



**LIFE VALUE  
CREATOR**

# About this report

This is Lotte Chemical's eighth annual sustainability report. We provide this report as a response to our stakeholders' interest and demand for topics related to the economy, environment, and society. We will continue to publish the report every year in order to inform our sustainability management performances and utilize it as a communication channel with diverse stakeholders.

## Introduction

This Report covers Lotte Chemical's sustainability performances and activities from January 1 through December 31, 2014. To provide a better understanding for achievements with quantitative results, data from the last three fiscal years are also enlisted for stakeholders to grasp the market trend. Year-on-year data is based on December 31 of each fiscal year and some data with period gap are reported with additional statements.

## Reporting Principle

The 2014 Lotte Chemical Sustainability Report was written in accordance with the Core Option of the GRI (Global Reporting Initiative) G4 Guideline. Detailed indicators and reporting contents based on the recommendation of GRI Index are stated on page 79 through 82.

## Reporting Scope

This report covers sustainability management activities and performances of Lotte Chemical's head-quarter in Seoul, Daejeon Research Institute, Yeosu Plant, Daesan Plant, and Ulsan Plant. The company's subsidiaries and overseas plants are also mentioned in respect to some issues in regard to some issues. Financial data in this report was drawn up on the basis of consolidated financial statements (K-IFRS).

## Assurance

The credibility of the contents in this report was verified by an independent and objective Assurance Institution and the results are stated on page 83 through 84.

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This report can be accessed on the website of Lotte Chemical (<http://www.lottechem.com/>). For any inquiry or additional information, please refer to the following contact point. We are always open for your opinion.

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## CEO Message



**We strive to grow into a respectable and trustworthy company by engaging with stakeholders through open communication**

## Dear valued stakeholders,

I would like to thank you for your support and interest in Lotte Chemical as we proceed on our sustainability journey.

Under the overarching corporate vision of becoming a 'Top-tier Asian Chemical Company,' Lotte Chemical strives to integrate sustainability management into its management philosophy at the very core. The annually published sustainability report represents our desire to share the accomplishments and plans with stakeholders as we adhere to the management principles. I hope that this report serves as an open communication channel for collecting your valued opinions.

Petrochemical companies have faced difficulties in many fronts due to the drop in oil prices since last year and the slowing growth of Chinese market, one of their most important export destinations. In addition, the petrochemical industry is facing greater competition in the global market from rising exploration of natural gas in the Middle East and shale gas in the US. However, Lotte Chemical will seek to solidify its sustainability management fundamentals by developing high value-added products, diversifying raw material sources, and fostering eco-friendly technologies.

Amid such challenging external conditions, Lotte Chemical is about to realize the Uzbekistan gas field development and petrochemical plant construction projects. Furthermore, the shale gas business in the US and the joint business for special rubber are all progressing well. Our strengthened megatrend R&D, which involves water treatment, ESS, and bio product development will bear fruit as we expect to kick off mass production in the near future. Lotte Chemical will work towards advancing into new overseas markets while staying committed to leading in the technology innovation.

The domestic petrochemical companies will see their responsibility for environment and safety furthered in 2015 more than in any other year as 'Act on the Registration and Evaluation, etc. of Chemical Substances,' 'Toxic Chemicals Control Act,' and 'emissions trading' enter into force in earnest. To cope with these changes, Lotte Chemical has launched the Environment & Safety Management Division under the control of the CEO. The division is missioned to operate GHG control system, enhance safety monitoring at sites, and investigate regulation compliance.

Additionally, in an effort to fulfill social responsibility and business ethics, the company has established the ethical management system and strived to build a culture of fair transaction through diverse education programs and the operation of online Shinmungo system. Our efforts to help partner companies sharpen competitive edge have extended to Mutual Growth Fund, Industrial Innovation 3.0 Movement, and Mutual Growth Academy. On the social contribution front at home and abroad, the company operates youth scholarship programs and hires talents from the local communities we serve. Going forward, Lotte Chemical pledges to engage with stakeholders in fulfilling its social responsibilities.

Lotte Chemical believes that the vision to become a global company will be achieved upon the lasting sustainability management that pursues to create social values. I look forward to your steadfast interest in Lotte Chemical as we keep moving along the journey toward a global chemical company.

Thank you for your unwavering support and encouragement.

President & CEO, Lotte Chemical Corp.

**Huh Soo-young**



# Company Profile

## Company Information

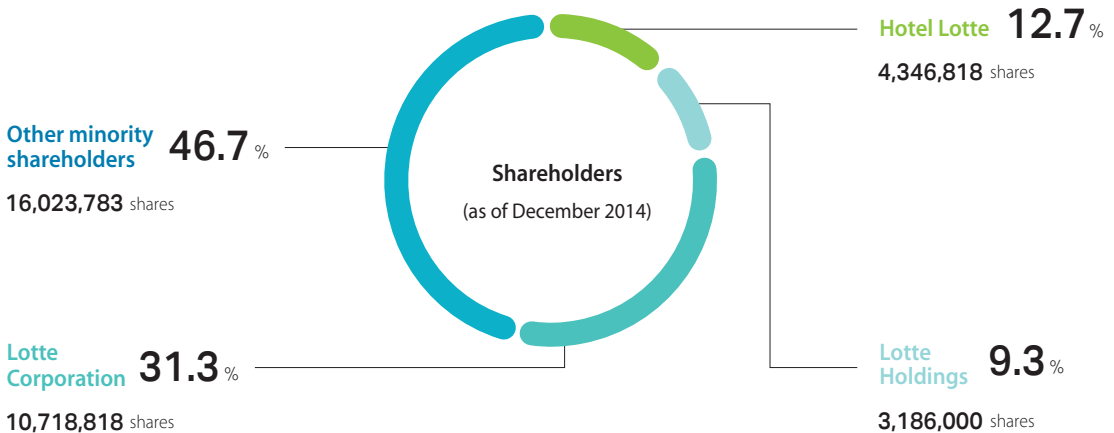
### Introduction

Lotte Chemical, established in 1976, has secured a stable and profitable business portfolio through continuous facility expansion and business development. It is currently operating world-class production plants in Yeosu, Daesan, and Ulsan. Our flagship products include HDPE, LLDPE, EVA, PP, functional resin, EG, SM, BD, PET, and PIA. Those are exported to more than 110 countries throughout the world. We have acquired Pakistan PTA in 2009 and Artenius UK and Titan Chemical Corp. in 2010, which allow us to supply high-quality products to more countries. In addition, by launching a Chinese subsidiary and branches in Hong Kong, Russia, and the US, Lotte Chemical is putting spurs to sharpening its competitive edge in the global arena. The company will grow into a top-tier Asian chemical company that pursues the advancement of quality of life quality and harmony with the environment.

### General Information

	<b>Company name</b> <b>Lotte Chemical Corporation</b>		<b>Establishment</b> <b>March 16, 1976</b>
	<b>Total assets</b> KRW <b>10.3</b> trillion (as of the end of 2014)		<b>Net income</b> KRW <b>144</b> billion
	<b>No. of employees</b> <b>2,669</b> persons (as of the 2014 Business Report)		<b>Credit ratings</b> <b>AA+</b>

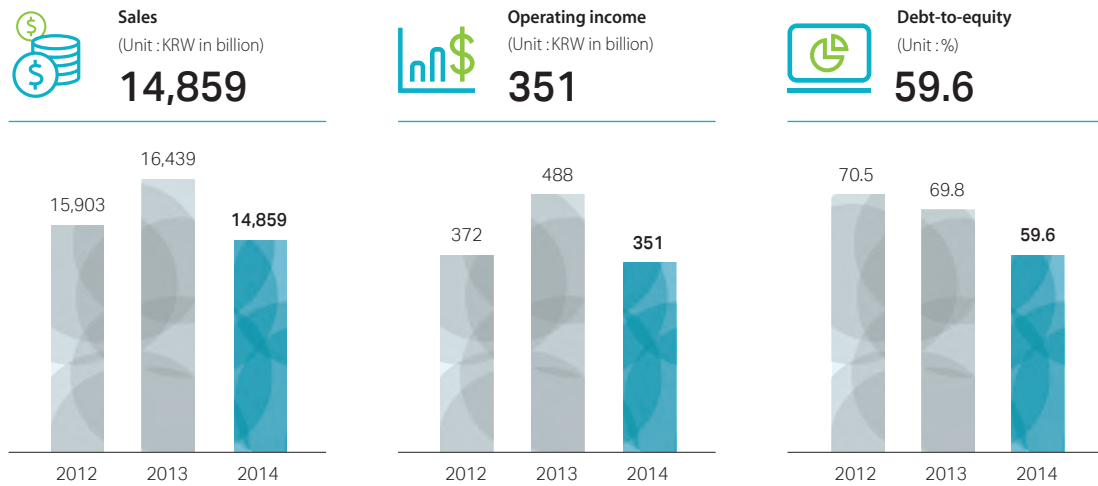
### Shareholder Structure



### Summarized Financial Results

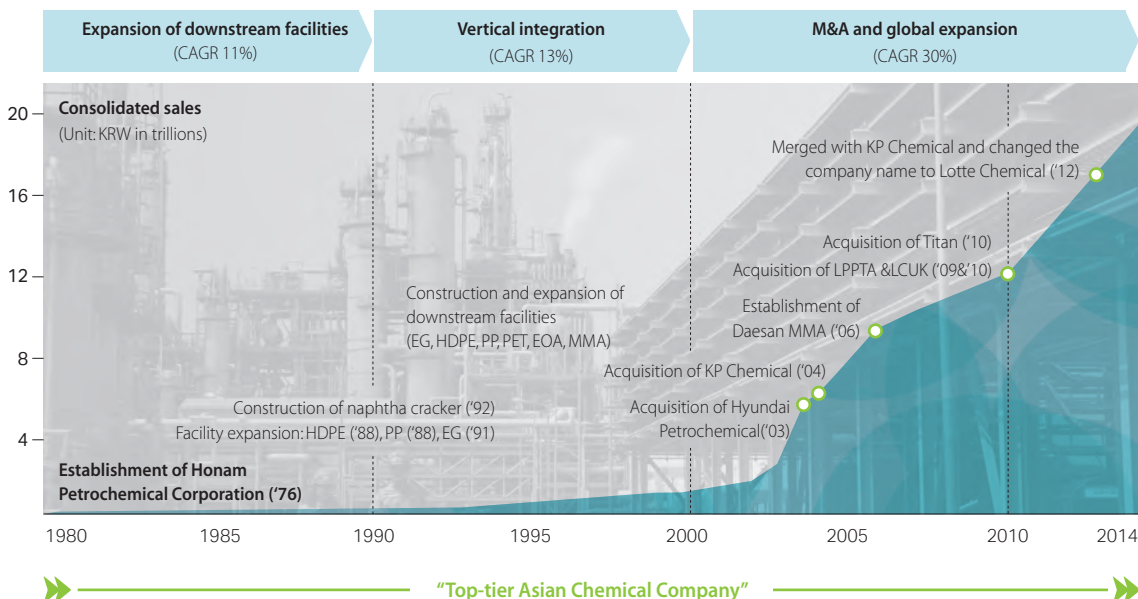
The summarized financial results were prepared to help stakeholders understand our business status. These data were drawn up on the basis of the independent auditors' report for each fiscal year. Please refer to our website (<http://www.lottechem.com/>) and Financial Supervisory Service's Electronic Disclosure System (<http://dart.fss.or.kr/>) for more details.

#### Recent 3-Year Summarized Financial Performances



### Corporate History

Based on the 40 years of pioneering the petrochemical industry and leading the domestic heavy chemical industry, Lotte Chemical is shaping a new future toward becoming a global chemical company in the 21st century.



# Company Profile

## Main Products

### Introduction

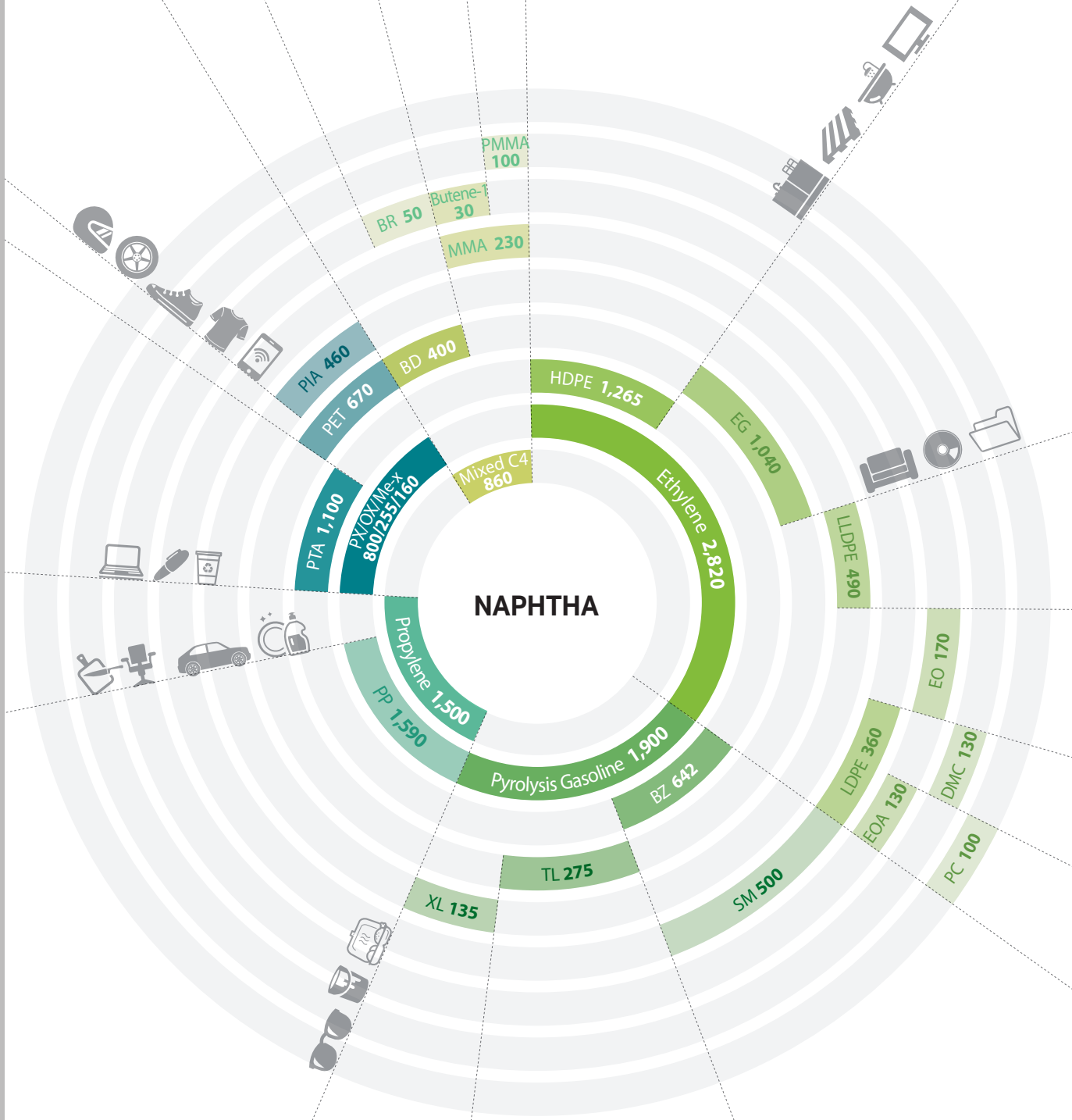
Lotte Chemical's materials and technologies are being applied extensively for the production of goods, such as household appliances, agricultural tools, industrial tools, medical devices, automobiles, and aircrafts.

### Usage of Major Products

<b>Resin Product</b>	<b>PE</b>	<ul style="list-style-type: none"> <li>Household item</li> <li>Sheet for solar battery</li> <li>Toy</li> </ul>	<ul style="list-style-type: none"> <li>Wire clothing</li> <li>Vessels for chemicals</li> <li>Car fuel tank</li> </ul>
	<b>PP</b>	<ul style="list-style-type: none"> <li>Auto material</li> <li>Home appliances</li> <li>Transparent container</li> </ul>	<ul style="list-style-type: none"> <li>Hygienic nonwoven fabric</li> <li>Packaging film</li> </ul>
	<b>PC</b>	<ul style="list-style-type: none"> <li>Optic disc (CD, DVD)</li> <li>Sunglasses, lens</li> </ul>	<ul style="list-style-type: none"> <li>Car lamp</li> <li>Home appliances</li> </ul>
	<b>PET</b>	<ul style="list-style-type: none"> <li>Container for beverage</li> </ul>	<ul style="list-style-type: none"> <li>Container for cosmetics</li> </ul>
	<b>PMMA</b>	<ul style="list-style-type: none"> <li>TV, cellular phone, notebook</li> <li>Lens of glasses</li> </ul>	<ul style="list-style-type: none"> <li>Car tale lamp, dashboard</li> </ul>
	<b>Functional Resin</b>	<ul style="list-style-type: none"> <li>Auto interior material, bumper</li> <li>Electronic material</li> </ul>	<ul style="list-style-type: none"> <li>Electric parts, building material</li> </ul>
<b>Basic Petrochemicals</b>	<b>EG</b>	<ul style="list-style-type: none"> <li>Polyester fiber</li> </ul>	<ul style="list-style-type: none"> <li>Antifreeze</li> </ul>
	<b>EOA</b>	<ul style="list-style-type: none"> <li>Detergent, shampoo</li> </ul>	<ul style="list-style-type: none"> <li>Concrete compound</li> </ul>
	<b>BD</b>	<ul style="list-style-type: none"> <li>ABS, raw material for synthetic rubber (SBR, BR)</li> </ul>	
	<b>SM</b>	<ul style="list-style-type: none"> <li>PS resin</li> <li>ABS resin</li> <li>SBR latex</li> </ul>	<ul style="list-style-type: none"> <li>Synthetic resin paint</li> <li>Ion exchange resin</li> </ul>
	<b>PTA</b>	<ul style="list-style-type: none"> <li>Polyester fiber</li> </ul>	<ul style="list-style-type: none"> <li>PET film, paint</li> </ul>
	<b>PIA</b>	<ul style="list-style-type: none"> <li>PET resin, special paint</li> </ul>	<ul style="list-style-type: none"> <li>Unsaturated resin</li> </ul>
	<b>GE</b>	<ul style="list-style-type: none"> <li>Cleansing agent</li> <li>Machine lubricating oil</li> </ul>	<ul style="list-style-type: none"> <li>Break oil</li> <li>Antifreeze</li> </ul>
	<b>MMA</b>	<ul style="list-style-type: none"> <li>Adhesive for medical use, acryl film</li> </ul>	<ul style="list-style-type: none"> <li>Artificial marvel</li> </ul>
<b>Basic Chemicals</b>	<b>BZ</b>	<ul style="list-style-type: none"> <li>Agricultural chemicals</li> <li>Photo chemicals</li> </ul>	<ul style="list-style-type: none"> <li>Insect repellent</li> <li>SM raw material</li> </ul>
	<b>TL</b>	<ul style="list-style-type: none"> <li>Medical supply</li> <li>Paint</li> <li>Ink</li> </ul>	<ul style="list-style-type: none"> <li>Dye</li> <li>Aromatics, gunpowder</li> </ul>
	<b>MX</b>	<ul style="list-style-type: none"> <li>Raw material of dye, organic pigment, plasticizer, and medical supply</li> <li>Solvent for paint, agricultural chemical, and medical supply</li> </ul>	
	<b>MeX</b>	<ul style="list-style-type: none"> <li>Raw material of PIA</li> </ul>	
	<b>PX</b>	<ul style="list-style-type: none"> <li>Raw material of PTA and DMT</li> </ul>	
	<b>OX</b>	<ul style="list-style-type: none"> <li>Raw material of PA and MA that are plasticizers, solvent</li> </ul>	



Production Capacity of Main Products (Unit: thousand tons a year)





### PET (Water bottle)

The well-known plastic bottles that we consume in our daily lives are made of PET, a type of plastic substance. PET is mainly used for food and beverage containers and it is recyclable which makes it very eco-friendly. PET is toxic-free as well as lightweight and can be easily shaped. Also, because PET is highly economical, it is rapidly replacing glass bottles and aluminum cans.

### EVA (Shoes)

EVA is a form between rubber and plastic. It is largely used for producing soles for running shoes because it is soft, absorbs shock, and effective for thermal insulation. Moreover highly concentrated EVA has superior adhesive properties and therefore is used as a material for high-quality adhesive.

### EPP (Helmet)

As the PP composite resin with improved functions of polypropylene, EPP is toxic free and boasts strong durability and insulation. It is used for automotive parts such as bumper, airbag cover, dashboard, helmet, and home appliances where safety and durability are required. More industrial applications are adopting EPP.



### BD (Tire)

Butadiene (BD) is mainly used as the raw material of synthetic rubber for manufacturing tire, rubber hose, and diverse industrial products. It is colorless and exists as a gaseous state at room temperature.



### TPE (Earphone Cord)

TPE is a highly utilizable plastic material due to its characteristic of being elastic at room temperature and being formable at high temperature. Its low density makes product lightweight. It is actively used for producing automobile components because it has a soothing texture and is easy to color. Non-electrical conduciveness makes it ideal for electrical wire cable.

### PC (Cellular phone)

PC is a plastic material with high intensity, heat resistance, and shock resistance. Being highly transparent and toxic-free, it is mainly used for electronic parts, machinery parts, compact disk, DVD, automotive headlamp, and sound wall.



### EG (Clothes)

Commonly spotted on clothing tags, EG is a major material for synthetic textile, polyester. EG reacts to terephthalic acid to create polyester. Also, EG with low freezing point is used as antifreeze for automobile.



### LDPE (Billboard in subway)

LDPE is a part of polyethylene resin. It is easily modifiable, resistant to moisture as well as water, and highly transparent. Because of its characteristics, it is used for agricultural products, packaging film, wire clothing, and variety of wrap products. The thin plastic that covers advertisement billboards at subway stations or on roads is made of LDPE.



### PP (Clear File)

Polypropylene has various strengths including high heat resistance, shock resistance, transparency, and chemical agent resistance. It is widely used for automobile plastic materials, home electronic appliances, disposable syringes, various transparent containers, sanitary staple fiber, packaging film, etc.



### PC (Ball-point Pen)

PC is a plastic material with high intensity, heat resistance, and shock resistance. Being exceptionally transparent and toxic-free, it is mainly used for electronic parts, machinery parts, compact disk, DVD, automotive headlamp, and sound wall.



### SM (Notebook Cases)

SM is a colorless substance made of ethylene and benzene. SM is material of PS, ABS. PS resin is often utilized to produce stationary items and toys, ABS resin is used for electronic appliances. SM is also used as a base material for paint.

### LDPE (Paper Cup)

LDPE is a part of polyethylene resin. It is easily modifiable, resistant to moisture as well as water, and highly transparent. Because of its characteristics, it is used for agricultural products, packaging film, wire clothing, and a variety of wrap products. The substance coated on paper cups to prevent them from leaking is also made with LDPE.



### PET (Disposable Packed Lunch)

The well-known plastic bottles that we consume in our daily lives are made of PET, a type of plastic substance. PET is mainly used for food and beverage containers and it is recyclable which makes it very eco-friendly. PET is toxic-free as well as lightweight and can be easily shaped. Also, because PET is highly economical, it is rapidly replacing glass bottles and aluminum cans.

### EPP (Plastic Footholds)

As the PP composite resin with improved functions of polypropylene, EPP is toxic-free and boasts strong durability and insulation. It is used for automotive parts such as bumper, airbag cover, dashboard, helmet, and home appliances where safety and durability are required. More industrial applications are adopting EPP.





### Lottmer (Wiper)

Lottmer is TPEV (Thermo-Plastic Elastomer Vulcanized) material developed by Lotte Chemical's own technology. It has elasticity of thermosetting rubber and deformability of thermoplastic resin. It can substitute soft PVC or thermosetting rubber and make products lighter due to its low specific gravity.

### TPO (Front Bumper)

It is made by mixing reinforcement materials with thermoplastic resins PP or PE and boasts improved mechanical property and functionality which cannot be found in general-purpose resins. It is used for parts requiring excellent dimensional stability or for products demanding lightweight property such as interior material, exterior material for automotive, construction material, and other industrial materials.

### TPO (Door Trim)

It is made by mixing reinforcement materials with thermoplastic resins PP or PE and boasts improved mechanical property and functionality which cannot be found in general-purpose resins. It is used for parts requiring excellent dimensional stability or for products demanding lightweight property such as interior as well as exterior materials of automotive, construction materials, and other industrial materials.

### LFT (Rear Bumper Beam)

LFT is made by mixing plastic and special fibers, and boasts excellent mechanical properties, dimensional stability, and thermal resistance properties. Lotte Chemical first developed LFT by applying its original fiber impregnation technology in the industry. It is used for interior and exterior materials of automotive due to its excellence in transformation.



### HDPE (Chopping Board)

HDPE is a type of polyethylene resin. It is modifiable, resistant to both low and high temperatures and damage. It is also very easy to process. Because of these traits, it is used for producing household containers, fish nets, ropes, insulated cables, chemical containers, automobile fuel tanks, pipes, and films for agricultural / industrial / packaging purposes.



### PMMA (Upper Deck of Sink)

PMMA is also known as acrylic resin. It is transparent and weather resistant. Because PMMA is easy to color, it is used as a material for organic glass, electrical parts and construction material.



### EOA (Dishwashing Detergent)

EOA is used as a material for detergent, shampoo, personal hygiene products, and emulsifier. Recently, it is used as an additive to enhance the strength of concrete in the construction industry.

### HDPE (Shampoo Bottle)

HDPE is a type of polyethylene resin. It is modifiable, resistant to both low and high temperatures and damage. It is also very easy to process. Because of these traits, it is used for producing household containers, fish nets, ropes, insulated cables, chemical containers, automobile fuel tanks, pipes, and films for agricultural / industrial / packaging purposes.



### PIA (Bathtub)

PIA is the raw material for producing PET bottles, adhesives, coating agents, and paint for vehicles. It is a high value-added and technology-intensive product produced by only 7 companies from 7 countries, which include US, Japan, Spain, Singapore, and Korea. Lotte Chemical became the world's 5th PIA developer and is the only company that can currently produce PIA in Korea.



### WPC (Chairs)

WPC (Wood Plastic Composite) material has advantages of both wood and resin. It is suitable for highly functional constructive materials due to its great durability, insulation, eco friendliness, and excellent deformability.

### SM (TV housing)

SM is a colorless substance made of ethylene and benzene. SM is material of PS, ABS. PS resin is often utilized to produce stationary items and toys, ABS resin is used for electronic appliances. SM is also used as a base material for paint.

### EPP (Artificial Leather Sofa)

As the PP composite resin with improved functions of polypropylene, EPP is toxic-free and boasts strong durability and insulation. It is used for automotive parts such as bumper, airbag cover, dashboard, helmet, and home appliances where safety and durability are required. More industrial applications are adopting EPP.



