and anxiety, and emotional regulation)



Family Day



Counseling Programs

Family-friendly Program – Family Day

In the family month of May and holiday season in December of each year, LOTTE Chemical invites employee families (children) to business sites to build a family-friendly culture and boost company pride.

Mental Health Management

LOTTE Chemical operates an inhouse counseling office to assist employees in their mental health based on work-life balance and a healthy and happy work life. A professional counselor is present at the office to help with concerns regarding work and personal life and address conflict situations in relationships. Employees at other business sites and expatriates are also using the services through video counseling. In addition, we operate department workshops for psychological tests and mindful meditation programs for stress management along with special events and lunch programs to make it easier for employees to open the doors to the office and regular newsletters called healing letters that provide psychological information.

Personal Pensions and Retirement Pensions: Post-retirement support

Personal Pension	Retirement Pension
<ul style="list-style-type: none"> - Subscribes to personal pensions as part of long-term welfare benefits to support stability in the later years of employees with the company matching the monthly contributions being made as a 1:1 matching grant 	<ul style="list-style-type: none"> - Retirement benefit plan where retirement allowances are reserved at outside financial institutions to be received as pension or as a lump sum upon retirement - LOTTE Chemical employees are all subscribed to defined benefit plans (DB), defined contribution (DC), or combo plans, reserving and managing 100% of estimated retirement benefits at outside financial institutions and guaranteed rights to safely receive the benefits 3,493 subscribed to DB, 595 to DC, and 922 to Combo (total 5,010 employees)

Culture based on Mutual Respect and Consideration

LOTTE Chemical pursues active communication between labor and management based on trust and consideration to establish an interactive culture where we can, together, create greater value.

1 Labor-Management Relations based on Win-Win Cooperation

LOTTE Chemical pursues the vision of a 'Together Labor-Management Culture' to realize higher corporate value. We are promoting employees' sense of belonging through interactive communication and strengthening a horizontal organization culture based on mutual trust. We will continue to share important matters through regular discussions leveraging various channels to enhance mutual understanding between labor and management.



Labor-Management Council

Recognizing that mutual respect between labor and management is at the foundation of creating sustainable value, LOTTE Chemical utilizes various channels to provide regular communication between the two parties. We have an effective communication system that supports the improvement of working conditions at our business sites in Yeosu, Daesan, and Ulsan through wage negotiations and collective bargaining with each respective labor union, as well as discussing key business and system changes to enhance each other's understanding on matters. Briefing sessions are also held when new programs and changes are introduced to the organization to build consensus among employees and help reach necessary agreements.

We operate the Labor-Management Council and Employee Council which are held at least once every quarter for important decision-makings. The two councils play a critical role in communication between labor and management, serving as a representative body for employees. Each business site has its own labor-management council which discusses improvements and changes to working conditions and HR systems. We continue to listen attentively to our employees to identify their needs and incorporate their feedback into the company's policies through ongoing communication and further discussions.

Declaration on Win-win Cooperation between Labor-Management in ESG Practices

In September 2023, labor and management representatives from LOTTE Chemical gathered and held a ceremony declaring win-win cooperation between labor and management for ESG practices. Representatives from our Yeosu, Daesan, and Ulsan business sites attended and shared their joint commitment to building a sustainable business and happy company based on a creative labor and management culture. The declaration includes labor and management's promise to work together in achieving carbon neutrality, practicing eco-friendly management, creating the social value of coexistence, and driving environment-friendly future businesses. The declaration will serve as a key milestone in LOTTE Chemical's journey towards sustainable development and bears great meaning in displaying the strong determination of labor and management to cooperate in practicing ESG values.



Declaration ceremony on win-win cooperation between labor and management for ESG practices

2 Flexible Communication Culture

LOTTE Chemical fosters communication among our employees to create a flexible corporate culture. We have created an advanced work environment and operate various programs to enable employees to communicate openly with each other. We are building an active and voluntary work atmosphere based on an open culture without barriers between groups and departments, and are striving to serve as a stable window for communication across organizations through various programs.



Organizational Culture Activities: 'Let's make a desirable workplace' TFT

LOTTE Chemical's organizational culture taskforce team is contributing to creating a healthy corporate culture that drives change through selected CLs (Change Leaders) at each of our business sites who listen to suggestions and challenges voiced from the field to develop and deliver ideas to HR and management on how to improve our corporate culture. There are 15 people serving in the 3rd group of CLs as of 2023 who also lead the quarterly Great Work Place (GWP) program to revitalize organizational culture at the department level.

Organizational Culture Newsletter: DANKE Magazine & Cheommundae

To expand communication channels with our employees and create a reliable and healthy organizational culture, LOTTE Chemical publishes monthly newsletters on our corporate culture. The newsletter contains messages from management, introductions to GWP programs from our business sites, issues from in and outside the company, and news about our mutual respect campaign to build trust and a sense of unity with our employees.

Organizational Culture of Communication and Respect: Chemi TALK, our CEO Communication Channel

Chemi-TALK, our CEO communication channel, contributes to building a horizontal organization by improving our corporate culture and promoting effective communication. The channel is leveraged to share recent business results and details on the company's future business plans with employees, as well as to support interactive communication directly with our CEO on various topics ranging from the overall HR system to specific welfare benefits and working conditions. Chemi-TALK is held bimonthly at each business site, striving to strengthen communication between our CEO and employees through voluntary participation from the workforce.

Improving Organizational Culture: LOTTE Value Culture Survey (L-VCS)

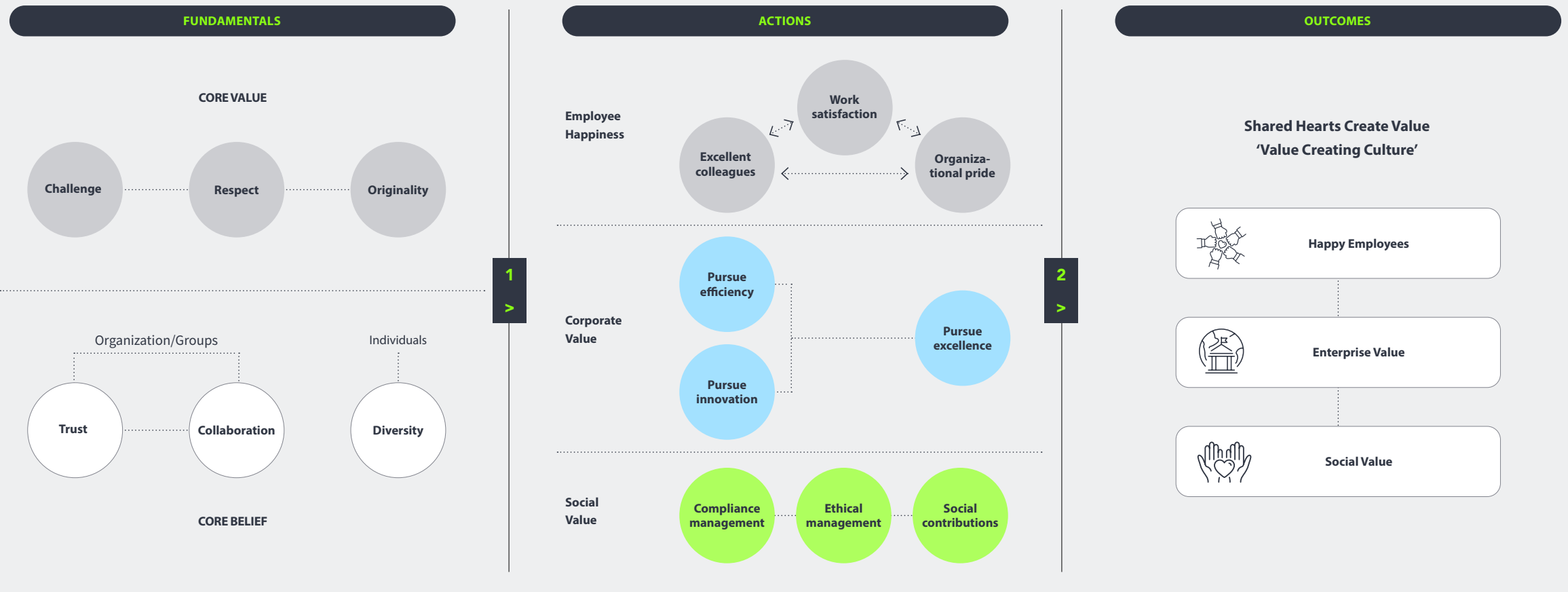
L-VCS, the LOTTE Value Culture Survey of LOTTE Group, is an annual culture survey carried out to all employees to measure the state and level of employee understanding and internalization in the three areas of creating employee happiness, corporate value, and social value. In 2023, 3,509 (77.2%) of our total 4,546 employees took part in L-VCS. After deriving areas to address from the outcome of the survey, we are continuously working to make actual improvements for a better workplace.



DANKE Magazine and Cheommundae

VALUE CREATION CULTURE DIAGNOSIS FRAMEWORK

The diagnosis is designed based on the assumption that the core values, core beliefs, and executional drive that make up our fundamental actions can develop our value creation culture and go on to realize where we want our corporate culture to reach.



Measure the level of employee understanding and internalization of corporate culture fundamentals

Measure perception of practicing for each elements of the value creation culture (execution of initiatives, capabilities, systems, and leadership, etc.)

Measure employee perception on the state and level of implementing value creation culture

HUMAN RIGHTS

COMMITMENT TO HUMAN RIGHTS

LOTTE Chemical seeks to practice 'human rights management' that not only changes the lives of our customers, but also changes society for the better, to contribute to prosperity for humanity.

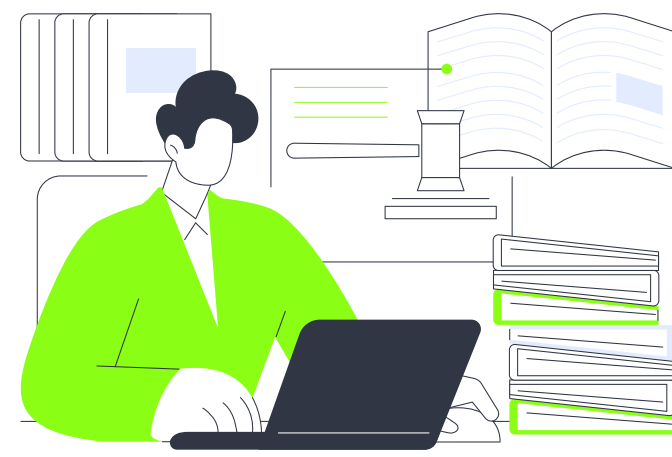
We established the 'LOTTE Chemical Statement on Human Rights Management' which sets the standard for behavior and value judgement that all employees must comply with in all business activities and tasks as part of our commitment to protecting human rights. The statement is based on international principles and conventions on human rights including the UN Declaration of Human Rights, the UN Guiding Principles on Business and Human Rights, the OECD Guidelines for Multinational Enterprises, and the UN Convention on the Rights of the Child. We are committed to faithfully abiding by and practicing this statement.

[Statement on Human Rights Management](#)

GOVERNANCE

We operate the ESG Committee under our BOD and the Labor-Management Council to blend the human rights agenda into our business. In addition, the HR Innovation Group and relevant field organizations design and implement human rights systems and carry out quarterly initiatives determined by the Labor-Management Council.

The ESG Committee sets the paradigm for ESG policies and priorities including labor related human rights and monitors its performance. The Labor-Management Council is composed of representatives from each domestic and overseas business site, conducting quarterly meetings to oversee various issues related to the labor environment and human rights and seek agreement between labor and management.

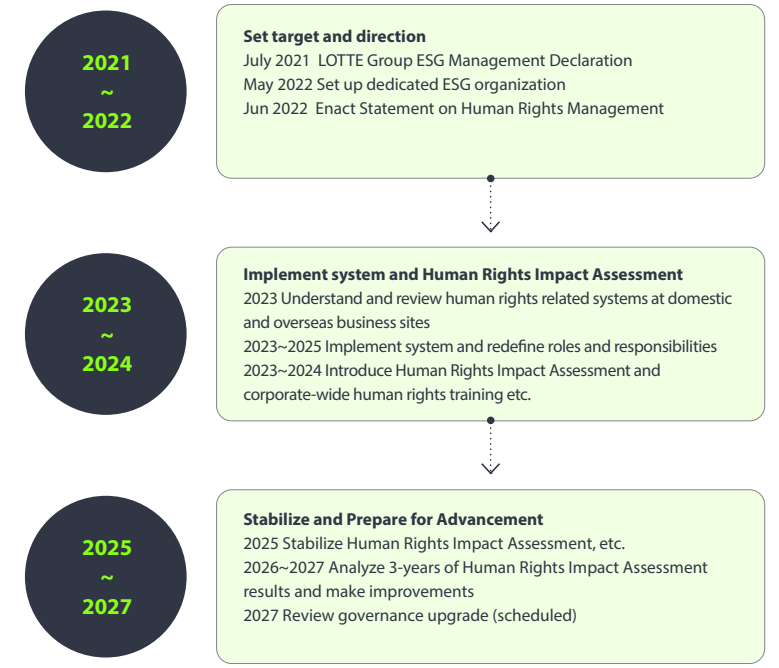


STRATEGY

Mid-to-long-term Roadmap on Human Rights Management

LOTTE Chemical operates a mid-to-long-term roadmap that starts with setting the direction for human rights management to implementing, stabilizing, and advancing its system.

HUMAN RIGHTS MANAGEMENT MID-TO-LONG-TERM ROADMAP



RISK MANAGEMENT

Human Rights Impact Review and Assessment

As a first step to implementing an integrated human rights management system, LOTTE Chemical carried out an assessment on the 3-year performance of individual human rights systems being operated at each of our business sites under the company's human rights policy. The 10 domestic business sites and 12 overseas business sites and subsidiaries for our basic chemicals and advanced materials business have identified human rights risks in creating a stable work environment, making non-discrimination efforts, improving employee awareness, and communicating with stakeholders, and operate various programs in the areas of human resource, labor affairs, safety and environment, security, and CSV. We are developing standardized operating principles and an integrated system to monitor human rights more systematically and strategically going forward. In that context, we plan to carry out a human rights impact assessment with a professional external agency next year.

METRICS AND TARGETS

Create a Stable Working Environment

1 Guaranteed Stable Living for Workers

We operate working hours, wage levels, and welfare benefits to guarantee a certain level of living and work-family balance for workers. We have a PC-Off system to observe weekly standard workhours and reduce the risk of overtime working while offering also offering the option of flexible workhours. These systems are monitored periodically to ensure they are implemented well. In addition, we calculate wage levels based on inflation rates, economic growth rates, and raises applied at our affiliates, and also offer a wide range of welfare benefits to employees and their families to assist workers in sustaining an appropriate level of living. As part of our family-friendly programs, we offer up to 2 years of childcare leaves for mothers and mandatory childcare leaves for fathers, as well as family care leaves, support for pregnant and infertile employees, and medical expense and tuition coverages for employees and their family members. Other programs we offer include support for mortgage loans and interest payments regarding stable housing, water park and accommodation costs for recharging, and sponsoring inhouse club activities.

2 Guaranteed Labor Rights

LOTTE Chemical guarantees the labor rights of workers. We established and practice internal regulations that guarantee the right to organize, the right to collective bargaining, and the right to collective action covered by the Constitution. We are devoted to building sound labor and management relations by working with a professional labor law firm to continuously inspect the risk of unfair labor practices and make necessary improvements. Moreover, we have labor-management councils and organizational culture taskforces at each of our business sites to listen to the different voices of the field and improve working conditions through regular communication between labor and management. We also operate safety regulations, sponsor health examinations, and a counseling office to provide a safe working environment for our employees while improving their physical and mental health.

Non-discrimination Programs

1 Use of Grievance Mechanisms (Gender, job title, etc.)

We have a Grievance Committee to operate a systematic reporting channel and help restore the rights of victims who have undergone harm to their body, mentality, or physical property due to reasons related to their gender, job title, age, etc. LOTTE Chemical established a remedy process of human rights violations guarantees that victim identities are protected and allows reports to be filed freely when incidents such as sexual harassment and workplace bullying take place. Victims can choose appropriate channels for filing grievances through various options including the Online Shinmungo, members of the Grievance Committee, and external law firms. Cases are immediately investigated as soon as filed through each channel to resolve disputes and restore the victim's rights.

Also in 2023, complaints that were filed through various channels were handled through the Grievance Committee and Disciplinary Committee by carrying out investigations and taking necessary measures. We will persist in actively conducting prevention activities, as well as objective and fair investigations and actions on cases filed to ensure workers to work without discrimination, such as gender or job title.

HUMAN RIGHTS VIOLATION REPORT CHANNEL



2 Gender Equality and Family-friendly Programs (Gender)

LOTTE Chemical operates various programs that support childbirth and childcare to build an equal and fair environment where employees can strike a balance between work and family. Female workers can use up to 2 years of childcare leave, and male workers are mandated to use a minimum 1-month leave for taking care of their children. These periods are recognized as part of the employee's tenure to ensure there are no disadvantages in terms of promotions. We also operate various programs to encourage employees to have children and spread a culture of shared parenting such as shorter workhours for pregnant employees and employees with young children, support and leaves for infertility treatment, and family care vacations and leaves for employees who need to take care of family members.

Furthermore, we have been continuously increasing our programs regarding hiring and developing female talent since 2011. We increased the ratio of promotions for female employees to secure more female talent and adopt gender equality principles to new hires. We also operate practical programs to develop our female talent such as the LOTTE female leadership program where outstanding female executives and members of management take part in mentoring and complete individually tailored capability-building training based on the outcome of leadership diagnosis. Training is also offered to employees returning from childcare leave to help them adapt to the organization and improve work engagement.

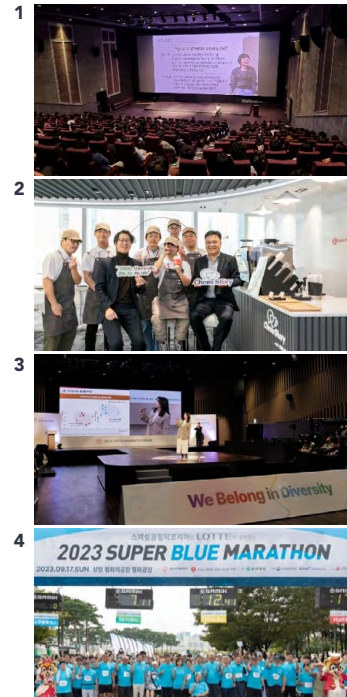
3 Development of Jobs for People with Disabilities and Support for Self-reliance (Disability)

We strive to go beyond achieving quantitative targets in disability employment rates and support employees with disabilities to assist them in building self-reliance capabilities to carry out tasks without discrimination. In 2023, we improved the job system and work process for our entire employees with disabilities to ensure they are assigned appropriate responsibilities online and offline to achieve professional growth. We develop jobs fit for disabled employees such as baristas, web designers, and inhouse instructors and support them in getting involved in company orientation sessions, job training and manuals, and company events to increase their loyalty towards the company and adjust to work smoothly.

Activities to Improve Awareness on Diversity

1 Employee Training on Human Rights

LOTTE Chemical identifies human rights violation risks at worksites and educates our employees on areas related to human rights for proactive actions to strengthen employee capabilities regarding human rights protection and internalize a culture of human rights management. In 2023, we conducted training on preventing sexual harassment and improving the perception of people with disabilities to all employees including new joiners. An employee with disability that is an eligible inhouse instructor conducted the session first-hand, communicating with employees to amplify the impact of the training.



1. Employee training on human rights
2. Chemi-Story, our company café staffed with baristas with disabilities LOTTE Diversity Forum
3. LOTTE Super Blue Marathon

2 Opening 2 Cafés of Baristas with Disabilities

In connection with our social enterprise project, LOTTE Chemical opened in-company cafés called 'Chemi Story' where baristas with disabilities prepare food and beverages at our headquarters in Seoul and R&D Center for basic chemicals. We actively support these employees with disabilities with job training and adaptation programs to help them build a sense of belonging and improve their barista skills. We seek to build an inclusive culture based on respect by conducting various campaigns and regularly events to improve the perception of people with disabilities.

3 LOTTE Diversity Forum

Every year, LOTTE Chemical participates in LOTTE Group's annual LOTTE Diversity Forum which is held with the aim of building a culture of inclusivity and diversity that does not discriminate against female leaders, generations, disabilities, or nations. Various members including female leaders, Gen. MZ leaders, employees with disabilities, global talent, and expatriates from our overseas operations also took part in the 2023 Forum where they shared best practices and enhanced their understanding of LOTTE's diversity policies through lectures, debates, and performances to reaffirm the meaning of inclusivity and diversity.

4 LOTTE Super Blue Marathon

The LOTTE Super Blue Marathon was organized to break down the misconceptions of disabilities by running a marathon wearing shoes with blue shoelaces – the color of hope and self-reliance. Members from our HR Team and baristas with disabilities took part in this year's marathon, running together and completing the 5km course to instilling pride and a sense of belonging in our employees with disabilities.



ESG RISK MANAGEMENT OF SUPPLY CHAIN

GOVERNANCE

Supply Chain ESG Management System

LOTTE Chemical reports risks in supply chain ESG and improvement measures to the BOD's ESG Committee each year. We also set up a cooperative system led by the Procurement Team where key execution departments such as the ESG Management and CSV teamwork with the safety, compliance, and environmental management teams to internalize a supply chain risk management system. The ESG Committee's agenda in 2023 included the outcome of the ESG assessment of LOTTE Chemical's supply chain, future goals, and discussions on how to review supply chain risk management.

STRATEGY

Principles and Regulations on Supply Chain ESG Management

1 Enactment of Procurement Management Regulations

LOTTE Chemical has procedures in place for fair trade with our partners and discloses relevant principles transparently. All orders and contracts are managed through the procurement system, and supplier selection methods and processes are defined in our bid evaluation guide to internalize fair trade principles based on a consistent and transparent procurement process.

Contracts for Mutual Growth

LOTTE Chemical enacts and operates guidelines for the company to carry out fair and reasonable discussions and contracts with our partner companies. We have an infrastructure for signing contracts, guarantee self-determination rights in contracting, and document items that transaction parties must be in compliance with to faithfully carry out contracts in accordance with relevant legislations.

Fair Selection and Management of Partner Companies

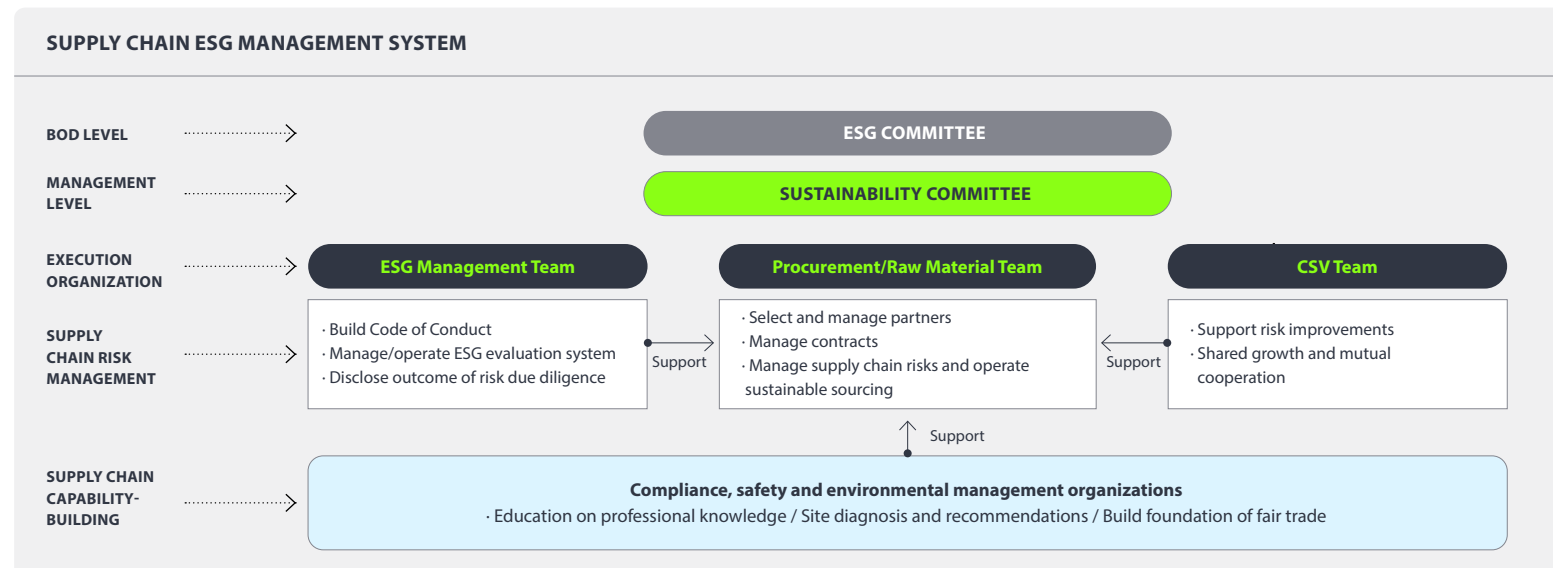
LOTTE Chemical establishes fair practices in the selection and management of partner companies to ensure there are no violations of relevant legislations such as the Fair Trade Act. We disclose the specific criteria, process, and results to guarantee fairness in our selection process.

Establishment and Operation of Internal Review Committee for Subcontracting

We set up an Internal Review Committee to review the fairness and legitimacy of key transactions that either are of certain scale or deemed necessary to maintain a fair-trading order. We designate the chairperson, committee members, and secretary to incorporate the opinions of our partner companies.

Proper Issuing and Storage of Documents

We set forth clauses on issuing and storing documents in the contracting and transaction process to build a fair subcontracting and trading order through the execution of rights and performance of duty. Documents that must be issued in accordance with relevant legislations are made clear along with items LOTTE Chemical and our partner companies must abide by to make sure they are understood. This way, we seek to maintain fairness for subcontracting based on execution of rights and performance of duty.



RISK MANAGEMENT

Supply Chain ESG Risk Assessment and Management

2 ESG Code of Conduct for Partner Companies

LOTTE Chemical developed the ‘ESG Code of Conduct for Partner Companies’ that outlines our expectations for partner companies in terms of environmental protection, respect for human rights, and safety management, etc, and has been delivered to partner companies in request of ethical corporate practices.

ESG CODE OF CONDUCT FOR PARTNER COMPANIES

Environmental Protection	Partner companies shall make efforts to follow LOTTE Chemical's environment management policy. They are expected to participate in the improvement actions based on the environmental management assessment and actively cooperate to establish a data-driven environmental management system.
Respect for Human Right	Partner companies shall endorse and respect the UN Principles on Business and Human Rights at all business premises and guarantee the protection of human rights for all stakeholders.
Safety Management	Partner companies shall make efforts to ensure the safety of employees throughout all stages of product manufacturing, distribution, and service provision. They shall establish a management system to prevent safety accidents, and actively collaborate in LOTTE Chemical's workplace safety assessment.
Legal Compliance and Ethical Management	Partner companies shall enhance management transparency, comply with laws and regulations, and maintain the highest ethical standards. They shall also implement an internal compliance system and provide relevant education to employees.
Prohibition on Use of Conflict Minerals	Partner companies shall prohibit the use of minerals mined in conflict zones, acquired through methods that are illegal, unethical, or that may pose a risk to the environment and safety.
Business Management System	Partner companies shall acknowledge the significance of sustainable management and implement a management system to achieve this objective. They shall set goals and conduct regular performance evaluations and improvements.

1 Classification of Partner Companies for the Supply Chain Assessment

LOTTE Chemical classifies our partner companies into 3 groups (Tier 1, 2, 3) based on their share and type of purchase, strategic risks, and ESG risks. Based on this classification system, assessment cycles and methods are applied to each group. In 2023, the ESG supply chain assessment was conducted for the first time for 49 key partners.

Instead of simply carrying out routine inspections and assigning grades, professional assessment accompanied with training and reliable third-party verification was conducted. We plan to widen the scope of assessment subjects in 2024 to continuously upgrade our supply chain ESG risk management system.

BREAKDOWN OF PARTNER COMPANIES IN 2023

Category	Classification Criteria	Assessment Cycle	Assessment method	Number of Partners	Share of procurement
Tier 1	<ul style="list-style-type: none"> High level purchasing importance (10 billion) Short/long-term supply of primary raw materials High stakeholder influence In the event of a risk, the scale of damage to the company is at its highest 	2 years	Self- and third-party diagnosis and verification	46	75.6%
Tier 2	<ul style="list-style-type: none"> All purchases (1 billion>) 2-times or more supply Stakeholder influence exists In the event of a risk, there is somewhat damage to the company 	3 years	Written self-diagnosis (third-party diagnosis and verification when risks are identified)	303	17.9
Tier 3	<ul style="list-style-type: none"> All purchases (1 billion<) One-time supply Low stakeholder influence such as multiple suppliers In the event of a risk, there is little damage to the company 	New entries and at contract renewal	Pledge on Code of Conduct for Partner Companies (*assessments to be extended starting in 2024)	2,057	6.5%

2 ESG Risk Assessment and Management of Partner Companies

ESG Risk Assessment Metrics for Partner Companies

LOTTE Chemical evaluates possible ESG risks at partner companies and their management system based on a total 66 specific metrics that can be classified into 3 areas (Environment, Society, Governance), 12 categories (climate change response, environmental management, human capital, and community), and 23 sub-categories. Partner company ESG Code of Conduct and global supply chain assessment guidelines are applied to the key assessment data.

