

Integrated Report of Economic,  
Environmental and Social Sustainability

# POSCO REPORT 2016



posco

# About this report

## Integrated Report

The POSCO REPORT (hereafter "Report") is an integrated report which contains our economic, social, and environmental performances in 2016.

## Milestone in Reporting

1995-2003	Environmental Report
2004-2011	Sustainability Report
2010-2013	Carbon Report (focusing on climate change issues)
2012-2013	POSCO REPORT (integration of annual report and sustainability report)
2014-Present	POSCO REPORT (integration of carbon report)

## Reporting Guideline

This Report was prepared in accordance with POSCO's own reporting process with a reference to the following reporting guidelines.

- GRI (Global Reporting Initiatives) Standard
- The 10 Principles of the UN Global Compact

## Financial Information Standard

The reporting framework and definition of the financial information contained in this Report are based on K-IFRS (Korea-International Financial Reporting Standards).

## Reporting Cycle

The Report has been published every year since 2004.

## Reporting Period

This report includes the relevant information from January 1 through December 31, 2016. Quantitative data for the latest three fiscal years are provided for a better understanding of our performances, while the scope of some qualitative data is extended to March 2017. The corporate governance section is based on the decisions made by the Board of Directors at the meeting held on March 11, 2017.

## Reporting Scope

This Report contains the economic, social, and environmental performances of Pohang Works, Gwangyang Works, Pohang Head Office, and Seoul Office. Performances in 2016 and management plans in 2017 include POSCO's consolidated financial data and the Integrated Sustainability Performance Index covers POSCO and its major seven subsidiaries. Information on fair trade, quality management, safety, and health refers to overall supply chain such as our domestic and overseas subsidiaries and outsourcing partners as well as POSCO.

## Assurance

To ensure the reliability of reporting process and information, the Report was assured by Samil PwC, an independent external assurance provider in accordance with the ISAE3000 and AA1000AS Type II. For more details, please refer to the assurance statements below.

- Independent Assurance Report\_ page 126
- Independent Assurance Report On Carbon Reporting\_ page 128

## Feedback

This Report was published in Korean and English and can be downloaded at POSCO's website. We also receive feedback from stakeholders through diverse channels such as e-mail and telephone.

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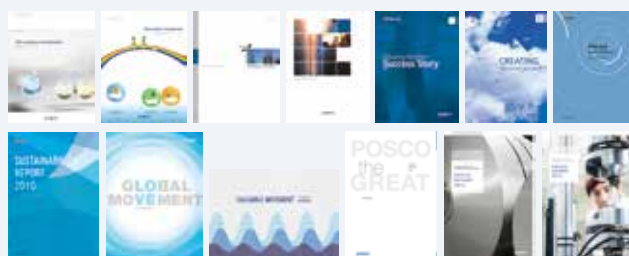


## Cover Image

The cover image shows automobile bumper beam made of POSCO's World Premium product "Giga Steel." As a ultra-high strength steel with 1 gigapascal\* of tensile strength or higher, Giga Steel provides automakers with stronger, lighter, eco-friendlier, and more economic solutions.

\* One gigapascal strength steel even with a size of 10 cm-length and 15 cm-width can give support to the load of 1,500 one-ton compact vehicles.

POSCO REPORT <http://www.posco.co.kr>  
Social Contribution Website <http://www.poscolove.co.kr>



Integrated Report of Economic,  
Environmental and Social Sustainability

**POSCO**  
**REPORT**  
**2016**



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## CEO's Message



### Dear stakeholders,

POSCO is bracing for another leap forward based on the steady growth achieved over the past five decades since its foundation in 1968. The POSCO REPORT covers our sustainability activities and consequent performances in 2016, where we focused on enhancing competitiveness amid challenges both at home and abroad as well as an overview of our plans for 2017.

The year 2016 was a difficult year due to global steel oversupply, rising price of raw materials, and mounting challenges to realize profit, especially after recording the first ever net loss the previous year. Instead of surrendering to such difficulties, POSCO was able to achieve the most remarkable operating performance within the global steel industry thanks to strong support and encouragement from our stakeholders.

In 2016, POSCO focused on offering high value-added products to our customers based on solution marketing, reducing cost and pursuing profit-oriented activities through Innovation POSCO (IP) projects. Such efforts successfully resulted in a double-digit operating margin and a huge jump in stock price by more than 50 percent. Furthermore, we have been listed on the DJSI World (Dow Jones Sustainability Indices) for 12 consecutive years, and were recognized as the best company in responding to climate change issues in the global steel industry by the CDP (Carbon Disclosure Project). We have also maintained our position at the top tier in the Shared Growth Index listings among large-sized enterprises and SMEs.

With the aim of building a foundation for another successful five decades of growth, POSCO will concentrate on four core strategies in 2017: Make further advances in the steel business, strengthen POSCO Group's business structure, develop future growth engines, and establish a flexible and creative corporate culture. Specifically, these strategies will be enabled by activities to upgrade the competitiveness of our World Premium products, enhance manufacturing and marketing competence of overseas subsidiaries, maximize cost competitiveness with smart factories, and nurture energy materials business as our future growth engine, such as lithium, high purity nickel, and anode and cathode materials.

In order to ensure a smooth sail in our future endeavors, it would be essential to remind us of the importance of safety and business ethics that are no longer a matter of choice, but a matter of course for corporate survival. In this regard, we will engage in continuous efforts to prevent accidents and four major unethical behaviors to build a safe and pleasant workplace for our employees and set an example for our society. We are also committed to developing training programs and fostering an optimal environment for nurturing talents that are ready to stand at the forefront of the Fourth Industrial Revolution.

Moreover, POSCO is deeply engaged in developing sustainable and eco-friendly products as part of our ongoing efforts to address energy shortage and environmental degradation. By bringing eco-friendly materials to the world that can be adopted in highly-efficient home appliances and electric vehicles, we can play a bigger role in saving energy and reducing CO<sub>2</sub> emissions. At the same time, all POSCO subsidiaries and affiliates will devote themselves to thoroughly managing working environment risks in order to ensure safety of our employees.

As such, POSCO is fully committed to complying with sustainability principles with regard to environment, human rights, labor practices, and anti-corruption, which is unambiguously required of global enterprises. The consequent performance of such commitment will be shared with all stakeholders including investors, customers, and local communities in a prompt and transparent manner.

We now stand at half way in our journey toward becoming a world-leading company with 100 years of history and culture. We believe such progress was possible largely attributable to the unwavering support and trust of our stakeholders. Going forward, we will continue to devote ourselves to pursuing co-prosperity with local communities that we work in and evolving into a company that earns the respect and affection of people not just here at home but of the wider global society.

We look forward to your continued interest and support in our future endeavors.

May 2017

CEO, **Ohjoon Kwon**

# 01

## Overview

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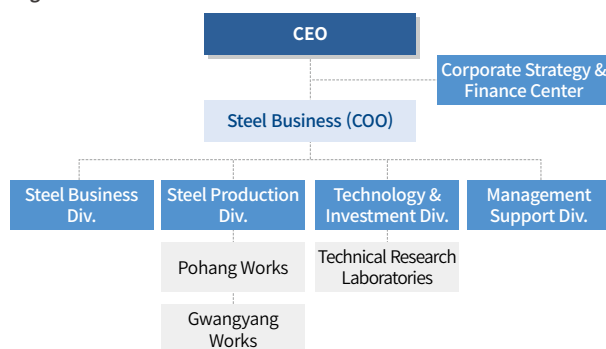
## About POSCO

### Corporate Profile

Established on April 1, 1968, POSCO has been engaging in iron making, steel making, and production and sales of rolled steel products, demonstrating the largest crude steel production capacity in Korea. The company was listed on the Korea Exchange on June 10, 1988, and is currently operating two steel mills (Pohang and Gwangyang) and one office in Korea and five overseas offices as of December 31, 2016. The organization consists of the Corporate Strategy & Finance Center under the CEO and four divisions - Steel Business Div., Steel Production Div., Technology & Investment Div., and Management Support Div.

Company name	POSCO Co., Ltd.
Head office	6261, Donghaean-ro, Nam-gu, Pohang-si, Gyeongsangbuk-do, Korea
Steel mills and offices	Pohang Works: 6262, Donghaean-ro, Nam-gu, Pohang-si, Gyeongsangbuk-do, Korea Gwangyang Works: 20-26, Pokposarang-gil, Gwangyang-si, Jeollanam-do, Republic of Korea Seoul Office: 440, Teheran-ro, Gangnam-gu, Seoul, Republic of Korea

### Organization



Steel mills and offices	Overseas office: Five offices to support the global business (Dubai, Europe, Rio de Janeiro, Western Australia, Argentina)
Business area	Iron making, steel making, production and sales of rolled steel products
Major products	Hot-rolled, cold-rolled, and stainless steel
CEO	Kwon Oh-Joon, Oh In-hwan, Choi Jung-woo
Establishment	April 1, 1968

### Financial Performance (consolidated basis)

	Unit	2014	2015	2016
Crude steel production	Thousand tons	41,428	42,027	42,199
Sales	KRW in billions	65,098	58,192	53,084
Operating profit	KRW in billions	3,214	2,410	2,844
Operating margin	%	4.9	4.1	5.4
Assets	KRW in billions	85,252	80,409	79,763
Liabilities	KRW in billions	39,961	35,339	33,925
Equity	KRW in billions	45,291	45,070	45,838
Debt-to-equity	%	88.2	78.4	74.0
ROE	%	1.2	△0.2	2.3

### Integrated ESG Performance<sup>1)</sup>

	Unit	2014	2015	2016		
Innovation <sup>2)</sup>	R&D expenditure	KRW in millions	694,021	513,006	537,776	
	R&D expenditure to sales	%	1.1	0.9	1.1	
Employee <sup>3)</sup>	Training hours per capita	Hours	108.6	92.1	47.8	
	Training expenses per capita	KRW	649,065.9	853,675.1	742,607.9	
	Employee satisfaction	Points	75.7	71.8	74.0	
	Turnover rate	%	6.1	4.0	5.1	
	Continuous service	Years	12.0	12.6	12.9	
	Ratio of non-regular workers	%	9.7	5.0	5.1	
	Rate of return from parental leave (male)	%	100	90	71	
Safety	Rate of return from parental leave (female)	%	85	98	88	
	Lost-time injury frequency rate	Per million hours	0.18	0.19	0.31	
Environment	Number of accidents (average)	Cases	5.1	5.6	7.8	
	Energy consumption	TJ	974,567.3	961,464.0	481,458.6	
	GHG emissions	SCOPE1 (direct)	Thousand CO <sub>2</sub> e	84,412.8	82,741.3	81,309.8
		SCOPE2 (indirect)	Thousand CO <sub>2</sub> e	4,741.0	4,430.7	3,715.7
	Water consumption	Water intake	Thousand m <sup>3</sup> /year	144,053.8	144,760.8	143,966.3
		Wastewater discharge	Thousand m <sup>3</sup> /year	86,290.9	82,742.6	87,277.2
	Waste	Waste generated	Thousand tons/year	24,873.4	24,621.5	24,225.5
Waste volume (disposed)		Thousand tons/year	454.2	587.2	514.6	
Waste volume (recycled)		Thousand tons/year	24,318.9	24,034.3	23,710.9	
Society	Volunteering hours per capita	Hours	27.4	26.4	29.0	
	Investments in Social contribution	KRW in millions	64,628	67,654	46,831	

1) The integrated ESG performance index applies to POSCO, POSCO DAEWOO, POSCO E&C, POSCO ENERGY, POSCO CHEMTECH, POSCO ICT, POSCO M-TECH, POSCO C&C.

2) Consolidated R&D expenditure stated on the POSCO's 2016 Business Report

3) Total number of employees is the summed data stated on each subsidiary's 2016 Business Report. (30,912 in 2014, 29,724 in 2015, and 27,170 in 2016)



## Corporate Governance

To ensure the independence of the Board of Directors (BOD) and the right of shareholder, POSCO has been improving its corporate governance based on the "Corporate Governance Charter" which clarifies the vision and principle of governance. POSCO's BOD consists of seven outside directors and five inside directors, and outside directors chair the BOD and subcommittees, ensuring the independence and transparency in the BOD operation. Moreover, the regular meeting attended only by outside directors enables institutional guarantee of collecting their opinions independently. The cumulative voting and mail-in voting systems enhance the right of shareholders and the Internal Transaction Committee contributes to secure transparency in transactions with affiliates. Since 2006, CEO as a representative of the management and chairman of the board became separate

positions to secure the independence of the BOD and exercise closer supervision on the management. In addition, the CEO Candidate Recommendation Committee was organized in 2007 to assure the independence and transparency of the CEO nomination process. In 2010, we launched the Code of Ethics for outside directors and a system to evaluate the activities of the BOD and subcommittees. In 2011, we also established the Director Candidate Recommendation Committee operation rule, and revised the BOD operation rule for agendas on internal transactions to be reviewed by plural subcommittees, enhancing the role and professionalism of subcommittees. Since 2012, the discussion meeting by each subcommittee has been regularized to upgrade their function and role.

### Outside Directors

<p><b>Bahk, Byong-won (BOD Chairman)</b></p> <ul style="list-style-type: none"> <li>• Current Chairman of Korea Employers Federation</li> <li>• Former President of Woori Financial Group</li> <li>• Former Vice Minister of Finance and Economy</li> <li>• B.A. in Laws at Seoul National University / M.A. in Economics at Washington University</li> </ul>	<p><b>Shin, Chae-chol</b></p> <ul style="list-style-type: none"> <li>• Former CEO and President of LG CNS</li> <li>• Former Chairman of Logos Systems</li> <li>• Former CEO of IBM Korea</li> <li>• B.A. in Electrical Engineering at Seoul National University</li> </ul>	<p><b>Lee, Myoung-woo</b></p> <ul style="list-style-type: none"> <li>• Current CEO of Dongwon Industries</li> <li>• Former Special Duty Professor of Business Administration at Hanyang University</li> <li>• Former CEO of SONY Korea</li> <li>• B.A. in Philosophy at Seoul National University / MBA at University of Pennsylvania</li> </ul>	<p><b>Kim, Joo-hyun</b></p> <ul style="list-style-type: none"> <li>• Current Chairman of Future Korea Institute</li> <li>• Former CEO of Hyundai Research Institute</li> <li>• Former Senior Researcher at Goryeo Economic Research Institute</li> <li>• B.A. in English at Sogang University / Ph.D. in Finance at Arizona University</li> </ul>
<p><b>Kim, Shin-bae</b></p> <ul style="list-style-type: none"> <li>• Former Chairman of Korea IoT Association</li> <li>• Former Vice Chairman of SK Group</li> <li>• Former CEO of SK Telecom</li> <li>• B.A. in Industrial Engineering at Seoul National University / MBA at University of Pennsylvania</li> </ul>	<p><b>Chung, Moon-ki</b></p> <ul style="list-style-type: none"> <li>• Current Associate Professor of Business Administration at Sungkyunkwan University</li> <li>• Former Accounting Deliberation Committee Member of Financial Supervisory Service</li> <li>• Former Senior Executive of PwC</li> <li>• B.A. in Trade at Sungkyunkwan University / MBA at Sungkyunkwan University</li> </ul>	<p><b>Jang, Seung-hwa</b></p> <ul style="list-style-type: none"> <li>• Current Professor of Laws at Seoul National University</li> <li>• Current Arbitrator of ICC (International Court of Arbitration of International Chamber of Commerce)</li> <li>• Former Judge of WTO Appellate Body</li> <li>• B.A. in Laws at Seoul National University / Ph.D. in Laws at Harvard University</li> </ul>	

### Inside Directors

<p><b>Kwon, Oh-joon</b></p> <ul style="list-style-type: none"> <li>• Current Chairman and CEO of POSCO</li> <li>• Former President of POSCO</li> <li>• Former CEO of Research Institute of Industrial Science &amp; Technology (RIST)</li> <li>• B.A. in Metal Engineering at Seoul National University / M.A. in Metal Engineering at University of Windsor / Ph.D. in Materials Science and Engineering at University of Pittsburgh</li> </ul>	<p><b>Oh, In-hwan</b></p> <ul style="list-style-type: none"> <li>• Current President and CEO of POSCO (Head of Steel Business Division)</li> <li>• Senior Executive Vice President of POSCO</li> <li>• Former Senior Executive of POSCO P&amp;S</li> <li>• B.A. in Sociology at Kyungpook National University / M.A. in Economics at Yonsei University</li> </ul>	<p><b>Choi, Jung-woo</b></p> <ul style="list-style-type: none"> <li>• Current President and CEO of POSCO (Head of Corporate Strategy &amp; Finance Center)</li> <li>• Former Vice President of POSCO</li> <li>• Former Vice President of POSCO Daewoo</li> <li>• B.A. in Economics at Pusan National University</li> </ul>
<p><b>Chang, In-wha</b></p> <ul style="list-style-type: none"> <li>• Current Vice President (Head of Steel Production Division)</li> <li>• Former Managing Director of RIST</li> <li>• B.A. in Shipbuilding &amp; Marine Engineering at Seoul National University / Ph.D. in Marine Engineering at MIT</li> </ul>	<p><b>You, Seong</b></p> <ul style="list-style-type: none"> <li>• Current Vice President of POSCO (Head of Technology Investment Division)</li> <li>• Former Head of POSCO-Japan</li> <li>• B.A. in Civil Engineering at Korea University / M.A. in Information Technology at POSTECH</li> </ul>	

## Board of Directors

### BOD Composition

At POSCO, inside directors are appointed at the shareholders' meeting after the Director Candidate Recommendation Committee screens candidates recommended by the company and the BOD recommends the final candidates. As for outside directors, the Outside Director Candidate Recommendation Advisory Group comprised of five prestigious professionals suggests a threefold roster of candidates and then the Director Candidate Recommendation Committee strictly verifies their qualification. Final candidates are recommended to the shareholders' meeting for the appointment. At the 49<sup>th</sup> general shareholders' meeting on March 10, 2017, Kim, Shin-bae, former Vice Chairman of SK Group, Chung, Moon-ki, current associate professor of business administration at Sungkyunkwan University, and Jang, Seung-hwa, current professor of laws at Seoul National University, were newly appointed as outside directors. Oh, In-hwan and Choi, Jung-woo who were both the President of POSCO were reappointed as inside directors, while Chang, In-wha and You, Seong who were both Vice President of POSCO became new inside directors. The outside director Bahk, Byong-won was nominated as the BOD Chairman at the BOD meeting. In 2016, the BOD meeting was held eight times and the attendance rate of both inside and outside directors was 100%. Major agendas decided at the BOD meeting in 2016 included the plan for merger of POSCO GREEN GAS TECH, plan for spin-off and merger of POSCO DAEWOO and POSCO P&S, business plans for 2017, and donations to the year-end charity campaign.

### Major Agendas in 2016

Jan. 28	<ul style="list-style-type: none"> <li>Approval of the 48<sup>th</sup> business report and financial statements and convocation of the general shareholders' meeting</li> <li>Approval of the merger of POSCO HIGH METAL</li> </ul>
Feb. 19	<ul style="list-style-type: none"> <li>Recommendation of inside director candidates</li> <li>Agendas to be submitted to the 48<sup>th</sup> general shareholders' meeting</li> </ul>
Mar. 11	<ul style="list-style-type: none"> <li>Appointment of the BOD Chairman</li> <li>Appointment of subcommittee members</li> <li>Position assignment to inside directors</li> </ul>
Mar. 24	<ul style="list-style-type: none"> <li>Approval of the merger of POSCO GREEN GAS TECH</li> <li>Issuance of the 307<sup>th</sup> corporate bond in Korea</li> <li>Appointment of the Compliance Officer</li> </ul>
May 13	<ul style="list-style-type: none"> <li>Investment in the POSCO Educational Foundation</li> <li>Plan for transactions with affiliates in 2016</li> </ul>
Aug. 4	<ul style="list-style-type: none"> <li>Construction of the 5<sup>th</sup> LNG storage tank</li> <li>Execution of the 2Q cash dividend</li> </ul>
Nov. 4	<ul style="list-style-type: none"> <li>Plan for spin-off and merger of POSCO DAEWOO and POSCO P&amp;S</li> <li>Execution of the 3Q cash dividend</li> <li>Agreement on lease contract for the lime calcination plant</li> </ul>
Dec. 9	<ul style="list-style-type: none"> <li>Mid-term management strategies and business plans for 2017</li> <li>Investment in employee welfare fund</li> <li>Donations to the year-end charity campaign</li> </ul>

### Director's Remuneration

Remuneration limit	Total amount paid
KRW <b>7</b> billion	KRW <b>5.4</b> billion

### Subcommittees

Six subcommittees are operated under the BOD, five subcommittees of which are chaired by outside directors except for the Management Committee responsible for reviews and deliberations on investments in the steel business. The Audit Committee, Evaluation and Compensation Committee, and Internal Transactions Committee are comprised solely of outside directors to ensure independent decision-making.

#### Major Roles and Composition of Subcommittees

##### Director Candidate Recommendation Committee (three outside directors, one inside director / chaired by Lee, Myoung-woo)

Meetings held in 2016: Six times

Major reviews and decisions: Screening and recommendation of outside director candidates, screening of inside director candidates, appointment of subcommittee members, operation of the Outside Director Candidate Recommendation Advisory Group, etc.

##### Evaluation and Compensation Committee (four outside directors / chaired by Shin, Chae-chol)

Meetings held in 2016: Once

Major reviews and decisions: Evaluation on companywide operating performances in 2015

##### Finance and Management Committee (three outside directors, two inside directors / chaired by Lee, Myoung-woo)

Meetings held in 2016: Six times

Major reviews and decisions: Plans for issuance of the 307<sup>th</sup> corporate bond in Korea, construction of the 5<sup>th</sup> LNG storage tank, donations to year-end charity campaign, approval of short-term borrowings limit for 2017, etc.

##### Audit Committee (three outside directors / chaired by Kim, Joo-hyun)

Meetings held in 2016: Eight times

Major reviews and decisions: Operation of the internal accounting management system in 2016, inside audit results of the 48<sup>th</sup> financial statements, etc.

##### Internal Transactions Committee (three outside directors / chaired by Kim, Joo-hyun)

Meetings held in 2016: Five times

Major reviews and decisions: Investment in the POSCO Educational Foundation, agreement on lease contract for the lime calcination plant. Etc.

##### Management Committee (five inside directors / chaired by Kwon, Oh-joon)

Meetings held in 2016: 12 times

Major reviews and decisions: Selling of treasury shares linked with rewards, improvement of molten iron pretreatment facilities at Gwangyang 1 steelmaking factory, replacement of deteriorated motors and control facilities at Gwangyang 2 hot rolling factory, etc.

\* The members and chairperson of each subcommittee is as of March 10, 2017.

• Corporate Governance Charter, Code of Ethics for Outside Directors  
posco.co.kr/governance

• Information about the Board of Directors  
posco.co.kr/board



## Interview with Executives

This report includes interviews with the management to share the company's policies and business plans with stakeholders. The interviews were conducted by Samil-PwC, our assurance provider, in April, and the results are as follows.



**Oh, In-Hwan**  
Chief Operating Officer/  
Head of Steel Business and  
Operation Division

**Q1** The steel business division assumes the important responsibility for enhancing corporate competitiveness and creating early outcomes from new businesses. What do you think are opportunities and risks at POSCO in 2017?

**A1** The economy of advanced countries such as the U.S, Europe and Japan is getting better. In the past, the emerging and underdeveloped economies had a tendency to follow the rising trend in the advanced countries, but this is no longer the case in markets like China. We see that the decoupling of global economy is increasingly intensified. In the steel business, tightened regulations in the U.S., India, Europe, and Mexico caused a slump and the domestic consumption also decreased. Protectionism puts local production and transaction ahead of importing, and China is closing the gap on POSCO in case of general steel due to upgraded competitiveness. These changes in external circumstances are why we are focusing on world premium products. Differentiation ensures the survival in the global market.

The World Premium products are still very difficult to produce, but going forward, we should be able to produce world premium products as smoothly as general ones and apply this strategy to all our products to secure competitiveness. It took about three years to regularize the production of world premium products. Now we need to get closer to customers through solution marketing.

**Q2** POSCO has promoted solution marketing activities to offer technical, commercial, and human solutions to upgrade sales structure and fight against decreasing steel consumption. Can you tell us about plans and goals for Solution Marketing 2.0 in 2017?

**A2** Solution marketing is a powerful tool to help win intense competition. As a business model in the automotive steel sheet sector, solution marketing was derived from the EVI (Early Vendor Involvement) project to send our research team to automakers for advice from the developmental stage. It has been extended to diverse technologies including pressure welding. Excellent product quality is prerequisite to this business. Human solution is to provide customers with solutions when they face difficulties by promptly sending our professionals. Solution marketing 2.0 is an upgraded version with the concept of speed and innovation. Innovative solution aims to reduce the response time that took a week when requiring technical review by even adding more workforce. Digital solution is offered on the basis of digital communication. Tailored solution pursues satisfying individual needs of customers such as different delivery, quality, and minimization of quality failure. Solution marketing 2.0 encompasses these activities.



**Chang, In-Hwa**  
Head of Steel  
Production Division

**Q1** The "POSCO Family Safety SSS" is held every year to share strategies and results about safety. Please tell us about insufficiencies regarding safety activity in 2016 and directions and plans for 2017.

**A1** At our steel mills where about 14,000 workers including those of suppliers are working, it is not easy to perfectly prevent safety accidents. Therefore, we not only strive to reduce accidents but manage diverse indicators for preventing accidents. A special program is to appoint retired employees as safety patrols. They supervise site safety in a strict and objective perspective with a strong sense of responsibility to keep their juniors from safety risk and with pride in re-employment. Pohang Works and Gwangyang Works rehired 15 and 4 members with this purpose, respectively.

Moreover, POSCO has introduced the smart safety helmet since April 1, the anniversary of company establishment. The smart safety helmet has a sensor to alert users to prevent access to danger zones and offers films and images where workers are and accidents occur. It will allow us to rapidly respond to emergencies such as accident from inflammable materials. We should also be ready for natural disasters. When there was an earthquake in Gyeongju, an accident occurred near the electric contact. Since then, we have found risk factors through a total inspection in the steelworks and enhanced the level of disaster control.

**Q2** In March 2016, POSCO first introduced the smart factory system operated by cutting-edge technologies such as IoT, big data, and AI in the industry. Please tell us why POSCO introduced the smart factory system and how it is used.

**A2** First I want to say why the smart steelwork is needed. The smart factory system doesn't just mean factory automation. It pursues better operation of the factory beyond replacing human resources. Factory automation have depended on a certain mathematical model, but today it is important to create a system that can continuously update the formula to keep up with changes. The smart factory system has been applied to four sectors, of which reduction of thickness variation of plating for automotive steel sheet was the greatest achievement. We expect this system to contribute to enhancing both quality and customer satisfaction going forward.

The smart steelwork has been promoted to create more values by utilizing our capabilities beyond just catching up with the Fourth Industrial Revolution, as it is physically impossible to continuously increase production capacity. Meanwhile, our future can be ensured when we enter the O&M business by utilizing our expertise and knowhow. To this end, the stratification of logics is being conducted by field experts, in which senior engineers and AI experts are also participating to develop better application methods.

**Yu, Seong**Head of Technology and  
Investment Division

**Q1** We'd like to know opportunities and risks regarding POSCO's new businesses under rapidly-changing business environment.

**A1** POSCO is facing rapidly-changing business environment and fierce competition with other materials. Particularly, competition among materials in the EV market is heating up due to increasing needs for weight lightening. Steel is still recognized as the cheapest and the most useful material in the world. However, POSCO is striving to develop new-concept steel products including the Giga Steel which is three times stronger than aluminum to win the competition. We will continue to take the initiative in developing new-concept steel products. Today, POSCO is also paying attention to nonferrous materials. Particularly, we are focusing on developing and producing materials for EV batteries such as cathode/anode materials that include lithium, cobalt, and manganese. As demands for materials for energy-storing devices are expected to sharply increase, POSCO will strive to supply high-quality materials at competitive prices to cultivate growth potential. On top of that, we are proactive in looking for new businesses based on experiences in the power generation projects using clean energy. Those include the midstream business aimed at constructing gas liquefaction facilities at home and abroad and the independent power producer (IPP) projects.

**Q2** What are countermeasures to environmental risks at domestic and foreign workplaces?

**A2** POSCO pursues eco-friendly ideas throughout the business. As for eco-friendly EV-related business, there is no justification if exhausted batteries affect the environment.

Our new businesses are promoted without affecting environment. For example, nickel with just 2% content is now regarded as high-quality compared to the previous figure of 2.5%, as the reserve of nickel has much been depleted. Remaining 98% residue after collecting 2% high-quality nickel may cause environmental pollution. In this regard, our self-developed wet smelting method enables to recover valuable metals such as Fe from waste, thereby contributing to making better use of resources and reducing environmental pollution. Now we are upgrading the smelting method that can collect only lithium with minimum environmental impact. A customer had asked us how much carbon was emitted from the development of specific materials. I think POSCO can rather address this kind of sustainability issue of supply as a sales method. Proving that our products are eco-friendlier than others, we can demonstrate our unique value and secure competitive edge.

**Ko, Suk-Bum**Head of Management  
Support Division

**Q1** In celebration of the 50<sup>th</sup> anniversary of establishment, POSCO is preparing for another five decades. Please tell us how POSCO will develop corporate culture.

**A1** For the past five decades, POSCO has evolved into the world's most competitive steel company based on indomitable challenging spirit and leadership. Meanwhile, considering current environment where the Fourth Industrial Revolution begins in earnest, our corporate culture needs to be upgraded to ensure sustainable success for the next five decades. In this regard, flexible communication should be embedded in existing our corporate culture that has pursued strength for the successful transformation into the Smart POSCO. We are required to be equipped with advanced corporate culture where employees can share knowhow through unreserved communication and display collective intelligence by proposing creative ideas without constraint. Respect for and understanding of each other is a prerequisite to for smooth communication. As part of this, we intend to conduct a company-wide communication program in which managers and field workers with short service years participate, pursuing higher mutual understanding and trust. Corporate culture cannot be upgraded without balanced efforts between the management and employees. POSCO will continue to strive to act in concert with employees to build a new corporate culture.

**Q2** Tell us the directions of talent cultivation and plans to promote the engagement of female employees.

**A2** The company is operating the Dual Ladder system to nurture business leaders and experts. Systematic job rotation is promoted to help employees experience diverse jobs, providing them with a chance to become business leaders. We also select PCPs (POSCO Certified Professional) in the fields that need a relatively higher sense of professionalism to cultivate them as POSCO's unique experts. Moreover, the company operates a variety of programs to support female employees to display their competences without career discontinuity. Contrary to external perceptions that female employees would have difficulties in adapting the company considering the characteristics of our business, we can see a lot of female employees demonstrate excellence not only in finance, HR, production, and marketing but also in production at Pohang Works and Gwangyang Works. Fully understanding that they are concerned about career discontinuity from childbirth and childcare, the company initiated the "New POSCO Birth Encouragement Policy" that includes supporting infertility treatment expense, increasing birth encouragement subsidy, enhancing flexible work system, and expanding the daycare center this year. Going forward, POSCO will make a concerted effort to create an environment where employees can be immersed in their jobs and cultivate capabilities.

## Vision and Strategy

### Performance Highlights in 2016

Despite slight economic recovery in the US and some emerging economies in 2016, sluggish Chinese economy and BREXIT impact caused lackluster growth to continue. On local front, global economic downturn, rising protectionism, restructuring of shipbuilding industry, and suppressed consumption from snowballing household debt have brought about a sense of crisis over the country's economy. Steel industry faced cost burden due to the rise in fuel and raw material prices as well as unchanged stagnant global demand and facility oversupply. Moreover, tightened trade regulation constricted exports and depressed domestic car and ship production have aggravated order conditions in the domestic market. To overcome those tough conditions, POSCO has executed the Innovative POSCO 2.0 aimed at reinforcing basic competitiveness as a steel company and restructuring low-profit businesses. As a result, we recorded KRW 2.64 trillion in operating income and a double-digit operating margin of 10.8% on a non-consolidated basis. Those were KRW 2.84 trillion and 5.4% on a consolidated basis, respectively. The highlights in our major management activities centered on four key agendas of the Innovative POSCO 2.0 in 2016 were as follows:

#### Focusing on improving profitability in the steel business

In 2016, POSCO carried out more advanced solution marketing activities than the previous year, creating higher customer value by delivering not only top-quality steel materials but also utilization technologies to customers. As a result, world premium products accounted for 47.3% of total sales, up 8.9%p compared to the previous year. Furthermore, POSCO has maximized productivity by improving efficiency in core process performance and addressing operation rate and quality inadequacy, thus establishing the low-cost and high efficiency production system. We have also dramatically reduced electricity power purchase cost through enhancing in-house power generation and energy facility efficiency by introducing low-priced spot LNG. As for overseas upstream projects including PT. KRAKATAU POSCO and POSCO SS VINA which had been sluggish, we saw a dramatic reduction of loss backed by efforts for product increase and saving of raw material costs based on facility stabilization. ZPSS has now returned to considerable profitability. Meanwhile, for overseas downstream projects, we enhanced strategic cooperation with local mills to solidify the basis for local manufacturing and sales. The completion of POSCO-TCS in Thailand has let us strengthen market dominance of automobile plate market in southeast Asia.

#### Completing 85% of the business restructuring goals and achieving the best financial soundness through profitable investment and persistent reduction of borrowings

The merger between POSCO Daewoo and POSCO P&S will contribute to enhancing our steel sales capability. POSCO restructured 39 subsidiaries by selling off noncore business areas including POS Magnet. A total of 77 subsidiaries have been restructured since 2014. Furthermore, we redeemed borrowings with cash secured by selling non-essential assets. Thanks to the restructuring of low-profit businesses and assets, the company's debt-to-equity stood at 17.4% on a non-consolidated basis, the record-low since its establishment. Our net borrowings on a consolidated basis were also down by KRW 1.4 trillion compared to the previous year. Debt-to-equity on a consolidated basis improved significantly from 78.4% to 74.0%.

#### Laying the foundation for tangible outcomes by focusing capabilities on materials for rechargeable battery and lighter car bodies

For materials for rechargeable battery of Li and Ni, we have established the system to roll out cathode and anode materials with the development of original technology. Completing the new PosLX process, we now have in place in-house technology to produce lithium materials. We also verified the PP2 (Pilot Plant) phase in Ni smelting and are developing high-purity battery production technology. In addition, the development of PG-NCM (POSCO Gradient-Ni/Co/Mn), high-capacity cathode material for EVs, was completed and annual production capacity of anode materials surpassed 6 thousand tons due to the expansion of 4<sup>th</sup> production line. For lighter materials, we are developing magnesium wide board for vehicles jointly with global car makers. POSCO also promoted full-fledged sale of high-strength steel for EV body (AHSS) and Hyper NO for motors.

#### Elevating HR competitiveness and innovating working methods

The company established permanent restructuring and performance-based corporate culture to reinforce HR competitiveness, thereby downsizing workforce of the Group. Also, we carried out major IP projects to maximize financial effect by introducing project-based working methods. Moreover, the "One Strike Out Rule" was introduced to punish those violating four major unethical behaviors - taking bribes, embezzlement, sexual harassment, and information manipulation. We have also rooted out abnormal business practices by operating the anti-illegal solicitation "Clean POSCO System" and carried out anti-power abuse campaigns to establish a corporate culture of respect and trust.

#### Sharpening the competitiveness of affiliates and generating tangible results

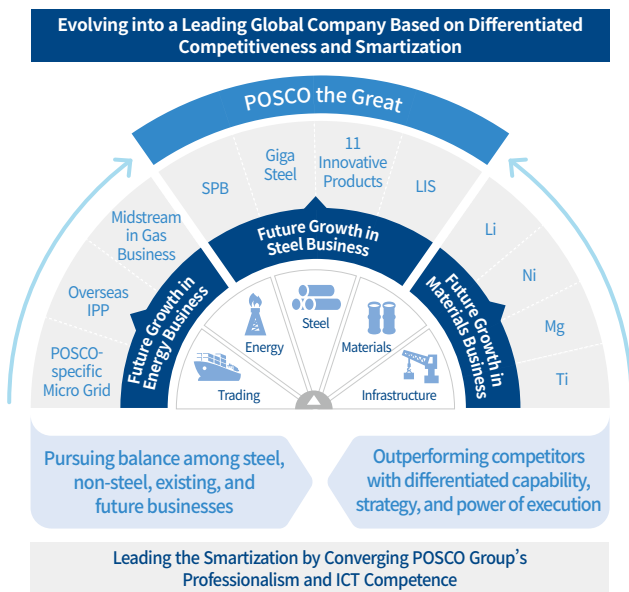
POSCO Daewoo succeeded in discovering a major gas reservoir in the Mining Area AD-7 in the ocean of Myanmar following the Mining Area A-1 and A-3 which are already commercially operational. Despite major loss in underperforming overseas projects, POSCO E&C has reinforced its expertise and competitiveness in core businesses by timely restructuring deficit businesses and workforce. Having reinforced quality of refractories and price competitiveness, POSCO CHEMTECH has advanced into Vietnam, Malaysia, and other emerging markets. Another affiliate PMC-Tech has entered into full operation, launching the sales of needle cokes. POSCO ICT suspended underperforming PF projects in a preemptive manner, addressing financial risks to make turn-around. It also established the basis of smart factory system featuring IoT-based forecast and diagnosis.

Those major management activities resulted in international credit rating agencies upgrading our credit level. Our stock price has also risen by more than 50% last year. Moreover, in 2016, POSCO has become the first steel company to enter the DJSI World for 12 consecutive years in the world. We were also named the most competitive steel company by WSD (World Steel Dynamics) for 7 years in a row, proving our status as the company with the strongest competitiveness in the world.

## Strategy, Opportunities, and Risks in 2017

It is anticipated that the global economy will pick up slightly in 2017 largely led by the US and resources exporting countries. However, it may face barriers due to rising uncertainties in both real and financial sectors from new economic policies of the US and tough management environment caused by China's slowing growth. Even though the imbalance in supply and demand is mitigated somewhat backed by steel production cut in China, the price rise of key raw materials such as coal and iron ore is threatening the bottom line of steel makers. POSCO will likely face challenging management environment. Export conditions may turn for the worse due to the low growth of local manufacturing industry, stagnant demand for steel, and the rising protectionism. What's more, as our competitors concentrate resources on high added-value products while seeking integration and expansion to retain dominance in their respective market, both quantitative and qualitative competition will intensify. POSCO promises to stay alert in 2017 to overcome tough market conditions and make another leap forward.

### Strategic Direction



This year, we will enhance our steel profitability while completing the restructuring plan according to the “Innovative POSCO 2.0,” thus securing the basis for future growth.

#### First, we will advance steel business based on original technology to further overwhelm competitors in profitability.

Today, steel industry is faced with qualitative competition. In response, POSCO will pursue “human solution” to relate with customers in sincerity for their business success beyond just “technology solution” to provide steel utilization technology and “commercial solution” to support customers’ sales. We will also expand the sales of World Premium products while early commercializing high-manganese steel and giga-class steel products to enhance competitive

edge. By creating higher customer value through solution marketing and World Premium products, we will dominate the domestic market. Making production sites smart will also be promoted to sharpen competitiveness in both price and quality.

#### Second, we will further reinforce our financial structure and business portfolio by completing the restructuring of non-essential affiliates and low-income assets.

The non-steel business units in the Group may affect both profitability and growth potential when low-income trajectory persists. Thus, POSCO will complete the business restructuring that started last year to achieve the rationalization and optimization of the Group’s business structure. In addition, by finishing low-income, non-efficiency business restructuring and converging unit-specific strengths, we promise to identify new projects to generate synergy.

#### Third, we will build future growth engine powered by Smart Solution and original capabilities.

Industry 4.0 is changing the industrial paradigm in its entirety. Thus, it is more paramount than ever before to nurture future growth business and secure competitive edge based on a company’s original capabilities. In steel business, we will maximize price competitiveness by establishing the smart factory while setting up the smart energy, building, and town in cooperation with POSCO Energy, POSCO E&C, and POSCO ICT, thus creating new business capabilities and brand awareness. In clean energy sector, we will expand LNG midstream business (the mid-stage business to transport, store, evaporate, and deliver liquefied natural gas) to execute POSCO-type smart grid projects while nurturing energy material business of lithium, high-purity nickel for anode material, and rechargeable battery anode and cathode material as a major part of the Group’s future businesses.

#### Lastly, we will establish flexible and creative corporate culture.

In today’s world marked by growing uncertainties and fluctuations, it is essential to establish a creative corporate culture that swiftly responds to changes and unleashes innovative ideas. POSCO will take different ideas proposed by individual employees and develop them into major projects that generate great profits. Also, by introducing start-ups’ method of work, we will embed two-way communication and smart communication into the corporate culture. Furthermore, we promise to nurture a culture that values execution to ensure that all employees work with the awareness “I am POSCO.”