# Company Profile

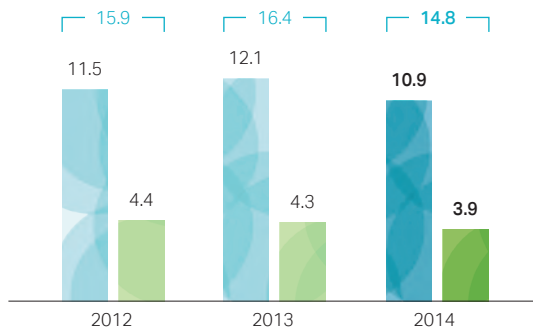
## Major Worksites

### Global Location

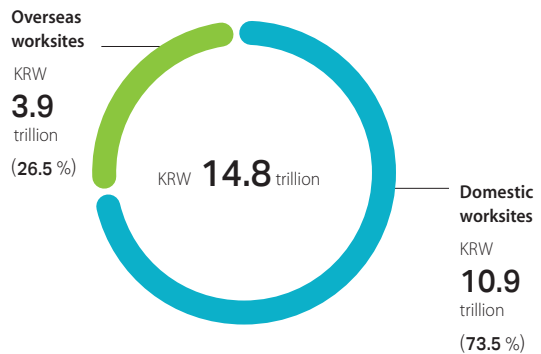


**Sales** (Unit: KRW in trillions)

■ Domestic worksites ■ Overseas worksites



**Sales Breakdown in 2014**

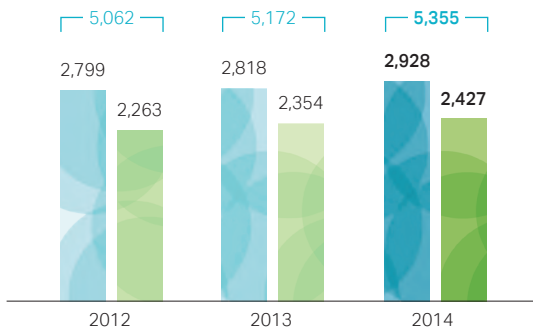


● Domestic worksites ● Overseas subsidiary ● Overseas branch

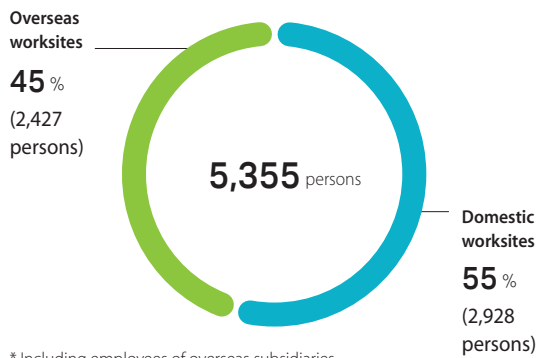


**Employees** (Unit: persons)

■ Domestic worksites ■ Overseas worksites



**Number of Employees at the End of 2014**



## New Businesses

Lotte Chemical is making a concerted effort to strategically expand overseas business and develop future businesses with the aim of diversifying the business portfolio and achieving its vision of becoming a top-tier Asian chemical company. To that end, the company is focusing on increasing overseas production volume of basic chemical – its mainstay business, fostering advanced materials sector and conducting innovation activities in megatrend\* business.

\* Lotte Chemical has redefined business models centered on three key megatrends in petrochemical industry; emerging economies, intensified resources and environmental issues, and mounting interest in health and well-being.

### Completion of Petrochemical Plants in Uzbekistan

The Uzbekistan Surgil project was initiated with the establishment of a joint venture Uz-Kor Gas Chemical LLC. The Korean consortium - Lotte Chemical, KOGAS, and GS E&R - and the Uzbekistan state-run Uzbekneftegaz respectively own 50% of the stakes. The joint venture project integrates Surgil gas field development, sale of developed gas, and construction of a gas chemical complex to produce HDPE and PP. This project is significant in that Lotte Chemical became the first Korean chemical company to secure natural gas at low cost in the Central Asia, developed new business models that include upstream (gas field) field, and licensed its synthetic resin technologies to overseas markets. This project started in November 2007 by building the Korean consortium. Unit plants will be gradually completed from May 2015 and commercial production is scheduled to begin in the first quarter of 2016. By then, Lotte Chemical expects to sell 2.6 million tons of methane to the Uzbekistan government annually. Upon the completion of Surgil project, Lotte Chemical will be capable of producing 390,000 tons of HDPE and 80,000 tons of PP per year. After that, the company will advance to China, Central Asia, and CIS, improving sales revenue and profits. This project, along with the ethane cracker project in the US, will not only make the company less dependent on naphtha, but also raise its adoption of low-cost gas material, which may enhance the company's competitive edge in the global market through diversification of raw materials, production plants, and sales area.

### Advance into Synthetic Rubber Business

Lotte Chemical has launched Lotte Ube Synthetic Rubber Sdn. Bhd., a joint venture specializing in BR, advancing into synthetic rubber business. The plant with production capacity of 50,000 tons of rubber has currently finished its test

operation in Johor Baharu, Malaysia. It is currently in the process of attaining approval documents, such as customer certificates, for commercial production. Highly resistant to heat, abrasiveness, and water compared to natural rubber, BR is widely used for tire, and impact resistant polystyrene. As this business is expected to grow rapidly with the Asian market at its center, Lotte Chemical is set to continuously expand facilities. The newly produced BR will become the next growth engine along with the existing multi-purpose products.

### Joint Venture for Mixed Xylene

Lotte Chemical launched Hyundai Chemical Co., Ltd., a joint venture with Hyundai Oilbank in May 2014, in order to start a project worth KRW 1.2 trillion. The purpose of the project was to refine condensate crude oil and produce mixed xylene. Hyundai Chemical, a 40-60 joint venture between Lotte Chemical and Hyundai Oilbank, will be established within Daesan Plant of Hyundai Oilbank (land area covering 260,000 m<sup>2</sup>) with the commercial operation set to begin in the early 2017. The completion of the project will allow Hyundai Chemical to annually produce 1.2 million tons of mixed xylene to be supplied to Hyundai Cosmo, an affiliated company of Hyundai Oilbank. 1 million tons of light straight run naphtha will be provided to Lotte Chemical. To date, Lotte Chemical and Hyundai Oilbank have been largely dependent upon imported mixed xylene. However, we expect to secure a stable source of mixed xylene through this project. Furthermore, the self-procurement of xylene and light straight run naphtha will save the two companies up to KRW 2 trillion per year, along with the expected annual revenue of KRW 3 trillion coming from kerosene and diesel exportation. Lotte Chemical and Hyundai Oilbank will upgrade their respective competitive edge in the market thanks to this strategic partnership, ultimately providing a breakthrough for the slowing domestic refinery and petrochemical industry.



Petrochemical Plant in Uzbekistan



BR Factory



Promoting Joint Mixed Xylene Manufacturing Project





**Establishment of Lotte Versalis Elastomers**

Lotte Chemical established a joint venture 'Lotte Versalis Elastomers' in October 2013 in cooperation with Versalis, Italy's state-run oil company, well known for its leading synthetic rubber technology. Established in 1989, Versalis is 100% owned by the state-run Eni, Italy. It is a well-known petrochemical company recognized for its world-class technology in synthetic rubber, operating olefin and synthetic plants in Italy and across Europe. Lotte Versalis Elastomers will build a plant with the production capacity of 200,000 tons of SSBR (next-generation synthetic rubber material) and EPDM (used for tire tube) in Yeosu. The plant will become commercial in the first half of 2017 and is expected to achieve KRW 600 billion in sales, KRW 300 billion worth of import-substituting effect, KRW 300 billion worth of export increase, and about 150 thousand new jobs. Lotte Chemical is also planning to build a new plant to produce 50,000 tons of SIS and SBS until the first half of 2018 with the aim of targeting the hot melt adhesive market. Lotte Chemical will provide the main raw materials, operating sites and structures while Versalis will contribute proprietary technologies, technical engineering and expertise for the plant. The business expansion will allow Lotte Chemical to upgrade its competitive edge while diversifying business portfolio.

**MOU with South Jeolla Province**

In March 2015, Lotte Chemical concluded an MOU with Jeollanam-do for the C5 monomer separation project. This project is to build facilities to separate C5, high-functional cutting-edge chemical material, in Yeosu through introducing technical know-how from JSR. C5 is by-product generated from naphtha cracking and is becoming

increasingly important around the world. This project will enable Lotte Chemical to produce 100,000 tons of C5-related products. Once the plant enters into commercial operation, Lotte Chemical will produce 30,000 tons of isoprene monomer, 25,000 tons of dicyclopentadiene, and 45,000 tons of piperylene per year. These materials are used to produce tire, highly functional adhesives, wrapping film, paint and more. Lotte Chemical will invest KRW 140 billion in the project and start commercial production in the first half of 2016. This project is expected to further diversify our profit sources.

**Commercial Production of PE Catalyst in Yeosu Complex**

Lotte Chemical completed the construction of PE catalyst plant in Yeosu in April 2015 and launched commercial production. This plant is capable of producing 150 tons of HDPE catalyst, and 60 tons of LLDPE catalyst per year. It is of great significance that this project has been completed by Lotte Chemical's proprietary technologies. The project will enable Lotte Chemical to independently source catalyst that has been procured from Lotte Chemical Titan Plant in Malaysia and thereby sharpen its competitive edge of PE business. Furthermore, the Surgil project marks Lotte Chemical's first-ever overseas licensing to provide PE catalyst produced in Yeosu plant. As such, this business will contribute to enhancing competitiveness in our PE-related businesses and laying the groundwork for licensing our HDPE production technology to overseas markets.



Establishing a Joint Venture for Producing Synthetic Rubber



Signing an MOU with Jeollanam-do

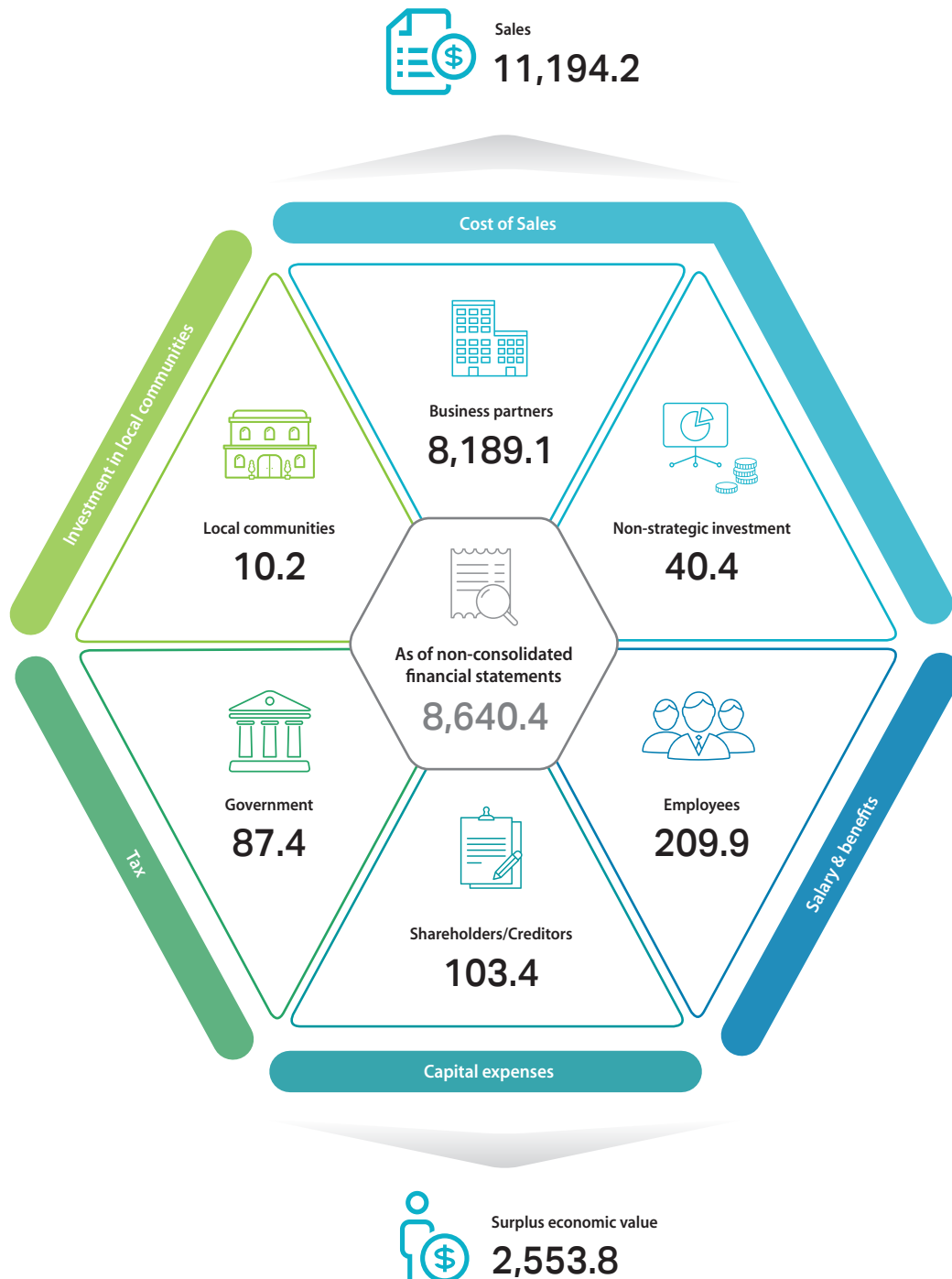


Commercial Production of PE Catalyst in Yeosu National Industrial Complex

# Company Profile


## Operating Performances in 2014

Distribution of Economic Value in 2013 (Unit:KRW in billions)






\* Our local subsidiaries are independent corporations despite being subordinated to Lotte Chemical. Therefore, to accurately report the data, we used non-consolidated financial statements.

Summarized Performances in Sustainability in 2014










**Economy**

 <p><b>Net income (consolidated)</b> KRW <b>143.7</b> billion</p>	 <p><b>Debt-to-equity (consolidated)</b> <b>59.6</b> %</p>
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**Environment**

 <p><b>Green procurement</b> KRW <b>5.0</b> billion</p>	 <p><b>Environmental investment and control expenses</b> KRW <b>92.1</b> billion</p>
 <p><b>Energy-saving</b> <b>733</b> TJ</p>	 <p><b>CO<sub>2</sub> reduction</b> <b>33,161</b> tCO<sub>2</sub>eq</p>
 <p><b>Water recycling rate (company-wide)</b> <b>74.0</b> %</p>	 <p><b>Waste recycling rate (company-wide)</b> <b>66.2</b> %</p>



**Society**

 <p><b>Training hours per employee</b> <b>91.8</b> hours</p>	 <p><b>Percentage of female employees</b> <b>9.9</b> % (up 20% year-on-year)</p>
 <p><b>Mutual Growth Fund</b> KRW <b>101.0</b> billion</p>	 <p><b>Rate of employees' participation in voluntary donation</b> <b>92</b> %</p>

# Company Profile

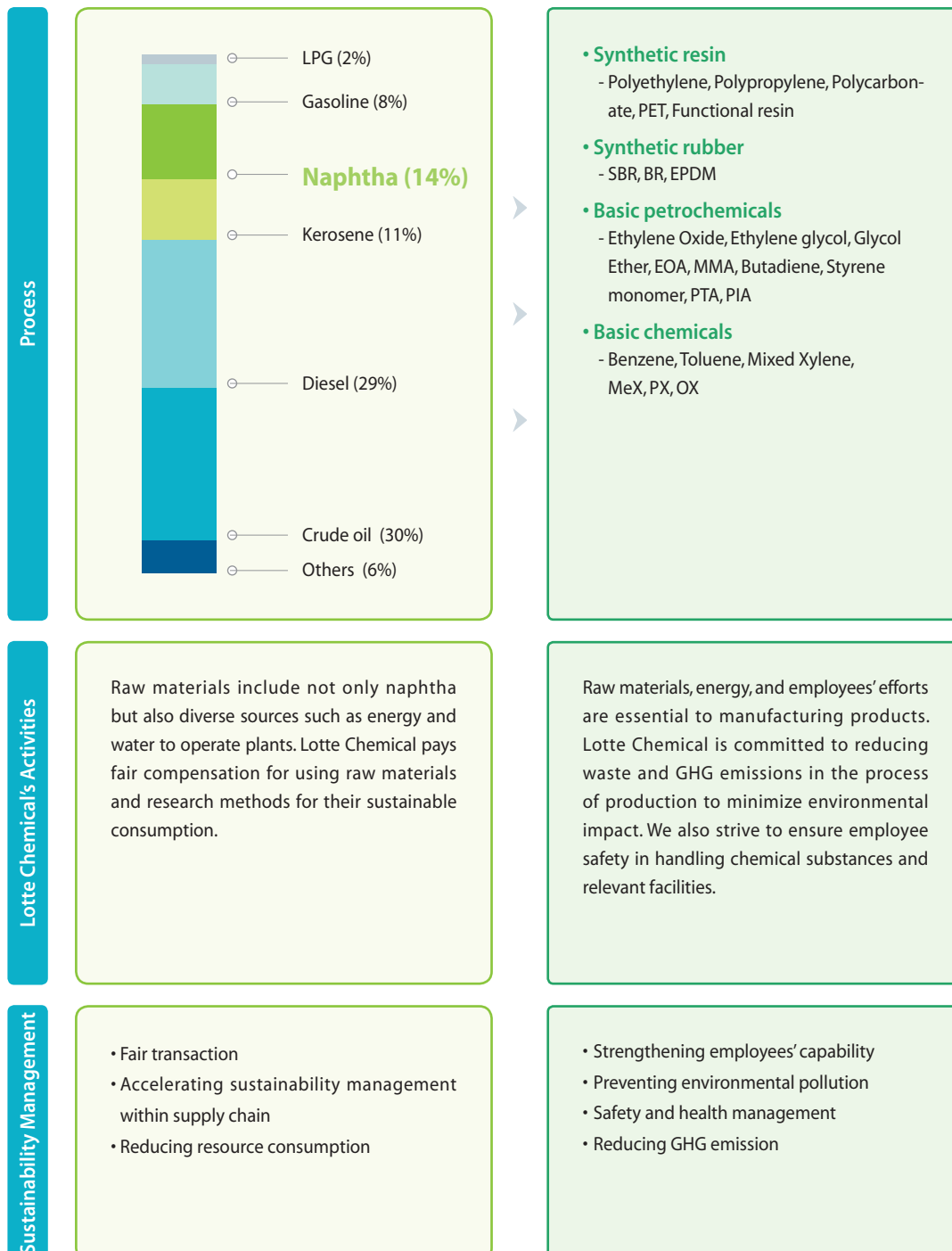
## Value Chain



Raw Materials



Production





Distribution



Usage

• Introduction of the RFID system (Daesan)



- Reduction of fuel consumption (kℓ): 73
- Reduction of emissions (tCO<sub>2</sub>): 191

• Increase of port use (Daesan)



- Cost saving: KRW 454,000 thousand
- Reduction of fuel consumption (kℓ): 238
- Reduction of emissions (tCO<sub>2</sub>): 624

• Decrease of transportation by small-sized vehicles (Yeosu)



- Cost saving: KRW 77,269 thousand
- Reduction of fuel consumption (kℓ): 44
- Reduction of emissions (tCO<sub>2</sub>): 117

• Electricity and electronics businesses

- Components, internal & external materials, wire

• Construction business

- Flooring materials, pipe

• Automobile business

- Components, bumper, artificial leather

• Computer and telecommunication

- PCB, wire clothing

• Agriculture and fishing businesses

- Agricultural film, fishing net

• Clothing business, fiber for bed-clothes and interior design

- Nylon, polyester, PP fiber

• Tire business

- Vehicle, motorbike, bicycle

Even during the process of distributing manufactured products, gasoline and other fuels are used and ultimately emit GHG. Lotte Chemical endeavors to reduce environmental pollution in distribution and effectively manage entire processes to deliver products safely.

Lotte Chemical makes a concerted effort not only to help customers conveniently use its products but also to prevent environmental pollution. Furthermore, we take preventive measures to protect customers from any danger.

- Reducing GHG emissions
- Product responsibility
- Reducing energy consumption
- Reducing resource consumption

- Product responsibility
- Customer safety & health management
- Reducing resource consumption
- Preventing environmental pollution

# Activities to Create Future Value

## New Growth Engines

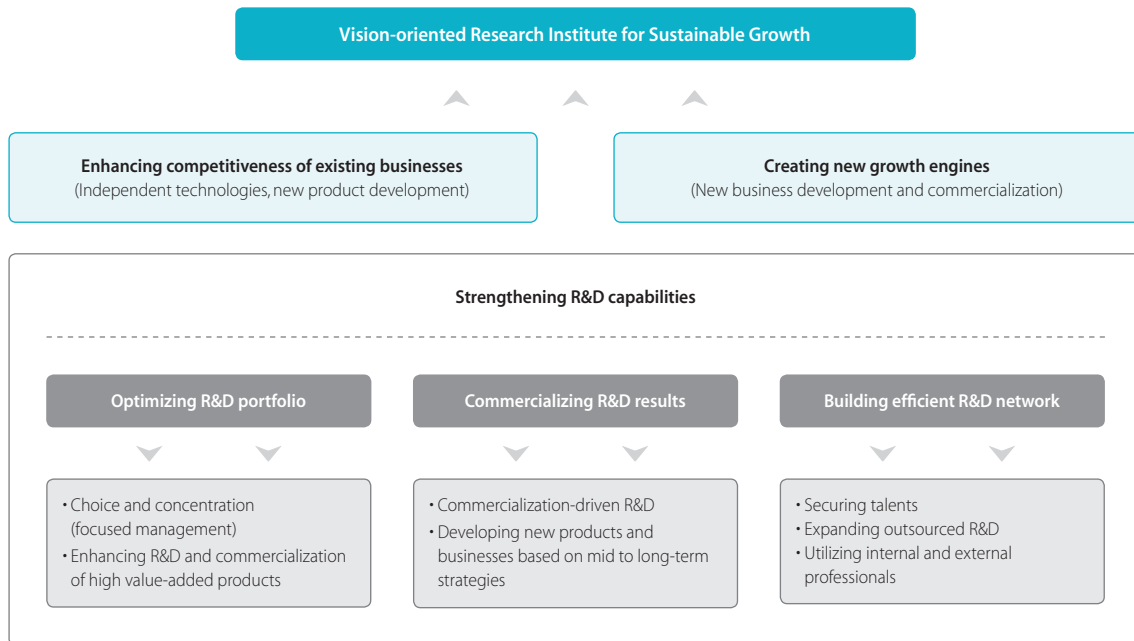
By building on accumulated capabilities and experiences in the petrochemical business for more than 30 years, Lotte Chemical strives to evolve into a top-tier chemical company in Asia and beyond. To that end, Lotte Chemical is proactive in exploring new markets, seizing new business opportunities, and strengthening R&D activities.

### Research & Development (R&D)

Lotte Chemical Research Institute | Lotte Chemical Research Institute is working on high value-added products, new business opportunities, process innovation, and quality enhancement. Main research sectors include polyolefin resin, catalyst, new advanced chemicals, chemical synthesis in the monomer field, EP, and megatrend business as a future growth engine.

Currently, Lotte Chemical Research Institute is growing into a pioneering global research center by providing support for product development and technologies to overseas subsidiaries, such as LC Gaheung EP in China, LC Titan in Malaysia, and LC Alabama in the US. Lotte Chemical is also investing in both feedstock and high value-added chemical research to become free of being dependent on crude oil. Lastly, to secure new growth engines for the future, we are also accelerating our research into energy storage, biochemical engineering, and water treatment. These research activities are helping to reach the goal of becoming a top-tier Asian chemical company.




### Vision of Lotte Chemical Research Institute



### R&D Strategy

Based on its unique research system, Lotte Chemical promotes cooperative studies with a variety of stakeholders coming from both domestic and foreign fields of academia and industries. We also engage with research institutes and affiliated companies that relate to basic chemical material, advanced material, and megatrend material.

#### R&D Strategies by Each Sector in 2014

Sector	R&D Item	R&D Vision
 Basic Chemical	Polyolefin	Leading the global polyolefin market
	Monomer	Securing source technology by developing catalyst and process, and creating new businesses
 Advanced Material	Functional materials	Maximizing profitability through developing world's best functional materials in the PM sector
	Engineering plastic	Maximizing profitability through developing world's best products in the EP sector
 Megatrend	Megatrend business	Fostering new growth engines by researches on megatrend sector

### Strengthening R&D Capabilities

Under the long-term vision to leapfrog into a global petrochemical player beyond Asia, Lotte Chemical is making a concerted effort to sharpening R&D capabilities. To this end, we have extended our research buildings and focused on upgrading task classification system, operating research task system, and establishing a patent management system.

#### Joint Research Agreement on Eco-friendly Plastic

Lotte Chemical signed an agreement on joint research with CJ CheilJedang on a national project called 'Bioplastic One-stop Convergence Process Technology Development' in November 2014. The two parties agreed to cooperate in developing and commercializing bioplastic and, ultimately building a plant in Daegu when the technology development upon completion. This project is to produce bioplastic through fermenting and polymerizing biomass sources such as corn, broken rice, and seaweed. This technology is touted as a new growth engine in the chemical industry as



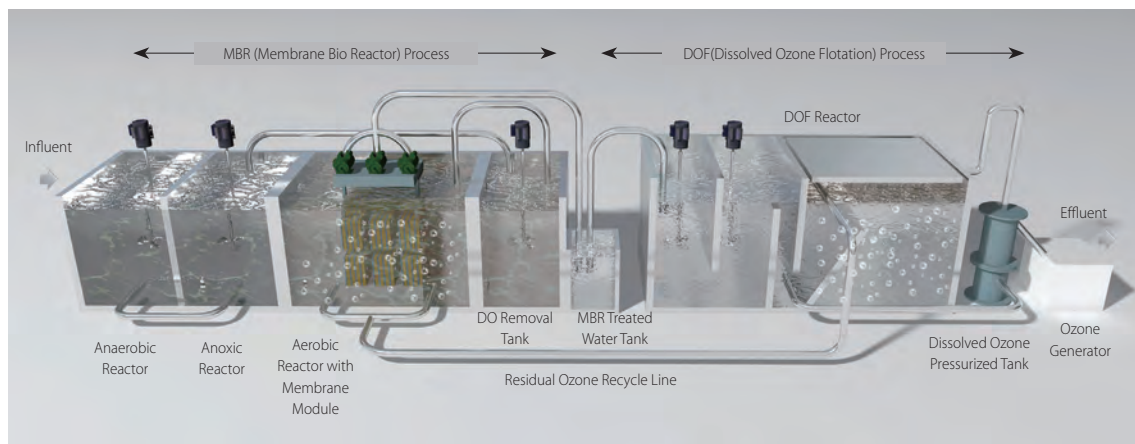
Signing an Agreement on Joint Research on Eco-friendly Plastic

it races to develop eco-friendly technology. It has also been chosen by Korea Institute of S&T Evaluation and Planning as one of the 10 key technologies to drive the nation's economy for the next decade. If commercial production is possible, we will invest KRW 260 billion to build production facilities in Daegu National Industrial Park. Upon the completion, it is expected to produce 60,000 tons of bioplastic, generate KRW 730 billion worth of economic effect, and create 960 new jobs annually.

## Activities to Create Future Value

### Certification on LMBR

Participating in a joint research on new MBR, Lotte Chemical obtained the 'New Environmental Technology Certification (No. 436)' from Korea Environmental Industry & Technology Institute. The Lotte Membrane Bioreactor (LMBR), co-developed with Michigan Technology, purifies and sterilizes water by removing pollutants with micro ozone air bubble. Lotte Chemical has taken charge of designing the membrane and air supply system in this project. Highly effective in removing phosphorus, the LMBR is expected to contribute to addressing eutrophication problems in streams and lakes. Given that the certification is granted to only one or so applicants per year, Lotte Chemical's certification is a rare feat in itself. In particular, we proved our competitive edge by acquiring an international patent in Japan, a powerhouse in advanced membrane technology.



Certification on Lotte Membrane Bioreactor (LMBR)

### Automotive Light Weighting Materials

Lotte Chemical had participated in the joint development project of Hyundai Motor Company's future concept car 'Intrado,' which was unveiled in 2014 at the Geneva Motor Show. Replacing main metal parts such as body frame and roof with Lotte Chemical's proprietary carbon fiber compound material, Lotte Chemical has reduced the car's weight by more than 60%. Independently developed eco-friendly materials such as water paint and bio-polymer were applied to the car's production. Lotte Chemical is the first domestic material company to co-develop weight-reducing body frame, the core part of the vehicle.



Development of Components and Materials for Future Concept-car



## Core Competency Enhancement

Based on five core values of customer-focus, originality, passion, partnership, and performance, Lotte Chemical channels its resources into areas where it can best perform under the vision of 'Top-tier Asian Chemical Company.' Since its establishment in 1976, Lotte Chemical has spearheaded Korea's heavy chemical industry. Now, we are expanding our business portfolio into relevant areas based on competitive edge in the petrochemical business.

### Process Improvement and Stability Enhancement

Lotte Chemical puts priority on continued process improvement and stability enhancement to deliver products of superior quality. We will strive to solidify our position as a leading petrochemical company in Korea, where we have earned such reputation for the past four decades by producing and supplying high-quality products according to customer demands.