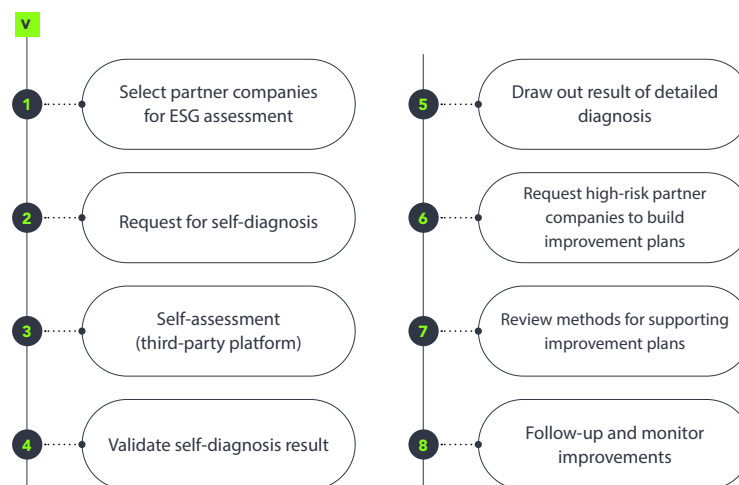
PARTNER COMPANY ESG RISK ASSESSMENT METRICS

Area	Category	Sub-category
Environment	Climate Change Response	Energy consumption, GHG emissions
	Pollution and Waste	Air pollutant, hazardous substance, waste management
	Natural Capital	Water protection, raw material, soil, noise, vibration, odors
	Eco-friendly Opportunity	Eco-friendly products
Society	Environmental Management	Environmental management
	Social Target	Social target management
	Human Capital	Labor, health and safety, human rights, information security
	Product/Customer	Conflict minerals
	Community	Social contribution
Governance	Partner Company	Fair trade, partner company management
	Corporate Governance	Audit, management system, information disclosure
	Corporate Action	Ethical management

Partner Company Assessment and Management Process

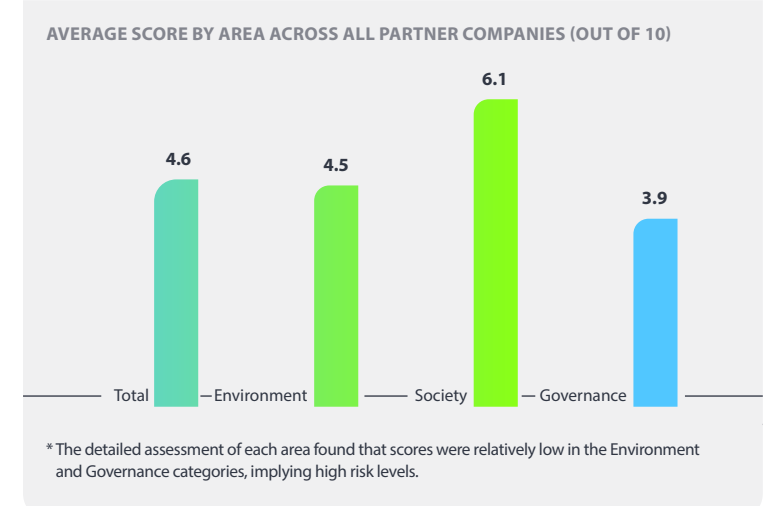
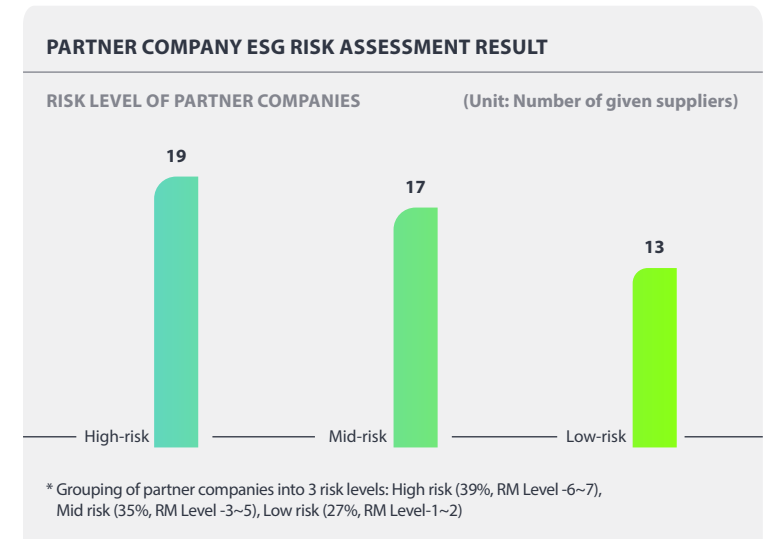
LOTTE Chemical operates an assessment and follow-up management process to manage ESG risks for partner companies selected based on our classification system. We rely on a third-party platform for systematic and fair assessment and actively share the objectives, methods, and use of the results of the assessment with our partner companies through briefing sessions prior to the assessment. The Code of Conduct for Partner Companies is also distributed ahead of the assessment, and a compliance agreement regarding the code of conduct is also requested to be signed to notify partners about the need for compliance. Starting in 2023, we are providing the assessment reports that have received third-party assurance to our partner companies along with improvement measures for the short, mid, and long-term based on the resulting level of risk identified. In addition, consulting services are offered for proactively monitor the process following assessment to until the improvement of the given risks are completed.

PARTNER COMPANY ASSESSMENT AND MANAGEMENT PROCESS



3 Partner Company ESG Risk Assessment Result (2023)

A total 49 partner companies took part in the annual supply chain ESG risk diagnosis in 2023 with 39% of the companies found to have high ESG risks.



Compliance rates were found to be relatively low in the environment area (eco-friendly products in the supply chain, soil/noise/vibration/odor management, protection of water resources, etc.) and some areas related to governance (audit, management system) while high in the social category (information security, human rights, health and safety, labor relations, fair trade, etc.).

KEY ITEMS TO BE SUPPLEMENTED

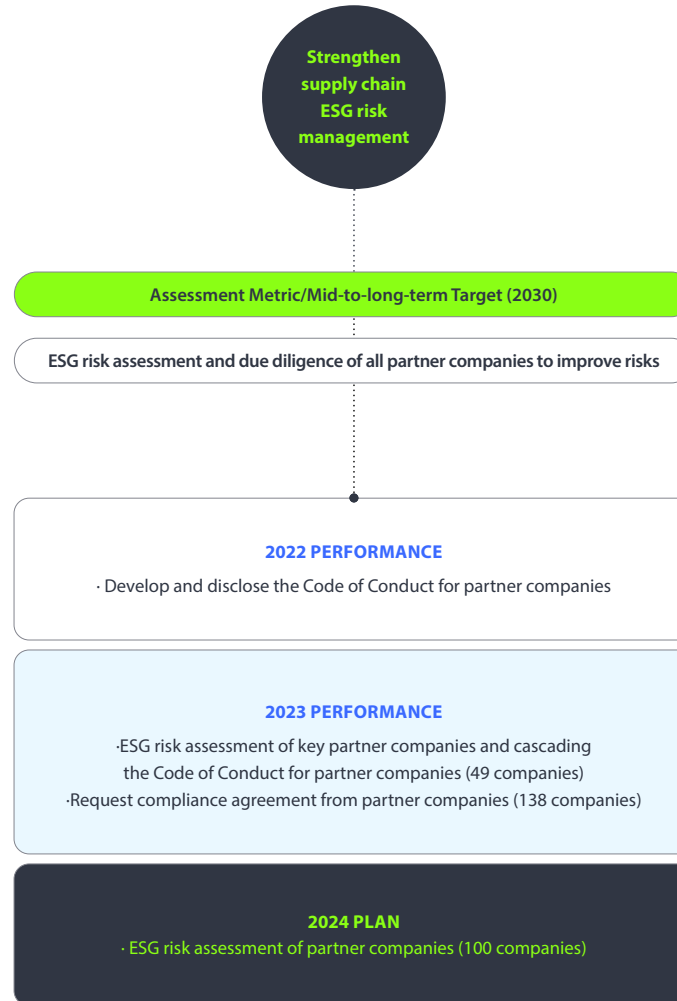
Environment	Disclosure of environmental and social responsibility information, management of environmental metrics (recycling rate of raw material, number of eco-friendly products, etc.)
Governance	Development of ethical management policies, availability of channels to report unethical issues, policies on conflict minerals, etc.

In accordance with the results, we reviewed prioritization of the areas that need improvement at each partner company among the high-risk partners key risks were identified for corrective measures to be taken. We provided improvement plans based on phased simulations to partners to show how risk levels can be enhanced along with information on metrics that can be addressed in the short-term. Through such efforts, LOTTE Chemical reduced risks in our supply chain, and partner companies were able to revamp their overall risk management by making early improvements.

4 Post-management of Partner Company ESG Risk Assessment

LOTTE Chemical issues reports on the ESG risk assessments of partner companies and provide feedback on the strengths and weaknesses of partners along with specific improvement measures based on practical conditions and capabilities for timely improvements to be made where needed.

LOTTE Chemical conducts risk assessments to diagnose ESG practices at partner companies and links it to our support to lead mutual growth with our partners. To ensure practical assistance for our partner companies, we offer one-stop consulting services which cover the assessment, onsite due diligence, and improvement process for selected partners in conjunction with the ESG Support Project for Mutual Growth to promote mutual cooperation and shared growth. Consulting was offered to a total of 10 partner companies in 2023. Partners are free to select topics and consulting provider to sharpen competitiveness in necessary areas.



In addition, we carried out an ESG Support Program, together with the Mutual Growth Committee, to upgrade the ESG capabilities of partner companies to global levels. We devised an ESG Guideline for LOTTE Chemical partner companies aligned with global ESG metrics and domestic law and dispatched specialists to 21 partner companies to support their efforts in improving ESG management.

5 Grievance Mechanism for Partner Companies

LOTTE Chemical operates an exclusive 'grievance consultation and inquiry channel' for our partner companies in addition to our Online Shinmungo and hotline to secure a channel for efficient communication and sustainable relations with our partners. Grievance consultation emails are forwarded to relevant departments, and confidentiality of the matter and its informant are guaranteed. Moreover, in line with the company's guidelines on prohibition of retaliatory measures, we ensure informants do not face disadvantages of any kind. Matters received investigated by relevant departments, and follow-up measures are taken based on its findings with transparent sharing of the outcomes through briefing sessions.

METRICS AND TARGETS

Supply Chain Performance Management

Starting with the enactment of the Code of Conduct for partner companies in 2022, risk assessments of core partner companies have been completed in 2023, along with efforts to cascade the Code to partner companies and successfully meeting annual targets for collecting compliance agreements. In the mid-to-long-term, we plan to carry out ESG risk assessments and due diligences at all our partner companies while continuously monitoring compliance of areas related to regulations on supply chain due diligence scheduled to be implemented in the future to be ready for appropriate disclosure of diagnosis and inspection results.

Procurement of Sustainable Raw Materials

1 Green Procurement Policy

LOTTE Chemical seeks to prevent waste of resources, prevent environmental pollution, and contribute to GHG abatement by promoting and spreading the use and consumption of products that minimize the input of energy and resources and output of greenhouse gases and pollutants.

2 Procurement of Eco-friendly Raw Materials

We are actively promoting green procurement policies that minimize impact on the environment and use resources efficiently to ensure sustainable living for humanity. LOTTE Chemical developed Green Purchasing Guidelines that are applied to the raw material, office supplies, and consumables used in the products produced and sold by our company, as well as the products and packaging material of domestic and overseas suppliers that carry out green procurement. Green procurement performance is measured and reported annually.

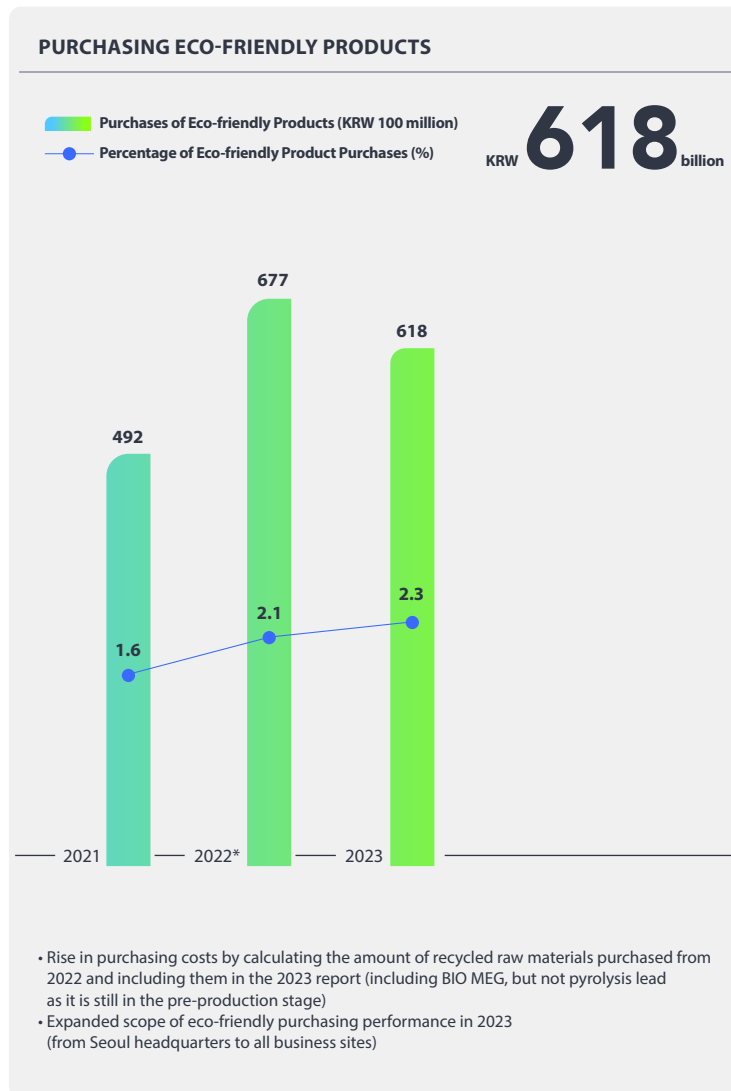
3 Raw Material Procurement Risk Management

As LOTTE Chemical has a high percentage of exclusive suppliers for raw materials, it is essential to minimize these risks and establish a stable supply chain management (SCM) system. Due to the nature of raw materials, we continue to pursue dualization and localization of areas where the percentage of sole suppliers is high in relation to quality and licensor. This way, we have been able to steadily reduce the percentage exclusive suppliers purchases and continue to cost savings. LOTTE Chemical will make ongoing efforts for the stable supply of raw materials and risk management.

4 Stable Procurement of Raw Material through Robotic Process

Automation (RPA)

As AI applications increase across various areas including clerical, administrative, and managerial work, LOTTE Chemical has been realizing automation for repetitive and regular contracts, material purchases, and ordering tasks by applying RPA based on business scenarios since the end of 2019. Through such efforts, we are trying to improve work productivity by minimizing human



errors. We are automating around 20% of total procurement tasks through an optimizing working environment using RPA to focus on management of the supply chain for additional raw material procurement.

Compliance with Responsible Minerals Regulations

Recognizing that human rights violations and environmental destruction caused by mining in conflict and high-risk areas imposes a serious problem, LOTTE Chemical does not use conflict minerals such as tin, tantalum, tungsten, and gold, and responsible minerals such as cobalt that are illegally mined. We investigate supplier compliance with regulations on 6 types of conflict minerals when sourcing raw material and issue CMRT*(Tantalum, Tin, Gold, Tungsten) and EMRT**(Cobalt, Mica) Certification upon request from customers. Currently, we procure some raw materials that contain tin and uses CMRT to obtain and manage information on the current status of conflict minerals and tin at refineries (country, refinery name, refinery ID, etc.) in the supplier supply chains.

* CMRT : Conflict Minerals Reporting Template

** EMRT : Extended Minerals Reporting Template

MUTUAL GROWTH WITHIN SUPPLY CHAIN

GOVERNANCE

Mutual Growth Implementation System

LOTTE Chemical communicates and cooperates closely with various departments as part of our pursuits for mutual growth. Our CSV Team, dedicated to mutual growth activities, is in charge of planning, operating, and endorsing programs, while Procurement is in charge of identifying areas where we can support our partners and make improvements in account policies. The Compliance Team is responsible for improving fair trade systems, and the Finance Team operates payment policies that take the interests of both parties into consideration. We are also working with other relevant departments such as Production and R&D to carry out our mutual growth efforts.



We offer practical mutual growth programs based on strategies for strong partnerships, mutual cooperation, and reinforced communication. We strive to support our partner companies through financial, technical assistance and strengthening competitiveness for them to achieve self-growth and advancement.

STRATEGY

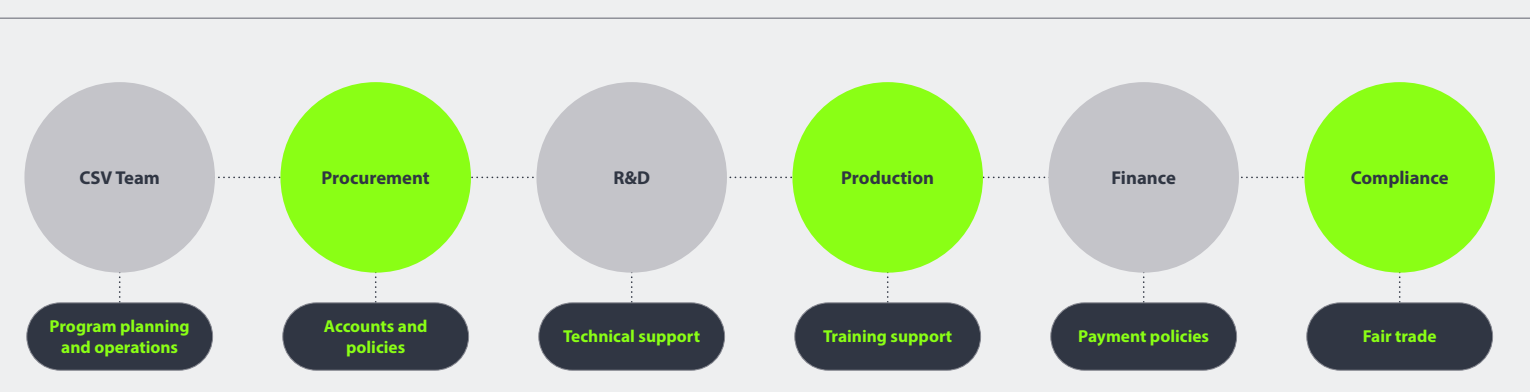
Mutual Growth Strategy

LOTTE Chemical drives mutual growth activities based on the 3 strategic focuses of strong partnerships, mutual cooperation, and reinforced communication, striving to meet domestic and global ESG ratings standards. To improve account partnerships, we observe guidelines on signing contracts, selecting and managing partner companies, operating internal review committees for subcontracts, and issuing written contracts to reach fair agreements with our partners through relevant training that promotes a culture of fair trade. In addition, we offer mutual cooperation programs for partner companies such as financial support, recruitment support, and ESG support to strengthen ESG capabilities in our supply chain. To develop and operate programs that provide practical assistance, we are listening to the opinions of our partner companies through meetings, newsletters, and surveys. As a result of such efforts, we obtained the 'Excellence' grade in the 2022 Win-win Growth Index announced by the Korea Commission for Corporate Partnership in 2023. We will continue to operate high quality support programs for our partner companies for our relationships to evolve into long-term partnerships. In the short-term, we will expand visits and business intimacy programs to strengthen communication with our partners and lend an ear to their voices. Furthermore, we plan to expand our ESG support program to assist our partner companies in complying with global ESG guidelines and improving ESG management and certifications. Meanwhile, in the mid-to-long-term, we will develop effective programs that tailor to the needs of our partners to increase social value. We will also support sustainable management by increasing financial support and long-term employment of core talent.



Obtained Excellence in the 2022 Win-win Growth Index

MUTUAL GROWTH IMPLEMENTATION SYSTEM



RISK MANAGEMENT

Prevention Systems

LOTTE Chemical set up a department in charge of fair trade to manage violation risks regarding internal decisions and their execution. We also put in place a Subcontract Review Committee as the internal review committee for fair trade and is composed of chairperson, review members, and a secretary officer. The committee holds meeting on a monthly basis and reports its results. In 2023, 12 review committee meetings were convened where the legitimacy of large-scale contracts, trade suspensions of partner companies, and procedural issues were deliberated. In addition, we adopted and abide by 4 key guidelines to prevent legal violations and ensure fair trade opportunities and fair contracts are offered to our partner companies.

Post-monitoring System

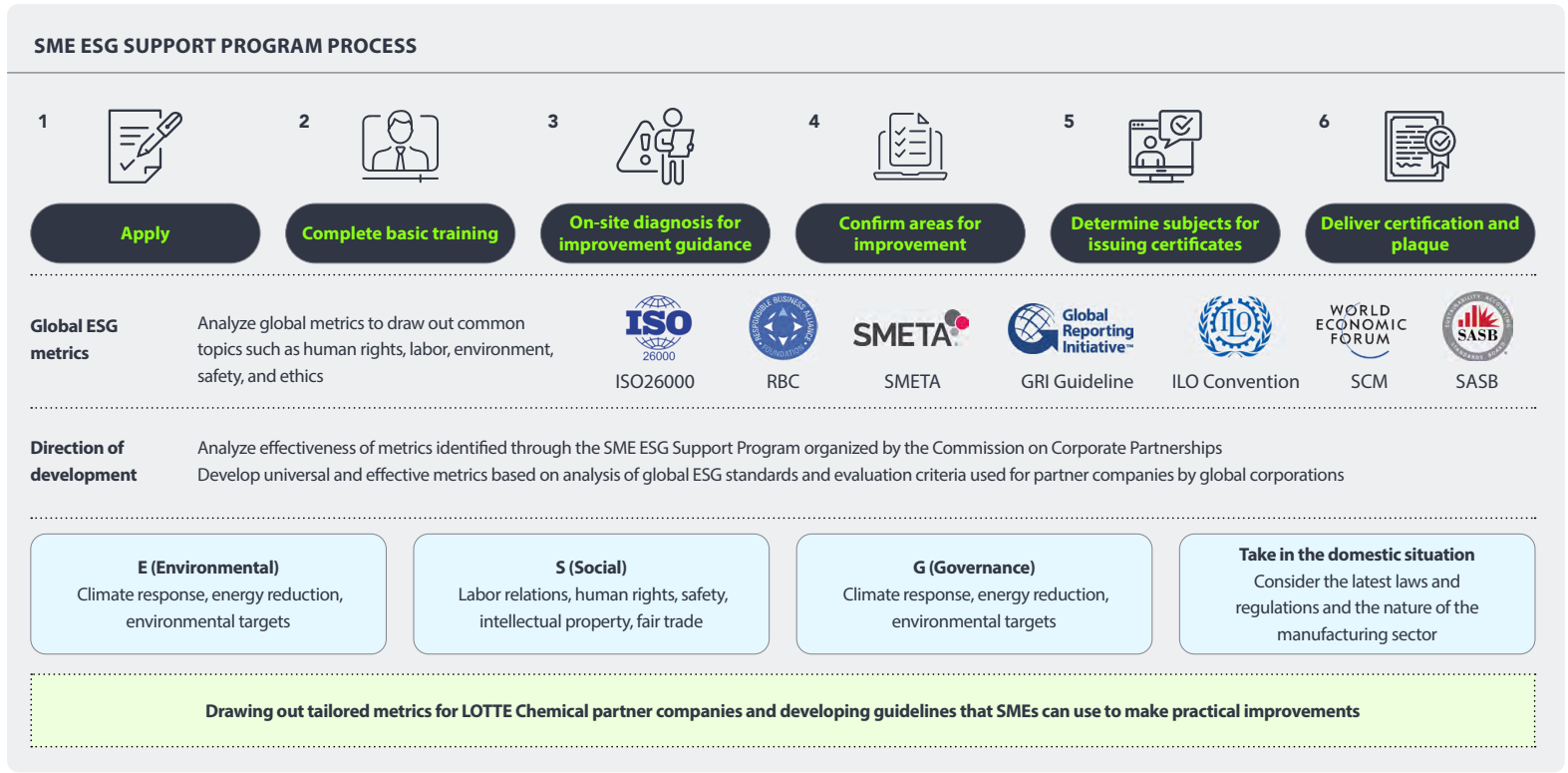
LOTTE Chemical carries our inspections regularly to prevent unfair behavior in trade. We introduced an IT monitoring system and operate a pre-screening system for possible unfair practices, not to mention offer regular training to employees at headquarters and each plant site that meet ISO 37001 system standards. Our internal fair trade policies include clauses on disciplinary actions that go as far as dismissal for those performing unfair trade. In addition, we have been operating an executive and organization evaluation system since 2017 where disadvantages shall be imposed to the department where unfair trade practices took place.

METRICS AND TARGETS

ESG Support Program for Partner Companies

We have been participating in the Partner Company ESG Support Program organized by the Korea Commission for Corporate Partnerships for 5 years to sharpen ESG capabilities at our partner companies. Through this program, we support partner companies in education and dispatch specialists to provide on-site diagnoses and consulting services. In 2023, we made a contribution of KRW 100 million to the Mutual Cooperation Fund to help develop ESG metrics suitable for each partner company's given sector and scale. We have supported 107 partner companies over the course of 5 years in ESG education and consulting to upgrade their management standards for ESG to meet global levels and offer detailed guidelines on how to respond to various laws and regulations.

We are striving to secure a sound supply chain and sharpen sustainable competitiveness of our partners. Moreover, we are extending additional support to outstanding partner companies to increase engagement rates and spread the ESG culture. We applied a performance sharing system to 18 partner companies that have actively participated in the ESG Support Program, offering them a cash incentive of KRW 1 million. LOTTE Chemical was also named an excellent company in the program, supporting Doobon, our partner which won the Grand Prize at the 2022 Win-win Growth Awards, in preparing its 2023 Sustainability Report.



Mutual Cooperation

Mutual Growth Program



1 Financial Support

Mutual Growth Fund

We formed a Mutual Growth Fund of KRW 135 billion based on a contribution of KRW 67.5 billion to the Industrial Bank of Korea for partner companies to take out loans at lower rates than market. Loans worth KRW 117.8 billion have been executed to 158 partner companies as of December 31, 2023.

Agreement	Recommendation
LOTTE Chemical-IBK Agreement for KRW 135 billion	Recommendation to LOTTE Chemical partner companies
Loan Consultation	Interest Rate Discount (as of 2023)
Partner company-IBK loan consultations	Automatic interest discount (2.82~4.22%p)

Credit Guarantee Fund

We made a contribution to the Credit Guarantee Fund, supporting guarantees worth KRW 105 billion to promote smooth financing for our partner companies. The Credit Guarantee Fund uses contributions from LOTTE Chemical with additional guarantees to support SMEs without collateral or that have exceeded maximum guarantee limits.

Guarantee Details	Institution
Issuance of B2B payment guarantees	KODIT Korea Credit Guarantee Fund
Loan Consultation	Interest Discount
KRW 105 billion	Support for 4 companies in 2022

* Support for companies with credit ratings below BB and exceeding maximum guarantee limits

2 Research and Development Support

Technical Support

We are operating a program where LOTTE Chemical specialists are dispatched to partner companies to offer guidance on quality control with R&D specialists reaching out to 147 partner companies in 2023. In addition, LOTTE Chemical research facilities were utilized for the analysis of physical properties of material requested by partner companies. In 2023, analysis was completed for a total 144 partner companies.

Joint Research

We are also actively working on collaborative research projects with our partner companies to strengthen their technological competitiveness. In 2023, 34 joint projects were carried out with small-and-medium-sized partners on diverse areas such as eco-friendly technology.

3 Market Expansion

As a key foundation to LOTTE Chemical's overseas entry strategy, we are actively entering overseas markets together with our partner companies. We support expanding markets for partners by connecting our overseas subsidiaries in Malaysia, Uzbekistan, Vietnam, China, and Mexico with SME partner companies in Korea, resulting in KRW 47.5 billion in relevant business transactions in 2023.



4 Productivity Improvement Support**Consulting Support**

LOTTE Chemical operates consulting support programs for our partner companies to sharpen their competitiveness. Our partners are free to choose the consulting topic and consulting provider to benefit from more practical assistance. In 2023, we sponsored 10 partner companies with consulting for topics such as labor affairs.

Diagnosis of Safety Management for Partner Companies

Due to the nature of the chemicals sector, safety incident prevention is an imperative topic. LOTTE Chemical strongly recommends that our partner companies obtain ISO45001 certification for their health and safety management systems to upgrade safety management levels. When requested, we dispatch external specialists to our partner companies to support them in improving their management systems such as for measuring work environments.

5 Business Management Support**Welfare Support**

LOTTE Chemical frequently provides employees at our partner companies with the opportunity to attend various cultural performances by leveraging the Group infrastructure. We also offer direct welfare benefits such as holiday gifts to support the business management of our partners.

Start-up Venture Support

LOTTE Chemical supports technology innovation startups through our affiliate LOTTE Ventures, investing to the LOTTE Innovation Fund and LOTTE Chemical ESG Fund to promote mutual growth with startups and venture companies.

Win-win Nuri

LOTTE Chemical actively utilizes Win-win Nuri, an open platform for mutual growth. Here, education and consulting support programs are open to all SMEs, regardless of trade partner status. In 2023, 23 new programs were registered to support partners in strengthening their competitiveness.

Environmental Seminars

LOTTE Chemical holds environmental seminars to support small-to-medium-sized partner companies suffering from lack of professional talent and cost issues to help them improve environmental capabilities. In 2023, we educated around 120 small-to-medium-sized partner companies on environmental legislation, ESG trends and carbon neutrality strategies to strengthen win-win cooperation and the capabilities of partner companies.

6 Welfare Benefit Support**Education Support**

We operate an online learning program called Mutual Growth Academy for capability-building of partner company employees, offering over 300 courses in various categories including business management, foreign languages, and job skills for free. Training on safety, environment, and health are frequently conducted for partner companies at production sites with a total 2,375 employees from our partner companies taking part in on-site safety training in 2023.

Vacation Support

LOTTE Chemical operates a vacation support program to enhance satisfaction and improve the quality of life for employees at our partner companies. In 2023, we provided travel kits and national tourism gift cards that can be used at affiliated hotels, department stores, dutyfree shops, and travel agencies, etc.

7 Recruitment Support**Recruitment and Long-tenured Support**

LOTTE Chemical leverages the 'Credit for Tomorrow' program to assist partner companies in recruiting and retaining talent for longer tenures. We are making endeavors to improve efficiency in talent operations by sponsoring part of the contributions that partner companies taking part in the program must pay. In 2023, we partially supported contributions from 21 partner companies to retain 67 of their core talent for longer tenures.

Job Fair Support

LOTTE Chemical supports the recruiting activities of our partner companies to ease the burden on them to find new hires. We continuously provide information on recruiting fairs and job fairs to encourage participation and sponsor partner companies that take part in online or offline job fairs with KRW 500,000 per session.

Online Recruiting Center for Partner Companies

Through an MOU with the Industrial Bank of Korea, LOTTE Chemical opened a LOTTE Chemical partner company recruiting center within the online recruiting website, i-One Job. This way, we supported partner companies facing difficulty in youth recruiting to secure talent by posting recruitment notices of 25 partner companies in 2023.