The year 2017 will prove a critical turning point for POSCO as we prepare for another leap forward over the next 50 years to be built upon the achievements of the past 50 years.

We have reached the halfway point as we take one step at a time on the journey toward the destination of centennial corporate. In the face of challenges, we, at POSCO Group, promise to keep progressing toward realizing the goal of “POSCO the Great” just like horses racing to the very finish line.

## Sustainability Management at POSCO

### Sustainability Management Policy

POSCO defines sustainability as achieving economic performance based on environmental and social responsibility. To this end, POSCO promotes sustainability policy aimed at conducting responsible management activities to win stakeholders' trust and providing sustainable solutions to help customers and society.

### Building Trust with Stakeholders

Corporate sustainability can be ensured when trust relationship with stakeholders is built in the long-term. In response, the Technology Investment, Management Infrastructure, Steel Business and Steel Production divisions are proactive in communicating with internal and external stakeholders to identify ways to enhance their value. We will continue to strive to deliver more practical values to stakeholders.

### Responsible Management

POSCO, as a corporate citizen, adheres to responsible management. We comply with the code of ethics, safety and health policy, and human rights policy in a strict manner, and strive to make all sustainability related regulations satisfy global standards. In this regard, POSCO respects and supports globally recognized sustainability standards such as the UN Global Compact, OECD Guidelines for Multinational Enterprises, and ISO26000. Moreover, our business sites at home and abroad not only prohibit child labor and forced labor, but also support international human rights-related regulations, such as the Universal Declaration of Human Rights and UN Guiding Principles on Business and Human Rights.

- The 10 principles of the United Nations Global Compact (joined on May 31, 2012)
- The OECD Guidelines for Multinational Enterprises
- The Universal Declaration of Human Rights and United Nations Covenants on Human Rights
- ISO 26000 (Guidance on Social Responsibility)

### Providing Sustainable Solutions

POSCO is committed to developing innovative products to deliver higher corporate value. As part of this, we have focused on solution marketing to strengthen our fundamental competitiveness in 2016 and aim to secure competitive edge in the global market with the pursuit of shared growth with customers in the coming year. Detailed plans include improving both profitability and competency by developing world premium products and solution marketing that deliver high added value to customers, and conducting researches on eco-friendly and high energy-efficiency technologies and products.

### Corporate Governance for Sustainability Management

At POSCO, specialized committees are operated in the fields of environment, safety, and shared growth, while Environment & Energy Dept., Corporate Audit Dept., Social Contribution Group, Community

Cooperation Team, and Safe Production Strategy Dept. are in charge of working-level functions on sustainability management. Environment & Energy Dept. is responsible for comprehensive sustainability management activities.

### Sustainability Management Committees

Classification	Meeting	Chairperson	Participants	Main Issues
Environmental Management Committee	Once a year	CEO	POSCO's executives, CEOs of POSCO Family companies	Environmental management strategy Environmental risk Environmental control
Shared Growth Conference	Once a year	CEO, representatives of suppliers	POSCO's executives, CEOs of POSCO Family companies, presidents of suppliers	Shared growth activities Shared growth performances Grievances in cooperation
POSCO Family Safety Committee	Twice a year	CEO, Head of Steel Production Division	POSCO's executives in charge, CEOs of POSCO Family companies	Safety activities and performances Plans for safety management activities
Fair Trade Compliance Conference	Twice a year	Head of Corporate Audit Department	Executives of relevant departments (marketing, procurement, etc.)	Report on CP (Compliance Program) activities and establishment of relevant plans

### CASE REPORT

#### Major Questions of Investors for 2016 SRI (Socially Responsible Investment)

##### Q1 How is the Odisha Project in India going?

A1 The Odisha Project to build a steel mill is in trouble due to the uncertainty of acquiring the rights on developing mines. Currently, we cannot mention when the project restart. We will officially announce our plans if the direction of the Odisha Project is set up internally.

##### Q2 How is POSCO trying to do for the compliance with the Paris Agreement?

A2 POSCO has established and implemented a GHG reduction goal since 2010 in a voluntary manner. The goal was to reduce CO<sub>2</sub> intensity by 9% by 2020 compared with base year (2007~2009), and we have already achieved the goal through unwavering efforts for reduction. To satisfy the goal resolved at the Paris Agreement, Korean government submitted the plan aimed at reducing 37% of BAU by 2030 to the UN in June 2015. Moreover, a roadmap to reduce national GHG emissions by 2030 which includes divisional reduction targets and measures was released in December 2016. To contribute to GHG reduction nation- and industry-wide, POSCO will commit to enhancing energy efficiency and developing low-carbon technologies.

\* BAU, Business As Usual: Considering GDP growth rate and oil prices, etc.


## Risk Management

In the era of all-pervading risks such as increasing protectionism, low growth in the steel industry, and uncertainty in macro economy, POSCO makes a concerted effort to preemptively detect and prevent internal and external risks. By doing so, we efficiently respond to rapidly changing business environment and maintain an amicable relationship with stakeholders, laying the foundation for sustainable growth.

### Risk Management Overview

To efficiently control uncertain business environment, POSCO embarked on the ERM (Enterprise Risk Management) by preparing risk management policies, establishing regulations, and launching a responsible organization in 2010. Since then, our risk management system has been upgraded in response to internal and external environment changes. For example, in 2011 when our investment rose sharply, the IRM (Investment Risk Management) Department was launched to strengthen risk management on new growth engine businesses. In 2012, we tightened risk management process encompassing risk monitoring, detection, diagnosis, and improvement by connecting management diagnosis and risk management competences. And risk management duties have been comprehensively performed by the Corporate Strategy & Finance Center which is responsible for Group's strategy instead of being controlled by individual ERM departments from 2015. These changes have enabled us to realize 85% of our restructuring goal, reduce financial risks, and prevent ethical risks in advance. In 2017, we will focus on regularly checking and reducing internal and external risks to enhance our corporate value.

• Risk Management Policy & System  
<http://www.posco.co.kr/riskmgmt/en>



### Group Risk Management System and Governance

At POSCO, risk management is conducted by individual department responsible for each risk. We classify risks into “business risk,” “non-business risk,” and “disaster and crisis.” Business risk is controlled by four offices of Corporate Strategy & Finance Center:

strategy and investment risk by the Management Strategy Office; financial risk such as foreign exchange rate and capital by the Finance Office; major affiliates-related risk by the Domestic Business Office; and overseas steelmaking subsidiaries-related risk by the Overseas Business Office. If a risk is sensed, the Corporate Strategy & Finance Center promptly executes management diagnosis and removes risk factors in advance.

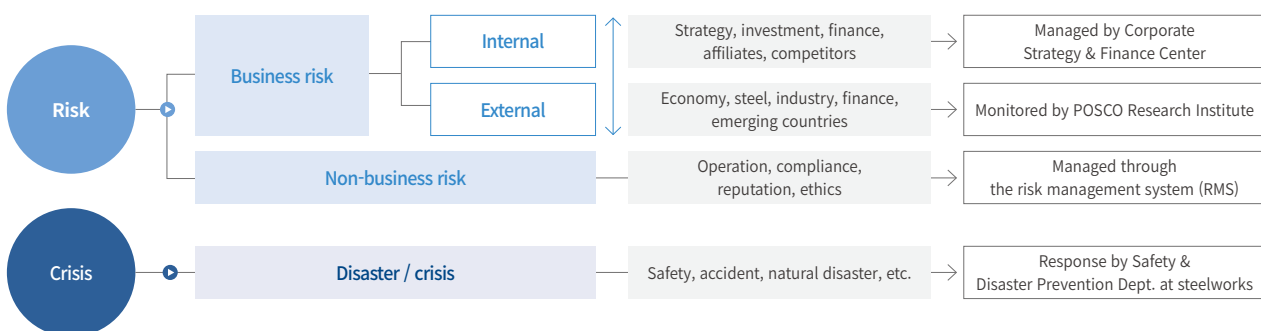
The POSCO Research Institute regularly monitors external risks relevant to steel business, financial market, raw materials, and competitors' strategies. Monitoring results are reported to POSCO and the GIH (Global Information Hub) to be shared throughout the Group. The Corporate Audit Department is responsible for managing non-business risks such as ethics, compliance, and reputation. Meanwhile, disaster and crisis are controlled by the Safety & Disaster Prevention Dept. at steelworks.

### Monitoring of External Economic Risks

Regular monitoring of economy, steel business, and raw materials market conditions is necessary for steel businesses. Particularly, at POSCO, control of country risk has become increasingly important due to continual global expansion. External economic risks are regularly monitored by the POSCO Research Institute. We publish a monthly magazine named Global Steel Market Outlook containing raw materials price trends and market environment and present forecast of steel prices every quarter.

Monitoring of foreign exchange rate and market trends of raw materials such as coal and nickel is executed on a weekly basis. And monitoring and analysis results are reflected in our quarterly and mid-term management strategies. We also collect daily information about major industries, global economy, and trends of competitors and technologies through the GIH. Key issues are compiled into a special report to strengthen monitoring of external economic risks. Particularly, from 2016, we have adopted big data and AI based methods to predict raw materials and steel prices, sharpening the accuracy of risk management.

POSCO Group's Risk Management System





**External Risk Monitoring System**

Economic risk	Real economy	Foreign exchange rate	Raw material	
	Interest rate	Oil price	Trade conflict	
Steel risk	Steel market condition	Raw materials market	Demand industry	
	Competitors' trends	Imported goods	Restructuring in the steel industry	
Group risk	Construction	Energy	Materials	
	ICT	Trade	New businesses	
Emerging market risk	China	Indonesia	Thailand	Vietnam
	India	Mexico	Turkey	Iran

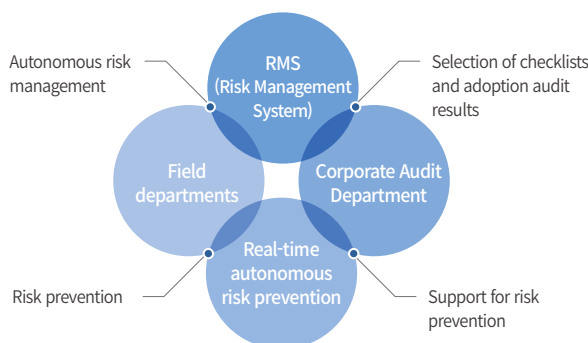
**Sensitivity Analysis on Major Risk Factors and Stress Test**

Foreign exchange rate and prices of oil, iron ore, and coal have great effects on our operating performance. In response, POSCO and its affiliates monitor their effects on sales, costs, and profits at least once a month. When critical risks are anticipated from those factors, our companies promptly prepare and execute countermeasures. As for investment projects, analysis of sensitivity to changes in foreign exchange rate and raw materials prices is preceded before the approval of investment. Moreover, POSCO has established five versions of management plan that assume cases from the best (S1) to the worst (S5). Particularly, in response to a prolonged slowdown of the global steel market, we set up business goals that consider negative business environment (from S3 to S5 versions) and analyze operating performances every month. The analysis results are reported to the Group Operation Conference.

**Autonomous Risk Prevention System**

POSCO has been operating the RMS (Risk Management System) in order to control risks in entire process of the company more systematically since 2004. The RMS methodically classifies all processes

**Framework of Autonomous Risk Prevention**



including planning, investment, general affairs, human resource, PR, R&D, manufacturing, facility management, and procurement across the company and selects and assesses each risk and manages them by grade. It has also been upgraded by linking risk management and internal auditing activities and adopting feedbacks of field departments. In addition, we have pursued an organic risk management system between field departments and internal audit departments by helping field departments check risks at any time. Since 2013, we have built a real-time autonomous risk prevention system where data is collected in real time through the ERP (Enterprise Resource Planning) and utilized for risk evaluation and then issues for identification are notified to field departments. The Corporate Audit Department plays a key role in establishing the autonomous risk prevention system by sharing best practices as well as supporting steady updates of risks through selection, assessment, audit, and monitoring of diverse risk factors.

**Internal Control of Financial Reporting**

As a global company listed on KRX and NYSE, POSCO established a system to evaluate the internal control of financial reporting process in December 2003 and has been conducting self-evaluation since 2004. The system includes CEO/CFO authorization procedure on disclosure and internal control and the operation of the Disclosure Committee. In March 2005, a group-wide internal control evaluation system was built and external audit has been made compulsory since 2006 in accordance with the SOX Act<sup>1)</sup>, improving the reliability of financial reporting and disclosure. In addition, we commissioned a consulting firm to document company-wide and divisional processes that can affect financial statements for job risk evaluation and to internally control consolidated financial statements in accordance with the New COSO<sup>2)</sup> Framework amended in 2014. We also check whether internal control items are suitably designed to satisfy control targets by job process and prevent critical misstatements in financial statement, while evaluating real practices. The operation situation of the internal accounting control system is reported to the Audit Committee and BOD in accordance with the Act on External Audit of Stock Companies that was revised in 2009.

1) SOX (Sarbanes-Oxley) Act: The Public Company Accounting Reform and Investor Protection Act of the United States enacted in July 2002. It imposes strong penalties for accounting fraud.  
 2) COSO (Committee of Sponsoring Organizations of the Treadway Commission): A joint initiative of the United States that evaluates corporate internal control systems.

**Internal Control Process for Financial Reporting**

1 <b>Test of Design</b>	The company evaluates how well its major control activities are designed (whether the internal control covers all major processes of the entire company).
2 <b>Audit of the Test of Design</b>	An independent audit firm audits the test of design.
3 <b>Test of Control</b>	The company evaluates how well the control activities that passed the audit are operated as designed (ex. Decision on the efficiency through proofs such as screen capture of the operation system).
4 <b>Audit of the Test of Control</b>	An independent audit firm audits the test of control.

## Definition of Stakeholders and Engagement Principles

POSCO classifies stakeholders into six groups – society, partners, shareholders & investors, customers, employees, and environment – and is proactive in communicating with them at all times. In addition, we not only conduct stakeholder interview but listen to the voices of socially responsible investors, NGOs, sustainability rating agencies, and academies on our major sustainability issues. Their opinions are reflected to the sustainability report.

### Charter of the Firm Loved by Stakeholders

POSCO has pursued to become a great company with unrivaled global competitiveness and strength through committing to growth and development. Moving beyond a great company, POSCO is now well-poised to make another takeoff toward becoming a firm that is loved by all stakeholders and contributes to sustainable growth of the society and welfare of humanity. To this end, POSCO is committed to fulfilling its philosophy and putting emphasis on business, people, society, and environment in a balanced manner.

Customer	Employee	Partner	Environment	Investor	Community
Bring success to customers	Respect human and encourage self-realization	Attain shared growth	Pursue harmony between human and environment	Make shareholders proud for investing in POSCO	Serve as a corporate citizen to support the growth of local communities
<ul style="list-style-type: none"> <li>Satisfy customers with customer-oriented marketing and trust-based relationship</li> <li>Realize customer value by facilitating their competence and competitiveness</li> <li>Pursue the development of market ecosystem and sustainable growth with customers</li> </ul>	<ul style="list-style-type: none"> <li>Cultivate high-caliber talents by developing abilities and qualities</li> <li>Ensure fair compensation and work-life balance to improve employees' quality of life</li> <li>Respect employees and support their growth and self-realization based on autonomy and trust</li> </ul>	<ul style="list-style-type: none"> <li>Ensure fair trade through mutual trust and communication</li> <li>Foster competitiveness and growth potential of suppliers via win-win cooperation</li> <li>Enhance business ecosystem by forming a virtuous circle of sustainable shared growth</li> </ul>	<ul style="list-style-type: none"> <li>Pursue sustainable environment protection and green environment through low-carbon green growth</li> <li>Lead the eco-friendliness of the industry by raising energy efficiency and developing clean technology</li> <li>Develop new materials and energy sources to improve the ecosystem and promote eco-friendly lifestyles and culture</li> </ul>	<ul style="list-style-type: none"> <li>Build shareholders' trust through transparent management and active communication</li> <li>Protect shareholders' interests by increasing corporate value</li> <li>Increase future shareholder value through sustainable growth</li> </ul>	<ul style="list-style-type: none"> <li>Fulfill social responsibilities to support the development of local communities</li> <li>Take a leading role in building fair society in cooperation with civic groups and the government</li> <li>Contribute to creating social value and culture as a corporate citizen</li> </ul>
Key issues					
<ul style="list-style-type: none"> <li>Enhancement of customer satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>Work-life balance</li> <li>Improvement of employee satisfaction</li> <li>Cultivation of talents</li> <li>Fair performance evaluation</li> </ul>	<ul style="list-style-type: none"> <li>Securing reliable suppliers</li> <li>Quality improvement</li> </ul>	<ul style="list-style-type: none"> <li>Compliance with regulations</li> <li>Environmental management</li> <li>Reduction of GHG emissions</li> <li>Development of eco-friendly products</li> </ul>	<ul style="list-style-type: none"> <li>Stock price</li> <li>Stable corporate governance</li> <li>Economic performance</li> </ul>	<ul style="list-style-type: none"> <li>Contribution to local communities</li> <li>Enhancement of local communities' capabilities</li> <li>Cultivation of local talents</li> </ul>
Communication channels					
<ul style="list-style-type: none"> <li>Customer relationship management system (CRM)</li> <li>Customer satisfaction survey</li> <li>Joint research (EVI: Early Vendor Involvement)</li> <li>Event for customers</li> </ul>	<ul style="list-style-type: none"> <li>Labor- Management Council</li> <li>Young Board</li> <li>Employee satisfaction survey</li> <li>POSCO Today</li> <li>Operational meeting</li> </ul>	<ul style="list-style-type: none"> <li>Supplier relationship management (SRM)</li> <li>Shared Growth Council</li> <li>Information exchange conference for POSCO Family suppliers</li> <li>Meeting with PHPs (POSCO Honored Partners)</li> <li>Information exchange conference for outsourcing partners</li> <li>Other information exchange conferences</li> </ul>	<ul style="list-style-type: none"> <li>Environmental Improvement Council (Pohang, Gwangyang)</li> <li>Environmental information system</li> <li>Steel conference</li> </ul>	<ul style="list-style-type: none"> <li>CEO Forum (annual)</li> <li>Company presentation (quarterly)</li> <li>Disclosure (website)</li> <li>Face to face meeting (if necessary)</li> <li>Regular consultations on credit ratings</li> </ul>	<ul style="list-style-type: none"> <li>Pohang /Gwangyang Community Cooperation Team</li> <li>POSCO News</li> <li>Corporate image survey</li> <li>Exchange with NGOs</li> <li>Interview with sustainability specialists</li> </ul>

## Stakeholder Engagement around Business Sites

We strive to strengthen relationship with local institutions and civic groups in Pohang and Gwangyang where our steel work is located, delivering correct corporate information and pursuing co-prosperity with local communities. The Administration and Liaison Group at each work is responsible for these activities.

Classification of major stakeholders around business sites	
<b>Local institution</b>	Local members of the National Assembly, City Hall, City Council, Pohang & Gwangyang Chamber of Commerce, Pohang branch office of Daegu District Court., etc.
<b>Local civic group</b>	Pohang Root Group, Pohang Local Youth Group, Pohang Junior Chamber of Commerce, Pohang Regional Development Council, civic groups in Gwangyang.

Communication with stakeholders around business sites	
<b>Presentation</b>	Delivering correct information when company-related issues arise (if necessary)
<b>Discussion meeting</b>	Strategically sharing information and communicating with stakeholders by forming human networks by class

### Activities for Local Stakeholders

#### 01 Contribution to local economic growth

POSCO contributes to the vitalization of local economy by creating jobs and placing orders in local communities as well as holding the Pohang Fireworks Festival.

##### Construction orders for local companies in Pohang

Classification	2014	2015	2016
Amount of orders (KRW in billions)	120	85	103
Ratio (%)	46.4	31.6	52.2

##### Pohang Fireworks Festival

Classification	2014	2015	2016
No. of visitors <sup>1)</sup> (10 thousand persons)	50	58	80
Economic effect <sup>2)</sup> (KRW in billions)	42	50	25

1) Estimated by Pohang City and police

2) Estimated by Pohang City

Investments in local communities (2005~2016)	Annual average investment
KRW <b>12.15</b> trillion	KRW <b>1.01</b> trillion

#### 02 Cultivation of local talents

The POSCO Education Foundation, established in 1995, operates 12 elementary, middle and high schools in Pohang and Gwangyang, contributing to the cultivation of local talents and education of employees' children.

	Pohang	Gwangyang
	POSCO High School, Pohang Jecheol Technical High School, POSCO Middle School, Pohang Jecheol Dong Elementary School, Pohang Jecheol Seo Elementary School, Pohang Jecheol Jigok Elementary School, Pohang Jecheol Kindergarten	Gwangyang Jecheol High School, Gwangyang Jecheol Middle School, Gwangyang Jecheol Elementary School, Gwangyang Jecheol Nam Elementary School, Gwangyang Jecheol Kindergarten
Support for free Hangul classroom (1994~)	Target	Low-income illiterate in Pohang
	No. of students	4,318 persons (1994~2016)
	Sponsored to	Pohang YWCA
	Support fund	KRW 184 million (1994~2016)

#### 03 Junior Engineering School

Junior Engineering School where corporate employees offer science experiments has been operated by the National Academy of Engineering of Korea under the sponsorship of the Ministry of Trade, Industry and Energy since 2004. Our company has joined this program since the second half of 2004 to cultivate future talents in science and solidify the tie with local communities.

Target	Sixth graders at eight elementary school around Pohang Works
Cycle	Twice a year
Instructor	About 20 persons (researchers, engineers, and faculty of technical education group)
Contents	Education on science projects
Our support	All materials for practice (1 kit / person)
Students	16,811 persons (2004~2016)

#### 04 Supports for the marginalized

We operate a wide array of activities to help the marginalized in local communities enjoy and share happiness.

Operation of free meal place (2004~)	Target	Elderly and disabled people in local communities
	Location	2 places (Haedo and Songdo in Pohang)
	Visitors	Daily average 519 persons (329 in Haedo, 190 in Songdo)
	Costs (2016)	KRW 282 million
Mentoring service to the elderly living alone (2004~)	Target (2016)	44 persons living alone around work sites
	Activities	Becoming their friends, shopping for them, and listening to their difficulties
	Visit	At least once a week
Free nursing projects (2006~)	Target	Underserved people around works (elderly and disabled people)
	Activities	Direct visit to offer nursing services
	Nursing assistants	30 persons (cumulative 223 persons)
	Beneficiaries	3,126 persons (2006~2016)
	Costs	KRW 3.1 billion (2006~2016)

## Interview with Stakeholders


POSCO carefully listens to the voices of experts in diverse fields including environment and social responsibility investment to reflect those in its sustainability report and sustainability management policy.

### Stakeholder Involvement


In 2016, we collected feedbacks from investors, CSR evaluation agencies, academia, and NGOs by conducting individual interviews together with Samil-PwC, our assurance provider. The interviews were redesigned into a dialogue form to help stakeholders better understand.

### History of Stakeholder Interviews


2003~2009	Survey of the domestic and overseas stakeholders
2010~2011	Stakeholder interviews with professionals in sustainability management, an event to communicate with college students
2012	Interviews with stakeholders in the fields of society, business partner, investor, customer, employee, and environment
2013~2016	Interviews with professionals in CSR (Corporate Social Responsibility)




**Interviewees**




**A1**  
**Kim, Dong-Hwan**  
Professor of  
Korea University



**A2**  
**Yoo-Kyung Park**  
Director of a Dutch Pension  
Fund Management Firm (APG)



**A3**  
**Jung Jae-kyu**  
Senior Researcher of the  
Corporate Governance Service



**A4**  
**So-Hee Kim**  
Secretary General of  
the Climate Change Center

**Q1** Many companies publish sustainability report every year. Do investors actually utilize sustainability report for decision-making on their investment? What kind of improvements do you think can be made?

**A3 Jung Jae-kyu** • The Corporate Governance Service (CGS) basically refers to sustainability report for the ESG evaluation, in particular, performance evaluation of corporate sustainability and environmental management. As the CGS's evaluation depends on information released to the public, it is essential for companies that want to get higher grades in the evaluation to release more information to the public. The POSCO Report features comprehensive information disclosure and special theme-based contents by stakeholder group. Nevertheless, inordinate contents may hinder readers from easily finding information they want. Readability improvement is required. In addition, many companies tend to release only favorable information and use the report as a PR material. However, balanced information disclosure is more important. Reporting even shortcomings as well as positive aspects in a balanced manner, POSCO will gain higher trust from stakeholders.

**A2 Yoo-Kyung Park** • Investors generally refer to sustainability report directly or ESG research and evaluation results based on the report when making decisions on investment. Accurate and timely information is critical to investors. The higher the materiality of issue, the deeper and wider information quality. Therefore, sustainability report is required to help investors predict the future results even when existing issues are handled. For example, investors may want to know about a company's correspondence and countermeasures for negative issues in the past and how they reduced future risks.

**Q2** What specific improvements can be made to POSCO's ESG evaluation results?

**A3 Jung Jae-kyu** • As the ESG evaluation is limited to quantitative data and operation of systems and organizations, high grades cannot ensure high performances in reality. Receiving a good grade in the evaluation, POSCO has not yet introduced the electronic voting system for shareholder rights, the Risk Management Committee under the BOD, and evaluation on outside directors. Particularly, POSCO needs to run the Risk Management Committee directly under the Board of Directors as emphasized in the G20/OECD Principles of Corporate Governance revised in 2015. POSCO ranked top in the evaluation of CSR and environmental management in the industry, even though it had relatively low evaluations on labor and environmental performance compared with other categories. Meanwhile, POSCO is required to improve the aspects of personal information protection policy and consumer compensation procedure. In the environmental aspect, it is necessary to set up environmental management plans and review environmental management activities at the BOD level.

**A2 Yoo-Kyung Park** • Corporate governance of POSCO needs to be improved. The absence of a controlling shareholder means that the BOD system, such as the check and balance of the management and appointment of the CEO and Board members, has a direct influence over corporate management and its future, including the company's reputation and shareholder relations. POSCO's BOD is required to prepare ways to directly communicate with shareholders and listen to their voices to adopt those to decision-making process.

### Q3 Would you tell us POSCO's role or stance in relation to climate change and environmental issues?

**A4 So-Hee Kim** • The best response to climate change is to use low-carbon fuel instead of coal. Meanwhile, considering the nature of the steel business, directly generating renewable energy or purchasing electricity generated by renewable energy will be the best alternative plan. The introduction of renewable energy has been a megatrend in the world. A lot of leading global companies aim to build renewable energy power plants as part of their corporate social responsibility activities or to use only electricity generated from renewable energy sources for businesses. POSCO's ultra-light automobile parts with high energy-efficiency also contribute to responding to climate change. I think it would be a good idea for POSCO to give technical supports for renewable energy use when building steel mills in developing countries.

**A2 Yoo-Kyung Park** • POSCO's achievement in reducing carbon emissions has a strong influence on APG's carbon footprint. APG closely observes POSCO's carbon footprint and its KPIs for GHG emissions. Therefore, POSCO needs to prepare the response to climate change in view of stakeholder's benefits.

### Q4 Please tell us current grid parity level in solar power generation.

**A1 Kim, Dong-Hwan** • Solar power generation has theoretically reached grid parity today, securing cost competitiveness. As investment costs in installing solar power generators can be recovered within 7 or 8 years considering the average power rates per household, it's possible to use electricity for free for more than 10 years. Increasing demands for solar power generation create new businesses with regard to leasing, repair, and maintenance of facilities. Considering even government subsidies, solar power generation ensures competitive economic feasibility.

### Q5 POSCO is working on solar power business to confront climate change and find new growth engines. Please give us any advice for POSCO's solar power business.

**A1 Kim, Dong-Hwan** • In the manufacturing industry, generally only some leading companies secure matchless competitiveness after a certain period of time. This phenomenon occurs more quickly in

the solar power business. Therefore, it is necessary to pay attention to the solar power application system business. POSCO can create added values of coal through the solar power business. For example, installing solar power plants on abandoned mines theoretically enables to produce alcohol by pyrolyzing water and carbon in coal at high temperature with locally produced electricity. As more time is needed for expanding POSCO's Building Integrated Photo Voltaic (BIPV) business, it will be more promising to conduct massive coal liquefaction business by utilizing POSCO's solar power technologies. It is also recommended to conduct the Smart City project that POSCO has already conducted by integrating solar power technology, fuel cells, and ESS in Abu Dhabi and Freiburg. Thin-film solar cell and concentrator solar cell businesses that many companies have abandoned also deserve the fullest consideration.

### Q6 Finally, would you tell us what you want POSCO to do or what we have to pursue to create sustainable future?

**A3 Jung Jae-kyu** • Despite excellent corporate governance by the CGS's evaluation, POSCO needs to deeply think about whether it is independent from political pressure and involvement and whether its corporate governance and ethical management are highly recognized in the world. Unfortunately, recent political scandals damaged POSCO's corporate image, which requires stricter innovation to restore the company's leadership in transparent management. As Korea's representative privatized company, POSCO has tremendous responsibilities. Therefore, it may be criticized for even minor mistakes and may not be praised for even huge achievements. To pursue independent sustainability management without being influenced by the government, POSCO is required to focus on transparent management, secure the independence and professionalism of the BOD, and consistently communicate with shareholders at home and abroad.

**A2 Yoo-Kyung Park** • APG is monitoring not only how the management deals with corruption issues in which employees of POSCO subsidiaries were involved, but whether the BOD has been faithful to their roles of checking and observing the corruption issue. Going forward, POSCO needs to make efforts to further enhance transparency in corporate management to win higher trust from investors.

**A4 So-Hee Kim** • In preparation for the era of factory automation and job reduction caused by the development of artificial intelligence, I hope POSCO will carefully consider how to cope with this issue as Korea's representative company and include the procedure in sustainability report.

**A1 Kim, Dong-Hwan** • POSCO has been representing the development of Korean economy. I hope POSCO will maintain its stance as a leading global company and lay the foundation for sustainable growth.

## Materiality Analysis

POSCO reports contents centered on key issues by identifying the priority in the aspect of sustainability management. To this end, we have implemented materiality analysis process based on the interest of stakeholders and business impacts since 2008. Particularly, we reorganized the issue pool in 2016 to adopt changes in sustainability management trends and international guidelines. This report contains the meaning of identified key issues and our efforts for and performances in sustainability management.

### Features of Our Materiality Analysis

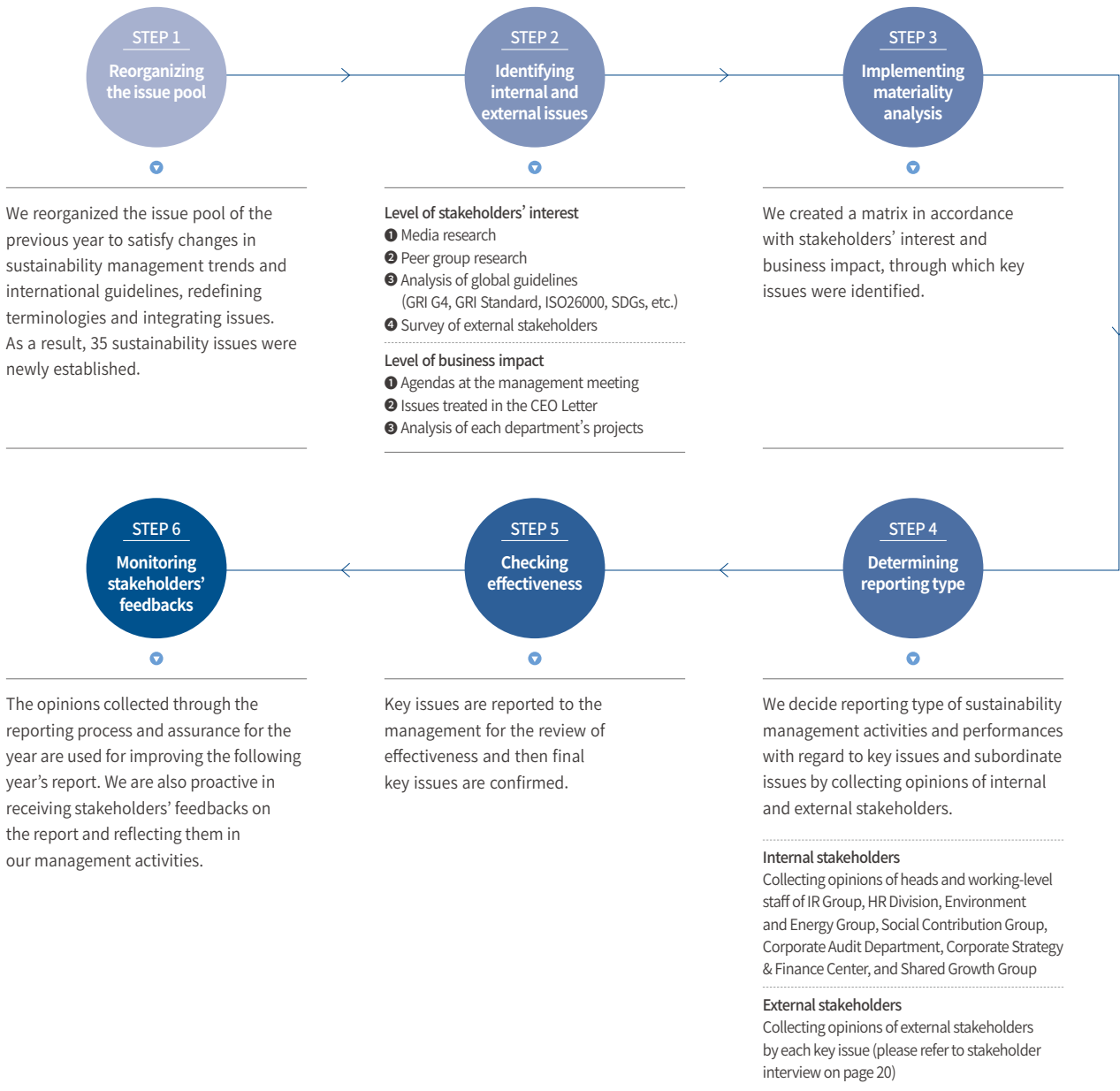
#### Case report on key issues

We intended to apply diverse cases to provide stakeholders with detailed information what they are interested in and want to know. Major inquiries of stakeholders and key issues in 2016 were responded as the form of case report.

#### Adoption of stakeholders' opinions to materiality analysis

Stakeholders' opinions collected through interviews were adopted to this materiality analysis process. To this end, we interviewed sustainability management professionals, ESG evaluation agencies, and CSR investment experts, and listened their opinions in a balanced manner.

### Materiality Analysis Process

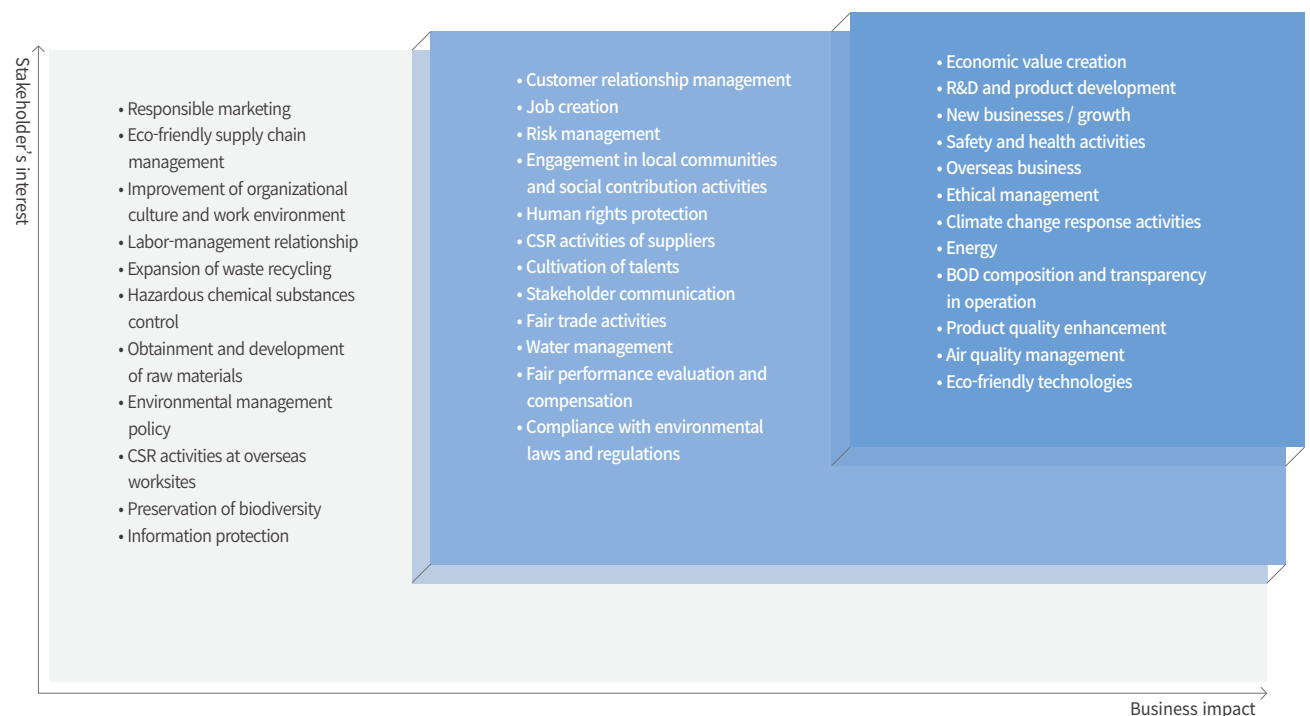


**Materiality Analysis Results**

10 key issues were selected through the evaluation of stakeholders' interest and business impact.

Rank	Sustainability Issue	Aspect	POSCO's Activity	Performance in 2016	Page
1	Economic value creation	Customer	Creating economic value by capitalizing on solution marketing for sales expansion of world's premium products	Sales volume and proportion of WP products sold in connection with solution marketing	26-27, 35
2	R&D and product development	Customer	Developing differentiated World Premium (WP) products based on World First (WF) and World Best (WB) competence	Giga steel, Seismic Resistance Steel	34
3	New businesses / growth	Investor	Promoting new businesses based on our own technologies such as FINEX, CEM, and lithium extraction	Developing technologies for ironmaking, steelmaking, and rolling	39
4	Safety and health activities	Safety and health	Establishing the culture of Safety SSS (Self-directed Safety Spread)	Accident rate No. of serious injuries (persons)	87
5	Overseas business	Investor	Expanding our solution marketing throughout the world	Performances in solution marketing by industry	39
6	Ethical management	Corporate ethics	Rearranging ethical rules for the establishment of global ethical management (new establishment of Ethics Charter and ethical principles)	Establishing and spreading business ethics infrastructure	88
7	Climate change response activities	Environment / climate change	Responding to climate change based on the roadmap for energy efficiency improvement	Performances in energy efficiency enhancement roadmap	76
8	Energy	Environment / climate change	Developing off-gas and renewable energy sources	Energy efficiency improvement activities	77
9	BOD composition and transparency in operation	Investor	Securing transparency in operating the BOD by building an independent decision-making structure	Enhancement of the BOD independence and supervision on the management	10
10	Product quality enhancement	Customer	Expanding diagnosis on quality management of POSCO Family companies	Diagnosis on quality management of overseas subsidiaries	38

**Materiality Analysis Matrix**



# 02

## Activities and Performances

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# Investor

## Investor Information

### Credit Rating

International credit rating agencies upgraded the credit ratings of POSCO in view of the improvement of its operating performances and financial soundness. S&P upgraded our credit rating to BBB+ (Stable) from BBB+ (Negative) in February 2017, and Moody's also leveled it up to Baa2 (Stable) from Baa2 (Negative) in October 2016.

#### Changes in Credit Rating

	S&P	Moody's
2014	BBB+ (Negative)	Baa2 (Stable)
2015	BBB+ (Stable)	Baa2 (Stable)
2016	BBB+ (Negative)	Baa2 (Stable)
2017	BBB+ (Stable)	Baa2 (Stable)

### Dividend

In spite of deteriorated profitability due to sluggish global steel industry, POSCO has maintained steadfast dividend policy to increase shareholder value. In 2016, our dividend payout ratio and dividend yield marked 35.9% and 3.1%, respectively.

Classification	2014	2015	2016	
Per share	Cash dividend (KRW)	8,000	8,000	8,000
	Interim dividend (KRW)	2,000	2,000	2,250
Total dividends (KRW in billions)	640	640	640	
Dividend payout ratio (%)	56.2	48.5	35.9	
Dividend yield (%)	2.8	4.5	3.1	

\* Quarterly dividend started in 2016. KRW 1,500 and KRW 750 per share were paid in 2Q and 3Q, respectively.

\*\* Dividend payout ratio was based on non-consolidated net profit.