### PRIME Vision

The 'PRIME' activities, created to boost employees' engagement in process innovation, involves TPM (Total Productive Management) and suggestion activities in which all employees participate. It centers on the production site's core factors, such as workers, facilities, raw material, and method. Through the PRIME activities aimed at managing facilities, improving working environment, and reducing costs, productivity at each site has been maximized and the results have contributed to our sustainability management. Consequently, we have outperformed the competitors in terms of production capacity, continuous production time, and zero accident man hours.

### Performances in Process Improvement and Stability Enhancement

#### World's First Consecutive Operation without Abnormal Suspension at Daesan Plant

Lotte Chemical's Daesan Plant, with annual production capacity of 320,000 tons, has set the record of 2,300 days of consecutive operation without abnormal suspension for the first time as a polymer plant in the world. This record has been recognized by the original company from which Lotte Chemical introduced the technology. Lotte Chemical will strive to rise as a global petrochemical company by conducting process innovation down to every detail without operation accident.

# Sustainability Management

Lotte Chemical has established sustainability management system based on five core values of customer-focus, originality, passion, partnership, and performance.

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# Governance

## Corporate Governance

### Board of Directors

Lotte Chemical operates the independent Board of Directors (BOD) with the aim of maximizing corporate value and pursuing sustainable development. The BOD plays a role as the top decision-making body in all fields of economy, society, and environment, and consists of 7 directors, 4 of whom are independent outside directors. The BOD is a body resolving material issues and matters regarding basic management policies and job execution under related regulations and articles of incorporation. Therefore, the CEO, who knows the company's management activities the most, serves as the chairman of the BOD.

### BOD Members

Position	Name	Duty	Appointment	Career
Standing director (3 executive directors)	Shin Dong-bin	Chairman & CEO	Mar. 22, 2013	
	Huh Soo-young	BOD Chairman, President & CEO	Mar. 22, 2013	Former CEO of KP Chemical
	Ahn Ju-seok	Executive Director	Mar. 21, 2014	Current head of production HQ of Lotte Chemical
Non-standing director (4 outside directors)	Jeong Dong-gi	Audit Committee Member (legal affair)	Mar. 21, 2014	Current consulting lawyer of Bareun Law Firm
	Park Seok-hwan	Audit Committee Member (overseas business)	Mar. 21, 2014	Former Korean Ambassador to Great Britain
	Park Kyung-hee	Audit Committee Member (finance)	Mar. 20, 2015	Current professor of Business Administration at Ewha Women's University
	Lim Ji-taek	Outside Director	Mar. 21, 2014	Former managing director of LOTTE Confectionery

### Subcommittees under the BOD

**Audit Committee** | The Audit Committee consists of 3 outside directors. All committee members are appointed at the shareholders' meeting and their tenure is set by the articles of incorporation, which ensures the independency of the Audit Committee. The committee contributes to establishing sound corporate governance by focusing on preventive and preemptive audits from the decision-making stage to post-audit on job execution in order to fundamentally avert conflicts of interest. The Audit Committee meeting is held at least quarterly in accordance with the Audit Committee Regulations.

**Outside Director Recommendation Committee** | The Outside Director Recommendation Committee is composed of one executive director and another outside director. The committee members are appointed and dismissed by the BOD. The Outside Director Recommendation Committee possesses the authority to recommend outside director candidates and is required to include candidates recommended by shareholders with rights to make proposal.

**Internal Transaction Committee** | The Internal Transaction Committee is composed of three outside directors and one executive director, and the committee members are appointed by the BOD. This committee possesses the authority to evaluate and approve internal transactions in accordance with the Monopoly Regulation and Fair Trade Act and large scale free contracts with subsidiaries.

### Operation of the BOD

The remuneration of a director, the annual pay ceiling, is resolved at the regular general shareholders' meeting, and the specific amount and payment method for executive directors and executives are delegated to the CEO. The pay is given based on the company's economic, social, and environmental management performance and personal performance. A director who has interest in a specific agenda to be resolved cannot exercise voting right to prevent conflict of interest beforehand. Our employees can ask the BOD for the approval through the Labor-Management Council if they have agendas that require resolution by the Board.

### BOD Activities

The BOD holds a regular meeting every quarter and temporary meetings when there are agendas to be reviewed. It has the authority to oversee management status, deliberate key business strategies, and decide executions, striving for the reflection of stakeholders' opinions in management activities. In 2014, a total of 12 BOD meetings were held and major agendas included approvals for a joint investment with Hyundai Oilbank, investment in establishing the US subsidiary, and appointment of the Internal Transaction Committee members. More details on BOD activities can be found on Lotte Chemical's homepage and the business report.

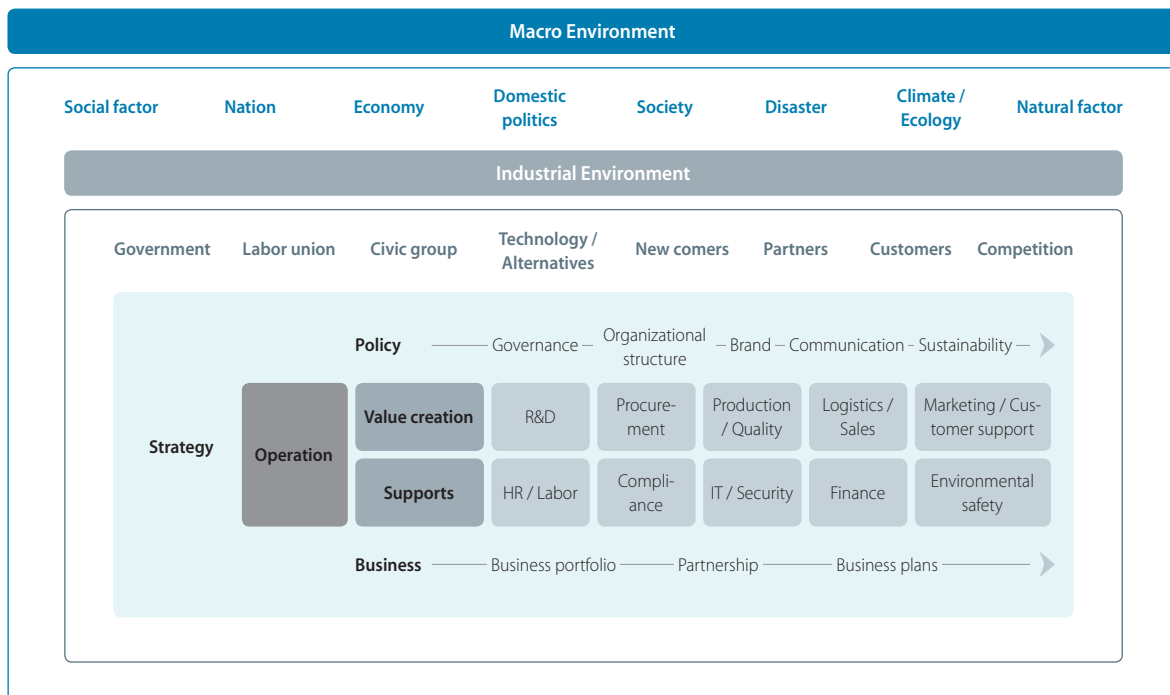
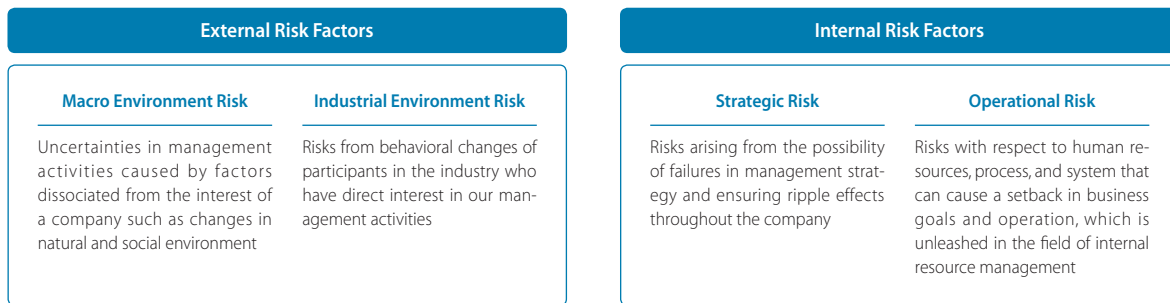
# Risk Management

## Risk Management System

There are various risk factors such as global economic recession, deterioration of profitability from oversupply, unfavorable business conditions due to diverse regulation, uncertainty of new businesses, and fluctuation of exchange rate with respect to our businesses. To minimize those possible risks and ensure sustainable growth, the company has been operating the ERM (Enterprise Risk Management) system, an integrated risk management system, which can effectively handle increasing internal and external risk factors. Through the system, we figure out risk factors to be managed in the company level and systematically and preemptively control potential core risks that may have negative effects on our businesses. The integrated risk management system allows us to identify risk factors at a proper time and eliminate them before precipitating crisis.

### Risk Structure

Risks are classified into external and internal ones. The former include macro environment risk and industrial environment risk, while the latter covers strategic risk and operational risk.



# Risk Management

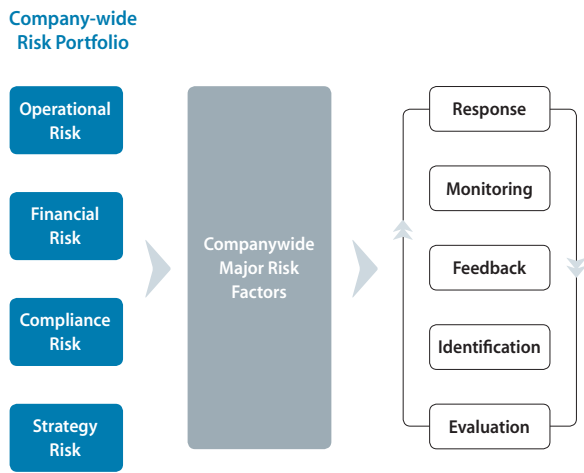
## Risk Management Process

Our risk management process starts from creating a risk portfolio that identifies risks in 4 areas of operation, finance, compliance, and strategy. The risk portfolio is evaluated by company-wide coherent criteria to select key risks. The selected key risks are preemptively and consistently controlled by being linked with our management process ranging from strategy development to performance evaluation.

### Risk Classification

<b>Operational Risk</b>	<ul style="list-style-type: none"> <li>• Occurrence of environmental or safety incidents and problems</li> <li>• Damage of corporate image from inappropriate response to media</li> <li>• Poor management of subsidiaries due to insufficient control</li> </ul>
<b>Financial Risk</b>	<ul style="list-style-type: none"> <li>• Loss from fluctuant exchange rate</li> <li>• Insolvency of trade receivables</li> </ul>
<b>Compliance Risk</b>	<ul style="list-style-type: none"> <li>• Violation of environmental or safety regulations</li> <li>• Violation of fair trade related regulations</li> </ul>
<b>Strategy Risk</b>	<ul style="list-style-type: none"> <li>• Failure in new businesses</li> <li>• Deterioration of market condition and growth potential</li> <li>• Decrease of profitability due to fierce competition</li> <li>• Insufficient supply and strong prices of raw materials</li> </ul>

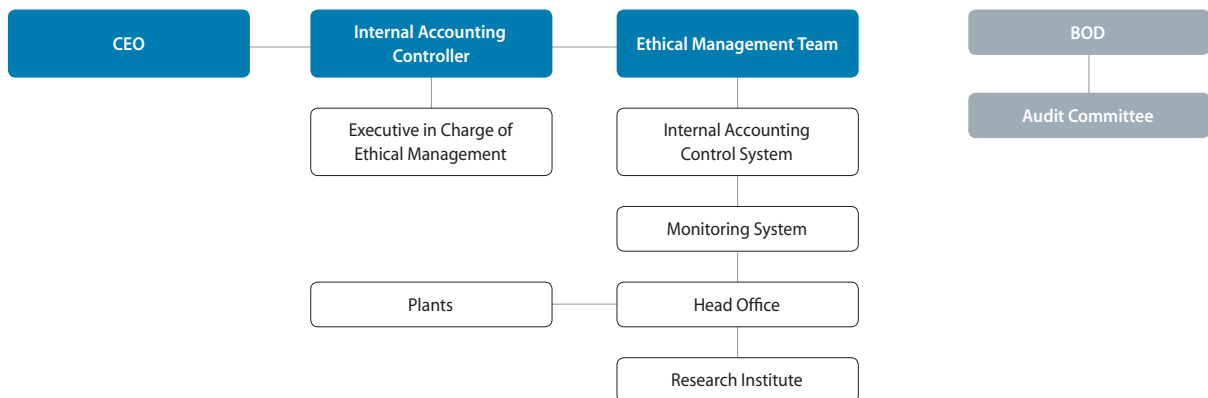
### Risk Management Process



## Internal Control System

Lotte Chemical operates the internal control system to efficiently respond to diverse relevant laws and regulations. The management and responsible organizations analyze work process to classify risks wielding serious impact on business activities, and evaluate and check the status of internal control for such risks. The evaluation results are reported to the Audit Committee as well as the BOD and subsequently reviewed and certified by the independent auditors and the Audit Committee. As a result of regular and frequent special audits by the Ethical Management Team in 2014, there was no internal control violation or corruption. We will continue to strictly operate the internal control system to comply with relevant laws and regulations and improve the reliability of financial reporting.

### Internal Control System



# Sustainability Management System

## Vision and Core Values

In line with the Group-level vision 'Asia Top 10 Global Group,' Lotte Chemical is committed to becoming a top-tier Asian chemical company. We also do our utmost to implement our five core values of customer-focus, originality, passion, partnership, and performance in order to deliver higher values to stakeholders.

## Organization for Sustainability Management Practices

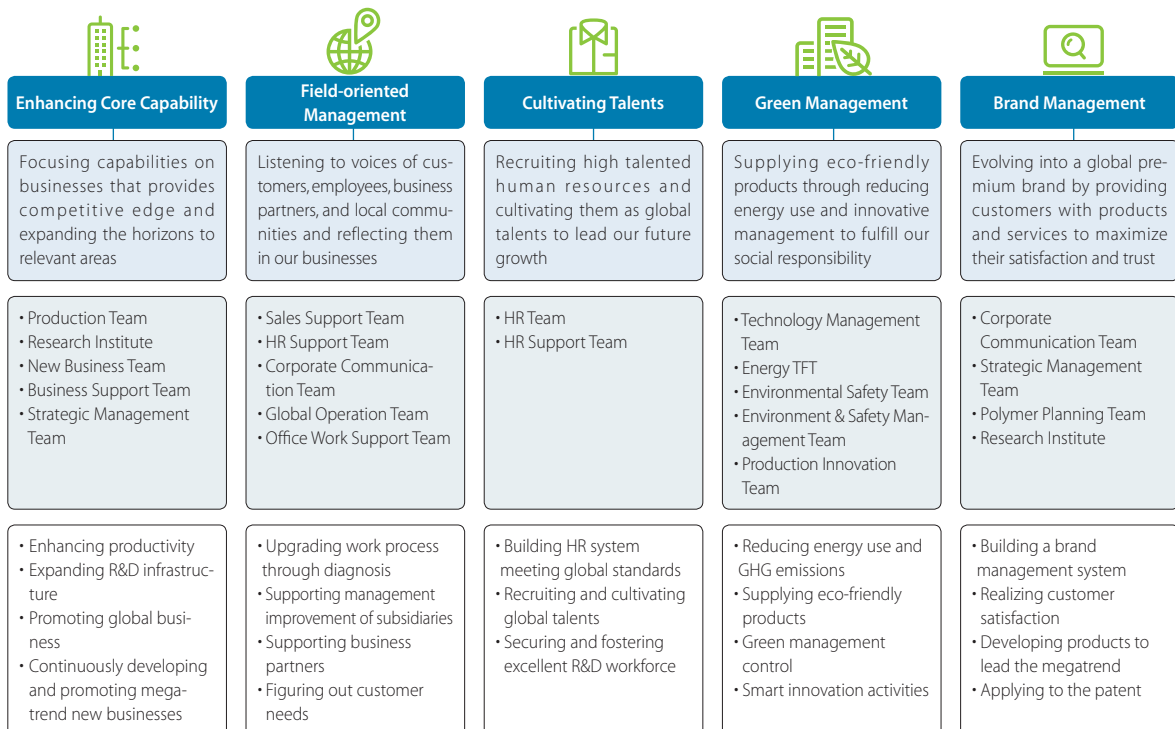
Lotte Chemical has established an organization to efficiently implement sustainability management. In particular, the CEO directly manages and supervises sustainability management throughout the company and divisions dedicated to social and environmental issues are proactive in organic cooperation. The company also designates teams responsible for focus areas and define tasks to be promoted by each area to encourage sustainability management practices.

## Action Plans for Sustainability Management in 2015

### Action Plans for Sustainability Management in 2015



### Sustainability Management Strategy Based on Management Policies



# Sustainability Management System

## Sustainability Management Performances

### Included in the DJSI Asia Pacific

Lotte Chemical has been included in the Dow Jones Index and DJSI (Dow Jones Sustainable Indices) Asia Pacific, nominated by SAM (Sustainable Asset Manager), for 4 consecutive years. Serving as a yardstick to evaluate SRI, the DJSI makes comprehensive review of a company's economic, environmental, and social performances. As of 2014, the DJSI Asia Pacific includes the leading 20 percent of the top 600 companies in developed Asia Pacific markets (based on market capitalization) in terms of sustainability management. Only 40 companies in Korea were certified for the indices in 2014.



Certified for the DJSI Asia Pacific 2014-2015

### Selected as an Excellent Company by the Climate Competitiveness Index

Lotte Chemical was awarded as an excellent company in the petrochemical sector at the 'Climate Competitiveness Index Award' in October 2014. Organized by the Ministry of Trade, Industry & Energy and co-hosted by Korea Energy Management Corporation and Business Institute for Sustainable Development, the award recognizes businesses for taking preemptive responses to climate change, reducing GHG emissions, and contributing to enhancing the status of the nation in the global community. The Index evaluates five areas including climate risk, climate accomplishment, market opportunity, policy cooperation, and climate application. Key criteria of this year were GHG emission intensity, GHG reduction and energy saving performance, product and service development, disclosure of information regarding climate change, and establishment of climate adaptation measures.



Selected as an Excellent Company by the Climate Competitiveness Index

### Won the Excellent Corporate Governance Award 2014

In 2014, Lotte Chemical won the 'Excellent Corporate Governance Award' at the corporate governance awarding ceremony hosted by Korea Corporate Governance Service in recognition of its efforts to establish transparent governance, environmental management system, and social contribution activities.



Won the Excellent Corporate Governance Award 2014



### Won the Platinum Award at the Spotlight Awards

Our sustainability report won the Platinum Award at the Spotlight Awards, an international PR and communication materials competition, hosted by the League of American Communications Professionals (LACP) in November 2014. Celebrating the 14th anniversary after its launch in 2001, the competition receives promotional literatures and reports from global companies. More than 1,500 entries created by 300 companies from 10 different countries were submitted in 2014. Lotte Chemical participated for the first time but won the highest-level prize in sustainability report category. Overall, Lotte Chemical ranked No. 5 out of approximately 1,500 entries. Not only this, Lotte Chemical's sustainability report won 'the most inspiring brochure prize' in recognition of its original design and content.

\* LACP (League of American Communication Professionals): LACP hosts the annual competition for communication materials and receives sustainability reports, brochures, and news letters from some of the most recognized organizations throughout the world. It also offers promotion strategy consultancy service, facilitating information sharing among communications experts.









Received the Platinum Award for Sustainability Report from LACP

# Stakeholder Engagement

## Communication with Stakeholders

Lotte Chemical has been operating diverse communication channels to identify stakeholders' expectations and demands on its sustainability management. All organizations and individuals affecting the company directly and indirectly are defined as stakeholders, and they are classified into customers, shareholders, employees, business partners, government, and local communities. The company also conducts regular surveys of each stakeholder group to comprehensively analyze their opinions and adopt them to the establishment of sustainability management strategy.

### Stakeholders' Expectations and Communication Channel

Stakeholder	Expectations	Lotte Chemical's Activities	Communication Channels
<p><b>Government</b></p> 	<ul style="list-style-type: none"> <li>• Compliance with regulations</li> <li>• Tax payment</li> <li>• Cooperation with the government policies</li> </ul>	<p>We contribute to creating social values and jobs, and improving the quality of people's lives through observing laws and conducting sound business activities.</p>	<ul style="list-style-type: none"> <li>• Public hearing by the government</li> <li>• Forum</li> <li>• Council</li> <li>• Participation in national tasks</li> <li>• Collaboration programs</li> </ul>
<p><b>Employees</b></p> 	<ul style="list-style-type: none"> <li>• Competency development opportunities</li> <li>• Fair evaluation and compensation</li> <li>• Human rights protection</li> <li>• Organizational culture pursuing mutual growth with the company</li> </ul>	<p>Fair compensation and diverse welfare systems are offered to create optimized work environment. We also strive to build a culture where employees are able to participate in corporate management voluntarily.</p>	<ul style="list-style-type: none"> <li>• Labor-Management Council</li> <li>• Events for communication</li> <li>• Site Operation Committee</li> <li>• Satisfaction survey</li> <li>• Intranet</li> <li>• Presentation on business status</li> </ul>
<p><b>Business Partners</b></p> 	<ul style="list-style-type: none"> <li>• Fair transaction</li> <li>• Development of business partners' competency</li> <li>• Support for partners' CSR activities</li> </ul>	<p>We provide business partners with fair opportunities and ensure transparent transaction with the aim of mutual prosperity.</p>	<ul style="list-style-type: none"> <li>• Meetings with business partners</li> <li>• Technical cooperation project with SMEs</li> <li>• Lotte Academy</li> <li>• CEO's visit to business partners</li> </ul>
<p><b>Local Communities</b></p> 	<ul style="list-style-type: none"> <li>• Regular communication</li> <li>• Minimizing environmental impact on local communities</li> <li>• Promoting contributions to local communities</li> <li>• Recruiting local people and contributing to local economy</li> </ul>	<p>Diverse channels are being operated to swiftly communicate with local communities. We are also proactive in social contribution activities.</p>	<ul style="list-style-type: none"> <li>• Sisterhood tie</li> <li>• Meetings with local residents</li> <li>• Environmental cleanup</li> <li>• Social contribution activity</li> </ul>
<p><b>Shareholders &amp; Investors</b></p> 	<ul style="list-style-type: none"> <li>• Stable and sustainable growth</li> <li>• Corporate value increase through CSR activities</li> <li>• Transparent disclosure on management information</li> </ul>	<p>To promote both corporate value and shareholder value, we carry out transparent and efficient management activities as well as create profits.</p>	<ul style="list-style-type: none"> <li>• Shareholders' meeting</li> <li>• Disclosure</li> <li>• IR website</li> <li>• Ethical management website</li> </ul>
<p><b>Customers</b></p> 	<ul style="list-style-type: none"> <li>• Product safety</li> <li>• Continuous communication</li> <li>• Fair marketing</li> <li>• Customer privacy protection</li> </ul>	<p>We always listen to customers' requirements through a variety of channels and implement regular surveys to maximize customer satisfaction.</p>	<ul style="list-style-type: none"> <li>• Direct visit (frequently)</li> <li>• Customer satisfaction survey</li> <li>• Customer invitation program</li> <li>• Customer complaint treatment process</li> </ul>

## Interview with Stakeholders



### Relevant Authority

Director General, Korea Chemical  
Management Association,  
**Kim Jae-sung**

Korea Chemicals Management Association is Lotte Chemical's partner in the initiative to protect people and environment from harmful chemical substances. We co-host seminars on topics such as prevention of chemical accidents and chemical substances control. We also work to deepen cooperative framework for the implementation of newly introduced regulations including 'Act Concerning Registration, Evaluation, etc. of Chemical Substances,' and 'Chemical Substances Control Act.' Those two acts have been enforced since its revision in 2015. For example, the former act requires the registration of new chemical substances as well as existing ones. The latter makes written off-site assessment sheet on facilities dealing with harmful chemical substances mandatory. You need to build an infrastructure including organizations and professional staff dedicated to these new regulations. I hope Lotte Chemical will set good practices in chemical substance management and promote people's health. I'd also like to ask Lotte Chemical for relentless communication with stakeholders and win-win relations with business partners.

Toray Chemical Korea procures EG, PET chip, and PC from Lotte Chemical. Lotte Chemical, as the largest mono ethylene glycol (MEG) supplier in Korea, demonstrates its competency to stably supply MEG and provides high-quality PET chip through stricter quality control than any other competitors, which in turn contributes to guaranteeing the quality of our products. Lotte Chemical may be a latecomer in PC but is very quick to respond to our demands. Lotte Chemical not only takes prompt action upon our urgent delivery request but also works hard to improve product quality. In order to become a sustainable company, it is essential for Lotte Chemical to continuously focus on developing high-quality products and reducing production costs instead of staying complacent with existing product line-up. I hope that Lotte Chemical put win-win growth at the center of its management policy so that we can foster this partnership for years to come.



### Customer

Manager, Toray Chemical Korea,  
**Kim Jae-bong**



### Local Communities

Welfare Officer, Dongjak Welfare Center,  
**Kim Hyun-kook**

Dongjak Welfare Center has been providing support for North Korean defector students living in Korea for their study and adaption to new environment since August 2012 in cooperation with Lotte Chemical. It has been possible as both sides are united in putting emphasis on values and benefits of local communities. Thanks to this program, North Korean defector students who had had difficulties in getting used to a new life in a new country are pursuing their dreams to establish themselves as proud members in the society. Some landed jobs here while others entered college. Just as this program has demonstrated, I would like to ask Lotte Chemical to continuously engage in environmental issues that are relevant to the society in general. I also hope to see Lotte Chemical put to its priority and return what it has received from the local communities. I appreciate Lotte Chemical for its participation in various youth support projects and expect that it keeps engaging in social contribution activities aimed at nurturing talents for the better future.

Doobon, as a plastic additives manufacturer, has been supplying a variety of additives to Lotte Chemical for over a decade. In particular, our additives pre-blending technology has contributed to process stabilization and advancement of Lotte Chemical. Doobon has participated in the 'Industrial Innovation 3.0 Movement' for two years as a business partner of Lotte Chemical, receiving the supports for consultancy service and facilities for productivity improvement. This program has greatly contributed to improving our productivity as well as quality. We recognize that Lotte Chemical hosts a wealth of seminars for mutual growth. I hope there are more opportunities to learn about industry trend from a broader perspective in the future.



### Business Partner

CEO, Doobon, **Lee Dae-hee**

# Selection of Material Sustainability Issues in 2014

## Reporting Contents Determination Process

### In Accordance with GRI Process

The GRI (Global Reporting Initiative) presents the following processes in selecting material issues and reporting contents. We have drawn up this report to ensure sustainability context, materiality, completeness, and stakeholder inclusiveness by faithfully reflecting the GRI's process of decision making on reporting content.



## Materiality Test

### Media Research Results

#### Major Issues on Media





Materiality Test

**Social Concern**

We identified external stakeholders' concern on relevant issues, in particular, each issue's influence on stakeholders' activities and their decision-makings.

**Business Impact**

To understand the connectivity between our management strategy and CSR issues and to analyze our economic, environmental, and social effects on the issues, we evaluated our CSR strategies, media research results, and major issues in the industry.



Identifying and Reporting Core Issues

**Identification of Core Issues**

Based on the results of social concern and business impact understood by the materiality test, we drew out core issues for this year's sustainability management report. Those core issues are not only dealt with in this report but also utilized for examining current CSR management status and generating improvement tasks.

**Disclosure of material issues and relevant information**

The selected core issues are reported throughout the Lotte Chemical's 2014 sustainability management report.