Category	Program Name	Description	2023 performance
Financial Support	Mutual Growth Fund	Financial support through the KRW 135 billion Mutual Growth Fund where we made a KRW 67.5n billion contribution to IBK to offer loans at rates lower than the market	158 companies / 239 cases / Support of 117.8 billion
	Credit Guarantee Fund	Contribution to Credit Guarantee Fund to support guarantees worth KRW 105 billion to partner companies with difficulty in obtaining loans due to poor credit ratings or guarantee ceilings	None in 2023
Productivity Improvement	Consulting Support	Consulting support to sharpen partner capabilities and competitiveness. Partner companies can choose their own topic and provider to make improvements through consulting	10 companies / KRW 19.58 million
	Safety Management Diagnosis	Due to the nature of the chemicals sector, safety incident prevention is imperative. LOTTE Chemical strongly recommends our partner companies to obtain ISO45001 certification for improved health and safety management and systems. When requested, external specialists are dispatched to support partners improving their management systems such as for diagnosing work environments	3 companies / KRW 13.2 million
	ESG Support Program	ESG Support Program to upgrade partner company capabilities to global levels. ESG Guideline for LOTTE Chemical partners that meet global ESG metrics and local laws and regulations was developed, together with the Commission for Corporate Partnerships, and specialists are dispatched to improve ESG management at partner companies	Completion by 21 companies
Education Support	Mutual Growth Academy	Online learning program for partner company employees to improve capabilities in business management, language, and job skills through over 300 courses offered for free	13 companies
Welfare Support	Vacation Support	Vacation support program to enhance satisfaction and improve the quality of life for employees at partner companies. In 2023, travel kits and national tourism gift cards that can be used at affiliated hotels, department stores, dutyfree shops, and travel agencies, etc.. were given	58 companies / 208 people / KRW 50 million
	Holiday Gifts	Support for the welfare of partner companies in charge of packaging/shipping/logistics/security at business sites by providing holiday gifts at New Year's and Chusok	162 companies / 4,041 people

Category	Program Name	Description	2023 performance
Recruitment Support	Credit for Tomorrow	Support through the 'Credit for Tomorrow' program to help partner companies in recruiting and retaining talent for longer-tenures	21 companies / 67 people / KRW 51.58 million
	Job Fair Support	Information on recruiting and job fairs is frequently provided to encourage participation, offering incentives to participating companies	2 companies / 2 cases / KRW 1 million
	Recruitment Incentive	Incentives are offered for new youth hires to promote youth employment and talent acquisition by partner companies	11 companies / 11 people / KRW 11 million
Other Support	Online Partner Company Recruiting Center	LOTTE Chemical partner company recruiting center opened within the online recruitment website, I-ONE JOB, through an MOU with IBK	25 companies 12 new hires
	Mutual Growth Seminars	Training was held at each business site to introduce partner companies to the mutual cooperation program and educate them on technology protection and ESG to strengthen their capabilities	4 sessions / 148 people
	Performance-sharing	Performance sharing system to share profits and returns from mutual cooperation reasonably	18 companies / 18 cases
	Support for Analysis of Material Properties	LOTTE Chemical research facilities are utilized to carry out analysis on the properties of material inquired by partner companies	144 companies
Technical Support	Quality Guidance	Program where specialists are dispatched to provide quality control guidance to partner companies	147 companies
	Joint Research	Joint research projects to strengthen technology competitiveness of partner companies	34 cases
Market Expansion	Technology Escrow	Adoption of technology escrow system to lower the risk of technology leaks at partner company to enable technology protection at partner companies that cannot be safeguarded by patents	51 cases
	Overseas Market Entry	Support for partner companies to expand markets by connecting LOTTE Chemical overseas subsidiaries in Malaysia, Uzbekistan, Vietnam, China, and Mexico with SME partners in Korea	84 companies / KRW 47.5 billion

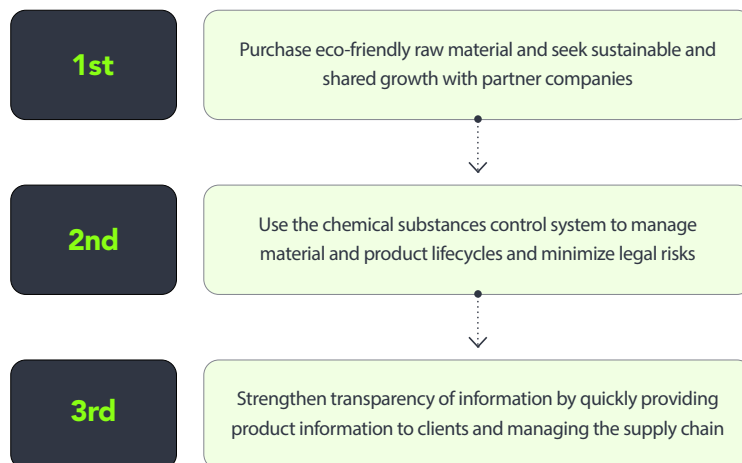
PRODUCT RESPONSIBILITY MANAGEMENT

STRATEGY

Chemical Substances Introduction and Handling System

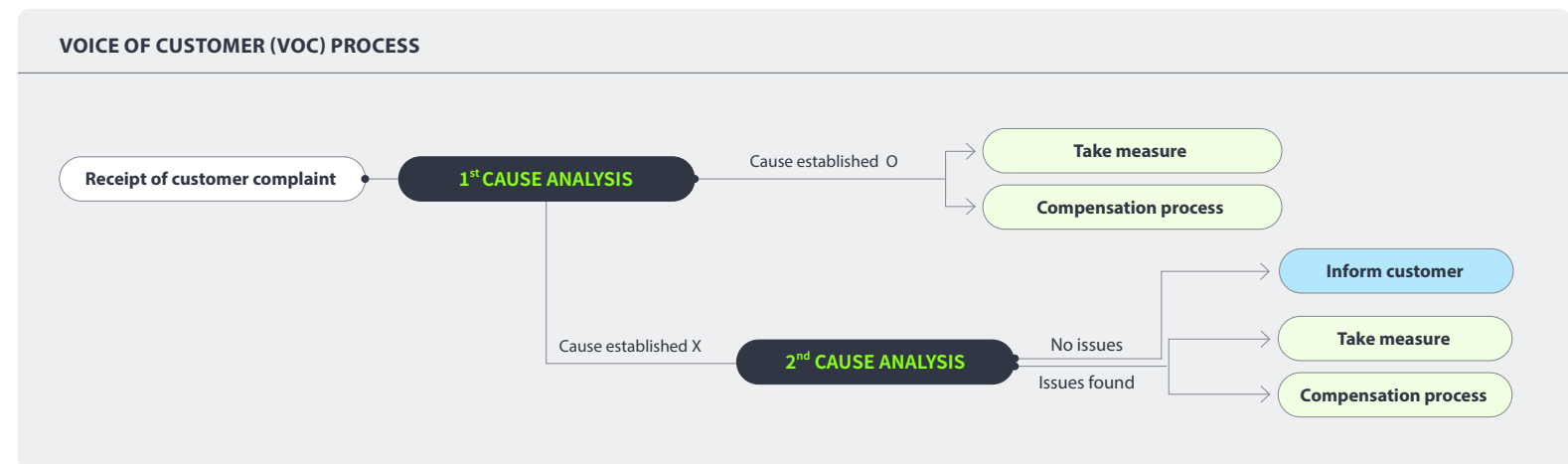
LOTTE Chemical works closely with partner companies and clients in producing high value-added products and providing transparent information. We communicate and cooperate with our partner companies and clients to achieve our goal of creating value through the production of sustainable products. The following shows our management system for introducing and handling chemical substances.

CHEMICAL SUBSTANCES INTRODUCTION AND HANDLING SYSTEM



LOTTE Chemical continuously identifies regulatory trends regarding products and chemical substances to determine the direction and level of product design and make sure that raw material purchases and product sales are made after registration and compliance checks. In addition, by reducing hazardous chemicals and developing alternative products, we are committed to reducing regulatory risks in advance, increasing product stability and transparency, and enhancing customer confidence, through lifecycle management from raw materials to production to disposal.

We have a Voice of Customer (VOC) process where a dedicated customer support organization manages the entire process from receiving to resolving customer complaints. We make ongoing efforts to manage complaints received by forwarding them to relevant departments to be addressed quickly and reviewing them at regular quality meetings to prevent recurrence.



Chemical Substances Safety Management

Recognizing that the impact of chemicals on human health and the environment across the entire process of its use, manufacturing, and transportation can influence the competitiveness of our products and the company as a whole, LOTTE Chemical has devised the following safety management policies.

- 1 We shall reduce the use of hazardous and harmful chemicals to prevent or minimize risks to public health or the environment.
- 2 We shall embrace innovative approaches such as developing substitute materials for high-risk chemicals or developing new products.
- 3 We shall diligently implement necessary measures for safe use of chemicals such as maintaining facilities above and beyond legal requirements, training employees, developing technology, and delivering information, etc.

Compliance with the Hazardous Chemicals Management Standards

We have a “List of Hazardous Substances Managed by LOTTE Chemical” that also sets forth criteria on substances that need to be controlled or prohibited based on domestic and international regulations. When registering material, content is reviewed and relevant regulations are checked in advance to secure safety. We also have chemical substance control guidelines prepared at our business sites to manage material subject to regulations such as the Occupational Health and Safety Act, Chemical Substances Control Act, and the Safety Control on Hazardous Substances Act in compliance with relevant standards on handling, labeling, transportation, and storage.

Phased Reduction Plan for High-Risk Chemicals

1 Mid-to-long-term Target and Roadmap for Reduction of High-risk Chemicals

LOTTE Chemical has a mid-to-long-term plan in place to reduce hazardous chemicals and internally identified high-risk chemicals (reduction, substitution, removal, etc.) to minimize harmful impact of our products on health and the environment.

2 Transition of High-risk Chemicals

Since 2023, we have been devising transition plans for high-risk chemicals each year. This way, we are working hard to reduce the use of high-risk substances through various measures including transitioning to risk-free substances, reducing of high-risk chemical content, and discontinuing such substances.

LOTTE CHEMICAL'S TRACK RECORD AND PLANS FOR TRANSITION OF HIGH-RISK CHEMICALS

Year	Number of transitions	Details	Impact
2023 results	8	6 risk-free transitions 1 reduction of content 1 discontinuance	Reduction in hazardous material handled by the company
2024 plan	8	-	Reduction in worker exposure and hazards

Participation and Activities related to Domestic and Global Chemical Groups

1 Application for Supplier of Raw Material that Fits Eco-label Certification

We have completed applications as a supplier of raw material that fits the eco-label certification standards, an initiative hosted by the Korea Environmental Industry & Technology Institute (KEITI) and are expected to be selected as a suitable supplier in 2024 as 15 of our products do not contain prohibited substances. The selected products can be found on the KEITI website.

2 Korea Chemical Industry Council (KOCIC)

LOTTE Chemical is a member of KOCIC, actively addressing issues faced in the domestic and global chemical industry and contributing to promoting the position of Korea's chemical industry in the global arena.

3 The Chemical Policy & Health (CP&H) Committee

Among KOCIC's 3 executive committees, LOTTE Chemical is a member of the CP&H Committee, working towards securing transparency in the the management of chemicals and pursuing safe emissions in terms of management and health

4 Korea Petrochemical Industry Association (KPIA) Consortium for Joint Registration

We joined a consortium with fellow Korean petrochemical companies for joint registration in response to the Act on Registration and Evaluation of Chemicals. This collaboration helps us comply with regulations and effectively voice our opinions.

TARGET AND MID-TO-LONG-TERM STRATEGY FOR TRANSITION OF HIGH-RISK CHEMICALS

GOAL Achieve Green Chemistry through the Transition of High-risk Chemicals

KEY STRATEGY

- Purchase eco-friendly material**
- Produce safe products**
- Develop new products**

INITIATIVES

- 1. Substitute high-risk chemical material and reagents with risk-free chemical purchases
2. Purchase renewable and bio-based raw material
- 1. Produce products with reduced high-risk chemical content
2. Discontinue products containing high-risk chemicals
- 1. Develop eco-friendly catalysts
2. Develop recycled products
3. Develop products with low concern

Employee and Partner Company Training

LOTTE Chemical conducts periodic training for our internal employees and external partner companies to enhance their understanding of regulations on our products and chemical substances, as well as reduce legal risks. Focus is placed on the latest global regulatory trends and actions in the upstream and downstream supply chain to maintain a sustainable supply chain that promotes mutual cooperation and growth.

RISK MANAGEMENT

Response to Regulations on Chemical Substances

LOTTE Chemical is proactively responding to not only Korea's Act on Registration, Evaluation, etc. of Chemicals, but also EU's REACH*, Türkiye's KKDIK**, UK's REACH, and India's BIS*** certification. In addition, we have completed the registration, authorization, and reporting of all chemicals imported and manufactured at our business sites.

* REACH (Registration, Evaluation, Authorization and restriction of CHemicals)

: European Union's regulation on the management of chemical substances

** KKDIK (Kimyasalların Kaydı, Değerlendirilmesi İzni ve Kısıtlanması (Türkiye REACH))

: Türkiye's regulation on the registration, evaluation, authorization, and restriction of chemicals

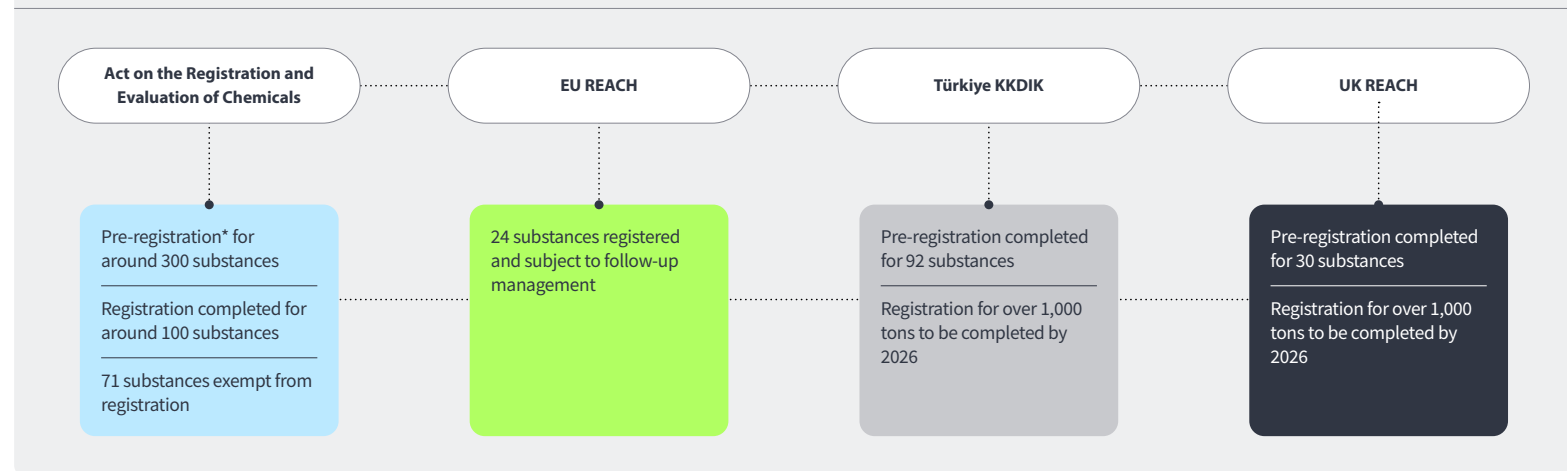
*** BIS (Bureau of Indian Standards)

: Government body for quality control in charge of quality certification for chemicals and steel in India

TRAINING ON PRODUCT AND CHEMICAL SUBSTANCE REGULATIONS

Program name	Topic	Audience	Hours in 2023	Number of participants	Total hours
Training on product harmfulness	Evaluation of product harmfulness and practice	Employees	13	13	169
Environmental seminar for partner companies (on chemical substances)	ESG management, product liability, Act on the Registration and Evaluation of Chemical Substances, overseas chemicals registration systems	SME Partners	5	95	475
Training on domestic and global regulations on chemicals	Act on the Registration and Evaluation of Chemical Substances, REACH, etc.	Employees	4	135	540
Briefing on substitution of substances of very high concern	Identifying and substituting substances of very high concern	Employees	4	124	496

LOTTE CHEMICAL'S CHEMICAL SUBSTANCE REGISTRATIONS



* Pre-registration : Reporting for substances registration to be given a grace period (substances are required to be registered immediately when not given grace period)

Assessment of Hazardous and Harmful Chemical Substances

Information on hazardous chemical substances handled by LOTTE Chemical is made available in the Material Safety Data Sheet (MSDS), strictly prohibiting the purchase of raw materials with identified risks in the purchasing stage. We provide customized information, using MSDS for domestic sold products and eSDS (extended SDS) for exports to the EU. In December 2021, we restructured our LOTTE Chemical's Hazard Management Standards for chemical substances, breaking it down into 5 grades from the previous 3 for more rigorous management. The Standards consist of 77% unclassified by GHS; 13% in the GHS Cat. 2~4; 9% in the GHS Cat. 1, 1% containing CMR and SVHC; and 0% of prohibited substances. Based on the classifications, our Chemical Management System (LCMS*) is leveraged for the use of safe chemicals by reviewing categories

based on hazardous chemical management standards, reducing content of hazardous chemicals in our products, and developing substitute material, etc.

LOTTE Chemical not only looks into hazardous chemicals, but also analyzes and reviews hazards associated with our products to minimize impact from exposure on our clients and end-users. We are also working hard to provide transparent product information. Product risk assessments are carried out using a model developed by the Korean government that executes a comprehensive analysis that includes various elements such as the amount of chemicals used, worker exposure, and impact on the environment.

*LCMS : Lotte Chemical Management System

METRICS AND TARGETS

Chemical Substances Safety Management

We monitor the life cycle of hazardous chemicals including its manufacturing, imports, sales, storage, and transportation, strictly abiding by legal mandates on handling and managing the substances. We are strengthening our capabilities in this area through regular drills to prepare against possible leaks through our cascading system and response organization.

Issuing SVHC Certificate of Absence

LOTTE Chemical issues SVHC* Certificates of Absence to clients to prove safety of our products regarding use of harmful substances or substances of very high concern.

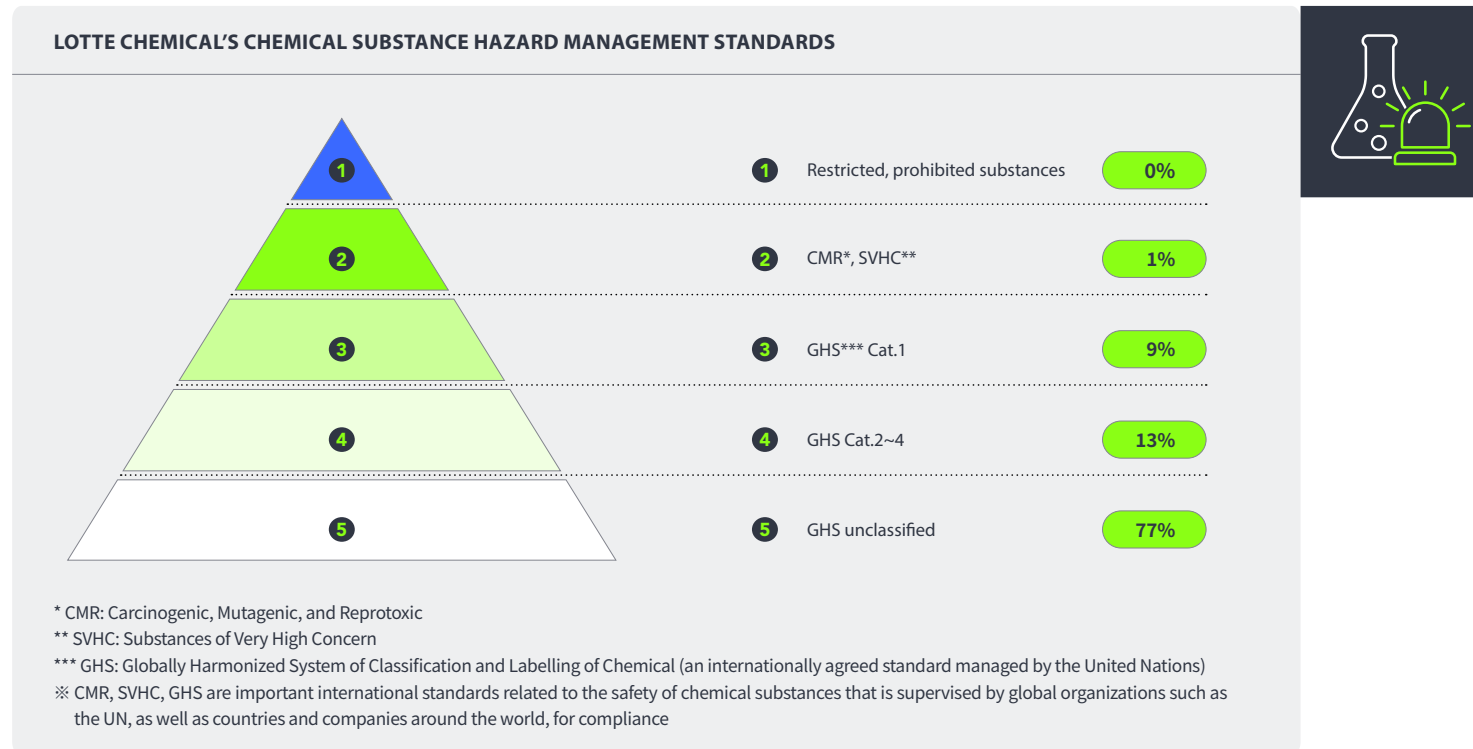
*SVHC: Substances of Very High Concern defined under EU's REACH regulation

Use and Reduction of Persistent Organic Pollutants

We obtained permits on persistent organic pollutants and is strictly in compliance with management guidelines to ensure related facilities are operated appropriately.

Treatment and Disposal of Hazardous Chemical Substances

Hazardous chemical waste is handled lawfully in accordance with relevant legislations through professional treatment companies. We are doing our utmost for safety management such as providing information on hazards that include areas where caution is needed in handling the waste generated from our company.



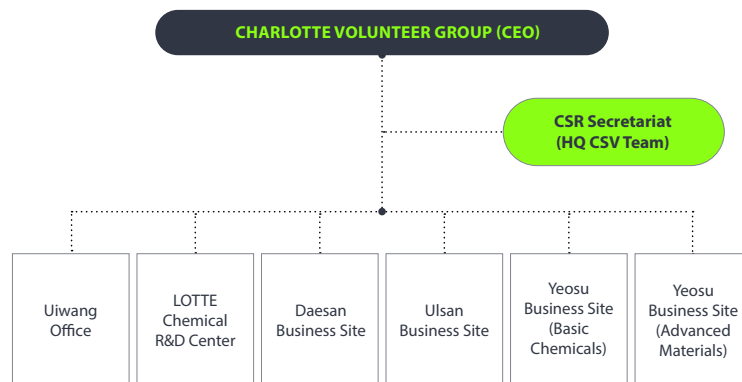
LOCAL COMMUNITY IMPACT

GOVERNANCE

Social Contribution Organization

LOTTE Chemical operates organizations for social contribution activities at each of our business sites to communicate with stakeholders in the community. The 'Charlotte Volunteer Group' was launched in 2015 to practice the value of sharing with community, encouraging voluntary participation of employees in volunteering. Social contribution directions and activities are submitted to the ESG Committee composed of relevant experts for review and approval on specific activities that address issues in the local community.

SOCIAL CONTRIBUTION ORGANIZATION

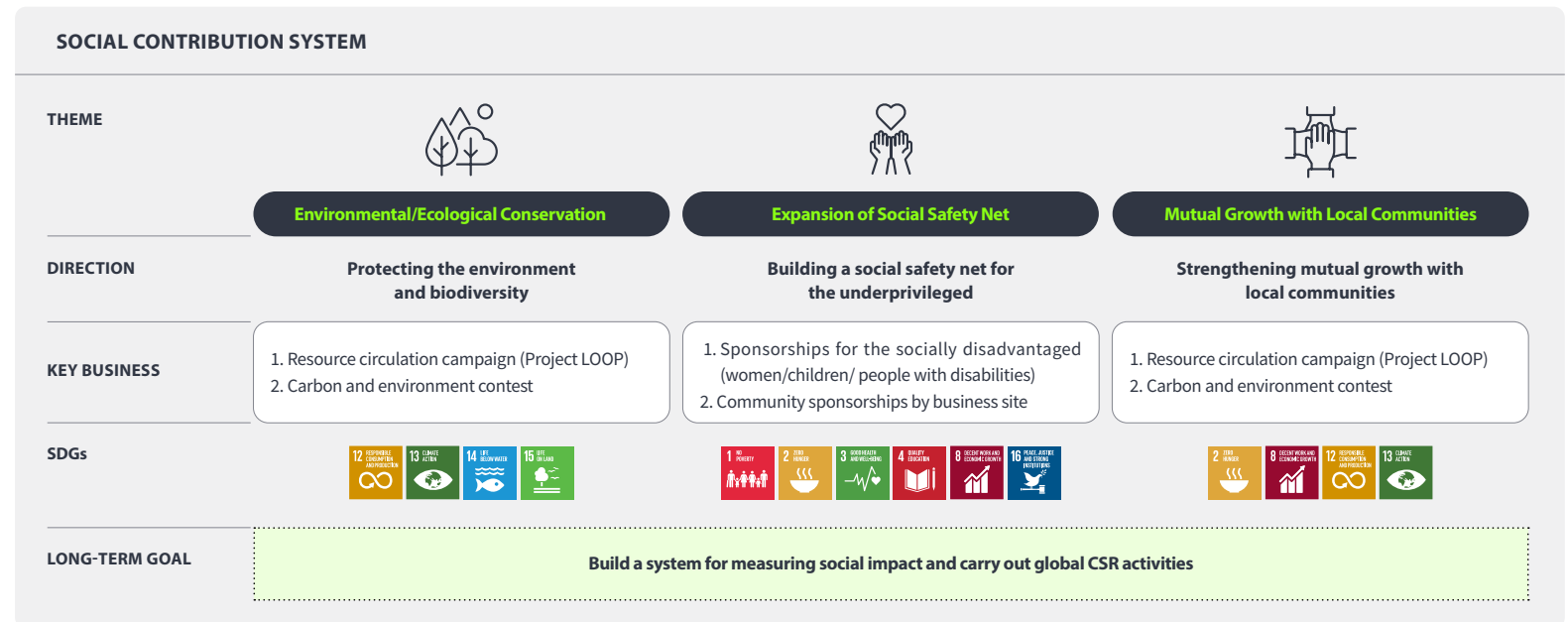


STRATEGY

Social Contribution Implementation Strategy System

LOTTE Chemical is devoted to protecting local communities through social contribution and creating a world of coprosperity through sharing. When carrying out social contribution activities, we focus on the three areas: Environmental and Ecological Conservation, Social Safety Net Expansion, and Mutual Growth with Local Communities. Each business site, as a member of the local community, identifies key issues in their given community and sets up plans to resolve them.

Under the environmental and ecological conservation theme, we are striving to improve social perception on building a resource circulation system and carrying out activities to protect biodiversity. To expand the social safety net, we are endorsing programs tailored to women, children, and the low-income class while in terms of promoting mutual growth with local communities, we are working to increase sales routes for local agricultural goods and increase jobs in communities near our business sites.



METRICS AND TARGETS

Social Contribution Activities

1 Theme 1- Environmental and Ecological Conservation

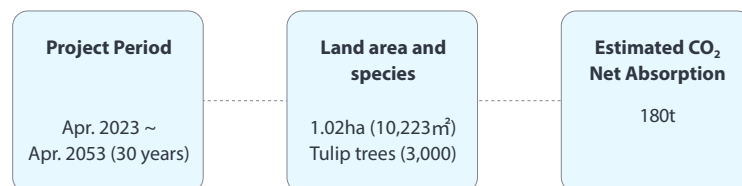
Week for a Better World, Resource Circulation and Ecological Conservation Campaign

In May 2023, employees took part in the 'Week for a Better World,' a one-month environmental campaign consisting of resource circulation activities and ecological conservation activities at each business site for the 4 companies in LOTTE Group's chemical business (LOTTE Chemical, LOTTE Fine Chemical, LOTTE Aluminum, and LOTTE MCC). As part of 'Renew Resources,' the resource circulation activity, a PET collector was installed at the company, gathering 2,229 PET bottles thanks to recycling participation from 427 employees. The collected resources were donated to Kokkiri-gongjang, a social venture for resource circulation. For 'Bettering the Environment,' the ecological conservation activity, employees got involved first-hand and helped clean up coastal area around the Jungheung Pier near our Yeosu plants.

MOU for the Forestation of Carbon-Offsetting Forest

LOTTE Chemical signed a memorandum of understanding with the Daejeon-Sejong Red Cross, the City of Daejeon, and the Daejeon Seo-gu District on creating a carbon-offsetting forest around the Nolubeol Red Cross Ecological Park.

FORESTATION OF CARBON-OFFSETTING FOREST



The MOU includes ▲ forestation of carbon-offsetting forest at the Nolubeol Red Cross Ecological Park and support for its management, ▲ support and participation in the ESG Program of the Korean Red Cross, and ▲ promotions to achieve other objectives of the memorandum. We completed planting 3,000 tulip trees as part of the MOU in 2023 and will continuously manage them until 2053 through various activities including weeding and removing vines to create a forest for carbon offsetting during the next 30 years.

2 Theme 2- Social Safety Net Expansion

mom Music Program, Music Therapy for Children and Families with Disabilities

We have been providing music therapy programs for the physical and emotional rehabilitation of children with disabilities and to help relieve the stress of their parents since 2018. In 2023, 3,468 music therapy sessions were held while music workshops and emotional support programs were also offered to parents. In particular, a thesis was presented in the 'Special Children Education Study (vol.25, issue 1)' on 'The Experience of Collaboration between Physical Therapy and Music Therapy for Children with Disabilities' as a result of the program. The study focuses on the field of music therapy and explored the perception and qualitative meaning of collaboration for physical and music therapists. This is the second study sponsored by LOTTE Chemical's MOM Music Program. The first study was the 'Effect of Therapeutic Keyboard Training Program on Hand Function and Self-efficacy in Children with Cerebral Palsy' published in the Korean Music Therapy Association's Journal in 2021.

Sponsoring families from KBS documentary 'Companion' through Community Companionship

We have been providing housing, furniture, and goods to the underprivileged in local communities as part of our sponsoring efforts for 'Companion,' a public service program aired on KBS to reinforce the social safety net and improve civic awareness. We sponsored 48 families introduced through the program in 2023 by improving their living conditions and supplying them with necessities to help children and families suffering to build dreams and grow up healthy in a better environment.



mom MUSIC PROGRAM

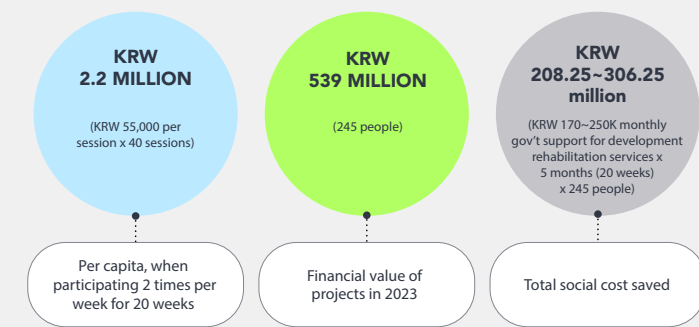
PROGRAM OBJECTIVES

- Improve the function and quality of life of children with disabilities
- Capability-building for families with children with disabilities
- Ease stress and enhance efficiency of medical staff
- Improve the function and quality of life of children with disabilities

PROGRAMS

Pediatric patients - Individual and group programs - Collaborative programs - Hospital programs - Vacation programs - Concerts	Caregiver - Parenting programs - MBTI self-growth programs - Ukulele programs - Parenting consultation	Medical staff - Collaborative programs - 'Musical with pediatric patients' program
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SOCIAL VALUE MEASUREMENT



Supporting the Mental Health of Firefighters with 'Firefighters Mind Care Van'

We provided the '119 Mind Care Van,' a counseling vehicle, to sponsor firefighters apart of the Busan Fire & Disaster Headquarters. The Mind Care Van is a vehicle where counseling is offered to fire departments in each region to provide mental and psychological therapy to firefighters repeatedly exposed to challenging situations. Vans are renovated into counseling vehicles equipped with tables and chairs to make counseling to improve the mental health of fire fighters available, anywhere and anytime. The Gyeonggi-do Fire and Disaster Headquarters was sponsored with a 119 Mind Care Van in June 2022, Ulsan in February 2023, and Busan in September 2023 to improve the welfare of firefighters and build a safe environment in areas near LOTTE Chemical business sites.

3 Theme 3- Mutual Growth with Local Communities

Donation of 'Companion Rice' to Local Communities

LOTTE Chemical purchased rice from farms near our business sites and donated 17,640 sacks of 'companion rice' worth KRW 500 million to local communities including the underprivileged in Songpa-gu, Seoul, the Local Children's Center in Daejeon, and the Korea Association of Welfare Institutions for Single Parent Families. The 'Companion Rice' were purchased from farms in Daesan where LOTTE Chemical plants are located to vitalize rural economies near our business site. We purchased white rice and delivered it to the underprivileged to share warmth and renew our commitment to social contribution and mutual growth with local communities.

Seeking Stable Employment in Local Communities

LOTTE Chemical supports partner companies in hiring and providing job stability to promote local development and enhance the quality of life of local residents. We sponsored 11 companies that hired youth employees with KRW 11 million and sponsored 21 companies that operate mutual aid programs for long-tenured employees with KRW 52 million. Such efforts have helped increase job opportunities for local talent and raise income levels to stimulate growth of the local economy.