\*\*\* Dividend yield was calculated by dividing cash dividend per share by the average closed share prices for a week before the date of dividend payout.

### Corporate Value and External Evaluation

To cope with unfavorable business conditions, POSCO has proactively promoted the "Innovative POSCO 2.0" movement aimed at enhancing fundamental competitiveness in steel business and restructuring low profitable business. As a result, we achieved KRW 2.64 trillion in operating profit and 10.8% operating margin on a non-consolidated basis. Our stock price started a rally to the latter part of KRW 200,000 in 2016.

Even though the global steel business is expected to somewhat recover due to the mitigation of order imbalance led by reduction of steel production volume in China, increasing prices of core raw materials such as coal and iron ore is making it harder to improve profitability. POSCO will make best efforts to overcome these tough challenges and take a new leap this year.

#### Most Competitive Steelmakers (2014~2016)

Rank	2014	2015	2016
1 <sup>st</sup>	POSCO (Korea)	POSCO (Korea)	POSCO (Korea)
2 <sup>nd</sup>	Nucor (USA)	Nucor (USA)	NSSMC (Japan)
3 <sup>rd</sup>	NSSMC (Japan)	NSSMC (Japan)	Nucor (USA)
4 <sup>th</sup>	Gerdau (Brazil)	Gerdau (Brazil)	SDI (USA)
5 <sup>th</sup>	Severstal (Russia)	Severstal (Russia)	NLMK (Russia)

\* Source: WSD (World Steel Dynamics)

### Awards in 2017

Category	Date	Award
Overseas	Jan. 2017	35 <sup>th</sup> in the "2017 Global 100 Most Sustainable Corporations in the World" at the Davos Forum 2017
	Jan. 2017	Won the grand prize in the digital advertising category of 2016 & Award
	Oct. 2016	Selected as the world's best steelmaker responding to climate change (by UK CDP)
	Sep. 2016	Recognized as the best company in DJSI for 12 consecutive years
	Jul. 2016	Listed in the 200 global leading companies for six consecutive years by the Fortune (173 <sup>rd</sup> in 2016)
	Jun. 2016	Recognized as the most competitive steelmaker in the world for seven consecutive years (evaluation by WSD)
	Mar. 2016	Accepted as the excellent supplier from GM for two consecutive years
Domestic	Jan. 2017	Won the best business award from the Australian Chamber of Commerce in Korea
	Jan. 2017	Won the Green Innovation Award (Minister Prize of the Environment) in the Korea Green Car Award
	Dec. 2016	Won the Korea's Win-win Growth Award for four consecutive years
	Nov. 2016	Won the Minister Prize of Employment and Labor in the Gender Index Award
	Oct. 2016	Won the SNS Award for four consecutive years
	Jul. 2016	Ranked 2 <sup>nd</sup> among the top 10 conglomerates in workplace satisfaction survey (Job Planet)
	Jun. 2016	Won the best grade in win-win growth index for four consecutive years

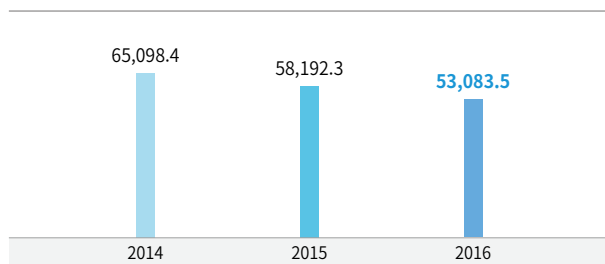
## Performances in 2016 and Plans for 2017

In 2016, the global economy continued a slight growth due mainly to sluggish Chinese economy and Brexit despite economic recovery in the US and some developing countries. Meanwhile, the domestic economy experienced a slump due to shrinkage of consumption following a rise in household debt, protectionism, restructuring of shipbuilding industry, and so on. Steel industry struggled against stagnant demand, remaining oversupply, and increasing prices of fuels and raw materials. Tightened trade regulations put a damper on export and decreased vehicle production and shipbuilding volume caused lower-than-expected steel orders.

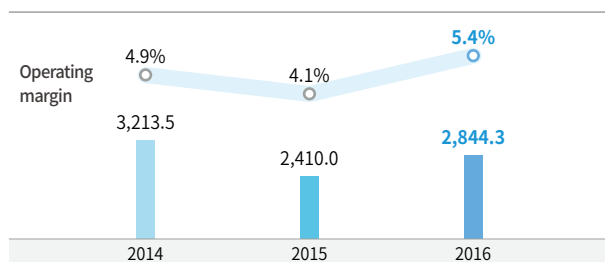
Despite unfavorable business circumstances, POSCO achieved KRW 2.64 trillion, up 17.7% year-on-year, in operating profit and 10.8% operating margin on a non-consolidated basis backed by increased sales of World Premium (WP) products and efforts for profitability improvement and cost reduction. In the upstream business, PT. KRAKATAU POSCO and POSCO SS VINA saw a dramatic deficit reduction by productivity enhancement and cost reduction, and Zhangjiagang Pohang Stainless Steel (ZPSS) turned to profit. In the downstream business, we solidified local production and sales foundation through cooperation with local mills. The completion of POSCO-TCS in Thailand allowed us to enhance dominance in the Southeast Asia automotive steel sheet market.

Our consolidated sales decreased 8.8% to KRW 53.08 trillion due to adverse E&C business conditions and business restructuring, while operating profit soared 18.0% to KRW 2.84 trillion thanks to profit growth in the steel sector. Operating margin was 5.4%, up 1.3%p year-on-year. Consolidated total assets and liabilities were KRW 79.76 trillion and KRW 33.92 trillion, respectively. Debt-to-equity marked 74.0%.

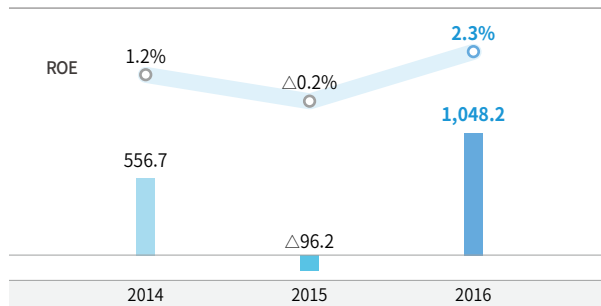
Sales (Unit: KRW in billions)



Operating profit (Unit: KRW in billions)



Net profit / ROE (Unit: KRW in billions)



In 2017, POSCO will maintain world's top profitability in the steel business and completed business restructuring in accordance with the IP 2.0 to solidify the foundation for future growth.

### STEEL SECTOR



POSCO produces hot-rolled, cold-rolled, and stainless steel at Pohang Works and Gwangyang Works that boast world's largest production capacity. POSCO C&C specializes in manufacturing coated steel. ZPSS in China produces and sells stainless steel and overseas processing centers process and sell steel products.

In 2016, aggregate crude steel production stood at 42.20 million tons. POSCO and ZPSS produced 37.50 million and 1.16 million tons of steel, respectively. Steel production volume of PT. KRAKATAU POSCO and POSCO SS VINA were 2.91 million and 638 thousand tons of steel, respectively.

Major management activities driven by four innovation agendas of the IP 2.0 in 2016 were as follows:

First, we were proactive in profitability improvement in the steel sector. We strived to heighten customer value by providing top-class steel and application technology with advanced solution marketing activities. As a result, World Premium products accounted for 47.3%, up 8.9%p year-on-year, of total steel sales.

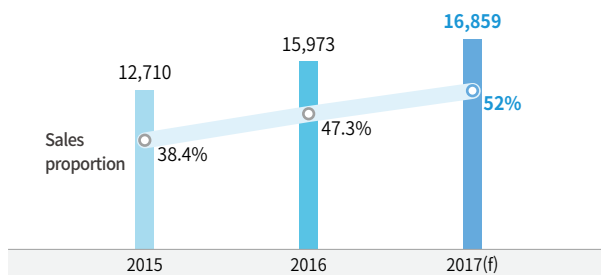
In addition, we established a low-cost and high-efficiency production system through the improvement of core processes, working ratio, and disqualification rate. Electricity purchasing costs dramatically reduced by increasing in-house power generation based on low-cost Spot LNG and pursuing high efficiency of energy facilities.

Meanwhile, in the upstream business, PT. KRAKATAU POSCO and POSCO SS VINA drastically reduced deficit backed by increased productivity based on facility stabilization and efforts for saving raw materials costs and ZPSS turned into significant profit.

In the downstream business, we built stable foundation for local production and sales by enhancing strategic alliance with local mills. The completion of POSCO-TCS in Thailand laid the foundation for strengthening its position in the Southeast Asian automotive steel sheet market.

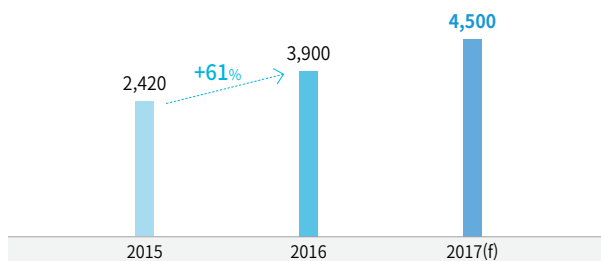
## Sales of WP products and sales proportion

(Unit: thousand tons)



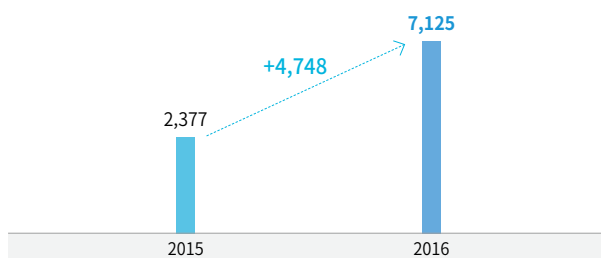
## Solution marketing linked sales

(Unit: thousand tons)



## Integrated operating profit of POSCO and overseas downstream projects

(Unit: thousand tons)



\*Operating profit from POSCO's materials sales to overseas downstream projects + separate operation profit of overseas downstream projects

Second, we completed 85% of the business restructuring plan and secured the highest financial soundness through healthy investments and borrowings reduction. The merger of POSCO DAEWOO and POSCO P&S helped boost competitiveness in steel business and 39 non-core affiliates including POSCO Magnet was sold or liquidated. A total of 77 affiliates have been restructured since 2014. Owned cash and funds from selling non-core assets were used for great redemption of borrowings, dramatically decreasing non-consolidated debt-to-equity to 17.4%, the lowest in our history. Consolidated net borrowings also fell by KRW 1.4 billion and consolidated debt-to-equity decreased to 74.0% from 78.4% of the previous year.

Third, we focused on secondary battery materials and lightweight vehicle sectors in preparation of expansion in the EV market, creating visible performances. We secured our own technology for lithium (Li) production by completing the development of new PosLX process. The PP2 (Pilot Plant) verification for the refinement of nickel was also completed and high-purity production technology for battery is under development, establishing mass production system for cathode/anode materials.

We developed PG-NCM (POSCO Gradient-Ni/Co/Mn), high-capacity cathode materials for EV and secured over 6,000-ton anode materials production capacity by adding the 4<sup>th</sup> production line. In the lightweight vehicle sector, we are working on joint development of magnesium-based wide plates for automobiles with global automakers. Sales of AHSS for EVs and Hyper NO for motors were also regularized.

Fourth, the company strived to foster employee competence and innovate work systems. Group organization was streamlined through promoting regular restructuring and performance-based culture. Project-based work systems boosted the implementation of IP projects with high financial effect.

Moreover, the One-Strike-Out Rule against four major unethical behaviors – bribery, embezzlement, sexual harassment, and information manipulation – was introduced and the “Clean POSCO System” was operated to tighten ethical management and prevent abnormal transactions. We also promoted the “power abuse prevention” campaign to become a trustworthy company.

POSCO DAEWOO successfully discovered a large-scale gas reservoirs in AD-7 offshore gas field in Myanmar as well as A-1 and A-3 gas fields where commercial production is ongoing. POSCO E&C focused on core businesses with preemptive restructuring of money-losing projects and human resources to overcome losses from insolvent overseas projects.

POSCO CHEMTECH newly tapped into Vietnam and Malaysia with the strength of excellent refractory quality and price competitiveness. PMC-Tech started full-scale production and sales of needle cokes.

POSCO ICT mitigated financial risks and saw a rebound of operating performance through preemptive restructuring insolvent PF (Project Financing) projects, and built a smart factory system by adopting the IoT technologies.

These management activities resulted in upgrading POSCO's credit ratings by international credit-rating agencies and made more than 50% rally for the year.

Furthermore, POSCO has remained in the DJSI World for 12 consecutive years and ranked the top in the “World's Most Competitive Steel Companies” by the WSD (World Steel Dynamics) for seven consecutive years, proving its position as a steel company with world's best competitiveness once again.

## TRADE SECTOR



POSCO DAEWOO, a representative subsidiary in our trade sector, engages in three business divisions – trading division handling steel/metal, chemical/petroleum products, machinery/transportation equipment, and agricultural/livestock products, overseas project division specializing in

building overseas plants and power generation infrastructure, and resource development division responsible for developing oil, gas, minerals, and food resources. POSCO DAEWOO is also working on new businesses such as manufacturing, distribution, and real estate development. It operates more than 100 local subsidiaries and branches all around the world.

To achieve its Challenge Towards Global Top Company POSCO DAEWOO focuses on expanding exports and sales from tripartite trade as its basic strategy by utilizing global networks. Based on its speedy growth system and a stronger competitive edge, POSCO DAEWOO realized sales of KRW 16.49 trillion by expanding tripartite trade, long-term customers and discovery of new customers in 2016. Exports (including tripartite trade) accounted for 96.1% of total sales. Exports by region could be broken down to 62.9% from Asian countries including 20.3% from China, 9.3% from North America, and 27.8% from other countries. Steel/nonferrous metal, chemicals/commodities, auto parts/machinery, minerals/energy, and electronic products/others accounted for 47.4%, 26.5%, 16.0%, 10.0%, and 0.1%, respectively.

As for the development of oil, gas, and minerals, corporate profit is highly dependent on their prices. Myanmar gas fields, Peru oil field, and Vietnam 11-2 gas field take up most of revenues in the resource development division. As full-fledged production at Narrabri coalmine in Australia has begun, revenues in this division will be further influenced by raw materials prices.

Daily production volume at Myanmar gas fields has increased to 0.5 billion cubic feet since December 2014 as drilling and completion works at Shwe gas field has conducted. We also found natural gas through the drilling exploration of AD-7 field's Thalim area around Shwe gas field in February 2016, currently conducting evaluation drilling and additional exploratory drilling. Additional exploratory drilling is under review after the analysis of many promising structures near Shwe Gas Field.

In addition, we won the PSC contract for developing the DS-12 mine in Bangladesh, conducting exploration works including the collection of data on artificial seismic waves. We are also acquiring data on artificial seismic waves in the 6-1 central field of the East Sea's continental shelf to develop promising gas reservoir structures.

In August 2013, we entered the tight oil project in Canada by jointly acquiring 50% of shares of the Baptist mine from Bellatrix of Canada with Korea's private equity funds, which will give us a good chance to expand our business to the unconventional oil and gas development project that is spotlighted as a new energy source.

We also acquired equity of the Oman LNG plant project in addition to existing Peru oil field and Vietnam gas field. Going forward, we will cultivate oil and gas development business as a core growth engine to become a leading global resource developer.

In the mineral resources development sector, we own 5% of shares of

the Narrabri coalmine in Australia where mass production started in October 2012 after the pilot production in 2010. About 7.9 million tons of coal will be produced annually from this project. The Weta copper mine in Indonesia, where we secure 22.6% share, is producing finished products after the completion of construction. In addition, we are developing copper mines in Myanmar and Canada to foster future growth engines.

Our new businesses include the construction of a hotel in Myanmar, commercial real estate development and operation projects, and vessel chartering.

## CONSTRUCTION SECTOR



POSCO E&C, the flagship subsidiary in our construction sector, is expanding its business scope to renewable energy and urban restoration areas beyond civil engineering, housing, energy, and urban development.

Cumulative order backlogs of POSCO E&C in 2016 amounted to KRW 7.80 trillion (KRW

6.44 trillion in Korea and KRW 1.36 trillion in the world). Major new orders included Yeouido Park One (KRW 1.19 trillion), Sipjung Sector 2 Redevelopment of New Stay Housing (KRW 814.5 billion), West Dongtan station apartments (KRW 373 billion), and Pyeongtaek Mosan Yeongsin housing (KRW 328.9 billion) projects.

Major overseas new orders were Panama's Costa Norte combined power plant project (KRW 787.5 billion) and raw materials treatment facilities of Moolarben mine in Australia in connection with the Moolarben mine's 2<sup>nd</sup> phase expansion project we won in 2015. The latter project, in particular, helps us create synergy with the existing project and accumulate experience in the mine development business.

POSCO E&C achieved KRW 5.50 trillion, down KRW 1.04 trillion year-on-year, in sales in 2016 and operating loss of KRW 180.9 billion on a non-consolidated basis. Major business activities and performances are as follows:

First, we have focused on enhancing global business competence. POSCO E&C won the order for building combined cycle power plants and LNG terminal in Panama in February 2016 and started the construction in May. The CSP steel mill in Brazil succeeded in initial firing of blast furnace and tapping in June and we began the construction of Masinloc power plant in the Philippines since March. This subsidiary is also sharpening business competitiveness in strategic target countries and cooperation with POSCO DAEWOO.

Our second focus was on winning more projects and successfully completing existing projects. Major new turnkey projects included the 3<sup>rd</sup> phase construction of the northern seawall in eastern coast and onshore seawall in southern area of Ulsan New Port. In the technology bidding, we won a contract for heavy-ion radiation accelerators in September. Meanwhile, Daeyang Industrial Complex in Mokpo and the Catholic Archdiocese of Daegu were completed in May and Suwon-Gwangmyeong expressway was opened in April. POSCO E&C also achieved apartment sales rate of 97% backed by increased brand power of the Sharp.

Third, we strived for social contribution and R&D. As part of improving organizational culture, 'the PLUS' campaign started in June, and we conducted global social contribution activities and a construction education academy for middle school students.

POSCO E&C was awarded the Best Civil Engineering prize from the Korean Society of Civil Engineers in recognition of consistent R&D efforts, and first ranked third in the construction capability evaluation. It also took 50<sup>th</sup> place in the ENR ranking. However, unfortunately, an explosion accident with casualties occurred at the Jinjeop railroad line site in Namyangju. We are thoroughly analyzing the accident to fundamentally prevent reoccurrence of safety accident.

#### ENERGY



POSCO ENERGY has continued the expansion and operation of combined cycle power plants to satisfy increasing demands for electricity in the early 1990s and ensuing government's electricity stabilization policy since the commercial operation of Korea's first private thermal power plant in

February 1972.

POSCO ENERGY's Incheon power plant contributes to stable power supply in the metropolitan area with power generation capacity accounting for about 11.1% in the area. Our power plant, as a peak-load thermal station with excellent operation competence and easy output control that can cover maximum load, instantly adapts to changes in electric power load, thereby being necessary for stable electricity supply to the metropolitan area.

Moreover, our power plants are eco-friendly by using LNG as a fuel. Particularly, power plants in Gwangyang and Pohang use byproduct gas generated during the production process in steel mills as a fuel, helping mitigate environmental pollution.

Meanwhile, electricity reserve rate has maintained a high level since 2013 due to increased power plants and decreased electricity consumption, which caused a slight decline of our power plant operation rate. The collapse of oil prices led to a slump of electricity sale price, which also exerted a negative influence on CBP generator operation.

In response, we will focus on saving costs and improving electricity systems in the CBP (Cost Based Pool) market including the increase of CP (Capacity Payment) in October 2016, thereby reducing loss.

The fuel cell business division, launched in 2007, is engaging in long-term O&M service and direct fuel cell power plant operation as well as manufacturing, sales, and installation of fuel cell facilities.

In 2016, POSCO ENERGY saw operating loss due mainly to additional provisions and replacement of stacks. We will devote our company-wide capabilities to sharpening technological competitiveness and saving costs to recover profitability.

Major business performances in 2016 were as follows: First, despite tough business environment, we achieved our operating profit target by increasing CP, upgrading systems for reasonable compensation of

power generation costs such as SCON and local resource tax, operating strategic power plant facilities, additionally securing byproduct gas, and saving costs.

Second, despite the efforts to improve the quality and sales performance of Noeul Green Energy, the fuel cell business saw operating loss due to increased quality-related costs such as replacement of stacks at Gyeonggi Green Energy. Passive sales (20MW) of Noeul Green Energy also affected the occurrence of operating loss.

Third, we established the foundation for future growth through stable operation of new businesses at home and abroad and entrance into new projects. PT. KPE in Indonesia and Mong Duong II in Vietnam are commercially operating in a stable manner. Other performances include starting commercial operation of onshore wind power plants in Jeonnam, extending licensing period for Samcheok thermal power plant, becoming an exemplary company for the VPP (Virtual Power Plant) project, and signing the PPA for Morupule B Phase II project.

On top of that, POSCO ENERGY made a concerted effort for preemptive working capital management and company-wide cost reduction, thereby achieving its business goal in 2016.

#### ICT



Generally, 2016 was a tough year for POSCO ICT due to lower-than-expected economic growth at home and abroad. Meanwhile, a new chance was made as the "4<sup>th</sup> industrial revolution" driven by big data and AI based convergence technologies emerged around the manufacturing business. In response,

POSCO ICT focused on securing growth momentum for the smart convergence business as well as pursuing valuable growth.

Consolidated sales of POSCO ICT in 2016 rose by 3.1% year-on-year to KRW 866.9 billion and operating profit soared 272.9% to KRW 52.2 billion due to profit-oriented projects and intensive risk control, Net profit amounted to KRW 37.6 billion.

Major performances in 2016 were as follows: First, we established the foundation for future growth by pursuing Smart Biz using IT integrated technologies. POSCO ICT developed "PosFrame," the world's first continuous process smart factory standard platform, and applied it to the thick plate factory at POSCO Gwangyang Works. This platform helped enhance the steel manufacturing plant's predictive maintenance performance and minimize defects and maximize real-time production. POSCO ICT also suggested POSCO Group's major subsidiaries in construction and energy sector to adopt the smart factory system.

In the smart energy field, we expanded energy saving projects to industrial complexes (Banwol, Sihwa, Changwon) and secured new customers, including Dongbu Metal, by integrating demand response (DR) and energy saving projects. In October, we signed an agreement on smart energy and EV projects with ICE, a state-owned enterprise of Costa Rica. POSCO ICT was selected as the personal home charger provider for Hyundai Motor Company and GM, and participated in EV charger

infrastructure project for Ulleung-do and car sharing business as well. Second, business model transformation has been promoted with core solutions. We transformed existing construction IT business into a solution-based smart building business covering cloud-based BEMS and integrated building management. As a result, we won more orders for smart building projects including Chongra integrated building in Incheon and a large-scale building in Shinjeong-dong, Ulsan. In the atmospheric environment sector, POSCO ICT won the denitrification solution project for Yeongdong Thermal Power Plant, laying the foundation for entering power plant market. It also promoted export expansion to China through quality improvement of electric precipitator solutions. Partnering with AWS (Amazon Web Services) was pursued to fortify cloud-based solution businesses beyond existing SI (System Integration) business.

Third, POSCO ICT improved its business portfolio and enhanced risk control. We sold non-core affiliates such as POSCO LED to focus on smart solution business and strived for preemptive risk control for large-scale projects to minimize potential risks. Particularly, company-wide risk control system was upgraded by carrying out stricter onsite data analysis.

Outlook for 2017 is unfavorable due to a slump in the global ICT business and prolonged inactivity of exports, facility investment, and consumption in the domestic economy. In response, POSCO ICT will go all out to secure differentiated competitiveness and discover new sustainable business opportunities by pursuing the smart business. As part of this, we will deliver new values to customers through the “Smart X Solution” business, thereby leading the smart convergence market. To make our smart factory solution raise to the world’s best level, we will further adopt new technologies such as AI (Artificial Intelligence) and AR (Augmented Reality) to the “PosFrame” and collaborate with global S/W providers. We will also diffuse the best practices of smart factory system at the thick plate process of POSCO Gwangyang Works and prepare for the advancement of smart factory into continuous process market as well.

With a full-fledged operation of ESS (Energy Storage System)-based microgrid business, we will involve in the smart energy convergence business encompassing renewable energy, DR (Demand Response), ESS, and power saving categories. Another plan is to participate in POSCO ENERGY’s power plant projects to realize efficiency and optimization of smart energy ranging from generation to supply of electricity, reinforcing business competitiveness.

Moreover, POSCO ICT aims to work together with POSCO E&C in advancing into the smart building & city project and with POSCO DAEWOO in developing overseas IT projects. We will also accelerate existing smart solution business and discover next-generation businesses to secure differentiated competitiveness. In the airport business, POSCO ICT will expand its market into the logistics engineering field by building on its experiences accumulated through the BHS (Baggage Handling System) project of Incheon International Airport.

In the EV charging infrastructure business, we will materialize our business model by expanding customer base for charging service based on partnership with automakers and developing new value-added services in preparation for full-scale market expansion. The cloud business plans not only to enhance cooperation with AWS for the cloud service brokerage project to secure more customers but also to promote the “Apps on Cloud” service by making solutions with best practices which were verified at POSCO’s smart factories.

Furthermore, POSCO ICT will continue to develop new convergence businesses such as data-driven smart operation which supports more efficient decision-making processes in the fields of finance, procurement, cost control, and risk management. Business transformation into the “Smart X Business” requires professional competence in new convergence technologies.

To this end, POSCO ICT will cultivate talents with technologies in the fields of IoT, AI, big data, and cloud, and build a pool consisting of professionals with integrated competence in IT, S/W, and facility H/W control fields. Recruiting local professionals in China and the Middle East will also be promoted to expand overseas business.

## MATERIALS



Specializing in coal chemistry and carbon materials businesses, POSCO CHEMTECH creates differentiated customer value by offering market-leading products and services. It has stably grown into Korea’s representative company in the fields of refractory and shaft tunnel for the past five

decades since the inception with the name of Samhwa Hwasung in 1963. POSCO CHEMTECH is rising to a new challenge based on rich experience and differentiated technologies and knowhow in the basic industrial materials business. The company has supplied quicklime to Pohang and Gwangyang Works and entered the coal chemistry business, the production base of coal tar and light oil, surpassing KRW 1.3 trillion in sales in 2014. Today, POSCO CHEMTECH is evolving into a leading global company in the fields of producing anode materials for secondary cell and needle cokes which are recognized as high value-added products.

POSCO CHEMTECH boasts the biggest quicklime production capacity in Korea by operating lime calcination facilities in Pohang and Gwangyang Works since 2008, and has advanced into the global market after entering Indonesia in 2012.

POSCO CHEMTECH’s chemical business is engaging in consignment operation of a chemical factory which refines COG (Coke Oven Gas) of Pohang and Gwangyang Works and purchasing and selling of chemical products generated from COG-refining process. In August 2010, the company acquired the cathode material business from LS Mtron. Joining POSCO’s steelwork project in Indonesia, POSCO CHEMTECH is supplying quicklime and processing and selling byproducts.

The year 2016 saw continued uncertainties within the business environment due to long-term low growth and intensifying competition

in the global market. As a result of promoting value-focused management, POSCO CHEMTECH maintained AA- credit rating, enhanced core competitiveness, and achieved visible operating performances in the materials business in 2016.

POSCO M-TECH was founded in December 1973 with the former name of Samjung Steel specialized in packaging steel products of POSCO. It laid the foundation as a supplementary material supplier to POSCO by building an aluminum deoxidizer plant in May 1977, and has accumulated knowhow by conducting consignment operation of POSCO's magnesium factory since 2012. Currently, the scope of consignment operation is extended to POSCO's ferrosilicon, ferromanganese, and FE powder factories.

We continued our effort to reduce cost to secure profitability against internal restructuring and fluctuation in the industry. As a result, non-consolidated sales of POSCO M-TECH amounted to KRW 259.0 billion in 2016. Operating profit and net profit recorded KRW 15.9 billion and KRW 2.5 billion, respectively. Since the restructuring in 2014, the company has realized operating profit in 2015 and profit from continued businesses in 2016, proving the normalization of its management.

POSCO M-TECH's major business activities in 2016 were as follows.

The steel packaging division promoted the PSC (Profit-Safety-Creation) movement to cut materials and labor costs, resulting in the increase of operating profit. Efforts for reduce inventory led to better cash flows. The engineering business to sell steel packaging facilities achieved sales from overseas markets and signed MOUs with global customers to further export steel packaging facilities to Asia, Europe, and the Americas.

In the steel raw material sector, POSCO M-TECH improved profit through sales expansion of aluminum deoxidizers in the non-captive market and sales of byproducts. Other activities include discovery of low-price materials, procurement network expansion, stabilization of production facilities, and competence enhancement. Efforts for redeem allowances for bad debts occurred in the restructuring process contributed to increasing profits as well.

In the consignment operation sector, POSCO M-TECH signed a new contract for POSCO's FeMn factory, being highly recognized for its prowess in operating ferroalloy production factory. Each consignment factory achieved better productivity, lower defection rate, and higher operation efficiency through developing production technologies, contributing to profitability increase.

POSCO M-TECH implements various activities to build great work place under the concept of "Valuable Work, Joyful Company, and Wonderful Co-workers." Those include "morning meeting" program where all employees communicate and learn, "gratitude sharing" which helps promote positive mindset, volunteer services together with employees and their families, and "1% Sharing Campaign" aimed at supporting the marginalized.

In 2016, POSCO M-TECH maintained AA grade in the sustainability management evaluation and built an advanced corporate culture that values social contribution and environment, laying the foundation for another leap. For the last three years, the company has harshly restructured its businesses and eventually achieved management normalization.

However, increasing business risks at home and abroad require the company to sustain efforts for cost saving and competitiveness enhancement. In response, POSCO M-TECH is committed to advancing its management capabilities instead of dwelling on normalizing business status.

## Performance Highlights

Classification	Indicator	Unit	2014	2015	2016		
Society	Social contribution expenditure <sup>1)</sup>	Total	KRW in bn	59.9	57.0	39.4	
		Donation	KRW in bn	19.1	15.9	15.2	
		Investment in local communities <sup>2)</sup>	KRW in bn	38	39.5	23	
		Others (Commercial initiative) <sup>3)</sup>	KRW in bn	2.8	1.6	1.2	
	Donation to charity <sup>4)</sup>		KRW in bn	8	7	7	
	Microcredit expenses <sup>5)</sup>	Raised fund (cumulative)	KRW in bn	25	27	28	
		Loans	KRW in bn	4.3	4.5	2.6	
	Volunteering hours per person		Hours	29.5	28.3	31	
	POSCO HUMANS-disadvantaged group/number employed		Persons	227/472	197/354	202/391	
	POSPLATE- disadvantaged group/number employed		Persons	86/173	74/150	71/143	
	Songdo SE- disadvantaged group/number employed		Persons	91/126	92/133	96/120	
	Sisterhood ties		Cases	192	201	202	
	Partner	No. of subsidiaries conducting the Compliance Program <sup>6)</sup>		Companies	32	28	32
Compensation by benefit sharing in procurement			KRW in bn	54.4	36.7	32.6	
Private-public joint R&D fund			Cases	3	3	60	
Technology consultation through the techno partnership			Cases	607	317	213	
No. of suppliers certified by POSCO			Companies	52	52	38	
Procurement		Raw materials		KRW in bn	15,893	12,075	11,152
		Materials		KRW in bn	1,846	1,710	1,702
		Subcontracting fee		KRW in bn	2,204	2,139	2,035
	Total		KRW in bn	19,943	15,924	14,889	
(Procurement-to-sales)		%	68.3	62.2	61.2		
Investor	Crude steel production		K tons	37,650	37,965	37,496	
	Sales		KRW in bn	29,219	25,607	24,325	
	Operating profit		KRW in bn	2,350	2,238	2,635	
	Operating margin		%	8.0	8.7	10.8	
	Net profit		KRW in bn	1,139	1,318	1,785	
	ROE		%	2.7	3.1	4.1	
	Total assets		KRW in bn	52,597	51,309	52,056	
	Total equity		KRW in bn	42,475	43,026	44,329	
	Debt-to-equity		%	23.8	19.3	17.4	
	Total dividends		KRW in bn	640	640	640	
	Dividends per share		KRW	8000	8,000	8,000	
	Interim dividends		KRW	2,000	2,000	2,250	
	Earnings per share		KRW	13,858	16,067	21,899	
	Dividend payout ratio		%	56.2	48.5	35.9	
Corporate tax		KRW in bn	582	350	404		
Customer	Customer satisfaction level (domestic)		%	83	85	85	
	Customer satisfaction level (overseas)		%	74	74	74	
	Development of eco-friendly products		Units	22	32	20	
	Sales volume by product	Hot-rolled steel		Tons	17,969	18,792	19,034
		Cold-rolled steel		Tons	14,685	14,703	14,877
Stainless steel		Tons	1,683	1,842	1,964		
Employee	Employee satisfaction index		Points	70	75	77	
	Total number of employees		Persons	17,877	17,045	16,957	
	Retired employees		Persons	1375	757	441	
	Retired employees under the age limit		Persons	626	461	0	
	Turnover rate		%	7.69	2.7	2.53	
	Years of continuous service		Years	18.1	18.0	19.0	
	Female employees		Persons	842	879	851	
	Female employees in manager position or higher		Persons	199	241	279	
	Employees of age 55 and higher		Persons	2,091	5,676	2,237	
	Employees with disabilities		Persons	431	496	477	
	Employees with disabilities (POSCO)		Persons	241	256	238	
	Employees with disabilities (POSCO HUMANS)		Persons	190	240	239	
	Ratio of employees with disabilities		%	2.4	2.8	2.7	
	Employees who used maternity leave		Persons	67	72	79	
	Rate of return after maternity leave		%	100	100	100	
	Employees who used parental leave		Persons	81	73	61	
	Employees who used parental leave (male)		Persons	12	6	11	
	Employees who used parental leave (female)		Persons	69	67	50	
	Rate of return after parental leave		%	100	100	96.7	



Classification	Indicator	Unit	2014	2015	2016		
Education	Total number of trainees	Persons	356,133	343,199	224,031		
	Training hours per capita	Hours	128	116	117		
	Training expenditure per capita	KRW in mil	0.7	1.1	1.4		
	Trainee satisfaction index	Points	4.65	5	4.71		
Safety	Number of accidents (directly managed by POSCO)	Cases	12	7	10		
	Number of fatalities (directly managed by POSCO)	Persons	1	0	1		
	Number of accidents (managed by subcontractors)	Cases	3	1	6		
	Number of fatalities (managed by subcontractors)	Persons	1	0	3		
	Lost-time injury frequency rate (directly managed by POSCO, as of 1 million hour)		0.32	0.19	0.28		
	Lost-time injury frequency rate (managed by subcontractors, as of 1 million hour)		0.08	0.03	0.16		
	(Total lost-time injury frequency rate) (as of 1 million hour)		0.2	0.11	0.22		
Labor costs / pension supports	Labor costs	Salary	KRW in bn	1,435	1,439	1,492	
		Allowance for retirement	KRW in bn	129	139	161	
		Legally required benefit costs	KRW in bn	108	112	117	
	Pension subsidies	National pension (paid by company)	KRW in bn	38	39	39.2	
		Personal pension subsidy	KRW in bn	10	7.8	8.2	
		Number of personal pension beneficiaries	Persons	10,473	6,720	6,646	
	Contribution to the employee welfare fund	KRW in bn	58.9	59	62		
Contribution to the employee welfare fund (cumulative)	KRW in bn	933	992	1054.1			
Environment	Air pollutant emissions	SOx	K tons/year	21	21.3	21.5	
		NOx	K tons/year	33	32.3	33.5	
		Dust	K tons/year	4	3.4	3.5	
	Energy consumption <sup>6)</sup>		TJ	320,336	355,877	355,649	
	GHG emissions			K tons CO <sub>2</sub> e	75,240	72,339	70,367
		SCOPE 1 (direct emission)		K tons CO <sub>2</sub> e	70,432	68,147	66,888
		SCOPE 2 (indirect emission)		K tons CO <sub>2</sub> e	4,808	4,192	3,479
		CO <sub>2</sub> emissions per ton of steel (direct)		t-CO <sub>2</sub> /t-s	1.88	1.80	1.78
		CO <sub>2</sub> emissions per ton of steel (indirect)		t-CO <sub>2</sub> /t-s	0.12	0.11	0.1
	Water	Water consumption		Mil. m <sup>3</sup> /year	138.2	138.9	137.6
		Wastewater discharge		Mil. m <sup>3</sup> /year	60.9	57.2	56.2
	Waste	Waste generated		10K tons/year	2,411	2,396	2,337
		Waste volume (recycled)		10K tons/year	2,366	2,357	2,299
		Waste volume (disposed)		10K tons/year	45	39	38
		Landfill		10K tons/year	39	33	32
		Incineration		10K tons/year	6	6	6
	Chemical substance discharge			Tons/year	92	78	82
	Investment in environmental facilities	Air quality		KRW in bn	138	92	70.9
		Water quality		KRW in bn	135	34	26.8
Recycling and other			KRW in bn	27	43	52.1	
Environmental costs	Costs for environmental facility operation and recycling		KRW in bn	924	778	804	
	Depreciation costs		KRW in bn	158	174	174	
	Administrative costs		KRW in bn	36	51	52	
	Environmental R&D costs		KRW in bn	12	10	14	
	Energy recovery costs		KRW in bn	46	47	56	
	Total		KRW in bn	1,176	1,060	1,100	

1) Our social contribution expenditure is managed in four categories - social welfare, sports and culture, talents cultivation, and volunteer service. Since 2013, we have disclosed more categories such as donations, investment in local communities, and others (commercial initiative).

2) Investment in local communities is different from the concept of local communities in the five focused areas.

· Investment in local communities: Expenditure used at Pohang, Gwangyang, and overseas business sites for social contribution activities

· Local communities in the five focused areas: Expenses for the implementation of social contribution programs in accordance with our five-focused areas

3) Commercial initiative: Social contribution expenses for advertisements

4) The funds came from POSCO only. The total amount of funds from the POSCO Family stood at KRW 10 billion in 2014 and KRW 8 billion in 2015 and 2016, respectively.

5) Based on POSCO's accounting criteria on donations

6) Based on the figures on the statement submitted to the government. Electricity consumption was totaled up by converting into 3.6 TJ/GWh on the recommendation of the CDP.

# Customer

## World Premium Products

POSCO's World Premium (WP) means the integration of technology-based World First (WF), profitability-based World Best (WB) and World Most (WM) concepts. WF products include our unique products which have been developed or are under development for the first time in the world. WB products are objectively recognized for world's top 3 class technological and economical prowess, while WM products are those with 5% higher in operating margin than existing ones or compared with the rate of average product return for a year excluding WF and WB products. Currently, we have 315 WP products – 45 WF, 196 WB, and 74 WM products.

### Global steel market environment and marketing strategy in 2017

The global construction and automobile markets will likely post a modest growth in 2017 but the shipping industry is expected to suffer from prolonged recession. With the global demand for steel feared to drop for 4 years in a row, especially in China, domestic demand for plates is forecast to fall slightly from 27.9 million tons in 2016 due to the slowing automobile and shipping industries. What's more, the rising protectionism in the US and price hike in coals are emerging as risks threatening the survival of steel makers. Under the conviction that "there is no challenge we can't overcome if we expand the sales of World Premium products based on customer-oriented solution marketing in 2017," POSCO will transform into the "premium steel maker" offering premium goods such as giga steel and seismic resistant plates.

### Giga steel: next-generation automotive steel sheet

As countries around the world introduce tougher mileage and emissions regulations, global automotive brands are competing to develop lighter car body with higher fuel efficiency, leading to an increase in demand for AHSS. POSCO supplies AHSS produced with the world's top technology to global car makers. Automotive steels are classified into LSS, HSS, and AHSS depending on their tensile strength. Having named ultra-high strength steel of 1 gigapascal of tensile strength or higher as "giga steel," POSCO is focused on developing products in this category. POSCO has rolled out a total of six giga steel products including TWIP, also called "steel of dream" with ten other new products in the pipeline.

POSCO is further strengthening partnerships with global automotive makers to be at the forefront of giga steel market. We are engaged with three global car makers in developing joint platform, while providing customized solutions to reduce car parts. We contribute to increasing customer values by working with partners from car development to model replacement, thereby generating stable profit based on long-term supply contract. Going forward, POSCO will enhance partnership with customers and develop World Premium products such as giga steel, introducing the sales system of automobile steel sheet of more than 10 million tons.