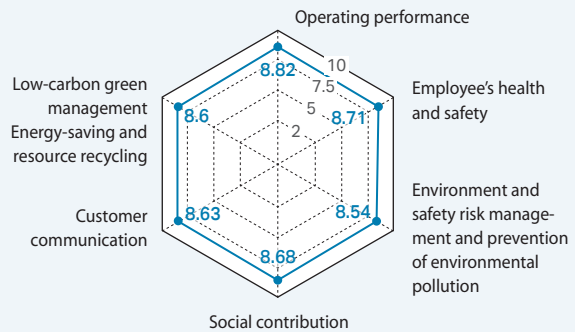
**Analysis of Sustainability Management Trend**

**Global Initiatives and Major Issues of Competitors**

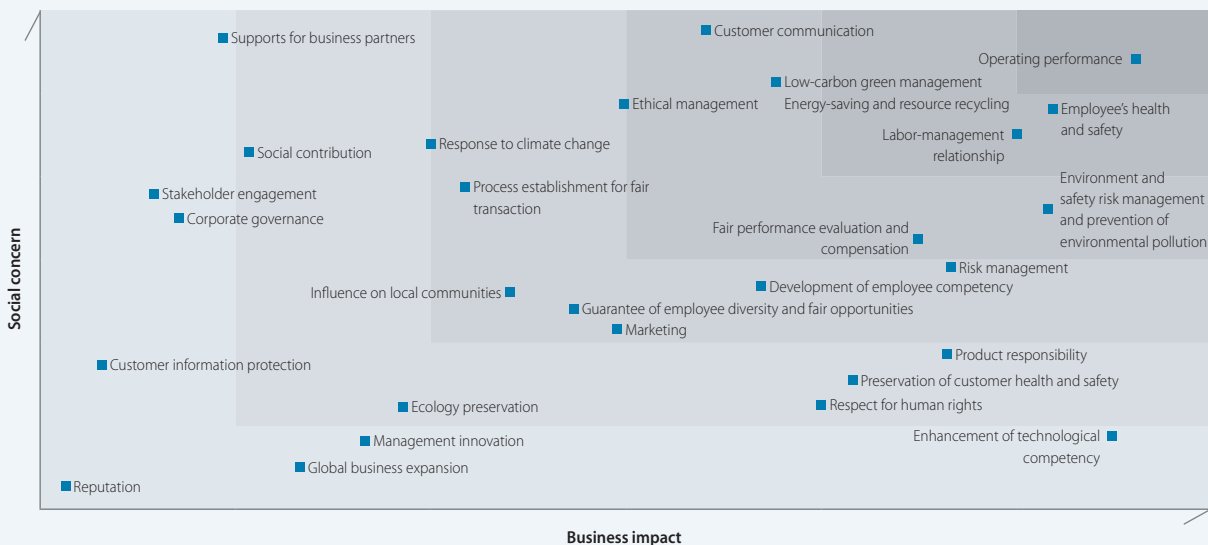
- Operating performance
- Labor-Management relationship
- Corporate governance
- Employee's health and safety
- Ethical management
- Customer communication
- Stakeholder engagement
- Supports for business partners
- Response to climate change
- Social contribution
- Energy-saving and resource recycling
- Environment and safety risk management and prevention of environmental pollution

**Analysis of Stakeholder Survey**

**Top 6 Issues in Influence on Stakeholders** (Unit: points)





**Results of Materiality Test**



# Selection of Material Sustainability Issues in 2014

## Material Issues in 2014

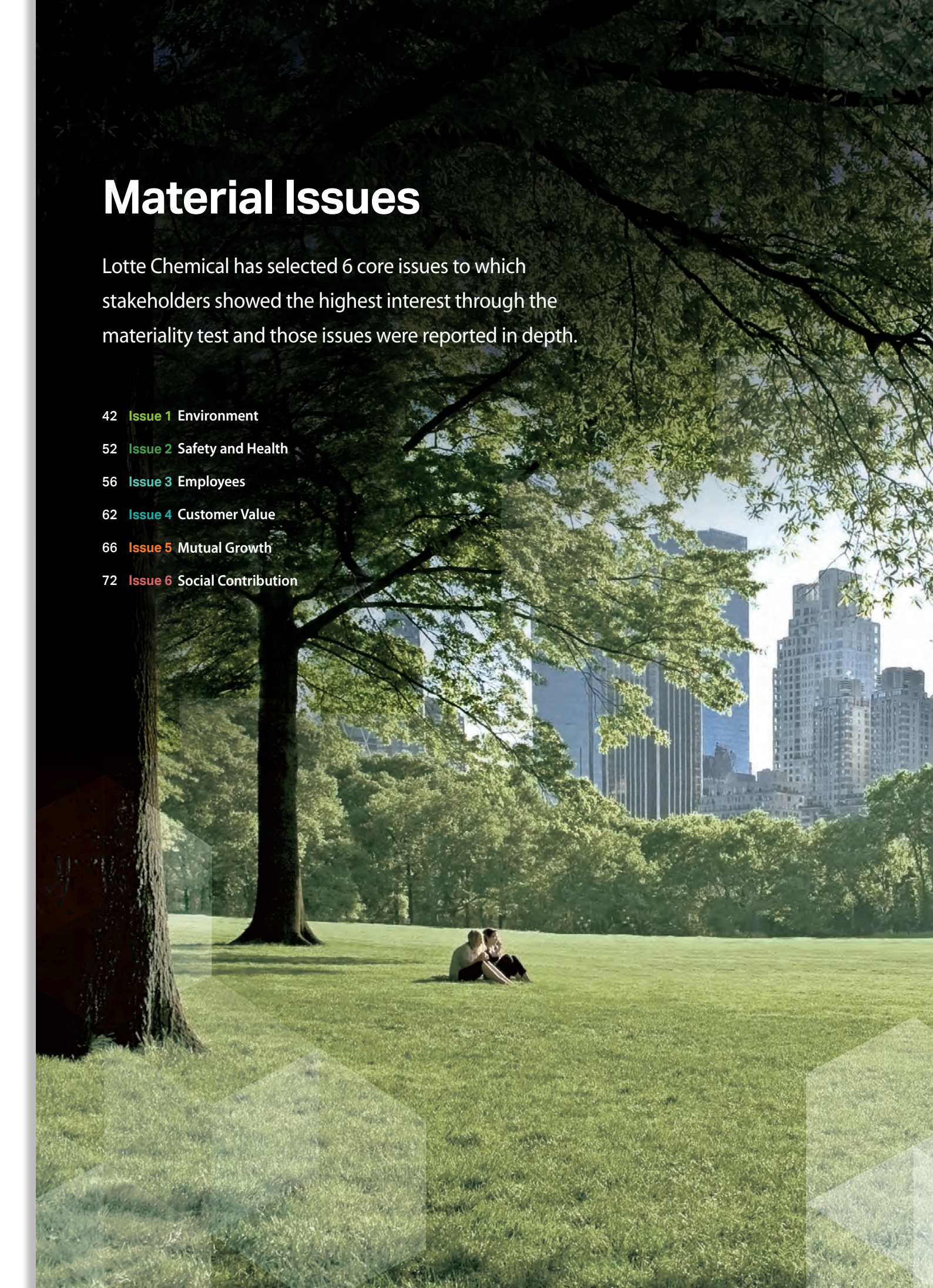
2014 Material Issue	Boundary	Context
<p>Operating performance</p> <hr/> <p>Risk management</p>	<p>Shareholders and investors</p> 	<p>To strategically expand overseas business and develop new businesses, we are conducting innovation activities aimed at increasing local production of basic chemicals, intensively fostering functional materials, and promoting megatrend businesses. In addition, we are proactive in responding to financial and non-financial risks to ensure sustainability management.</p>
<p>Employee health and safety</p> <hr/> <p>Employee competency enhancement</p> <hr/> <p>Win-win labor-management relations</p>	<p>Employees</p> 	<p>At Lotte Chemical, all employees are dedicated to building a safe workplace. The company also pays attention to making work environment where all employees are able to fully display their abilities.</p>
<p>Low-carbon green management</p> <hr/> <p>Response to climate change</p>	<p>Customers · local communities · government</p> 	<p>Green management and response to climate change have become more relevant to businesses than ever before with increasing international treaties, strengthened regulations, investor's demand for person-environment fit, and preference for eco-friendly products.</p>
<p>Environmental safety risk management and prevention of environmental pollution</p> <hr/> <p>Enhanced chemical substances management</p>	<p>Customers · local communities · government</p> 	<p>Considering the characteristics of handling chemical products, environmental and safety risks have to be managed in the forefront. Systematic management of environmental safety and relevant issues is a fundamental responsibility for petrochemical companies. We strive to remove potential environmental safety risks through strict prevention activities, which minimize negative impacts on the environment.</p>
<p>Communication with customers</p>	<p>Customers</p> 	<p>Lotte Chemical recognizes that developing world-class technology and innovation ensures our survival. To that end, the company pledges to do its utmost to deliver impeccable quality products and services to customers.</p>
<p>Support for business partners</p>	<p>Business partners · government</p> 	<p>Sustainable mutual growth with business partners should be sought to ensure competitive edge and lasting progress for both businesses and industry. Lotte Chemical creates new values based on win-win growth between large companies and business partners.</p>
<p>Strategic social contribution activities</p>	<p>Local communities</p> 	<p>Corporate Social Responsibility is integral to sustainability management. CSR, in a true sense, is social contribution that brings about substantial benefits to local communities; it is not just a series of charity events performed nominally.</p>

Approach	Response	Next Step	Page
We promote new businesses and diversify business portfolio to secure new growth engines and reduce business risks. In addition, we focus on preemptively managing risk factors that may stand in the way of our sustainable growth by building relevant organizations.	<ul style="list-style-type: none"> <li>• Building a risk response system</li> <li>• Completing petrochemical plants in Uzbekistan</li> <li>• Joint project for manufacturing mixed xylene</li> <li>• Entering the synthetic rubber business</li> </ul>	<ul style="list-style-type: none"> <li>• Figuring out company-wide risks and preemptively responding to potential risks</li> <li>• Promoting new businesses</li> </ul>	16~25 29~33
Lotte Chemical established the Safety & Environment Technology Division to forge a culture of safety and diagnose the level of business partners' safety management. We also operate diverse welfare benefit and career development programs to ensure employees' stable and fruitful career environment.	<ul style="list-style-type: none"> <li>• Conducting family-friendly management</li> <li>• Enhancing career development programs</li> <li>• Cross safety check among business sites</li> <li>• Inspecting the safety of subsidiaries</li> <li>• Building an integrated safety management system</li> </ul>	<ul style="list-style-type: none"> <li>• Expanding welfare benefit programs</li> <li>• Establishing the maternity protection system</li> <li>• Responding to safety regulations and prevention activities</li> <li>• Managing business sites safely</li> </ul>	52~61
We are proactive in responding to climate change to fulfill our social responsibility. To this end, we comply with internal and external energy and GHG related regulations and lay foundation for sustainable growth by curtailing energy consumption.	<ul style="list-style-type: none"> <li>• Complying with the GHG Emissions Target Management System</li> <li>• Responding to emissions trading system</li> <li>• Selecting as an excellent company in climate competitiveness index</li> <li>• Strengthening energy saving activities</li> </ul>	<ul style="list-style-type: none"> <li>• Responding to emissions trading system</li> <li>• Conducting energy saving activities additionally</li> </ul>	42~45
By establishing the Safety & Environment Technology Division, Lotte Chemical systematically manages environment and safety issues and regulations. We also build strategies to capitalize on regulatory and physical risks and opportunities with respect to environment, through which relevant risks are strictly controlled and prevented.	<ul style="list-style-type: none"> <li>• Coping with global chemical substance regulations</li> <li>• Coping with the domestic environmental regulations</li> <li>• Building a chemical substance management system</li> <li>• Expanding environmental pollution prevention activities</li> </ul>	<ul style="list-style-type: none"> <li>• Compulsorily implementing new environmental regulations</li> <li>• Building the chemical substance management system to effectively control chemical substance storage and shipment and instill relevant regulations control</li> </ul>	42~51 55
Lotte Chemical enhances its brand loyalty by pledging to deal with a customer complaints and taking heed to their demands via open communication channels.	<ul style="list-style-type: none"> <li>• Customer satisfaction survey</li> <li>• Maintenance supports for customers</li> <li>• Improving customer complaints receipt process</li> <li>• Tightening customer information protection</li> </ul>	<ul style="list-style-type: none"> <li>• Establishing plans to prevent reoccurrence of customer complaints</li> <li>• Inviting customers and increasing customer satisfaction</li> </ul>	62~65
Lotte Chemical has set up a Mutual Growth Bureau to promote shared growth with business partners. It supports safety and environmental management for business partners through technology cooperation and educational programs. Lotte chemical also manages win-win growth fund and credit guarantee fund.	<ul style="list-style-type: none"> <li>• Supports for business partner's environmental safety</li> <li>• Financial aids to business partners</li> <li>• Supports for business partner's export</li> <li>• Supports for business partner's participations in exhibitions</li> </ul>	<ul style="list-style-type: none"> <li>• Expanding supports for business partners' environment and safety inspection</li> <li>• Participating in global assessment model and information disclosure</li> </ul>	66~71
Lotte Chemical contributes to the development of local communities by taking part in a wide range of charity programs and volunteer activities, such as cleaning up our local work site.	<ul style="list-style-type: none"> <li>• Strategic social contribution activities</li> <li>• Matching grant</li> <li>• Book donations for youth</li> <li>• Briquette donation</li> <li>• Opening café for migrant marriage women</li> </ul>	<ul style="list-style-type: none"> <li>• Local community-based social contribution activities</li> <li>• Follow-up management of existing beneficiary organization</li> </ul>	72~77

# Material Issues

Lotte Chemical has selected 6 core issues to which stakeholders showed the highest interest through the materiality test and those issues were reported in depth.

- 42 **Issue 1** Environment
- 52 **Issue 2** Safety and Health
- 56 **Issue 3** Employees
- 62 **Issue 4** Customer Value
- 66 **Issue 5** Mutual Growth
- 72 **Issue 6** Social Contribution







ISSUES

# 01 Environment

Based on its green management system, Lotte Chemical always prioritizes the global environment and carries out diverse eco-friendly activities.

Key Performance



Energy Saving

**733** TJ



CO<sub>2</sub> Reduction

**33,161** tCO<sub>2,eq</sub>

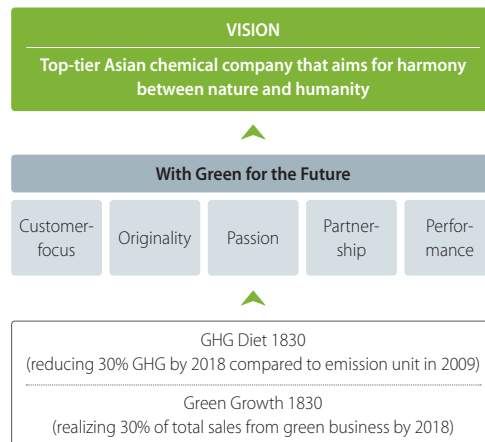


## Environmental Management

### Strategy for Environmental Management

Petrochemical industry deals with a wide array of chemical substances. So it is of utmost imperative for Lotte Chemical to manage environmental safety risks. Guided by its vision for green management 'Top-tier Asian chemical company that aims for harmony between nature and humanity,' Lotte Chemical targets a 30% reduction of GHG emissions compared with 2009 as well as a 30% share of eco-friendly products in total sales by 2018.

### Green Management Vision



### Organization for Environmental Safety Management

Lotte Chemical implements in-house monitoring and inspection activities at the worksite level for the management of environmental safety risk. We also set up company-wide integrated environmental safety inspection team in order to ensure balanced risk management at each worksite. Also, to respond to tightening regulations, we draft measures by preliminary reviews and analysis of recent trends.

### Green Management System

Lotte Chemical has built the Green Management System to ensure efficient control of environmental factors and the practice of low carbon & green growth policy. Through the Green Management System, we are striving to raising efficiency in using resources and energy and minimizing GHG emissions and environmental pollution. Regular monitoring for mid- and long-term improvement activities is being conducted as well. The Management Committee chaired by the CEO establishes the strategic direction for green management

while the Technology Committee proposes measures by each plant to cope with climate change. Also, we propel green management at the enterprise level by building the GEMS.

### Raising Awareness of Green Management

As part of green management activities, Lotte Chemical has expanded the 'Car-Free Day' campaign and encouraged a variety of green office promotions such as turning off unnecessary lights, buying power-saving office machines, and setting air conditioners at recommended temperature. We also encourage employees to leave car at home on designated day in compliance with the government-led energy-saving initiative.

### Certifications on the Green Management System

Lotte Chemical's Green Management System has acquired certifications such as ISO 14001 (environmental management system), ISO/TS 16949 (vehicle quality management system), OHSAS 18001 (health and safety management system), and KS I 7001/KS I 7002 (GMS), following ISO 9001 (quality management system) in 1993. We have also commissioned an outside audit agency for the annual inspection of the management system, reflecting the recommendations in our environmental management strategies.

### Green Management System Certifications

Classification	Certification	Certified by	Remark
Yeosu Plant	ISO 14001	KFQ	Environmental management system
	OHSAS 18001	KFQ	Occupational safety and health management system
	KOSHA 18001	KOSHA	Occupational safety and health management system
	ISO 9001	KFQ	Quality management system
	ISO/TS 16949	KFQ	Automotive quality management system
	KSI 7001/KSI 7002	KFQ	Green management system
Daesan Plant	ISO 14001	KFQ	Environmental management system
	OHSAS 18001	KFQ	Occupational safety and health management system
	KOSHA 18001	KOSHA	Occupational safety and health management system
	ISO 9001	KFQ	Quality management system
	KSI 7001/KSI 7002	KFQ	Green management system
	Ulsan Plant	ISO 14001	KFQ
OHSAS 18001		KFQ	Occupational safety and health management system
ISO 9001		KFQ	Quality management system
Research Institute	ISO 14001	KFQ	Environmental management system
	ISO 9001	KFQ	Quality management system
	ISO/TS 16949	KFQ	Automotive quality management system
	KSI 7001/KSI 7002	KFQ	Green management system

※ KFQ : Korean Foundation for Quality

### Voluntary Agreement on the Eco-Products Purchasing

Lotte Chemical is registered on the Eco-Products Purchasing program aimed at producing, distributing, and consuming green products. This program pursues invigorating green management voluntarily and laying the foundation for green growth by encouraging the establishment and execution of green purchasing plans.



Signing an Agreement on Voluntary Green Procurement

### Response to Climate Change

Recognizing that its businesses are exposed to risks related to climate change, Lotte Chemical pursues a wide array of drives to reduce GHG emissions and save energy consumption. Joining the global initiative to respond to climate change, employees at Lotte Chemical endeavor to ensure that our efforts have tangible impact on actual management activities instead of simply complying with external requests.

#### Organization for Responding to Climate Change

The Safety & Environment Technology Division takes the lead in responding to climate change at Lotte Chemical. At each plant, staff dedicated to energy issue is engaging in the activities. The headquarters is also preparing strategies for climate change, performance management, and emissions trading at the company level. The staff dedicated to energy issue at each plant encourages energy saving activities, collects GHG reduction suggestions, and serves as a communication channel between worksite and the headquarters.

#### Establishment of the Greenhouse Gas & Energy Management System (GEMS)

Lotte Chemical set up the SAP-based GEMS for the first time in Korea's petrochemical industry to analyze risks related to climate change, thus reducing costs and promoting green growth. As an online monitoring system based on Enterprise Resource Planning (ERP), GEMS is an integrated control system that analyzes and manages data regarding GHG reduction potentials, inventory,

performance management, and compliance with the relevant laws and regulations.

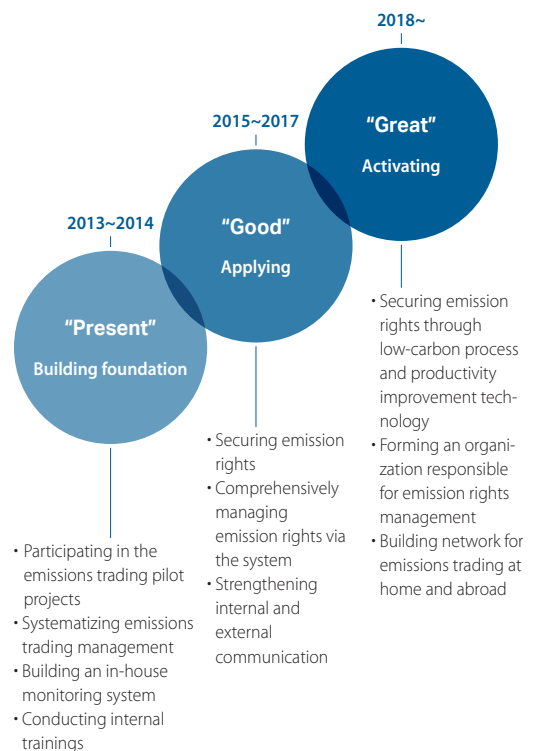
#### Lotte Chemical's GEMS

<b>SAP-based System</b>	<ul style="list-style-type: none"> <li>• First SAP-based comprehensive system</li> <li>• Transparent carbon statistics system</li> </ul>
<b>GHG Reduction Target Management</b>	<ul style="list-style-type: none"> <li>• Management of a permissible amount of emission by the government</li> <li>• Management of performance results</li> </ul>
<b>Integration of Energy/Inventory</b>	<ul style="list-style-type: none"> <li>• Korea's first ERP-based energy/GHG inventory data integration system</li> </ul>
<b>Reasonable Performance Management</b>	<ul style="list-style-type: none"> <li>• Enable objective understanding of the strong/weak points</li> <li>• Allow to use energy KPI as a guideline for internal evaluation</li> </ul>

#### Roadmap for Emissions Trading System

Lotte Chemical has established a roadmap in preparation for the introduction of emissions trading system. In 2015, Lotte Chemical will focus on strengthening both internal and external communications while setting up a comprehensive emissions management system. The company will organize a dedicated team and form network both at home and abroad to ensure the roadmap is integrated into management in general.

#### Roadmap for Emissions Trading



### Participation in Carbon Disclosure Project (CDP)

CDP is a project that assesses global companies' performances in areas including corporate governance, risks and opportunities, strategies, GHG emissions accounting, and communication with respect to climate change. Participants are required to make voluntary disclosure of information on carbon management and the results can be utilized for climate change related investments. Lotte Chemical makes climate change one of its key priorities and is proactive in participating the CDP.



Certification for the Participants in CDP

### Activities to Reduce GHG Emissions and Save Energy Consumption

#### Activities to Reduce GHG Emissions

In compliance with the 'GHG and Energy Target Management System,' Lotte Chemical has submitted GHG emissions statement in the headquarters, Research Institute, Busan Building, Yeosu Plant, Daesan Plant, and Ulsan Plant in March 2014. Also in response to the GHG emissions trading scheme to be introduced in 2015, we registered a written application for emissions allocation and monitoring plans on NGMS. Furthermore, we collected employees' ideas on curtailing GHG emissions and energy consumption. As a result, a total of 58 ideas were received in 2014 from Yeosu, Daesan and Ulsan Plant, which were adopted to onsite management.

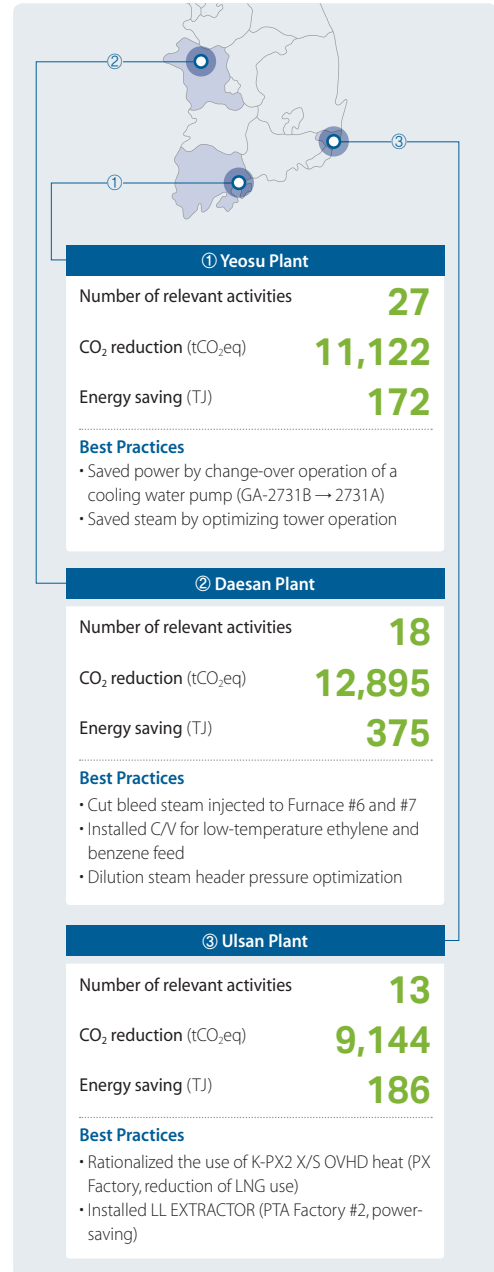
#### Efficiency Improvement of Transport Vehicles

Lotte Chemical had delivered products to customers through hired vehicles. However, the difficulty in directly managing the vehicles made it hard to measure the exact energy consumption and GHG emissions from vehicles. Therefore, we have participate in the government's energy and GHG emissions reduction project in the transportation sector and sought for measures to reorganize transportation system. Our Daesan Plant shortened the inland transport distance by introducing a modal shift. In the meantime, we reduced the number of vehicle operation by replacing small cars with large vehicles and activating the nearby Daesan Port. As a result, we have succeeded in improving vehicle operation




system, transportation routes, and weight measuring system, which led to cutting standby time, logistics costs, fuel consumption, and GHG emissions.

\* Modal shift: Modal shift in freight transport means switching from transport mostly by trucks to transport utilizing railways and ships

### 2014 Reduction of GHG Emissions and Energy Use by Each Plant



**Reduction Results in the Transportation Sector in 2014  
(Daesan Plant and Yeosu Plant)**

<b>Increase of port use (Daesan)</b> 	Cost reduction (KRW in thousands)	<b>454,000</b>
	Reduction of fuel consumption (kℓ)	<b>238</b>
	Reduction of emissions (tCO <sub>2</sub> )	<b>624</b>
<b>Decrease of transportation rate by small vehicles (Yeosu)</b> 	Cost reduction (KRW in thousands)	<b>77,269</b>
	Reduction of fuel consumption (kℓ)	<b>44</b>
	Reduction of emissions (tCO <sub>2</sub> )	<b>117</b>
<b>Introduction of RFID system for weighting (Daesan)</b> 	Reduction of fuel consumption (kℓ)	<b>73</b>
	Reduction of emissions (tCO <sub>2</sub> )	<b>191</b>

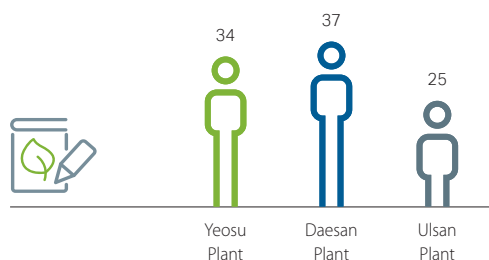
**Prevention of Environmental Pollution**

To minimize impacts on the environment in the production process, we have set up an organization dedicated to the environment at each plant to conduct self-inspection and regular monitoring activities via the tele-monitoring system (TMS). While complying with both domestic and international environmental laws and regulations, we also apply an in-house inspection on environmental pollutants, which presents a much exacting standard than what is legally required.

**Training Environmental Experts**

Lotte Chemical invests in environmental education programs designed to nurture environmental experts who will conduct systemic environmental management.

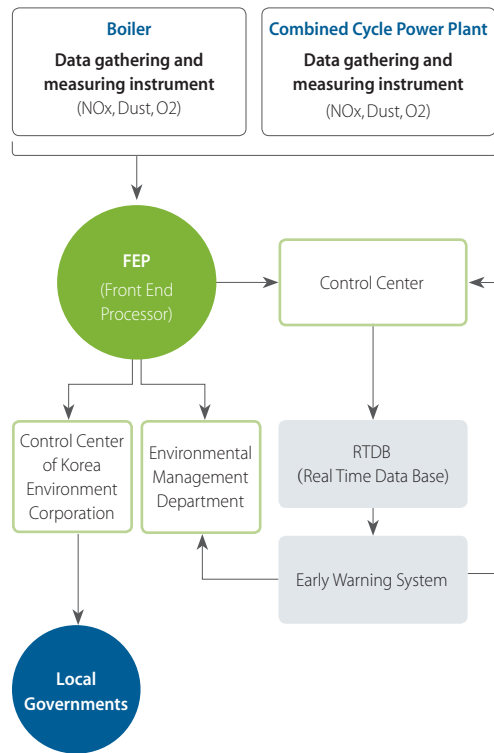
**Number of Employees Completed Environmental Trainings**  
(Unit: persons)



**Air Pollutants Control**

To systematically control air pollutants, the company has installed a round-the-clock automatic air pollution monitoring system for regular self inspection. It has also built the regenerative thermal oxidizer (RTO) at air pollutant discharging facilities to prevent pollutants and odor. Furthermore, we introduced a sealed system to prevent the discharge of VOCs into air from storage tanks, waste water disposal plants, and sampling devices. The collected pollutants are incinerated.