2023 SOCIAL CONTRIBUTION PERFORMANCE

Theme	Program	Starting Year	Description	2023 Performance	UN-SDGs
Environmental/ Ecological Conservation	Week for a Better World	2023	An environmental campaign that engages employees to take part in PET recycling and ecological conservation activities near business sites	2,229 PET bottles collected with the participation of 427 employees	
	Forest Carbon-Offset	2023	Sponsoring forestation for carbon offsetting at Daejeon's Nolubeol Red Cross Ecological Park	3,000 tulip trees planted	
	LOTTE Green School	2021	Researchers visit local children's centers to educate children on how to protect Earth and its environment	Sessions held at 7 local children's center with 140 children participating	
Expansion of the Social Safety Net	mom Music Program	2018	Music therapy program to support the emotional development of pediatric patients with intractable diseases and relieve stress of caregiver parents	Conducted 3,468 music therapy sessions with participation of 235 pediatric patients and parents	
	Dream Lunchbox	2019	Sponsoring lunchboxes for youth not enrolled in schools taking the GED (qualification exam)	Sponsored 235 youth not enrolled in schools	
	Humanities and Science Book Donations	2015	Sponsoring books to local children's centers and youth not enrolled in schools	Donated 696 humanities and science books	
	Safety Keeper for the Silver Generation	2021	Retired firefighters with expertise in fire safety install fire safety supplies at homes of the elderly and people with disabilities	Sponsored 2,970 households in Gyeonggi, Jeonbuk, Chungnam, and Gyeongnam provinces	
	Mental Care for Firefighters	2019	Supports a mobile counseling vehicle equipped with tables and chairs to provide counseling sessions for firefighters	Sponsored 1 vehicle for the Busan Fire Department	
	Cultural Performance for Fire fighters	2021	Firefighter families invited to <LOTTE with firefighter families : Family Music Concert>	1,350 members of firefighter families attended the concert	
	Sponsorship for KBS Companion	2021	Sponsoring families in 'Companion,' a public service program aired on KBS, by improving living conditions and supplying necessities	Sponsored 48 families	
Mutual Growth with Community	Improvement in Living Conditions	2020	Home repair services for senior citizens and the socially disadvantaged in Daesan	Sponsored 8 households	
	Companion Rice Donation	2021	Rice is purchased from farmers near our Daesan Plant and donated to single parent families for mutual growth with rural communities	Shared 176,400KG of rice	

Creating Social Values of Circulation and Coexistence in Connection to our Business

LOTTE Chemical is operating Project LOOP, a campaign for implementing a plastic resource circulation system to achieve the recycling target of selling 1 million tons of recycled plastic as part of Green Promise 2030, our ESG management vision. We aim to fulfill our social responsibility as a petrochemical company through the various activities that have been carried out through Project LOOP since 2020 to build a system for recycling plastic.

1 Project LOOP Social, Discovering and Incubating Social Ventures in Resource Circulation

Project LOOP Social is a project that discovers, incubates, and connects with social ventures in each part of the resource circulation value chain. Starting with a pilot project in 2020, the 3rd term kicked off in December 2023 and is currently being actively operated. Identifying the situation in resource circulation each year, we have selected areas highly relevant to our business to develop social ventures which are sponsored with business funds, mentoring, and Accelerating, online lectures, and networking with Project LOOP Social alumni.

2 Project LOOP Cluster, Supporting Setup of Resource Circulation Systems in Local Communities

Recognizing that partnering with local governments is essential to implement a resource circulation system, We are working with various communities in Incheon, Busan, and Ulsan to build resource circulation hubs.



LOOP Social 3rd Term Ceremony

Opening of Ulsan Dong-gu ESG Center

In Incheon, we help students learn and practice resource circulation. We signed an MOU with the Incheon Metropolitan City Office of Education and the Korea Federation for Environmental Movements (KFEM) in Incheon in December 2021 to improve awareness on resource circulation and form a proper culture of sorting waste for disposal, installing and operating around 70 waste PET collection containers at Incheon schools. In 2023, we signed agreements with local governments and relevant institutions such as the Michuhol-gu Office, the KFEM in Incheon, and AO2 to expand the waste plastic ecosystem in Incheon.

In Ulsan and Busan, we are running projects to create jobs for senior citizens and build a waste plastic resource circulation system. Cooperating with local governments, the Korea Labor Force Development Institute for the Aged, senior clubs, public institutions, and corporations, we are supporting the opening and operations of ESG Centers as a hub for collecting and recycling plastic through the senior citizen job creation project. Through 4 hubs, we have contributed in creating over 1,100 jobs for the elderly and women with career breaks. The first 'Neighborhood ESG Center' opened in Geumjeong-gu, Busan in December 2022, followed by the 2nd center in Dong-gu, Busan in September 2023 and the Ulsan Dong-gu ESG Center in March 2024. We supported each center with the necessary recycling technology and infrastructure to assist building a system for waste plastic collection and conversion in local communities.

TRACK RECORD OF PROJECT LOOP SOCIAL

Term	Company	Business Description	UN SDGs
1st Term (2021~2022)	LOWLIT COLLECTIVE	Uses plastic scrap to makes chairs and furniture with 3D printers	12
	WOORIM ICT	Produces pulverizing AI collectors that use proprietary technology to sort matter	12
	Kokkiri-gongjang	Collects and crushes plastic toys (ABS, PP) to produce renewable material	12
	Foresys	Produces feedstock for recycled plastic by developing a salt removal and pretreatment plant for waste fishing nets (PE, PP)	14
	Plus Life	Manufactures apparel using recycled material	12
2nd Term (2022~2023)	Gatda	Develops waste plastic processing procedures through 'Bbegji,' the recycling and collection platform	12
	E-plant	Produces eco-friendly artificial reefs using marine waste and proprietary plastic upcycling technology without pretreatment	14
	AUG 3rd	Produces military supplies such as plastic bullet loaders, magazine load-unloaders, and empty cartridge receivers and building a circulation model through waste collection and recycling resource	12
3rd Term (2023~2024)	STUDIO LAB	Sorts waste apparel by material using AI technology	12
	Chansol Social Coop	Manufactures learning material for developmental disorders using recycled material	12
	TSP Biochem	Produces eco-friendly biosheets and insulated packaging using recycled material	12

REINFORCE INFORMATION SECURITY

GOVERNANCE

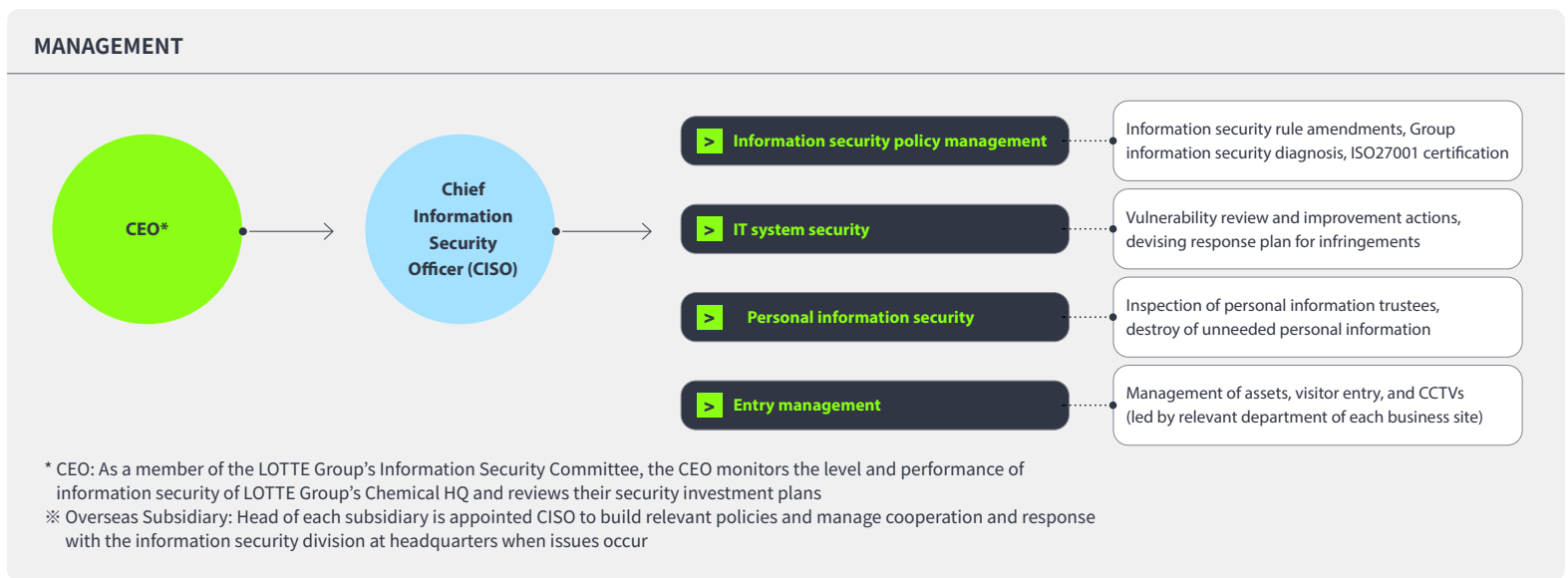
Information Security Implementation System

LOTTE Chemical is doing our utmost to protect our trade secrets including our core technologies and business management strategy. Our information security management system is in compliance with external recommendations, maintaining certification from the International Organization for Standardization on information security management systems (ISO 27001) since first obtaining certification in 2015. Each year, we grade our IT assets (server, database, network, software, information security solutions) based on an evaluation of their confidentiality, integrity, availability, and estimated losses in case of damages, operating system redundancy and backup measures when identified as a core asset. LOTTE Chemical's information security management system covers all areas of security management, physical security, and security technologies with basic principles and detailed guidelines prepared and shared with all employees and stakeholders. The system is revised on an annual basis to take into consideration the enactment and amendments of relevant legislations, as well as changes in the internal and external business environment. We also conduct regular audits on document security, disaster recovery, system authority, confidentiality in system developments, and system disposals to review compliance of information security policies and execution of security measures.

Information Security Organization Management

As of May 1, 2022, the information security organization has been upgraded to a division under direct control of the CEO to meet the requirements for designation of the chief information security officer (CISO) in accordance with the Act on the Promotion of Information and Communications Network Utilization and Information Protection, and strengthen decision-making authority and independence. As the company's assets record over KRW 5 trillion as of the end of last year, LOTTE Chemical's CISO is prohibited from holding concurrent positions. Therefore, the CISO is appointed among talent that meet both general and special requirements with over 20 years of background in information technology and security.

Moreover, we appoint information security officers at each of our domestic R&D centers, plants, and overseas subsidiaries to operate a unified information security management system for joint response when emergency situations break out. We conduct the LOTTE Group's annual information security diagnosis to strengthen accident prevention and enhance the quality of security management. We carry out regularly monitoring to identify vulnerabilities and implement improvements and plan to submit our information security activities to the ESG Committee to raise awareness and interest in information security from management.



STRATEGY

Information Security Management Policy

LOTTE Chemical is devoted to the protection of personal information of not only our employees, but also our stakeholders through the personal information internal control plan. The plan reflects the criteria on measures to strengthen stability in personal information management and covers items including encryption and disposal policies related to the company's personal information. It also contains plans on storing and regularly monitoring log records of unauthorized inquiry or downloads of personal information through the company system and monitoring access and history of permission changes regarding personal information that include legally required information. In addition, we destroy unnecessary personal information by regularly checking the status of personal information stored in the personal information processing system and PC of the person in charge of handling personal information. We conduct annual inspections of personal information trustees to ensure that personal information of our customers is being managed safely to maintain the same level of information security at the third-party trustee companies as at LOTTE Chemical.

RISK MANAGEMENT

Information Security Incidents Response Process

LOTTE Chemical adopts 13 mandatory security solutions including vaccines, document encryption, media control, and control of access to networks and servers to protect our information assets. We also collaborate with the 365*24 Group Cyber Control Center to implement a management system for the detection and incident response related to external cyber attacks. The response system is broken down by severity of incidents to prevent infringements and and take real-time responses in cooperation with the information security organization and Group Cyber Control Center specialists based on event analysis. Issues that have impact on the company's business are reported to top management and employee compliance requirements are disseminated to prevent the incident from spreading further across the organization.

Due to recent credential stuffing* attacks frequently made through the dark web**, we have especially worked closely with specialized internal and external organizations in the first half of this year to see whether our internal information security system operates normally when tested under the same conditions as actual attacks, and plan to validate and strengthen our system accordingly.

We also conduct mock hacking at least once a year to ensure business continuity to update our response measures and system in line with each infringement type. Disaster Recovery (DR) training takes place twice a year to check the backup of key company systems (e.g., SAP ERP, Production and Logistics Systems) and the process of handling work manually during the recovery period to prepare against emergency situations and address necessary areas. Moreover, our information security officers participate in mock hacking and system security inspections to identify vulnerabilities and take improvement actions. LOTTE Chemical has completed disclosure of information security information including our relevant investments and key activities. In accordance with the personal information damage liability system implemented since 2019, we renew personal information damage compensation insurance every year to protect the rights and interests of the information subjects and respond to issues related to personal information incidents.

* Credential Stuffing: A type of cyberattack targeted mainly on users that use the same username and passwords for multiple websites

** Dark Web: Encrypted internet network that cannot be accessed by regular internet browsers

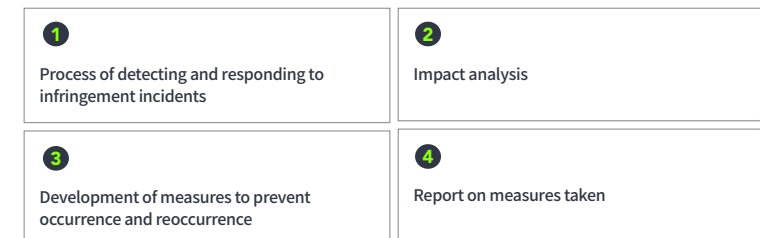
PERSONAL INFORMATION LEAKAGE EVENTS (Unit: Cases)



LOTTE CHEMICAL GRADING SYSTEM FOR SECURITY INFRINGEMENTS

Severity	Description	Reporting System
Danger (Red)	- 1 hr. or longer denial of service of internal system	Report to CEO
	- 10 min. or longer denial of customer services	
	- Legal or regulatory violation that evokes public criticism	
Warning (Orange)	- 30 min. or longer denial of service of internal system	
	- Ongoing infringement attempts to the company including its partners	
Caution (Yellow)	- Information leaks due to viruses and hacking, etc.	Report to CISO
	- Local service disruptions due to infringement attempts	
Attention (Blue)	- Security incident concerns due to external penetration	
	- Infringement incidents at other institutions/companies	
	- Appearance of new vulnerabilities with high impact	

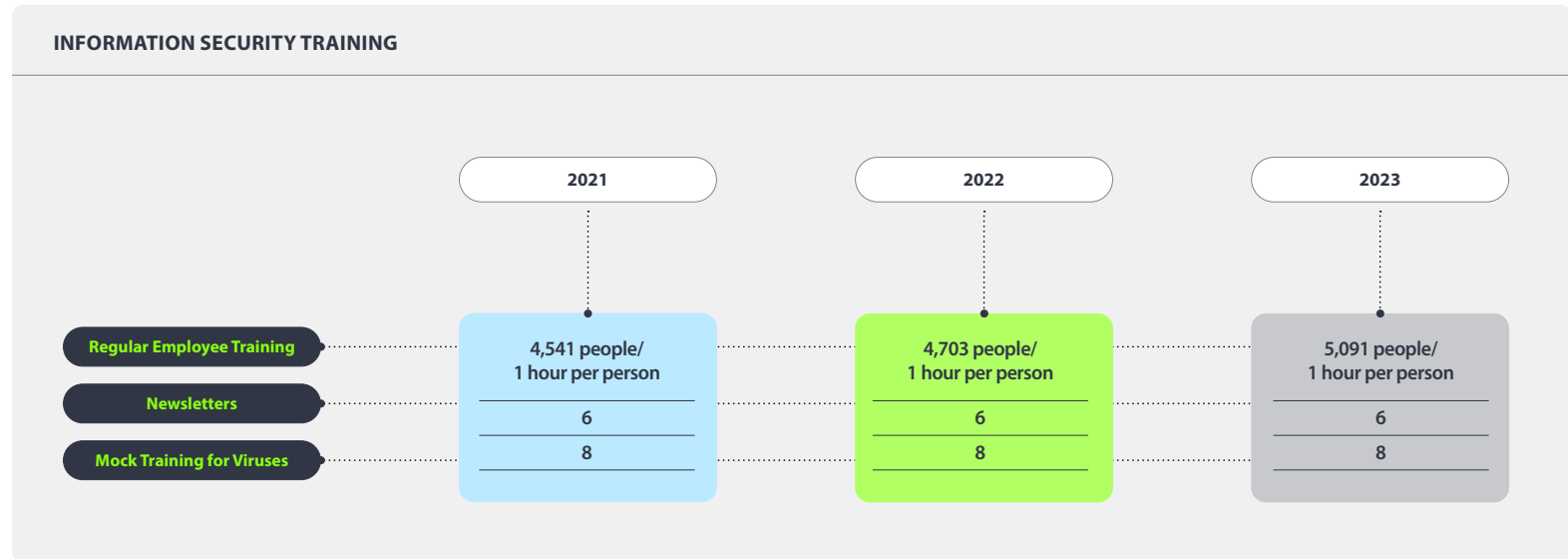
DETECTION AND RESPONSE PROCESS OF INFRINGEMENT INCIDENTS



METRICS AND TARGETS

Information Security Reinforcement Activities

To foster a culture of information security among employees and stakeholders, LOTTE Chemical provides annual information security training which includes case studies on ransomware and leakage of confidential business information. In addition, monthly information security newsletters that cover the company's information security activities and external security issues are sent out to continuously strengthen the security awareness of our employees. With the recent increase in malicious e-mail containing viruses, we conduct quarterly e-mail mock training where employees infected by the virus are subject to further training to prevent such e-mail security incidents from occurring. In addition, we send official letters to inform partners on our policy to register and change accounts semiannually to prevent trade fraud between LOTTE Chemical and our trade partners. Along with such activities to reinforce information security, LOTTE Chemical also operates a reporting system for employees to report security incidents and signs of potential threat. Employees may report signs of hacking, information leaks, security vulnerabilities, phishing email, and relevant ideas to information security departments with rewards being given to those who report information security violations.



INFORMATION SECURITY ACTIVITIES AND OUTCOMES

Category	Raise employee awareness on information security	Information Security Council Activities	Diagnose management system and take improvement actions	Inspect vulnerabilities in the internal system	Incidents Prevention Activities
Specific activities and performance	<ul style="list-style-type: none"> Information security training 100% completion rate (annual) Training for persons handling personal info 100% completion rate (annual) Development security training 100% completion rate (annual) Newsletters 12 times (monthly) E-mail virus mock training 8 times (throughout the year) 	<ul style="list-style-type: none"> Information Security Committee (C-Level) 2 times (semiannual) Information Security Working-level Council 4 times (quarterly) 	<ul style="list-style-type: none"> Diagnosis on the information security level of the Group 1 time (annual) ISO27001 (information security standard) certification review 1 time (annual) 	<ul style="list-style-type: none"> Web mock hacking, diagnosis of vulnerabilities in the IT infrastructure (server, database) 1 time (annual) 	<ul style="list-style-type: none"> E-mail on trade fraud to clients 2 times (semiannual) Inspection of personal information trustees 1 time (annual) Infringement response training 1 time (annual) DR training 1 time (annual)

GOVERNANCE

Pondering the social responsibility of businesses, LOTTE Chemical has continuously evolved to create social value.

We are committed to driving sustainable growth by creating a safer and sound working environment for employees, nurturing talent for the future, and pursuing mutual growth with our partners and communities to build a future where we can grow together based on strong trust from various stakeholders by setting forth strategic directions that consider social value and expanding our business model.

G



**SOUND
GOVERNANCE**



**RISK
MANAGEMENT**



**ETHICAL
MANAGEMENT**



COMPLIANCE



SOUND GOVERNANCE

BOARD COMPOSITION

Composition of the Board

As of the 48th Annual Shareholder's Meeting (March 26, 2024), LOTTE Chemical's Board of Directors is composed of 11 members consisting of 6 outside directors and 5 inside directors. Inside directors are nominated by the Board while outside directors are appointed through resolution of the general shareholders' meeting after candidates are recommended and reviewed by the Outside Director Nomination Committee based on 'Diversity and Expertise Principle'. In order to strengthen checks and balances on management and realize sound governance, outside directors make up more than 50% of the BOD. In addition, the BOD enhances transparency, professionalism, independence, and diversity, and promotes balanced decision-making in our business activities and strategic decisions for the happiness of our stakeholders and improvement of our long-term corporate value. In particular, the Articles of Incorporation specify that the BOD shall not be composed of a specific gender to increase diversity. Hence, female outside directors have been participating in our BOD since 2015.

In accordance with the BOD regulations, the chairman of the BOD is elected among the 11 appointed directors through BOD resolution, and on March 2024, Lee Hun-ki was elected by unanimous vote. Lee Hun-ki has served as CEO of various business sectors in the LOTTE Group, as well as Head of LOTTE Corporation's Office of ESG Management and Innovation. Armed with field experience and seasoned knowledge across various industries, Lee was appointed chairman of the Board based on expectations of offering a diverse and in-depth perspective on key business issues such as developing future business opportunities to the Board, that will contribute to increasing the company's corporate and shareholder values. At the 4th BOD meeting of 2024, the senior outside director system was determined and financial and accounting specialist Nam Hye-jung, who is also a member of the Audit Committee, was

appointed as outside director to enhance transparency of BOD operations and the independence of outside directors. Our outside directors serve a two-year term and are eligible for re-election. In 2023, Nam Hye-jung was reappointed and Cha Kyung-hwan was newly appointed as outside directors. In 2024, Cho Woon-hang was reappointed and Oh Yoon, Son Byeong-hyeok, and Park Ji-soon was newly appointed as outside directors.

LOTTE CHEMICAL'S BOARD OF DIRECTORS (AS OF END-MARCH 2024)

Category	Name	Gender	Expertise	Role (Job Title)
Inside Director	Shin Dong-bin	Male	General business management	Current) Chairman of LOTTE Group and CEO of LOTTE Chemical
	Lee Hun-ki	Male	General business management	Current) CEO of LOTTE Chemical
	Hwang Jin-koo	Male	General business management	Current) CEO of LOTTE Chemical (Head of LOTTE Chemical's Basic Chemicals Division)*
	Lee Young-joon	Male	General business management	Current) CEO of LOTTE Chemical (Head of LOTTE Chemical's Advanced Materials Division)*
	Seong Nak-sun	Male	Finance/ accounting, business management	Current) Head of LOTTE Chemical's Finance & Accounting Group (CFO)
Outside Director	Nam Hye-jung	Female	Finance/ accounting	Current) Professor of Accounting, Dongguk University Current) Non-executive director of the Export-Import Bank of Korea
	Cho Woon-hang	Male	Finance/ accounting, finance	Current) President of the Financial Scholarship Foundation Former) CEO of Woori Investment Bank
	Cha Kyung-hwan	Male	Law	Current) Attorney at Kim & Chang law firm Former) Chief Prosecutor at Suwon District Prosecutor's Office
	Oh Yoon	Male	Tax, law	Current) Professor at Hanyang University's School of Law Former) President of IFA Korea and the Korean Tax Law Association
	Sohn Byeong-hyeok	Male	Industry, R&D (chemicals)	Current) Professor of Chemistry at Seoul National University Current) Member of the National R&D Programs Preliminary Feasibility Assessment Committee (under the Ministry of Science and ICT)
	Park Ji-soon	Male	Labor management, employment policies	Current) Professor at Korea University's School of Law Current) Director of the Korea Financial Industry Foundation

Committees within the Board

5 committees, including the Audit Committee, have been established within the BOD to reinforce expertise and efficiency in the Board's decision-makings. In order to enhance independence of each committee, more than half of the committee members are outside directors, especially appointing outside directors as the chair for all committees to strengthen the BOD's role of keeping checks and balances on management.

LOTTE CHEMICAL BOD COMMITTEE COMPOSITION AND OPERATIONS (AS OF END-MARCH 2024)

Committee	Key Role	Number of Members	Members	Number of Meetings in 2023
Outside Director Nomination Committee	Verify and nominate candidates for outside director	3	Cho Woon-hang (Outside Director, Chair) Hwang Jin-koo (Inside Director) Park Ji-soon (Outside Director, Chair)	1
ESG Committee	Review and propose ESG policies	5	Cha Kyung-hwan (Outside Director) Sohn Byeong-hyeok (Outside Director) Nam Hye-jung (Outside Director) Lee Young-joon (Inside Director) Nam Hye-jung (Outside Director, Chair)	4
Transparent Management Committee	Review internal transactions and private contracts over a certain amount and proposes internal policies on fair trade	3	Cho Woon-hang (Outside Director) Oh Yoon (Outside Director)	8
Audit Committee	Accounting and audits	3	Nam Hye-jung (Outside Director, Chair) Cho Woon-hang (Outside Director) Oh Yoon (Outside Director)	4
Compensation Committee	Review remuneration ceiling for executives (including registered directors) and propose remuneration policies	3	Park Ji-soon (Outside Director, Chair) Cha Kyung-hwan (Outside Director) Sohn Byeong-hyeok (Outside Director)	2

ESG Committee

Established in September 2021, LOTTE Chemical's ESG Committee consists of 4 outside directors and 1 inside director. Our ESG Committee carries out decision-makings, deliberations, and reviews on matters related to ESG management by integrating the company's ESG perspective to ensure environmental and social corporate responsibility, transparent governance, and sustainable growth.

Key Roles of the ESG Committee

- Establish and approve ESG management strategies and action plans
- Publish reports to increase disclosure of ESG information
- Review agenda to be referred to the BOD as ESG implementation strategy
- Manage and supervise material risks from an ESG perspective
- Review communication and response measures regarding key external stakeholders

CURRENT ESG COMMITTEE COMPOSITION

Non-executive Directors (4)

Park Ji-soon (Chair),
Cha Kyung-hwan,
Sohn Byeong-hyeok,
Nam Hye-jung

Executive Director (1)

Lee Young-joon

ESG COMMITTEE TRAINING

Date	Name	Content Details
Jun 8, 2023 (3rd Committee)	Building management system for non-financial metrics of LOTTE Chemical/LOTTE Fine Chemical	- Key outcome and implications of the project to implement a management system for non-financial metrics - Understanding and the need for ESG disclosure responses - Recommendation on LOTTE Chemical's ESG disclosure response
Sep 14, 2023 (4th Committee)	Report on partners' ESG risk diagnosis and recommendation on improvement strategies	- Trends in corporate sustainability due diligence regulations - Report on LOTTE Chemical's ESG risk diagnosis - Recommendations on improvement strategy

ESG COMMITTEE ACTIVITIES

Year	Session	Date	Main Agenda
2023	1st	FEB 8, 2023	Approval Report 1) Approval of the social contribution direction and annual business plan (tentative) 1) Report on progress of consulting on product risk assessment, 2) Report on the 2023 CEO ESG KPI evaluation (tentative)
	2nd	MAR 7, 2023	Approval Report 1) Approval of 2023 targets for ESG focus areas and previous year's performance 1) Stakeholder trends and future prospects, 2) ESG materiality assessment results and plan for improving external communication (tentative)
	3rd	JUN 8, 2023	Approval Report 1) Approval of issuing 2022 ESG REPORT, 2) Approval of increasing ceiling for sourcing renewable energy (tentative)
	4th	SEP 14, 2023	Approval Report 1) Approval of transition plan for high-risk chemical substances (tentative) 1) Report on performance related to 2023 targets for ESG focus areas
2024	1st	FEB 6, 2024	Approval Report 1) Approval of the social contribution direction and annual business plan (tentative) 1) Report on progress and plan regarding implementation of renewable energy (tentative)
	2nd	MAR 5, 2024	Approval Report 1) Approval of 2024 targets for ESG focus areas and previous year's performance 1) Report on improvements in governance
	3rd	MAY 7, 2024	Approval Report 1) Approval of ESG Committee chair appointment (tentative) 1) Report on ESG materiality assessment results

BOD OPERATIONS

Board Activities

LOTTE Chemical's BOD is the highest decision-making body within the company where 11* experts and executives from each field exchange various perspectives on pending issues to determine the company's mid-to-long-term strategy. In principle, the BOD is convened at least once every three months in accordance with the Article 6 (Meetings) of the BOD Regulations while convening emergency meetings in case of urgent matters. A total 11 BOD meetings were convened in 2023. In addition, key issues regarding the economy, society, and environment that may influence the company's sustainable management are frequently reported to the BOD to incorporate their expertise in company policies.

* Out of the total 11 LOTTE Chemical BOD members, the 6 outside directors account for the majority

LOTTE CHEMICAL BOD OPERATIONS

Category	2021	2022	2023
Number of agenda items	66	64	55
Number of meetings convened	11	13	11
Attendance rate (%)*			
Inside directors	92	92	93
Outside directors	97	97	95

* Other non-executive directors are included in the attendance rate of inside directors. The attendance rate shown here is based on the average for all directors who served during the given term.

Board Independence and Diversity

LOTTE Chemical recommends and appoints BOD members based on their career and expertise. We disclose the qualifications, background of appointment, and independence of directors through public announcements. The areas of expertise of our outside directors include industry, accounting, tax, labor management, law, and finance. With expert knowledge in their respective fields, the outside directors offer assistance in making rational decisions. In addition, we have been appointing female outside directors since 2015 to enhance diversity and independence in our governance which has also been revised in the articles of incorporation.

We also removed the restrictions that were placed on qualifications for the BOD chairman while introducing the senior outside director system in 2024 to strengthen independence. We have also incorporated the clause related to separate election of audit committee members stipulated in the amended Commercial Act in our Articles to ensure independence of the audit committee. In fact, all of the BOD committee chairs are outside directors. This way, we are strengthening the independence of outside directors and reflecting shareholder interests in a balanced manner.

OUTSIDE DIRECTOR TRAINING

Date	Lead	Attendance of Outside Directors	Reason for Absence	Training Details
May 16, 2023	LOTTE Chemical	All outside directors (6) (BOD)	-	Introduction to LOTTE Group's talent development strategy and infrastructure (LOTTE Academy Osan Campus)
June 1, 2023	LOTTE Corp.	All outside directors (6) (BOD)	-	Understanding LOTTE Group's business management and mid-to-long-term business strategy
June 8, 2023	LOTTE Chemical	Jeon Woon-bae, Choi Hyun-min, Kang Jong-won, Nam Hye-jung (ESG Committee)	-	Key outcomes and implications from the project to implement a management system for non-financial metrics Understanding the need for ESG disclosure responses and recommendations (Deloitte Korea)
September 1, 2023	LOTTE Chemical	Nam Hye-jung, Cho Woon-hang (Audit Committee)	Choi Hyun-min (health reasons)	Changes in accounting systems, considerations for internal audits, and case studies regarding adoption of digital auditing (Ernst & Young Han Young)
September 14, 2023	LOTTE Chemical	Jeon Woon-bae, Choi Hyun-min, Kang Jong-won, Nam Hye-jung (ESG Committee)	-	Trends in corporate sustainability due diligence regulations LOTTE Chemical's ESG risk diagnosis and recommendations on improvement strategies (SK C&C)
October 26, 2023	LOTTE Chemical	Choi Hyun-min, Jeon Woon-bae, Nam Hye-jung, Cha Kyung-hwan (BOD)	Kang Jong-won (personal reason)	Introduction to key products and business trends in the basic chemicals and advanced materials businesses (Yeosu Plant of Basic Chemicals division and Advanced Materials division)
November 24, 2023	LOTTE Corp.	Choi Hyun-min, Nam Hye-jung, Cho Woon-hang (Audit Committee)	-	Understanding accounting audits, irregularities, and sustainability reporting standards, etc.