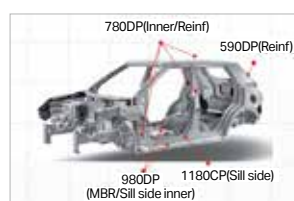
### Seismic Resistance Steel: Basic materials for safe architecture

In Korea, seismic resistant buildings account for 30% of the total architecture while, in Japan, 100% of steel-frame structure buildings and 40% of steel-and-concrete buildings are earthquake-resistant. Thus, Korea is expanding the scope of buildings subjects to mandatory seismic resistant construction. In 1988, for example, only the buildings with six stories or higher and 100,000m<sup>2</sup> or larger had to be quake-resistant. In 2015, the standard was toughened to include those with three stories or higher and 50,000m<sup>2</sup> or larger, then in 2017, two stories or higher and 50,000m<sup>2</sup> or larger. Currently, buildings before the year 2000 were not subject to this regulation. School facilities built around that time were found vulnerable to earthquake in the structure safety examination. Therefore, steps are being taken to reinforce schools, and large exhibition and Assembly facilities against quake by adding steels. Major local steel makers produce anti-quake steels for architecture, but POSCO was the first to commercialize quality earthquake-resistant steel. POSCO produces and supplies anti-quake steels used for high-strength architecture such as SN steel, TMCP steel, HAS steel, and earthquake-resistant steel pipes.

SN steel are the products that comply with the SN (Steel New Structure) standard introduced in Japan for the purpose of strengthening anti-earthquake design and improving weldability of steel. POSCO succeeded in commercializing SN steel in 1995 and obtained KS Standard (KS D 3632) certificate in 1999. Our SN steels were adopted to build not only general architecture – Sindorim Techomart, and Goyang Stadium – but also many other large public facilities. What's more, on March 3<sup>rd</sup>, 2015, our high-strength STKN570 steel was approved by the additional KS standards and reflected in the 2<sup>nd</sup> stage construction of Incheon Songdo Convensia after consulting with structural engineers (ES structure).

TMCP steels are another anti-earthquake steel. The strength of TMCP steels for construction does not deteriorate even if the board thickness exceeds 40mm. Also, with an excellent earthquake resistance, weldability, tensile properties, and yield ratio, TMCP steel guarantees reliability in case of earthquake. POSCO's TMCP steel was adopted in International Finance Centre Seoul, Southeast Asia wholesale complex, KINTEX, and many more.

POSCO plans to increase the sales of not just earthquake-resistant steel products but also steel product packages by strengthening cooperation with steel pipe companies and steel structure makers. Furthermore, POSCO will promote the excellence of our products by expanding sales in Japan where a strict set of regulations are applied.



Giga steel



Seismic resistance

## Solution Marketing

### Innovative Solutions : Responding to Megatrends

Amid the rapidly changing business environment and global megatrends reshaping the world, POSCO is committed to developing future-oriented steel products and application technology. In 2016, POSCO accelerated the sales of World Premium products through developing the ultra high strength steel solution for light-weight vehicles, and the earthquake resistance solution for premium living infrastructure. Following the so-called 'Dieselgate' scandal, car makers around the world are racing to reduce car weight to improve fuel-efficiency more than ever, and POSCO is contributing to developing greener and lighter vehicles by supplying giga steel.

TWIP steel, the first in the world to be commercially produced by POSCO, is three times more formable than general giga steels, and can be used as various parts of car body. Through providing customized solutions to car/parts makers including welding and forming technologies, POSCO is leading the global automotive steel market.

What's more, as the earthquake resistant structure is becoming ever more critical following a series of recent seismic activities in the city of Gyeongju, all local buildings will be required to meet earthquake resistant standards. Having developed a wide range of earthquake resistant solutions, POSCO is recognized for its high quality earthquake-resistant steel products around the world. Featuring outstanding earthquake resistant properties and weldability, POSCO's SN steel, TMCP steel, and HSA steels are used to construct high-rise buildings, large halls, and schools, etc. POSCO's World Premium products such as TMCP steel and HSA800 steel have been already adopted in ultra-high landmarks including Dongdaemun Design Plaza

and Lotte World Tower. POSCO will strengthen the collaboration with engineers and construction steel product makers, boosting the sales of earthquake resistant steel products globally.

### Solution marketing for customers

POSCO hosts Global EVI Forum, the bi-annual event where POSCO listens to the voices of all steel-consuming business partners. In 2016, POSCO invited more than 1,000 customers from around the world to the event held under the slogan of 'From Steel Supplier to Solution Partner', and shared ideas on the future of steel industry as well as explored cooperation strategy on solution marketing based on mutual needs. Additionally, POSCO's CEO delivered the keynote speech titled 'Your Partner to the Future', reiterating the company's commitment to remaining a reliable partner for the years to come.

Also, POSCO extends marketing support for customers who use POSCO's World Premium products. In 2016, for example, POSCO held promotional events in front of the POSCO Center building to display Tivoli Air, SM6, and Malibu. POSCO will continuously strive to solidify business partnerships with its customers.



Global EVI Forum 2016

### Highlights of Solution Marketing by Industry

**[Steel product & hot rolling sector]**  
POS-H design solution

POSCO has developed the POS-H (POSCO Built-Up H-Beam) through business agreement with the structural engineers' association. POS-H has addressed the issue of rolled H beam which only came in a limited variety of sizes, and that of built-up H beam where delivery is often delayed because of its made-to-order production process. POSCO was able to launch this product in a short period of time, by cooperating with structural engineers from the very first stage of product development while establishing the design-production-supply process simultaneously. POS-H has a competitive edge in its low-price, and can be mass-produced in different sizes. POS-H was applied to various construction projects including Yoido Parc1, Pyeongchang International Broadcasting Center, and Ilsan K-culture Valley, proving the product's performance and reliability.

**[Energy and shipbuilding sector]**  
High heat input for storage tank solution

Steel for high heat input welding(TMCP, DQT) for storage tanks, which is POSCO's World Premium products, allows customers to shorten construction period and save manufacturing cost. Steel for high heat input welding shortens welding time and improves construction efficiency as it ensures low temperature toughness and strength of the weld zone. More than two times higher temperature can be applied for welding, compared to conventional heat-treated steel. POSCO was the first company in Korea to apply this solution to an oil storage tank project.

**[Stainless sector]**  
PossFD forming process optimization solution

POSCO developed PossFD(STS304-based) by reducing the amount of chrome and increasing the amount of copper. PossFD is designed to be used for premium sinks, featuring the high formability to skip intermediate heat processing and welding. POSCO has received cooperation requests from around the world on PossFD after a No. 1 sink producer in Korea adopted POSCO's forming solution to their premium sink model, which enabled sharp edges and saved production cost.

### Customer Satisfaction Survey

POSCO conducts customer satisfaction survey every year to identify customer needs and opinions on POSCO products and services, and to improve customer value. In the survey by KMAC(Korea Management Association Consulting) which targeted 286 customers in 2016, POSCO achieved 85 points domestically and 74 points abroad, recording the same scores with the previous year. The survey also showed that customer satisfaction on POSCO overwhelmed competitors thanks to POSCO's solution marketing activities. POSCO is going to proactively address more than 300 customer requests derived from the survey to solidify customer relationship.

#### Customer Satisfaction Survey Result

(out of 100 points)

Classification	2014	2015	2016
Total	79	80	80
Domestic	83	85	85
Overseas	74	74	74

### Marketing education to enhance sales competitiveness

POSCO operates an education team under the Steel Business Division. The team ensures that the marketing employees are able to deal with fierce competition in a timely manner by operating different courses on product knowledge, lectures on value sharing, and more. In addition, the team offers courses on job competency of steel business aimed at helping our partners improve sales competitiveness.

In 2016, training courses was made available for leaders to enhance all employees' sales performance on solution marketing. The courses consist of basic and intensive lectures which deal with the steel products and manufacturing processes, as well as secondary products and processing technologies(Total 19 courses and 54hr). POSCO also ran a total of 12 rounds of executives' special lectures and visiting lectures. In 2017, POSCO plans to convert the job competency education which has been an off-line group training into e-learning, in order to establish a group-wide self-motivated learning culture.

### CRM System to Meet Customer Needs

The CRM system of POSCO has been operating since 2003 and currently manages information of over 20 thousand customers worldwide. It automatically updates transaction results by customer through ERP system and financial information in concert with credit rating agencies. All customer-contacting departments update customer needs, responses, and critical issues to the CRM system in real time. Customer information in the system is shared with more than 50 business sites at home and abroad to improve customer satisfaction and enhance solution marketing activities. POSCO also operates "Customer Promise Management System," a company-wide collaboration tool for meeting customer needs, and "Mobile CRM System" to ensure better response to customer requirements.

#### CASE STUDY

##### Private Information Protection Policy

###### Private Information Protection Policy

POSCO has established the private information protection system by enacting relevant regulations in 2013 and appointing the Chief Privacy Officer who manages private information protection activities. Our employees are encouraged to minimize the possession of unnecessary information through self-inspection on private information protection and to raise awareness of the importance of information protection through regular training.

###### private Information Management System

Not only employees of POSCO but also trustee companies are educated to comply with relevant regulations and rules when handling customer information. In addition, POSCO has strengthened technical protection on customer information control and monitoring by trustee companies, thereby stabilizing the customer information distribution system.

###### Certification on Private Information Management System

POSCO strictly conforms to regulations on technical and managerial protection measures in all processes ranging from collecting to discarding private information by establishing the personal information management system throughout the company. This effort resulted in obtaining the PIPL (Personal Information Protection Level) certification from a national agency in 2015. POSCO has also maintained the ISMS (Information Security Management System) certification which is legally required for POSCO's online steel sales website "e-Sale" since 2014. POSCO will continue to make persistent efforts for securing higher standards and reliability in managing private information.

## Quality Management

### POSCO Family Quality Charter

The POSCO Family Quality Charter was declared in 2010 with the aim of becoming a leading global company that creates higher customer value. With the Charter in mind, we at POSCO pledge to ensure world's top quality in our businesses ranging from steel manufacturing to solution marketing service, thereby touching customers all over the world.

#### POSCO Family Quality Charter



### POSCO Quality Management System

The company introduced the ISO quality management system in 1993 to ensure that our products meet customers' demand and legal requirements. This system has allowed the company to enhance product quality by replacing existing quality department-led quality management system with the process-based quality management system. In 2016, we obtained the conversion certificate regarding the revised standards of ISO 9001:2015, an enhanced approach to the operation and process of enterprise risk management system.

In 2017, we plan to upgrade quality management system in connection with the IATF 16949 conversion certificate as the international standards regarding automobile industry has been upgraded from ISO/TS 16949:2009 to IATF 16949:2016.

### Education on quality

Company-wide education on quality has been offered to employees of POSCO, POSCO Family companies, overseas subsidiaries, outsourcing partners and suppliers to enhance their quality mind and competence. In 2016, a total of 1,379 professionals in each field were nurtured through customized working-level educations on quality which were required by POSCO and overseas subsidiaries. They played a key role in improving our quality management system and quality control activities. In 2017, we plan to train core staff members in the fields of quality planning, quality control, quality guarantee, and quality improvement more systematically and professionally to further strengthen our global quality competence.

#### Employee education on quality

(Unit: persons)

Classification		2012	2013	2014	2015	2016
General course	No. of courses	9	7	6	8	4
	Completed	3,900	1,700	760	2,028	395
Collective training	No. of courses	1	3	3	3	4
	Completed (cumulative)	66	200	339	586	1,379
e-learning	No. of courses	7	10	12	11	13
	Completed	20,800	14,300	17,400	9,606	935

### Quality Management System Certificate

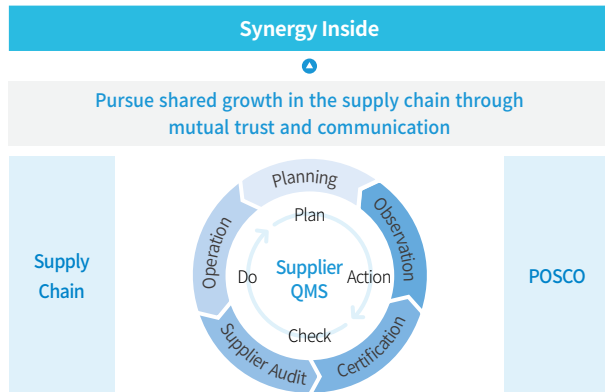
Since October 18<sup>th</sup>, 1993 when the company received its first ISO 9000 quality management system, POSCO has continued to renew key quality certificates such as ISO/TS 16949. As of 2016, POSCO holds two international standards, four organization standards, and seven national standards. In 2017, as demand for certificate is on the rise to win projects such as API, API Monogram, and ACRS and the rising protectionism in southeast Asia make it mandatory to obtain national standards, the company will develop a system to manage national standard certificates which are globally recognized.

#### Obtainment of quality certification in 2016

Classification	Certification
International	ISO 9001, ISO/TS 16949
Organizational	KEPIC (Korea Electric Power Industry Code), PED (Pressure Equipment Directive), CPR (Construction Products Regulation), BC1 (Building and Construction Authority Singapore)
National	KS (Korea), JIS (Japan), TISI (Thailand), SNI (Indonesia), MS (Malaysia), BIS (India), TCVN (Vietnam)

### POSCO Supplier Quality Certification (PosQC)

POSCO has been operating the PosQC system since 2012 in order to fundamentally prevent quality failure from outsourcing partners and suppliers and ultimately ensure world's top quality. This system evaluates the level of their quality management activities and certifies performances on a scale of Q1 to Q5. Outsourcing partners and material suppliers with Q3 rating or higher are awarded a separate certificate in recognition for their quality assurance competence. In 2016, we evaluated 62 core outsourcing partners and material suppliers, 56 companies of which received Q3 rating or higher. In particular, ROLL&ROLL and Buhmwoo were selected as the best companies in the outsourcing partner and material supplier sector, respectively, to win the Synergy Award at the POSCO Quality Award. In 2017, the sixth year of the implementation of the PosQC system, we will expand target partners and suppliers to secure wider and higher level of quality assurance by involving more internal evaluators. Through the PosQC, POSCO will help them establish independent quality assurance system and continue quality improvement activities, thereby securing world's top quality and creating customer value.



**Quality certification in the supply chain**

Classification	2012	2013	2014	2015	2016
No. of evaluated companies	6	43	58	66	62
Q3 rating or higher (%)	100	42	53	85	90

**Diagnosis on quality management of POSCO Family companies**

We have been conducting the diagnosis on quality management activities of POSCO Family companies since 2011 to enhance the level of their quality management. Their performances in major quality-related processes and effectiveness of quality management system are quantitatively evaluated (on the basis of 1,000 points) to identify and improve insufficiencies. The diagnosis system is based on the Quality Charter’s core values and code of conduct, and the maturity level of quality management is classified into five stages: beginning, improving, succeeding, controlling, and leading. The level of quality management of POSCO Family companies in 2016 increased to B++ rating (772 points) from B+ rating (736 points) in the previous year, and all of 10 companies achieved B++ and higher ratings. In 2017, we will focus on enhancing their quality management by elevating the effectiveness of diagnosis system and identifying improvement tasks.

**POSCO Quality Awards (PQA)**

The PQA event has been held every year since 2011 where the CEO directly awards the PQA to organizations which have effectively run the quality management system and achieved excellent performances in quality innovation. As for POSCO and POSCO Family companies, award winners are selected by assessing the diagnosis results on quality management and quality performance indices with regard to 18 items of three core values of the Quality Charter. Evaluation of supply chain is conducted in connection with the PosQC (POSCO Supplier Quality Certification) In particular, as for POSCO Family companies, we had awarded companies with excellence in maturity of quality management in two categories of under B++ and B++ and higher ratings, respectively. This award criterion was changed in 2016 to motivate all companies. We selected the best-performing companies in the fields of maturity of quality management and quality improvement among all POSCO Family companies, and awarded Excellent Prize and Takeoff Prize, respectively.

**PQA winners in 2016**

	POSCO	POSCO Family	Supply Chain
Prize	Excellent (Dept.)	Excellent Takeoff	Synergy Prize (outsourcing partners) Synergy Prize (material suppliers)
Winner	Hot Rolled Steel Dept. at Pohang Works	POSCO ICT	PNR ROLL&ROLL Buhmwoo

**Quality Management Assessment**

In 2015, POSCO turned internal evaluation on the production units at Gwangyang Steelworks into quantitative evaluation. The evaluation covers the production units responsible for rolling process in the iron making, and a total of 18 teams – 11 teams at Pohang Steelworks and 7 teams at Gwangyang Steelworks. We selected 18 quality management items that are used to evaluate production teams. In the quality management evaluation conducted on all production units in 2016, the production team’s score rose by a large margin from the average 771 in 2015 to 835 in 2016 out of the 1,000 full score. The evaluation confirmed that our quality management achieved improvement in general and differences among units decreased.

The company extends support for quality management assessment and improvement activities of overseas production units since 2014 to ensure that the quality management competency of overseas production sites is up to that of HQ. The diagnostic model, in particular, was developed in reflection of the situations of production sites around the world to assess core quality management competency and customer value creation capability. The assessment has been carried out on 9 overseas production units starting with P-Vietnam in 2014, identifying an average of 10 to 15 improvement issues per unit. Based on the result, HQ and overseas sites jointly implemented correctional activities, establishing the quality management system that is on par with that of HQ. Additionally, the company plans to renew the quality management assessment process every two years to ensure consistency in the operation and development of quality management system. POSCO will endeavor to ensure that all of our products come in the same quality as the HQ regardless of manufacturing site.

**POSCO’s Quality Assurance System**

POSCO operates the Q-CAPS (Quality- Check and Pass System) and an integrated system for corrective measures to strengthen its customer-oriented quality assurance system. The Q-CAPS was developed based upon the quality management message, “We do not make, supply or take defective products.” It collects all data from the production process on a real-time basis and performs inspection, assurance, forecast, monitoring, and analysis of quality as well as effectively detects and prevents defects. The integrated system identifies root cause of nonconforming items through quality inspection and customer claims and prevents their recurrence, playing a key role for strengthening our quality assurance system.

# Innovation

## Technological Innovation

The year 2016 saw the global economy affected by structural low growth and the steel industry was no exception. The competition between global steel brands intensified even further due to the stagnant growth in automobile, shipbuilding, and home appliances industry as well as overcapacity of steel.

POSCO has dedicated itself to delivering high-end steel product and customized solution development to improve profitability by enhancing sales competitiveness. In particular, we succeeded in securing the mass production technology for POSCO's specialized high manganese steel, thus improving both quality and productivity.

While concentrating the group-wide resources into manufacturing technology and low-cost process technology development of the high-profit World Premium (WP) products such as FFT (Family Flagship Technology), WF (World First), and WB (World Best), POSCO

committed to an early commercialization of those products. What's more, the company beefed up low-carbon technology development in a preemptive response to the emissions trading system.

In order to secure the world's No. 1 manufacturing competency in terms of cost, quality, and productivity, we set up a stretched target in WTI (World Top Index) and achieved it successfully while we expanded and integrated the WTI to overseas production units and subsidiaries.

POSCO developed SPB (Solution-based Platform Business), a new business model, for the first time in the world to commercialize our original technology such as FINEX and CEM (Compact Endless Cast and Rolling Mill). To enhance the execution capability of SPB, we expanded original technology pool and upgraded its technology level. POSCO reinforced the collaboration system with subsidiaries to strengthen the EPC (Engineering, Procurement, Construction) capability.

## Major Achievements in Technology Development

### Iron Making



#### Improve cost competitiveness by producing cokes using low-grade coal as 100% of fuel and developing utilization technology

POSCO developed the technology to produce FINEX-exclusive Soft Coke (use low-grade coal as 100% fuel) which is suitable

for FINEX process and replaces the existing Coke for blast furnace to secure the price competitiveness. Additionally, we established low-cost operation system to apply this technology to small blast furnace.

#### Develop innovative process technology to cut iron making coal cost

For the purpose of cutting the coal cost, the key indicator of iron making operation and cost competitiveness, POSCO developed the technology to fine-tune burden distribution to maximize heat efficiency.

We also developed the technology to increase the plasticity efficiency of sintered ore by designing rolling device of sinter process.

#### Develop low energy-consuming cokes oven banking operation technology

Our oven banking process ensures the reliable quality of refractory in the oven which is also recyclable while cutting down on the energy consumed when the existing cokes oven is temporarily halted. Energy efficiency has been increased by recycling sensible heat in the waste gas in the sinter process.

### Steel making



#### Establish automatic steel making work process

Establishing the automatic production process across pre-handling of chartering, steel making, secondary refining, and continuous casting process, POSCO completed the ultra-high purity steel technology that meets

the increasingly stringent customer's demand. Also, by transferring technology to overseas upstream process steelworks (Indonesia PT.KP, Vietnam POSCO SS VINA, and Brazil CSP), we secured competitiveness in work and cost in emerging markets.

#### Establish reliable production system of high Manganese WP (World Premium) steel with PosLM (POSCO Liquid Manganese) technology

While setting up the high Mn steel, one of POSCO's WP products, and the manufacturing process of high purity FeMn, POSCO's original technology, we once again enhanced the quality and cost competitiveness of alloy used in steel making process.

### Hot rolling



#### Commercialization of hot rolling high Mn anti-vibration steel and accelerate development of heat process / non-heat process J55 integrated steel products

We commercialized the high Mn anti-vibration steel to solve the social issue of floor noise by utilizing its damping capacity. This

product was adopted in construction sites in connection with Z Clip-type floor board development solution. We contributed to generating customer values by developing heat process / non-heat process J55 integrated steel products.

#### Improve yield through quality enhancement of thick steel plate high Mn steel and establish the foundation to increase WP product sales by investing in Pohang 2 thick steel plate PICO-III

We addressed the surface quality issue of thick steel plate high Mn steel product by changing reheating furnace's conditions and developing rolling technology. As a result, we concluded sales contract with Exxon Mobil after the yield improved. Furthermore, we set up our original PICO (POSCO Intelligent Cooling Optimization) facilities in PICO-II and PICO-III, securing competitive edge in cooling technology over competitors. We will reinforce sales foundation by accelerating quality WP product development.

#### Accelerate WP product development by expanding quality assurance capability of electronic parts of wire rods

Our World First technology to monitor wire rod's cooling zone temperature and control temperature of water-cooling zone solved spot decarbonizing and the generation of low-temperature tissue of wire rods. We also reduced yield loss due to surface peeling while addressing spring rupture caused by low-temperature tissue. We expect to accelerate WP product development with enhanced quality assurance capability of electronic parts by applying the developed technology into other steel types.

#### Develop product and part solution technology for lighter body and higher fuel efficiency

By developing the giga-class gold-plating material GI 1180XF that can be cold formed to meet the demands for ultra-high strength and high-elongation steel to respond to toughened safety regulations and mileage standards of CAFE2025(23.2km/l), we laid the foundation to increase the sales of giga-class steel products.

Furthermore, as VOC development for CTBA (Coupled Torsion Beam Axle) featuring high-strength steel from global customers increases, we plan to work with automobile part manufacturers to develop a comprehensive CTBA solution that comes with optimization design and new forming technology to promote the sales of AHSS.

#### Develop new electroplated steel processed with phosphate for VCM (Vinyl Coated Metal)

As global appliance brands increasingly want VCM steel, which has better formability over stainless steel and allows for different design thanks to its electro gilding material, POSCO has developed new ternary phosphate solution and its producing process. Meeting customers' criteria required on anti-oxidation discoloration, film adhesive property, and corrosion resistance, EG Base VCM steel has been adopted by local appliance makers for outer case of refrigerator and washing machine. We expect to supply the product to overseas brands such as GE and Electrolux.

#### Develop new nano-coating process for pre-cleaning of EG steel

In order to reduce cost in the EG process and meet customers' changing demand, we developed pre-cleaning solution and nano-coating process technology by replacing the existing expensive Ni with Zn. As a result, we improved the quality and saved cost by about KRW 1 billion per year. We supply more than 20,000 tons of this product to local vehicle makers and electronics appliances companies.

#### Develop manufacturing technology of self-bonding NO (non-oriented) products for non-heat process of electrical steel

As the existing methods of welding and interlocking result in core loss and magnetic induction due to heat impact and damage, LG and other eco-friendly car makers are demanding improved efficiency. In response, we developed technology to produce non-heating (non-SRA) self-bonding NO product, a new motor core binding technology, improving driver efficiency and performance of electronic appliances and eco-friendly vehicles. By 2020, we expect to produce 10,000 tons per year, generating operating profit of KRW 1.7 billion annually.

#### Develop manufacturing technology to produce high formability and high Cr 400 steel product (XF Series) for stainless car exhaust system

As a steel product with superior deep drawing capacity over existing products when producing stamping type part for car exhaust system, we lowered the defection rate to 10% compared to competitors by raising the equiaxed grain while casting and maximizing strain energy during hot rolling.

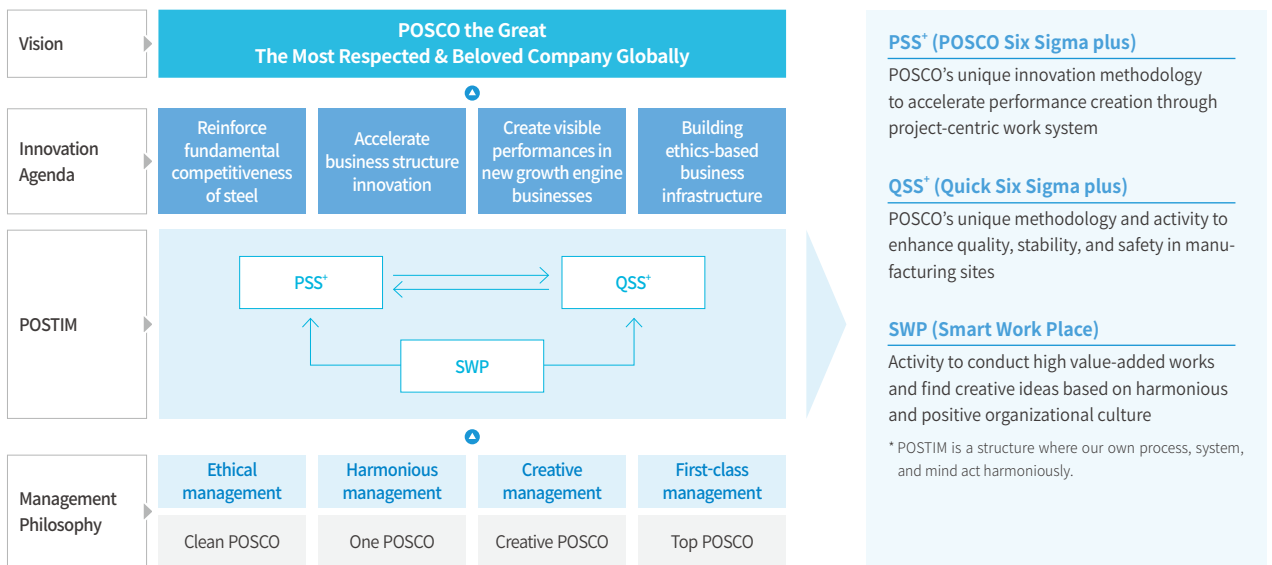


## Business Innovation

To achieve our vision of “POSCO the Great,” POSCO has steadily conducted innovation activities since 2014 when the “POSTIM (POSCO Total Innovation Methodology)” was introduced. POSTIM aims to encourage all POSCO employees and affiliates to get involved in innovation activities, while also integrating work and innovation. POSTIM is a powerful execution engine for realizing the four agendas of Innovation 2.0 — strengthening fundamental competitiveness of steel, acceleration of business structure innovation, creation of tangible results in new growth engine businesses, and establishment of ethics-based management infrastructure. It is also operated under the principles — unification of work and innovation, voluntary involvement and adequate compensation, establishment of working environment to enhance creativity and concentration, and cultivation of talents with technical knowledge and problem solving capabilities. POSTIM greatly contributes to creating better operating performances every year.

POSTIM consists of three items: PSS<sup>+</sup> (POSCO Six Sigma plus), project-centric work system where creative ideas are developed into projects and reasonable reward is ensured; QSS<sup>+</sup> (Quick Six Sigma plus), POSCO’s unique methodology and activity to reduce quality defects, operational difficulties, and safety accidents; and SWP (Smart Work Place), activity to conduct high value-added works and find creative ideas based on harmonious and positive organizational culture. We have strived to embed POSTIM in the company for the past three years. In 2014, POSTIM was introduced by integrating diverse innovation methodologies with the launch of POSCO 1.0 campaign to realize the new vision “POSCO the Great.” In 2015, we focused on spreading POSTIM throughout the company to overcome tough business environment. To this end, we promoted project-centric work system, disseminated QSS<sup>+</sup> to family companies, and encouraged sharing activities to build positive working environment. Diverse innovation activities were carried out and meaningful performances were created in 2016.

### Structure of POSTIM



### POSTIM Highlights in 2016

#### PSS<sup>+</sup>

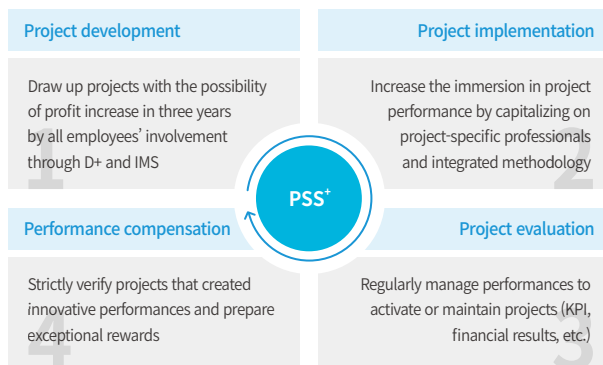
PSS<sup>+</sup>(POSCO Six Sigma plus) is POSCO’s unique innovation methodology which accelerates the production of outcomes through a project-centric work system. POSCO runs ‘idea suggestion’ system to discover projects. In this system, employees are free to suggest any ideas about potential projects on the in-house IMS (Idea Management System). Then other employees jump in to build upon the suggestions by sharing their own tips. The selected ideas are carried out as official projects to generate financial results. POSCO further promoted ‘idea suggestion’ to encourage employees’ participation in 2016. In particular, we carried out the ‘creative idea of executive’ group-wide. As a result, three times as many ideas were turned into projects compared to 2016, dramatically raising the ex-

pectations on the financial outcome of the idea suggestion system. In 2016, we focused on selecting more viable projects, for example, by closely examining projects’ chances of financial outcome. Candidate projects were also expanded to discover novel ideas. This policy change led to a 42% increase in financial performance per capita over the previous year. 7 other G-Projects (Grand-Project) were successfully implemented in cooperation with HQ, steelworks, and R&D centers. To support project leaders in generating outcome, we conducted CEO VP (Visual Planning), progress check by HQ, mentoring for executives, and programs for innovation experts of core projects. Also, the innovation course has been reorganized into statistical analysis, advanced MS Excel, report writing. We redesigned the innovation belt system to help upgrade employees’ job competency. One of the characteristics of the PSS<sup>+</sup> methodology is that those

highly profitable projects receive due rewards. This system is called "IP Project Special Reward." If an IP Project is applied to business and results in a certain amount of profit for one year, the project automatically qualifies for the special reward program. Projects must go through result verification before being qualified for special reward. The reward amount is decided in the verification stage after evaluating the exact amount of profit generated. The reward amount is about 10 percent of net profit but subject to adjustment within 5% depending on special cause. In 2016, we lowered the eligibility requirement for special rewards from KRW 1 billion to KRW 0.5 billion while shortening the verification period from the existing 48 days to 23. As a result, a total of 19 projects received special reward. So far, only 2 projects had qualified. Additionally, we introduced new system to allocate a certain amount of special rewards to teams contributing to profit generation, reinforcing the fairness and incentive of the system.

Driving profit generation for the company, PSS<sup>+</sup> has been gradually expanded to POSCO Family. Currently, 17 affiliates are carrying out IP projects.

**PSS<sup>+</sup> Operation Process**



**QSS<sup>+</sup> (Quick Six Sigma plus)**

POSCO announced QSS<sup>+</sup> (Quick Six Sigma Plus), an innovative, self-regulating method to realize healthy and safe workplaces. To mark the 10<sup>th</sup> anniversary of QSS<sup>+</sup> in 2016, we carried out on-site innovation activities guided by 'My M&S (Machine & Safety)' to improve facility performance. The progress rate of My M&S rose from 13% last year to 46% this year, helping raise the performance of online facilities. My Machine, having reached 99% of completion rate on 14,902 facilities, is about to be concluded. In 2016, the company executed Smart M&S (Smart Machine & Safety), a program to establish Smart Factory, as a model activity based on IoT.

The management paid many visits to workplaces (94 times including those by CEO) to encourage employees in the field. Exemplary behavior of leaders and departmental mentoring have promoted better understanding of QSS<sup>+</sup> and bolstered its impact. Employees have discovered and addressed workplace irrationalities (4,420 usual tasks, 531 tasks for improvement leaders) and have thus contributed

to cost reductions. 805 foremen attended the two-day collective education of QSS<sup>+</sup> to enhance execution competency of QSS<sup>+</sup> activities. Also, educating all employees on 'no waste mindset', we identified 8 major waste factors by teams and took correctional measures. We also optimized QSS<sup>+</sup> improvement leaders and the size of QSS<sup>+</sup> FT(-Facilitator).

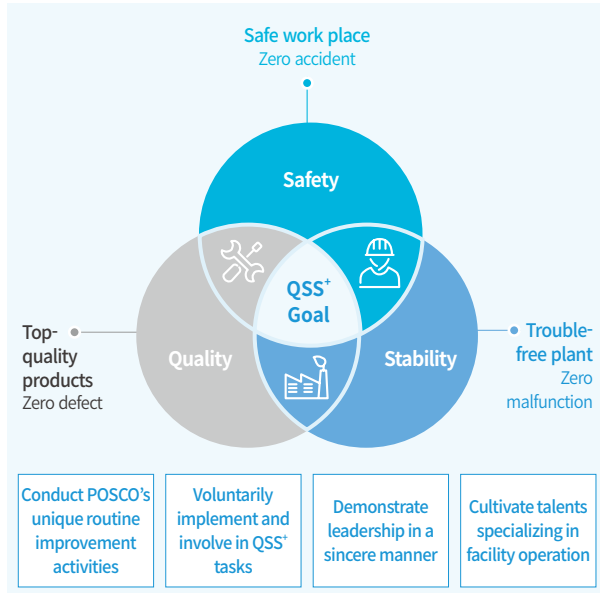
In 2016, we carried out QSS<sup>+</sup> activities with POSCO Family. The group implemented QSS<sup>+</sup> programs customized for the company. As a result, 15 affiliates executed around 1,000 improvement tasks to reduce cost.

For partners, we drew up QSS<sup>+</sup> activity plan for steel works and provided customized support aimed at enhancing the foundation for shared growth. 102 partners carried out My M&S activities to improve facility efficiency, cut down on cost, and improve maintenance quality.

Overseas corporations implemented QSS<sup>+</sup> activities specifically designed for local employees. Corporations in China and Vietnam, which already set up innovation hub system, trained improvement leaders and QSS<sup>+</sup> FT(Facilitators) and lowered cost after implementing improvement tasks. The exemplary corporation ZPSS carried out activities to create clean and safe workplace, improving operation failure, quality, and yield. POSCO-Vietnam, POSCO-VST, and POSCO-VHPC performed My M&S model activities for the first time in southeast Asia to achieve remarkable outcome.

POSCO executed QSS<sup>+</sup> activities along with team management KPI to train innovation workforce while addressing quality failure rate, and facility failure rate. POSCO Family, on its part, strived to promote QSS<sup>+</sup> activities and plans to build upon the activities to introduce smart manufacturing sites.

Concept of QSS+



SWP (Smart Work Place)

To create an environment that realizes high performance, POSCO set up the SWP (Smart Work Place) to foster positive employee work engagement through convenient IT infrastructure, advanced working methods and thanks sharing.

The introduction of in-house mobile SNS 'PosTalk' ensures efficient communication among employees while making it easier to share job information in real time. Local and overseas affiliates use the same messenger, which addressed the hassles of limited means of communication such as mail and telephone. What's more, by integrating visit management system among affiliates, we reduced waiting time for visitors and employees. OA equipment was replaced to improve work environment. We installed multifunction office devices to replace printers, scanners, and photo copiers to improve maintenance efficiency.

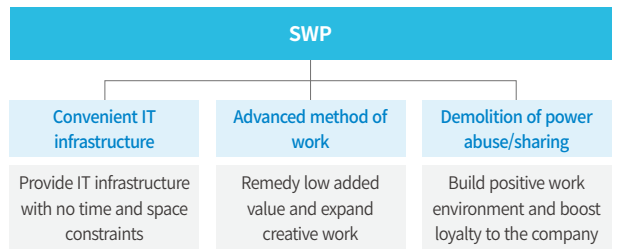
By setting up CCTVs on the P-LTE wireless network at the locations formerly inaccessible by CCTV, the real-time surveillance of site was made possible. Additionally, Wi-Fi and IP telephone were introduced while upgrading computers to support Internet Explorer 11 and MS Office 2013, making sure employees can process work in most updated OA environment.

To introduce advanced work method and increase work engagement, we improved reporting and meeting culture. To ensure work engagement, we continue to streamline HR, training, and innovation system. In 2016, we launched the initiative to do away with 'power abuse practice in business'. Thanks sharing coupled with leaders' initiative and the participation of employees helped employees create a positive working environment.

Summary of SWP

Operating margin of companies with high immersion in work is six times higher than those with low immersion. ↑ (survey of 360 thousand employees of 41 global companies)

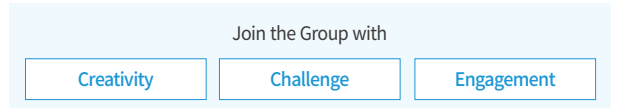
Immersion means voluntary and proactive involvement in works.



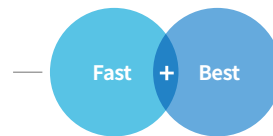
POSTIM Goals in 2017

Building upon our unique innovation methodology and innovation competency obtained so far, POSCO will carry out PSS+ and QSS+ according to our 'Fast & Best' principle, thus realizing the vision of 'POSCO the Great.' We will reinforce the group-wide synergy to accelerate innovation transformation. Also, we will remain committed to establishing expert-led project execution system and smart manufacturing sites.

**Fast & Best?**  
Generate performance more rapidly and remarkably by creative and proactive engagement



Prepare for the future by synergy enhancement among family companies and innovative transformation...  
**More rapidly**



Create performance by establishing expert-centric project execution system and realizing smart business environment...  
**More remarkably**

To that end, the company will strengthen collaboration at the group level and converge ideas suggested by affiliates. By doing so, we expect to turn the ideas into major projects to achieve differentiated outcomes. Also, to ensure that the company is equipped with competency to respond to future changes, we will strive to discover projects built around AI, Big Data, and Smart Solution. In particular, by promoting projects run by in-house PCP, and expanding special reward, we plan to reinforce the incentives for projects and generate lasting outcomes. POSCO will continue to perform QSS+ activities to spread Smart M&S model activities and achieve management KPIs, thereby establishing a healthy and smart manufacturing site.

# Supply Chain Management

## Fair Trade

Since adopting the Compliance Program (CP)<sup>1)</sup> in 2002 to conform to the Fair Trade Act and free market competition, we have strived to foster a culture of voluntary compliance. With the declaration of the Code of Ethics in June 2003, the CEO declared the commitment to voluntary compliance. He has also emphasized the importance of fair trade and encouraged to abide by fair trade and relevant regulations at the corporate management meeting and POSCO Group CEOs' meeting every year.

1) An internal compliance system including education and audit on the compliance with fair trade with the aim of preventing violations of the Fair Trade Act.

### Summary of Fair Trade Compliance Program

POSCO implements the Fair Trade Compliance Program based on seven items recommended by the Fair Trade Commission and additional two items developed by the company.

<b>Government-recommended items</b>	<ul style="list-style-type: none"> <li>• Declaration of voluntary compliance by the management</li> <li>• Designation of the Compliance Officer</li> <li>• Publication and distribution of the compliance guidebook</li> <li>• Implementation of education programs</li> <li>• Establishment of monitoring system</li> <li>• Punishment of employees who violate fair trade related regulations</li> <li>• Establishment of document management system</li> </ul>
<b>Self-developed items</b>	<ul style="list-style-type: none"> <li>• Organization of the Compliance Council</li> <li>• Evaluation of operation performances</li> </ul>

Following the introduction of the Compliance Program in 2002, the CEO declared the commitment to voluntary compliance with fair trade with the declaration of the Code of Ethics in 2003. Our fair trade activities have been enhanced in 2004 by establishing the Internal Transaction Committee under the BOD and an organization responsible for compliance with fair trade. As a result, POSCO has become Korea's first company to win the AA rating at the Korea Fair Trade Commission's CP operation evaluation for four consecutive years since 2016. Moreover, we have obtained highest rating in shared growth index evaluation led by the Korea Commission for Corporate Partnership for three consecutive years since 2013. In 2015, we set ethics as the most important value of management and strived to stick to the three major 100% principles (competition, disclosure, and recording) and eradicate abnormal business practices.