**Transit Structure of the TMS (Tele Monitoring System)  
(Yeosu Plant and Ulsan Plant)**



**Water Pollutants Control**

Lotte Chemical operates in-house wastewater treatment plants at worksites. Wastewater is also controlled through the TMS and wastewater treatment plants in industrial complexes (Yeosu and Ulsan Plant) once again. In addition, Lotte Chemical plans to introduce wastewater recycling process, build recycling systems, and upgrade rainwater utilization methods.

**Wastewater Treatment Process**



**Environmental Impact Assessment**

**Noise**

In order to assess noise impact on the vicinity of plants, we measure noise level on the plant border on a regular basis. Noise is also checked on an irregular basis in case of emergency. The assessment data helps Lotte Chemical to address underlying causes of noise, for example, by setting up soundproof walls. Lotte Chemical's noise impact assessment confirmed that its noise level does not exceed that of living noise.

**Soil**

Lotte Chemical registers and manages soil-contaminating facilities in compliance with Soil Environment Conservation Act. We also conduct soil contamination test on a regular basis, assessing impacts from the operation on nearby soil. In addition, the company conducts soil contamination test of nearby residential area outside operations. The test confirmed that the soil contamination level from operation was below permissible level.

**Waste**

We analyze impacts from waste generated in production process on the environment on a regular basis. We also rigorously manage waste storage facilities to prevent pollution.

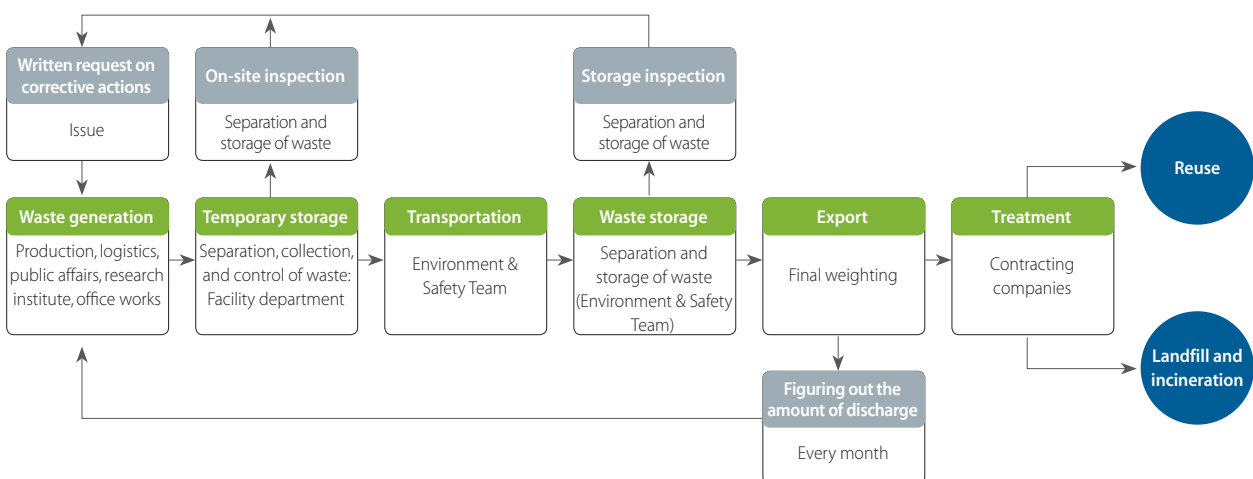
**Waste Control**

Lotte Chemical strives to keep waste volume at the lowest level through the intensive management of waste-generating sources. The company practices green management by maximizing recycling rate through strict separation of waste. Also, we focus on training waste separation and recycling methods as well as improving production process. Other efforts include establishing and managing annual waste volume target, drawing waste reduction plans, and practicing real-name waste discharge system to raise employees' awareness of environmental responsibility. We at Lotte Chemical endeavor to minimize waste discharge and environmental impact and engage in environmental improvement activities for local communities, thus spearheading the establishment of green management.

**Real-name Waste Discharge System**

Wastes from offices are separated before being discharged and the department dedicated to environmental management inspects the status of waste discharge of all departments every month. Under the real-name waste discharge system, all employees are encouraged to attach stickers, which displays the waste type, department, and date of disposal, onto the waste bin.

**Waste Control Process**

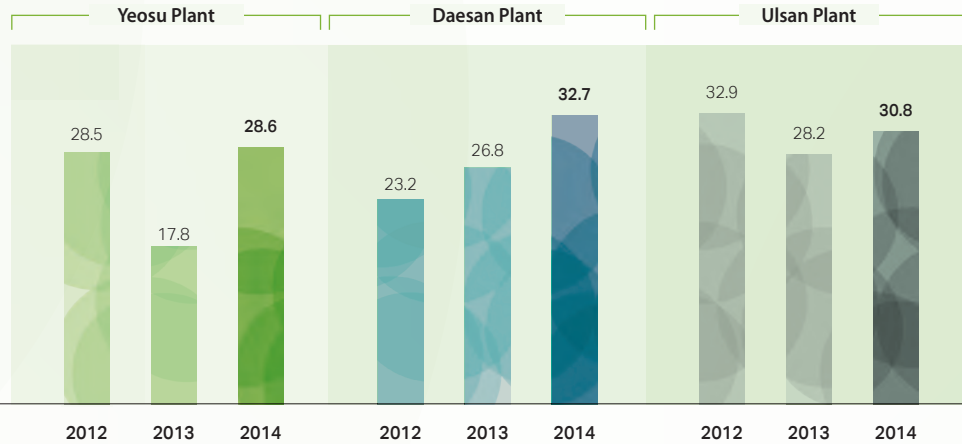


# Environmental Data

## Environmental Investment and Management Expenses

Environmental Investment and Management Expenses

(KRW in billions)

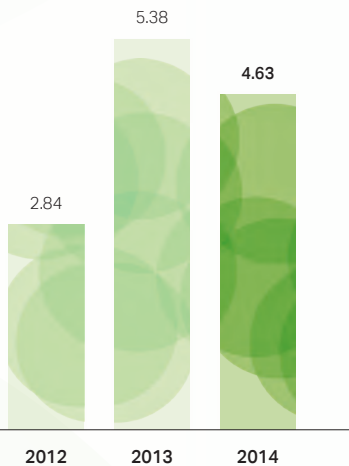


Classification	Yeosu Plant			Daesan Plant			Ulsan Plant		
	2012	2013	2014	2012	2013	2014	2012	2013	2014
Environmental management expenses	7.0	10.1	17.1	19.7	18.6	20.4	27.0	24.8	26.6
Environmental investment	21.5	7.7	11.5	3.4	8.1	12.3	5.9	3.4	4.2
Total	28.5	17.8	28.6	23.1	26.7	32.7	32.9	28.2	30.8

## Green Procurement

Raw and Subsidiary Materials

(KRW in billions)



MRO(Operations maintenance, repair, and operations)

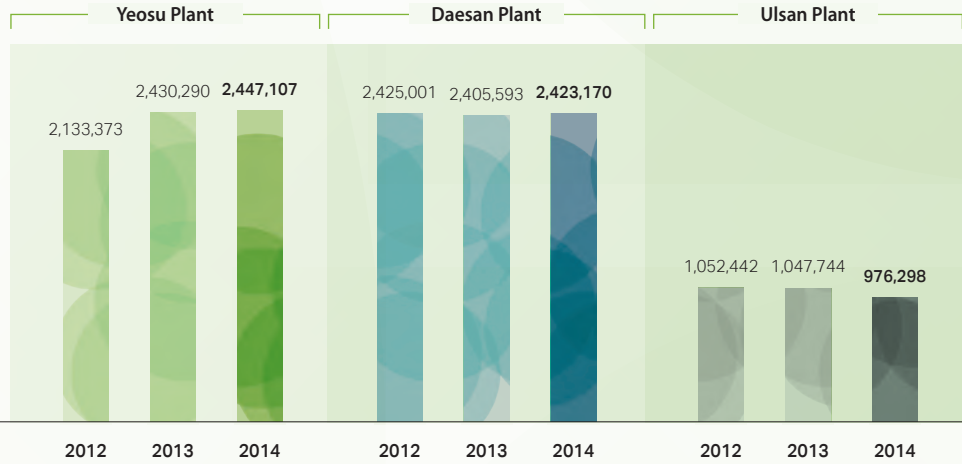
(KRW in billions)





**GHG Emissions**

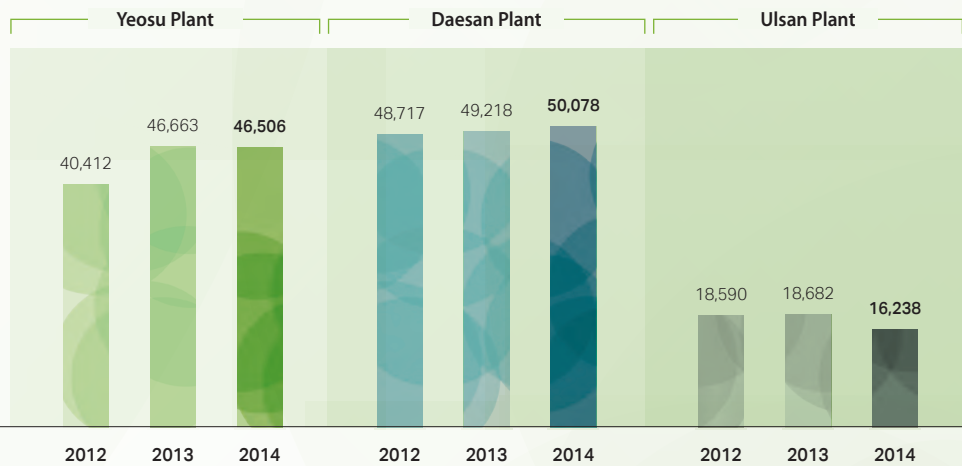
**GHG Emissions**  
(Unit: tCO<sub>2</sub>eq)



Classification	Unit	Yeosu Plant			Daesan Plant			Ulsan Plant		
		2012	2013	2014	2012	2013	2014	2012	2013	2014
Direct emissions	tCO <sub>2</sub> eq	1,748,252	1,981,623	1,994,966	1,747,574	1,777,219	1,784,568	673,019	657,292	616,031
Indirect emissions		385,121	448,667	452,141	677,427	628,374	638,602	379,423	390,452	360,267
Total		2,133,373	2,430,290	2,447,107	2,425,001	2,405,593	2,423,170	1,052,442	1,047,744	976,298

**Energy Use**

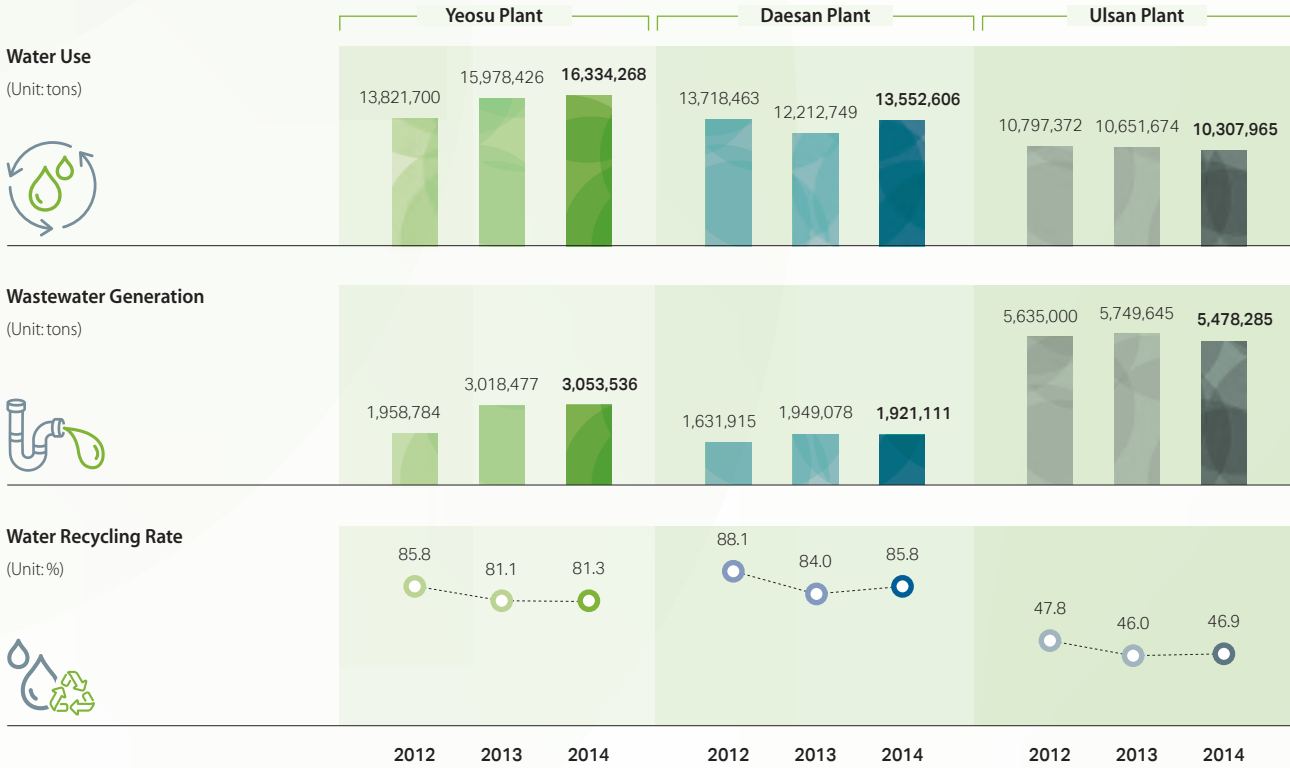
**Energy Use**  
(Unit:TJ)



Classification	Unit	Yeosu Plant			Daesan Plant			Ulsan Plant		
		2012	2013	2014	2012	2013	2014	2012	2013	2014
Direct use	TJ	32,393	37,571	37,412	37,425	38,136	38,362	10,778	10,605	8,897
Indirect use		8,019	9,092	9,094	11,292	11,082	11,716	7,812	8,077	7,341
Total		40,412	46,663	46,506	48,717	49,218	50,078	18,590	18,682	16,238

# Environmental Data

## Water Use, Wastewater Generation & Recycling Rate

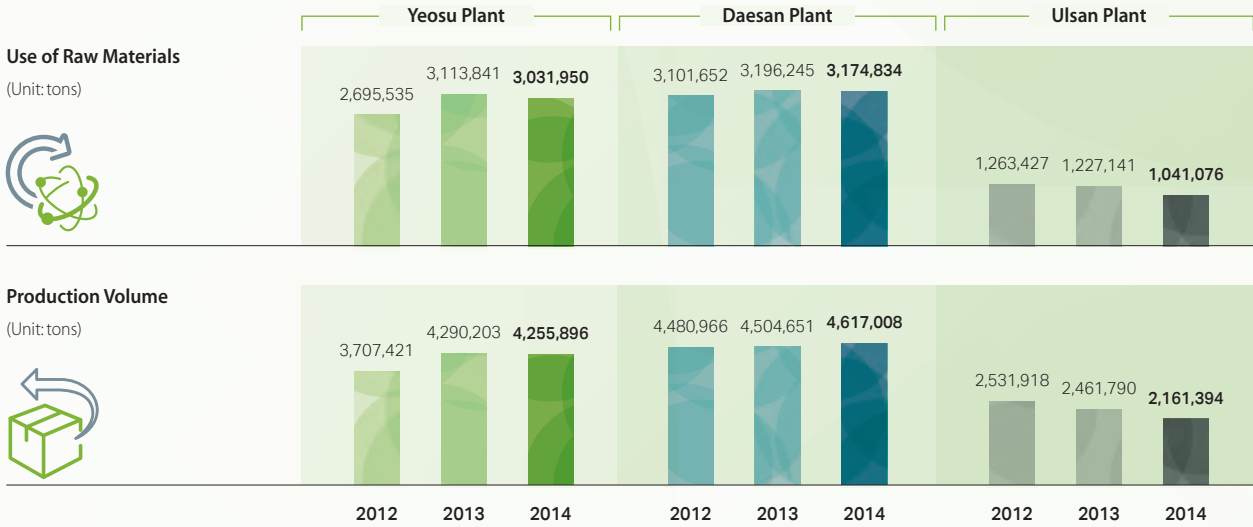


Classification	Unit	Yeosu Plant			Daesan Plant			Ulsan Plant		
		2012	2013	2014	2012	2013	2014	2012	2013	2014
Water use	Tons	13,821,700	15,978,426	16,334,268	13,718,463	12,212,749	13,552,606	10,797,372	10,651,674	10,307,965
Wastewater generation	Tons	1,958,784	3,018,477	3,053,536	1,631,915	1,949,078	1,921,111	5,635,000	5,749,645	5,478,285
Water recycling rate	%	85.8	81.1	81.3	88.1	84.0	85.8	47.8	46.0	46.9

## Waste Generation and Recycling

Classification	Unit	Yeosu Plant			Daesan Plant			Ulsan Plant		
		2012	2013	2014	2012	2013	2014	2012	2013	2014
General waste	Incineration	941	931	2,098	450	376	303	290	832	1,448
	Landfill	2,089	1,650	1,562	1,758	782	215	1,057	2,378	15,791
	Sea dumping	1,167	1,456	-	-	-	-	32,376	24,145	-
	Recycling	5,166	5,143	4,844	1,503	4,274	4,723	6,206	10,328	10,153
	Total	9,363	9,180	8,504	3,711	5,432	5,242	39,929	37,683	27,392
Designated waste	Incineration	1,497	795	1,281	485	238	249	255	49	272
	Landfill	7	86	45	-	-	-	30	6	4
	Sea dumping	-	-	-	-	-	-	-	-	-
	Recycling	9,524	13,083	12,749	11,341	11,394	12,714	299	232	360
	Total	11,028	13,964	14,075	11,826	11,632	12,963	584	287	636
Recycling rate	%	72.0	78.8	77.9	82.7	91.8	95.8	16.1	27.8	37.5

### Use of Raw Materials and Production Volume



Classification	Unit	Yeosu Plant			Daesan Plant			Ulsan Plant		
		2012	2013	2014	2012	2013	2014	2012	2013	2014
Use of raw materials	Tons	2,695,535	3,113,841	3,031,950	3,101,652	3,196,245	3,174,834	1,263,427	1,227,141	1,041,076
Production volume	Tons	3,707,421	4,290,203	4,255,896	4,480,966	4,504,651	4,617,008	2,531,918	2,461,790	2,161,394

### Air Pollutant Emissions

Classification	Unit	Yeosu Plant			Daesan Plant			Ulsan Plant		
		2012	2013	2014	2012	2013	2014	2012	2013	2014
Dust	Tons	70	76	73	11	11	6	34	33	15
SO <sub>2</sub>	Tons	55	58	37	-	1	2	524	102	89
NO <sub>2</sub>	Tons	1,844	1,802	1,485	4	11	8	697	673	392
CO	Tons	58	53	37	1	2	3	-	-	-

\* The differences among plants resulted from the existence of in-house boilers. (No boilers in Daesan Plant)

### Emissions of Harmful Substances

Classification	Unit	Yeosu Plant			Daesan Plant			Ulsan Plant		
		2012	2013	2014	2012	2013	2014	2012	2013	2014
Ethylene	Tons	12	15	18	14	13	13	-	-	-
Propylene	Tons	5	10	11	19	16	17	-	-	-
Paraxylene	Tons	-	-	-	-	-	-	14	14	12
Acetic acid	Tons	-	-	-	-	-	-	5	6	7
Others	Tons	84	92	83	73	60	67	16	21	20

### Water Quality

Classification	Unit	Yeosu Plant			Daesan Plant			Ulsan Plant		
		2012	2013	2014	2012	2013	2014	2012	2013	2014
BOD	ppm	42	37	34	3	2	2	6	1	8
COD	ppm	60	49	46	24	21	23	29	11	23
SS	ppm	41	37	37	5	4	4	13	9	4

\* The differences of wastewater density among plants come from treatment results at wastewater disposal facilities in the industrial complex and in-house facilities. Wastewater density at all plants is operated under legal standards.

ISSUES

## 02 Safety and Health

To ensure a safe working environment, Lotte Chemical is committed to both encouraging its employees to abide by the safety regulations and establishing a work culture that prioritizes safety.

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Key Performance

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Incident Rate

**0** %

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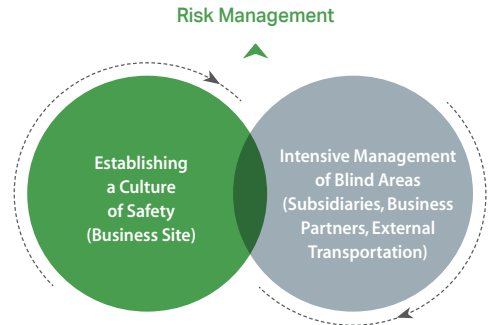


## Spreading a Culture of Safety

### Establishment of the Environment & Safety Technology Division under the CEO

In 2014, the team that had been addressing environmental and safety issues was promoted and relaunched as the Environment & Safety Technology Division under the CEO. The division takes overall charge of managing environment- and safety-related issues of every worksite. In addition, each worksite organizes the Central Safety Committee, a decision-making body that deals with safety issues, to carry out activities such as drills, trainings and diagnosis in a systematic manner under the goal of cultivating an advanced safety culture. In particular, the company conducts company-wide emergency response drill twice a month and an annual private-public-military joint exercise. Our safety management is also extended to business partners. We dispatch experts on environmental and safety issues to business partners to diagnose their occupational safety and train safety management.

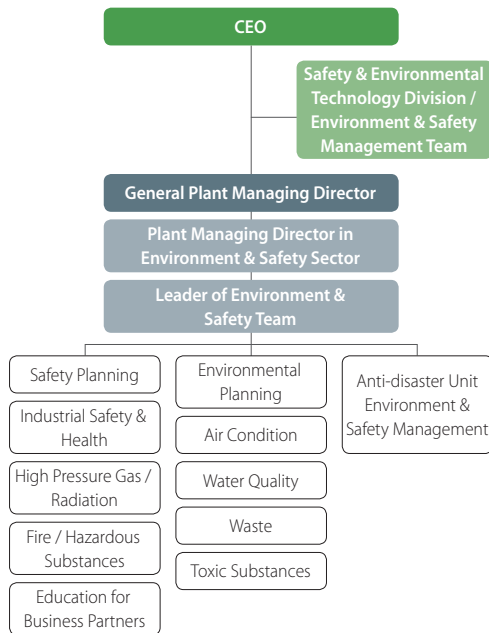
### Safety Management Promotion Scheme



### Environment & Safety Inspection Program

Lotte Chemical is committed to preventing potential risks of environment- and safety-related incidents. Those who have caused an incident are required to submit a written statement containing corrective actions and the result is reflected in the evaluation of their teams. This program helps to prevent accidents and fortify the work discipline within the company because it encourages employees to be more attentive.

### Organization for Safety and Health



### Environment & Safety Inspection Items

Environment	Safety
Inspection on facilities handling toxic substances	Inspection on complying with safety control regulations
Inspection on waste separation	Inspection on safety at facilities and sites
Inspection on management status of air pollution prevention facilities	Joint safety inspection on the 4th every month between the labor and management
Inspection on sump	Inspection on safety at business partners' sites
Other environmental inspections	Other safety inspections

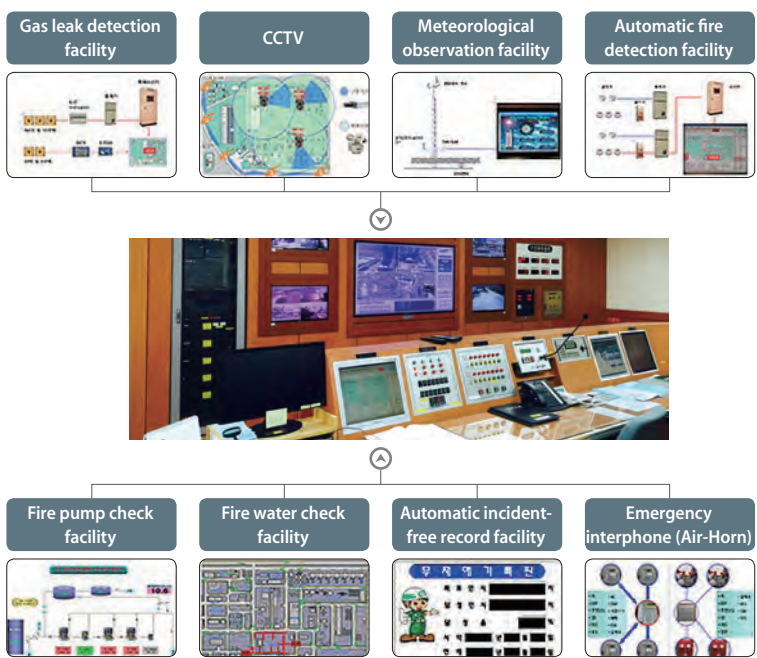
### Vision and Goals

Environmental Management	Safety Management	Carbon Management	Sustainability Management
<ul style="list-style-type: none"> <li>• Commitment to new environmental regulations</li> <li>• Regulation of input and output of chemical substances</li> </ul>	<ul style="list-style-type: none"> <li>• Compliance with safety management duty</li> <li>• Managing business sites safely</li> </ul>	<ul style="list-style-type: none"> <li>• Implementation of the emissions trading</li> </ul>	<ul style="list-style-type: none"> <li>• Support for business partners' environment and safety diagnosis</li> <li>• Participation in global initiatives and information disclosure</li> </ul>

### Operation of the Comprehensive Incident Prevention System

The comprehensive accident prevention system is operated to enable early detection and response to dangers such as gas leaks or fire. The system encompasses CCTVs, gas leak monitors, fire detectors, emergency interphones, fire pumps and water monitoring equipment to identify risk at all times. Moreover, the company runs facilities for meteorological observation not only to prevent risks within the work site, but also for situations caused by external factors. Furthermore, we have been making every effort to ensure safety management through systematic and comprehensive training programs such as hands-on training, CPR classes, first aid education, and anti-accident drills.

#### Comprehensive Incident Prevention System



### Responsible Care (RC)

Lotte Chemical has been working hard to familiarize every employee with Responsible Care (RC) and reinforce activities related to environment, safety, and health. To this end, we have organized a RC task-force team to carry out RC activities such as holding regular workshops and self-assessment of all plants. Also, we provide support for the operation of 'Environment, Safety and Health Academy for SMEs'. Based on the integrated RC operation system, each worksite evaluates the execution of RC codes consisting of process safety, health and safety, environmental protection, recognition on local communities and emergency response, transport safety, and product liability for all processes.

\* SME: small-and medium-sized enterprises

### Safety Management Cases

#### Emergency Drill at Yeosu Plant

Without prior notice, an emergency drill was held in Yeosu Plant in June 2014. The 3-hour long emergency drill involved a simulation of fire and explosion in the plant and leakage of toxic gas. The voluntary fire-fighting team trained participants on the overall emergency measures for fighting fire and performing emergency rescues. By continuously implementing simulation procedures, each employee was able to fully understand his role and appropriate actions for emergency situations.



Emergency Drill

#### Environment and Safety Workshop

As a response to the government's rising standards for environmental safety inspection and to prevent preemptive accidents, we held workshops to collect safe countermeasures and shared ideas with other employees at different work sites. Daesan Plant distributed brochures promoting the importance of preventing occupational accidents to employees at the beginning and end of work hours.