Board Expertise

LOTTE Chemical makes continuous efforts to enhance the expertise of our BOD for sustainable management and rational decision-making. Our BOD members have a high level of understanding on our industry as experts in various fields related to our key business activities are nominated as candidates and appointed as directors following careful examination and consideration. In addition, we continuously offer information and training on the petrochemical industry to our outside directors to enhance their understanding through site visits and reports on various issues. The Audit Committee is comprised of independent directors, all of whom are professionals in accounting/finance and tax/law. In addition, the Audit Committee has sufficient independence and expertise, chaired by an accounting and finance specialist.

Board Performance Evaluation and Compensation

LOTTE Chemical conducts objective evaluations once a year on BOD members whose terms are scheduled to expire and incumbent outside directors based on their BOD contribution, internal and external influence, and expertise to be leveraged for reappointment decisions. The remuneration of directors is managed transparently and fairly through the BOD's Compensation Committee and approved at the Annual Shareholder's Meeting. Remuneration for individual inside directors is determined by reflecting the company's key values while remuneration for individual outside directors is determined and paid equally within the limit approved by the general shareholder's meeting. Compensation for Audit Committee members is paid based on separate fees determined by the Compensation Committee in consideration of their legal responsibilities, time, and effort.

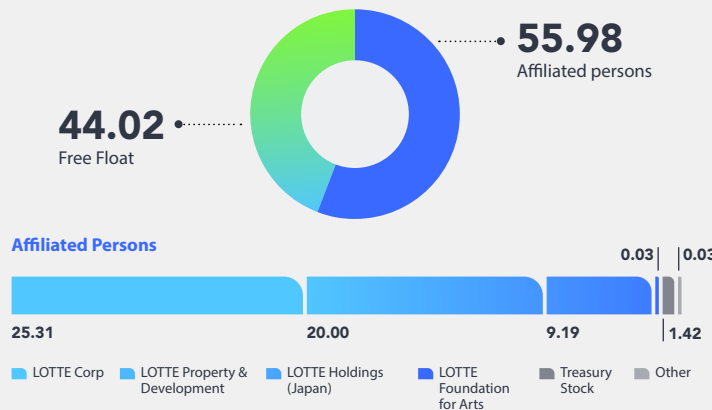
The remuneration limit for directors approved by the 2023 General Shareholder's Meeting was KRW 12 billion, and the total amount paid was approximately KRW 6.4 billion. Remuneration of each director and auditor over KRW 500 million is disclosed in the Business Report in accordance with relevant laws.

Board Skill Matrix (%)



BREAKDOWN OF LOTTE CHEMICAL SHAREHOLDERS (%)

(AS OF END-MAR 2024)



TRANSPARENT DISCLOSURE

Activities to Enhance Shareholder Value

LOTTE Chemical is devoted to providing timely and accurate information to shareholders and stakeholders regarding the company's overall business activities. When the BOD and its Committees make important management decisions, or in the event of critical issues affecting investment decisions, we immediately disclose it to the market. In response to growing demand for ESG information disclosure by domestic and overseas stakeholders, we have strengthened the ESG information disclosure system and expanded to stock exchange voluntary disclosures and posting on our website. We also provide disclosures in English on our website to provide our overseas investors with the same level of information as our domestic investors. We will continue to actively inform and communicate with the market including investors and stakeholders about our business activities.

Establishment and Disclosure of Mid-to-long-term Dividend Policy

To strengthen the shareholder return policy and raise possibility of dividend predictions, LOTTE Chemical set the duration of the mid-term shareholder return policy to 3 years and completed establishing and disclosing the shareholder return policies for fiscal year 2022 to 2024. We plan to achieve an annual dividend payout ratio of 30% based on separate net profits to enhance shareholder value. We are also making dividend decisions based on sound dividends for shareholders, future investments for growth in corporate value, and achieving financial stability.

Purchasing Treasury Stock

LOTTE Chemical aims to meet shareholder expectations by purchasing treasury stocks worth KRW 300 billion during the 3 years from 2022 to 2024. To reinforce accountable business management, we purchased a total 284,972 shares worth KRW 50 billion in 2022 along with an additional purchase of 323,300 shares worth KRW 50 billion in 2023. This is a total purchase of 608,272 treasury stock worth KRW 100 billion.

RISK MANAGEMENT

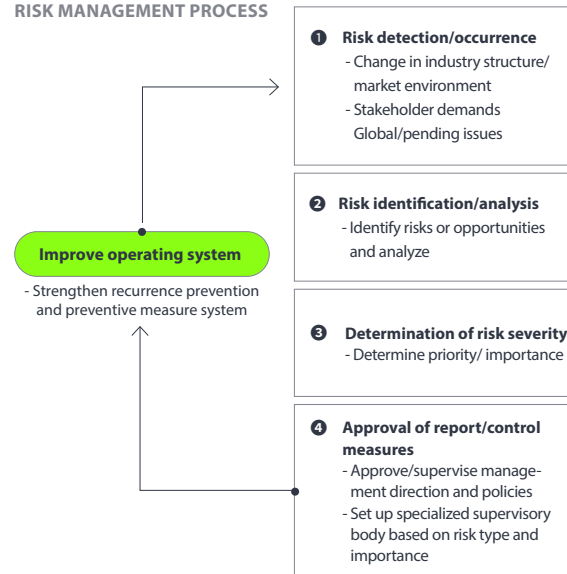
RISK MANAGEMENT GOVERNANCE

LOTTE Chemical operates systematic risk management to identify and respond to potential risk factors that can emerge across our business. We manage risks by grouping them into daily risks and special risks based on their level of importance. We continuously respond to daily risks by forming committees and councils consisting of members of management under the Management Committee and CEO. As special risks have greater impact when occurring and require legal or technical expertise, we are doing our utmost for prevention with committees set up within the Board of Directors to implement a stronger risk management system.

Response Measure by Risk Type

LOTTE Chemical practices comprehensive and systematic risk management that covers not only common risks that accompany corporate activities such as operational and financial risks, but also non-financial risks regarding the environment, safety, supply chain, information security, ethics, and compliance.

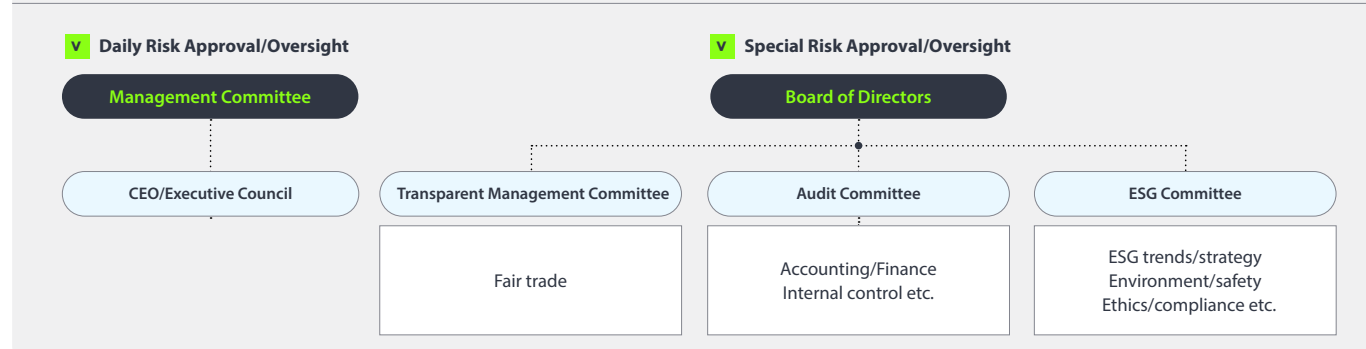
RISK MANAGEMENT PROCESS



RESPONSE BY RISK TYPE

Category	Type	Details	Response Strategy (measure)
Operational risk	Management strategy	<ul style="list-style-type: none"> Failing to make timely changes to the business portfolio in line with changes in the industry structure/market Undermined efficiency of resource input 	<ul style="list-style-type: none"> Reinforce periodic industry/market sensing and company-wide portfolio inspections Focus business capabilities on high value-adding specialty chemicals Strengthen review of investments and regularly inspect progress of key investments
	Raw materials	<ul style="list-style-type: none"> Sales/production losses due to failing to secure supply of raw material 	<ul style="list-style-type: none"> Push for long-term contracts with suppliers Diversify raw material such as LPG, Ethane etc. Diversify regions that supply raw material
	Logistics	<ul style="list-style-type: none"> Delivery issues caused by lack of ships and accidents, etc. 	<ul style="list-style-type: none"> Push for long-term contracts with logistics partners Continuous market monitoring by relevant departments Introduce post-evaluations for logistics partners
Financial risk	Liquidity and credibility	<ul style="list-style-type: none"> Losses due to failed liquidity management Risk of drop in credit due to breach in trade and financial contracts 	<ul style="list-style-type: none"> Periodic financial forecasts and adjustments Continuous management credit ratings and financial flexibility
	Internal control	<ul style="list-style-type: none"> Corporate losses and damage to image caused by misconduct 	<ul style="list-style-type: none"> Establish internal accounting regulations and management system Continuous monitoring and control by specializing department
	Finance	<ul style="list-style-type: none"> Impact from fluctuating exchange rates due to growing global business Increased interest rate volatility due to the evolving financial market 	<ul style="list-style-type: none"> Continuous monitoring by relevant departments Use of hedging tools such as interest rates and F/X SWAP etc. Minimize financial expenses by realizing an appropriate short-term and long-term borrowing structure
Non-financial risk	Environmental	<ul style="list-style-type: none"> Violation of environmental laws Rise in costs due to lack of emission permits Environmental pollution adversely affecting brand image and resulting in production sanctions 	<ul style="list-style-type: none"> Reinforce law monitoring and compliance process Build carbon neutrality roadmap and reinforce its implementation Increase investments in reducing energy usage and secure carbon credits Increase investments in environmental facilities such as air pollution preventing facilities
	Safety	<ul style="list-style-type: none"> Recovery costs and losses in case of safety incidents Damage to external image due to accidents related to chemical substances and violations of law 	<ul style="list-style-type: none"> Improve safety programs and strengthen employee training Increase investments in safety such as improving high-risk facility inspections etc. Conduct safety tests of all business sites and partners Set up chemical substance management system
	Information security	<ul style="list-style-type: none"> Loss/suspension of work due to information security issues and damage to external image 	<ul style="list-style-type: none"> Continuous monitoring and inspection by specialized departments Employee training
Ethics and compliance		<ul style="list-style-type: none"> Violations of law such as on fair trade, anti-corruption, and safe work environments, etc. Corporate/employee ethics 	<ul style="list-style-type: none"> Operate compliance regulations and processes Operate continuous monitoring systems Employee training

LOTTE CHEMICAL'S RISK MANAGEMENT GOVERNANCE SYSTEM



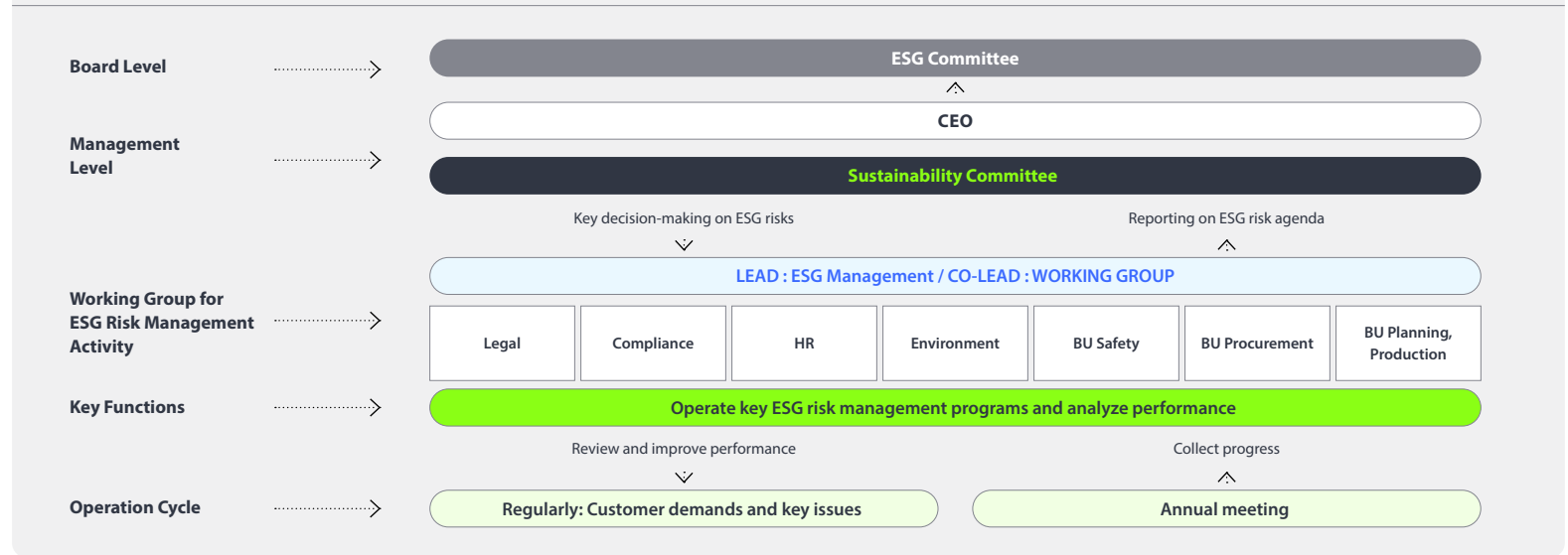
ESG RISK MANAGEMENT SYSTEM

LOTTE Chemical established an ESG Risk Management System in 2022 to carry out ratings/due diligence on ESG risks across our value chain and respond to customers. We have put in place ESG policies and standards that meet global regulations and customer demands, and a due diligence response system to strengthen the ESG evaluation procedures of customers.

ESG Risk Management Council (operated by Sustainability Committee)

LOTTE Chemical operates the Sustainability Committee, an internal management meeting where C-level and key ESG departments gather to prepare policies that reflect external trends and customer demands which become the basis for managing risks across our company and value chain, as well as raise and report key risk agenda to the ESG Committee.

OPERATION OF THE ESG RISK MANAGEMENT COUNCIL



* Sustainability Committee: A committee that serves the role of ESG Risk Management Council, its implementation plan for ESG strategic initiatives, and review its performance

LOTTE CHEMICAL ESG RISK MANAGEMENT SYSTEM



Management Items	Policy and standards management - Establish and amend ESG policy book and standard documents based on customer demands and business importance	Risk assessment and improvement - Analyze key ESG risk assessment results of HQ, subsidiaries, and supply chain - Track and encourage key improvement activities	Response to customer demands - Identify customer demand trends, analyze and propose business needs - Response guide and follow-ups for customer site due diligence
	HQ risk management - Assess current global ESG risk management status through EcoVadis* - Analyze key risk status and encourage improvements	Subsidiary risk management - Select subsidiary importance based on business impact and risk level - Build and implement assessment plan by level of importance - Track and encourage improvement activities	Supply chain risk management - Select supply chain importance based on purchase impact, strategic risks and risk level - Build and implement assessment plan by level of importance - Track and encourage improvement activities
Management target			

* EcoVadis: A global and highly credible third-party ESG risk assessment platform

KEY FUNCTIONS OF THE RISK MANAGEMENT COUNCIL

1 Trends and risk analysis	4 ESG risk prevention and improvement
2 ESG policy establishment and amendment	5 Monitoring of ESG risk management system
3 ESG risk assessment	6 Disclosure of information and performance

- **Regular: Respond to stakeholder risk assessments/due diligence and select contents to be disclosed externally**
 - Report ESG risk assessment and due diligence results and build response measures
 - Annual VOC report of key customers/investors/media
 - Select contents for materiality assessment and ESG report
 - Report analysis of annual ESG management trends and regulations
- **Occasional: Operated at the discretion of the chairman (immediate risk to response, significant change in the business environment, etc.)**
- **Report results to CEO and ESG Committee**

RISK MANAGEMENT THROUGH LOTTE CHEMICAL'S ESG POLICY BOOK

LOTTE Chemical's ESG policy book is a document that summarizes key standards and our perspective on key ESG risks, placing focus on our response to external stakeholders.

CRITERIA FOR PREPARING THE LOTTE CHEMICAL ESG POLICY BOOK

1 DOMESTIC LAW

- Environmental: Air/Water/Soil/Carbon Neutrality/ Emission Rights/Energy Use Rationalization Act, etc.
- Social: Fair Trade/Product Safety/ Labor Standards/Safety/Human Rights/ Information Security, etc.
- Governance: Commercial Law/ Capital Market Act/Anti-corruption Act/Anti-Graft Act, etc.

3 INTERNATIONAL REGULATIONS

- Sustainability: OECD Guidelines for Multinational Enterprises (2011), etc.
- Environment: UN Framework Convention on Climate Change (1992), etc.
- Human rights: UN Guiding Principles on Business and Human Rights (2011), etc.
- Ethics: UN Convention against Corruption (2003), etc.



2 CUSTOMER DEMANDS AND EVALUATION CRITERIA

- Customer Code of Conduct
- Responsible Business Association (RBA)
- EcoVadis
- Sustainability Accounting Standards Board (SASB), etc.

4 POLICY OPERATIONS

THE DISTINCTIVENESS AND ADVANTAGES OF LOTTE CHEMICAL'S ESG POLICY BOOK

1 CLEAR DIRECTION FOR SUSTAINABLE MANAGEMENT



- Internalizes Group charter and focuses on our ESG policies
- Policy implementation is scheduled to be disclosed through our ESG Reports

2 Systematic policy book hierarchy



- Prepares policy book logic tree in relation to internal standard documents
- Reviews standard documents needed for implementing ESG policies in each area

3 RESPONSE TO ESG DUE DILIGENCE



- Responds to external initiatives and supply chain due diligence

LOTTE CHEMICAL'S ESG POLICY BOOK CONTENTS

Environmental	Social	Governance	Other (partners, etc.)
<p>1. Environmental Management Charter 2. Environmental Management Policy</p> <ul style="list-style-type: none"> • Establishment and operation of environmental management system • Prevention of environmental pollution <ul style="list-style-type: none"> - Reduction of GHG and prevention of air pollution - Water resource management and prevention of water pollution - Prevention of soil pollution • Resource circulation • Chemical safety management • Green purchase • Environmental due diligence 	<p>1. Human Rights Management Charter 2. Human Rights Management Policy</p> <ul style="list-style-type: none"> • Development and execution of human rights management system • Detailed policy of human rights management <ul style="list-style-type: none"> - Respect for human rights- Child and minor labor - Working hours and wages - Anti-discrimination - Prohibition of forced labor - Workplace safety - Freedom of association and right to collective bargaining - Compliance with responsible mineral regulations 3. Safety and Health Policy 4. Product Safety Policy 5. Information Security Policy 	<p>1. Corporate Governance Charter 2. Compliance Management Charter 3. Ethical Management Policy</p> <ul style="list-style-type: none"> • Establishment and operation of ethical management system implementation/operation <ul style="list-style-type: none"> - Ethical management system - Education on ethical management - Regular and special audits • Reporting ethical management violations and protection of whistleblowers • Detailed policy for Ethical Management <ul style="list-style-type: none"> - Anti-corruption policy - Antitrust policy - Fair tax policy 4. ESG Risk Management Policy 	<p>Code of Conduct for LOTTE Chemical Partner Companies</p>

ETHICAL MANAGEMENT

GOVERNANCE

Ethical Management System

Based on the LOTTE Group's code of conduct, LOTTE Chemical has an ethical management system that takes into account individual work and business conditions. We are achieving a transparent ethical culture across the company through the Compliance Management Group directly overseen by the CEO to carry out various activities including internal audits, handle reports, and conduct ethics training.

Audit Committee

Our Management Improvement Team is an exclusive organization under the Audit Committee to ensure the committee's independence. The Audit Committee not only covers approval and reports related to legal obligations, but also plays an active role in internal control by reviewing and approving the Internal Audit Department's audit plans, reviewing non-auditing services provided by external auditors, and reporting on the external auditor's audit activities. The Audit Committee also has the right to consent to the appointment and dismissal of the head of the internal audit department. Further details are indicated in the company's Policies on the Audit Committee.

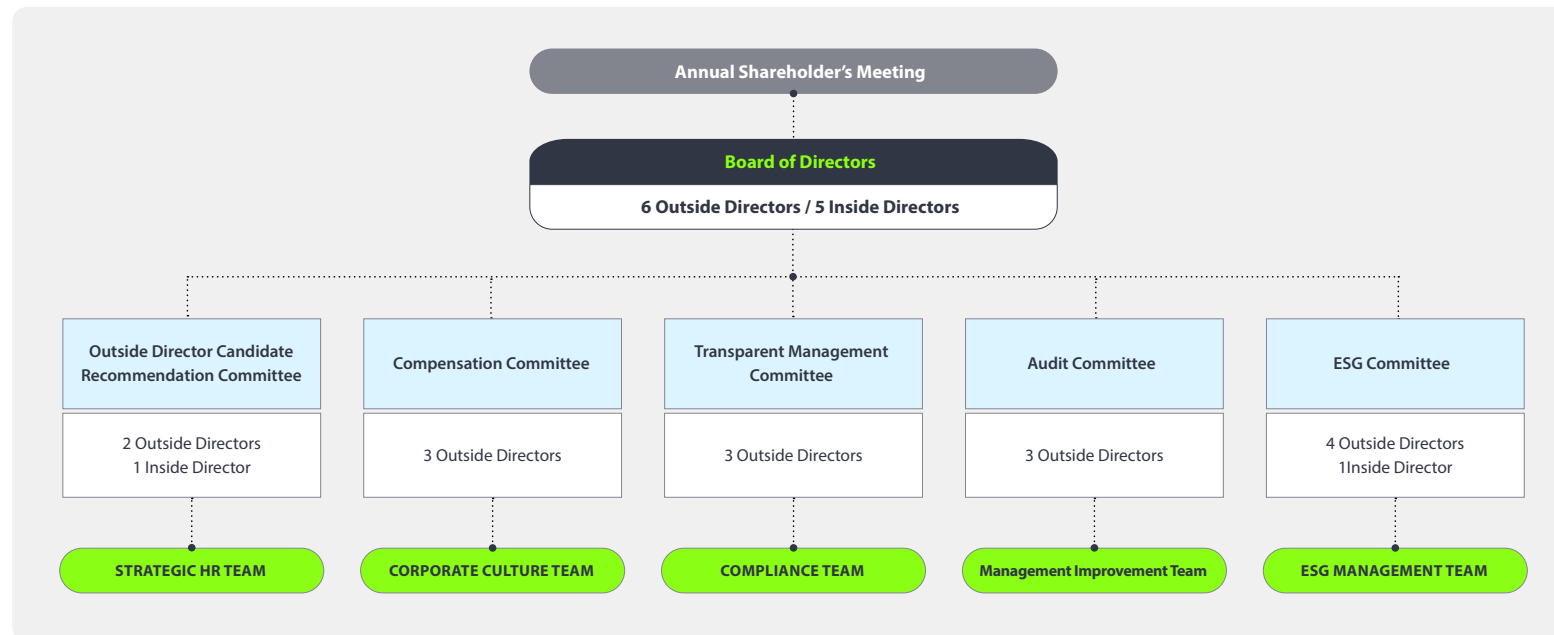
STRATEGY

Ethical Management Values and Code of Conduct

LOTTE Chemical stresses ethical management as a core value of our business activities, and strives to carry out transparent, fair, and reasonable work practices based on our Code of Conduct.

1 Values Pursued by Ethical Management

We seek to advance our business, pursue common interests, and realize our corporate philosophy of creating a prosperous future through ethical management to return our results and value to customers, employees, partners, shareholders, and society.



2 Code of Conduct

Our Code of Conduct is applied to all full-time and part-time employees working at LOTTE Chemical and subsidiaries where LOTTE Chemical holds management rights. The Code of Conduct is composed of five parts - Customers, Employees, Partners, Shareholders, and Society – and sets forth LOTTE principles and action plans for each part.

3 Guidelines on Acceptance of Money and Valuables, etc.

Our organization offers the following guidelines for our employees to follow in regard to the acceptance of money and valuables. The regulations on acceptance of money and valuables prohibits receiving money and valuables from stakeholders and states that any provisions should be refused and returned immediately. When issues occur, it should be consulted with the Management Improvement Team. We are in compliance with the necessary procedures and regulations in the process of returning or handling money and valuables by operating a center for returning such money and valuables. When there is a violation of guidelines, it is handled based on “Shinmungo(reporting channel) Operation and Case Handling Guidelines” to investigate reports on violations and protect the whistleblower. We ensure confidentiality and have the obligation to protect those who report such violations.

PROCESS AT THE CENTER FOR RETURNING MONEY AND VALUABLES



CODE OF CONDUCT

Category	LOTTE Principles	Action Plan
Trust with Our Customers	<ul style="list-style-type: none"> Providing the best products and services Honest marketing Protecting customer information Protecting our brand 	<ul style="list-style-type: none"> Be the first brand in customers' hearts. Honesty is the easiest way of gaining customer's trust Customer information matters the most The best way to represent our brand Lotte to our customers is you.
Trust with Our Employees	<ul style="list-style-type: none"> Equal opportunity and fair treatment Mutual respect among our members Gender equality Safe working environment Protecting our assets Protecting intellectual property rights Preventing information leakage 	<ul style="list-style-type: none"> We set business apart from pleasure and provide fair opportunities. We are all someone's precious family. LOTTE is working to create happy families and a fair workplace. Safety is the first priority in all circumstances. The assets of the company are for all employees. We shall protect our intellectual property achieved through our hard work. Information leakage begins with negligence.
Trust with Our Partners	<ul style="list-style-type: none"> Compliance with the Fair Trade Act Respect for our partners Fair competition Legitimate collection of information Prohibition of corruption & improper solicitation 	<ul style="list-style-type: none"> Fairness and trust are the power binding us and our partners as one team. Mutual respect strengthens the relationship between us and our partners. Fair competition makes us stronger. Information shall be collected in a lawful way. Every favor is followed by a price, no matter how small it may be.
Trust with Our Shareholders	<ul style="list-style-type: none"> Improving shareholder value Preventing conflicts of interest Improving accounting transparency Prohibition of inhouse trading 	<ul style="list-style-type: none"> LOTTE pursues long-term improvement of shareholder value. We think about the interests of our stakeholders. Honest reporting makes our effort and passion more valuable. We shall not make unfair profits with insider information.
Trust with Society	<ul style="list-style-type: none"> Environmental protection Creation of social values and social contribution Respect for human rights Respect for cultural diversity Compliance with laws of each country Separation of politics and economy 	<ul style="list-style-type: none"> Nature is something we have borrowed from our future generation. Sharing what is received from society with society is our biggest pleasure. Love and respect for humanity is an important value of LOTTE. We can earn respect only when we respect others. We work to abide by the laws of each country and prevent crimes. Politics and economy can fulfill their role when they are separated.

Ethical Management System

LOTTE Chemical works hard to share a culture of ethical management with our employee by implementing an efficient ethical management system. We operate various reporting channels for both internal and external stakeholders to report unethical conduct of our employees and conduct monthly online employee training along with irregular offline training sessions to internalize ethical management across our business. In addition, we carry out internal control through our Audit Committee and Internal Accounting Management System regarding our accounting and work processes.

1. Reporting Channels

LOTTE Chemical operates internal and external reporting channels to allow employees to report violations of legislations and ethical management and unfair and unethical conduct. Reports can be filed anonymously or under real names while we practice a principle of carrying out investigations 100% for all reports. Informants and details of reports are kept strictly confidential with 39 cases being filed in 2023.

METRICS AND GOALS

Ethical Management Diagnosis/Audit and Improvements

LOTTE Chemical performs regular audits based on annual audit plans and special audits that are conducted when necessary to address external complaints and accusations or certain matters. Standards and procedures for audits are stipulated in the 'Internal Audit Guidelines' of our internal regulations to ensure a standardized process is followed. Based on the audit results, if necessary, we also recommend taking appropriate measures in accordance with the 'Integrated Rules of Employment' and spread them through special training and company-wide notices to prevent recurrence of the same issue. In addition, a compliance diagnosis is carried out annually across the entire LOTTE Group to check on the ethical awareness and understand where the company stands in terms of ethical management to draw out improvement directions.



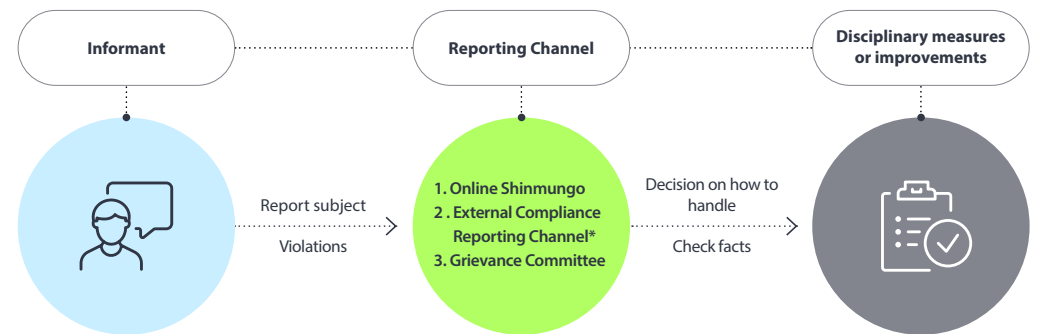
1 Internal and External Reporting Channels and Informant Protection

LOTTE Chemical operates various reporting channels including online websites, email, postal mail, and hotlines to allow stakeholders to easily consult and report ethical management affairs. In addition, by introducing additional external compliance reporting channels, we have reinforced the fairness and anonymity of the reporting process for our employees. We also operate an internal Grievance Committee to handle investigations and consultations regarding issues in the workplace including sexual harassment and workplace bullying.

2 Process of Handling Reports

Informants may file reports anonymously or using their real name. All reports filed are processed transparently in accordance with the procedures stipulated in the 'Shinmungo(reporting channel) Operation and Case Handling Guidelines', "External Compliance Report Channels and Case Handling Guidelines." When unethical behavior is confirmed through investigations, measures such as disciplinary actions are taken. In addition, protection of informant identities are strictly guaranteed in the course of investigation based on provisions for confidentiality, informant protection, and prohibition of retaliation.

HANDLING REPORTS



* External Compliance Reporting Channel: An external compliance reporting channel is being operated in addition to the existing Shinmungo to strengthen confidentiality of the informant and matter and protect their identity (operated by external legal agencies)

Ethical Management Training and Internalization

LOTTE Chemical conducts various ethical management training such as group and online training for all of our employees including part-time employees to internalize ethical management.

1 Group Training

Training for employees such as new joiners, seasoned workers, and expatriates cover various topics including ethical management at the individual/organization level, legal compliance such as for the Anti-Graft Act, information ethics, and global ethics, etc.

2 Online Training

LOTTE Chemical conducts monthly online employee training by making training videos on topics related to ethical management such as workplace bullying, use of company funds and assets, work discipline, corruption, and improper solicitations. Since May 2023, we have been producing contents on actual issues to improve the effectiveness of our training. Starting in 2024, we are expanding our targets to all LOTTE chemical subsidiaries to prevent wrongful conduct and raise employee awareness on ethics.