### Performances in CP operation

POSCO has been making a concerted effort to minimize legal risk with regard to fair trade through consistent education with the belief that prevention is the best option.

### CP operation highlights in 2016

- Online fair trade training programs (976 persons)  
(Two subjects including "Easy-to-Understand Fair Trade")
- Collective fair trade training tailored to each sector (2,431 persons)
- Consulting and coaching activities about fair trade for business departments (156 cases)
- Internal Transaction Committee  
(Deliberation and conclusion of 8 items by convoking the meeting five times)
- Pledge on voluntary compliance with fair trade  
(twice a year, 24,545 persons from 27 companies)
- Fair Trade Compliance Council and Fair Trade Compliance Leader Meeting  
(twice a year, respectively)
- Provision of working-level CP guidebook for large business group
- Distribution of Fair Trade Newsletter (monthly) and a magazine featuring the practice of overseas competition laws (twice a year)

To raise employees' awareness of fair trade, POSCO has been running e-learning courses named "Easy-to-Understand Fair Trade" and "Fair Trade Violation Cases" since 2002. A total of 976 employees took the e-learning courses. Meanwhile, collective training is offered to new recruits, employees by position and department, and affiliates' employees, in which 2,431 persons participated in 2016.

A website was launched in 2004 where employees are able to voluntarily check fair trade practices, and an application for smartphone was developed in 2012 to help self-check on the violation of fair trade related regulations. We have also published fair trade guidebooks for business departments such as procurement, sales, and conglomerate to encourage employees to check legal risks and abide by relevant regulations. A total of 156 consulting cases were offered to business departments in 2016.

POSCO operates a fair trade risk management process consisting of preliminary risk check, coaching, improvement, training, and follow-up measures. Moreover, the Internal Transactions Committee consisting of three outside directors is being run under the BOD since April 2004 to ensure transparency and fairness in transactions among affiliates. The committee has deliberated on a total of 120 transactions until the end of 2016. Divisional Internal Transaction Deliberation Committee with regard to materials and outsourcing was operated to improve common practices of transaction from 2016.

In addition, employees working at fair trade related departments such as procurement and marketing pledge to conform to voluntary compliance every year. In 2016, a total of 24,545 signed the pledge on tightened fair trade compliance practices and responsibilities. On top of that, to ensure the execution power of fair trade compliance at business departments, we operate the Voluntary Compliance Committee consisting of group and department leaders and working-level fair trade practice leaders support compliance activities of each department.

Other activities to disseminate the culture of fair trade compliance include regular seminar, information exchange, and workshop led by PCA (POSCO Compliance Academy), a study group of affiliates' CP staff, and the publication of Fair Trade Newsletter (monthly) and magazine featuring the practice of overseas competition laws (twice a year).

### Compliance Program of POSCO Family companies

A total of 24 POSCO Family companies are operating the Compliance Program.

#### Introduction of CP by POSCO Family companies

Year	POSCO Family companies	Total
~2003	POSCO, POSCO E&C, POSCO ICT	3
2006~ 2010	POSCO C&C, POSCO M-TECH, POSCO CHEMTECH, POSCO PLANTEC, POSCO P&S, POSMATE, POSCO A&C, SNNC, POSCO ENGINEERING, POSCO ENERGY	10
2011	POSCO Daewoo, eNtoB	2
2013	PNR, SRDC, SPFC, POSCO HUMANS, POSCO TERMINAL, Blue O&M, POSCO ESM	6
2014	POSRI, POSCO CAPITAL	2
2015	PMCTECH	1
Total 24 companies (as of December 2016)		

To disseminate and embed the CP throughout POSCO Group and foster fair trade and co-prosperity with suppliers, we have been proactive in participating in the CP ratings evaluation hosted by the Fair Trade Commission and the Shared Growth Index evaluation led by the Korea Commission for Corporate Partnership. We have been highly recognized by the two evaluations.

#### Our plans to embed the culture of fair trade

In 2017, we will continue to make a concerted effort for disseminating and embedding the culture of fair trade throughout the Group. Major focuses will be on enhancing information disclosure as a large company, eradicating illegal supports, and prohibiting unfair sub-contract practices which are top priorities of the government.

Other plans include activating Compliance Program at the Group level, enhancing fair trade risk management process to prevent illegal behaviors, raising employees' awareness of compliance with fair trade through training, offering more educations on fair trade to overseas subsidiaries and offices, and sharing information on the implementation of fair trade related regulations in each country with our affiliates. These efforts will allow us to enhance the level of CP operation in the future.

## Shared Growth Policies and Programs

### Vision and Value System for Shared Growth



### Shared Growth History

Shared Growth that POSCO has sustainably pursued 32 shared growth programs in 5 categories			
Fair trade (Introduction stage)	Cooperation for co-prosperity (Growth stage)	Shared growth (Settlement stage)	
<ul style="list-style-type: none"> <li>Implemented e-commerce (2001)</li> <li>Started the Compliance Program (2002)</li> </ul>	<ul style="list-style-type: none"> <li>First Introduced Benefit Sharing System in Korea (2004)</li> <li>Began full cash payment for suppliers (2004)</li> <li>Conducted Techno Partnership (2006)</li> </ul>	<ul style="list-style-type: none"> <li>Raised a private-public R&amp;D fund (2009)</li> <li>Launched the executive-led Shared Growth Support Group (2010)</li> <li>Conducted QSS innovation hub activities (2010)</li> </ul>	<ul style="list-style-type: none"> <li>Supported facility solutions (2015)</li> <li>Supported smart plants of SMEs (2015)</li> <li>Won the best rating in shared growth index evaluation for 4 consecutive years (2016)</li> </ul>

1999	2005	2010	Current
<p><b>1999 - 2004</b></p> <p><b>1999.02</b> Paid purchasing bills in advance of the national holidays</p> <p><b>2003.07</b> Became first Korean steel maker to adopt the SRM system</p> <p><b>2004.07</b> Became first Korean company to adopt Benefit Sharing System</p> <p><b>2004.10</b> Implemented network loan</p> <p><b>2004.12</b> Implemented whole cash payment for purchases from SMEs</p>	<p><b>2005 - 2009</b></p> <p><b>2005.07</b> Raised a fund to support suppliers</p> <p><b>2006.07</b> Operated the patent consulting center</p> <p><b>2006.08</b> Transferred our own patent technologies</p> <p><b>2006.09</b> Conducted Techno Partnership</p> <p><b>2008.07</b> Introduced the Management Doctor program</p> <p><b>2008.08</b> Supported QSS innovation activities</p> <p><b>2008.11</b> Signed an agreement on raising a special co-prosperity fund</p> <p><b>2008.12</b> Signed an agreement on raising a Public-Private R&amp;D fund</p> <p><b>2008.12</b> Signed an agreement on co-prosperity and fair trade at the Group level</p> <p><b>2009.03</b> Opened "Recruitment Center for POSCO Partners" at Job World</p> <p><b>2009.09</b> Implemented network loan for POSCO affiliates</p>	<p><b>2010 - 2016</b></p> <p><b>2010.06</b> Conducted Techno Partnership (tailored technical supports for suppliers)</p> <p><b>2010.09</b> Reflected Shared Growth performance in executive evaluation</p> <p><b>2010.09</b> Published a guidebook to introduce Shared Growth programs</p> <p><b>2010.10</b> Launched the executive-led Shared Growth Support Group</p> <p><b>2010.10</b> Established councils for 2<sup>nd</sup> tier supplier</p> <p><b>2010.10</b> Opened an online whistle-blowing system</p> <p><b>2011.04</b> Enacted the Code of Conduct for suppliers</p> <p><b>2011.07</b> Expanded the executive-led Shared Growth Support Group to affiliates</p> <p><b>2011.10</b> Held the Idea Market Place</p> <p><b>2011.10</b> Signed an agreement on private-public investments in technology development projects</p> <p><b>2012.07</b> Established POSCO's unique Benefit Sharing model "FOCUS"</p> <p><b>2012.09</b> Won the Presidents' Citation for Benefit Sharing</p> <p><b>2013.05</b> Signed an agreement on voluntary practice of Benefit Sharing System</p> <p><b>2013.06</b> Signed an agreement on promoting the Industrial Innovation Movement</p> <p><b>2013.10</b> Ran the POSCO WinC to support fair trade between 1<sup>st</sup> and 2<sup>nd</sup> tier suppliers</p> <p><b>2014.04</b> Reformed the executive-led Shared Growth Support Group to project-centric operation system</p> <p><b>2014.06</b> Conducted open discussion between POSCO and suppliers</p> <p><b>2014.10</b> Opened Shared Growth Portal site</p> <p><b>2014.11</b> Held the Partners Day for Shared Growth</p> <p><b>2015.05</b> Conducted facility solution support activities</p> <p><b>2015.06</b> Held Shared Growth conference</p> <p><b>2015.12</b> Held the Partners' Day for Shared Growth</p> <p><b>2015.12</b> Signed an agreement on supporting SMEs' smart plants</p> <p><b>2015.12</b> Won the grand prize at the Korea Shared Growth Award</p> <p><b>2016.04</b> Signed an agreement on Fair Trade throughout the Group</p> <p><b>2016.06</b> Won the best rating in Shared Growth index evaluation for 4 consecutive years</p> <p><b>2016.09</b> Expanded supports for SMEs' smart plants</p> <p><b>2016.11</b> Held the Partners' Day for Shared Growth</p> <p><b>2016.12</b> Won the grand prize at the Korea Shared Growth Award</p>	

## Shared Growth Activities at POSCO

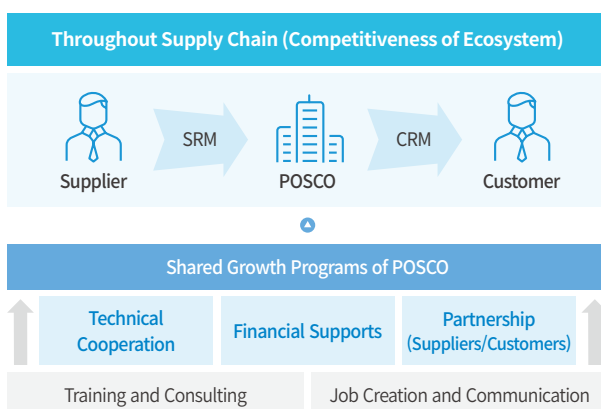
Under the vision “Win-Win for the Great”, POSCO is committed to co-prosperity and shared growth with SMEs. POSCO has promoted shared growth since the late 1990s and an organization dedicated to supports for SMEs was launched in June 2005. Currently, the Procurement Planning Group under the Procurement Office is in charge of shared growth with SMEs and it strives to expand the scope of shared growth to the 2<sup>nd</sup> tier supplier and other SMEs. POSCO operates 32 programs in five categories – technical cooperation, financial supports, partnership enhancement, consulting & training, and job creation & communication – to systematically promote shared growth activities throughout all management sectors. In 2017, POSCO will continue to improve these programs to provide SMEs with real business benefits and fruits of shared growth.

### Major Shared Growth Activities in 2016

April	Held a ceremony for signing agreement between POSCO and supplier on fair trade
June	Acquired the best rating in Shared Growth Index (four consecutive years) - Won the grand prize at the Korea Shared Growth Awards (December)
September	Expanded supports for building smart factories of SMEs
November	Held POSCO Group's Shared Growth Partners Day event

## Shared Growth Programs of POSCO

POSCO operates 32 shared growth programs in five categories throughout whole management fields, pursuing co-prosperity with 2<sup>nd</sup> tier and potential partners.



## Technical Cooperation to Enhance R&D Competence of SMEs

### Benefit Sharing Program

Benefit sharing program aims to jointly conduct improvement activities and share the fruits with suppliers. Motivating suppliers to voluntarily renovate management system and develop technologies which eventually brings better competitiveness and product quality to large companies, benefit sharing system is recognized as a desir-

able shared growth model. It was introduced by POSCO in 2004 for the first time in Korea and has been promoted throughout whole industries since 2012 at the government level. As of December 2016, a total of 273 Korean companies are operating the system. POSCO offers diverse incentives to suppliers participating suppliers such as sharing 50% of performance incentives, signing long-term contracts, awarding extra points in evaluating SRM, and applying for coapplicant patents. In 2016, KRW 32.6 billion was rewarded for 525 completed projects.

### CASE REPORT

#### Improvement of hot rolled steel product quality by developing auto grinding machine (LEEHO TECH Co., Ltd.)

- Details: There have been chronic troubles in product quality and personal safety when grinding steel surface at hot-rolling plant. As a solution, LEEHO TECH developed the auto grinding machine that can automatically recognize and remove quality defect and prevent safety accidents by unmanned operations.
- Results: [LEEHO TECH] Successfully gained KRW 3.6 billion contract by adopting the machine to whole plants in POSCO  
[POSCO] Increased normal production rate by 1% and 100% prevention of safety risk

## Public-Private Joint Investment in Technology Development

POSCO supports R&D expenses of SMEs and cultivation of their sales channels by raising an R&D fund in collaboration with SMBA (Small and Medium Business Administration). Each SME can receive up to KRW 1 billion within 75% of total R&D expenses, reducing financial burden on R&D activities. The first R&D fund of KRW 10 billion raised in 2008 was entirely supported. Currently, additional KRW 44.6 billion R&D fund raised in December 2011 is operated. At the end of 2016, POSCO has supported a total of 60 R&D projects of SMEs.

### CASE REPORT

#### Localization of automatic ultrasonic tester for heavy plate (HAGISONIC Co., Ltd.)

- Details: Heavy plate with 80~230mm thickness is expected to create new demands in the thick steel plate market, while POSCO had no equipment that can automatically check internal defect of steel plate with over 120mm thickness. In response, HAGISONIC developed ultrasonic tester to automatically check and verify defect of heavy plate for the first time in Korea.
- Results: [POSCO] Reduction of investment costs for localizing equipment (over 50%)  
[HAGISONIC] Sales increase by the commercialization of the new product

**Techno Partnership**

POSCO began Techno Partnership program in September 2006 to provide free technological supports to SMEs. Technological advisory groups composed of experts with PhDs from four institutions, including POSCO and RIST, currently help SMEs solve technical difficulties and secure core technologies. POSCO evaluates SMEs that applied for this program to select targets to be supported, and then technological advisory groups are formed considering the features of their businesses. Assurances are offered after signing the Techno Partnership agreement with POSCO. The advisory group visits them every month to implement on-site diagnosis, technical training, and other consulting services to solve issues with regard to manufacturing process and products. Moreover, the institutions offer research equipment and test analysis for free and their experts set up partnership with SMEs. In 2016, 140 cases of technical consulting and 73 cases of free test analysis were provided to 36 SMEs.

**Patent Support Program for SMEs**

To boost SMEs' technological competitiveness, POSCO offers a program that shares its patents through a website to allow SMEs to use them in production and provides full financial support for POSCO-SME coapplicant patent. If a company supplies products by using POSCO's patents to POSCO, license fees are exempted. We also operate the "SME Patent Consulting Center" to offer consultation on patents and intellectual property.

**Technology Escrow System**

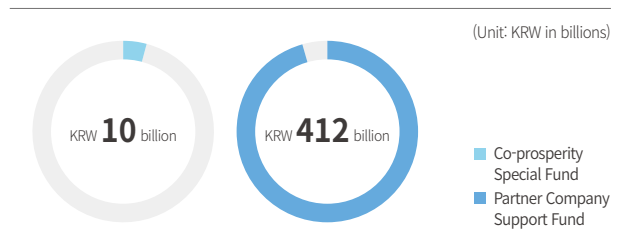
The technology escrow system was designed to protect SMEs' intellectual assets such as technological knowhow by depositing them in the Technology Escrow Center of the Large & Small Business Cooperation Foundation. Since the introduction of this system in 2011, POSCO has signed 247 agreements on technology escrow and paid KRW 71 million for escrow commissions at the end of 2016.

**Financial Supports**

**Fund for Loans to SMEs**

To help SMEs solve financial problems, POSCO is operating a fund worth KRW 412 billion for low-interest loans in collaboration with banks. In 2016, a total of KRW 392.9 billion was loaned to 314 suppliers of POSCO through this fund.

**Amount of Funds for Loans to SMEs**



**Shared Growth Investment Fund (PEF)**

POSCO has raised a KRW 200 billion fund named "Shared Growth Fund for Large and Small Enterprises" in collaboration with KB Financial Group and Hanhwa Group with the aim of maintaining partnerships with suppliers with technological competitiveness, core customers, and promising technical ventures through equity investment. This fund has contributed to raising relationship among POSCO Family companies and securing competitive edge, in which a total of KRW 14.98 billion has been invested as of the end of 2016.

**Financial Stability Support Fund (PEF)**

In order to help promising SMEs with technological prowess ensure financial stability, POSCO has raised a KRW 101 billion fund in cooperation with financial institutes including IBK (Industrial Bank of Korea). This fund is used for supporting SMEs with financial difficulties despite high growth potential, contributing to enhancing their competitiveness and corporate value. A total of KRW 30.18 billion was provided to SMEs through this fund at the end of 2016.

**Cash Payment for All Purchases from SMEs**

Since 2004, to foster a stable business environment for partner SMEs, POSCO have paid cash to all suppliers registered as SMEs within three working days of delivery. The transaction occurs twice a week, regardless of sum. During national holidays when capital flow tends to be particularly concentrated, POSCO adjusts the schedule to daily payments starting from one week in advance.

**Cash Payment for All Transportation Charge from Large Delivery Service Company**

POSCO pays for transportation charge in cash to large delivery service companies, thus encouraging their cash payment to subcontractors. POSCO settles the invoice during the early following month of product release full in cash, recommending large transportation company to pay charge to their subcontractors within 30 days in cash too. POSCO checks large transportation company's compliance with the payment rules. In 2016, the company expended a total of KRW 136.6 billion in transportation cost in full cash.



### Making Intermediate Payment for Facilities

POSCO pays 20% down payment of total contract amount in advance when purchasing facilities. Since 2010, intermediate payment has been made to support SMEs' cash flow in production and business operation. The intermediate payment system was prepared to mitigate SMEs' financial burden for facility manufacturing costs due to a long lead time and help them ensure financial liquidity. The intermediate payment system is applied to contracts with more than KRW 100 million and over 180 days' duration. Payment is made when half of the contract period has passed within 30% of total contract amount excluding down payment.

### Shared Growth Payment System (POSCO WinC)

To ensure that benefits generated from mutual growth programs with 1<sup>st</sup> tier suppliers trickle down to 2<sup>nd</sup> tier suppliers, POSCO introduced the WinC system in 2013. The WinC system helps spread POSCO's shared growth activities to 2<sup>nd</sup> tier suppliers via 1<sup>st</sup> tier suppliers, and improve the payment conditions. In 2016, a total of 1,358 suppliers signed an agreement on shared growth and KRW 366.4 billion was paid through the WinC system.

### Guarantee Charge Support

POSCO supports SMEs' issuance charge of payment certificate which is to be offered as collateral by customers who purchase our products. In 2016, POSCO spent KRW 4.05 billion for guarantee charge support.

### Improve SME Competitiveness and Enhance Partnership

#### POSCO's Executives-led Shared Growth Support Group

Executives of POSCO launched the Shared Growth in October 2010. The group has taken the initiative for shared growth in the form of talent donation. The Group has contributed to enhancing SMEs' competitiveness by transferring their management expertise, including management innovation and labor relations, to 1<sup>st</sup> and 2<sup>nd</sup> tier partner companies.

In 2014, its activity system was changed to a project-based one to let companies in need meet their perfect match. Since then, the new system has paid handsomely for the group. Notably, companies which have a definite need and strong management resolve are preferentially selected. Executives who fit the needs of the selected companies are matched and their troubles are used to identify key tasks. The group then sets targets and provides systematic support to help the companies reach their goals.

#### CASE REPORT

#### Overseas sales expansion through support for welding solution of slurry pipe high manganese steel (Steel Business Division)

- Details: Provided welding solution for World Premium products to help increase sales in overseas markets
- Results: [Steel Customer] Expect to increase sales after being selected as main partner of a global oil company  
[POSCO] Improve partnership with customer and increase sales of WP products

### PHP (POSCO Honored Partner) System

The PHP system aims to select excellent suppliers in contract fulfillment and contribution to the development of our company and nurture them into professional suppliers (sourcing group) with world-class quality and technical competitiveness. POSCO offers them diverse benefits such as PHP certificates for marketing support and the exception of issuance of performance bond for contracts.

### Seminar to Help SMEs Expand Sales Channels

POSCO participates in Matching Seminars for matching SMEs and large companies every year to boost purchasing of SMEs' products and help them to expand their sales channels. POSCO utilizes the seminar to have one-on-one meeting with SMEs which hope to enter a cooperative relationship or business transaction with POSCO and provide them with information on our purchasing system and detailed procedures. POSCO also supports the expansion of sales channels of our suppliers who want to enter into business relations with other large companies or public corporations by offering necessary information. In 2016, POSCO consulted 46 SMEs at the business meetings held in Daegu, Cheongju, and other major cities.

### Operation of Global Platform Business

POSCO have harnessed our global network including sales channels to establish overseas joint ventures in collaboration with SMEs with the aim of accelerating global business and creating new demands for steel products. In 2016, 7 SMEs joined this business.

### Solution Marketing Activities

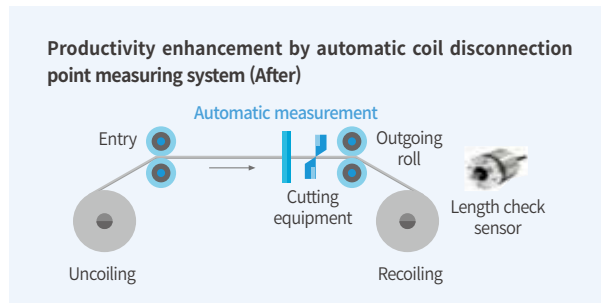
POSCO carries out solution marketing activities aimed for enhancing customers' productivity and quality, thus promoting shared growth with customers. In 2016, POSCO engaged with 139 local customers in performing 184 problem-solving tasks from steel product purchase to end product production.

In addition, POSCO launched the facility solution support project in 2015. In 2016, POSCO supported 17 partner companies in diagnosing and improving facility operation by drawing upon our rich experience and expertise in steel making facility operation.

### Consulting and Training to Enhance Personal Competence and Management Capability

#### Industry Innovation Movement and Smart Factory

The Industry Innovation Movement is a consulting project that aims to increase the productivity of the entire industrial ecosystem by supporting management innovation and process improvement of SMEs. POSCO has been participating in this movement by applying its unique innovation methodology QSS since 2013. In 2015, POSCO also began the smart factory construction support project that pursues intellectualization and optimization of production process by adopting information technology, helping SMEs enhance their productivity. In 2016, the scope of targets for this project was extended to cope with the fourth industrial revolution, and 141 SMEs benefited from this project.



#### Optimized Consulting for SMEs

To help SMEs overcome their weakness and chronic problems, POSCO provides them with optimized consulting services using its own professionals. The service scope encompasses energy, safety, and IT sectors for our major suppliers and 2<sup>nd</sup> tier suppliers. In 2016, consulting services were offered to 41 suppliers.

#### Management Doctor Program

The Management Doctor Program aims to provide SMEs with practical supports for their management innovation, in which POSCO's suppliers and management advisory group of the Korea Service Corps of Retired Executives participate. Through this program, management knowhow and professionalism of former CEOs and executives of large companies are transferred to SMEs to be effectively used for enhancement of their competitiveness. A total of 39 suppliers have joined the Management Doctor Program until 2016.

#### Vocational Training Consortium and Saturday Class for Executives of SMEs

The Vocational Training Consortium is a program to train new employees and existing workforce of suppliers. In 2016, a total of 48,679 employees working at suppliers completed this program. POSCO has also invited CEOs of outsourcing partners and excellent SMEs to the Saturday Class every month since January 2009 in order to share information on changes in management environment at home and abroad and management strategies of POSCO Group as well as cultivate business mindset.

#### Job Creation and Communication Activities

##### Operation of the Recruitment Center for SMEs

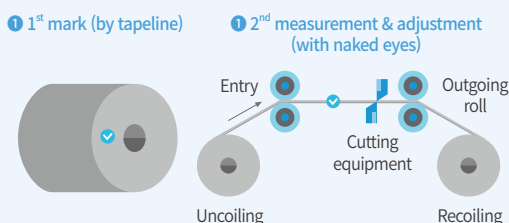
In March 2009, POSCO became the first Korean conglomerate to open the recruitment center for suppliers on the Job World (<http://www.ibkjob.co.kr>), a website specializing on job creation. The online recruitment program helps our suppliers find talents and at the same time contributes to solving youth unemployment issue. In 2016, a total of 75 persons joined POSCO's 11 suppliers. All of our suppliers are able to use this program and other SMEs can also post recruitment notice on the website after obtaining membership. Hiring employees through the website, the supplier can reduce bank commission or loan interest from Industrial Bank of Korea and use the website for free.

#### CASE REPORT

##### [Smart Factory] Automatic measuring system of coil disconnection point (S Company)

- Details: Disconnection of coil products to meet customer needs at steel processing center had been conducted by manually calculating coil's outside diameter to mark disconnection points, visually checking the access of cutting equipment to the points with recoiling work, and then disconnecting coil after halting facilities. This process caused excessive time and errors in measurement. In response, automatic coil disconnection point measuring system was installed to enhance productivity.
- Results: The automatic coil disconnection point measuring system contributes to increasing productivity and preventing safety accident.

##### Manually calculating coil disconnection point (Before)



### Medical Service for Outsourcing Partners

POSCO pursues human-oriented shared growth by opening medical facilities to employees working at outsourcing partners in its steel works. We provide basic treatment for colds, stomach pain and light injuries, as well as physical therapy. All employees working at Pohang and Gwangyang Works are eligible to use these services. A total of 4,290 employees visited POSCO's medical facilities in 2016.

### Partners Day Event

Partners Day event has been held in every second half of the year since 2009 in order to share performances in shared growth and expand communication with suppliers and outsourcing partners as well as customers. In 2016, 100 companies attended the event.



### Shared Growth Portal

POSCO opened a portal site ([winwin.posco.co.kr](http://winwin.posco.co.kr)) for shared growth in 2014 by integrating individual shared growth programs and relevant information. Every supplier, customer, and related organization can obtain information on POSCO's shared growth policies and programs and join POSCO's major activities through the portal site. Consisting of four sectors – shared growth vision and philosophy, major programs, task request & model cases, and communication space – it will contribute to enhancing communication on shared growth between SMEs and POSCO.



Growth Portal([winwin.posco.co.kr](http://winwin.posco.co.kr))

### Operation of the SME Consultation Center

POSCO operate the SME Consultation Center for the purpose of listening to SMEs' complaints and grievances. It can be easily accessed via supply chain management category of corporate website ([www.posco.co.kr](http://www.posco.co.kr)), main page of e-commerce website ([www.steel-n.com](http://www.steel-n.com)), and shared growth portal ([winwin.posco.co.kr](http://winwin.posco.co.kr)).

### Plans for Shared Growth in 2017

POSCO will promote shared growth activities in whole management categories to help SMEs enhance technological competitiveness, productivity, and marketing competence, thereby creating sustainable shared growth culture.

### Diffusion of Sustainable Shared Growth Culture

In 2017, POSCO intends to expand performances in shared growth activities with 1<sup>st</sup> tier partners and potential partners. As part of this, we will continue to operate an open sourcing system where any qualified small and mid-sized companies can have the opportunities for supplying their products and services to POSCO. POSCO will also improve payment conditions between 1<sup>st</sup> and 2<sup>nd</sup> tier suppliers by reflecting payment results of 1<sup>st</sup> tier suppliers in SRM evaluation. In addition, POSCO will be proactive in listening to difficulties of suppliers through diverse communication channels to conduct sustainable shared growth activities that can be beneficial to SMEs.

### Customized Shared Growth Activities to Increase SMEs' Fundamental Competitiveness

POSCO will continue to provide tailored supports to cultivate small hidden champions. First of all productivity enhancement will be first promoted by encouraging SMEs to improve working environment and process through the Industry Innovation Movement. Moreover, in response to the Fourth Industrial Revolution, POSCO will attract them to participate in the smart factory project aimed at process automation and energy efficiency enhancement by adopting our advanced IT technologies. Supports for technology development will also be provided to foster suppliers' competitiveness. To this end, POSCO will vitalize benefit sharing system to improve complex and chronic problems in worksites and promote public-private technology development projects to boost R&D activities of SMEs. Other focuses will be on stabilizing management condition of suppliers by adopting POSCO's technologies and management knowhow and supporting them to enter the new markets through POSCO's infrastructure and network.

## Enhancing Suppliers' CSR Competitiveness

Cooperation between large companies and SMEs in CSR is increasingly required today. As there are a lot of difficulties for SMEs to practice CSR activities systematically and sustainably, large companies are required to share their CSR capabilities with suppliers and outsourcing partners to build a healthy corporate ecosystem.

In response, POSCO has strived to create an environment where we can contribute to society and pursue healthy growth together with partner companies. To ensure growth of whole supply chain, we established the Code of Conduct that all suppliers of POSCO have to comply with. A supplier evaluation system was also prepared to enhance the competitiveness of supply chain including POSCO Family companies. These systems are playing a key role in diffusing POSCO's CSR competence to suppliers, thereby fostering their competitiveness and preventing CSR risks in the supply chain in advance.

### POSCO Group Supplier Code of Conduct

To encourage all suppliers to fulfill responsibility as a global corporate citizen, POSCO established the POSCO Group Supplier Code of Conduct in June 2010. It consists of 21 clauses in 7 categories containing fair trade, quality management, and shared growth related items as well as basic principles stated in the UN Global Compact such as human rights, labor, environment, and anti-corruption. All suppliers who want to conduct trade with POSCO are required to comply with the POSCO Group Supplier Code of Conduct. Digital signature on the e-procurement ([www.steel-n.com](http://www.steel-n.com)) website is prerequisite to transaction with POSCO.

#### Summarized POSCO Group Supplier Code of Conduct

 Respect for employees' human rights	Voluntary employment, prohibition on child labor and discrimination, compliance with working hours and wage related regulations, humane treatment
 Safety and health	Safe working environment, compliance with industrial safety
 Environment	Control of hazardous substances, control of wastewater, solid waste, and air pollution, reduction of resource use
 Ethics and fair trade	Business integrity, compliance with special clause for business ethics, compliance with fair trade regulations, establishment of a culture of trust
 Protection of trade secret and intellectual property	Management and protection of confidential information, protection of intellectual properties
 Quality management	Quality control, change management, quality control among suppliers
 Shared growth and social contribution	Shared growth, social contribution activities

POSCO Group Supplier Code of Conduct is available at <http://www.steel-n.com>

### Introduction of SRM Evaluation Index

POSCO operates sourcing groups by classifying outsourced products in accordance with the characteristics of each market, product, and contract. We examine financial condition, facility capacity, and other qualifications of suppliers who want to begin business with POSCO, and then register certified suppliers on each sourcing group to give opportunities for bidding or negotiation. Suppliers' track record is analyzed and evaluated quarterly and published as a report.

POSCO Group's SRM (Supplier Relationship Management) evaluates credit, price, quality, delivery time, cooperation, safety, and environment. CSR evaluation covers all aspects of economy, society, and environment. The SRM was designed to encourage 1<sup>st</sup> tier suppliers to help 2<sup>nd</sup> and 3<sup>rd</sup> tier suppliers secure competitive edge. We also grant additional points to 1<sup>st</sup> tier suppliers who provide 2<sup>nd</sup> and 3<sup>rd</sup> suppliers with financial supports in order to maximize synergy in the value chain and foster a healthy business ecosystem. Supplier evaluation criteria include safety and environment as well. The number of safety accidents and violations of rules at steel works is a black mark in evaluation. In the aspect of environment, we adopt possession of environmental certificates such as the ISO 14001, green purchasing amount, proposal of eco-friendly products, and carbon emissions control to supplier assessment criteria, contributing to building eco-friendly supply chain.

We publish quarterly and annual reports about our supplier evaluation and analysis, and distribute them to our suppliers for self-improvement. The reports are classified into excellent, good, and poor ratings. Suppliers with the poor rating for the long time are restricted in bidding. Upon receiving the poor rating in the annual evaluation report, the supplier cannot retain business for a year and the membership of sourcing group is also cancelled. Rejoining the sourcing group requires the same procedure for new registration. Meanwhile, suppliers with the excellent rating are named POSCO Honored Partner and receive benefits such as primary negotiation rights and exemption from deposit in major contracts.

In 2016, the number of suppliers included SRM evaluation amounted to 1,284 (618 excluding double counting) and the results were as follows: excellent rating to 293 suppliers (90 points and higher), good rating to 906 suppliers (70 points and higher), and poor rating to 85 suppliers (under 70 points). 12 suppliers faced the cancellation of sourcing group membership or one-year sanction and 6 suppliers were restricted from bidding for six months. Meanwhile, 38 suppliers with the excellent rating and great contribution to POSCO joined the PHP (40 PHPs as of the end of 2016).

The performance evaluation provides our suppliers with feedbacks on their strong and weak points, motivating their voluntary improvement of management environment. It also contributes to enhancing our value chain by being used as criteria for cultivating competitive suppliers. Furthermore, POSCO restricts business relations with suppliers who engage in socially reprehensible conducts or cause civil complaints by setting up guidelines on social and moral responsibility. In particular, suppliers who violate POSCO's Code of Ethics, cause strong civil appeals, or bring about environmental pollution can face heavy sanctions such as permanent expulsion.

## SRM Evaluation Items

item	Details
Credit	Credit rating
Price	Bidding participation rate, bidding price, competition rate, optimal bidding rate
Quality	PosQC rating, quality defect rate, defect occurrence rate
Delivery	Delivery delay rate, average number of days delayed, number of long delays
Cooperation	Number of benefit sharing projects, financial performance by benefit sharing projects, date of payment to 2 <sup>nd</sup> to 4 <sup>th</sup> tier suppliers, agreement on shared growth, satisfaction of each department
Environment/safety	Amount of eco-friendly product supplied, eco mark certification, ISO 14001 certification
Additional point	Participation rate in monitoring of payment : Payment within 60 days through POSCO-WinC (50% or more/perfect score: 3 points)
Subtractive point	<ul style="list-style-type: none"> <li>· Number of cases pointed out by Corporate Audit Department : 1 point per case</li> <li>· Safety accident (fatal accident: 3 points, general accident: 1 point, safety violation: 0.25 point per case)</li> <li>· CSR violations: 3 points per case</li> <li>· Unethical suppliers: 15 points every quarter/for 2 years</li> </ul>

The information exchange meeting aimed at sharpening suppliers' competitiveness is held every year. In 2016, a total of 246 suppliers attended the meeting – 100 suppliers in the first half (purchasing policy and system improvement, compliance with purchasing ethics, etc.) and 146 suppliers in the second half (developing overseas sales channels, unveiling irrational material specification, etc.).

Major activities for SRM included disclosure of all transaction records, expansion of competitive purchasing, and business renovation. In line with this, information of all sourcing groups covering materials, equipment, and logistics and we completed the translation of information in English. The Internal Transaction Deliberation Committee is held to ensure transparency in transaction and the Quality Audit is conducted for suppliers with uncertified quality to enhance quality of whole supply chain. In 2016, we inspected suppliers who had C and lower credit ratings and potential quality issues, of which eight suppliers received remedial recommendation and two suppliers lost their qualifications for the sourcing group membership. We also expanded the scope of credit rating recognition from existing two to three agencies to help suppliers receive credit evaluation more easily.

## CASE REPORT

## Management of Conflict Minerals

As rebel forces own and control mines in conflict areas such as Democratic Republic of Congo, the revenues from the sales of those minerals are used for committing crimes against humanity. In particular, violation of human rights such as child labor and sexual assault is frequently caused in the mines controlled by rebel forces, becoming an international issue. The industrial minerals produced in these conflict zones are called conflict minerals. The SEC of the United States requires companies to report whether gold, tungsten, tin, or tantalum mined in the DR Congo or its neighboring states were used during production.

POSCO uses tin and ferro-tungsten for manufacturing products. Tin and ferro-tungsten used in 2016 were entirely imported through competitive bidding. The countries of origin for tin are Indonesia and Malaysia, while ferro-tungsten used in stainless steel is from Vietnam.

Under the principle of restricting transactions with suppliers who commit socially condemnable behaviors (page 135, POSCO Group Supplier Code of Conduct), POSCO prohibits suppliers from using conflict minerals. To this end, we stipulate the terms that suppliers should not use conflict minerals and otherwise, the contract is immediately terminated and future bidding is prohibited in the written purchasing agreement. We will also continue to train employees of POSCO Family companies and conduct monitoring to fundamentally prevent conflict minerals related issues.

• Conflict Minerals Disclosure  
[posco.co.kr/conflict Minerals Disclosure](http://posco.co.kr/conflict%20Minerals%20Disclosure)



## Venture Support Program

### POSCO Idea Marketplace

POSCO has been running a program named IMP (Idea Market Place) to support youth startups and venture companies since November 2011. The IMP plays a role as the business incubator aimed at cultivating promising venture companies as well as the angel investor to fund startups with innovative ideas. To fulfill these roles, we established “POSCO Idea Marketplace,” a program dedicated to providing venture companies with comprehensive supports from the stage of idea creation to business model planning, investment, and growth management. By capitalizing on this program, POSCO helps venture companies with creative ideas realize their full potential in the market beyond the lack of resources.

We select promising venture companies and startups by collecting and strictly screening their ideas, and then provide them with our unique support programs such as idea cultivation camp and mentoring with professionals. After completing the programs, they can seize opportunities for introducing their ideas and businesses to receive funds from investors through the IMP.

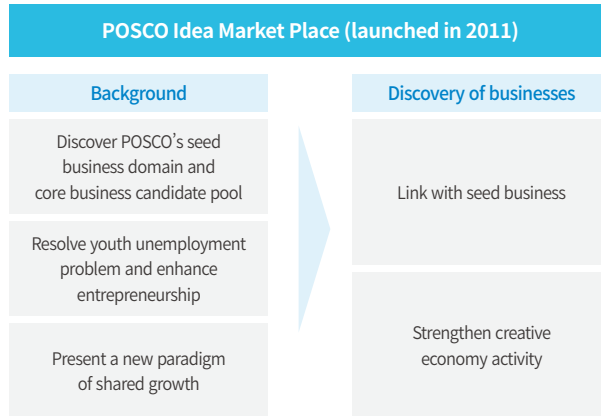
Currently, POSCO Idea Market Place is focusing on investing and cultivating venture companies who have technologies related to new growth engine businesses of POSCO and POSCO Family companies, which will allow us to develop seed technologies at low cost and at the same time venture companies to ensure growth potential through transactions with large companies.

In 2016, we held IR events in partnership with the Private-Public Joint Creative Economy Promotion Group, Pohang City, and Gwangyang City with a view to strengthening the IMP program. In addition, as an operator of the TIPS (Tech Incubator Program for Startup) program of the Small and Medium Business Administration, we assisted venture companies in IMP in receiving financial supports (R&D and marketing costs, etc.,) from the government.

With the aim of maximizing synergy in win-win growth with SMEs, in 2017, we will intensively cultivate venture companies related to new growth engine businesses of POSCO and POSCO Family companies. As part of this, executives of POSCO and POSCO Family companies will proactively participate in IMP to identify and increase strategy investments in startups and venture companies with technological prowess.

POSCO has held the Idea Market Place a dozen times since the first idea contest for new businesses in June 2011, through which a total of 132 venture companies have received mentoring supports as of 2016. We have invested KRW 9.2 billion in 59 venture companies and KRW 59.4 billion has been delivered to other 30 companies through R&D support program and joint investment.