Workshop at Ulsan Plant



Safety Education for Business Partners at Daesan Plant

## Response to Regulations on Chemical Substances

### Establishment of the Chemical Substance Management System

To respond to overseas and domestic regulations on chemical substances including REACH of the European Union, Lotte Chemical has established a world-class chemical substances management system and controls all chemical substances within the work site at all times. Sales and purchase of hazardous chemicals subject to regulation are strictly controlled and the Material Safety Data Sheet (MSDS) in a range of different languages is provided to share reliable information with customers.

\* MSDS: Datasheet that provides information on the level of hazardousness, first aid methods, and handling of chemical substances.

### Voluntary Disclosure of Information on Chemical Products

The Global Product Strategy (GPS) encourages companies to voluntarily disclose information on chemical products and assess their safety, so that each company can share its information on the characteristic of the material and present how the products are handled and managed. Currently, about 1,400 companies are taking part in the GPS. As a global company, we began providing product safety information since 2011. We also participated in the GPS pilot project to fulfill our our corporate responsibility. Through the pilot project, we have conducted various activities such as technology consulting, development of Korean-style GPS guidelines and opening of regular training courses.

### Chemical Substance Management Cases

#### Installation of Equipment to Prevent Toxic Substance Leak

To prevent the leakage of chemical substances at worksites, we have installed protective walls around storage facilities and constructed the floor with impervious materials. Our facilities were also designed to transport leaked chemical substances to the wastewater facility. Moreover, emergency toolboxes and sand storage boxes are arranged for every key area. Equipment such as fire extinguisher, gas masks, protective gloves, suits, boots, and shield is furnished at all facilities that treat hazardous chemical substances all year round.

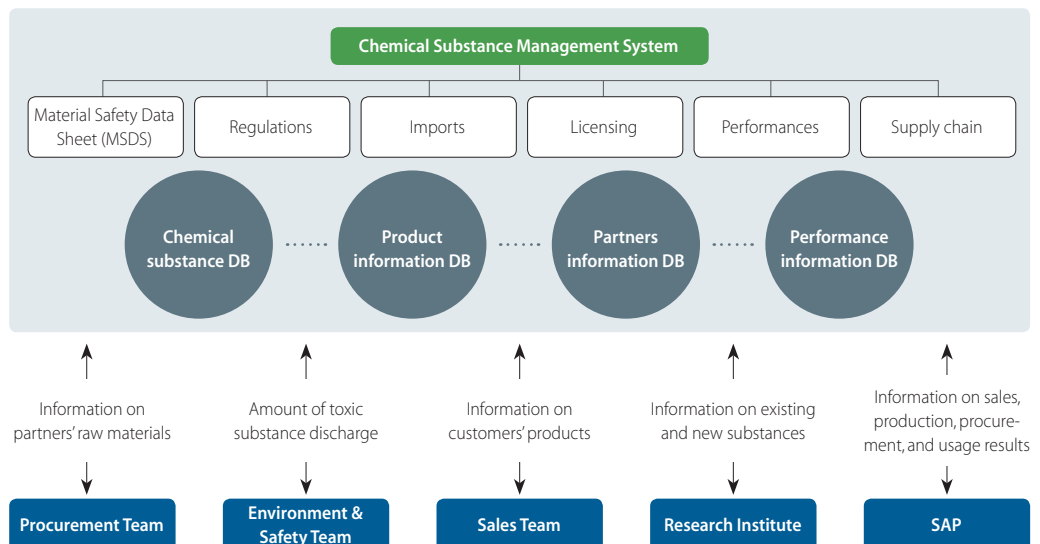


Installation of Wastewater Transfer Facilities



Hazardous Chemical Substance Leak Prevention Equipment

### Chemical Substance Management Structure



ISSUES

# 03 Employees

By building on the corporate philosophy towards respecting human life, Lotte Chemical helps all employees pursue work-life balance and stable growth.

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**Key Performance**

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Percentage of Female Employees

**9.9** % (up 20% year-on-year)



Education Session per Employee

**91.8** hours

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## Fostering Employee Competency

### Roadmap for Talent Cultivation

Lotte Chemical has established a roadmap to secure and develop talented employees. Through a variety of education and training programs, we consistently nurture high-caliber manpower who will lead our future. Our education and training framework consists of position-based training, job training, core talent training, global training, and basic knowledge training. On top of that, our employees are able to enhance their work capabilities through commissioned training and choose to enroll in classes of their choice through online education programs. Language courses are offered as well.

### Various Talent Cultivation Programs

We operate diverse programs to hire and foster experts essential for our businesses. The chemical engineering academy, a five-week training course, is offered to employees who majored in liberal arts and social science to help acquire basic petrochemical knowledge. Non-business majors are provided with a two-month accounting training course that helps strengthen accounting-related capability. The company is focused on improving work capability and nurturing experts through a number of channels such as the certification system on job

qualification and job school. The forum and workshop held for each job category give employees a chance to network and share information. In 2014, the Lotte e-Club secretariat was set up to facilitate communication and networking of retired executives. In-house retirement management counselors have also been providing counseling and customized support for retraining, re-employment and business start-up for retirees.

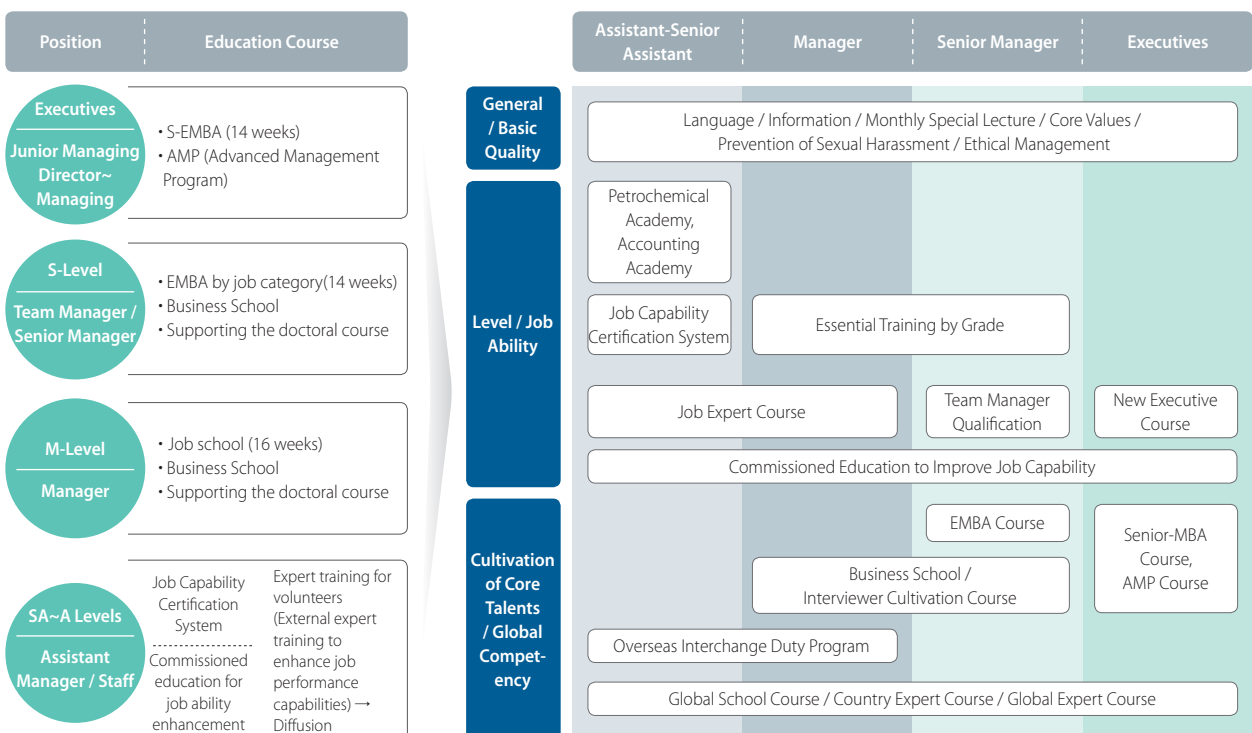


Job Education for New Employees

### HR Development Center

Lotte Group implements both on-line and off-line training sessions for employees of all status through the HR Development Center. Besides required courses for each job and position, employees are able to voluntarily enroll in courses they need.

### Roadmap for Talent Cultivation and Education Framework



**Language Education**

Lotte Chemical has been investing strong efforts in developing talents equipped with global competitiveness. Our language education program consists of in-house, e-learning, and external language courses. We are also encouraging continuous and voluntary language education by granting compensation to those who record good grades in language courses. Lastly, we operate a fund for employees with intermediate levels of language skills.

**Fair Evaluation and Compensation**

Human resources development must be underpinned by an accurate evaluation of capabilities and fair compensation. To derive ways to motivate employees and support their self-development, we are operating various performance management systems. We help employees voluntarily build capacity and manage career by regularly evaluating their capabilities and providing them with feedbacks.

**Evaluation Process**

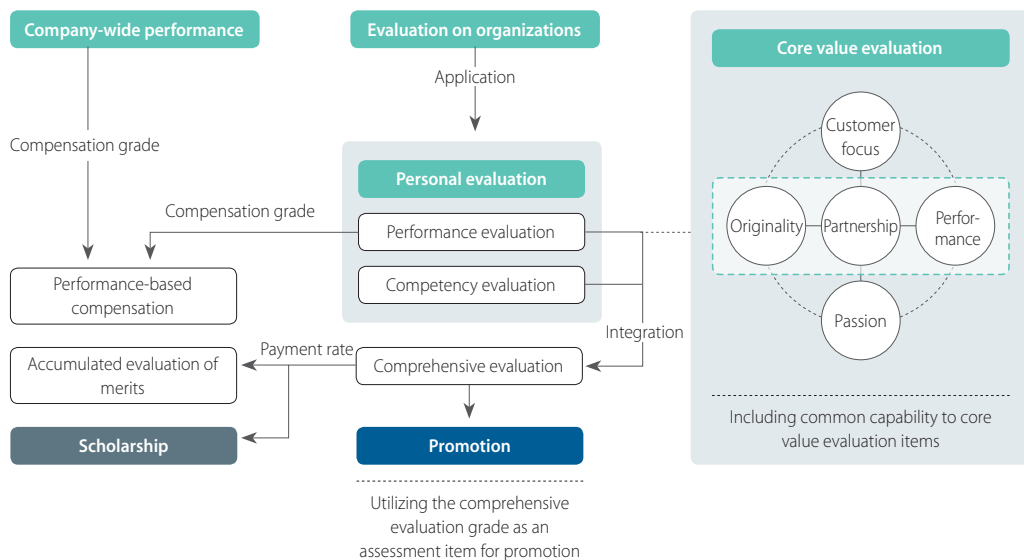
Our performance evaluation system is divided into two parts – personal evaluation (MBO & capability) and organizational performance evaluation (KPI). For personal

evaluation, every employee sets up individual annual targets under the Management by Objectives (MBO) system and is evaluated on their career and performances once a year. Results are used to offer promotion and rewarding performance-based bonuses, boosting employees' job achievement. In addition, we motivate employees to take initiative for self-development by running a team bonus system that awards individuals and teams with excellent performances.

**Guarantee of Human Rights and Diversity**

All of our worksites at home and abroad comply with rules and regulations that prohibit forced labor, discrimination, and child labor. We implement guaranteed humane treatment and freedom of association. Lotte Chemical also strives to protect human rights and improve welfare of every employee. In 2013, we announced the 'Declaration on Diversity' that illustrates our respect of diversity in terms of gender, culture, physical condition, and age. We have also been cultivating a corporate culture of talent development and creativity. Our mentoring program is designed to support new foreign recruits in learning Korean and adjusting to Korean culture, thereby resolving issues that may arise from cultural differences or language barriers.

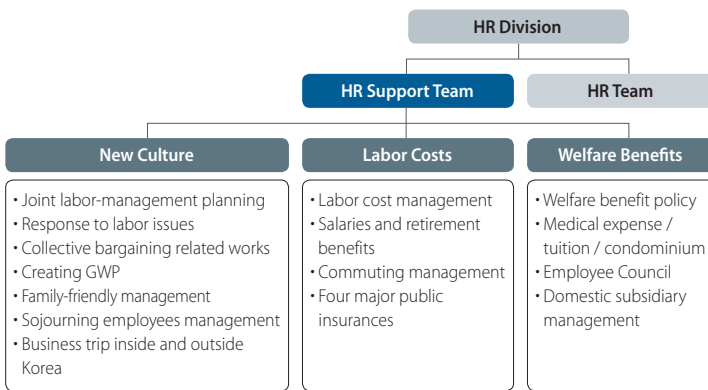
**Employee Evaluation Process**



## Great Workplace

### Organization Dedicated to Family-friendly Management

Lotte Chemical has set up a team focused on enhancing personal lives, welfare, and benefit of employees. The team's KPI reflects the level of achievement in terms of corporate culture and communication programs. This demonstrates the CEO's belief that balance between work and personal life leads to strengthened commitment and motivation to achieve successful results.



### Welfare and Benefits for Employees

We adopted a variety of welfare and benefit programs to improve the quality of employee's lives, helping realize their full potential. They are provided with various welfare benefit programs such as regular, special and external general health check-ups. We operate fitness

center, indoor swimming pool, culture and event hall, restaurant, and other auxiliary facilities within the employee dormitory to support sound recreational activities. In addition, company-wide non-smoking campaign is being conducted to build a healthy and comfortable working environment. A range of welfare programs are offered to family members of employees as well. Those include regular health check-ups and culture courses for spouse. Children are given the chance to take part in educational camps, plant tours, visits to baseball games, and field job experiences. Tuition from middle school to college is covered by the company regardless of the number of children to ensure their educational opportunities and our employee's economic stability.

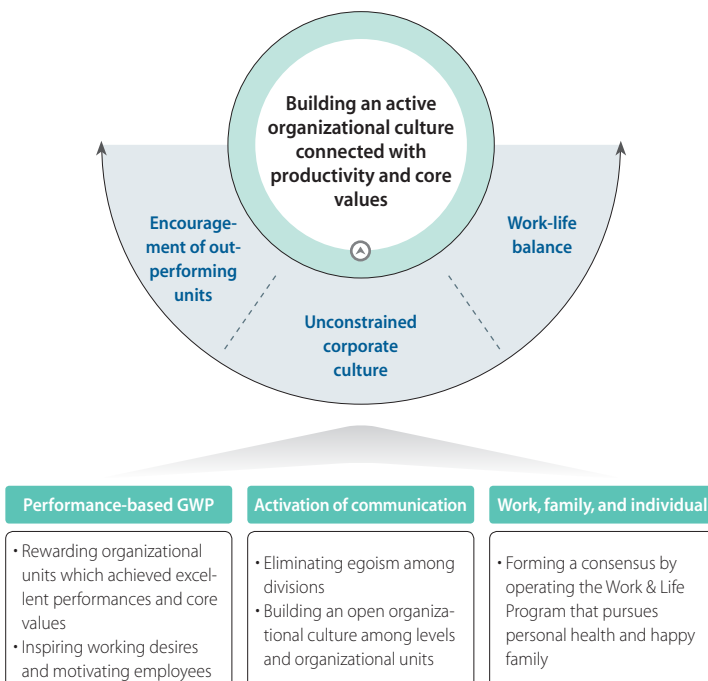
### Puruni Childcare Center

The company operates the Puruni Childcare Center to ease the childcare burden of employees working at the research institute. To ensure healthy and comfortable environment, eco-friendly construction materials were used for building the center. We plan to expand the facility to accommodate more children in the future. Going forward, Lotte Chemical will continuously strive to help employees strike a balance between work and personal life, reinforcing the level of productivity and employee satisfaction.

### In-House Mentoring System

We help new entry-level employees adjust to the company through the mentoring system. Mentees are matched with mentors, who share similar work backgrounds. The mentors provide help and share know-hows to the mentees for five months. This system has positively improved our company by increasing the employee's adaptability and commitment to their jobs.

### GWP (Great Work Place) Vision



In-house Mentoring System

### Retirement Support Program

Lotte Chemical operates a retirement pension plan to help employees to secure stable source of income after regular retirement. We also offer an education program to introduce the operation of retirement pension plan and retirement process to target employees once a year.

**Maternity Protection**

To abide by the government policy that aims at increasing birth rates, Lotte Chemical enables its employees to take leaves for childbirth, childcare and spouses' childbirth. Birth supplies are delivered to employees who give birth to ease their burden and parental leave subsequently follows childbirth leave. We are also running the 'Talk Talk Mom' website to help employees on parental leave share information on childbirth and childcare. Moreover, the company supports those who return to work after parental leave to continue their career development, helping them understand that their leave of absence is also recognized as a type of service. Therefore, they are not treated unfairly in terms of promotion.

**Achievements in Family-friendly Management Award for Excellence in Employing Women Researchers**

In September 2014, Lotte Chemical received a ministerial award for excellence in employing women researchers from the Ministry of Trade, Industry of Energy. The award has been presented to encourage companies to expand female workforce in R&D. Due to the nature of business, the employment rate of women has not been high at petrochemical companies. However, we encouraged our women researchers to proactively take part in employment counseling and interviews to expand the number of women R&D personnel. In addition, we have created an environment where female employees are able to work without the concern of childcare and having to stop their careers. For example, every employee who has given birth is required to take childbirth and childcare leave and can take her children to the in-house childcare center. Women researchers on maternity leave are provided with a wide range of training opportunities before returning to work to help with their re-adjustment. Besides expanding the rest area for women, the company has been regularly implementing the meeting of women researchers and observing the internal Family Loving Day focused on balancing work and personal life. Our efforts to create a women-friendly working environment have reaped fruit as attested by the share of women in the number of R&D personnel, which stands at around 30%.

**One of the 100 Leading Businesses in Creating New Jobs**

The company has been hiring a certain number of new employees annually under the goal of securing and strengthening new growth engines for the future, greatly contributing to creating new jobs in Korea. As a result, in recognition of the CEO's strong commitment to creating new jobs, business growth by realizing creative economy, harmonization between labor and management, proactive investment, and open employment, we were selected as one of the '100 leading businesses in creating new jobs' for two consecutive years by the government and won the presidential award. Going forward, we will continuously strive to create new jobs for the youth and future generations and revitalize the economy.

**Chosen as a Leading Example for 'Work-Family Balance Campaign'**

Lotte Chemical supports employees to stay motivated at work by cultivating a culture that seeks a balance between work and personal life. Every Wednesday is the 'Family Loving Day,' when employees are required to leave work on time without any overtime or dinners with colleagues. In addition, we have proactively run campaigns focused on encouraging men, company and the society to share the burden of childcare as well as using all leaves. As a result, Lotte Chemical was chosen as one of the exemplary models for the 'Work-Family Balance Campaign' of the Ministry of Employment and Labor in 2014. Furthermore, the Family Loving Day recorded the highest level of satisfaction in a survey on motivational programs conducted on employees.

**Certified as a 'Family-friendly Company'**

The Ministry of Gender Equality and Family certified Lotte Chemical as a 'Family-friendly Company' for its endeavors to create a corporate culture that pursues balance between work and personal life. The evaluation items included the level of interest and commitment of executives, family-friendly programs, and employee satisfaction. The certification is valid for a period of three years from December 2014.



Family-friendly Company Certification Mark



Collective Education for Employees who Turn to Work after Parental Leave



Selected as One of Top 100 Excellent Companies in Job Creation in 2014

## Sound Labor-Management Relations

Lotte Chemical has been striving to forge sound and productive labor-management relations. Diverse channels such as events for communication, labor-management workshops and onsite meetings are carried out to build mutual trust. We also operate the grievance handling system, Labor-Management Council and Site Operation Committee to provide solutions to solve difficulties of employees and site workers as soon as possible. As for critical changes in our businesses, we discuss with the labor union in advance to share the same perspective and vision.

### Grievance Handling Program

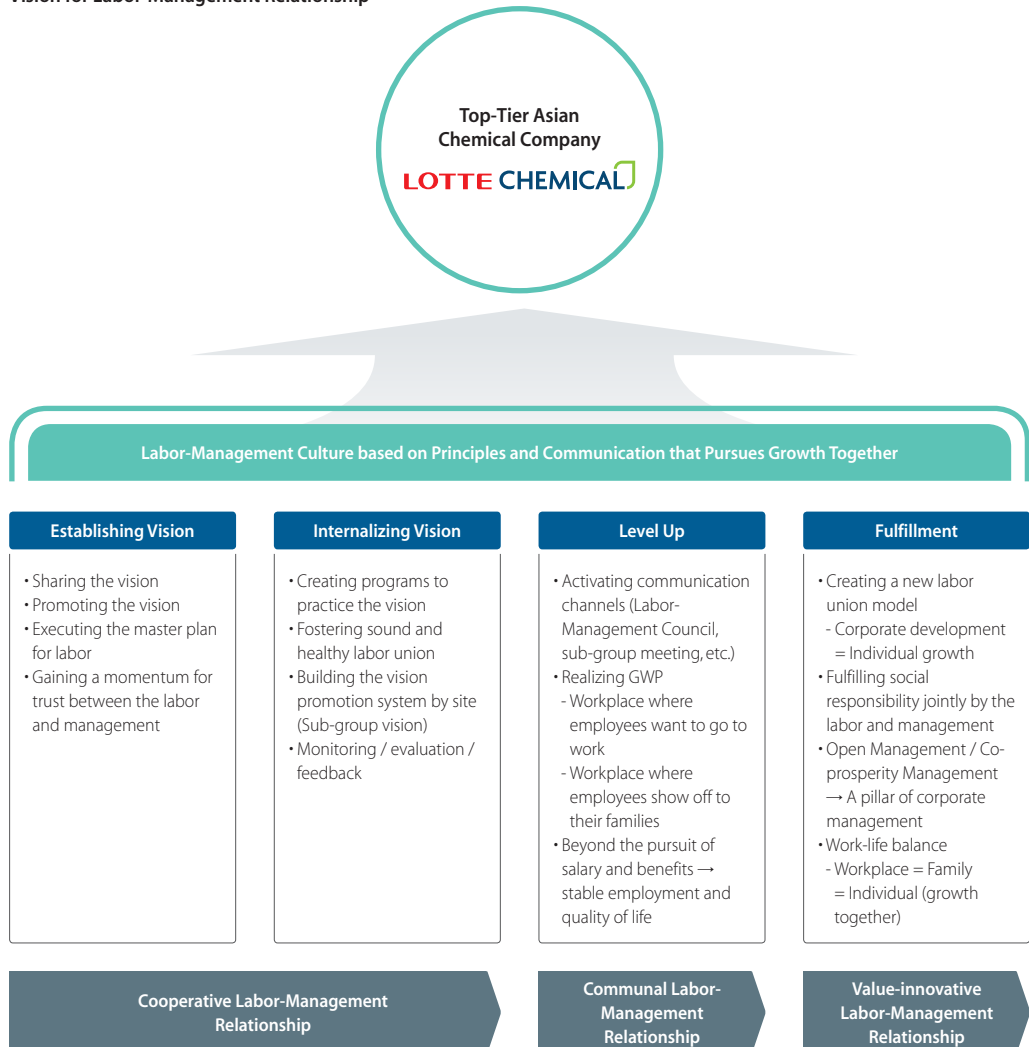
The grievance handling system encompasses various issues such as ethical management and prevention of sexual harassment as well as human rights, corruption,

discrimination and work improvement. Regular communication channels between department managers and their members have been set up to handle grievances in a timely and effective manner. More serious and complex complaints are submitted to the Labor-Management Council.



Labor-Management Workshop

### Vision for Labor-Management Relationship



ISSUES

## 04 Customer Value

Lotte Chemical is committed to developing trustworthy products and innovating quality in order to deliver new values to customers.

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### Key Performance

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Customer Satisfaction Level

**77.8** points (up 3% year-on-year)



## Products Trusted by Customers

### Development of Eco-friendly Products

#### Design and Technology Development for Eco-friendly Products

Since the announcement of eco-friendly product guidelines in 2011, Lotte Chemical has focused on developing eco-friendly products that can minimize impacts on customers and the environment. As a result, we have succeeded in commercializing bio PET, Thermoplastic Elastomer, and PLA.

### Product Liability to Ensure Customer Safety

The company has been making utmost efforts to ensure product safety over the entire product lifecycle from development to after-sales service. In this regard, we established product liability rules and purchased the product liability insurance. Every label on our products display safety-related information defined under national laws to guide workers of appropriate methods of transportation and handling.

### Certified as Authorized Economic Operator (AEO)

In 2014, Lotte Chemical was certified as an AEO by the Korea Customs Service (KCS). The AEO is a system that provides a range of favorable treatment including streamlined inspection and procedures during export and import that leads to eased financial burden. To be certified as an AEO, a company must pass criteria in

terms of legal compliance, internal control system, financial solvency and safety management in assessment by KCS. The certification will contribute to strengthening Lotte Chemical's export competitiveness by tearing down trade barriers and guaranteeing quicker and easier trade procedures.



AEO Certification\_ Importer / Exporter

### Eco-friendly Products



#### Thermoplastic Elastomer : LOTTMER™

LOTTMER™ is an olefin-based thermoplastic elastomer produced through reactive extrusion technology. This material is enjoying rapid market expansion replacing thermoset rubber and soft PVC. Its characteristics include excellent mechanical properties, strong formability, durability and eco-friendliness. It is used for automobiles, electrical and electronic products, industrial and household goods.



#### Bio PET

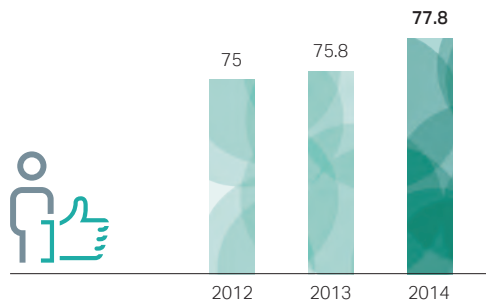
Bio PET is an eco-friendly biological resource made of bio-ethylene glycol generated from biomass (plant resources). This material features strong transparency and formability. It can be applied without changing existing production lines and substitute conventional PET products used for automobiles, electric materials and fibers as well as water and beverage bottles, attracting much attention from related industries.

## Customer Satisfaction Activities

### Enhancing Customer Satisfaction

To ensure higher customer satisfaction, we not only supply differentiated products and technology but also identify customer complaints with agility through continued communication. Those complaints are placed on the table of quality meeting in which every product-related team participates to come up with solutions and follow-up measures to prevent recurrence. Full records of handling customer complaints are rigorously managed and regularly reported by the Customer Support Team to continuously reflect customer demand. Furthermore, we invite customers to our worksites or manage customer relations in advance, which contribute to increasing their productivity and product quality. Moreover, as our token of gratitude, customers of excellence are invited and rewarded. Such wide range of customer satisfaction activities has resulted in a customer satisfaction level of 77.8 points in 2014, which was a 2.6% increase year-on-year.