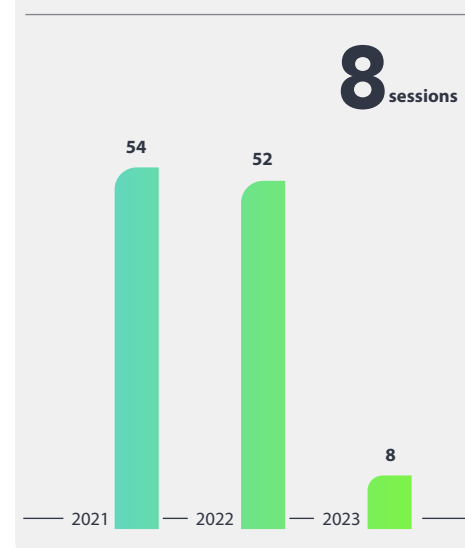
CURRENT ETHICAL MANAGEMENT TRAINING

Category		2021	2022	2023
Group training (Employees)	Number of courses	4	6	11
	Total hours	9	6	11
	Number of persons completed	89	123	119
	Target audience (person)	103	123	119
	Ratio (%)	86%	100%	100%
Online training (Employees)	Number of courses	54	52	8
	Total hours	3	3	1
	Number of persons completed	3,807	3,944	4,465
	Target audience	4,311	4,378	4,690
	Ratio (%)	88%	90%	95%

ONLINE TRAINING OFFERED

Date	Topic
May 2023	Harmonious leadership
Jun 2023	Things we take for granted
Jul 2023	Secret stories
Aug 2023	Look clearly
Sep 2023	Creating a proper work culture
Oct 2023	Selfish creativity
Nov 2023	The meaning of coexistence
Dec 2023	Anti-corruption act
Jan 2024	Efforts to eradicate workplace bullying
Feb 2024	The value of conscience
Mar 2024	The power of little things

NUMBER OF ONLINE COURSES



※ Reason for drop in online training courses in 2023: Improved quality with more practical training contents and change in frequency of training (weekly → monthly)

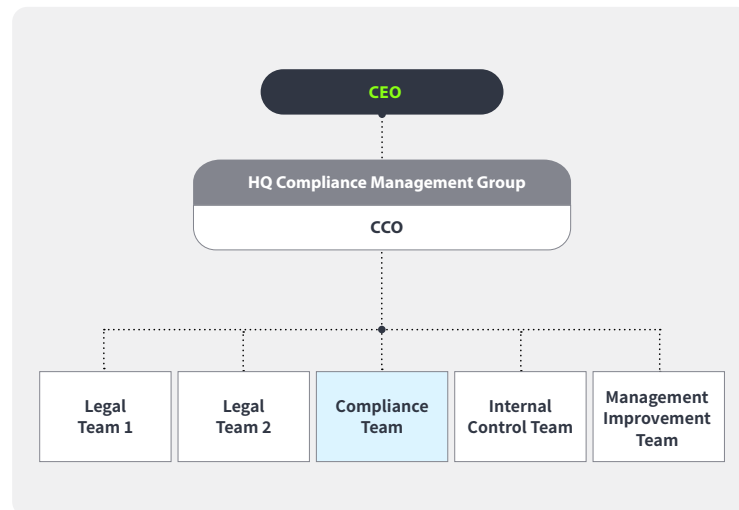


COMPLIANCE

COMPLIANCE MANAGEMENT SYSTEM

Compliance Organization and Operations

LOTTE Chemical supports the Chief Compliance Officer (CCO) in charge of the Compliance Management Group directly under the CEO to manage overall compliance risks across the company and also serves as manager of both the fair trade compliance program and internal control system. We also set up a Compliance Team which is an organization dedicated to operating an independent and practical compliance program. The Compliance Team is preparing the Compliance Management Charter and overhauling various internal policies related to compliance management, anti-corruption, fair trade, and trade secrets along with internal standards regarding fair trade (code of conduct, checklist, dos & don'ts, booklet, and guidelines, etc.).

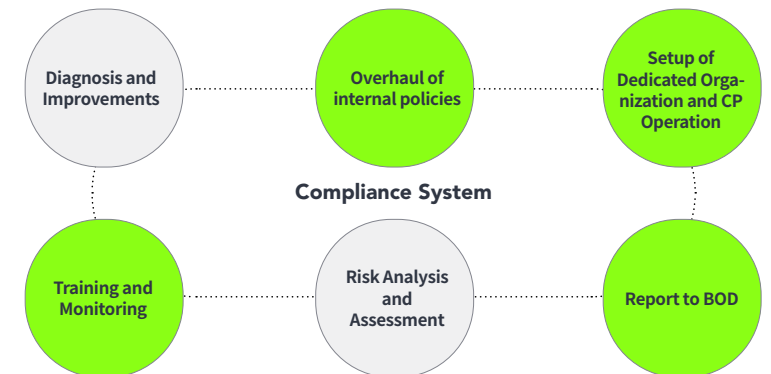


Implementation Strategy



Compliance System

LOTTE Chemical plans and executes a compliance program by starting with analyzing and assessing key compliance risks. We have annual training plans and a monitoring plan in place and showcase our determination for strengthening compliance through CEO compliance training and a compliance pledge made by our management (executives/BOD). We also established compliance policies, plan to operate a reward system, take measures based on the severity of violations, conduct assessments based on compliance diagnoses, and carry out improvement activities (validity assessment). Compliance management is also evaluated and reflected in organization evaluation scores. In addition, results of the compliance system are reported to the BOD once a year to manage our compliance performance.



International Standards Certification

In 2019, LOTTE Chemical was the first among Korean chemical players to receive ISO 37001 certification, the international standard for anti-corruption management systems, from a certification authority. Through post-review, we were recognized for meeting international standards on anti-corruption management systems and went on to obtain the compliance management system certification (ISO 37301) in 2022 which proved that our system is on par with global standards. Based on such certifications, we achieved “Zero” corruptive and unfair acts in 2023.

COMPLIANCE PROGRAM

Risk Assessment

LOTTE Chemical plans and operates a compliance program to prevent risks after analyzing and identifying internal regulations and risks. In 2023, such risk analysis identified 68 key risks in the 6 categories of fair trade, anti-corruption, information security, industrial safety/environment, employment/unfair treatment, and financial capital market/anti-money laundering. Risk levels were assessed and control measures such as training and monitoring were executed for special management of risks through close cooperation with relevant departments. Risks are managed by updating the list each year.

Compliance Message/Compliance Letter/Compliance Pledge

The CEO’s compliance message and compliance letters are delivered regularly to our employees and partners to showcase LOTTE Chemical’s strong determination to practice compliance management. Our employees also sign Compliance Pledges each year.

Continuous Monitoring System

LOTTE Chemical operates a continuous monitoring system through which risks are continuously managed. In 2023, requests for explanation were carried out and checked for 1,548 of the 5,214 cases monitored regarding anti-corruption, and 4 warnings and cautionary measures were taken through the email monitoring system. As for areas that require additional improvement, in-depth training was carried out to employees in relevant departments along with supplementary measures based on internal regulations.

NUMBER OF COMPLIANCE TRAINING SESSIONS (including Fair Trade)



Timing (2023)	Training	Number of sessions
Feb/Oct	Donation-Sponsorship Training	2
Feb/Apr/May/Jun/Aug/Sep	New Expatriate Training	4
Mar	Trade Secret Protection and Management	2
Mar/Jun/Sep/Dec	Compliance Management Webtoon	4
Mar/Jun/Aug	Training for Experienced Joiners	3
Apr~May	Business Site Compliance Training	11
Jun	Serious Accidents Punishment Act Training	1
Jun/Sep	New Joiner Training	2
Jul	Information Asset Management Training	3
Sep	Improper Solicitation & Graft Act Training	2
Oct	Training on Subcontracting Transactions	1
Nov	Overseas Subsidiary Compliance Training	2
Nov	HR Compliance Training	3
Nov	External Subcontractor Training	2
Dec	Email Monitoring Case Study Training	4

Compliance Training

LOTTE Chemical offers group training based on function, topic, and business site along with online training for all employees, CEO compliance management training, and training for executives, as well. We also issue our Compliance Newsletter and Compliance Management Webtoon regularly to help enhance employee understanding.

Anti-corruption Management

Led by the Compliance Team, LOTTE Chemical conducts training for all of our employees to remind them on the need and importance of anti-corruption compliance. This training covers details of domestic and overseas anti-corruption laws including the Korean anti-graft law and operates internal rules to prevent corruptive behavior and comply with anti-corruption principles. In addition, when contact with stakeholders such as public officials are required, prior-/post-contact reports must be submitted and approved while money and goods restricted by the anti-graft law must also be reviewed and approved before being executed.

Donation-Sponsorship Management

LOTTE Chemical established and operate inhouse standards on ‘donation and sponsorship procedures’ to make the compliance process regarding donations and sponsorships clear. It is applied to all business sites, so donations and sponsorships are carried out only for suitable beneficiaries that have been thoroughly examined in advance.

Trade Secret Management

LOTTE Chemical established and operates regulations on the protection of trade secrets and monitors compliance to prevent relevant risks and ensure that trade secrets are not leaked.

NUMBER OF DONATION-SPONSORSHIPS REVIEWED



Spreading the Compliance System to Domestic and Overseas Subsidiaries

LOTTE Chemical conducts compliance training for overseas subsidiaries and established standard compliance rules and policies to disseminate the compliance system to our subsidiaries at home and abroad.

Strengthen Supply Chain Compliance

LOTTE Chemical carries out compliance pledges to ensure transparent and fair trade with our partner companies and applies standard contracts and an electronic procurement system for efficient transactions. In addition, we developed ESG (Environment/Society/Governance) policies and notified them to our partner companies while also taking part in the Price Indexation System participants to improve transaction terms for suppliers.

Internal Control System

LOTTE Chemical established internal control regulations and designed and operates an internal control system which is reported to the BOD.

Compliance Diagnosis and Reporting

Every year, diagnosis of employee awareness on compliance and overall compliance levels is carried out with annual performance reported to the BOD.

FAIR TRADE COMPLIANCE PROGRAM

Strengthen Fair Trade Compliance and Fair Trade Training

LOTTE Chemical has been operating the Fair Trade Compliance Program since 2006, setting forth clear behavior standards to prevent violation of legislations.

Unfair Trade Management

LOTTE Chemical is in compliance with fair trade principles and provides training on our internal regulations (fair trade code of conduct). After reviewing all areas regarding fair trade, we are taking supplementary measures and making improvements when necessary to be in compliance with legislations.

Internal Trade Management

LOTTE Chemical operates internal standards (Internal Trade Guidelines) that set forth areas that must be abided when carrying out internal transactions, reviewing all aspects of internal transactions and taking measures, when needed, to ensure compliance with relevant legislations. Moreover, the Transparent Management Committee, composed of outside directors, reviews compliance with fair trade laws and internal regulations regarding internal transactions of a certain scale.

Fair Trade with Partner Companies

LOTTE Chemical is making various efforts to manage fair trade and build mutual cooperation with partners. We conduct training through meetings with partner companies for each business site and checking compliance with relevant laws regarding fair trade with our partners. Stringent management of fair trade is carried with improvement measures taken in case of non-compliance and reconsidering contracts when non-compliance reoccurs. In addition, internal departments that work the closest with partners receive training on the Subcontracting Act. We offer continuous advisory services and monitor activities to ensure compliance and promote mutual cooperation and shared growth with SMEs. Accordingly, we have been participating in the Ministry of SMEs and Startups' Price Indexation System pilot project since 2022.

Compliance with the Subcontracting Act and Win-Win Cooperation Act

We are strictly managing subcontractor transactions through prior review processes and monitoring. We are also reviewing the Win-Win Cooperation Act in relation to SMEs which are not subject to the Subcontracting Act. In 2023, we set up a Subcontract Dispute Mediation Committee to prevent disputes and resolve them promptly when they do occur.

Training on Fair Trade

The Compliance Team carries out training to all employees to remind them on the need and importance of complying with the principles of fair trade. Training is carried out periodically on fair trade laws and regulations, recent legal cases and court rulings, and internal standards and is offered catering to the needs of participants by staff level and function such as executives, managers, new joiners, seasoned employees, expatriates, subcontracting personnel, and sales managers.

Unfair Trade Reporting Channel

LOTTE Chemical operates various channels for employees to make anonymous reports at any time, anywhere, in case of unfair and in appropriate behavior.

NUMBER OF TRANSPARENCY COMMITTEE MEETINGS HELD



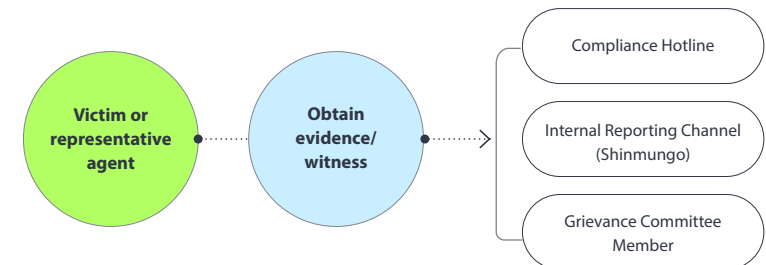
NUMBER OF INTERNAL TRADE CASES REVIEWED



NUMBER OF PARTNER COMPANIES THAT RECEIVED FAIR TRADE MANAGEMENT TRAINING



INTERNAL AND EXTERNAL REPORTING CHANNELS AND HANDLING PROCEDURES





APPENDICES

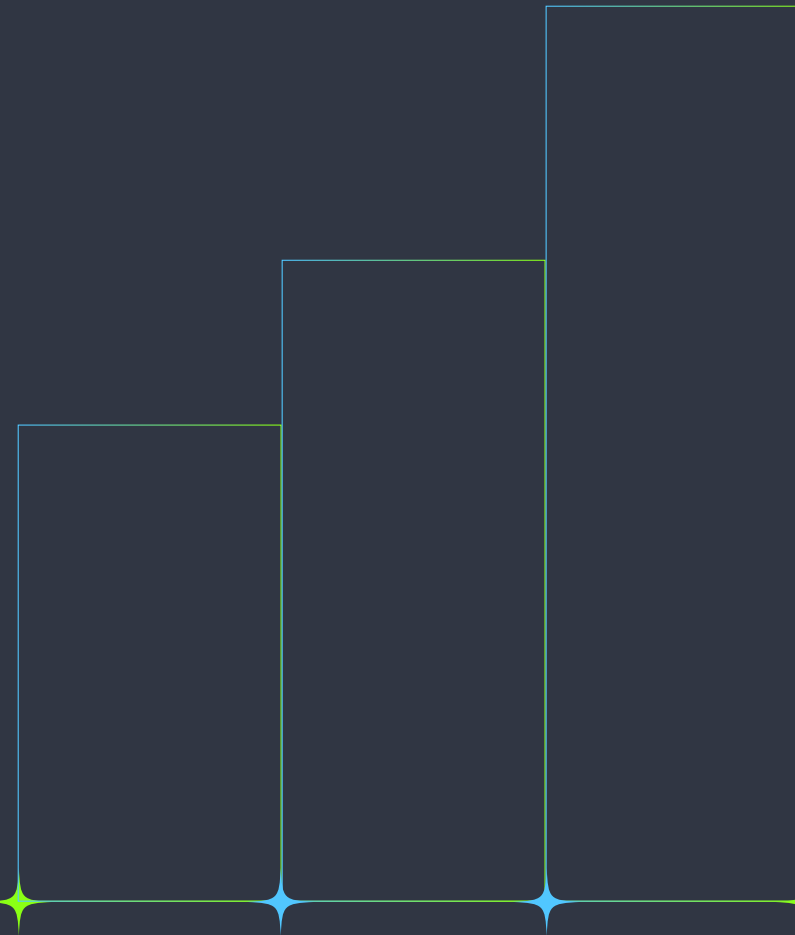
ESG DATABOOK

GRI / TCFD / SASB INDEX / UN SDGS

MEMBERSHIPS

GHG ASSURANCE STATEMENT

THIRD-PARTY ASSURANCE STATEMENT



1

2

3

4

ESG DATABOOK

ESG Data Management System

LOTTE Chemical reviewed the overall data compilation process to confirm data consistency and found that there were needs to redefine criteria used for calculations and standardize them across business sites, as well as make corrections to simple errors. We reestablished the data calculation process in line with ESG reporting requirements as well as requirements by evaluation agencies and initiatives based on which data for 2021 and 2022 were recalculated.

For metrics that were recalculated, data was modified with relevant details set forth in the footnotes for each respective category in the ESG Data Book. In addition, specific data scope and methods used for calculation of metrics can also be found in the footnotes. We have also enhanced our metrics management system, including metrics integration and transfer of qualitative metrics, and will disclose metrics that require mid-to-long-term review after completing internal reviews.

The importance of ESG data management is projected to continue to grow as ESG disclosures become mandatory in Korea, as well as globally. LOTTE Chemical is committed to providing accurate and comprehensive ESG data to our stakeholders and will continue to manage data to ensure consistency in our reporting.

Metrics disclosed in the previous year **314**

Metrics added		21	(+) 21
Metrics modified	Based on redefined criteria and consistency among business sites	80 (32%)	
	Correction of errors due to manual data collection	20 (8%)	
Integration and mid-to-long-term review of metrics	※ To be disclosed upon completion of review	82	(-) 82
Metrics disclosed in current year			253

Financial Data_

Financial Statement

Category	Unit	2023	2022	2021
Current assets	KRW Million	9,814,400	9,466,180	9,430,723
Cash and cash equivalents	KRW Million	2,701,528	2,809,676	1,602,900
Short-term financial instruments	KRW Million	1,100,894	348,390	1,699,360
Financial assets at fair value through profit or loss ("FVTPL")	KRW Million	111,510	566,389	1,180,369
Trade and other accounts receivable	KRW Million	2,328,537	2,268,810	1,932,194
Finance lease receivables	KRW Million	597	139	139
Current tax assets	KRW Million	114,520	76,282	13,777
Other financial assets	KRW Million	329,367	536,173	16,023
Other current assets	KRW Million	325,717	311,559	192,918
Inventory assets	KRW Million	2,801,729	2,548,763	2,793,044
Non-current assets	KRW Million	23,661,910	17,318,408	13,424,438
Long-term financial instruments	KRW Million	138,878	67,534	67,509
Financial assets at FVTPL	KRW Million	234,181	258,028	65,113
Financial assets at fair value through other comprehensive income ("FVOCI")	KRW Million	253,317	197,788	189,022
Other financial assets	KRW Million	86,596	64,582	45,660
Investments in associates and joint ventures	KRW Million	3,833,620	3,808,164	3,691,609
Property, plant and equipment, net	KRW Million	14,272,599	10,725,984	7,503,368
Investment properties	KRW Million	57,242	56,169	49,849
Right-of-use assets	KRW Million	438,789	385,128	323,222
Other intangible assets, net	KRW Million	1,731,256	877,896	708,672
Finance lease receivables	KRW Million	8,456	2,251	2,379
Goodwill	KRW Million	2,001,073	339,475	646,623
Other assets	KRW Million	203,175	477,323	106,377
Deferred tax assets	KRW Million	402,730	58,087	25,034
Total assets	KRW Million	33,476,310	26,784,588	22,855,161
Current liabilities	KRW Million	6,523,538	6,384,043	4,579,149
Non-current liabilities	KRW Million	6,720,232	3,136,302	2,836,769
Total liabilities	KRW Million	13,243,770	9,520,346	7,415,918
Equity attributable to owners of the Parent Company	KRW Million	15,543,127	14,445,376	14,398,263
Capital stock	KRW Million	213,877	171,377	171,377
Other paid-in capital	KRW Million	1,942,927	825,844	875,745
Other components of equity	KRW Million	421,562	309,612	55,583
Retained earnings	KRW Million	12,964,761	13,138,543	13,295,558
Non-controlling interests	KRW Million	4,689,414	2,818,867	1,040,980
Total equity	KRW Million	20,232,541	17,264,242	15,439,243

Financial Data_

Income Statement

Category	Unit	2023	2022	2021
Sales	KRW Million	19,946,397	22,276,083	18,120,462
Cost of sales	KRW Million	19,165,103	21,992,796	15,656,513
Gross Profit (Loss)	KRW Million	781,294	283,287	2,463,950
Selling, and administrative expenses	KRW Million	1,128,996	1,045,894	928,309
Operating Profit (Loss)	KRW Million	- 347,702	- 762,607	1,535,641
Finance income	KRW Million	510,139	499,354	178,996
Finance costs	KRW Million	734,960	720,625	255,504
Share of profit in associates and joint ventures	KRW Million	20,261	252,632	365,928
Other non-operating income	KRW Million	580,756	1,560,643	285,760
Other non-operating expenses	KRW Million	488,638	1,230,027	223,337
Effect of KIFRS 1029	KRW Million	7,872	8,011	-
Profit (Loss) before income tax	KRW Million	- 452,271	- 392,619	1,887,484
Income tax benefits	KRW Million	- 413,028	- 420,440	473,836
Net profit (Loss)	KRW Million	- 39,243	27,820	1,413,648
Other comprehensive income (Loss)	KRW Million	42,104	270,022	419,171
Other comprehensive income not to be reclassified to profit or loss in subsequent periods	KRW Million	- 4,258	60,553	88,821
Remeasurements of defined benefit plans	KRW Million	- 29,221	38,949	18,678
Gain (loss) on valuation of financial assets at FVOCI	KRW Million	54,604	- 51,332	14,353
Retained earnings in equity method	KRW Million	- 24,299	14,280	- 4,843
Foreign currency translation of foreign operations	KRW Million	- 1,231	56,364	72,453
Equity adjustments using equity method	KRW Million	- 330	- 240	- 4,478
Tax effects	KRW Million	- 3,781	2,533	- 7,343
Other comprehensive income to be reclassified to profit or loss in subsequent periods	KRW Million	46,362	209,468	330,350
Gain (loss) on valuation of derivative financial instruments	KRW Million	20,215	- 37,174	2,619
Foreign currency translation of foreign operations	KRW Million	1,765	188,892	258,019
Equity adjustments using equity method	KRW Million	24,306	44,448	92,317
Tax effects	KRW Million	76	13,302	- 22,605
Total comprehensive income	KRW Million	2,861	297,842	1,832,819
Profit (loss) attributable to:	KRW Million	-	-	-
Owners of the Parent Company	KRW Million	- 50,043	61,594	1,333,701
Non-controlling interests	KRW Million	10,800	- 33,773	79,947
Total comprehensive income attributable to:	KRW Million	-	-	-
Owners of the Parent Company	KRW Million	- 5,306	279,627	1,680,398
Non-controlling interests	KRW Million	8,166	18,215	152,421
Earnings per share				
Basic earnings per share	KRW/share	- 1,199	1,802	38,911
Diluted earnings per share	KRW/share	- 1,199	1,802	38,911

ESG Data_

General and Economic Data

Reporting Period and Cycle

Indicator	Unit	2023	2022	2021	Notes
Cumulative number of ESG Report publications ¹⁾	Times	17	16	15	
No. of disclosures of tentative sales performance, sales performance forecasts, future business management plan	Times	4	4	4	

1) The data has been published since 2007, and was published under 'ESG Report' until 2021.

Economic value generation and distribution

Indicator	Category	Unit	2023	2022	2021	Notes
Economic value	Cost of operations	KRW 100 Million	193,783	222,753	158,758	Operating expenses (COGS+SG&A) – Distribution to employees
distribution	Employee	KRW 100 Million	9,158	7,634	7,090	Salary, retirement benefits, welfare benefits
	Shareholder and investor_Dividend	KRW 100 Million	1,476	1,190	2,845	
	Shareholder and investor_Interest expense	KRW 100 Million	3,789	1,499	852	
	Government_Corporate tax	KRW 100 Million	-4,130	-4,204	4,738	
	Local Community_Donations	KRW 100 Million	89	123	79	
	Total	KRW 100 Million	204,165	228,994	174,362	Calculated based on GRI 201-1 Direct economic value generated and distributed standards

※ Based on Main Financial Statements

Government financial support

Indicator	Unit	2023	2022	2021	Notes
Tax exemption and deduction	KRW Million	1,378	912	419	
Aid for research and development	KRW Million	2,322	388	158	Participation in state projects

※ Based on Main Financial Statements

ESG Data_

Environment

GHG emission target

Indicator	Category	Unit	2023	2022	2021	Notes
Annual GHG emission target	Total	tCO ₂ eq	6,280,000	6,563,035		Annual GHG emission targets first established in 2022
No. of projects on GHG reductions	Total	Number	54	58	54	3.5% reduction in emissions compared to the 2023 target
Percentage of emissions covered under emissions-limiting regulations		%	100	100	100	

Direct GHG (Scope 1) emissions

Indicator	Category	Unit	2023	2022	2021	Notes
Direct GHG (Scope 1) emissions _by business site	Yeosu Plant (Basic Chemicals)	tCO ₂ eq	1,952,867	2,013,057	2,343,845	Scope of calculation : All domestic business sites
	Yeosu Plant (Advanced Materials)	tCO ₂ eq	52,387	47,145	49,689	
	Daesan Plant	tCO ₂ eq	1,449,663	1,627,125	1,557,656	
	Ulsan Plant	tCO ₂ eq	438,901	496,537	507,390	
	Other	tCO ₂ eq	3,047	3,532	2,936	
Direct GHG (Scope 1) emissions _by stationary combustion	Total	tCO ₂ eq	3,896,865	4,187,396	4,461,515	Calculated based on the GHG Protocol, only three substances are emitted
	CO ₂	tCO ₂ eq	3,860,091	4,152,424	4,452,688	
	N ₂ O	tCO ₂ eq	3,555	4,144	4,519	
	CH ₄	tCO ₂ eq	33,219	30,821	4,302	
	Total	tCO ₂ eq	3,896,865	4,187,396	4,461,515	

Indirect GHG (Scope 2) emissions

Indicator	Category	Unit	2023	2022	2021	Notes
Indirect GHG (Scope 2) emissions	Yeosu Plant (Basic Chemicals)	tCO ₂ eq	864,644	790,059	777,471	Scope of calculation : All domestic business sites
	Yeosu Plant (Advanced Materials)	tCO ₂ eq	348,185	330,000	339,791	
	Daesan Plant	tCO ₂ eq	693,876	644,813	737,431	
	Ulsan Plant	tCO ₂ eq	242,131	252,140	233,828	
	Other	tCO ₂ eq	10,370	10,254	9,645	
	Total	tCO ₂ eq	2,159,205	2,027,266	2,098,166	

Direct and indirect GHG emissions

Indicator	Unit	2023	2022	2021	Notes
Total	tCO ₂ eq	6,056,066	6,214,656	6,559,675	
Scope 1, Scope2 GHG intensity	tCO ₂ eq/KRW Billion	304	279	362	Intensity based on main financial statements

※ The data is based on the 2021/2022 final Emission Report, the first 2023 Emission Report and aggregated values and totals may differ

ESG Data_
EnvironmentOther indirect GHG (Scope3)
emissions

Indicator	Unit	2023	2022	2021	Notes
Scope 3 emissions	tCO ₂ eq		11,587,948	8,856,011	Calculation of Scope 3 categories (refer to p.43 of this report) Due to the range of statistical metrics, aggregation of category details, etc. required to calculate Scope 3 data, the calculation of 2022 Scope 3 emissions is calculated in 2023.
Scope 3 GHG intensity	tCO ₂ eq/KRW Billion		520	489	

GHG Sales

Indicator	Unit	2023	2022	2021	Notes
GHG sales	tCO ₂ eq	127,663	137,266	161,343	

Energy consumption within
the organization

Indicator	Category	Unit	2023	2022	2021	Notes
Total energy consumption	Yeosu Plant (Basic Chemicals)	TJ	55,548	52,520	60,514	Unified energy units based on the government's Emission Report (MWh → TJ)
	Yeosu Plant (Advanced Materials)	TJ	7,013	6,675	7,010	
	Daesan Plant	TJ	44,511	46,437	45,863	
	Ulsan Plant	TJ	11,412	12,788	12,357	
	Other ¹⁾	TJ	281	280	257	
	Total	TJ	118,765	118,700	126,001	
Total consumption of non-renewable energy	Fuel	TJ	78,697	81,116	87,311	
	Electricity	TJ	24,960	23,176	24,299	
	Steam	TJ	15,102	14,408	14,391	
	Total	TJ	118,759	118,700	126,001	
Percentage of renewable energy use		TJ/%	6TJ/0.01 or less	-	-	

1) Seoul Headquarters, Uiwang Office, LOTTE Chemical R&D Center, Innovation Center, Daegu Water Treatment Plant, Incheon Plant, etc.

※ Data of Incheon Plant is reflected starting from 2023

Energy Production

Indicator	Unit	2023	2022	2021	Notes
Total self-generated energy	TJ	10,988	9,336	16,924	

ESG Data_
Environment

Water-related risk

Indicator	Category	Unit	2023	2022	2021	Notes
Management of water-related risks and opportunities	Business sites located at water-stressed regions	Number	10 ¹⁾	9	9	

1) Data of Incheon Plant was added

Water withdrawal

Indicator	Category	Unit	2023	2022	2021	Notes	
Total amount of water withdrawal	Yeosu Plant (Basic Chemicals)	1,000 tons	20,664	19,928	22,797		
	Yeosu Plant (Advanced Materials)	1,000 tons	2,217	2,826	2,972		
	Daesan Plant	1,000 tons	11,988	12,740	12,653		
	Ulsan Plant	1,000 tons	7,736	8,329	8,133		
	Other ¹⁾	1,000 tons	86	97	87		Calculation method redefined
	Total	1,000 tons	42,692	43,920	46,642		
	Water withdrawal intensity	1,000 tons/KRW Billion	2.14	1.97	2.57		
	Ratio of water withdrawal at water-stressed regions	1,000 tons	100	100	100		
Amount of water withdrawal by water source	Third-party industrial water	1,000 tons	42,681	43,905	46,621	Calculation method redefined	
	Underground water ²⁾	1,000 tons	11	15	21		

1) Seoul Headquarters, Uiwang Office, LOTTE Chemical R&D Center, Innovation Center, Daegu Water Treatment Plant, Incheon Plant, etc.