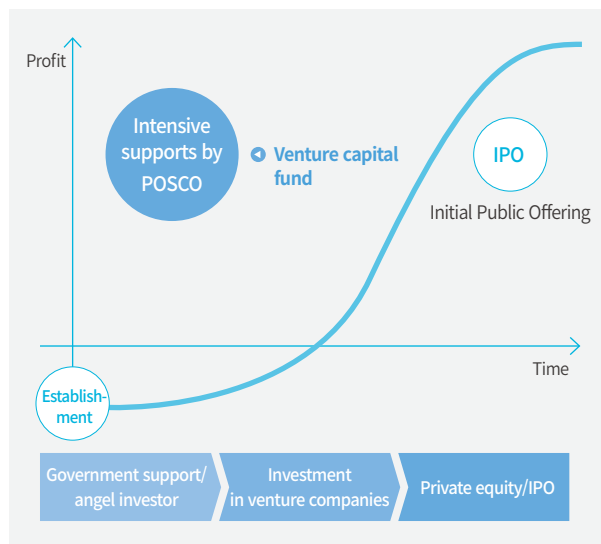
### Background of Idea Market Place



### Role of POSCO

Play a role of the angel investor who intensively supports startups in the stage of idea creation or seed as well as the business incubator aimed at stable growth of venture companies

Encourage venture capital funds to be invested in venture companies in embryo



Operation Procedure of the POSCO Idea Marketplace

A full-package program that encompasses ideas generation through contests and recommendations, mentoring, investment, and follow-up supports

Contest and Selection	Mentoring	Idea Market Place	Investment	Follow-up Supports
  <ul style="list-style-type: none"> <li>Regular contest twice a year</li> <li>All industrial sectors</li> <li>Document evaluation, camp evaluation</li> </ul>	  <ul style="list-style-type: none"> <li>6- to 10-week program</li> <li>Mentoring by internal and external experts</li> <li>Establishment of business models</li> </ul>	  <ul style="list-style-type: none"> <li>IR for selected companies</li> <li>Connection with external investors</li> <li>Exhibition of prototypes</li> </ul>	  <ul style="list-style-type: none"> <li>Decision of investment in consideration of entrepreneurship and business feasibility</li> <li>Investment of KRW 40 to KRW 500 million (Ownership of less than 20%)</li> </ul>	  <ul style="list-style-type: none"> <li>On-site visit for performance check</li> <li>Assistance for securing investment</li> <li>Marketing-linked supports</li> </ul>

Operation of the Idea Market Place

Classification	Date	Place	Participating Companies	Remarks
Inauguration	Oct. 27, 2011	POSCO Center	-	Inauguration of the venture support program
1 <sup>st</sup>	Feb. 23, 2012	POSCO Center	9	-
2 <sup>nd</sup>	Jul. 18, 2012	POSCO Center	8	-
3 <sup>rd</sup>	Nov. 30, 2012	POSCO Center	14	Including two restarting SMEs
4 <sup>th</sup>	Apr. 30, 2013	POSCO Center	15	Including three restarting SMEs, supports in connection with Youths' Startup Support Center
5 <sup>th</sup>	Sep. 24, 2013	Songdo Tri-bowl	16	Supports in connection with Incheon City and Real Startup League
6 <sup>th</sup>	Jan. 15, 2014	POSCO Center	10	-
7 <sup>th</sup>	Jun. 26, 2014	POSCO Center	9	-
8 <sup>th</sup>	Nov. 25, 2014	POSCO Center	9	Agreement on cooperation among the Ministry of Science, ICT and Future Planning, POSCO, and Venture Business Association
9 <sup>th</sup>	Jun. 11, 2015	POSCO Center	12	Head of the Public-Private Creative Economy Promotion Group
10 <sup>th</sup>	Nov. 4, 2015	Songdo Tri-bowl	10	Deputy Prime Minister for Society Affairs, Mayor of Incheon, etc.
11 <sup>th</sup>	Jul. 25, 2016	Pohang Creative Economy Innovation Center	10	Mayor of Pohang, etc.
12 <sup>th</sup>	Nov. 21, 2016	Gwangyang World Marine Center	10	Mayor of Gwangyang, etc.

<p>Venture Companies Invested by the Idea Market Place</p>	<p>Equity investment of KRW 9.2 billion in 59 companies for six years from 2011</p> <ul style="list-style-type: none"> <li>Sales growth: from KRW 24.9 billion to KRW 47.5 billion (up KRW 22.6 billion or 91%)</li> <li>No. of employees hired: from 333 persons to 572 persons (up 239 persons or 72%)</li> </ul>
	

# Environment

## Environmental Management

POSCO is committed to becoming a truly environment-friendly company by conducting business activities from the environmental ethics perspective.

### Environmental Management of Global POSCO Family Companies

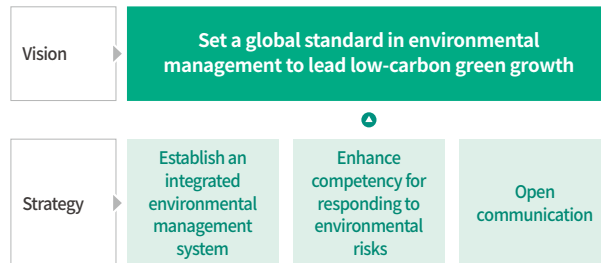
Since the declaration of the “Environmental Management Policy for Global POSCO Family Companies” in December 2010, we have set up the vision, strategies, and action plans to practice environmental management in collaboration with local sites, investment companies, suppliers, and outsourcing partners. Entire business activities at POSCO have been implemented based on environmental ethics, which resulted in entering the RobecoSAM’s Dow Jones Sustainability Index for 12 consecutive years.

#### Environmental Management Policy for POSCO Family Companies

With the recognition that environment is one of our core management strategies, we are committed to practicing the following requirements in order to secure environmental soundness and take the initiative of low carbon green growth on the basis of technology development and open communication.

- We secure global leadership by building an environmental management system for POSCO Family companies based on ISO14001.
- We comply with environmental regulations and continue to improve environment throughout all processes.
- We minimize pollutant emissions by introducing clean production process and optimized pollution prevention technology.
- We create a resource-recycling society and enhance ecosystem efficiency by making efficient use of resources and byproducts.
- We lead the low carbon green growth initiative by reducing GHG emissions with clean energy and green technology.
- We secure business transparency and sustainability by disclosing environmental management performances.

### Environmental Management Vision and Strategy of POSCO Family Companies



### Environmental Organization

POSCO operates the Environmental Management Committee chaired by the CEO and consisting of executives of subsidiaries at home and abroad. The committee reviews all environmental management activities of POSCO and POSCO Family companies, analyzes environmental trends, and deliberates on key environmental issues by holding regular annual meetings. The issues are reflected to management plans of POSCO Group and reported to the Environmental Management Steering Committee to check their practices twice a year. Key issues are adopted to the Group’s mid-term management strategy for environment and energy and reported to the Management Committee under the BOD for deliberation and resolution. Those are also reported to the management meeting and executives meeting, both chaired by the CEO, every month. Energy & Environment Business Dept. and Environment & By-Product Group at steel works support the activities of the Environmental Management Committee, and we cooperate with POSRI and RIST to analyze trends of environmental policy and activities at home and abroad.

### Organization for Environmental Management



Environmental Management Committee	
Meeting Once a year	Chairman: CEO Member: CEOs of POSCO Family companies

Environmental Management Steering Committee	
Meeting Twice a year	Chairman: Head of Energy & Environment Business Dept. Member: POSCO Family companies' executives dedicated to environmental management



## Major Environmental Management Programs

### Environmental Education

Diverse education programs are offered to employees of POSCO and POSCO Family companies to raise their awareness of environment. Moreover, online education programs about environmental management are available to employees of outsourcing partners and suppliers to help them recognize the importance of environmental protection. Training about internal audit on ISO certifications is annually provided to staff responsible for environment at POSCO and outsourcing partners to embed environmental management activities in supply chain. In particular, POSCO adopted eight courses for environment including water treatment to job capability certification program aimed at cultivating professionals at the enterprise level. Employees who complete the courses are appointed as managers in the environmental sector.

### Environmental Information Exchange

POSCO holds the Environmental Technology Conference every year where employees responsible for environment at our affiliates and outsourcing partners share recent environmental issues and best practices. The conference has diverse programs such as special lectures by environment specialists, intensive discussion, setup of environmental management community which were prepared to expand communication and boost information exchange among working-level staff. In 2016, we invited a professor specializing in air quality to understand the cause and reduction methods of fine dust occurrence, reminding the importance of environmental management at worksites.

### Environmental Management Awards

To enhance the execution of environmental activities, we hold the Environmental Management Awards to reward our affiliates and outsourcing partners with excellent environmental performances. Award winners are chosen after the assessment of environmental management system, its operation results, and innovativeness of environmental improvement activities, and then examination by the Deliberation Council consisting of four inside and two outside directors. They receive the award directly from the CEO at the Environmental Management Committee. This award contributes to spreading best practices and growing interest in environmental management throughout the Group.

## Response to Environmental Risk

### Environmental Risk Management

POSCO systematically analyzes and manages risk elements to minimize environmental impacts from our businesses. Defining the rapidly changing market conditions and tightening environmental regulations at home and abroad as an opportunity, POSCO is proactive in adopting these changes to its mid to long-term business strategy and investment decision. Departments dedicated to environment and investment cooperate closely in identifying, evaluating, and diagnosing environmental risks in each stage of investment review, design, construction, and operation. Since 2014, verification procedure by the department responsible for environment in the stages of planning, investment, and construction has been made compulsory in order to minimize environmental risk from new projects. On top of that, to efficiently cope with recently tightening environmental regulations at home and abroad, we continuously monitor the trends of related regulations and government policies and proactively participate in public discussions.

### Environmental Risk Management Process



### Diagnosis of Affiliates' Worksites

Systematic diagnosis of affiliates' worksites was conducted to reduce environmental risk at the group level. It was preferentially targeted worksites of affiliates engaging in manufacturing business with relatively high environmental risk. We checked site-specific environmental licensing documents first and then implemented audits on the basis of diagnosis items and potential environmental risk factors. Comprehensive audit results are released by the Environmental Management Committee and those are also used for modifying our environment strategy and goal, contributing to maintaining efficient environmental management system. We will continue to enhance diagnosis and audit of affiliates' worksites based on the level of their environmental impact and risk.

## Environmental Performance

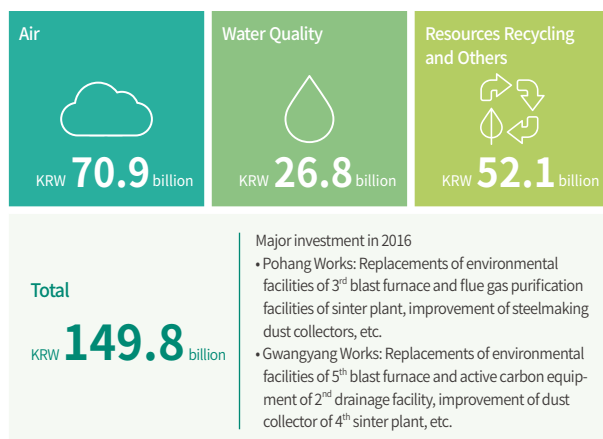
At POSCO, environmental performance is methodically managed under the environmental management system, contributing to minimizing environmental impact from our businesses.

### Environmental Management System

Our environmental management system has been verified by independent institutions every year since the obtainment of ISO14001 in 1996. Internal verification is also conducted by the department of environment twice a year. The results are reported to the top management and reflected in modifying environment strategy and goal. Particularly, we carried out concentrated inspection on chemical substance control, one of recent critical issues, in collaboration with an independent institution, and improved insufficiencies. Going forward, we will continue special theme-based inspection on environmental issues together with external experts.

POSCO has established the New POEMS (POSCO Environment Management System), a web and mobile-based integrated environmental performance management system. Consisting of eight processes of environment monitoring, air quality control, water control, byproduct control, soil and underground water control, chemical substance control, general management information, and environmental cost, the New POEMS ensures more systematic management of company-wide environmental data. Air and water pollutant data from our two major steel works are transmitted to the government in real time through the TMS (Tele Monitoring System). Other environmental data are disclosed to employees and local people through electric display boards. In particular, the mobile environment monitoring system is applied to onsite patrol for effective site environment control.

### Major Investment in Environment Facilities in 2016



### Environmental Costs in 2016

(KRW in billions)

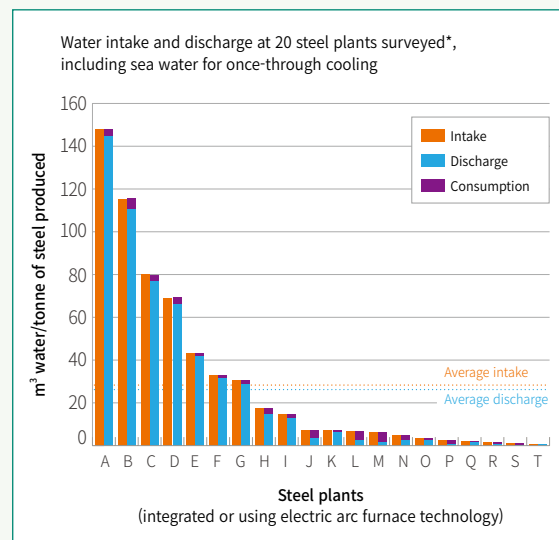
Classification	2014	2015	2016
Environmental facility operation & resource recycling	924	778	804
Depreciation	158	174	174
General administration	36	51	52
Environmental R&D	12	10	14
Energy recovery	46	47	56
<b>Total</b>	<b>1,176</b>	<b>1,060</b>	<b>1,100</b>

### Water Management

Recognizing water shortage as a critical global issue, POSCO strives to increase water recycling and develop replacement water sources with a view to reducing water consumption and co-prosperity with local communities. Considering that steel business uses a large amount of water, POSCO has invested considerable effort into the reuse of water which is consumed in the process of steelmaking. As a result, the amount of water intake and discharge at our steel works was 3.60m<sup>3</sup>/T-S and 1.74m<sup>3</sup>/T-S, respectively, which represented 13% and 53% of average amount of water intake (28.6m<sup>3</sup>/T-S) and usage (3.3m<sup>3</sup>/T-S) at steelworks in the world. The figures proved our excellent competence in water resource management. Particularly, recycled water of city sewer, rainwater, and water treated by desalting facilities account for 22% of water intake.

#### Water intake and discharge

A worldsteel member survey published in 2011 showed that the average water intake for an integrated plant was 28.6 m<sup>3</sup> per tonne of steel produced, with an average water discharge of 25.3 m<sup>3</sup>. For the electric arc furnace route, the average intake was 28.1 m<sup>3</sup> per tonne of steel, with an average discharge of 26.5 m<sup>3</sup>. This demonstrates that overall water consumption per tonne of steel produced is low, ranging from 3.3 m<sup>3</sup> to 1.6 m<sup>3</sup>. Most of the water is lost due to evaporation.



\* Sample of results from 'Water management in the steel industry' report, worldsteel, 2011

\* Source: Water management in the steel industry (Worldsteel Association, 2015. 4)

Pohang Works promotes the improvement of water management system and processes aimed at vitalizing water reuse and optimizing water control. Collected water is treated by water purification facilities before being supplied to each factory. Wastewater, sewage, and cooling water from each factory are collected through independent drainage facilities. Wastewater is treated twice at each factory and then brought to the final wastewater treatment facilities before being discharged. Particularly wastewater containing low concentration

of chlorine ion (Cl-) generated from rolling factories is transferred to water purification facilities through separate pipelines for treatment and reuse. Sewage is collected into sewage treatment facilities for biological treatment before being used as cleaning water. Cooling water, sprinkling water, and rainwater are treated at rainwater processing facilities for the reuse as industrial water and sprinkling water in yards and roads. Meanwhile, POSCO concluded an MOU with Pohang City in 2008 to reuse water treated by the local sewage treatment facilities as a solution of water shortages in local communities. According to the agreement, POSCO has been receiving 80 thousand tons of treated water a day since 2015. Moreover, we take 30 thousand tons of underground water a day instead of dam water, contributing to solving water shortage in local communities.

Gwangyang Works focuses on reducing water consumption and securing alternative water source in response to expanding production facilities in the long term. As part of this, we have stably taken 16 thousand tons of water purified by the seawater desalination facilities since 2015, minimizing the use of dam water despite increasing water demand. We also enhance the treatment of wastewater and sewage for the reuse as sprinkling water with the aim of minimizing environmental impact on water system of Gwangyang Bay. In addition, each factory strives to raise workers' awareness of water saving by creating ideas about reducing water consumption.

Wastewater generated in the production is first treated at each factory and then brought to wastewater treatment facilities to minimize the emission of water pollutants. These processes ensure that the concentration of major pollutants such as COD and T-N at the final drainage outlet is maintained at 20% to 30% of legal emission standard.

POSCO has participated in the Water Management Project (2007-2011) hosted by the World Steel Association and continually improved its water management program by utilizing the "WBCSD Water Tool," a guideline for water management in supply chain recommended by the WBCSD (World Business Council for Sustainable Development). In 2016, we joined the CDP Water Disclosure to announce the information on our water management.

**Water Intake and Effluent**

(Unit: m<sup>3</sup>/T-S)

Classification	2014	2015	2016
Intake	3.54	3.59	3.60
Effluent	1.79	1.73	1.86

**COD Concentration of Final Effluent (by automatic telemetry)**

(Unit: mg/l)

Classification	2014	2015	2016
Concentration	7	7	11
Legal standard (Gwangyang, Pohang)	70, 90	70, 90	70, 90

**T-N Concentration of Final Effluent (by automatic telemetry)**

(Unit: mg/l)

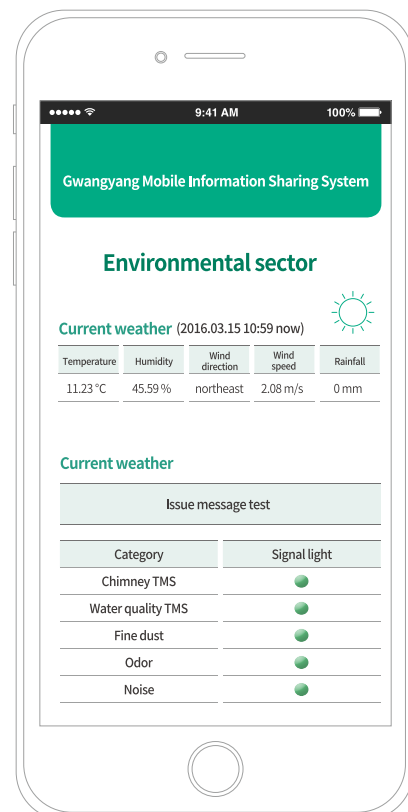
Classification	2014	2015	2016
Concentration	14	13	15
Legal standard	60	60	60

**Air Quality Management**

POSCO implements various activities to improve air quality around our steel works. We adopt stricter air quality criteria than those of environmental laws and operate mobile monitoring system in site patrol to find and promptly improve environmental risk points, contributing to maintaining clean air around worksites. Particularly, we have installed additional air quality measuring stations and dust check equipment inside and outside of our factories to continuously improve air quality.

Gwangyang Works, as the next step for the 1<sup>st</sup> voluntary environmental agreement<sup>1)</sup> (2006~2010), signed and has implemented the 2<sup>nd</sup> voluntary environmental agreement (2012~2016) aimed at reducing the emissions of air pollutants such as dust, nitrogen oxides, sulfur oxides, and VOCs (volatile organic compounds) around Gwangyang Bay by 20,028 tons, about 13% of total emissions (154,043 tons) in 2008, together with the Ministry of Environment, local governments, and 17 factories near Gwangyang Bay. We monitor the emission of air pollutants in real time based on target concentration of each facility which was set in advance, and stably manage total air pollutant emissions through the sintering waste gas treatment facility. Major activities for reducing scattering dust include replacing old water sprinkling pipes, expanding windbreaks, and enclosing new transferring facilities. These activities keep pace with the policy of Gwangyang City pursuing "Clean Air Green City."

1) Reducing 20,829 tons (22.8%) of air pollutant emissions around Gwangyang Bay to 70,610 tons (average emissions from 2006 to 2010) compared to 91,439 tons in 2003



Pohang Works operates fine dust analyzers and odorous substance detector for optimal facility maintenance. The measured results are transferred to websites and smartphones to check environmental risks in a fast manner. If a data exceeding standards is found in connection with site patrol, mobile environment monitoring system is operated to identify insufficiency and make improvements promptly. Meanwhile, to fundamentally prevent scattering dust, we built linear yard to store 95 thousand tons of supplementary materials and a silo with the coal storage capacity of 180 thousand tons. Other activities include creating green space, cleaning roads and yards, and spraying surface hardening composite.

**Air Pollutant Emissions**

Classification	(Units: kg/t-S)		
	2014	2015	2016
Dust	0.10	0.09	0.09
SOx	0.56	0.56	0.57
NOx	0.89	0.85	0.89

**Installation of Indoor Fuel and Materials Storage Facilities**

Classification	Facilities	Fuel and Materials
Pohang Works	9 silos with respective 60,000-ton capacity 1 cell silo with 95,000-ton capacity	Coal for fuel (anthracite, etc.) Supplementary materials (limestone, etc.)
Gwangyang Works	19 silos with respective 50,000-ton capacity	Coal for fuel (anthracite, etc.)

**Recycling of Byproducts**

**Byproduct Management**

As byproducts generated from steelmaking contain a lot of substances that can be recycled, POSCO pursues valuable reuse of byproducts to minimize waste output. In 2016, a total of 23.37 million tons of byproducts were generated at our steel works, 22.99 million tons (98.4%) of which were reused inside and outside the company. Blast furnace slag and steelmaking slag, which accounted for 77% of these byproducts, were used as cement material, aggregate substitutes and raw materials for silicate fertilizer. To enhance the value for reuse of blast furnace slag, POSCO built granulated slag production facilities at all blast furnaces. Today, 88% of blast furnace slag is turned into granulated blast furnace slag for cement material. Steelmaking slag is mainly used as aggregate substitute in civil engineering works and we are seeking new usages of these materials, such as creating sea forests. Sludge, dust, and other byproducts are mainly reused in the steelmaking process, while unrecyclable byproducts are safely treated through incineration or landfill.

**Eco-friendly Reuse of Slag**

Granulated blast-furnace slag with the form of sand is made by quickly cooling molten slag from the furnace through granulation facilities. Having chemical composition similar to cement, it is utilized as a substitute for cement. In reality, a lot of cement producers at home and abroad substitute existing cement clinker with granulated blast-furnace slag in order to preserve natural resources and reduce CO<sub>2</sub> emissions along with energy consumption. Currently, granulated blast-furnace slag is included in the OPC (Ordinary Portland Cement), the most widely used cement, within five percent. Moreover, the slag cement, which is made from the mix of OPC and fine-ground slag, is suitable for marine concrete and mass concrete thanks to excellent resistance for chloride attack and reduction of hydration heat. In 2016, approximately 10.13 million tons of granulated blast-furnace slag was used for cement substitute and slag cement, resulting in reducing 7.95 million tons of GHG emissions<sup>2)</sup>.

POSCO has developed PosMent, eco-friendly high-performance cement by recycling granulated blast-furnace slag, jointly with RIST and POSCO E&C to proactively adopt it to construction sites beyond just supplying it as cement materials. Boasting higher slag content and physical properties compared with existing slag cement, PosMent is being applied to large-sized construction and marine structures in collaboration with cement producers. As a result, in 2016, approximately 1.27 million tons of granulated blast-furnace slag for PosMent were supplied to construction sites. Going forward, POSCO aims to develop diverse high-performance PosMent products satisfying needs of the cement market. We have also made a concerted effort to export granulated blast-furnace slag since 2011. A total of 210 thousand tons of granulated blast-furnace slag were exported to Taiwan and the US in 2016. We will continue to expand the export of granulated blast-furnace slag with the aim of reducing energy consumption and CO<sub>2</sub> emissions and contributing to preserving natural resources at the global level.

2) The reduction in CO<sub>2</sub> emissions was calculated by applying the IPCC Guideline which estimates a reduction of 0.785 t-CO<sub>2</sub>/t-Clinker when replacing each ton of cement clinker with a ton of granulated blast-furnace slag.

**Developing Technologies for Byproduct Utilization**

As it is important to make efforts to recycle byproducts in accordance with characteristics, POSCO strives to recognize those as eco-friendly resources and create new added values at the Group level. In this regard, RIST (Research Institute of Industrial Science & Technology) systematically analyzes byproducts generated from production process to identify the possibility of their recycling for industrial use. Valuable researches are reflected in our Group's strategies aimed at enhancing profitability of byproducts. Like these, POSCO is making a concerted effort for R&D activities to heighten value of byproducts, collaboration with related businesses, and establishment of its unique business model to reinforce synergy among subsidiaries.

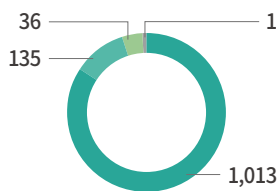
Recycling of Byproducts

	2014	2015	2016
Byproducts generated (10 thousand tons)	2,411	2,396	2,337
Amount of recycling (10 thousand tons)	2,373	2,356	2,299
Rate of recycling (%)	98.4	98.3	98.4

Performance in Recycling of Byproducts in 2016 (Unit: 10 thousand tons)

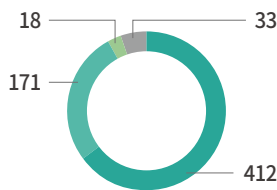
Blast furnace slag

1	Cement	1,013
2	Road and civil works	135
3	Fertilizer	36
4	Others	1



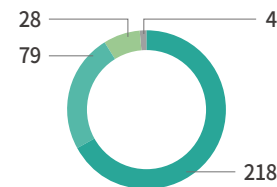
Steelmaking slag

1	Road and Civil Works	412
2	Raw material for steelmaking	171
3	Bricks, aggregates	18
4	Cement, others	33



Dust/sludge

1	Internal use	218
2	External use	79
3	Landfill	28
4	Incineration	4



Chemical Substance Management

Enhancement of Chemical Substance Management

Recognizing the importance of impact of chemical substances on environment, safety, and local communities, POSCO focuses on preventing accidents from chemical substances that our steel works handle. In this regard, hazardous chemical substances are continually monitored by a company-wide operation process for the amount of consumption and storage and facility management. Moreover, to fundamentally reduce risks, we are developing technologies to use chemical substances with low hazard and consumption amount. In 2016, POSCO implemented special trainings to help substance handler better understand the amended Chemicals Control Act and actual drills against chemical accidents as well as established a system to detect leakage of substances from storage facilities. Other activities to prevent chemical accidents include developing acid-alkali reaction paint and establishing chemical substance distribution system to monitor entire process of chemical substance treatment in workplace by 2017.

Emissions of Chemical Substances

(Unit: tons)

Classification	2014	2015	2016
Pohang Works	41	39	44
Gwangyang Works	51	39	38



Emergency Drill against Chemical Accidents

Response to EU-REACH

Restrictions on chemical substances to be contained in products are increasingly tightening throughout the world. In response, POSCO discloses test certificates on MSDS<sup>1)</sup>, REACH<sup>2)</sup>, RoHS<sup>3)</sup>, and PFOD<sup>4)</sup> by each chemical substance in accordance with EU's Restriction of the Use of Certain Hazardous Substances and the latest SVHC<sup>5)</sup> candidate list through its e-commerce system ([www.steel-n.com](http://www.steel-n.com)), through which anyone can find the information. We also prepared information disclosure on imported and produced chemical substances in response to the Act on Registration, Evaluation, etc. of Chemicals.

- 1) MSDS: (Material Safety Data Sheets): A program to manage material safety and health
- 2) REACH (Registration, Evaluation and Authorization and Restriction of Chemicals): The EU's new chemicals management system
- 3) RoHS (Restriction of Hazardous Substances): A guideline to restrict the use of certain hazardous substances initiated by the EU
- 4) PFOS (Perfluorooctane Sulfonate): A fluorosurfactant containing persistent organic pollutants
- 5) SVHC (Substances of Very High Concern): If a product is manufactured or imported by more than 1 ton and it contains over 0.1% SVHS compared with total weight, the manufacturer or importer must report the content to ECHA (European Chemicals Agency).

## Biodiversity Policy and Activities

### Biodiversity Policy

POSCO's policy on biodiversity is included in the Code of Conduct. The details are as follows.

#### POSCO's Biodiversity Policy - Code of Conduct Guidelines

##### 5. Protection of Environment and Preservation of Eco-system

###### ① Establishment of Environmental Management System

- We effectively implement environmental management system, evaluate impacts and risks of business activities on the environment, and analyze and manage the results of environmental management.
- We share benefits and issues with various interested parties and jointly carry out environmental protection activities.
- We convince business partners to believe that protection of environment is a fundamental social responsibility of a company and support business partners to comply with laws and regulations related to environmental protection.
- We support business partners to protect the public health and safety in providing products and services and minimize adverse effects on the environment and natural resources of local communities.

###### ② Compliance with Environmental Laws and Reduction of Environmental Impacts

- We endeavor to comply with environmental laws and reduce environmental impacts in entire processes of developing, producing and using products.
- We minimize pollutant emissions by introducing environment-friendly manufacturing process and applying technologies optimized for prevention of pollution.

###### ③ Response to Climate Change

- We strive to reduce consumption of fossil fuels and materials and minimize greenhouse gas emissions by increasing energy efficiency.
- We enhance our competitiveness by developing innovative low-carbon technologies.

###### ④ Protection of Environment and Ecosystem

- We endeavor to restore natural ecosystem and preserve biodiversity through effective use of natural resources and byproducts.

<http://www.posco.co.kr/homepage/docs/eng5/jsp/company/ethics/s91a3000070c.jsp#guide-7>

### Biodiversity Preservation Activities

#### Restoration of Marine Ecosystem

POSCO takes the initiative in restoring marine ecosystem by using steel slag. Triton, which is used for restoring whitening coastal areas caused by temperature rise of the seawater, is effective in restoring marine organism such as seaweeds, fish and shellfish. Steel slag, the main material of Triton, has a high mineral content, particularly calcium and iron which are beneficial to marine ecosystem for better growth and photosynthesis of seaweed,

thereby purifying polluted sediment and water quality. Sea forest made with Triton is also able to fixate CO<sub>2</sub> due to carbonization of the slag and photosynthesis of seaweeds. Signing an MOU with the Ministry of Oceans and Fisheries in 2007 for countermeasure against marine climate change and another MOU in 2010 for building sea forests and marine resources, POSCO has been collaborating with the FIRA (Fisheries Resources Agency) and RIST to build sea forests. We will enhance cooperative activities with the government, civilians (fishing villages), and academia to create sustainable marine ecosystem, such as building new sea forest models, managing existing marine forests, and exploring their effectiveness.

#### Sea Forests Built with Triton

2010	Yeosu Expo Sea Forest
2011	Tongyeong in Gyeongsangnam-do and Uljin in Gyeongsangbuk-do
2012	Samcheok in Gangwon-do and Guryongpo in Gyeongsangbuk-do
2013	Guman-ri in Pohang-si
2014	Yeongdeok-gun in Gyeongsangbuk-do

\* Triton: The mythological Greek god of the sea that calls fish and dolphins by blowing on a twisted conch shell, like a trumpet. He has the ability to restore sea forests. It is also the brand name of the low-carbon artificial fish reef using steel slag as aggregate.

#### Marine Biodiversity Protection

POSCO observes the pollution status of the sea and sediment adjacent to steel works and the changes in the number of marine organisms. The Clean Ocean Volunteer Group, organized in 2009, carries out cleaning campaign on a regular basis to protect marine ecosystem affected by industrial activities. Since September 2013, POSCO has been performing programs to protect marine plants and fish from starfish which recently skyrocketed in number in the clean water of Ulleungdo Island and Dokdo Island. From June 10<sup>th</sup> of 2016, the company collected starfish and sea urchins around the two islands, raising awareness of protecting biodiversity by posting updates on the in-house blog.



Clean Ocean Volunteer Group (Ogye-myeon in Gangneung)



Clean Ocean Volunteer Group (Dok-do)

**Publication of Books about Biodiversity**

In collaboration with the Korean Federation for Environmental Movement (KFEM), POSCO has published books on endangered species with the aim of raising awareness of endangered species and protect them. We chose the eagle-owl and the crane as the subjects in 2014 and 2015, respectively. The books introduced experiences and episodes from experts in various fields, and provided readers with the opportunity to reflect upon the importance of protecting biodiversity. In 2016, we organized migratory bird observation program with KFEM where citizens had a chance to take a glimpse into environment protection. In addition, we plan to publish a book on birds that are easily found in neighborhood in 2017 to promote awareness of biodiversity. This book which illustrates birds in detail will help readers easily understanding contents. POSCO will continue biodiversity preservation activities together with KFEM.



Notice of the birdwatching camp



Birdwatching activity together with children

## Stakeholder Engagement

With awareness that transparent communication with stakeholders holds the key to the implementation of environmental management, POSCO encourages stakeholders to engage in maximizing its environmental and social performances.

### Communication with Stakeholders

#### Pohang Eco-Friendly Corporation Promotion Council

Having joined the Pohang Eco-Friendly Corporation Promotion Council launched in 2003, Pohang Works performs voluntary activities to reduce contaminants and to improve environment around the industrial complex. Especially in 2016, the company joined a public-private council in Pohang under the Eco-Friendly Corporation Promotion Council working to improve the air quality in the industrial complex, strengthening environment improvement activities for local communities. We also signed sister agreement with local communities to share ideas on environmental issues.

#### Gwangyang Council on Sustainable Environment

Gwangyang Works has been a member of public-private council to share ideas on future-oriented aspects of local environmental issues since 2012. Gwangyang Works engages with local communities in transparent communication on major environmental issues. Also, the company contributed to social contribution campaigns, for example, Gwangyoungdong Hagwang nature park, photovoltaic power generation for low-income households, and benchmarking of the National Institute of Ecology of Seochon.

#### Purification of Soil at Magnesium Smelting Plant

POSCO was swift in dealing with environmental remediation after the soil contamination accident at a magnesium smelting plant in Gangreung in June 2013. Upon the accident, we immediately took emergency measures by building blocking barriers and conducting cleaning activities according to the environmental regulations. After the result of inspection and the purification plan were submitted to the Government in accordance with environmental law, full-scale cleanup activities were conducted in 2015. More recently, four Governmental environmental investigation agencies - National Institute of Environmental Research, Gangwon Institute of Health and Environment, Seoul National University's NICEM, and Korea Rural Community Corporation - have confirmed that the cleaning activities are being properly carried out. The results are open to the public and private council.

#### Cooperative Activities at Home and Abroad

POSCO has been proactive in supporting sustainable development at home and abroad. We take the initiative in mutual exchange within the steel industry and cooperation in many areas such as biodiversity preservation, spearheading sustainable growth in the world.

Classification	Participation in	Activities
Domestic	Environmental Policy Conference of the KOSA	Promotion of the response to changes in environmental policies and voluntary environmental improvement
	Korea Business Council for Sustainable Development (KBCSD)	Discussion of issues on corporate sustainability management
	Business Institute for Sustainable Development of the Korea Chamber of Commerce & Industry	Policy response and exchange for sustainable growth
	Ministry of Oceans and Fisheries	Agreement on the "Cooperation for Greening the Sea and Building Marine Resources"
	Institute for Climate Change Action	Cooperation for energy diagnosis program for green home
	Korean Federation for Environmental Movement (KFEM)	Cooperation for the publication of books about biodiversity
Overseas	Environmental Policy Committee of the World Steel Association	Exchange of information and policies in response to environment and climate change with global steelmakers
	Environmental & Safety Committee of the SEASI	Sharing of technologies and policies in response to environment and climate change with Southeast Asian steelmakers

### Disclosure of Environmental Information and Awards

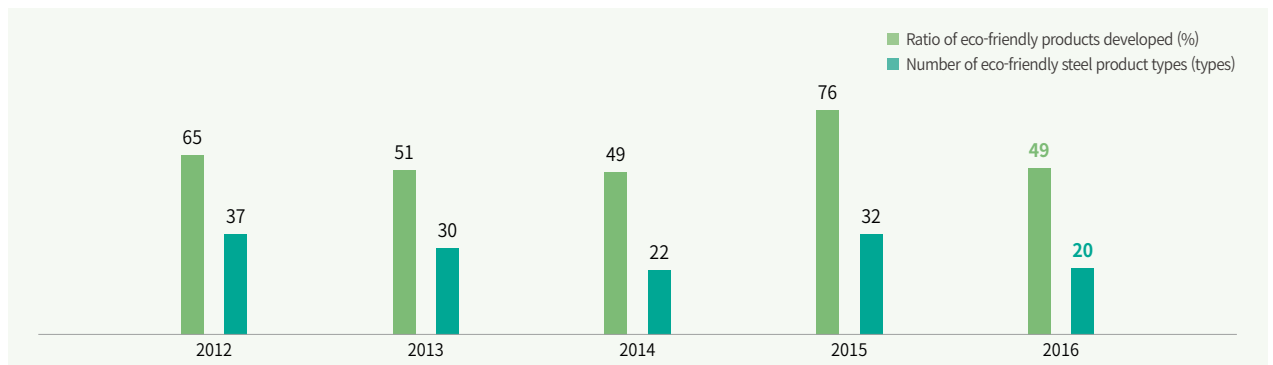
Starting with the first environmental report in 1995, POSCO has disclosed environmental information through the Sustainability Report, POSCO website, and POSCO News. To respond to increasing stakeholder interest in climate change, POSCO has reported its environmental management via a separate climate change section since 2010. In recognition of our continued efforts for environmental management, POSCO has been included as one of the leading companies in the RobecoSAM's DJSI for 12 consecutive years, making it into the Global 100 Most Sustainable Corporations.



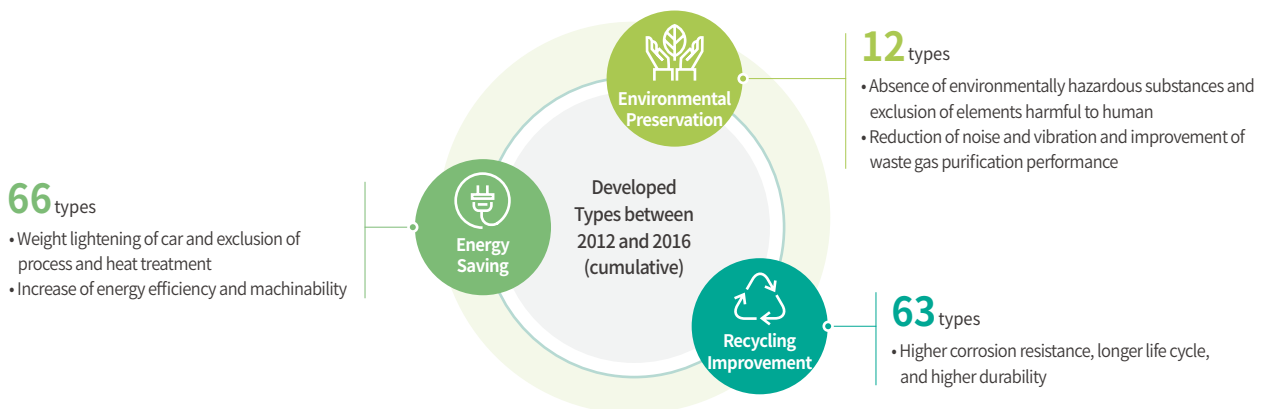
## New Eco-friendly Products in 2016

In 2016, the number of eco-friendly products took up 49% of all new products developed and the number of eco-friendly steel product types was 20.

### Development of Eco-friendly Products



### Types of Eco-friendly Product Development



### Eco-friendly Products by Category

<p><b>Hot rolled steel</b></p> <ul style="list-style-type: none"> <li>• Hot rolled high manganese damping steel</li> <li>• Heat treated and non-heat treated oil country tubular goods API J55</li> <li>• 1.2C high carbon steel for tuna saw</li> </ul>	<p><b>Thick steel plate</b></p> <ul style="list-style-type: none"> <li>• Wear resisting steel Pos AR450 (80t)</li> <li>• Ultrathin anti-sour API-X65 (9.5t)</li> <li>• SA516-70 HIC material with CLR 10% Normalizing (≤25t)</li> </ul>
<p><b>Wire rod</b></p> <ul style="list-style-type: none"> <li>• 1,700MPa non-heat treated bead wire</li> <li>• High formable and non-heat treated wire rod for tire cords</li> <li>• 4T-class non-normalized steel for high formable auto parts</li> </ul>	<p><b>Cold rolled steel</b></p> <ul style="list-style-type: none"> <li>• Single reduced BP</li> <li>• Post-treatment steel PosMAC Cr3+ for home appliances</li> </ul>
<p><b>Electrical steel plate</b></p> <ul style="list-style-type: none"> <li>• No self-bonding coating (non-heat treated)</li> <li>• 65PN 310</li> </ul>	<p><b>Steel plate for automobile</b></p> <ul style="list-style-type: none"> <li>• GI 980XF</li> <li>• PO 600Y</li> <li>• CR 1180CP-EL</li> <li>• EG 1180TRIP</li> <li>• EG 950TWIP</li> <li>• HGI 660Y</li> <li>• HGI 780HB</li> </ul>

## Key Eco-friendly Products

### Hot Rolled High Manganese Anti-Vibration Steel Floor Board

Floor noise has recently emerged as a serious social issue with civil complaints and conflicts on the rise. To address floor noise problem, the Government introduced toughened standards on floor thickness and floor impact noise. In response, POSCO has developed the high manganese anti-vibration steel that is efficient in reducing floor noise.

POSCO's high manganese floor board is produced by combining the high Mn Z-clip whose anti-vibration effect is four times higher than ordinary steel with galvanized steel sheet. Adding about 17% of manganese to steel forms needle structure which effectively absorbs vibration. The z-shaped high manganese clip cushions vibration energy pressed onto floor, reducing floor noise.