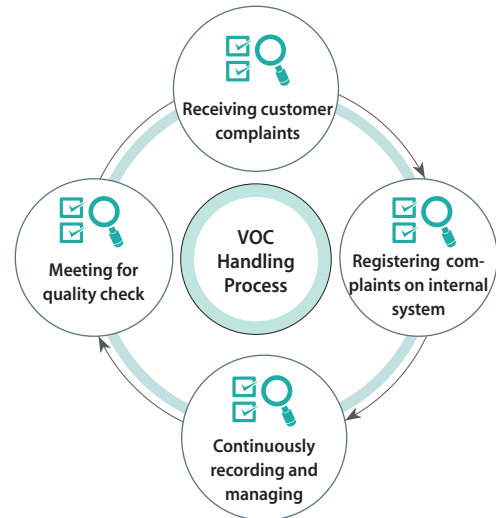
Customer Satisfaction Level (Unit: points)



### Major Maintenance Services

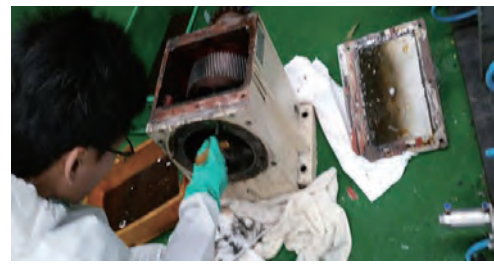
Customer	Location	Details of Supports
Neochem	Buyeo, Chungnam	<ul style="list-style-type: none"> <li>Facility inspection and repair, replacement of outdated pipe consumables</li> <li>Extruder, film coating system, inspection table packaging facility, fork lift etc.</li> </ul>
Dongkook Industrial	Gyeongju, Gyeongbuk	<ul style="list-style-type: none"> <li>Replacement of damaged gear of grinder decelerator</li> <li>Motor overhaul and control panel parts replacement</li> </ul>
Jinsu Industrial	Busan	<ul style="list-style-type: none"> <li>Motor overhaul and control panel parts replacement</li> </ul>
Anseong Corporation	Yangju, Gyeonggi	<ul style="list-style-type: none"> <li>Measurement of thermo-graphics of panel, inspection of gear box and oil pump</li> <li>Installation of PLC with larger capacity</li> </ul>
KP Tech	Yongin, Gyeonggi	<ul style="list-style-type: none"> <li>Inspection of electric facilities and measurement of thermo-graphics</li> <li>Replacement of cable, magnetic and faulty brake</li> </ul>
Namyang Magic	Yangsan, Gyeongnam	<ul style="list-style-type: none"> <li>Methods to manage compressor oil and vibration</li> <li>Problems related to installing pipeline</li> <li>Replacement of outdated parts of electric facilities</li> </ul>
Dong-A Mulsan	Yangju, Gyeonggi	<ul style="list-style-type: none"> <li>Inspection of problem related to connection between inverter and A-PET facility</li> </ul>
Saehan Plotech	Cheongwon, Chungbuk	<ul style="list-style-type: none"> <li>Inspection of operation status of compressor</li> <li>Inspection of power substation and status of outdated transformer</li> </ul>

### VOC Handling Process



### Maintenance Service for Customers

Lotte Chemical works hard to identify business environment and challenge of customers to provide capable solutions. As part of such efforts, we launched the Maintenance Service program for customers that lack expert engineers and technique in 2014. Our experts inspect customers' facilities, replace parts, and transfer know-how on repair and maintenance. The program has contributed to increasing the level of customer satisfaction. In the future, we will continue to provide regular inspection services to customers and keep their maintenance records as well as support their improvement of self-maintenance capabilities.



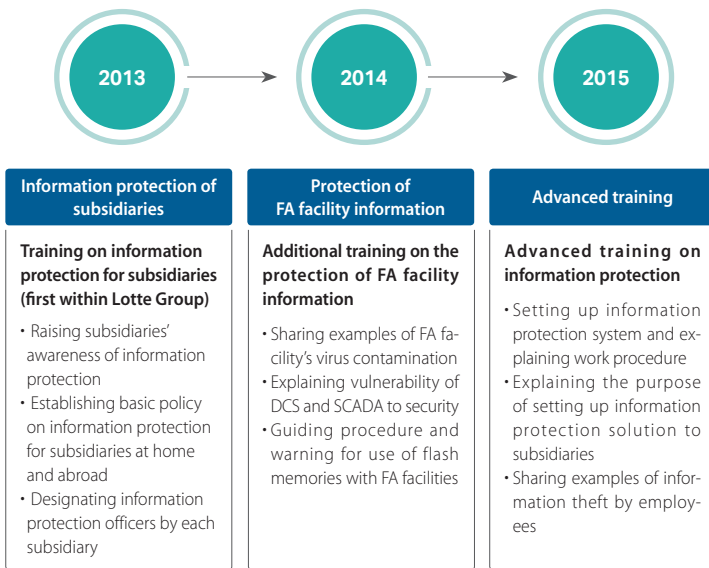
Supporting Maintenance and Repair Services for Customers



### Setup of Information Protection Framework (ISO 27001)

Lotte Chemical is building an information protection framework to meet increasing needs for effective information security and management caused by a rise of information security-related accidents and the development of information technology. Currently, we are receiving consulting services to establish a system to protect internal and external information and form relevant strategies. From August 2015, reports will be compiled depending on the type of outside audit and internal assessment, including those on implementation and procedure. Such efforts will help us maintain competitiveness and meet global standards in ensuring information security.

#### Tasks for Information Protection



### Brand PR

#### Participation in Chinaplas 2014

In 2014, Lotte Chemical participated in Chinaplas,



Chinaplas 2014

Asia's largest plastic and rubber industry fair. More than 3,000 companies from 39 countries took part in the fair including major global companies such as DuPont, BASF and Dow as well as leading Korean petrochemical companies. We showcased the 'Intrado' that was first introduced concept-car in the Geneva Motor Show. Intrado demonstrated about 60% lighter weight than other same-level vehicles by applying ultra-light carbon fiber reinforced composite materials that was jointly developed with Hyosung, and eco-friendly materials developed with our proprietary technology. Other key products we exhibited included basic materials, functional materials, vehicle materials, and megatrend products. The fair served as an opportunity to promote the superiority of our products with features of eco-friendliness, small size, and high stiffness.

### New Advertisements

The company created and distributed a new advertisement to media outlets, academic societies, and universities to naturally and friendly introduce its products which are used daily lives to customers.



Launch of a New Advertisement

### Sports Marketing

We have been striving to raise corporate brand awareness and build friendly image with the general public as well. In 2014, we sponsored the Kolon Marathon, professional golf competitions, and the Lotte Giants Family Baseball Festival 2014 to promote our brand.



Sports Marketing

ISSUES

# 05 Mutual Growth

Lotte Chemical operates a variety of programs to ensure mutual growth with all stakeholders including business customers and business partners.

### Key Performance



Volume of Mutual Growth Fund

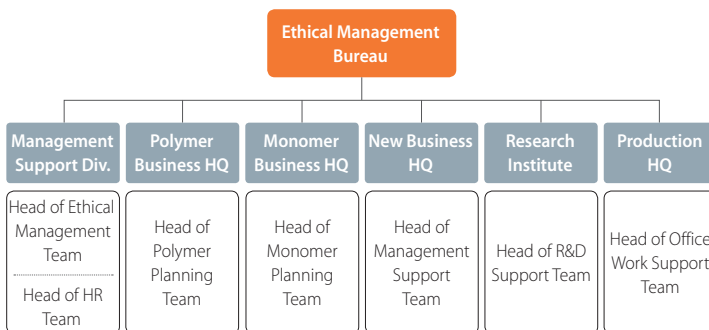
KRW **101** billion



## Strengthening Ethical Management and Mutual Growth

Lotte Chemical pursues business ethics in management to become more transparent and take social and ethical responsibilities. To this end, we have created the Ethical Management Bureau and drawn up a phased roadmap to create a system for evaluating and rewarding ethical management, which contributes to establishing a transparent organizational culture. In particular, we are committed to promoting fair transaction by building trust and respect in relationship with business partners for mutual growth.

### Organization Chart of the Ethical Management Bureau



### Fair Transaction Systems

Lotte Chemical selects ethical management staff of each business unit centered on the Ethical Management Bureau in order to establish an organization culture of transparency. The Ethical Management Bureau engages in internal control such as management diagnosis, risk management, and audit works, while ethical management staff strive to make ethical management and fair transaction take root into the company. Furthermore, we have drawn up a road map by phase to carry out both an improved ethical management system and

complimentary system to reward ethical practices. We will continue to do our best to conduct businesses in an ethical manner.



Education on Fair Transaction

### Compliance Program (CP)

Lotte Chemical has been committed to complying with laws and regulations on fair transaction in business autonomously, and strived to prevent any unfair transaction after the Compliance Program was introduced in 2006. As part of this, we have published and distributed compliance guidelines to each department for manual at work, and educated them about any revision to relevant laws and regulations. Besides, we have established an internal control system which detects and prevents potential compliance risks in advance. Our internal compliance officers oversee various sectors of our business fields such as new projects, marketing, and purchasing. They also control any violation of fair transaction laws within the company. Moreover, the chief compliance officer has been appointed to be held responsible for the CP supervision and the results are reported to the BOD every year. Moreover, the Compliance Program has expanded to our subsidiaries as well. As a result of our strong commitment and sincere efforts for the CP, there has been no violation or penalty in terms of fair transaction for for the past consecutive 6 years.

### Operation of the Compliance Program

Classification	Details
Declaration of the pledge by the management	• Announcement of interest and intention to follow corporate compliances
Appointment and operation of the Compliance Officer	• Appointment of a corporate compliance manager, who possesses both a strong sense of responsibility and authority
Preparation and distribution of a manual	• Establishment of a guideline for business conduct
Establishment of documentation system	• Provision of accurate up-to-date information • Establishment of a systematic and efficient management system
Operation of training programs	• Implementation of a semi-annual offline and online education program consisting of at least two hours
Setup of monitoring system	• Establishment of an internal supervision system, which provides early provision and rectification
Restrictions on violators	• Implementation and management of disciplinary measures to regulate corporate members who have violated related regulations • Implementation of measures, including human resource related sanctions, to prevent unfair treatment

### Ethical Management Practices and its Value

By prioritizing ethical management to its corporate management philosophy and thereby creating values for its stakeholders, Lotte Chemical endeavors to contribute to the development of the society, economy, and the welfare of mankind. By establishing principles of ethical management and creating a transparent corporate culture, we strive to make all stakeholders understand our ethical regulations and business ethics deeply embedded into our corporate culture. We have been running the Ethical Management Team under the CEO to ensure ethics in management and assess the performance and level of various ethical management programs within the company. The Ethical Management Team supervises overall ethical management activities such as developing and operating regulations and systems for business ethics. The team also supports the implementation of detailed activities. The ethical management system has been developed to expand the business ethics through smooth communication between stakeholders inside and outside the company, which enables information to be accumulated, integrated, shared, and produced. The team also monitors and manages ethics-related concerns of all staff and external stakeholders. Our ethical management system covers all business ethics-related issues including code of ethics, written oath, training, promotion, consultation and reporting of business ethics.

### Code of Conducts

Lotte Group has proposed the new Code of Conduct based on the five core corporate values. The Code of Conducts has been developed by a Task Force Team consisting of CEOs and particular staff of each subsidiary. The team is categorized into four parts; trust with Lotte family (employee), trust with customers, trust with business partners, and trust with society. Each article describes the preambles of Principles of Lotte Group and action agendas for employees in each part. All employees have attended collective trainings about the new Code of Conduct and signed a pledge of sincere practice. In line with this, in 2015, Lotte Chemical will form a task force team under the Ethical Management Team to create the new Code of Practice and action agendas in more detail.



Ethical Management Website

### Basic Framework of the Code of Conduct



## Ethical Management Practices

### Clean Holiday Campaign

Lotte Chemical has implemented a campaign of 'No Giving or Receipt of Gift' since 2012 to ensure a clean and transparent business culture for all employees and business partners during Korean traditional holidays. Through the campaign, all employees are notified of a ban on receiving any gift or any item of value, how to deal with gifts received unavoidably, and the standards of transparent performance of duty. Moreover, we have sent out official letters under the name of the CEO to all our business partners to cooperate in mutual growth by not presenting any form of gift.

### Gift Return Center

The Gift Return Center is operating to return any gift received from stakeholders for traditional holidays or promotion. Some of them are donated to the local community only when they have no return address or are hard to be returned due to concerns of being spoiled.

### Online 'Shinmungo'

Since 2011, we have been running the 'Shinmungo,' an online compliance-reporting system to establish and spread ethical management culture. With this system, the company encourages all employees to obligatorily report any unethical or illegal behaviors. Moreover, all reports and personal information of reporters are kept in confidence and reporters are protected not to be subject to any disadvantage and unfair treatment. In the meantime, we are also operating other kinds of reporting channels such as post, wired telephone, and emails.

## Operation Results of the Online Compliance Reporting System in 2014

Classification	No. of Complaints
Unfair bidding	1
Cancellation of contract	1
In terms of salesperson	2
In terms of construction cost	1
<b>Total</b>	<b>5</b>
Solved (Follow-up measures and recurrence prevention actions)	5

## Instilling Ethical Mindset through Customized Ethical Management Trainings

Lotte Chemical raises the employees' awareness of business ethics by providing various educations to practice and build a consensus on ethical management. The education system includes phased training of general and management employees, soft landing training for employs with diverse career experience, courses for dispatched workers working both domestically and abroad, on-line training, and collective training. We are also providing training sessions on active and diverse business ethics that aims at eliminating unethical corporate behavior and corruption. This include professionalism, responsibility of duty, ethical relationship, effective cooperation, and mutual respect among employees.



Education on Ethical Management

## Education on Ethical Management in 2014

Classification	Course	Date	Target	Contents
Collective education	Education for new employees	Jan. 09, 2014	New employees in 1H	Introduction of ethical management and the role as a new employee
	Education on audit for overseas subsidiaries	May 21~23, 2014	Local employees in Pakistan	Transfer of internal audit techniques and methods
	Education on ethical management for managers (Back to the Basic)	Jun. 2014 (8 times)	Manager level and above	Ethical decision-making and enhancement of ethics consciousness
	Education on business ethics for staff	Nov. 2014 (8 times)	Assistant manager level and below	Internalization of business ethics and the role as an organization member
Online education	E-learning for Lotte Chemical's business ethics	Once a week (52 times)	All employees	Video program for establishing a culture of ethical management

## Mutual Growth with Business Partners

With an increasing public interest in mutual growth, it no longer refers to simply supporting business partners but collaborating with them to generate new values. Thus, Lotte Chemical has formed the Mutual Growth Bureau and pursued creating shared value together with business partners based on mutual trust and partnership.

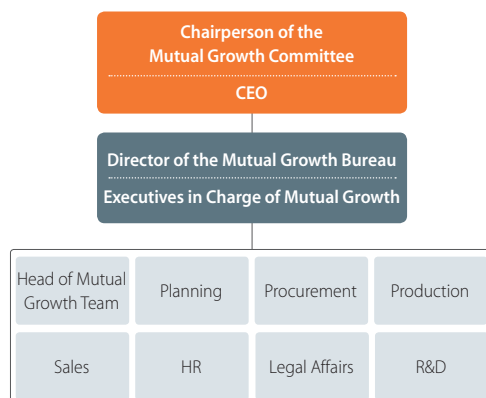
### Concept of Lotte Chemical's Mutual Growth Management



### Mutual Growth Bureau and Promotion System

Lotte Chemical has been operating the Mutual Growth Bureau chaired by the CEO for the purpose of realizing mutual growth between large and small companies. The staff from relevant departments including marketing, procurement, research, training, legal affairs, and production have joined the Bureau to manage company-wide shared growth activities by establishing and implementing mutually beneficial strategies, monitoring action plans, and figuring out improvements.

### Mutual Growth Bureau



In addition, we introduced organizational performance evaluation (KPI) to jointly grow with partners by reflecting the results of mutual growth strategy implementation, compliance of fair transaction and communication with business partners when evaluating the executives. Furthermore, we have diagnosed and supported our business partners to help them systematically manage environment and safety, and rewarded business partners with competitive edge in technology and quality for building better partnership.

### Industrial Innovation 3.0 Movement

The Industrial Innovation 3.0 Movement aims to help business partners improve technological innovation, production process and work environment, and share the results with them. We have figured their needs through preliminary surveys and interviews, and provided tailored consultation to each company. All expenses incurred during the process have been covered by Mutual Growth Fund of Lotte Chemical. We will spare no effort to support SMEs to enhance their competitiveness in the long term.

### Business Partners Who Received Our Industrial Innovation 3.0 Movement Program

Business Partner	Details
New Prime	Reduction of manufacturing costs, productivity enhancement, facility support
HWUI	On-site improvement activities, operation rate improvement, facility support
Youngwoo Mires	Product standardization, on-site improvement activities, training on productivity
KD Corporation	On-site improvement activities, productivity enhancement, facility support
Daehan Plant MC	On-site improvement activities, production management system, facility support
Doobon	Establishment of safety and health control process, improvement of defective materials
SR Techno Pack	Maintenance support, establishment of innovation activity infrastructure, facility support
Nego Pack	Inventory management system, training on three rightness and five 'S'
Bando	Establishment of innovation activity infrastructure, maintenance support, facility support
Namyang Magic	Improvement of defect rate, activities for three rightness and five 'S', facility support

### Mutual Growth Academy

Lotte Chemical is running the Mutual Growth Academy to educate employees of business partners to build a foundation for mutual growth and secure long-term competitiveness. We fully finance this program and seek to expand education courses for management, job skill, language, and leadership to increase their satisfaction.



### Financial Support for Partners

#### Raising the Mutual Growth Fund

We have raised a total of KRW 101 billion worth Mutual Growth Fund as of 2014 to provide business partners with financial supports at a low interest rate and we are steadily expanding the scale of our fund. The Mutual Growth Fund has contributed practical financial help for many business partners. Our business partners are able to borrow working capital from the Mutual Growth Fund at a rate that is 2~3% lower than the market rate than market rate. This fund is capable of consistently providing financial benefits. A total of 115 business partners have been benefiting from this fund and the total amount of loan was KRW 87.7 billion as of the end of 2014. The Mutual Growth Fund program is well appreciated by our business partners in the aspects of scale and satisfaction.

#### Supporting Exports of Excellent Partners

We have introduced products of excellent partners to Lotte Chemical Titan, one of our local subsidiaries, and provided information on diverse technologies to them in order to support their entrance into overseas markets. As a result, they have enjoyed growing exports by our advices and new opportunities offered by us. We intend to guarantee quality bidding opportunities to well performing companies and support their exportation business by capitalizing our residential staff members located throughout the world.

#### Support for Participation in Overseas Exhibitions

Lotte Chemical has helped staff of business partners in production, technology, and research center participate in overseas exhibitions. It aims to support their R&D capabilities, technology development, and overseas marketing. We also fully provide fully provide financial

supports for flight, accommodation, and meals. In 2014, we supported 9 business partners' attendance in three exhibitions overseas (Chinaplas, FAKUMA, and IPF).



Support for Participation in Overseas Exhibitions

### Safety Management of Business Partners

#### Increasing Safety Management Capability of Business Partners

With the recognition that safety and health of business partners are also on our own responsibility, Lotte Chemical supports them to control safety issues systematically and efficiently. As part of this, we have held monthly safety meetings with business partners to share information about the current status of security and health control, and enactment or revision of relevant laws and regulations. Moreover, we have increased the communication channels with partners via their security communities jointly checked the security condition and reflected any issue into improvement action plan to prevent any potential accident.



Support for Safety Management of Business Partners

ISSUES

# 06 Social Contribution

Lotte Chemical is committed to fulfilling its social responsibilities and growing together with local the communities, societies, and nation.

### Key Performance



Rate of Employees' Participation in Voluntary Donation

**92** %





## Sharing Management Activities

### Vision for Social Contribution

We are now living in an era in which companies are required to pursue interests and benefits for customers, employees, and local communities as well as business profits. In response to this, Lotte Chemical has fulfilled its social responsibilities by putting people first and prioritizing the investment in people. We are also promoting common growth with community spirit and value-based innovation. Based on this, we are establishing our corporate identity of corporate citizenship as a leading petrochemical company.

### Slogan for Social Contribution



### 'Warmth & Dream to the Heart'

Our social contribution is carried out under the slogan of 'Warmth & Dream to the Heart' and the vision of 'Together 50.' The vision presents our commitment to being thoughtful of others as well as being responsible for ourselves. To realize the vision, we are executing strategic and systematic citizenship and sharing activities centered on 3 areas of social welfare, education scholarship, and environmental culture. And these activities are headed by the Social Contribution Deliberation Committee and support organizations at each worksite.

### Vision for Social Contribution



### Company-wide Social Contribution Programs

Lotte Chemical has facilitated mutual exchange with local communities and carried out a variety of social contribution activities for the local development. A total of 17 volunteer service groups consisting of employees from the headquarters, research institute, Yeosu, Daesan, Ulsan Plants and their families continue to carry out various social contribution activities in the social welfare, education scholarship, and environmental culture fields. The voluntary service groups financially assist the elderly living alone, welfare centers for disabled people, adolescents of multicultural families, and regularly visit them and deliver daily necessities, labor service, briquettes and kimchi for winter. We will keep doing these activities to take our corporate social responsibilities faithfully.



## Major Social Contribution Activities

### Matching Grant

Lotte Chemical has been running annual fund-raising campaigns including a voluntary donation by employees and a donation of a certain amount from employees' salaries. Since 2008, in order to disseminate the enterprise-wide donation culture, we have been operating a matching grant system wherein the company donates the same amount of fund voluntarily donated by employees. The fund raised by this program is used in social contribution activities at each worksite and donations to NGOs such as the Korea Children's Foundation and the World Vision. As of 2014, 92% of Employees are voluntarily participating this matching grant program.

### Briquettes for Love

All employees at Lotte Chemical have engaged in social citizenship activities by providing diverse volunteer services to local communities. In 2014, about 120 employees from the headquarters delivered 5,300 briquettes to 53 underprivileged families in Samsung-dong in Gwanak-gu, Seoul. Each worksite also carried out this activity autonomously during the year.



### Support for Multicultural Families

Lotte Chemical has provided multicultural families with various services. We have been running a multicultural cafeteria called 'Na-Num (Sharing in Korean)' to support employment, independence, and self-support of women

from multicultural families in tandem with Multicultural Family Support Center in Yeosu. We have remodeled a part of the 1st floor of the building and provided various necessary equipment. Revenues from the cafeteria will be spent on helping multicultural families settle down comfortably in Korean society. Besides, we have been regularly sponsoring study rooms for students from multicultural family around the head office and providing medical costs and necessities as well as talent donation at each worksite.

## Major Social Contribution Activities

### Research Institute

Classification	Item	Activities
 Social welfare	Delivery of side dishes	Delivering side dishes to socially marginalized
 Education and scholarship	scholarships	Awarding scholarships to students of beneficiary of national basic livelihood, multicultural families, grandparent raising families, and single-parent families
	Donation of science books	Donating books to local elementary and middle schools around company housing
	Donation of used PCs	Donating used PCs to Daejeon Local Children Center Council



- ① Delivery of Briquettes by Yeosu Plant Employees
- ② Visit to Local Child Centers
- ③ Delivery of Briquettes by Head Office Employees
- ④ Repair of Houses
- ⑤ Tree-sharing Event
- ⑥ Sponsoring Local Child Centers
- ⑦ Signboard Hanging Ceremony for the 5th Hope House
- ⑧ Red Food Truck Event
- ⑨ Kimchi-making Event

Head Office

Classification	Item	Activities
Regular sponsorship	Children	Sponsoring 50 children and adolescent at the Childfund Korea, child psychotherapy at Cheongwoon Nursery School, and study room for multicultural children on a regular basis
	Adolescents	Sponsoring unfortunate youths and North Korean refugee adolescents at Dongjak Welfare Center on a regular basis
	Multicultural families	Sponsoring the Global Love Sharing and the World Vision on a regular basis
	Disabled	Sponsoring Nambu Disabilities Day Care Center on a regular basis
Sharing	Disadvantaged	Briquette sharing event
	Disadvantaged	Blood donation campaign
	Adolescent	Donating books
Others	Association of Deaf	Sponsoring daily necessity and money

Ulsan Plant

Classification	Item	Activities
Social welfare	Multicultural families	Supporting internet service fee and daily necessity, sponsoring watching baseball games and movies
	Repair of houses	Repairing houses of the disadvantaged
Collaboration with external organizations	Participation in joint social contribution programs	Offering educational services and school supplies support
Educational donation	First and second year students at Shinjung High School	Participatory learning programs at Lotte Chemical
	Samdong Elementary School	Sponsoring educational materials
Sponsorship	Ulsan Hana Center	Sponsoring the settlement of North Korean defectors
	Childfund Korea	Sponsoring child heads of households

Yeosu Plant

Classification	Item	Activities
Social welfare	Improvement of living environment	Improving living environment of low-income families
	Social welfare centers	Giving financial aids to Social community center in Yeosu
	Donation of briquettes and Kimch	Donating briquettes and food to the elderly living along
Education and scholarship	Multicultural families	Supporting the construction of a multicultural center and a shelter for women
	Child center	Supporting local child centers
Environment and culture	Donation of books	Donating books to Yecheon High School
	Environmental cleanup	Environmental cleanup activities in local mountains including Museon Mountain in Yeosu

Daesan Plant

Classification	Item	Activities
Social welfare	Improvement of living environment	Improving living environment of low-income families
	Social welfare centers	Offering volunteer services and donating goods
	Support for daily necessity	Donating side dishes and daily necessity to the elderly living alone and the marginalized
	Making and sharing Kimchi	Delivering Kimchi to needy people and social welfare facilities around the plant
Education and scholarship	Scholarships	Awarding scholarships to low-income family students in local communities



- 1 Free Ophthalmic Treatment for Local People
- 2 Field Tour Program
- 3 Donation to Local Communities
- 4 Drought Relief Activities
- 5 Sponsorship for Welfare Facilities
- 6 Grant of Scholarships to a University

### Social Contribution Activities in the World

Lotte Chemical has been actively making social contribution activities at overseas worksites as well as local worksites. We have been undertaking customized activities for each country to provide local people and communities with practical help and support.

#### Social Contribution Activities in Taitan, Malaysia

Through the 'LOTTE Scholarship Award' started in 2013, Lotte Chemical Taitan has offered university scholarship to 8 undergraduates in engineering in University Malaya and University Teknologi Malaysia.

#### Social Contribution Activities in Pakistan

Tharparkar, the southeastern region of Pakistan, is an arid region and one of the most dilapidated parts of the country. Lotte Chemical Pakistan has been providing local residents in Tharparkar, who are suffering from drought, with water and food. In addition, in 2014, we have supported a non-profit organization Sina Clinic which provides medical aids to local residents around its work site. We also operated Eye Camp to offer free ophthalmologic treatment to local residents. So far, more than 2,500 people have had access to free treatment provided by Lotte Chemical Pakistan.

### Donation to Local Communities

Lotte Chemical Titan Indonesia has been carrying out a variety of activities to develop the community and maintain friendly relationship with the region. Those activities include supports for youth fitness contests, financing of children's education fees, and donation to the Grogal region to commemorate independence of Indonesia.

#### Internship Program

Lotte Chemical Titan Indonesia has been providing students with opportunities to study in its worksite every month. By offering its internship program to ten local students every month, a total of 120 students completed the program in 2014. Lotte Chemical Pakistan has also been managing Eco Internship program to provide 1,500 students of 250 schools surrounding the region with opportunities to participate in environmental protection activities each year. Through this program, local students are able to realize the importance of environmental issues and accumulate experiences in solving them.

#### Field Trip

Lotte Chemical Titan has been providing undergraduates in Indonesia with opportunities to visit its worksite. Every month, it selects up to 50 students from Indonesia's top universities and take them on a field trip. This campaign is not only to provide students with an opportunity, but also to strengthen our brand image in Indonesia.

# SPECIAL PAGE

## Book Donations for Adolescent



### Educational Supports for Adolescents

#### Supporting Books


**Target**

- High schools around our business sites



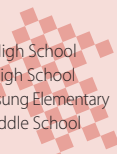
**Supported Books**

- About 500 books to each school (cultural books and science books)



**Supports by Each Site**

- Head Office: Sungnam High School
- Yeosu Plant: Yecheon High School
- Research Institute: Geumsung Elementary School and Sungduk Middle School



Lotte Chemical has been undertaking social contribution activities in the field of education and scholarship for the development of local talents. In 2014, the headquarters, research institute, and Yeosu Plant donated educational guidebooks to local students. Donation of books were very welcomed by students as we provided bestselling science books to the schools concerned after investigating preferences of books in advance to help them in practice. In particular, in the first half of 2014, our research institutes delivered scholarships to needy students who were living in nearby area to help them attend closely to their schoolwork, which was very well-received by the local communities. We will continue to help study science and engineering by donating academically intriguing books to kids and adolescents, which will hopefully lead them to be interested in science and engineering study.