2) Ulsan Plant

Water consumption

Indicator	Category	Unit	2023	2022	2021	Notes
Total water consumption ¹⁾	Yeosu Plant (Basic Chemicals)	1,000 tons	17,036	16,461	19,017	Calculation method redefined and standardized across business sites
	Yeosu Plant (Advanced Materials)	1,000 tons	398	805	641	
	Daesan Plant	1,000 tons	9,195	10,287	9,967	
	Ulsan Plant	1,000 tons	3,467	3,488	3,845	
	Other	1,000 tons	71	77	68	
	Total	1,000 tons	30,168	31,118	33,537	
Total water recycled	Water consumption Intensity	1,000 tons/KRW Billion	1.51	1.40	1.85	Calculation method redefined and standardized across business sites
	Yeosu Plant (Basic Chemicals)	1,000 tons	160	105	108	
	Yeosu Plant (Advanced Materials)	1,000 tons	1,598	903	1,081	
	Total	1,000 tons	1,758	1,008	1,189	

1) Calculation method redefined to the amount of water withdrawal - amount of wastewater discharged

ESG Data_
Environment

Wastewater discharge

Indicator	Category	Unit	2023	2022	2021	Notes
Total wastewater discharge	Yeosu Plant (Basic Chemicals)	1,000 tons	3,628	3,467	3,780	Calculation method redefined and standardized across business sites
	Yeosu Plant (Advanced Materials)	1,000 tons	1,819	2,021	2,331	
	Daesan Plant	1,000 tons	2,793	2,453	2,686	
	Ulsan Plant	1,000 tons	4,269	4,841	4,288	
	Other ¹⁾	1,000 tons	15	20	19	
	Total	1,000 tons	12,524	12,802	13,105	
Treatment amount in final wastewater discharge		1,000 tons	12,524	12,802	13,105	Calculation method redefined and standardized across business sites
Total wastewater discharge to water-stressed regions		1,000 tons	12,524	12,802	13,105	
Total amount of pollutants discharged during wastewater discharge		Tons	932	1,110	1,128	Calculation method redefined and standardized across business sites

1) Daegu Water Treatment Plant, LOTTE Chemical R&D Center

Water Pollutant Emissions

Indicator	Category	Unit	2023	2022	2021	Notes
TOC/COD ¹⁾	Yeosu Plant (Basic Chemicals)	Tons	196	323	360	Calculation method redefined
	Yeosu Plant (Advanced Materials)	Tons	165	79	93	
	Daesan Plant	Tons	36	29	54	
	Ulsan Plant	Tons	65	96	71	
	Other ²⁾	Tons	0	0	0	
	Total	Tons	461	527	578	
SS	Yeosu Plant (Basic Chemicals)	Tons	170	273	257	Calculation method redefined
	Yeosu Plant (Advanced Materials)	Tons	63	11	19	
	Daesan Plant	Tons	5	4	8	
	Ulsan Plant	Tons	34	61	42	
	Other	Tons	0	0	0	
	Total	Tons	272	349	326	
BOD	Yeosu Plant (Basic Chemicals)	Tons	149	207	163	Calculation method redefined
	Yeosu Plant (Advanced Materials)	Tons	30	6	44	
	Daesan Plant	Tons	7	2	5	
	Ulsan Plant	Tons	7	12	12	
	Other	Tons	0	0	0	
	Total	Tons	193	227	225	

1) COD data measured from 2021, TOC data from 2022

2) Daegu Water Treatment Plant, LOTTE Chemical R&D Center

ESG Data_
EnvironmentNOx, SOx and other major air
emissions

Indicator	Category	Unit	2023	2022	2021	Notes
NOx (nitrogen oxide) emissions	Yeosu Plant (Basic Chemicals)	Tons	1,474	2,313	3,055	Calculation method redefined
	Yeosu Plant (Advanced Materials)	Tons	41	38	38	
	Daesan Plant	Tons	2,424	4,295	4,703	
	Ulsan Plant	Tons	242	303	384	
	Other ¹⁾	Tons	3	3	3	
	Total	Tons	4,184	6,953	8,184	
	Intensity	Ton/KRW 100 million	2.10	3.12	4.52	
SOx (sulfur oxide) emissions	Yeosu Plant (Basic Chemicals)	Tons	25	33	45	Calculation method redefined
	Yeosu Plant (Advanced Materials)	Tons	5	7	7	
	Daesan Plant	Tons	17	16	15	
	Ulsan Plant	Tons	104	123	145	
	Other ¹⁾	Tons	0	0	0	
	Total	Tons	151	180	211	
	Intensity	Ton/KRW 100 million	0.08	0.08	0.12	
PM (particulate matter) emissions	Yeosu Plant (Basic Chemicals)	Tons	31	16	52	Calculation method redefined
	Yeosu Plant (Advanced Materials)	Tons	11	8	12	
	Daesan Plant	Tons	22	24	18	
	Ulsan Plant	Tons	7	6	8	
	Other ¹⁾	Tons	1	1	1	
	Total	Tons	72	55	91	
VOC (volatile organic compounds) emissions	Yeosu Plant (Basic Chemicals)	Tons	47	69	87	Corrected errors from manual aggregation
	Yeosu Plant (Advanced Materials)	Tons	28	23	22	
	Daesan Plant	Tons	79	24	22	
	Ulsan Plant	Tons	12	17	15	
	Total	Tons	167	133	145	
HAPs (hazardous air pollutants) emissions	Yeosu Plant (Basic Chemicals)	Tons	31	24	26	Corrected errors from manual aggregation
	Yeosu Plant (Advanced Materials)	Tons	28	23	20	
	Daesan Plant	Tons	33	17	14	
	Ulsan Plant	Tons	12	9	9	
	Total	Tons	105	72	69	

1) Uiwang Office, Daegu Water Treatment Plant, LOTTE Chemical R&D Center

ESG Data_
EnvironmentEmissions of ozone-depleting
substances

Indicator	Unit	2023	2022	2021	Notes
Amount of production	Tons	-	-	-	
Amount of substances inflow	Tons	4.7	15.0	15.7	
Amount of substances outflow	Tons	-	6.2	1.3	

Waste discharge and recycling

Indicator	Category	Unit	2023	2022	2021	Notes
Waste discharge by business site	Yeosu Plant(Basic Chemicals)	Tons	33,140	36,270	32,735	Calculation method redefined
	Yeosu Plant(Advanced Materials)	Tons	33,751	35,007	37,103	
	Daesan Plant	Tons	19,182	18,358	24,927	
	Ulsan Plant	Tons	17,187	19,610	19,861	
	Other ¹⁾	Tons	2,171	2,540	2,428	
	Total	Tons	105,431	111,786	117,053	
Intensity of waste discharge ²⁾		Ton/KRW Billion	5.29	5.02	6.46	Calculation method redefined
Designated waste discharge by business site	Yeosu Plant (Basic Chemicals)	Tons	18,421	22,623	19,084	Calculation method redefined
	Yeosu Plant (Advanced Materials)	Tons	2,510	2,077	2,635	
	Daesan Plant	Tons	14,878	11,851	14,312	
	Ulsan Plant	Tons	886	1,079	513	
	Other	Tons	1,125	1,517	1,271	
	Total	Tons	37,820	39,147	37,815	
General waste discharge by business site	Yeosu Plant (Basic Chemicals)	Tons	14,719	13,647	13,651	Calculation method redefined
	Yeosu Plant (Advanced Materials)	Tons	31,241	32,930	34,468	
	Daesan Plant	Tons	4,304	6,507	10,615	
	Ulsan Plant	Tons	16,300	18,532	19,348	
	Other	Tons	1,047	1,023	1,157	
	Total	Tons	67,611	72,639	79,239	
Waste recycling and treatment	Total weight of waste recycled	Tons	90,622	94,348	93,711	Calculation method redefined
	Percentage of total waste recycled	%	86.6	84.4	80.1	
	Total waste to landfill	Tons	5,199	7,308	10,515	
	Total waste incinerated	Tons	9,392	9,934	12,580	
	Waste treated in other or unknown methods	Tons	219	197	248	

1) R&D Center, pilot plants, office operations (Seoul headquarters, Uiwang Office, LOTTE Chemical R&D Center, etc.)

2) Intensity based on main financial statements

ESG Data_
Environment

Direct waste disposal

Indicator	Category	Unit	2023	2022	2021	Notes
Designated waste treated	Landfill	Tons	575	703	499	
	Incineration	Tons	4,475	4,736	4,810	Calculation method redefined
	Other	Tons	10	34	38	
General waste treated	Landfill	Tons	4,556	6,605	10,016	
	Incineration	Tons	4,935	5,198	7,769	Calculation method redefined
	Other	Tons	208	163	210	
Total designated waste and general waste treated			14,758	17,438	23,342	Calculation method redefined

Hazardous chemicals

Indicator	Unit	2023	2022	2021	Notes
Consumption	Tons	2,247,222 ¹⁾	2,425,652	2,341,406	Corrected errors from manual aggregation
Discharge	Tons	48,445	43,415	38,693	Corrected errors from manual aggregation

1) Due to the difference in reporting periods, 2023 consumption is based on the 2022 consumption of Yeosu Plant (Advanced Materials), and the final consumption was confirmed in August 2024 under the Chemical Substances Control Act

Product life cycle assessment
(LCA)

Indicator	Unit	2023	2022	2021	Notes
No. of products LCA conducted	Number	231	203	71	
No. of products being sold	Number	2,044	1,781	1,319	
Percentage of products with LCA among total products	%	11.3	11.4	5.4	Corrected errors from manual aggregation

Environmental technology
developments and investments

Indicator	Category	Unit	2023	2022	2021	Notes
No. of patented clean technology		Number	244	240	232	
Eco-friendly investment expenditure		KRW Million	210,972	156,847	98,288	
Ownership and ratio of zero-emission vehicles	No. of zero-emission vehicles	Number	12	9	6	
	Total no. of vehicles	Number	197	172	158	Electric and hydrogen-fueled vehicles
	Percentage of zero-emission vehicles	%	6.1	5.2	3.8	

ESG Data_ Environment

Chemical substance management

Indicator	Category	Unit	2023	2022	2021	Notes
Ratio of products that contain Globally Harmonized System (GHS) of Classification and Labelling of Chemicals Category 1 and 2 Health and Environmental Hazardous substances	No. of products that contain such substances	Number	203	179	-	
	Percentage of products that contain such substances	%	9.9	10.1	-	Calculation method redefined
	Percentage of such products that have undergone a hazard assessment ¹⁾	%	33.0	32.4	-	

※ Data counted from 2022

1) In 2022, the calculation is based on the number of products that have completed our internal full product hazard assessment. However, from 2023, the calculation methods were redefined to count the number of products completed hazard assessments based on those registered or exempted under the Korean Act On Registration And Evaluation Of Chemical Substances

Purchases of eco-friendly products and services

Indicator	Unit	2023	2022	2021	Notes
Eco-friendly purchasing performance	KRW Million	61,750	67,691	49,177	Calculation method redefined and standardized across business sites

※ Data reflected the purchase amount of recycled materials

ESG Data_

Social

Risk assessment

Indicator	Category	Unit	2023	2022	2021	Notes
No. of times occupational health and safety management procedure were taken	Regular processes	Times	8	8	8	
	Irregular processes	Times	489	283	39	
	Total	Times	497	291	47	
Business sites where occupational health and safety management procedure were taken		Number	8	8	8	

Occupational health and safety management system

Indicator	Unit	2023	2022	2021	Notes
Business sites acquiring ISO 45001 (health and safety management system certification)	Number	8	8	8	
No. of employees represented through the occupational health and safety management system	Persons	4,640	4,488	4,464	Employees working at workplaces where the Health and Safety Committee is established
Total percentage of employees represented through the occupational health and safety management system	%	93.5	94.8	96.0	Calculation method redefined

Workers subject to the occupational health and safety management system

Indicator	Category	Unit	2023	2022	2021	Notes
Employees	Percentage of workers subject to the system	%	100	100	100	
Partner companies	Percentage of workers subject to the system	%	100	100	100	

Work-related injuries

Indicator	Category	Unit	2023	2022	2021	Notes
Employees	No. of industrial accidents	Cases	3	4	6	No. of industrial accidents : Corrected errors from manual aggregation No. of recordable injuries, LTIFR, TRIR : Calculation method redefined
	No. of deaths due to work-related injuries	Cases	-	-	-	
	No. of serious work-related injuries	Cases	-	-	-	
	No. of recordable injuries	Cases	3	4	7	
	Lost Time Injury Frequency Rate (LTIFR)	No. of cases per 1 million working hours	0.32	0.44	0.79	
	Total Recordable Incident Rate (TRIR)	No. of cases per 200,000 working hours	0.06	0.08	0.15	
Partner companies	No. of deaths due to work-related injuries	Cases	-	-	-	LTIFR, TRIR : Calculation method redefined
	No. of serious work-related injuries	Cases	-	-	-	
	No. of recordable injuries	Cases	1	4	3	
	Lost Time Injury Frequency Rate (LTIFR)	No. of cases per 1 million working hours	0.20	0.86	0.69	
	Total Recordable Incident Rate (TRIR)	No. of cases per 200,000 working hours	0.04	0.17	0.13	

ESG Data_
 Social

Work-related illnesses

Indicator	Category	Unit	2023	2022	2021	Notes
Employees	No. of deaths due to illness	Cases	-	-	-	
	No. of recordable cases of work-related illnesses	Cases	-	-	-	
Partner companies	No. of deaths due to illness	Cases	-	-	-	
	No. of recordable cases of work-related illnesses	Cases	-	-	-	

Lost Time Injury Rate (LTIR)

Indicator	Category	Unit	2023	2022	2021	Notes
Employees	Annual LTIR target	No. of cases per 200,000 working hours	0.07	0.08	-	Joint target for 2022
	LTIR		0.06	0.08	0.15	
Partner companies	Annual LTIR target	No. of cases per 200,000 working hours	0.07	0.08	-	Joint target for 2022
	LTIR		0.04	0.17	0.13	

Transport incidents

Indicator	Unit	2023	2022	2021	Notes
No. of transport incidents	Cases	-	-	-	

Process safety incidents

Indicator	Unit	2023	2022	2021	Notes
Process safety incident count(PSIC)	Cases	-	0	3	
Process safety total incident rate(PSTIR)	No. of cases per 200,000 working hours	-	-	0.04	Calculation method redefined

Health and safety impact
 assessment in product and service
 categories

Indicator	Unit	2023	2022	2021	Notes
Percentage of products that have had a health and safety impact assessments for improvement purposes	%	100	100	100	

ESG Data_
Social

Employees

Indicator	Category	Unit	2023	2022	2021	Notes
Male	Permanent_Manager (Executive)	Persons	100	103	93	
	Permanent_Manager (Management-level)	Persons	1,178	1,167	1,139	
	Permanent_Staff (Admin./ Managerial)	Persons	526	500	511	
	Permanent_Staff (Production/Other)	Persons	2,183	2,054	2,045	
	Contract_Staff (full-time)	Persons	150	113	112	
	Contract_Staff (part-time)	Persons	29	22	16	
	Subtotal	Persons	4,166	3,959	3,916	
Female	Permanent_Manager (Executive)	Persons	3	3	4	
	Permanent_Manager (Management-level)	Persons	267	235	207	
	Permanent_Staff (Admin./ Managerial)	Persons	254	270	269	
	Permanent_Staff (Production/Other)	Persons	237	227	218	Calculation method redefined (Including domestic and overseas workers)
	Contract_Staff (full-time)	Persons	19	22	25	
	Contract_Staff (part-time)	Persons	16	16	12	
	Subtotal	Persons	796	773	735	
Total employees	Total	Persons	4,962	4,732	4,651	
Permanent_Employees	Male	Persons	3,987	3,824	3,788	
	Female	Persons	761	735	698	
Contract_Employees	Male	Persons	179	135	128	
	Female	Persons	35	38	37	
Percentage of female among all employees		%	16.0	16.3	15.8	
Percentage of female in all manager positions		%	17.4	15.9	14.6	
Average tenure of total employees		Years	13.8	14.2	14.6	Corrected errors from manual aggregation

Employee New Hires

Indicator	Category	Unit	2023	2022	2021	Notes
Male	Manager (Executive)	Persons	2	3	2	
	Manager (Management-level)	Persons	26	38	20	
	Staff (Admin./ Managerial)	Persons	119	118	120	
	Staff (Production/Other)	Persons	346	205	252	
Female	Manager (Executive)	Persons	0	0	1	Corrected errors from manual aggregation
	Manager (Management-level)	Persons	4	8	4	
	Staff (Admin./ Managerial)	Persons	46	65	55	
	Staff (Production/Other)	Persons	18	21	15	
Total		Persons	561	458	469	
No. of new hires per minority group	Employees with disabilities	Persons	23	13	16	Calculation method redefined
Recruiting expenses		KRW Million	1,097	1,295	437	

ESG Data_
Social

Employee turnover

Indicator	Category	Unit	2023	2022	2021	Notes
Male	Manager (Executive) Voluntary turnover	Persons	5	3	6	
	Manager (Executive) Non-Voluntary turnover	Persons	6	12	9	
	Manager (Management-level) Voluntary turnover	Persons	35	45	29	
	Manager (Management-level) Non-Voluntary turnover	Persons	20	20	15	
	Staff (Admin./Managerial) Voluntary turnover	Persons	39	66	58	
	Staff (Admin./Managerial) Non-Voluntary turnover	Persons	2	0	0	
	Staff (Production/Other) Voluntary turnover	Persons	74	105	55	
	Staff (Production/Other) Non-Voluntary turnover	Persons	93	77	92	
	Subtotal		274	328	264	
Female	Manager (Executive) Voluntary turnover	Persons	0	0	0	Corrected errors from manual aggregation
	Manager (Executive) Non-Voluntary turnover	Persons	0	0	1	
	Manager (Management-level) Voluntary turnover	Persons	3	13	7	
	Manager (Management-level) Non-Voluntary turnover	Persons	2	0	2	
	Staff (Admin./Managerial) Voluntary turnover	Persons	21	32	13	
	Staff (Admin./Managerial) Non-Voluntary turnover	Persons	0	0	0	
	Staff (Production/Other) Voluntary turnover	Persons	6	9	3	
	Staff (Production/Other) Non-Voluntary turnover	Persons	2	2	16	
	Subtotal	Persons	34	56	42	
Total	Persons	308	384	306		
Turnover rate	Male	%	6.6	8.3	6.7	
	Female	%	4.3	7.3	5.7	
	Total	%	6.2	8.1	6.6	

ESG Data_
Social

Parental leave

Indicator	Category	Unit	2023	2022	2021	Notes
No. of employees that were entitled to parental leave	Female	Persons	74	86	81	Calculation method redefined ※ In addition to the statutory parental leave system, the number of employees subject to/took the company's own parental leave system (secondary parental leave, caring parental leave, male parental leave) were included and recalculated
	Male	Persons	166	166	165	
	Subtotal	Persons	240	252	246	
No. of employees that took parental leave	Female	Persons	101	109	93	
	Male	Persons	133	120	118	
	Subtotal	Persons	234	229	211	
No. of employees that returned to work after parental leave ended	Female	Persons	62	63	51	
	Male	Persons	123	106	105	
	Subtotal	Persons	185	169	156	
Employees subject to return to work after parental leave		Persons	180	169	156	
Percentage of employees return to work after parental leave		%	103	100	100	
No. of employees retained 12 months after returning to work from parental leave	Female	Persons	63	58	44	
	Male	Persons	118	87	107	
	Subtotal	Persons	181	145	151	
No. of employees exited within 12 months after returning to work from parental leave	Female	Persons	2	2	2	
	Male	Persons	1	9	8	
Percentage of employees retained 12 months after returning to work from parental leave		%	98	93	94	

Average employee salary

Indicator	Unit	2023	2022	2021	Notes
Average employee salary	KRW Million	98	94	107	

Percentage of basic salary of female to male employees

Indicator	Unit	2023	2022	2021	Notes
Percentage of average salary of female to male employees	%	67.0	65.7	62.8	

Average hours of training and other related performance per employee

Indicator	Unit	2023	2022	2021	Notes
Average hours of training per employee	Hours	59	61	39	
Average training expenses per employee	KRW Million	1.3	1.7	0.7	

ESG Data_
SocialEmployee training on human
rights policies and procedures

Indicator	Unit	2023	2022	2021	Notes
No. of employees who completed training on human rights policies and procedures	Persons	4,962	4,732	4,651	
Percentage of employees who completed training on human rights policies and procedures	Persons	100	100	100	Calculation method redefined
Total hours of employee training on human rights policies and procedures	Hours	11,016	9,440	12,625	

Percentage of employees subject
to regular performance and
career development reviews

Indicator	Category	Unit	2023	2022	2021	Notes
No. of employees who performed MBO (Management by Objective) evaluations (Male)	Permanent_Manager (Executive)	Persons	100	103	93	
	Permanent_Manager (Management-level)	Persons	1,175	1,049	1,063	
	Permanent_Staff (Admin./ Managerial)	Persons	504	442	476	
No. of employees who performed MBO (Management by Objective) evaluations (Female)	Permanent_Staff (Production/Other)	Persons	124	116	103	
	Permanent_Manager (Executive)	Persons	3	3	4	
	Permanent_Manager (Management-level)	Persons	247	182	180	
Total	Permanent_Staff (Admin./ Managerial)	Persons	234	220	236	
	Permanent_Staff (Production/Other)	Persons	34	27	29	
Total		Persons	2,421	2,142	2,184	Corrected errors from manual aggregation

Employee regular performance
and career development feedback

Indicator	Category	Unit	2023	2022	2021	Notes
No. of employees who carried out multifaceted feedback (Male)	Permanent_Manager (Executive)	Persons	100	103	93	
	Permanent_Manager (Management-level)	Persons	1,168	1,038	1,055	
	Permanent_Staff (Admin./ Managerial)	Persons	-	300	326	
	Permanent_Staff (Production/Other)	Persons	11	91	5	
No. of employees who carried out multifaceted feedback (Female)	Permanent_Manager (Executive)	Persons	3	3	4	
	Permanent_Manager (Management-level)	Persons	247	182	179	
	Permanent_Staff (Admin./ Managerial)	Persons	-	133	140	
	Permanent_Staff (Production/Other)	Persons	7	12	11	
Total		Persons	1,536	1,862	1,813	Corrected errors from manual aggregation ※ Multi-faceted performance targets were reduced due to evaluation system changes

Labor-management relations

Indicator	Unit	2023	2022	2021	Notes
No. of labor union members	Persons	2,026	1,921	1,723	
Labor union membership rate	%	40.8	40.6	37.0	Calculation method redefined

ESG Data_
Social

Welfare benefit expenses

Indicator	Unit	2023	2022	2021	Notes
Welfare benefit expenses	KRW Million	101,073	101,405	87,176	

Collective bargaining

Indicator	Unit	2023	2022	2021	Notes
No. of employees subject to collective bargaining	Persons	2,026	1,921	1,723	Calculation method redefined
Percentage of employees subject to collective bargaining	%	40.8	40.6	37.0	

Information security
management system

Indicator	Unit	2023	2022	2021	Notes
No. of executives responsible for information security	Persons	1	1	1	
Frequency of cyberattack response system testing	Times	12	12	12	
Frequency of audits on information security policies and system	Times	2	2	2	

Confirmed cases of complaints
regarding breaches of customer
privacy and loss of customer
personal data

Indicator	Unit	2023	2022	2021	Notes
No. of breaches of customer privacy	Cases	-	-	-	
No. of complaints regarding confirmed breaches of customer privacy	Cases	-	-	-	
No. of issues occurred in relation to information security	Cases	-	-	-	

Spending on local community
engagement and
contribution activities

Indicator	Category	Unit	2023	2022	2021	Notes
Donation value	Voluntary donations	KRW Million	2,340	3,264	2,122	
(by activity type)	Investments in local communities	KRW Million	3,975	8,261	5,930	
Donation value	Total amount of monetary donations	KRW Million	5,554	10,796	7,288	
(by spending type)	Total amount of in-kind donations	KRW Million	761	729	764	
Total		KRW Million	6,315	11,525	8,052	Data recalculation and correction to error in previous year's data (error occurred in monetary / in-kind donations)
Active hours		Hours	3,874	3,518	3,594	
Indirect costs		KRW Million	45	28	25	

ESG Data_
Social

Suppliers of the organization

Indicator	Category	Unit	2023	2022	2021	Notes
Total no. of suppliers				2,406		
No. of key suppliers	Total no. of key suppliers			349		
	No. of key Tier 1 suppliers			46		
	No. of key Tier 2 suppliers			303		
	No. of key Tier 3 suppliers					
Percentage of purchasing amount in total purchases	Key Tier1	%		75.6		
	Key Tier2	%		17.9		
	Key Tier3	%		6.5		

※ Total number of suppliers and tiers were determined based on 2022 purchasing performance while supply chain assessment was held for 2023
 ※ Tiers and percentage of purchasing amount will be determined in 2024 based on 2023 performance

Supply chain sustainability
management

Indicator	Unit	2023	2022	2021	Notes
No. of suppliers trained on sustainable procurement	Number	166	88	-	Calculation method redefined
Training record on Code of Conduct / Anti-Corruption / Fair Trade	Number	34	10	-	

Percentage of local sourcing at
key business regions

Indicator	Category	Unit	2023	2022	2021	Notes
Percentage of local sourcing at key business regions	Total purchase value	KRW Million	7,893,215	9,773,808	8,526,852	
	Amount of local purchases	KRW Million	4,707,809	4,931,520	4,605,003	
	Percentage of local purchases	%	59.6	50.5	54.0	

※ Key raw materials such as naphtha, etc. are included. When imports are purchased by entities other than LOTTE Chemical (domestic subsidiaries, specialized distributors, etc.) after completing the domestic customs process, it is recognized as a domestic purchase

R&D expenditure

Indicator	Unit	2023	2022	2021	Notes
R&D expenditure	KRW Million	120,369	102,444	92,453	

Grievance handling mechanism

Indicator	Category	Unit	2023	2022	2021	Notes
No. of grievances submitted through official mechanisms and procedures	Supply Chain	Cases	3			
	Human Rights	Cases	1			
	Other	Cases	32	25	23	
No. of grievances addressed through official mechanisms and procedures	Supply Chain	Cases	3			
	Human Rights	Cases	1			Actions will be taken within 2024
	Other	Cases	31	25	23	

※ 2023 categories were recalculated, while 2021~2022 were calculated under the Others category

ESG Data_

Governance

Governance structure and composition (BOD and Committees)

Indicator	Category	Unit	2023	2022	2021	Notes
No. of board meetings		Times	11	13	11	
Tenure of BOD members	Shin Dong-bin	Years	31	30	29	
	Kim Gyo-hyun	Years	7	6	5	
	Lee Hun-ki	Years	-	2	1	Inside director Kim Gyo-hyun : Retired in December 2023
	Hwang Jin-koo	Years	3	2	1	Inside director Lee Hun-ki : Appointed in March 2024
	Lee Young-joon	Years	4	3	2	Inside director Seong Nak-sun : Appointed in March 2024
	Seong Nak-sun	Years	-	-	-	Outside director Choi Hyun-min : Retired in March 2024
	Choi Hyun-min	Years	4	3	2	Outside director Jeon Woon-bae : Retired in March 2024
	Jeon Woon-bae	Years	4	3	2	Outside director Kang Jeong-won : Retired in March 2024
	Kang Jeong-won	Years	4	3	2	
	Nam Hye-Jeong	Years	3	2	1	
	Cho Woon-haeng	Years	2	1	-	
	Cha Kyung-hwan	Years	1	-	-	
	Total no. of BOD directors	Male_Inside director	Persons	3	4	4
Female_Inside director		Persons	-	-	-	
Male_Outside director		Persons	5	4	5	
Female_Outside director		Persons	1	1	1	
Male_Non-executive director		Persons	-	1	1	
Female_Non-executive director		Persons	-	-	-	
Average tenure of members belonging to the top decision- making body and its committees (average BOD tenure)		Years	4	4	4	Based on outside directors
Percentage of outside directors within the board		%	66.7	50	54.5	
No. of long serving outside directors		Persons	-	-	-	Baseline: more than 6 years
No. of outside directors exceeding the legal minimum standard		Persons	-	-	-	
Percentage of long serving auditors or Audit Committee members		Persons	-	-	-	Baseline: more than 6 years
Percentage of non-audit services provided by external auditors		%	-	4	1	Payments for non-audit services such as consulting
No. of Outside Director Nomination Committee meetings convened		Times	1	1	1	
Percentage of outside directors within the Outside Director Nomination Committee		%	67	67	67	1 inside director, 2 outside directors
No. of Compensation Committee meetings convened		Times	2	3	4	
Percentage of outside directors within the Compensation Committee		%	100	100	100	All outside directors (3 people)
No. of Audit Committee meetings convened		Times	4	4	4	
Percentage of Audit Committee members that meet the requirements for accounting or financial experts according to law	No. of Audit Committee members that meet the requirements for accounting or financial experts according to laws	Persons	2	2	2	3 outside directors
No. of ESG Committee meetings convened		Times	4	6	1	

ESG Data
GovernanceAppointment and selection for
top governance body

Indicator	Unit	2023	2022	2021	Notes
No. of female registered directors who are not controlling shareholders and their relatives	Persons	1	1	1	
No. of executives who have a track record of undermining corporate value and shareholders' rights and interests	Persons	-	-	-	

Top governance body's role of
overseeing impact management

Indicator	Unit	2023	2022	2021	Notes
Frequency of key environmental management issues reported to the BOD	Times	2	2	-	
Frequency of management of impacts on the economy, environment, and people reported to the BOD	Times	6	6	1	
Frequency of climate issues being reported to the board	Times	1	6	1	

Communication on key items

Indicator	Unit	2023	2022	2021	Notes
Minimum notice date specified in the bylaws for notice of a BOD meeting	Days	1	1	1	
BOD average attendance rate	%	94	95	95	
Inside director average attendance rate	%	93	92	92	
Outside director average attendance rate	%	95	97	97	
Minimum required BOD attendance rate	%	75	75	75	

Annual total compensation rate

Indicator	Unit	2023	2022	2021	Notes
Annual total compensation for the organization's highest-paid individual	KRW Million	4,773	3,830	5,950	Based on highest-paid individual in the Business Report
Median value of total annual employee compensation	KRW Million	83	81	92	
Percentage of the annual total compensation for the organization's highest-paid individual to the median annual total compensation for all employees	%	1.7	2.1	1.5	

ESG Data
GovernanceCompany ownership and
operations (voting rights,
regulations on general
shareholder meetings, internal
trade)

Indicator	Category	Unit	2023	2022	2021	Notes
Total no. of shares	Stock ownership status by the executives	Shares	788	1,280	-	
	Stock ownership by majority shareholder and related parties	Shares	23,333,398	18,827,107	18,825,544	
	Equity ratio held by majority shareholder and related parties	%	54.6	54.9	54.9	
	Treasury stock ownership status	Shares	598,972	284,972	-	
	Equity ratio held by treasury stock	%	1.4	0.7	-	
	Shares held by employee stock ownership union	Shares	962,787	-	-	Employee stock ownership union was formed in 2023
	Equity ratio held by employee stock ownership union	%	2.3	-	-	
	Other_Ownership held by non-registered executives	Shares	2,405	2,959	205	
	Other_Ownership held by National Pension Service (NPS)	Shares	3,248,175	2,446,307	2,645,805	
	Other_Equity ratio held by NPS	%	7.6	7.1	7.7	
	Other_Ownership held by others	Shares	14,629,682	12,714,074	12,803,865	
	Total	Shares	42,775,419	34,275,419	34,275,419	
	No. of unfair insider trading	Cases	-	-	-	
No. of violations related to disclosure of insider trading	Cases	-	-	-		
No. of days prior to general shareholders meeting for notifying convening of meeting ¹⁾	Days	20	20	19		
Total equity ratio of the company held by subsidiaries	%	55	55	55		
Net profit before deduction of corporate tax	KRW Million	-452,271	-392,619	1,887,484		
Rate of shareholder return	Dividend	KRW Million	147,618	118,967	284,486	
	Dividend per share	KRW	3,500	3,500	8,300	
	Purchasing amount of treasury stock	KRW Million	49,974	49,728	-	
	Other shareholder returns	KRW Million	-	-	-	
	Net profit	KRW Million	-39,243	27,820	1,413,648	
	Shareholder return ratio	%	-504	606	20	

1) 2023: Notification was made on March 6th with the General Shareholder Meeting convened on March 26th

ESG Data_
GovernanceBusiness site corruption risk
assessment

Indicator	Unit	2023	2022	2021	Notes
Business sites assessed for corruption risks ¹⁾	Number	8	8	8	

1) Seoul Headquarters, Uiwang Office, Yeosu Plant (Basic Chemicals), Yeosu Plant (Advanced Materials), Daesan Plant, Ulsan Plant, LOTTE Chemical R&D Center, Daegu Plant