Compared to existing non-steel floor board, this product reduces heavy-weight floor impact noise by more than 10dB and light-weight floor impact noise by more than 20dB. Therefore, the floor noise falls to 37~40dB even when children are running upstairs, the level normally felt in a library. What's more, our product does not require additional concrete work after installation. It also shortens construction period by at least five days. The thickness of upper slab floor board can be compressed by more than 15mm.

Our anti-floor noise floor board featuring high manganese steel has been adopted in a number of housing construction sites. We expect this product to be applied as ceiling material as well.

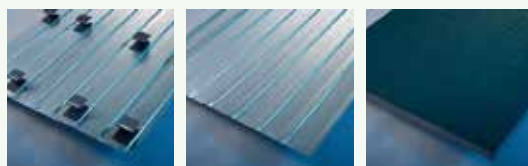
### Performance of High Manganese Anti-Vibration Steel Floor Board

Needle structure with anti-vibration function is formed when adding about 17% of manganese to steel. This structure helps cushion vibration energy pressed onto floor, reducing floor noise.



Loss factor from stress level

High manganese Z clip



High manganese Z clip deckplate

GI Deckplate

Insulator

- 1** Grade 1 noise barrier in Korea
- BASE** Comfortable walk with optimal performance design
- DURABILITY** Structure with no deformation or fatigue destruction
- ECO** Improved construction efficiency with semi-dry method
- P&T** Increased heat trapping with insulator and air layer formation
- SECOND PLACE** Competitive price as Grade 1 product

### Application to Project Sites



Wise the # (Wirye new town)



The # Nine Hills (Galmoe, Guri)



The # Lake City (Asan, Chungnam)



Bongrae APT (Youngwol, Gangwon)

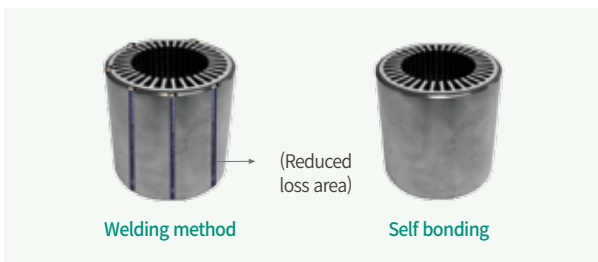
### Abrasion-resistant Thick Steel Plate Pos AR450 (80t)

Steel products require different features depending on their application. In heavy equipment industry, in particular, which involves mining, transportation, and processing, steel products' life cycle is directly related with cost. Therefore, the early-industrialized European countries developed abrasion-resistant steel whose average life is more than 5 times as long as conventional steel some 40 years ago. Following the commercialization of steel of Brinell hardness 400 in 2010, POSCO has been expanding its abrasion-resistant steel lineup by launching 450 class in 2016, and 500 class in 2017. Construction market is forecast to pick up starting from 2017, thus leading to a turnaround in the stagnant heavy equipment market. POSCO, in response, expects that the demand for abrasion resistant steel will climb as they ensure longer equipment replacement cycle and energy saving thanks to lighter body.



**Electrical Steel NO Self Bonding Coating (non-heat treatment)**

The efficiency of driving motor has risen as a critical factor to improve mileage of EVs, hybrid vehicles, and other eco-friendly cars. To meet the demand from automobile industry, POSCO has enhanced the motor efficiency by developing non-oriented self-bonding coating products that are used in driving motor. Our self-bonding coating products feature adhesive methods instead of the exiting welding method, delivering 5% higher efficiency but 4% lower noise. POSCO will continue to develop high efficient, high performance NO for drive motor.



**Automobile PosM\_XF GI 980**

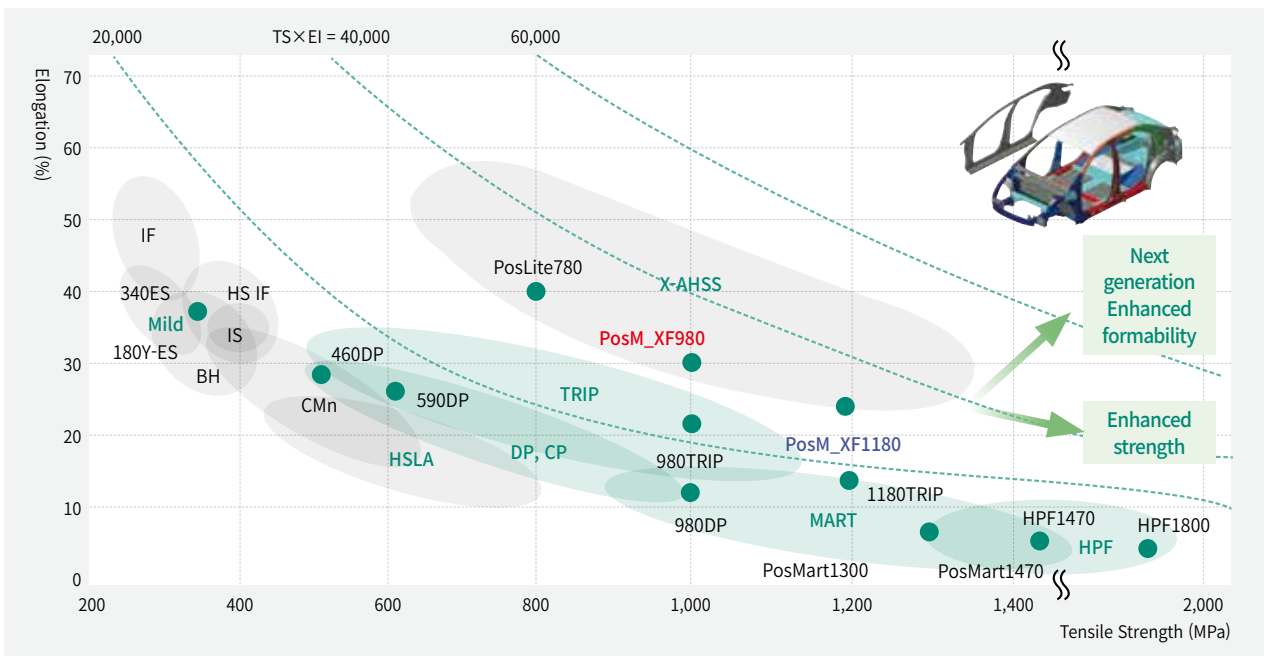
Automobile makers take into consideration mileage regulation, consumers' expectation on mileage, environmental laws, and safety when developing cars. It is essential to develop lighter parts for an improved mileage due to new technology to control car body and the next-generation power train. PosM\_XF GI 980, commercialized by POSCO recently, is the ultra-high strength steel material that is easy to form in high temperature without heating the complex car body parts. So far, car body parts were only formed by hot press forming. Therefore, POSCO is concentrating its efforts on increasing the demand for our innovative PosM\_XF GI 980. Every 10% reduction in car weight results in 3.8% longer mileage. With our GI materials, auto makers can expect to enhance durability of their car parts.

**Conventional AHSS**

- DP, TRIP, CP, Mart, HPF
- TSxEl < 25,000 MPa-%

**eXtra-AHSS(X-AHSS)**

- Giga duplex, Light Weight steel
- 25,000 < TSxEl < 50,000 MPa-%



\* TS (tensile strength), El (elongation), DP (dual phase), TRIP (transformation induced plasticity), CP (complex phase)

# Climate Change

## Carbon Management

### Carbon Risk and Opportunity Management

#### Perspective and Approach

Climate change is a mega trend that shifts the paradigm of each sector of society. Many global companies proactively respond to this issue and strive to create new business opportunities. With the understanding that climate change is a critical risk factor and at the same time a significant opportunity to enhance corporate competitiveness, POSCO is making a concerted effort to minimize climate change risks and create positive opportunities.

#### Management System and Process

POSCO operates an internal system to identify, analyze, and control risks and opportunities regarding climate change. Risk and opportunity factors are systematically analyzed in connection with our risk management system and the results are reflected in our mid to long-term strategies. In addition, our investment management rules specify that a decision on whether to invest in a project with potential environmental risk factors such as GHG emissions should be made in discussion with the relevant division. The results of such climate change response activities are reported through the annual POSCO Family Environmental Management Committee meeting chaired by the CEO and the companywide CO<sub>2</sub> and energy indices are shared in the Management Meeting. The information about POSCO's efforts in carbon-related risk and opportunity management is transparently disclosed to stakeholders through a third-party-verified the sustainability report and business report.

#### Major Risk Factors Related to Climate Change

Risk factors related to climate change and carbon management are classified into three categories: physical factors by climate change, policy factors associated with carbon regulations, and other factors such as corporate reputation.

In recent years, unforeseen weather phenomenon has caused heavy damages all over the world. POSCO has also experienced not only direct damages on facilities but negative impacts such as troubles in securing raw materials, electricity, and industrial water, and increase of logistics cost. To preemptively respond to climate change risks, the Storm and Flood Control Center of the two steelworks conducts regular monitoring and closely cooperate with relevant institutions and organizations. Furthermore, we have established and upgraded a companywide risk management process and system by setting up disaster management manual and guidelines for a more systematic response to risks.

International organizations including IPCC (Intergovernmental Panel on Climate Change) report that climate change is closely linked to the greenhouse gases emitted in the course of industrial activities. At the UNFCCC COP21 Paris in 2015, countries agreed to cap the global temperature increase to below 2°C compared to the pre-industrialization era after 2020. In November 2016, the Marrakech Action Proclamation was adopted, which illustrated the timeline and plans to determine the detailed enforcement rules of the Paris Agreement.

#### Carbon Risk & Opportunity Management Process

<b>Identifying risk and opportunity factors</b>	<p><b>Determining Risk Factors</b></p> <ul style="list-style-type: none"> <li>Physical and regulatory risk factors</li> <li>Risk level and financial impacts</li> </ul> <p><b>Discovering opportunity factors</b></p> <ul style="list-style-type: none"> <li>Carbon market and new green businesses opportunities</li> <li>Outlook on trends and risk control</li> </ul>
<b>Establishing carbon management system</b>	<ul style="list-style-type: none"> <li>POSCO Carbon Management System (2006)</li> <li>GHG inventory and a third-party verification</li> <li>Integrated carbon &amp; energy management system (2013)</li> <li>Carbon accounting and carbon emissions verification system (2015)</li> </ul>
<b>Implementing climate change response activities</b>	<ul style="list-style-type: none"> <li>Linkage with enterprise-wide risk management</li> <li>Deliberation of climate change risks when making decisions on investment</li> <li>Reflection of GHG reduction technology in mid- to long-term technology strategies</li> </ul>
<b>Inspecting climate change response activities</b>	<ul style="list-style-type: none"> <li>Regular monitoring of GHG reduction activities</li> <li>Check of response activities to climate change regulations and policies</li> <li>Examination of POSCO Family companies' new green businesses</li> </ul>
<b>Determining Risk Factors</b>	<ul style="list-style-type: none"> <li>Report to the POSCO Family Environmental Management Committee (Annual)</li> <li>Report to the Enterprise-wide Management Meeting on CO<sub>2</sub> and energy indices (if necessary)</li> </ul>

#### Risk and Opportunity Factors in Carbon Management

<b>RISK</b>	
S	Damages to equipment and facilities, difficulties in securing raw materials and water, increased logistics costs caused by heavy snowfall, deluge or drought
S	Increased carbon costs with the implementation of domestic emissions trading system, and consequential decrease in price competitiveness
S B P	Weakening of competitiveness of carbon-intensive businesses due to tightened carbon regulations led by the Paris Agreement, and heightened regulatory barriers in overseas countries we entered
S	Requirements on social responsibility to large GHG emitting companies
<b>OPPORTUNITY</b>	
S B	Increasing demand for high energy-efficiency steel products triggered by the Paris Agreement, and development of new markets such as green building and slag sea forest
B	Participation in new businesses such as renewable energy, energy storage, and carbon market
S	Enhancement of corporate competitiveness through developing innovative low-carbon technologies
L P	Improvement of stakeholder awareness through external evaluation and transparent information disclosure
<p>S Green Steel    B Green Business    P Green Partnership    L Green Life</p>	

Even in Korea, following the Framework Act on Low Carbon, Green Growth in 2010, the Greenhouse Gas and Energy Target Management System has been enforced since 2011. The system has been accompanied by the GHG Emissions Trading System since 2015, complying with the Act on the Allocation and Trading of Greenhouse-Gas Emission Permits and its Enforcement Decree enacted in 2012. Domestic companies are subject to either of these two systems according to their annual GHG emissions. POSCO fulfilled its duty under the GHG and Energy Target Management until 2014, and has participated in GHG emissions reduction and emissions trading since January 2015. Meanwhile, the Ministry of Strategy and Finance and four governmental departments have been operating the emissions trading system since June 2016. And, the Basic Roadmap for 2030 National GHG Reduction was disclosed in December.

The enforcement of emissions trading system and new climate regime is a crucial policy risk to corporate competitiveness. In response, POSCO identifies potential business risks through continuous monitoring of relevant policies and actively participates in discussions aimed at building rational policies. We also support effective policy responses and executives' decision-making through risk management process. We pursue GHG emissions reduction by energy efficiency improvement in the short-term and development of innovative low-carbon technologies and high-functional steel in the long-term. Policy risks attended by global expansion of POSCO and its subsidiaries are actively reviewed to meet tightening global carbon regulations.

The increasing physical and policy-related risk factors from climate change require carbon-intensive companies to further fulfill social responsibility and any inadequate response may undermine their corporate reputations. POSCO undergoes external assessments regarding climate change and carbon management, such as CDP and SAM DJSI (Dow Jones Sustainability Indexes), and discloses related information through the sustainability report, thereby responding to stakeholders' requests on social responsibility.

#### Major Opportunities Related to Climate Change

Opportunities associated with climate change and carbon management are also classified into physical and policy-related factors. The increasing energy consumption triggered by abnormal climate changes give a chance to create new business opportunities.

POSCO has initiated a sea forest restoration project by developing Triton<sup>1)</sup>, a product made from steel slag, to restore whitening coastal areas. Approved by the Ministry of Oceans and Fisheries as a general fishing reef in 2014, Triton is utilized in sea forest and sea farm creation projects led by the central and local governments. We also plan to use the POSCO Green Building applied by over 100 types of eco-friendly technologies as an energy-saving building model for diffusion.

Meanwhile, our low-carbon technologies and efforts for reducing social GHG emissions create opportunities for new business models. High-strength steel sheet that helps reduce vehicle weight and improve fuel efficiency and blast furnace slag that replaces cement have already become new profit sources. Additionally, our unique

eco-friendly technology FINEX method and environmental management get a lot of attention of the global steelmakers so the demand for our environmental and energy-saving technologies is predicted to rise. We will also expand the Smart Factory<sup>2)</sup>, Smart Grid<sup>3)</sup>, and fuel cell and photovoltaic power generation project in line with the government's policy.

- 1) Triton: The brand name of a low-carbon fishing reef that uses steel slag as aggregate. It was named after the sea-god from ancient Greek mythology, who is capable of calling fish and dolphins by blowing a horn and restoring the sea forest.
- 2) Smart Factory: A system that collects all important on-site data by using the Internet of Things, conducts a predictive analysis of the collected big data, and optimizes and controls all processes in the automated method using AI technologies. The system thereby actualizes zero-defect operation, minimizes quality issues, creates a safe production environment, and reduces costs.
- 3) Smart Grid: A next-generation intelligent power grid that optimizes energy efficiency by employing IT to the traditional power grid and exchanging real-time information between power suppliers and consumers

### Climate Change Response System

Our sustainability management system helps swift decision-making on climate change response under the corporate governance of shareholders, the Board of Directors and the CEO. The decision-making body deliberates on companywide vision and agenda and presents specific goals and directions based on opinions of the staff in charge, and issues discussed by relevant committees, thereby implementing systematic sustainability management. We also operate the monthly companywide management meeting to discuss various issues such as climate change response led by the CEO and the executives meeting held on a monthly basis or as needed.

Issues related to climate change, energy, and environment are handled by the Energy and Environment Planning Group of the Energy and Environment Business Office, while those associated with the use of by-products are addressed by the Environment Business Group. The Energy and Environment Business Office designs environment & energy management strategies, establishes and implements companywide climate change response and carbon & energy management systems. Additionally, it builds strategies to make efficient use of resources and byproducts, while creating profits in the process. The office also takes the initiative in establishing the global environmental management system for the operation of overseas steel mills and responding to regulatory policies and the rise in energy prices. In addition, departments in charge of renewable energy and gas businesses were reorganized in preparation for the Paris Agreement.

At Pohang Works and Gwangyang Works, Energy Department and Environment & By-Product Group are responsible for CO<sub>2</sub> reduction, energy efficiency improvement, and environmental and resource recycling issues. They cooperate closely with the Energy and Environment Business Office to enforce the environmental management and carbon & energy management systems in the steelworks.

The POSCO Family Environmental Management Committee, chaired by the CEO and attended by representatives of family companies, is

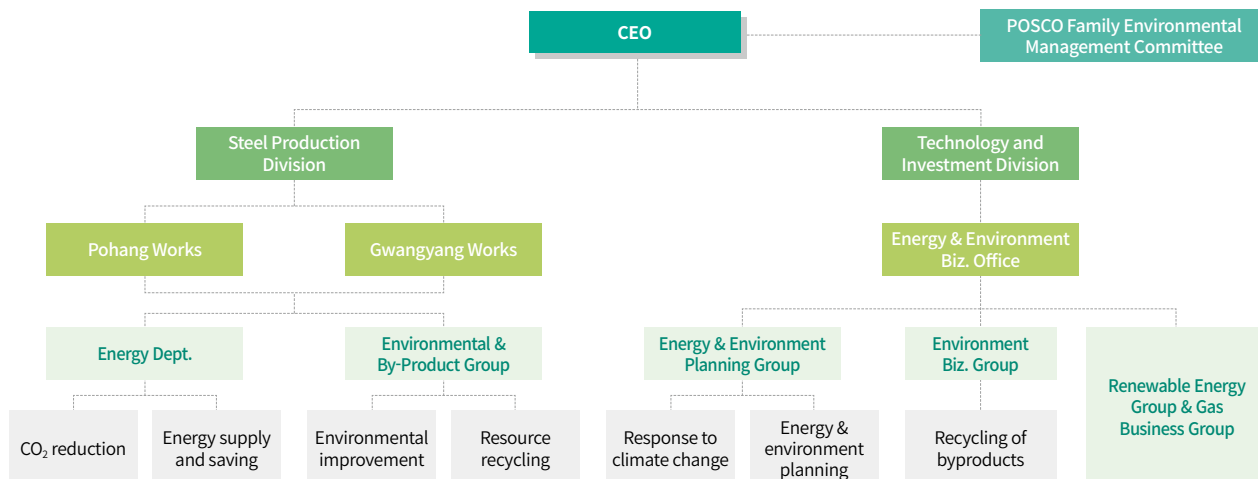
held to deliberate on climate change and environmental management issues once a year. In 2011, the Environment and Energy Committee chaired by the director of the Environment and Energy Office was turned over to the Environmental Management Committee chaired by the CEO with the participation of overseas subsidiaries and family companies. In 2013, the committee was integrated with the Green Growth Committee that examines the low-carbon green growth strategies of POSCO and family companies. In January 2017, the committee reviewed the environmental management activities of the past year and shared its direction for the future. In 2016, it conducted an inspection of environmental risks posed to the affiliates with high consumption of chemical substances, and instructed suspension of use, replacement with alternatives, and reduction of chemical concentration for improvement. In 2017, we will prevent the risks associated with the use of unregistered chemical substances in preparation for the enforcement of the amended K-REACH\* and set a long-term goal (by 2030) for the GHG emissions reduction.

\* Korea - Registration, Evaluation, Authorization and Restriction of Chemicals (enforced in January 2015, the amended Act enforced in January 2017)

### Climate Change Vision and Reduction Targets

POSCO presented the vision “POSCO the Great” based on its three management principles of One POSCO, Creative POSCO, and Top POSCO. We had promoted the Innovative POSCO 1.0, the action plan to realize the vision, and announced the Innovative POSCO 2.0 in July 2015. This new plan consists of four innovative agendas: reinforcing fundamental competitiveness, accelerating business structure innovation, creating tangible performance in new growth engine projects, and establishing ethics-based management infrastructure. With the management principles and key agendas, POSCO will focus on enhancing corporate value, upgrading credit ratings, and securing mega growth engines, thereby realizing its vision and gaining trust from the public.

#### Governance to Respond to Climate Change



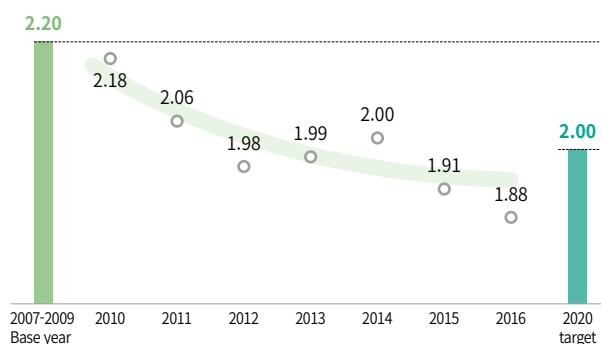
In response to climate change, POSCO Family companies are devoted to Green Steel, Green Business, Green Life and Green Partnership. The foundation for Green Steel is being reinforced by developing high energy-efficiency steel, CO<sub>2</sub> reduction process, and other low-carbon innovative technologies as well as promoting energy efficiency improvement and Smart Factory project. Fostering Green Business also contributes to creating tangible performance in new growth engine businesses by not only promoting photovoltaic power, smart-grid, and fuel cell projects but also developing lithium extraction technology and materials for batteries. Moreover, employees of POSCO and its affiliates participate in the Green Home activities aimed at improving the living conditions of households with limited access to energy. We are also cooperating with domestic and overseas carbon policies to secure leadership and strengthening our corporate activities for a low-carbon society to realize Green Partnership.

#### POSCO's Voluntary GHG Reduction Target by 2020

POSCO declared its GHG Reduction Target to be achieved by 2020 at the 7<sup>th</sup> Green Growth Committee meeting chaired by the President of Korea in February 2010. In this regard, we intend to reduce CO<sub>2</sub> emissions per ton of steel in our steelworks to 2.00 t-CO<sub>2</sub>/t-S by 2020, a 9% decrease from the average level between 2007 and 2009 (2.20 t-CO<sub>2</sub>/t-S). To achieve the goal, we are focusing on decreasing coal consumption, improving energy efficiency, and developing innovative CO<sub>2</sub>-reducing technologies. Other activities for reducing social GHG emissions include the development and distribution of high-strength automotive steel sheet improving car's mileage, high-quality electrical steel increasing energy efficiency of motors or transformers, and granulated blast furnace slag to be used for eco-friendly cement.

POSCO's CO<sub>2</sub> Intensity Target and Outcomes

(Unit: tCO<sub>2</sub>/t-S)



• In response to the enforcement of the Emissions Trading System, the amount of emissions was calculated in accordance with the "Administrative Guideline for the Greenhouse Gas Target Management System" announced by the government in March 2011.

- Scope: Pohang Works and Gwangyang Works

- GHG: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub>

- Direct emissions (Scope 1): Direct CO<sub>2</sub> emissions from steel production, gaseous fuel combustion, mobile combustion, and waste incineration

- Indirect emissions (Scope 2): Indirect CO<sub>2</sub> emissions from the use of purchased electric power

• The figures disclosed in this Report are from Pohang and Gwangyang Works only and may not exactly coincide with those in the statement submitted to the government which includes all business sites including Pohang and Gwangyang Works.

#### CASE REPORT

##### Roadmap for Response to New Climate Regime

At the UNFCCC COP21 Paris in 2015, the Paris Agreement for new climate regime was adopted in full support of the UN Secretary-General Ban Ki-moon, US President Barack Obama, and Chinese President Xi Jinping.

The Paris Agreement was designed to substitute the Kyoto Protocol which requires advanced countries to reduce their emissions by 2020. It requires both advanced and developing countries to reduce GHG emissions and fulfill their Nationally Determined Contributions (NDCs)<sup>1)</sup> by 2020. In November 2016, the agreement met the ratification requirements and officially came into force. At COP22, the Marrakech Proclamation was adopted, which specifies the schedule and schemes for deciding the detailed enforcement rules of the Paris Agreement.

POSCO will make more efforts to reduce GHG emissions to cope with the new climate regime, and expand cooperation with the government for the sustainable steel business.

First, we plan to enhance energy efficiency by recovering waste heat and making good use of off-gases in the steelworks. We will also invest in commercial technologies which can save us energy or CO<sub>2</sub> ahead of others for short term, while we plan to develop near-market technologies to secure our own emissions reduction capacity.

Second, to secure GHG emissions reduction potential in the long term, we will focus on developing technologies with great reduction potential such as low to medium-temperature waste heat recovery, efficiency improvement of steel manufacturing process and energy facilities, or carbon utilization..

Third, in consideration of GHG regulations at home and abroad and related costs, we will seek new emissions reduction options and beef up analysis system. POSCO reorganized the internal policies and systems related to carbon target management, accounting, and verification in accordance with the enforcement of the emissions trading system in 2015. Going forward, our advanced analysis system will ensure better supports for financial decision-making and risk control related to climate change.

Fourth, we will further contribute to reducing social GHG emissions by promoting the utilization of high-efficiency steel and granulated blast furnace slag. As one ton of POSCO's high-strength steel sheet for vehicle can reduce 0.8 ton of GHG emissions compared with general steel sheet each year, we proactively cooperate with global automakers for its usage extension. Moreover, replacement of cement clinker with our granulated blast furnace slag can reduce 0.8 ton of GHG emissions per ton. POSCO have already developed POSMENT which can replace up to 60% of cement clinker, and its sales in 2016 nearly quadrupled from 2013.

Finally, we will strengthen cooperation with the government for the sustainable future of steel. In regards to product life cycle<sup>2)</sup>, steel can greatly contribute to reducing GHG emissions. GHG emissions per ton of steel is far less than that of other materials: 2 tons from steel, 16 tons from aluminum, and 20 tons from fiber-reinforced plastic. In addition, steel is entirely recyclable without losing core properties and contributes to reducing social GHG emissions as shown in the example of high-strength steel sheet and granulated blast furnace slag. Meanwhile, to prevent any weakening of the competitiveness of domestic steel business due to unbalanced carbon regulations, we need to seek solutions with the government, including the introduction of border adjustments.

1) NDCs (Nationally Determined Contributions): A voluntary measure of each country for contributing to the climate change regime

2) A method to recover steel scrap from discarded steel products and reuse it as materials for blast furnace and electric furnace

### Implementation of the GHG Emissions Trading System

The Act on the Allocation and Trading of Greenhouse Gas Emission Permits was enacted in January 2015, signaling the commencement of emissions trading.<sup>1)</sup> POSCO was designated as a company subject to emission allowances allocation in October 2014 and was allocated emissions allowances for the first phase period (2015~2017) in November. In accordance with related rules, the company submitted the GHG emissions monitoring (measurement) plan to the government.

Since 2015, POSCO has set the annual emission target by operating department and regarded a surplus or shortage of emission allowances as financial revenue or costs of plants on a monthly basis. For better systematic operation of this activity, the company has been running the Carbon Accounting System that supports the demand forecast of emission allowances and reflects cost incurred by lack of allowances in manufacturing costs. We also established the Emission Verification System and revamped the internal policies and systems to manage monitoring, reporting and verification (MRV) of emissions. In 2016, we upgraded the emissions management system by strengthening the internal carbon management guidelines and monitoring, which helped further reduce emissions compared with those allocated in 2015.

1) A company that annually emits 125,000 tons across the entire company or 25,000 tons in a single business site is subject to this regulation. As of 2014, a total of 525 companies are subject to emission allowances allocation.

## Carbon Management System

### Integrated GHG-Energy Information System

POSCO has calculated monthly emissions by using its own GHG emission calculation method developed in 2006 based on international standards, such as IPCC<sup>2)</sup>, WBCSD<sup>3)</sup>, WRI<sup>4)</sup>, and World Steel Association ISO 14404<sup>5)</sup>. The calculation method has been revised in accordance with the guidelines of the national GHG and Energy Target Management System enforced in 2011. The calculation is conducted on 16 business sites, including Pohang Works, Gwangyang Works, POSCO Center, and Global R&D Center in Songdo. Carbon emissions are calculated based on carbon emission factor of major materials containing carbon, the amount of fuel and raw materials used (coal, limestone, natural gas, etc.), electricity purchase, production, and sales of byproducts. The company also monitors the CO<sub>2</sub> emissions per ton of crude steel (tCO<sub>2</sub>/t-S) as one of the Key Performance Index (KPI). Our efforts to integrate GHG-energy information management include improving the energy-saving work process in the business sites and systematizing the management of GHG emissions reduction.

2) IPCC: Intergovernmental Panel on Climate Change

3) WBCSD: World Business Council for Sustainable Development

4) WRI: World Resources Institute

5) ISO 14404: Calculation method of carbon dioxide emission intensity from iron and steel production

### Carbon Accounting

According to “GHG Emission allowances and Emission Debts in Chapter 33 of the General Corporate Accounting Standards”, a subject company has to apply cost for emissions that exceeded its quota set by the government to its accounting. Since 2015, POSCO has been running the Carbon Accounting System that supports the demand forecast of emission allowances and reflects cost incurred by lack of allowances in manufacturing costs. Under this system, each department’s expense or profit from emission target implementation is reflected in manufacturing cost, thereby maximizing efforts for emissions reduction. In 2016, we set the guidelines regarding the management and trading of emission allowances to clarify the system operation procedure.

### Verification of Carbon Emissions

Considering that emission allowances are a financial asset, the government has set a strict legal verification procedure. Government-designated verification bodies annually verify the fuel and raw material consumption directly connected to emissions in detailed stages of “measurement, collection and calculation.” In particular, in the case of inadequate verification, the government considers that the company emitted its maximum amount and consequently imposes a greater financial burden on the company.

In that sense, POSCO redefined the roles of each department ranging from monitoring plan preparation, collection of evidential documents for activities of each plant, evidence management for measuring instrument and tests, carbon content analysis and evidence management, emission statement reporting, and response to verification through consultations between relevant departments.

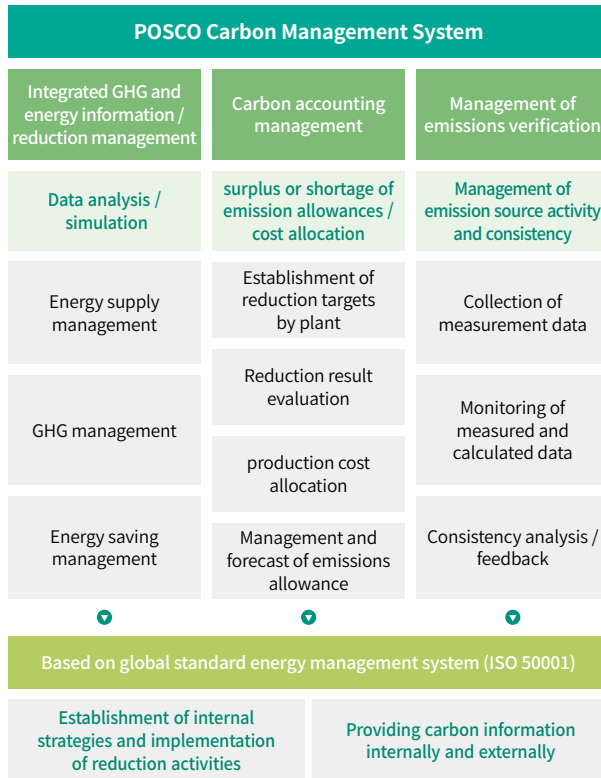
We also set up a cooperation system for sharing information in case of changes in monitoring plan. Since July 2015, we have run the Carbon Emission Verification System to prove the fuel and raw material consumption related to emissions. It can regularly examine, improve, and record the omitted data or errors, ensuring the transparency and reliability of the verification process. Moreover, our monitoring method and criteria submitted to the government are verified for the correspondence with those of business sites by a third-party agency annually. The Tier 3 emission factors about major substances emitting GHG including coal and off-gas are calculated every month for the analysis of changes in emissions.

### ISO 50001 Certification

POSCO has been running the ISO 50001 (Energy Management System) to cope with changes in business environment such as increasing needs for reducing carbon emission and energy consumption, tightening regulations, and trade barriers on energy efficiency certifications. Discussion on the ISO 50001 started in 2008 and was completed June 2011. And then, a TFT was formed in January 2012 and we obtained the ISO 50001 certification in September 2012. It has been maintained through reevaluation in every April.



### POSCO's Carbon Management Mechanism Based on Energy Management System (ISO 50001)



## Carbon Performance

### GHG Emissions from Production Processes

Carbon dioxide constitutes the majority of GHG (greenhouse gas) emitted from POSCO Pohang Works and Gwangyang Works. GHG emission volume in 2016 was 70.37 million tons, a decrease of 2.7% from 72.34 million tons in 2015. Steel production volume also decreased 1.2% from 37.97 million tons in 2015 to 37.50 million tons in 2016. Thus, CO<sub>2</sub> emissions per ton of steel production fell about 1.5% to 1.88 t-CO<sub>2</sub>/t-S in 2016 from 1.91 t-CO<sub>2</sub>/t-S in 2015. The reduction of emissions intensity resulted mainly from our efforts for the compliance with the emissions trading system since 2015. Recent CO<sub>2</sub> emissions intensity was 1.91 t-CO<sub>2</sub>/t-S in 2015 and 1.88 t-CO<sub>2</sub>/t-S in 2016, staying low compared with the average 2.20 t-CO<sub>2</sub>/t-S for the base years between 2007 and 2009. We expect to surpass our voluntary GHG reduction target by executing additional GHG reduction activities.

### CO<sub>2</sub> Emissions Intensity

	(Unit: t-CO <sub>2</sub> /t-S)		
	2014	2015	2016
Direct emissions (scope 1)	1.88	1.80	1.78
Indirect emissions (scope 2)	0.12	0.11	0.10
Total emission intensity	2.00	1.91	1.88

• The figures only cover Pohang Works and Gwangyang Works, thus may not exactly coincide with those in the statement submitted to the government.

### Social GHG Reduction Effect

Social CO<sub>2</sub> reduction effect is generated from the expansion of high energy-efficiency steel products such as high-strength steel sheet for automobile and low core-loss electrical steel that increases energy efficiency of motors and transformers. In 2016, our social CO<sub>2</sub> reduction effect amounted to 5.68 million tons. Blast furnace slag, one of byproducts from steelmaking, contributed to reducing 7.83 million tons of CO<sub>2</sub> by being used as an alternative of cement in 2016.

### Social GHG Reduction Effect

(Unit: thousand t-CO<sub>2</sub>)

Classification	2014	2015	2016
High-strength steel sheet for vehicle*	2,940	3,149	3,405
Low core-loss electrical steel sheet**	2,752	2,606	2,271
Granulated blast furnace slag***	7,075	7,693	7,834
Total	12,767	13,448	13,510

\* High-strength steel sheet refers to HSS (High-Strength Steel) and AHSS (Advanced High-Strength Steel) with a tensile strength of at least 340 MPa. Reduction of weight by applying the steel to a 2,000cc passenger vehicle is substituted for CO<sub>2</sub> reduction volume.

CO<sub>2</sub> reduction effect per ton of high-strength steel: 0.81 t-CO<sub>2</sub>/year (weight reduction (fuel saving: 86L/year, unit) X number of vehicles produced per ton of high-strength steel (4.4 units) X CO<sub>2</sub> emission coefficient in road transportation (0.0693 kgCO<sub>2</sub>/MJ, based on IPCC Guideline, gasoline cars) X calorific value (31.0 MJ/L, Energy Act's Enforcement Regulation) ÷ 1,000).

\*\* Low core-loss electrical steel refers to grain-oriented electrical steel with core-loss of less than 0.98 W/kg, as well as non-oriented electrical steel with core-loss of less than 4.7 W/kg. Improvement of energy efficiency by applying this steel to motors and transformers is substituted for CO<sub>2</sub> reduction volume.

\*\*\* CO<sub>2</sub> reduction volume is calculated by applying the theoretical ratio to convert a main ingredient of cement clinker (calcium oxide) to CO<sub>2</sub>, which estimates a reduction of 0.785 t-CO<sub>2</sub>/t-clinker when replacing each ton of cement with blast furnace slag.

### Other GHG Emissions

GHG is also emitted from a variety of channels including the transportation of raw materials, employees' commuting, business trips, and so on. More details in 2016 are as follows:

### Other CO<sub>2</sub> Emissions<sup>6)</sup> (Scope 3)

(Unit: thousand t-CO<sub>2</sub>)

Classification	2014	2015	2016
Transportation of raw materials <sup>7)</sup>	1,036	1,008	959
Employee commuting <sup>8)</sup>	6	6	7
Employee business travel <sup>8)</sup>	2	1	1
Purchased products and services <sup>9)</sup>	2,928	2,850	2,970
Downstream leased assets <sup>10)</sup>	1,986	2,047	2,111
Investments <sup>11)</sup>	13,113	13,589	13,105

6) Calculated on the basis of the WBCSD/WRI Greenhouse Gas Protocol.

7) Total weight of purchased raw materials was 91.54 million tons (Coal, iron ore, and limestone took up the majority.)

8) Based on 13,159 employees working at Pohang Works and Gwangyang Works corresponding to Scope 1 & 2 among total 16,957 persons as of the end of 2016

9) Calculated GHG emissions focusing on the major raw materials suppliers

10) Calculated GHG emissions from limestone calcination plant which was leased to POSCO Chemtech

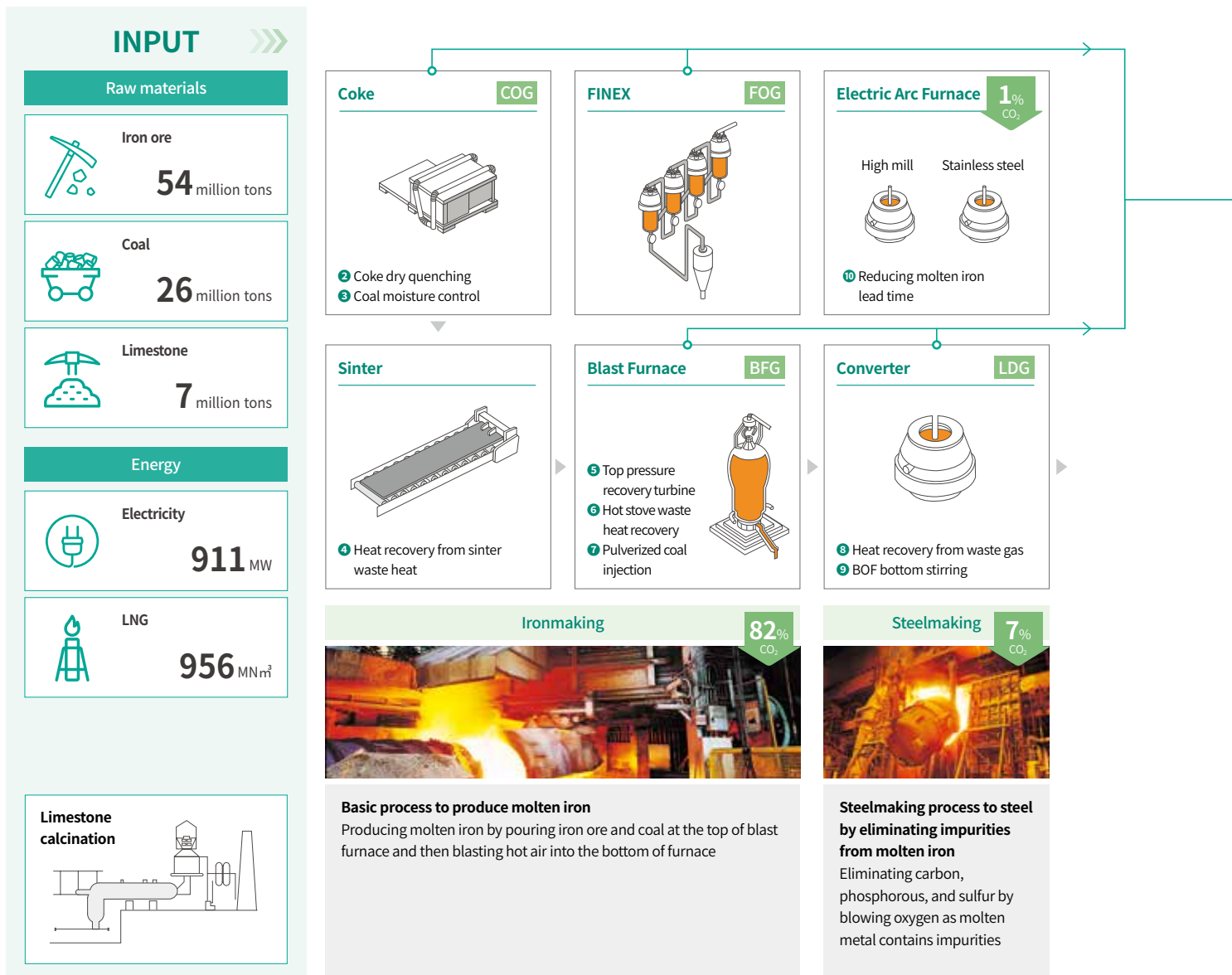
11) Calculated Scope 1 & 2 emissions from investee companies subject to the GHG Emissions Trading System in consideration of POSCO's share ownership

**Investments in GHG Reduction Facilities and R&D**

A total of KRW 20 billion was invested in energy recovery facilities and process improvements in 2016. KRW 16.7 billion was spent on improving and replacing heat efficiency enhancement facilities such as an insulation of annealing furnace wall at Gwangyang Works and LED replacements for the thick plate production plant of Pohang Works. Remaining KRW 3.3 billion was invested in process improvement and introduction of new energy-saving equipment such as inverter. We also used KRW 66.3 billion for R&D projects to reduce GHG emissions such as recovering sensible heat at the production processes and capturing CO<sub>2</sub> from off-gas, and so on.