# Appendix

- 79 **GRI G4 Index**
- 83 **Independent Assurance Report**
- 85 **Consolidated Financial Statements**
- 88 **Additional Data**
- 89 **Accolades and Membership of Association**

# GRI G4 Index

## General Standard Disclosure

● Fully Reported ● Partially Reported ○ Not Reported

Indicators	Core	Contents	Reporting	Page
<b>Strategy and Analysis</b>				
G4-1	●	Provide a statement from the most senior decision-maker of the organization (such as CEO, chair, or equivalent senior position) about the relevance of sustainability to the organization and the organization's strategy for addressing sustainability.	●	4~5
<b>Organizational Profile</b>				
G4-3	●	Name of the organization	●	6
G4-4	●	Primary brands, products, and services.	●	6~9
G4-5	●	Location of the organization's headquarters.	●	14~15
G4-6	●	Number of countries where the organization operates, and names of countries where either the organization has significant operations or that are specifically relevant to the sustainability topics covered in the report.	●	14~15
G4-7	●	Nature of ownership and legal form.	●	6~9
G4-8	●	Markets served (including geographic breakdown, sectors served, and types of customers and beneficiaries).	●	14~15
G4-9	●	Scale of the organization.	●	14~15
G4-10	●	Scale of the workforce	●	14~15
G4-11	●	Percentage of total employees covered by collective bargaining agreements.	●	88
G4-12	●	Describe the organization's supply chain.	●	66~71
G4-13	●	Significant changes during the reporting period regarding the organization's size, structure, ownership, or its supply chain.	●	2
G4-14	●	Report whether and how the precautionary approach or principle is addressed by the organization.	●	36~39
G4-15	●	List externally developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes or which it endorses.	●	89
G4-16	●	Memberships in associations (such as industry associations) and/or national/international advocacy organizations in which the organization	●	89
<b>Identified Material Aspects And Boundaries</b>				
G4-17	●	Operational structure of the organization, including main divisions, operating companies, subsidiaries, and joint ventures (List all entities in the consolidated financial statements)	●	Business report
G4-18	●	Process for defining report content and the Aspect Boundaries and explain how the Reporting Principles has been implemented	●	36~39
G4-19	●	List all the material Aspects identified in the process for defining report content.	●	36~39
G4-20	●	For each material Aspect, report Aspect Boundary within the organization	●	36~39
G4-21	●	For each material Aspect, report the Aspect Boundary outside the organization	●	36~39
G4-22	●	Explanation the effect of any restatements of information provided in previous reports, and the reasons for such restatements	●	36~39
G4-23	●	Report significant changes from previous reporting periods in the Scope and Aspect Boundaries	●	36~39
<b>Stakeholder Engagement</b>				
G4-24	●	The list of stakeholder groups engaged by the organization.	●	34~35
G4-25	●	The basis for identification and selection of stakeholders with whom to engage	●	34~35
G4-26	●	Approaches to stakeholder engagement, including frequency of engagement by type and by stakeholder group	●	34~35
G4-27	●	Key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting; Report the stakeholder groups that raised each of the key topics and concerns	●	34~35
<b>Report Profile</b>				
G4-28	●	Reporting period (such as fiscal or calendar year) for information provided.	●	2
G4-29	●	Date of most recent previous report (if any).	●	2
G4-30	●	Reporting cycle (such as annual, biennial).	●	2
G4-31	●	Provide the contact point for questions regarding the report or its contents.	●	2
G4-32	●	Table identifying the location of the Standard Disclosures in the report	●	2
G4-33	●	Policy and current practice with regard to seeking external assurance for the report	●	2
<b>Governance</b>				
G4-34	●	The governance structure of the organization, including committees of the highest governance body. Identify any committees responsible for decision-making on economic, environmental and social impacts.	●	28
G4-36		Whether the organization has appointed an executive-level position or positions with responsibility for economic, environmental and social topics	●	28

# GRI G4 Index

## General Standard Disclosure

● Fully Reported ◐ Partially Reported ○ Not Reported

Indicators	Core	Contents	Reporting	Page
<b>Governance</b>				
G4-38		Report the composition of the highest governance body and its committees.	●	28
G4-39		Report whether the Chair of the highest governance body is also an executive officer (and, if so, his or her function within the organization's management and the reasons for this arrangement).	●	28
G4-40		Report the nomination and selection processes for the highest governance body and its committees, and the criteria used for nominating and selecting highest governance body members, including:	●	28
G4-41		Processes for the highest governance body to ensure conflicts of interest are avoided and managed, and whether conflicts of interest are disclosed to stakeholders	◐	28
G4-42		Highest governance body's and senior executives' roles in the development, approval, and updating the organization's purpose, value or mission statements, strategies, policies and goals to economic, environmental and social impacts	◐	28
G4-43		Measures taken to develop and enhance the highest governance body's collective knowledge of economic, environmental and social topics	◐	28
G4-46		Highest governance body's role in reviewing the effectiveness of the organization's risk management processes for economic, environmental and social topics	◐	28
<b>Ethics and Integrity</b>				
G4-56	●	Describe the organization's values, principles, standards and norms of behavior such as codes of conduct and codes of ethics.	●	28

## Specific Standard Disclosure

Aspect	Indicators	Material	Contents	Reporting	Page
<b>Economic</b>					
<b>Economic Performance</b>	DMA	●	Generic DMA	●	38~39
	G4-EC1	●	Direct economic value generated and distributed	●	18~19
	G4-EC2	●	Financial implications and other risks and opportunities for the organization's activities due to climate change	●	29~30
	G4-EC3	●	Coverage of the organization's defined benefit plan obligations	●	59,88
	G4-EC4	●	Financial assistance received from government	●	88
<b>Indirect Economic Impacts</b>	DMA		Aspect Specific DMA	●	38~39
	G4-EC7		Development and impact of infrastructure investments and services supported	●	72~77
	G4-EC8		Significant indirect economic impacts, including the extent of impacts	●	72~77
<b>Environment</b>					
<b>Materials</b>	DMA		Generic DMA	●	38~39
	G4-EN1		Materials used by weight or volume	●	48~51
	G4-EN2		Percentage of materials used that are recycled input materials	●	48~51
<b>Energy</b>	DMA	●	Aspect Specific DMA	●	38-39
	G4-EN3	●	Energy consumption within the organization	●	48~51
	G4-EN4	●	Energy consumption outside of the organization	◐	48~51
	G4-EN5	●	Energy intensity	◐	48~51
	G4-EN6	●	Reduction of energy consumption	●	48~51
	G4-EN7	●	Reductions in energy requirements of products and services	◐	48~51
	<b>Water</b>	DMA	●	Generic DMA	●
G4-EN8		●	Total water withdrawal by source	●	48~51
G4-EN9		●	Water sources significantly affected by withdrawal of water		48~51
G4-EN10		●	Percentage and total volume of water recycled and reused	●	48~51
<b>Emissions</b>	DMA	●	Aspect Specific DMA	●	38~39
	G4-EN15	●	Direct greenhouse gas (ghg) emissions (scope 1)	●	48~51
	G4-EN16	●	Energy indirect greenhouse gas (ghg) emissions (scope 2)	●	48~51
	G4-EN17	●	Other indirect greenhouse gas (ghg) emissions (scope 3)	●	48~51



## Specific Standard Disclosure

● Fully Reported ● Partially Reported ○ Not Reported

Aspect	Indicators	Material	Contents	Reporting	Page
<b>Emissions</b>	G4-EN18	●	Greenhouse gas (GHG) emissions intensity		48~51
	G4-EN19	●	Reduction of greenhouse gas (ghg) emissions	●	48~51
	G4-EN20	●	Emissions of ozone-depleting substances (ods)	●	48~51
	G4-EN21	●	Nox, sox, and other significant air emissions	●	48~51
<b>Effluents and Waste</b>	DMA	●	Generic DMA	●	38~39
	G4-EN22	●	Total water discharge by quality and destination	●	48~51
	G4-EN23	●	Total weight of waste by type and disposal method	●	48~51
	G4-EN24	●	Total number and volume of significant spills	●	56~57
	G4-EN25	●	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally	●	56~57
	G4-EN26	●	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the organization's discharges of water and runoff Extent of impact mitigation of environmental	●	43~47
<b>Products and Services</b>	DMA	●	Generic DMA	●	38~39
	G4-EN27	●	Extent of impact mitigation of environmental impacts of products and services	●	43~47
	G4-EN28	●	Percentage of products sold and their packaging materials that are reclaimed by category	●	48~51
<b>Labor</b>					
<b>Labor Practices and Decent Work</b>					
<b>Employment</b>	DMA	●	Aspect Specific DMA	●	38~39
	G4-LA1	●	Total number and rates of new employee hires and employee turnover by age group, gender and region	●	88
	G4-LA2	●	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation	●	57~61
	G4-LA3	●	Return to work and retention rates after parental leave, by gender	●	88
<b>Occupational Health and Safety</b>	DMA	●	Aspect Specific DMA	●	42~43
	G4-LA5	●	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs	●	88
	G4-LA6	●	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and gender	●	88
<b>Training and Education</b>	DMA	●	Generic DMA	●	38~39
	G4-LA9	●	Average hours of training per year per employee by gender, and by employee category	●	80
	G4-LA10	●	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	●	57~61
	G4-LA11	●	Percentage of employees receiving regular performance and career development reviews, by gender and by employee category	●	57~61
<b>Supplier Assessment for Labor Practices</b>	DMA	●	Aspect Specific DMA	●	38~39
	G4-LA15	●	Significant actual and potential negative impacts for labor practices in the supply chain and actions taken	●	70~71
<b>Labor Practices Grievance Mechanisms</b>	DMA	●	Aspect Specific DMA	●	38~39
	G4-LA16	●	Number of grievances about labor practices filed, addressed, and resolved through formal grievance mechanisms	●	61
<b>Human Rights</b>					
<b>Human rights investment</b>	DMA	●	Aspect Specific DMA	●	38~39
	G4-HR2	●	Total number of employee training on human rights policies or procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained	●	57~58
<b>Non-discrimination</b>	DMA	●	Generic DMA	●	38~39
	G4-HR3	●	Total number of incidents of discrimination and corrective actions taken	●	N/A
<b>Freedom of Association and Collective Bargaining</b>	DMA	●	Aspect Specific DMA	●	38~39
	G4-HR4	●	Operations and suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and measures taken to support these rights	●	61

# GRI G4 Index

## Specific Standard Disclosure

● Fully Reported ● Partially Reported ○ Not Reported

Aspect	Indicators	Material	Contents	Reporting	Page
<b>Child Labor</b>	DMA		Generic DMA	●	38~39
	G4-HR5		Operations and suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor	●	N/A
<b>Forced or Compulsory Labor</b>	DMA		Generic DMA	●	38~39
	G4-HR6		Operations and suppliers identified as having significant risk for incidents or forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor	●	N/A
<b>Supplier Human Rights Assessment</b>	DMA	●	Aspect Specific DMA	●	38~39
	G4-HR11	●	Significant actual and potential negative human rights impacts in the supply chain and actions taken	●	67~71
<b>Society</b>					
<b>Local Communities</b>	DMA	●	Aspect Specific DMA	●	38~39
	G4-SO1	●	Percentage of operations with implemented local community engagement, impact assessments, and development programs	●	72~77
	G4-SO2	●	Operations with significant actual or potential negative impacts on local communities	●	N/A
<b>Anti-Corruption</b>	DMA	●	Aspect Specific DMA	●	38~39
	G4-SO3	●	Total number and percentage of operations assessed for risks related to corruption and the significant risks identified	●	67~71
	G4-SO4	●	Communication and training on anti-corruption policies and procedures	●	67~71
	G4-SO5	●	Confirmed incidents of corruption and actions taken		67~71
<b>Anti-Competitive behavior</b>	DMA	●	Generic DMA	●	38~39
	G4-SO7	●	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes	●	N/A
<b>Product and Service Labeling</b>	DMA	●	Aspect Specific DMA	●	38~39
	G4-PR3	●	Type of product and service information required by the organization's procedures for product and service information and labeling, and percentage of significant product and service categories subject to such information requirements	●	62~65
	G4-PR4	●	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes	●	N/A
	G4-PR5	●	Results of surveys measuring customer satisfaction	●	62~65

# Independent Assurance Report

To the Readers of Lotte Chemical Sustainability Report 2014:

## Foreword

Korea Management Association Registration Inc. (hereinafter KMAR) has been requested by of Lotte Chemical to verify the contents of its Sustainability Report 2014 (hereinafter the Report). Lotte Chemical is responsible for the collection and presentation of information included in the Report. Our responsibility is to carry out assurance engagement on specific data and information in the assurance scope stipulated below.

## Scope and standard

Lotte Chemical describes its efforts and achievements of the sustainability activities in the Report. KMAR performed a Type 2, moderate level of assurance using AA1000AS (2008) as an assurance standard. We evaluated the adherence to Principles of Inclusivity, Materiality and Responsiveness, and the reliability of the selected GRI G4 indices as below, where professional judgement of the practitioner of KMAR's assurance team was exercised as materiality criteria.

The team checked whether the Report has been prepared in accordance with the 'Core Option' of GRI G4 which covers the followings.

- Reporting Principles
- General Standard Disclosures
- Specific Standard Disclosures
  - Generic DMA of each of following material aspects
    - Economic Performance: G4-EC1, G4-EC2, G4-EC3, G4-EC4
    - Indirect Economic Performance: G4-EC7, G4-EC8
    - Material: G4- EN1, G4-EN2
    - Energy: G4-EN3, G4-EN4, G4-EN6, G4-EN7
    - Water: G4-EN8, G4-EN10
    - Emissions: G4- EN15, G4-EN16, G4-EN17, G4-EN19, G4-EN20, G4-EN21
    - Effluents and Waste: G4-EN22, G4-EN23, G4-EN25
    - Products and Services: G4-EN27
    - Employment: G4-LA1, G4-LA2, G4-LA3
    - Occupational Health and Safety: G4- LA5, G4- LA6
    - Training and Education: G4-LA9, G4-LA10, G4-LA11
  - Labor Practices Grievance Mechanisms: G4-LA16
  - Investment: G4-HR2
  - Non-discrimination: G4-HR3
  - Child Labor: G4-HR5
  - Forced or Compulsory labor: G4-HR6
  - Indigenous Rights : G4-HR8
  - Local Communities : G4-SO1, G4-SO2
  - Anti-corruption: G4- SO3, G4-SO4,
  - Anti-competitive Behavior: G4-SO7
  - Product and Service labeling: G4- PR3, G4- PR4, G4-PR5

The data and information related to the boundary outside of Lotte Chemical such as suppliers, contractors, etc. are not covered by our assurance engagement.

## Our approach

In order to verify the contents of the Report within an agreed scope of assurance in accordance with the assurance standard, KMAR's assurance team has carried out an assurance engagement as follows:

- Reviewed sustainability related data and reporting process
- Reviewed Internal materials
- Interviewed people in charge of preparing the Report

## Our conclusion

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

# Independent Assurance Report

## Inclusivity

Inclusivity is the participation of stakeholders in developing and achieving an accountable and strategic response to sustainability.

- Lotte Chemical is developing and maintaining stakeholder communication channels in various forms and levels in order to make a commitment to be responsible for the stakeholders. The assurance team could not find any critical stakeholder group left out during this procedure.

## Materiality

Materiality is determining the relevance and significance of an issue to an organization and its stakeholders. A material issue is an issue that will influence the decisions, actions, and performance of an organization or its stakeholders.

- Lotte Chemical is determining the materiality of issues found out through stakeholder communication channels through its own materiality evaluation process, and the assurance team could not find any critical issues left out in this process.

## Responsiveness

Responsiveness is an organization's response to stakeholder issues that affect its sustainability performance and is realized through decisions, actions, and performance, as well as communication with stakeholders.

- The assurance team could not find any evidence that Lotte Chemical's counter measures to critical stakeholder issues were inappropriately recorded in the Report.

We could not find any evidence the Report was not prepared in accordance with the 'Core Option' of GRI G4.

## Recommendation for improvement

We hope the Report be actively used as a tool for communication with stakeholders and recommend the following for continuous improvements of the Report.

- The company needs to set up integrated management system and feedback process in regarding to sustainability management-related performance indicators.
- The company needs to report quantitative performance indices in regarding to sustainable management-related activities.

## Our independence

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



May, 11th, 2015  
CEO Ki Ho Park

*K. H. Park*

# Consolidated Financial Statements

## Financial Performance Outline

Lotte Chemical's consolidated financial statements are included in this report from this year in order to help stakeholders understand management status of the company. The following consolidated financial statements are based on the independent auditors' report as of 2013. Please refer to DART system (<http://dart.fss.or.kr/>) for more details.

As of December 31, 2014, 2013 and 2012

### Consolidated Financial Position

(Unit: Korean Won)

Item	2014	2013	2012
<b>Assets</b>			
I. Current assets	4,321,552,617,111	4,614,354,225,960	4,178,674,705,431
1. Cash and cash equivalents	949,302,735,384	979,089,879,334	744,816,589,107
2. Short-term financial instruments	313,606,363,436	311,516,213,804	191,600,034,538
3. Fair value financial assets	-	-	-
4. Available-for-sale financial assets	20,348,875,000	312,590,000	232,110,000
5. Trade and other receivables	1,268,432,981,044	1,595,061,185,532	1,634,473,228,473
6. Inventories	1,528,109,897,449	1,628,759,888,662	1,500,592,461,088
7. Financial lease receivables	222,114,588	138,598,084	123,857,902
8. Current income tax assets	22,334,476,557	31,238,001,747	21,292,096,839
9. Other financial assets	14,566,144,494	6,877,836,580	16,219,176,632
10. Other current assets	204,629,029,159	61,360,032,217	69,325,150,852
II. Non-current assets	6,001,103,002,178	6,073,309,345,040	6,193,639,541,797
1. Long-term financial instruments	50,512,000,000	50,513,500,000	44,905,760,000
2. Available-for-sale financial assets	167,436,011,673	105,097,809,642	113,326,841,993
3. Financial lease receivables	3,181,118,858	3,389,012,815	3,527,610,907
4. Investments in associates	738,665,448,363	1,051,906,522,764	1,002,268,250,575
5. Investments in joint ventures and associates	783,561,064,648	400,170,679,159	331,628,513,514
6. Tangible assets	3,975,810,386,927	4,186,519,030,580	4,420,854,213,194
7. Investments in real estate	84,247,016,415	85,441,372,373	44,810,637,784
8. Goodwill	3,196,151,567	3,196,151,567	8,421,663,619
9. Intangible assets	20,362,884,418	20,592,373,765	24,573,553,345
10. Other non-current financial assets	9,071,325,009	7,343,568,175	8,595,251,159
11. Other non-current non-financial assets	7,670,050,071	9,630,509,274	22,658,458,713
12. Deferred income tax assets	157,389,544,229	149,508,814,926	168,068,786,994
<b>Total assets</b>	<b>10,322,655,619,289</b>	<b>10,687,663,571,000</b>	<b>10,372,314,247,228</b>

# Consolidated Financial Statements

As of December 31, 2014, 2013 and 2012

## Consolidated Financial Position

(Unit: Korean Won)

Item	2014	2013	2012
<b>Liabilities</b>			
I. Current liabilities	2,057,809,967,357	2,929,005,557,339	2,672,664,693,872
1. Trade and other payables	724,825,882,322	1,439,008,571,487	1,855,030,525,733
2. Fair value financial liabilities	8,773,074,559	9,137,448,320	1,867,232,400
3. Short-term borrowings	1,092,991,431,061	1,308,825,834,232	640,358,154,452
4. Current income tax liabilities	48,498,991,290	58,147,641,280	52,351,153,466
5. Other current financial liabilities	77,642,098,427	30,403,051,396	52,207,622,561
6. Other current non-financial liabilities	101,698,203,745	62,130,992,798	65,415,162,660
7. Current provisions	3,380,285,953	21,352,017,826	5,434,842,600
II. Non-current liabilities	1,795,846,882,669	1,464,199,290,492	1,615,534,766,738
1. Long-term borrowings	1,510,857,226,709	1,166,967,360,889	1,294,678,949,431
2. Retirement benefit liabilities	26,207,544,854	19,434,578,786	27,542,367,337
3. Deferred income tax liabilities	220,408,408,379	185,848,010,576	203,451,719,369
4. Other non-current financial liabilities	26,064,100,154	87,940,318,227	84,198,116,558
5. Other non-current non-financial liabilities	4,365,665,480	4,009,022,014	5,544,110,276
6. Non-current provisions	7,943,937,093	-	119,503,767
<b>Total liabilities</b>	<b>3,853,656,850,026</b>	<b>4,393,204,847,831</b>	<b>4,288,199,460,610</b>
<b>Equity</b>			
I. Equity attributable to the owner of the parent	6,437,098,705,381	6,256,119,973,079	6,043,424,852,327
1. Share capital	171,377,095,000	171,377,095,000	171,377,095,000
2. Other share capital	476,522,242,395	477,284,160,127	472,058,339,430
3. Retained earnings	5,790,777,027,820	5,682,230,930,647	5,427,874,760,228
4. Other reserves	(1,577,659,834)	(74,772,212,695)	(27,885,342,331)
II. Non-current interests	31,900,063,882	38,338,750,090	40,689,934,291
<b>Total equity</b>	<b>6,468,998,769,263</b>	<b>6,294,458,723,169</b>	<b>6,084,114,786,618</b>
<b>Total liabilities and equity</b>	<b>10,322,655,619,289</b>	<b>10,687,663,571,000</b>	<b>10,372,314,247,228</b>

As of December 31, 2014, 2013 and 2012

## Consolidated Statements of Comprehensive Income

(Unit: Korean Won)

Item	2014	2013	2012
I. Sales	14,858,969,270,208	16,438,935,362,784	15,902,803,025,026
II. Cost of sales	14,058,561,842,108	15,527,174,061,634	15,109,197,299,993
III. Gross profit	800,407,428,100	911,761,301,150	793,605,725,033
Selling and administrative expenses	449,478,910,448	424,338,582,195	421,874,257,265
IV. Operating income(loss)	350,928,517,652	487,422,718,955	371,731,467,768
Financial income	129,490,442,812	111,567,410,134	118,990,254,912
Financial cost	187,535,208,115	169,637,458,738	142,418,364,487
Gain (loss) from investments in associates and joint ventures	(16,990,525,014)	(27,350,302,117)	29,585,553,109
Gain on disposal of investments in associates	1,408,253,889	(27,410,007,722)	7,535,793,899
Other non-operating income(loss)	-	-	1,443,659,971
V. Net income before income tax	277,301,481,224	374,592,360,512	386,868,365,172
Income tax expense	133,648,428,872	88,767,377,493	60,407,846,243
VI. Profit(loss) for the year	143,653,052,352	285,824,983,019	316,144,804,534
VII. Other comprehensive income (loss):	71,054,245,713	(49,616,382,351)	(163,160,844,489)
1. Items that will not be reclassified subsequently to income (loss):	(4,617,515,096)	4,649,580,274	(15,289,845,258)
Remeasurement factor on defined benefit plans	(4,543,836,146)	3,471,656,621	(11,064,910,179)
Retained earnings using the equity method	(73,678,950)	1,177,923,653	(4,224,935,079)
2. Items that will not be reclassified subsequently to income (loss):	75,671,760,809	(54,265,962,625)	(147,870,999,231)
Retained earnings using the equity method	-	(4,587,971,272)	(5,549,973,953)
Gain on valuation of AFS financial assets	(3,167,559,095)	575,825,058	942,258,567
Changes in capital variation of equity method	6,877,349,862	(8,274,614,787)	(9,111,565,037)
Gain on valuation of derivatives	(491,760,179)	(5,794,593,290)	8,707,078,250
Foreign currency translation differences of foreign operations	72,453,730,221	(36,184,608,334)	(142,858,797,058)
VIII. Total comprehensive income	214,707,298,065	236,208,600,668	152,983,960,045
Net income attributable to:			
Owners of the group	146,855,718,145	287,921,105,894	314,537,434,708
Non-controlling interests	(3,202,665,793)	(2,096,122,875)	1,607,369,826
Comprehensive income attributable to:			
Owners of the group	215,432,681,034	241,121,331,055	167,874,197,875
Non-controlling interests	(725,382,969)	(4,912,730,387)	(14,890,237,830)
Earnings per share			
Basic and diluted earnings per share	4,359	8,546	9,865
Earnings per share from continuing operations	4,359	8,546	10,046
Earnings(loss) per share from suspended operations	-	-	(181)

# Additional Data

## Employment Status

Classification	Unit	2012	2013	2014
Total number of employees		2,484	2,539	2,739
Employment type	Full-time job	2,430	2,463	2,646
	Part-time job	54	76	93
Gender	Male	2,292	2,334	2,468
	Female	192	205	271
Age	Under 30	425	437	634
	30s ~ 50s	1,753	1,635	1,642
	Over 50	306	467	463

\* Excluding employees of subsidiaries

## Business Sites

Classification	Unit	2012	2013	2014
No. of domestic sites	Sites	12	11	11
No. of employees at domestic sites	Persons	2,799	2,818	2,928
No. of overseas sites	Sites	14	17	18
No. of employees at overseas sites	Persons	2,263	2,354	2,427

\* Including employees of subsidiaries

## Incident Rate

Classification	Unit	2012	2013	2014
Incident rate	%	0.05	0.13	0
Total number of incidents	Cases	1	3	0

## Employees Covered by Collective Bargaining

Classification	Unit	2012	2013	2014
Percentage	%	45	46	45

## Turnover Rate

Classification	Unit	2012	2013	2014
Turnover rate	%	3.9	5.0	2.9

## Employees to Receive Regular Performance and Career Development Reviews

Classification	Unit	2012	2013	2014
Percentage	%	36	41	47
Number of target employees	Persons	898	1,049	1,152

## Employee Satisfaction

Classification	Unit	2012	2013	2014
Employee satisfaction	Points	70	65	77

\* 77.5 points from male employees and 72.9 points from female employees in 2014

## Employees Represented by the Joint Labor-Management Safety & Health Committee

Classification	Unit	2012	2013	2014
Number of target employees	Persons	1,751	1,778	1,794

## Parental Leave

Classification	Unit	2012	2013	2014
Number of parental leave users		10	16	14
Number of employees who returned to work after parental leave	Persons	8	3	10
Number of employees who have still work for more than 12 months after return		2	8	8

## Retirement Pension Plan

Classification	Unit	2012	2013	2014
Rate of subscription	%	98.2	100	100
Number of pension holders	Persons	2,440	2,539	2,420

## Education Session per Employee

Classification	Unit	2012	2013	2014
Education session	Hours	91.3	90.7	91.8

## R&D Expense

Classification	Unit	2012	2013	2014
R&D expense	KRW in millions	29,159	31,630	39,882

## Financial Aids by the Government

Classification	Unit	2012	2013	2014
Financial aids by the government	KRW in millions	16,870	1,862	4,423



# Accolades and Membership of Association

## Accolades in 2014

Lotte Chemical won meaningful awards from diverse stakeholders in recognition of its efforts and commitment to sustainability management in 2014.

Award	Date	Hosted by
Excellent Company in Job Creation	Apr. 2014	Ministry of Employment and Labor
Excellent Company in Corporate Governance	Jul. 2014	Corporate Governance Service
Certified for the DJSI Asia Pacific for four consecutive years	Sep. 2014	SAM
Excellent Company in Hiring Female R&D Experts	Sep. 2014	Korea Federation Women's Science & Technology Associations
Excellent Company in Climate Competitiveness Index	Sep. 2014	Korea Energy Management Corporation, The Korea Chamber of Commerce & Industry

## Membership of Association

We have joined the following associations and worked on memberships to contribute to developing not only our sustainability management but also petrochemical industry and national economy.

Federation of Korean Industries	Korea Employers Federation	Korea Petrochemical Industry Association
Korea International Trade Association	Korea Management Association	Korea Listed Companies Association
Korea Chemical Industry Council	Korea Economic Research Institute	The National Academy of Engineering of Korea
Korea Business Council for Sustainable Development	Korea Union of chemical Science and Technology Societies	Korea Specialty Chemical Industry Association
Economic Organization Council	Korea Industrial Technology Association	Korea-Japan Economic Association
Seoul Chamber of Commerce & Industry Association	Korea Polymer Society of Korea	Korea Productivity Center
Korea Institute of Chemical Engineers	Korea Fair Competition Federation	Asia Business Council
EPCA (European Petrochemical Association)	Korea Personnel Improvement Association	The Membrane Society of Korea

MEMBER OF

## Dow Jones Sustainability Indices

In Collaboration with RobecoSAM 

Lotte Chemical has been certified for the DJSI (Dow Jones Sustainable Indices) Asia Pacific for four consecutive years.

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