Notification and training on
anti-corruption policy and
procedures

Indicator	Category	Unit	2023	2022	2021	Notes
Notification rate on anti-corruption policy and procedures ¹⁾	BOD	%	100	100	100	
	Employee	%	100	100	100	
	Supplier	%	151	-	-	
Notifications on anti-corruption policies and procedures	Supplier	Number	3,641	2,348	2,301	
Anti-corruption education performance	BOD	Persons	3	3	-	
Percentage of Anti-corruption education		%	95	90	88	

1) Disclosure in internal system

Confirmed anti-corruption cases
and measures taken

Indicator	Unit	2023	2022	2021	Notes
Total no. of corruptions and bribery cases	Cases	5	5	2	
No. of supplier contracts terminated/non-renewed due to corruption and bribery	Cases	-	-	-	

Legal and regulatory compliance

Indicator	Category	Unit	2023	2022	2021	Notes
Total no. of legal/regulatory non-compliances (Environmental, Anti-Competitive Behaviour, Marketing Communications, Health & Safety, Labelling, Other)	Monetary sanctions	Cases	-	1	4	2021/2022 in Health and Safety, 2023 in Environmental
	Non-monetary sanctions	Cases	2	-	-	
	Warnings	Cases	-	-	1	
Total no. of legal/regulatory non-compliances (Environmental, Anti-Competitive Behaviour, Marketing Communications, Health & Safety, Labelling, Other)	Penalty	KRW Million	-	11	3	
	Fines, compensation, settlement	KRW Million	-	4	13.8	

※ Metrics for each area such as environment and safety are consolidated and disclosed

GRI Contents Index

Statement of use	LOTTE Chemical is in accordance with GRI Standards 2021 in our sustainability reporting for the period from January 1, 2023 to December 31, 2023.
GRI 1 used	GRI 1: Foundation 2021
Applicable GRI Sector Standards	Sector standards are not applicable as of the publishing date

	GRI Standard	Disclosure No.	Disclosure Indicators	Page	Reason for omission	Note
General Disclosures	GRI 2: General Disclosures 2021	2-1	Organization details	6~10		
		2-2	Entities included in the organization's sustainability reporting	2		
		2-3	Reporting period, frequency, and contact point	2		
		2-4	Restatements of information	114		
		2-5	External assurance	2, 146		
		2-6	Activities, value chain and other business relations	6~10		
		2-7	Employees	128		
		2-8	Workers who are not employees	Business Report p.672		
		2-9	Governance structure and composition	99~102, 134~135		
		2-10	Nomination and selection of the highest governance body	99, 101		
		2-11	Chair of the highest governance body	99		
		2-12	Role of highest governance body in overseeing the management of impacts	13~15		
		2-13	Delegation of responsibility for impact management impacts	14, 100, 135		
		2-14	Role of the highest governance body in sustainability reporting	14, 15, 135		
		2-15	Conflicts of interest	99, 101, 102		
		2-16	Communication of critical concerns	14, 100, 135		
		2-17	Collective knowledge of the highest governance body	101		
		2-18	Evaluation of the performance of the highest governance body	102		
		2-19	Remuneration policies	102, Business Report p.673~674		
		2-20	Process to determine remuneration	102		
		2-21	Annual total compensation ratio	135		
		2-22	Statement on sustainable development strategy	5		
		2-23	Policy commitments	13, 29, 36, 45, 49~50, 54~55, 63, 73, 76, 80, 82, 87, 96, 105, 106, 110		
		2-24	Embedding policy commitments	105		
		2-25	Processes to remediate negative impacts	103~104, 108		
		2-26	Mechanisms for seeking advice and raising concerns	108		
		2-27	Compliance with laws and regulations	137		
		2-28	Membership associations	115		
		2-29	Approach to stakeholder engagement	22		
		2-30	Collective bargaining agreements	71, 132		



	GRI Standard	Disclosure No.	Disclosure Indicators	Reporting Page	Reason for omission	Note
Material Topic & Topic Standards	GRI 3: Material Topics 2021	3-1	Process to determine material topics	23		
		3-2	List of material topics	24		
Material Topic 1 Climate change	GRI 3: Material Topics 2021	3-3	Management of material topics	25		
	GRI 201: Economic Performance	201-2	Financial implications and other risks and opportunities due to climate change	35~38		
	GRI 305: Emissions	305-1	Direct (Scope 1) GHG emissions	42, 118		
		305-2	Energy Indirect (Scope 2) GHG emissions	42, 118		
		305-3	Other indirect (Scope 3) GHG emissions	43, 119		
		305-4	GHG emissions intensity	118~119		
		305-5	Reduction of GHG emissions	42, 118		
		305-6	Emissions of ozone-depleting substances (ODS)	123		
305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	49, 51, 122				
Material Topic 2 Energy	GRI 3: Material Topics 2021	3-3	Management of material topics	25		
	GRI 302: Energy	302-1	Energy consumption within the organization	119		
		302-2	Energy consumption outside of the organization	43		
		302-3	Energy intensity	42		
		302-4	Reduction of energy consumption	42		
Material Topic 3 Pollutants (air/water/soil) and Waste	GRI 3: Material Topics 2021	3-3	Management of material topics	25		
	GRI 303: Water and Effluents	303-1	Interactions with water as a shared resource	49		
		303-2	Management of water discharge-related impacts	50		
		303-3	Water withdrawal	120		
		303-4	Water discharge	50, 121		
		303-5	Water consumption	120		
	GRI 306: Waste	306-1	Waste generation and significant waste-related impacts	50, 51		
		306-2	Management of significant waste-related impacts	50, 51		
		306-3	Waste generated	51, 123~124		
		306-4	Waste diverted from disposal	51, 123~124		
306-5		Waste directed to disposal	51, 123~124			
Material Topic 4 Hazardous Chemical Substances	GRI 3: Material Topics 2021	3-3	Management of material topics	25		
	SASB : Safety and Environmental Stewardship of Chemicals	RT-CH-410b.1(1)	Percentage of products that contain Globally Harmonised System of Classification and Labeling of Chemicals (GHS) Category 1 and 2 Health and Environmental Hazardous Substances	90, 125		
		RT-CH-410b.1(2)	Percentage of such products that have undergone a hazard assessment	90, 125		
Material Topic 5 Resource Circulation	GRI 3: Material Topics 2021	3-3	Management of material topics	25		
	GRI 301: Materials	301-2	Recycled input materials used	81, 125		
Material Topic 6 Environmental Impact of Products	GRI 3: Material Topics 2021	3-3	Management of material topics	25		
	GRI 302: Energy	302-5	Reductions in energy requirements of products and services	48		



Material Topic 7
Employee and Process
Safety

General Topics
General Topic standards

GRI Standard	Disclosure No.	Disclosure Indicators	Reporting Page	Reason for omission	Note	
GRI 3: Material Topics 2021	3-3	Management of material topics	25			
GRI 403 : Occupational Health and Safety	403-1	Occupational health and safety management system	55			
	403-2	Hazard identification, risk assessment, and incident investigation	56~58			
	403-3	Occupational health services	60~62			
	403-4	Worker participation, consultation and communication on occupational health and safety	54, 60			
	403-5	Worker training on occupational health and safety	61			
	403-6	Promotion of worker health	62			
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	62			
	403-8	Workers covered by an occupational health and safety management system	55, 126			
	403-9	Work-related injuries	126			
	403-10	Work-related ill health	127			
GRI 201: Economic Performance	201-1	Direct economic value generated and distributed	117			
	201-4	Financial assistance received from government	117			
	GRI 203 : Indirect Economic Impacts	203-1	Infrastructure investments and services supported	92, 93		
	GRI 204 : Procurement Practices	204-1	Proportion of spending on local suppliers	133		
GRI 205 : Anti-corruption	205-1	Operations assessed for risks related to corruption	111, 137			
	205-2	Communication and training about anti-corruption policies and procedures	109, 111, 137			
	205-3	Confirmed incidents of corruption and actions taken	108, 137			
GRI 206 : Anti-competitive Behavior	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	110, 111, 137			
GRI 401 : Employment	401-1	New employee hires and employee turnover	66, 128~129			
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	68			
	401-3	Parental leave	70, 130			
GRI 404 : Training and Education	404-1	Average hours of training per year per employee	130			
	404-2	Programs for upgrading employee skills and transition assistance programs	65			
	404-3	Percentage of employees receiving regular performance and career development reviews	131			
GRI 405 : Diversity and Equal Opportunity	405-1	Diversity of governance bodies and employees	99, 134			
	405-2	Ratio of basic salary and remuneration	130			
GRI 406 : Non-discrimination	406-1	Incidents of discrimination and corrective actions taken	133			
GRI 411 : Rights of Indigenous Peoples	411-1	Incidents of violations involving rights of indigenous peoples	-	No issues found among the reported grievances		
GRI 415 : Public Policy	415-1	Political contributions	Not reported as prohibited by Korean Law			
GRI 416 : Customer Health and Safety	416-1	Assessment of the health and safety impacts of product and service categories	127			
GRI 418 : Customer Privacy	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	132			



TCFD Index

Governance

	TCFD Recommendations	LOTTE Chemical's Response	Reporting Page
Governance	a) Describe the Board's oversight of climate-related risks and opportunities	LOTTE Chemical discusses and makes decisions on climate change response and energy savings targets and performance under the management and supervision of the BOD's ESG Committee. The ESG Committee is the highest decision-making body within the BOD, in charge of setting internal policies and targets to reduce fossil fuel dependency and promote the transition to a low-carbon economy. In addition, the committee receives reports on relevant matters to monitor carbon mitigation targets and performance at least twice a year and oversees financial decisions in the carbon mitigation process such as transitioning to renewable energy.	14, 35
	b) Describe management's role in assessing and managing climate-related risks and opportunities	LOTTE Chemical's Sustainability Committee composed of internal executives covers the management of overall ESG management initiatives including climate change and stakeholder risks as its key agenda. In addition, a separate Net-Zero Council equipped with relevant expertise has also been set up to review performance of carbon-neutrality initiatives and promote practical results by meeting on a quarterly basis to manage targets, discuss issues, and share best practices. The CEO has decision-making authority on executions for addressing climate issues, overseeing the ESG Management Division where overall environmental and climate issues are handled.	35
Strategy	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term	Considering the internal and external stakeholders and impact period (short-, medium-, and long-term), LOTTE Chemical identifies physical and transition risks related to climate change, and selects material risks and opportunities considering the company's business and value chain structure.	36~38
	b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning	LOTTE Chemical identified the qualitative potential financial impact of climate-related risks and opportunities and has built a response strategy. Going forward, the company plans to quantify potential financial impact in the order of its importance.	38
	c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario	LOTTE Chemical analyzed climate scenarios based on the International Energy Agency's (IEA) Net Zero 2050 (Below 1.5°C) scenario and built plans to pursue new clean energy businesses in hydrogen and ammonia production, purchase renewable energy, and recycle plastic, etc.	38
Risk Management	a) Describe the organization's processes for identifying and assessing climate-related risks	LOTTE Chemical conducted analysis on global standards, evaluation criteria, media, and leading group benchmarking to identify climate change risks and opportunities across the business, and is carrying out risk assessments including environmental, social, and financial impacts by reflecting and analyzing the opinions of stakeholders.	24, 36, 37
	b) Describe the organization's processes for managing climate-related risks	LOTTE Chemical reports risk response measures and strategies to the BOD's ESG Committee and to management, and establishes its final risk management process system according to management's decision.	14, 35
	c) Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organization's overall risk management	LOTTE Chemical reflects non-financial risks, including climate change, and operational and financial risks in the company's management decisions through the ESG Committee risk management governance.	35, 38, 103, 104
Metrics & Targets	a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process	LOTTE Chemical monitors the emission performance such as of Scope 1, stationary combustion emissions, Scope 2, and Scope 3, intensity and change rate of GHG emissions, GHG reductions, GHG sales volume, eco-friendly investment for environmental management, and percentage of zero-emission vehicles.	42~44, 118~119, 124
	b) Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks	Scope 1 : 3,896,861 tCO ₂ eq/ Scope 2 : 2,159,205 tCO ₂ eq/ Scope 3 : 11,587,948 tCO ₂ eq Related risks: Policy and regulatory risks (rise in credit purchasing costs due to the reinforced emissions trading system, rise in freight costs due to transition to a low-carbon transport market, weakened cost competitiveness due to global carbon tariff regulations, etc.), market risks (growing demand for low-carbon products, rise in raw material prices due to carbon regulations and carbon taxes in the supply chain), reputation risks (increased needs to adopt renewable energy)	37~38, 42~44, 118~119
	c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets	LOTTE Chemical developed plans to reduce GHG emissions by 25% by 2030 compared to peak levels in 2019, setting KPIs and making efforts to achieve this goal.	13, 25, 39, 42



SASB Index

	Topic	Unit	SASB Code	LOTTE Chemical's Response			Page	Note
				2023	2022	2021		
GHG Emissions	Gross global Scope 1 emissions	tCO ₂ eq	RT-CH-110a.1	3,896,865	4,187,396	4,461,515	44, 118	
	Percentage covered under emissions-limiting regulations	%	RT-CH-110a.1	100.0	100.0	100.0	118	
	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	-	RT-CH-110a.2	In place	In place	In place	25, 39, 42	Established Green Promise 2030 Net-zero roadmap
Air Quality	(1) NO _x (excluding N ₂ O)	Tons	RT-CH-120a.1	4,184	6,953	8,184	122	
	(2) SO _x	Tons	RT-CH-120a.1	151	180	211	122	
	(3) Volatile organic compounds (VOCs)*	Tons	RT-CH-120a.1	167	133	145	122	
	(4) Hazardous air pollutants (HAPs)	Tons	RT-CH-120a.1	105	72	69	122	
Energy Management	(1) Total energy consumed	TJ	RT-CH-130a.1	118,765	118,700	126,001	119	Total energy consumption of internal organizations
	(3) Percentage renewable	%	RT-CH-130a.1	0.01% 미만			119	
	(4) Total self-generated energy	TJ	RT-CH-130a.1	10,988	9,336	16,924	119	
Water Management	(1) Total water withdrawal	Thousand tons	RT-CH-140a.1	42,692	43,920	46,642	120	
	(2) Total water consumed	Thousand tons	RT-CH-140a.1	30,168	31,118	33,537	120	
	Number of incidents of non-compliance associated with water quality permits, standards, and regulations	Cases	RT-CH-140a.2	-	2	2		
	Description of water management risks and discussion of strategies and practices to mitigate those risks	-	RT-CH-140a.3	In place	In place	In place	49, 51	Water resource risk management
Hazardous Waste Management	Amount of hazardous waste generated	Tons	RT-CH-150a.1	37,820	39,147	37,815	123	Designated waste discharge
Community Relations	Discussion of engagement processes to manage risks and opportunities associated with community interests	-	RT-CH-210a.1	In place	In place	In place	47, 91~94	Resource circulation activities such as collecting plastic waste in local communities, management of the impacts on local communities
Workforce Health & Safety	(a) Total recordable incident rate (TRIR) of direct employees	No. of cases per 200,000 working hours	RT-CH-320a.1	0.06	0.08	0.15	126	
	(b) Total recordable incident rate (TRIR) of contract employees	No. of cases per 200,000 working hours	RT-CH-320a.1	0.04	0.17	0.13	126	
	(a) Fatality rate of direct employees	%	RT-CH-320a.2	-	-	-	126	
	(b) Fatality rate of contract employees	%	RT-CH-320a.2	-	-	-	126	
Safety & Environmental Stewardship of Chemicals	(1) Percentage of products that contain Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Category 1 and 2 Health and Environmental Hazardous Substances	%	RT-CH-410b.1	9.9	10.1	-	90, 125	
	(2) Percentage of such products that have undergone a hazard assessment	%	RT-CH-410b.1	33.0	32.4	-	90, 125	
Management of the Legal & Regulatory Environment	Discussion of corporate positions related to government regulations or policy proposals that address environmental and social factors affecting the industry	-	RT-CH-530a.1	In place	In place	In place	103~105	Analyzed regulatory risks and opportunities
Operational Safety, Emergency Preparedness & Response	Process Safety Incidents Count (PSIC)	Cases	RT-CH-540a.1	-	-	3	127	
	Process Safety Total Incident Rate (PSTIR)	No. of cases per 200,000 working hours	RT-CH-540a.1	-	-	0.04	127	
	No. of transport incidents	Cases	RT-CH-540a.2	-	-	-	127	



UN SDGs (Sustainable Development Goals) Commitment

LOTTE Chemical promotes activities in connection to the ESG management direction and UN Sustainable Development Goals, and seeks to join in achieving the UN SDGs which are the common goals of mankind.

	UN SDGs	LOTTE Chemical's Key Activities	Page
	Ensure healthy lives and promote well-being for all at all ages	<ul style="list-style-type: none"> • Group accident insurance • Programs for work-life balance • Mental health care 	68~70
	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	<ul style="list-style-type: none"> • Enhancing global competency education, talent nurturing program such as online education 	63~67
	Achieve gender equality and empower all women and girls	<ul style="list-style-type: none"> • Customized programs for women and children • Stipulation of anti-discrimination through enactment of Statement on Human Rights Management 	69
	Ensure availability and sustainable management of water and sanitation for all	<ul style="list-style-type: none"> • Reuse of process water, cleaning water, and firefighting water, and the identification of the degree of pollution of reused water • Operation of its own wastewater treatment plant (Daesan, Yeosu, Ulsan Plant) 	49, 50
	Ensure access to affordable, reliable, sustainable and modern energy for all	<ul style="list-style-type: none"> • Introduction of an energy management system • Use of renewable energy sources in business sites at home and abroad • Introduction of zero-emission vehicles • Launch of the hydrogen energy and battery material business group 	9, 38, 40, 41
	Ensure responsible consumption and production patterns	<ul style="list-style-type: none"> • Establishment and implementation of procurement policy for sustainable raw material • Compliance with responsible mineral regulations • Production of 1 million tons of recycled products • Recruitment for the 3rd term of Project LOOP social ventures • Obtainment of global sustainable materials certification 'ISCC PLUS' 	16~19, 47~48, 81, 94
	Take urgent action to combat climate change and its impacts	<ul style="list-style-type: none"> • Establishment of goals and action plan for 2030 carbon reduction and 2050 Net-Zero • Activities to reduce GHG emissions • Participation in CDP Climate Change information disclosure 	35~44
	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	<ul style="list-style-type: none"> • Implementation of ethical management • ISO 37301 certification and operation of the anti-corruption monitoring system • Compliance education and activities to eliminate risks 	106~112

Memberships

Korea Fair Competition Federation	Korea Chemicals Management Association	The Climate Group	Korea AEO Association
Korea Hydrogen Industry Association	Europe Petrochemical Association	Korea H2 Business Summit	Green Plastic Alliance
Hydrogen Convergence Alliance	Clean Ammonia Association	Korea Plastics Pipes Research Society	Korea Association for Intellectual Property Services
Korea Fire Safety Institute	Korea Electric Engineers Association	Korea Water Cluster Conference	The Korea Professional Engineer Association of Mould and Die
The Membrane Society of Korea	Federation of Korean Industries	Korea Enterprises Federation	Korea Petrochemical Industry Association
Korea Business Council for Sustainable Development	Korea Chemical Industry Council	Korea Chamber of Commerce and Industry	Korea Listed Companies Association
Korea Industrial Technology Association	Korea Responsible Care Council	Korea Specialty Chemical Industry Association	The Korean Institute of Chemical Engineers
Korea Productivity Center	The Polymer Society of Korea	Korea-Japan Economic Association	Korea International Trade Association
The National Academy of Engineering of Korea			



GHG Assurance Statement

Verification Target

Korean Foundation for Quality (hereinafter 'KFQ') has conducted a verification of Greenhouse Gas Emissions (hereinafter 'GHG Inventory') of KOTTE Chemical Corporation (hereinafter 'Company') for 2023.

Verification Scope

KFQ's verification covered on all facilities and emission sources under the operational control and organizational boundary of Company during 2023.

Verification Criteria

The verification process was based on [Rule for emission reporting and certification of greenhouse gas emission trading Scheme¹⁾], [Rules for verification of operating the greenhouse gas emission trading scheme²⁾] and 'ISO14064-3' for every applicable part.

1) Notification No. 2023-221 of Ministry of Environment

2) Notification No. 2021-112 of Ministry of Environment

Level of Assurance

The Verification has been planned and conducted a the 'Rules for verification of operating the greenhouse gas emission trading scheme', and the level of assurance for verification shall be satisfied as reasonable lever of assurance. And it was confirmed through and internal review whether the process before the verification was conducted effectively.

Verification Limitation

The verification shall contain the potential inherent limitation in the process of application of the verification criteria and methodology.

Verification Opinions

Regarding to the data of the Greenhouse Gas Emission Consumption from the report through the verification, KFQ provides our verification opinions as below;

- 1) The Inventory Report has been stated in accordance with "Rule for emission reporting and certification of greenhouse gas emission trading Scheme" and "ISO 14064-1".
- 2) The materiality assessment result of GHG emissions has satisfied the criteria for and organization that emits more than 5,000,000 tCO₂-eq by meeting less than 2% of the total emissions, as per "Rules for verification of operating the greenhouse gas emission trading scheme".
- 3) Thus, KFQ concludes that the Greenhouse Gas Emissions of Company in 2023 is correctly calculated and stated in accordance with "Rules for emission reporting and certification of greenhouse gas emission trading Scheme".

Unit: tCO₂eq

SCOPE 1 - 3,896,864.566

SCOPE 2 - 2,159,205.426

TOTAL - 6,056,066

*The totals in this verification statement do not match the totals in emission trading scheme because the total emissions of each facility are calculated by truncating to integer units

June 5th, 2024 CEO Ji-Young Song
Korean Foundation for Quality



Ji Young Song



Third-party Assurance Statement

To: The Stakeholders of LOTTE CHEMICAL CORPORATION

Overview

BSI (British Standards Institution) Group Korea (hereinafter referred to as the "Assurer") was requested to verify the LOTTE CHEMICAL CORPORATION 2023 ESG Report (hereinafter referred to as the "Report"). The Assurer is independent of the LOTTE CHEMICAL CORPORATION and has no major operational financial interest other than the assurance. This assurance opinion statement is intended to provide information related to the assurance of the LOTTE CHEMICAL CORPORATION report relating to the environment, social and governance (ESG) to the relevant stakeholders and may not be used for any purpose other than the purpose of publication. This assurance opinion statement was prepared based on the information presented by the LOTTE CHEMICAL CORPORATION and the assurance was carried out under the assumption that presented the information and data were complete and accurate.

LOTTE CHEMICAL CORPORATION is responsible for managing the relevant information contained within the scope of assurance, operating the relevant internal control procedures, and for all information and claims contained in the report. Any queries that may arise by virtue of this independent assurance opinion statement or matters relating to it should be addressed to LOTTE CHEMICAL CORPORATION only.

The Assurer is responsible for providing LOTTE CHEMICAL CORPORATION management with an independent assurance opinion containing professional opinions derived by applying the assurance methodology to the scope specified, and to provide the information to all stakeholders of LOTTE CHEMICAL CORPORATION. The Assurer shall not bear any other responsibility, including legal responsibility, to any third party other than LOTTE CHEMICAL CORPORATION in providing the assurance opinion and shall not be liable to any other purpose, purpose or stakeholders related thereto for which the assurance opinion may be used.

Scope

The scope of engagement agreed upon with LOTTE CHEMICAL CORPORATION includes the following:

- Reporting contents during the period from January 1st to December 31st 2023 included in the report, some data included the half of 2024.
- Major assertion included in the Report, such as sustainability management policies and strategies, goals, projects, and performance, and the Report contents related to material issues determined as a result of materiality assessment.
- Appropriateness and consistency of processes and systems for data collection, analysis and review.
- In Accordance with the four principles of AA1000 AccountAbility in the report, based on the type of Sustainability Assurance based on AA1000AS v3 and if applicable, the reliability of the sustainability performance information contained in the report.

The following contents were not included in the scope of assurance.

- Financial information in Appendix.
- Index items related to other international standards and initiatives other than the GRI.
- Other related additional information such as the website, business annual report.

Assurance Level and Type

The assurance levels and types are as follows;

- Moderate level based on AA1000 AS and Type 2 (confirmation to the four principles as described in the AA1000 Accountability Principle 2018 and quality and reliability of specific performance information published in the report.)

Description and sources of disclosures covered

Based on the scope and methodology of assurance applied, the assurer reviewed the following Disclosures based on the sampling of information and data provided by LOTTE CHEMICAL CORPORATION.

[Universal Standards]

2-1 to 2-5 (The organization and its reporting practices), 2-6 to 2-8 (Activities and workers), 2-9 to 2-21 (Governance), 2-22 to 2-28 (Strategy, policies and practices), 2-29 to 2-30 (Stakeholder engagement), 3-1 to 3-3 (Material Topics Disclosures)

[Topic Standards]

201-1~2, 201-4, 203-1, 204-1, 205-1~3, 206-1, 301-2, 301-3, 302-1~5, 303-1~5, 305-1~7, 306-1~5, 401-1~3, 403-1~10, 404-1~3, 405-1~2, 406-1, 411-1, 415-1, 416-1, 418-1



Methodology

As a part of its independent assurance, the Assurer has used the methodology developed for relevant evidence collection in order to comply with the verification criteria and to reduce errors in reporting. The Assurer has performed the following activities;

- A top-level review of issues raised by external parties that could be relevant to organizations policies to provide a check on the appropriateness of statements made in the report.
- Discussion with managers and staffs on organization's approach to stakeholder engagement.
- Review of the supporting evidence related to the material issues through interviews with senior managers in the responsible departments.
- Review of the system for sustainability management strategy process and implementation
- Review of materiality issue analysis process and prioritization by reviewing materiality issue analysis process and verifying the results
- Verification of data generation, collection and reporting for each performance index and document review of relevant systems, policies, and procedures where available
- An assessment of the company's reporting and management processes concerning this reporting against the principles of Inclusivity, Materiality, Responsiveness and Impact as described in the AA1000 AccountAbility Principles Standard (2018).
- Visit of the LOTTE CHEMICAL CORPORATION Seoul Headquarters to confirm the data collection processes, record management practices.

Limitations and approach used to mitigate limitations

The Assurer performed limited verification for a limited period based on the data provided by the reporting organization. It implies that no significant errors were found during the verification process, and that there are limitations related to the inevitable risks that may exist. The Assurer does not provide assurance for possible future impacts that cannot be predicted or verified during the verification process and any additional aspects related thereto.

Competency and Independence

BSI (British Standards Institution) is a leading global standards and assessment body founded in 1901. BSI is an independent professional institution that specializes in quality, health, safety, social and environmental management with almost 120 years history in providing independent assurance services globally. No member of the assurance team has a business relationship with LOTTE CHEMICAL CORPORATION. The Assurer has conducted this verification independently, and there has been no conflict of interest. All assurers who participated in the assurance have qualifications as an AA1000AS assurer, have a lot of assurance experience, and have in-depth understanding of the BSI Group's assurance standard methodology.

Opinion Statement

The assurer was carried out by a team of sustainability report assurers in accordance with the AA1000 Assurance Standard v3. Assurer planned and performed this part of our work to obtain the necessary information and explanations assurer considered to provide sufficient evidence that LOTTE CHEMICAL CORPORATION's description of their approach to AA1000 Assurance Standard and their self-declaration of compliance with the GRI standards were fairly stated.

On the basis of our methodology and the activities described above, it is our opinion that the information and data included in the Report are accurate and reliable and the Assurer cannot point out any substantial aspects of material with mistake or misstatement. We believe that the economic, social and environment performance indicators are accurate and are supported by robust internal control processes.

Conclusions

The Report is prepared in accordance with the GRI Standards. (Reporting in accordance with the GRI standards). The detailed reviews against the AA1000 AccountAbility Principles of Inclusivity, Materiality, Responsiveness and Impact and the GRI Standards are set out below.

Inclusivity: Stakeholder Engagement and Opinion

LOTTE CHEMICAL CORPORATION defined customers, employees, government/related organizations, shareholders/investors, partner companies, and local community as a Key Stakeholder Groups (Core, Strategy and Environmental). In order to collect opinions by each stakeholder groups in the context of sustainability, operated the stakeholder engagement process. LOTTE CHEMICAL CORPORATION conducted a review of the stakeholder engagement process to reflect the major issues derived through the stakeholder engagement process in sustainability strategy and goals. LOTTE CHEMICAL CORPORATION disclosed the results related to the process in the Report.

Materiality: Identification and reporting of material sustainability topics

LOTTE CHEMICAL CORPORATION implemented its own materiality assessment process in consideration of the major business and operational characteristics to derive important reporting issues related to sustainability. In the materiality evaluation, LOTTE CHEMICAL CORPORATION conducted the analysis of global sustainability reporting or assessment standards, and conducted the IRO (Impact, Risk, Opportunity) analysis to derive the impact and financial materiality. LOTTE CHEMICAL CORPORATION derived 7 material issues through the process. LOTTE CHEMICAL CORPORATION derived 7 material issues through the relevant process, and disclosed GRI topic standards disclosures related to material issues in the Report.



Responsiveness: Responding to material sustainability topics and related impacts

LOTTE CHEMICAL CORPORATION operated a management process for material issues in the context of sustainability derived from the materiality assessment. LOTTE CHEMICAL CORPORATION established mid- to long-term sustainability plans and goals in according to the management methodology established to effectively reflect the expectations of key stakeholders. LOTTE CHEMICAL CORPORATION disclosed the process including policy, indicator, activity and response performance on material issues in the Report.

Impact: Impact of an organization's activities and material sustainability topics on the organization and stakeholders

LOTTE CHEMICAL CORPORATION identified the scope and extent of the impacts to the organization and key stakeholders in the context of the sustainability of the reported material issues. LOTTE CHEMICAL CORPORATION established sustainability strategies and objectives based on the analysis results of major impacts, including risks and opportunities for material issues at the governance level, disclosed mid- to long-term plans and strategic system in the Report.

Findings and conclusions concerning the reliability and quality of specified performance information

Among the GRI Topic Standards, the following disclosure were carried out in a assurance Type 2 based on the information and data provided by the reporting organization. In order to verify the reliability and accuracy of the data and information, internal control procedures related to data processing, processing, and management were verified through interviews with the responsible department, and accuracy was verified through sampling. Errors and intentional distortions in sustainability performance information included in the report were not found through assurance processes. The reporting organization manages the sustainability performance information through reliable internal control procedures and can track the process of deriving the source of the performance. Errors and unclear expressions found during the assurance process were corrected during the assurance process and prior to the publication of the report, and the assurer confirmed the final published report with the errors and expressions corrected.

- GRI Topic Standards: 201-2, 301-2, 305-1~7, 303-3~5, 306-3~5, 403-1, 403-5, 403-9

Recommendations and Opportunity for improvement

The assurer will provide the following comments to the extent that they do not affect the result of assurance;

- It may be helpful to lead the sustainability management system by advancing the management system of key environmental performance indicators, such as upgrading the LCA methodology of key production items, taking into account the key business characteristics affecting the various industries within the value chain.
- It may be helpful to upgrade the management framework of sustainability performance indicators, such as establishing guidelines for calculating sustainability performance indicators, internal control, and QA/QC processes.

GRI-reporting

LOTTE CHEMICAL CORPORATION provided us with their self declaration of compliance within GRI Standards. Based on our review, we confirm that social responsibility and sustainable development indicators with reference to the GRI Index. The Assurer confirmed that the Report was prepared in accordance with the GRI Standards and the disclosures related to the Universal Standards and Topic Standards Indicators based on the data provided by LOTTE CHEMICAL CORPORATION. The sector standard was not applied.

Issue Date: 21/06/2024

For and on behalf of BSI (British Standards Institution):

BSI representative

Jungwoo Lee,
Lead Assurer, ACSAP

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