**POSCO Carbon Flow**

The GHG generated in the steel manufacturing process in our steelworks is mostly comprised of CO<sub>2</sub> from coal directly and indirectly used in blast furnace. CO<sub>2</sub>, emitted during the ironmaking process where reduction reaction occurs takes up the largest share in the total emissions in the steelmaking process. POSCO calculates not only CO<sub>2</sub> emitted in the production process at Pohang Works and Gwangyang Works, but also indirect emissions of CO<sub>2</sub> along the value chain, including raw materials transportation, commuting and business travel of executives and employees, and downstream leased assets.



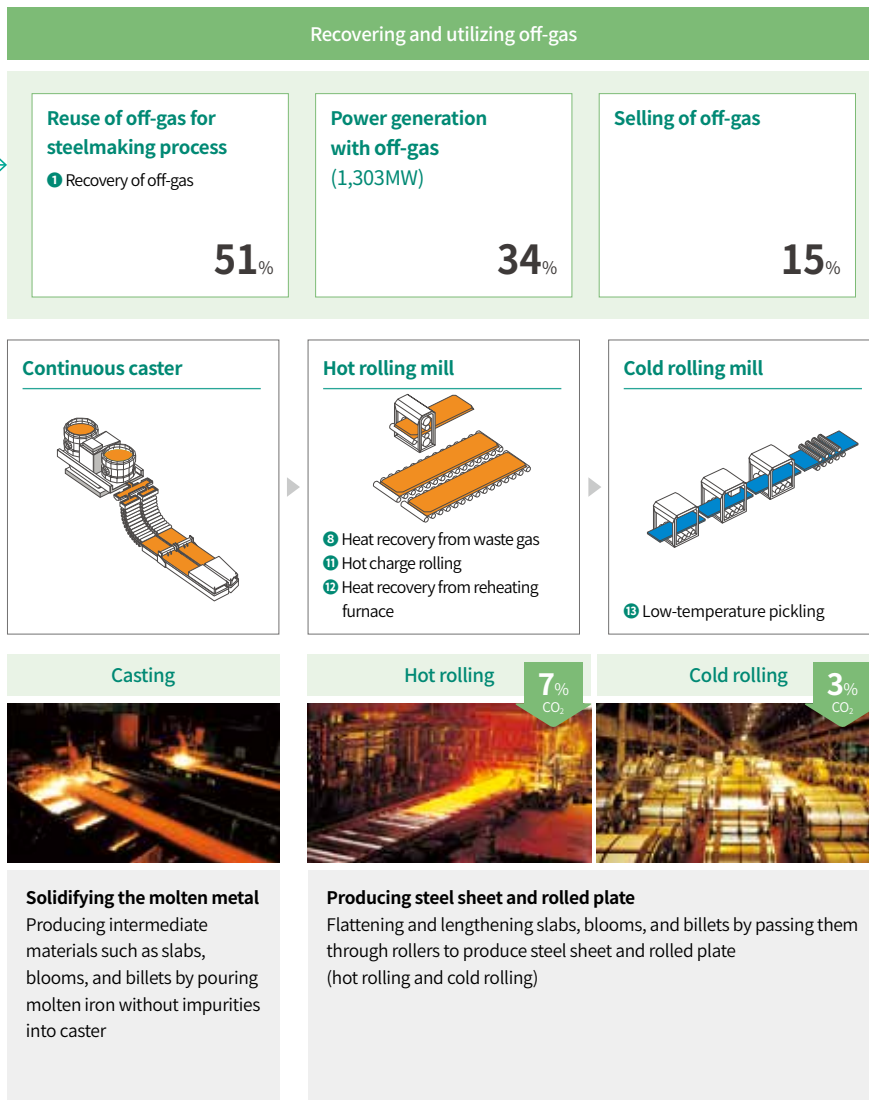
Application of Available Technologies for CO<sub>2</sub> Reduction

Technology description	Energy recovery			
	Electricity	Steam	Hot Water	Others
① Capturing, purifying, and reusing off-gas generated from blast furnace, FINEX, coke furnace, and electric furnace				●
② Recovering sensible heat by exchanging heat between red hot cokes and cooling gas	●	●		
③ Improving cokes strength and blast furnace efficiency by controlling moisture of coal which is inserted into coke oven				●
④ Recovering sensible heat from the cooling process of sintered ore		●	●	
⑤ Generating power by using off-gas which is emitted from blast furnace	●			
⑥ Recovering sensible heat from exhausted gas of hot blast stove				●
⑦ Directly injecting coal into blast furnace instead of cokes				●
⑧ Recovering sensible heat included in the gas emitted from processes		●		
⑨ Improving energy efficiency by blowing argon gas at the bottom of the electric furnace				●
⑩ Minimizing energy loss by shortening the transportation time at the steel tapping and back end processes				●
⑪ Saving energy through direct insertion of hot slabs				●
⑫ Recovering sensible heat included in the gas emitted from heating furnace		●	●	
⑬ Saving energy for heating at pickling process through low-temperature operation				●

**Scope 1**  
: Direct emissions from incineration and processes

**Scope 2**  
: Indirect emissions from generated electricity and steam, etc.

**Scope 3**  
: Indirect emissions from the value chain



OUTPUT

**Product**  
Production of crude steel: 38 million tons

**CO<sub>2</sub> emission**  
Emission from production (Scope 1, Scope 2): 71 million tCO<sub>2</sub>  
Other emissions (Scope 3 including raw materials transportation): 19 million tCO<sub>2</sub>

**Social CO<sub>2</sub> reduction effect**  
High-strength steel sheet for automobile: Weight lightening and fuel efficiency improvement: 3 million tCO<sub>2</sub>  
Low core-loss electrical steel: Efficiency improvement of motors and transformers: 2 million tCO<sub>2</sub>  
Blast furnace and FINEX slag: Substitute for cement: 8 million tCO<sub>2</sub>  
Supply of recovered steam: Local heating and related businesses: 0.2 million tons

## Climate Change Response Activities

### Roadmap for Energy Efficiency Improvement and Performances

#### Phase 1: 1999-2008

From 1999 to 2008, POSCO had fulfilled the first and second voluntary agreements with the government by carrying out 2,100 projects including the construction of a combined-cycle power plant fueled by FINEX off-gas, waste heat recovery system in the steel making process, and investment in coke dry quenching (CDQ) facilities as well as investing a total of KRW 1.43 trillion in energy-related facilities. As a result, the installation rate of energy recovery facilities reached 97% and 2.91 million TOE of energy was saved. We also established an integrated energy-saving information system, sharing ideas, diagnosis technologies, and performance for energy-saving.

#### Phase 2: 2009-2015

Completing the investment in large-scale energy recovery facilities by 2008, we have pioneered the small and medium-scale energy efficiency improvement projects and employed convergence technologies.

At Gwangyang Works, waste heat recovery facilities were installed in the 3<sup>rd</sup> steelmaking plant in 2010 and 5<sup>th</sup> sintering plant in 2011. The evaporation cooling system (ECS)<sup>1)</sup>, a high-efficiency waste heat recovery facility, was established in the 4<sup>th</sup> hot rolling plant in 2014, and now produces low-pressure steam required for steelmaking. In 2011, newly-built 5<sup>th</sup> coke plant introduced coke dry quenching facilities to ramp up its own power generation. We also operate four high-efficiency combined cycle generation facilities to recover surplus off-gas. Power consumption has been decreased by installing inverters for high/low-voltage motors and fluid couplings for pumps and electric precipitators since 2009.

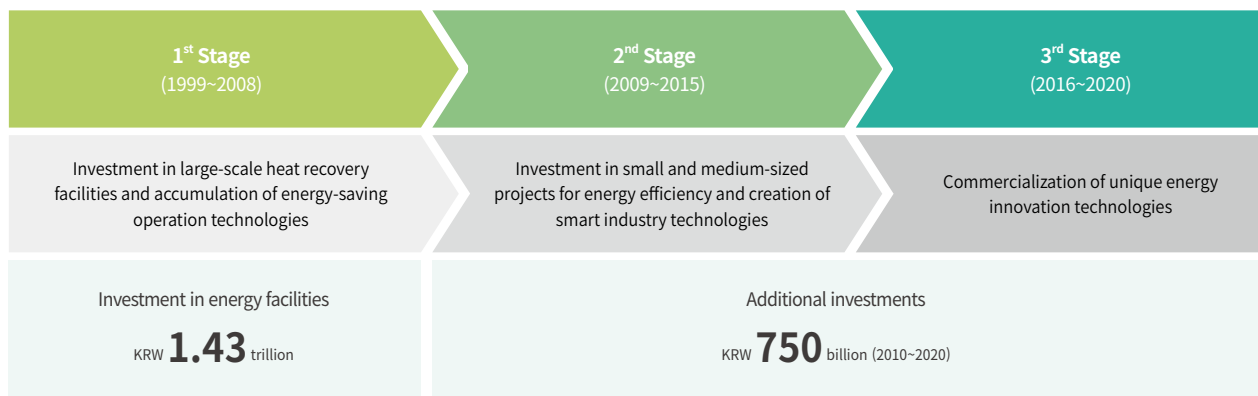
1) ECS (Evaporation Cooling System): A evaporative cooling method to produce steam by circulating high-temperature and high-pressure cooling water

Gwangyang Works initiated the Smart Industry test bed project combined by IT and steelmaking technologies at the oxygen plant in 2010 and hot rolling plant in 2013. As the focus of the government's energy policy was shifted from supply to demand control, we installed a 1.5MW energy storage system (ESS) in plants and buildings to enhance energy efficiency, and the test run was completed in 2015. Since June 2015, Pohang Works and Gwangyang Works have participated in the national Demand Side Management System that each plant commits to reduce its electricity usage during peak hours. With the execution of the Greenhouse Gas & Energy Target Management System in 2011, we acquired ISO 50001 EMS (Energy Management System) certification and strengthen energy target management. We are now focusing our efforts on the effective implementation and management of carbon & energy reduction by each plant in accordance with the GHG Emissions Trading System in 2015.

#### Phase 3: 2016-2020

To meet tightening carbon regulations at home and abroad, POSCO will focus on improving the efficiency of existing large-scale waste heat recovery facilities (CDQ and TRT) and introducing new technology-based small and medium-sized waste heat recovery facilities. The former will be conducted by advanced control of CDQ and TRT, improvement of off-gas supply infrastructure, and generator performance restoration project. We will also consider employing the latest technology for additional waste heat recovery in the STS electric furnaces, hot-rolling heating furnaces, and the new FINEX process. In addition, we will continue to develop innovative energy technologies including the Kalina power generation designed to additionally recover unused low to medium-temperature waste heat, promoting the commercialization of our own energy technology by 2020.

### Roadmap for Energy Efficiency Improvement



## Energy Efficiency Improvement Activities

### Use of Off-gas from Steelmaking Process

Most of the off-gases (BFG, COG, LDG, FOG) generated in the steel-making process are recovered as energy sources and utilized for in-house power generation. Pohang Works and Gwangyang Works autonomously generate 68% of total power consumption through energy recovery facilities such as Coke Dry Quenching (CDQ) and Top Gas Pressure Recovery Turbines (TRT), off-gas-fueled and LNG-fueled power generation. This figure marked an increase of 8% compared with 63% in 2015.

### Electric Power Consumption in 2016

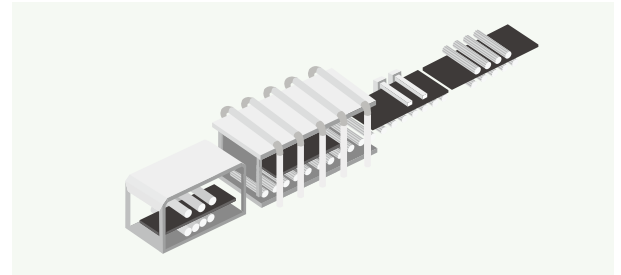
Power source	Power consumption	Ratio
Off-gas	1,303 MW	68%
Others (CDQ, TRT)	334 MW	(in-house power generation)
LNG	287 MW	
Purchased electricity	911 MW	32%

### Power Generation Efficiency Improvement and Performance Restoration of Energy Recovery Facilities

We organized a new project team for increasing power generation efficiency at Pohang Works and Gwangyang Works in August 2016 to further reduce electricity purchase cost. Pohang Works enhanced power generation efficiency by cleaning boiler tubes and condensers of the LNG combined cycle power plants and improving operation method through real-time monitoring. Gwangyang Works achieved the goal by applying adjustable burners to two off-gas power plants. Moreover, both steelworks ramped up the power generation output and steam by restoring the performance of key energy recovery facilities, including CDQs, TRTs, and waste heat boilers.

### Improvement of Combustion Efficiency of Heating Furnaces

At Pohang Works and Gwangyang Works, a TFT (Task Force Team) was organized in 2011 to enhance combustion efficiency improvement of all heating furnaces which consume the largest amount of fuel. In 2012, the TFT became an official team and has been focusing on cleaning clogged pipes, standardizing management process, minimizing heat dissipation, developing charging platform curtain to improve the operation control, installing the combined refining facilities to block impurities in off-gas, and developing pure oxygen lancing burner technology. The teams implement the annual improvement projects, with a specific focus on activities such as furnace diagnosis, combustion optimization, and enhancing heat exchanger efficiency. In 2015, we diagnosed all 19 furnaces at hot-rolled steel, steel plate and wire rod plants. In 2015, the team diagnosed the whole facilities of 19 heating furnaces, installed at the hot rolling plant, thick plate plant, and wire rod plant. In 2016, both steelworks enhanced combustion efficiency by controlling the temperature of heating furnaces, raising air temperature for combustion, and reinforcing the materials of heat exchangers.



Mimetic diagram of reheating furnace

### Smart Factory

POSCO's smart factory aims to collect all key data of worksites by using IoT technology, conduct big data-based analysis and forecast, and optimize and control all processes with AI technologies. In 2010, Gwangyang Works launched the Smart Industry Demonstration Project for its oxygen plant aimed at increasing energy efficiency, reducing costs, and stabilizing facilities by combining energy sources and advanced IT technologies. This project enabled the steelworks to establish an analyzer infrastructure to measure energy efficiency, analyze the efficiency per facility unit, and develop the optimum guidance system, thereby reducing the power consumption of the plant in 2011 by 2% compared with 2010. We have carried out the demonstration project at the hot rolling plant of Pohang Works since 2014. We developed a model for the integrated analysis of operation errors and quality defects according to the status and records of facilities in 2015 and plans to establish an IoT-based Smart Factory by 2017.

### Energy-saving Lighting System in Steelworks

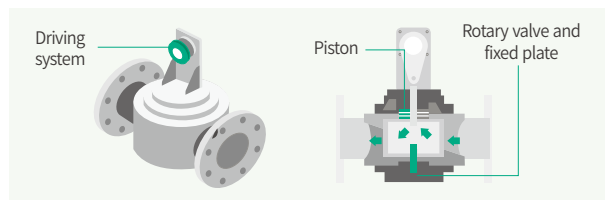
Pohang Works and Gwangyang Works installed natural lighting windows and lighting circuit system at the wire rod plant and built a control system (remote timer) that automatically turns on the lighting only when required, thereby saving over KRW 900 million a year. The two steelworks have also replaced existing incandescent lamps and fluorescent lamps with high-efficiency LED lights since 2011. As of 2016, more than 220,000 lamps in the plants and offices were replaced with LED lights, and about 80,000 LED lights will be additionally installed in 2017.



Increase of interior illumination to 500Lx from existing 80Lx by installing natural lighting windows (daytime)

**Pulsating Combustion Technology for Burners with Direct Heating Mode**

Since 2012, we have developed the pulsating combustion technology to restrain the generation of NOx in the combustion facilities at steelworks and enhance combustion efficiency. The technology is designed to convey fuel to the supply pipes at a steady pulse and oscillation to facilitate heat transmission and boost heat efficiency, thereby reducing fuel consumption by over 3% and alleviating NOx generation by over 30%. It was applied to the steel and iron making plant for basic test in 2014. The scale-up performance evaluation applied to the heating furnaces in the wire rod plant at Pohang Works will be completed by 2017.



Mimetic diagram of oscillating control valve

**Breakthrough Technology Development**

**Capture of CO<sub>2</sub> from Off-gas Using Ammonia Solution**

We are working on the development of technology that absorbs and separates CO<sub>2</sub> from Blast Furnace Gas (BFG) by using ammonia solution. It collects low to medium-temperature waste heat from steelworks, and utilizes them as energy sources required to recycle CO<sub>2</sub>, making it possible to separate CO<sub>2</sub> at a low cost. We started the development in 2006, carried out the Phase 1 pilot test with a processing capacity of 50Nm<sup>3</sup>/hr from December 2008, and achieved the CO<sub>2</sub> capturing efficiency of over 90% and CO<sub>2</sub> purity of over 95%. The Phase 2 pilot plant project began with a capacity of 1,000Nm<sup>3</sup>/hr in 2010, and the construction in Pohang Works was completed in July 2011. The liquefaction facilities to store captured CO<sub>2</sub> was built in 2012 and the design of commercial facility with an annual capture capacity of 300,000 tons was finished in 2015. This technology was temporarily transferred to SMEs to use captured CO<sub>2</sub> in welding, farming, and dry ice production in the shared growth aspect.

**Low to Mid-temperature Waste Heat Power Generation Using Kalina Cycle**

The low to medium temperature power generation uses heat sources between 100°C and 300°C among industrial waste heat and renewable energy sources. Since 2011, POSCO has been developing the Kalina System using lower temperature with higher efficiency compared to existing Organic Ranking Cycle System (ORC). It was installed in the 5<sup>th</sup> sintering plant at Gwangyang Works for commissioning in 2013 and a 600kW standard module was developed through performance optimization and long-term operational capacity evaluation. We built two 600kW Kalina turbines in 2016 and plan to adopt them to the Pohang Geothermal Power Generation Project site in 2017 for the first time in Korea.

**Hydrogen-based Steelmaking Process**

We are developing steelmaking technologies that use hydrogen instead of coal in iron ore reduction in preparation for the era where large-quantity clean hydrogen production would be available. It is necessary to develop steelmaking technologies to use hydrogen which is enriched in off-gases from steelmaking for deoxidizing iron in the short term and to use large amount of high-concentration hydrogen in the long term. In 2016, we conducted the economic feasibility project on the hydrogen-based steelmaking process which is led by the government.

**Social GHG Reduction Activities**

**High-strength Steel Sheet for Automobile**

Weight reduction is one of the most effective ways to improve automotive fuel efficiency and lower GHG emissions. Generally, weight reduction by 10% is known to lower CO<sub>2</sub> emissions by 5-8%. The thin high-strength steel for automobile<sup>1)</sup> ensures the same strength with general thick steel sheet, making it possible to manufacture a light vehicle and enhance energy efficiency. Assuming that a vehicle made of high-strength steel sheet travels 19,000km a year<sup>2)</sup>, it is expected to indirectly reduce about 1.8 tons of CO<sub>2</sub> emissions for a decade.

1) HSS (High-Strength Steel) and AHSS (Advanced High-Strength Steel) with over 340MPa of strength  
 2) Annual mileage of a vehicle (Korea Automobile Testing & Research Institute of the Korea Transportation Safety Authority, 2006)

**Social CO<sub>2</sub> Reduction Effect from High-strength Steel for Automobile\***

Classification	(Unit: thousand t-CO <sub>2</sub> )			
	2010	2012	2015	2016
CO <sub>2</sub> reduction as of product lifecycle**	20,230	25,382	31,490	34,046
CO <sub>2</sub> reduction per annum	2,023	2,538	3,149	3,405
Sales volume (thousand tons)	2,511	3,150	3,908	4,226

\* Reduction of weight by applying the steel to a 2,000cc passenger vehicle is substituted for CO<sub>2</sub> reduction volume.

\*\* As of the use of finished product (automobile) for 10 years

Global automakers are expanding the use of ultrahigh-strength steel sheet for weight lightening to cope with tightening fuel efficiency regulations in various countries. POSCO has been cooperating with the domestic automakers for the development of weight lightening solutions. For example, Ssangyong Motor Company applied our high-strength steel sheet to the body frame of SUV model Tivoli by more than 70%. As a result, sales volume of high-strength steel sheet increased 8% year-on-year to 4.23 million tons and 1.7 times compared with 2010. We will continue to invest in developing high value-added steel products that can deliver more environmental, economic, and social values to automakers.

### High Energy-efficiency Electrical Steel

Recently, demand for electrical steel, which is largely used for generators, power transformers, and electric motors, is on the rise. Electrical steel can be classified into grain-oriented and non-oriented types according to magnetic characteristics. Grain-oriented type is a soft magnetic material<sup>3)</sup> with enhanced magnetic properties gained by aligning the material's magnetic domains in the rolling direction through a special process. It is widely used as a core material for such static equipment like transformers, converters and rectifiers. Non-oriented electrical steel features consistent magnetic properties in the rolling and other directions, and is widely utilized in the iron cores of various rotating machines, ranging from large generators to small precision motors. This steel is also suitable for small transformers. Electrical steel with high energy efficiency has a higher orientation to the rolling direction compared to general electrical steel, improving energy efficiency of a complete product with its low core-loss and high magnetic induction properties. In 2016, POSCO supplied 0.42 million tons of high energy-efficiency electrical steel, a 5% decline from the previous year, but a 1.2 times increase from 2010.

3) Similar to the concept of resistance in electricity, core-loss occurs during magnetization and materials with low core-loss is highly energy efficient.

### CO<sub>2</sub> Reduction by High Energy-efficiency Grain-oriented Electrical Steel\*

(Unit: thousand t-CO<sub>2</sub>)

Classification	2010	2012	2015	2016
CO <sub>2</sub> reduction as of product lifecycle**	5,560	6,571	6,825	7,172
CO <sub>2</sub> reduction per annum	185	219	227	239
Sales volume (thousand tons)	183	215	224	235

\* Products with iron loss of 1.05 W/kg or less.  
 \*\* As of the use of finished product (transformer) for 30 years

### CO<sub>2</sub> Reduction by High Energy-efficiency Non-oriented Electrical Steel\*

(Unit: thousand t-CO<sub>2</sub>)

Classification	2010	2012	2015	2016
CO <sub>2</sub> reduction as of product lifecycle**	33,507	41,343	42,809	36,577
CO <sub>2</sub> reduction per annum	1,861	2,291	2,378	2,032
Sales volume (thousand tons)	173	213	221	189

\* Products with iron loss of 4.70 W/kg or less.  
 \*\* As of the use of finished product (motor) for 18 years

## CASE REPORT

### Development of Light-weight Vehicle Solutions by POSCO

The automotive industry focuses on developing electric vehicles (EVs) and ultra-light automotive bodies to reduce GHG emissions. 17 global steel-makers, including POSCO, participated in the Future Steel Vehicle (FSV)<sup>4)</sup> Project of the World Steel Association's automotive group (WorldAutoSteel), developed a light-weight car body for EVs, and unveiled the result in 2011.

Moreover, POSCO developed its own steel body for EVs, PBC-EV (POSCO Body Concept-Electric Vehicle)<sup>5)</sup> and completed the prototype in December 2011. PBC-EV is an exemplary solution marketing case, which applies world premium products manufactured by POSCO, such as TWIP, TRIP, HPF, CP and DP steel\*.

Over 45% of PBC-EV is comprised of ultrahigh strength steel with tensile strength of 80kg/mm<sup>2</sup>. It is applied with cutting-edge processes, including hot press forming and flexible roll forming (PosRollForm), which make it 26% lighter than the existing vehicles in the same scale. The result of life cycle assessment ranging from materials production, operation, disposal, and recycling suggested PBC-EV reduced CO<sub>2</sub> emissions by about 50% compared with the existing body frame. We showcased PBC-EV and over 30 world premium products at the North American International Auto Show in Detroit in January 2016, receiving positive feedback.

POSCO completed the development of PBC-LT, a body frame for pick-up trucks in April 2015 by utilizing our giga steel. Over 50% of PBC-LT consists of next-generation Giga steel with tensile strength of 100kg/mm<sup>2</sup> (1 GPa

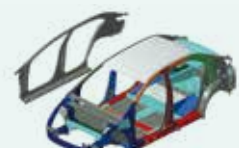
level), realizing a 20% lighter vehicle body compared to the existing pick-up trucks with the same size. We also developed low-cost body from comprised of mass-produced steels in July 2016, securing a solution for over 20% weight lightening without an increase in production vcost.

\* TWIP: Twinning-Induced Plasticity steel, TRIP: Transformation Induced Plasticity steel, HPF: Hot Press Forming steel, CP: Complex-Phase steel, DP: Dual Phase steel

Project	WorldAutoSteel FSV <sup>4)</sup>	POSCO Body Concept - Electric Vehicle <sup>5)</sup>
Vehicle weight	35% decrease for small vehicles	26% decrease for semi-sedans
GHG emissions	70% reduction	50% reduction
Development stage	Concept car	Prototype

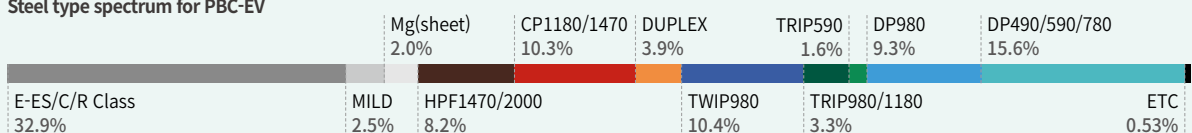


Image of vehicle employing PBC-EV (imaginary)



PBC-EV frame

### Steel type spectrum for PBC-EV



### Recycling of Granulated Blast Furnace Slag

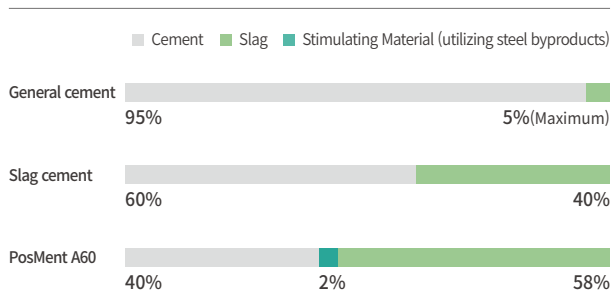
Slag is a byproduct generated in the ironmaking process. It is classified into blast furnace slag created in the pig ironmaking process and steelmaking slag from the steelmaking process. Slag is utilized as raw materials for cement, aggregate, and fertilizer. Granulated blast furnace slag is made by spraying water onto molten blast furnace slag and then rapidly cooling and granulating it.

Granulated slag with similar chemical composition to cement is utilized as cement raw materials through the pulverization process. The use of granulated slag as a substitute for cement clinker<sup>1)</sup> makes it possible to conserve natural resources such as limestone and reduce energy consumption and CO<sub>2</sub> emissions during the cement sintering process. Cement producers therefore mix granulated slag within 5% of the weight in the cement production. The eco-friendly slag cement developed by POSCO is a combination of general cement and fine-ground slag (up to 40%), which boasts excellent seawater-resistance and the capability of reducing hydration heat. It is mostly used in mass concrete and marine concrete.

Moreover, we are collaborating with RIST and POSCO E&C to develop and distribute PosMent, an eco-friendly and economical high-functional cement. PosMent boasts higher content of slag than the existing slag cement and distinctive compression strength, reducing CO<sub>2</sub> emissions by nearly 60% compared to the existing cement products. Since a series of tests on large-scale structures and coastal structures with a high risk of cracking, 1.95 million tons of PosMent has been used in various construction projects in 2016, a 3.8 times increase from 2013. In 2016, 9.98 million tons of granulated slag was used as a substitute for cement or raw materials of slag cement and PosMent, achieving a reduction of 7.83 million tons of social GHG emissions.

1) Clinker is made by sintering cement materials such as limestone on high heat temperature. It becomes cement through the pulverization process.

#### Recycling Rate of Granulated Slag in Cement Production



### Carbon Market

#### Carbon Fund and CDM<sup>2)</sup>

From 2007 to 2016, POSCO has participated in the Carbon Fund, led by the Ministry of Knowledge Economy and aimed at securing carbon credits from CDM (Clean Development Mechanism) projects. Among the credits secured through the fund, 119,000 tons were converted into Korean offsets through governmental authorization in 2016, while 26,000 tons were donated in December 2015 to the Organizing Committee of the 2018 PyeongChang Winter Olympics and the Paralympic Winter Games. Particularly, the donated carbon credits correspond to the power generation for a year by twenty 1MW-wind turbines (30% energy efficiency). It will be utilized in offsetting GHG emissions during the entire period of the PyeongChang Olympics, contributing to the first zero-emission Olympic Games.

We have also invested in the Future Carbon Fund of the Asian Development Bank since 2009, which was raised to support the GHG reduction projects in developing countries, jointly with the Ministry of Strategy and Finance. We plan to achieve 1.2 million tons of overseas credits through 18 CDM projects in Asia by 2023.

2) CDM: A type of project to invest in GHG reduction activities in developing countries and acquire carbon credits which is tradable in international carbon markets such as the EU. The UNFCCC supervises the process from business registration to certification and issuance of carbon credits.

#### GHG Registry

We had joined the national GHG reduction project led by the Korea Energy Management Corporation from 2005 to 2011. A total of 14 projects were carried out, including power generation expansion by increasing energy efficiency and GHG reduction through the new and renewable energy, through which we obtained 3.58 million tons of credits for five years.

#### Government-certified GHG Reduction Performance

(Unit: thousand t-CO<sub>2</sub>)

Reduction Project	CO <sub>2</sub> Reduction
Power generation using off-gas (combined cycle, cogeneration)	1,988
Waste heat recovery (CDQ, TRT, waste heat boiler, fuel pre-heating equipment)	1,533
Energy efficiency improvement (power-saving device, fluid coupling)	42
Fuel switching (B-C oil → LNG)	15
New and renewable energy (photovoltaic power generation)	5
<b>Total</b>	<b>3,583</b>



## Green Business

### Solar Power Generation

POSCO Energy had constructed a 14.5MW-solar power generation complex on the abandoned salt ponds with the land space of 230,000m<sup>2</sup> in Sinan-gun, Jeollanam-do in three phases from 2011 to 2014. It generates 20,000MWh of electricity annually and will supply it to nearly 5,000 households for the next two decades. It can reduce over 9,000 tons of CO<sub>2</sub> emissions a year, the effect equivalent to planting 2.6 million pine trees every year. It was meaningful in the way that we constructed the complex without damage to the environment by selecting abandoned salt pond and secured 16.2% solar electric conversion rate, higher than the national average (15%), by capitalizing on large amount of sunshine.



POSCO Energy's Sinan Solar Power Generation Complex (third phase)

### Smart Grid

POSCO ICT entered the smart grid<sup>2)</sup> market with the development of 2MW energy storage system (ESS) through the Smart Grid Demonstration Project in Jeju in 2009. ESS is a major technology to realize the smart grid system that stores surplus power from renewable power plants or cheap electricity at night and then utilizes it in the peak hours, thereby reducing energy cost.

In 2014, we supplied the ESS to the LG Chem Plant in Ochang, POSCO Center, and the solar power generation complex in Sinan, and participated in the microgrid project that connects the ESS with Sinan's solar power generation. In December 2014, we built Korea's largest ESS test center where production and test of ESS with an annual capacity of 144MW are available.

POSCO ICT built an energy-independent village equipped with a solar power plant and ESS in Mozambique in Africa, in cooperation with KEPCO, in 2015. The company also promoted the microgrid project in Canada based on high-capacity ESS in 2016, laying the groundwork for initiating overseas energy business.

2) The next-generation intelligent power grid that introduces IT to the existing power grid and enables power suppliers and consumers to exchange real-time information, thereby optimizing energy efficiency



POSCO ICT's Pohang ESS Test Center (144MW)

### EV Charging Infrastructure

POSCO ICT established a consortium in Jeju in 2011 to start the private EV charging infrastructure business for the first time in Korea. This business provides the EV-charging-related total services ranging from charging infrastructure operation, charging service, and charging control system, for convenience of EV users.

Moreover, POSCO ICT has been selected as the EV charging supplier by BMW in 2014, Hyundai Motor Company in 2015, and GM in 2016, distributing personal chargers to EV users and providing a public charging service with the brand name of ChargeEV. A total of 300 chargers have been installed at E-Mart stores, LG Best Shops, Shinsegae Outlets, Hyundai Department Stores, and Accor Hotels across the country. Smartphone application service was also launched to help users easily search the location of chargers and visit them.



POSCO ICT's EV Charging Station

### Fuel Cell

Starting the fuel cell business in 2007, POSCO Energy takes up nearly 80% of shares in the domestic fuel cell market for power generation as of 2016. POSCO Energy built a fuel cell manufacturing plant with an annual capacity of 100MW in Pohang, securing unrivaled competitiveness. In addition, fuel cells with a capacity of 174.2MW produced at Pohang plant have been installed on 26 power plants including Gyeonggi Green Energy (58.8MW), the world's largest fuel cell power plant.

In 2014, POSCO Energy built Godeok Green Energy (19.6MW) jointly with Seoul City as part of the Seoul Sustainable Energy Action Plan. In 2016, POSCO Energy completed Noeul Green Energy (20MW) in cooperation with Korea Hydro & Nuclear Power, Korea District Heating, and Seoul City Gas.

The company, in 2007, acquired diverse technologies for fuel cell plant construction and maintenance, BOP (Balance of Plant, a device to supply fuel to fuel cells and convert generated power), stacks (key components of fuel cells that produce power and heat), and cells (core materials of stacks) from the US-based FCE with original fuel cell technologies. By capitalizing on those technologies, we have completed a vertically integrated fuel cell business structure encompassing design, manufacturing, installation, and maintenance.



POSCO Energy's Noeul Green Energy Factory in Seoul

**High-speed Lithium Extraction Technology**

Lithium, the lightest metal on the planet, is a core raw material for the lithium secondary battery applied to mobile phones, laptops, and EVs. Brine (liquid minerals containing dissolved lithium) and ore are used for lithium production, of which brine boasts cost competitiveness.

POSCO has been developing technologies for more efficient production of lithium in brine. We successfully developed the direct lithium extraction technology using chemical reactions in 2010, and built a test facility with an annual production capacity of 2 tons in 2011 in Korea, followed by successful scaled-up research projects for commercialization: 20-ton test production in Chile and Argentina between 2013 and 2014 and 200-ton test production in Argentina in 2015. To date, we have submitted 47 patent applications at home and abroad, upgrading our technological competitiveness.

POSCO's direct lithium extraction technology does not require a wide evaporation pond, unlike the existing evaporation methods, and is less affected by climate change. Since there is almost no loss of lithium during extraction, it is an economical and eco-friendly technology that extracts the same amount of lithium using less amount of brine compared to the existing methods.

In February 2017, we completed the construction of the PosLX Plant with an annual production capacity of 2,500 tons of lithium, and started lithium carbonate production for the first time in Korea. This volume means the production of nearly 70 million lithium secondary batteries for laptops. We plan to expand the production volume of lithium carbonate up to 40,000 tons at home and abroad.



Completion of POSCO's Gwangyang PosLX Plant

**Triton Sea Forest**

In addition to the MOU with the Ministry of Oceans and Fisheries in 2007 to respond to marine climate change, we signed an MOU for the establishment of sea forest and creation of marine resources, and have cooperated with the Korea Fisheries Resources Agency (FIRA) and the Research Institute of Industrial Science & Technology (RIST) to carry out the sea forest project.

The sea forest project uses Triton, a product suitable for restoring coastal areas whitened by rising ocean temperatures, thereby recovering resources in the marine ecosystem. Steel Slag, the key material for Triton, is a byproduct generated in the steelmaking process, which contains more calcium, ionized iron, and other useful minerals than ordinary aggregate. This stimulates the growth and photosynthesis of algae and purifies contaminated sediment and seawater. The sea forest consisting of Triton can fixate CO<sub>2</sub> through carbonation of slag and photosynthesis of algae.

POSCO created the 1-hectare sea forest in Geomundo, Yeosu, in 2011. We have also conducted sea forest projects in Saryangdo, Tongyeong and in Uljin-gun in 2012, and in the village fish farms in Guman-ri, Pohang, in 2013. In particular, our three types of Triton artificial fishing reef (Type A, Type T, and steel-combined type) won the approval of the Ministry of Oceans and Fisheries as general fishing reefs in May 2014, which have been used for the sea forest and sea farm creation projects led by the central and local governments. We established the Triton fishing reef in Ulleungdo and other coastal areas in the East Sea in 2015, and 1,059 units of Triton fishing reefs and 2,000 units of rocks in the Yellow Sea regions including Incheon and Chungcheongnam-do, expanding the purified marine spaces.



POSCO's Triton Sea Forest Project

## Climate Change Partnership

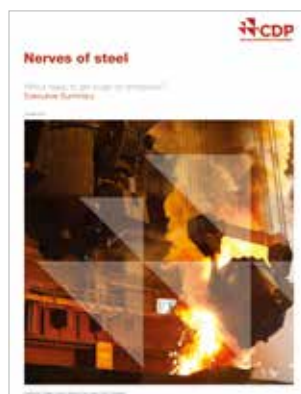
### Carbon Information Disclosure

POSCO discloses the climate change response activities and CO<sub>2</sub> emissions through the Carbon Report and Sustainability Report and on the company website. Since 2003, we have participated in the SAM-Dow Jones Sustainability Indices (SAM-DJSI) and Carbon Disclosure Project (CDP), and accordingly our efforts for climate change response are evaluated by an external agency.

The SAM-DJSI is a sustainability evaluation index designed by Swiss sustainability rating agency RobecoSAM and Dow Jones, a U.S. based publisher of financial information. They analyze and assess the economic profitability, environmental soundness, and social responsibility of more than 2,500 leading global companies in sales, and announce top 10% excellent companies in each business. At the evaluation, POSCO has been selected as a leading sustainable company for 12 consecutive years. In 2014, we had the honor of winning the “Industry Leader” in the steel sector, the “Gold Class” presenting top 1% leader in the industry, and “Industry Mover” for achieving the most remarkable improvement from the previous year. In 2015, the company was selected as the best company in the industry group (Industry Leader) for receiving the best scores in the categories of risk management, supplier management, social and environmental contribution, and stakeholder engagement. Particularly, in 2016, POSCO ranked 35<sup>th</sup> in the list of the 2017 Global 100 Most Sustainable Corporations, the best performance among Korean companies.

In the annual CDP evaluation, conducted by Financial Times to cover 500 companies listed on the FTSE (Financial Times Stock Exchange), POSCO was the only global steelmaker included in the list of the best companies based on the CDLI (Carbon Disclosure Leadership Index) and CPLI (Carbon Performance Leadership Index) in 2010. From 2012 to 2013, we were selected as the best company of CDLI for 2 years in a row. Moreover, we have been recognized as a leading company in the raw material sector by the CDP Korea Committee for 8 consecutive years since 2009.

On top of that, the annual CDP evaluation on the level of climate change responses of 14 global steelmakers in October 2016 also nominated POSCO as the best player, which proved our commitment to GHG and energy intensity reduction and performances in low-carbon technologies once again.



CDP's Steel Sector Report (Oct. 2016)

### Participation in the World Steel Association's Climate Change Countermeasures

POSCO has participated in the climate change countermeasures led by the World Steel Association. As part of this, we have joined the “Worldsteel CO<sub>2</sub> Breakthrough Programme” since its launch in 2003 and developed the GHG emission calculation methodology in steel-

making process. Other participations include the “Worldsteel Climate Change Policy Group” since 2007, “Worldsteel CO<sub>2</sub> Data Collection Project” since 2009, and the establishment of diverse standards by the International Organization for Standardization (ISO)<sup>1)</sup>.

As a result of such participations, POSCO has been included in the “Worldsteel Climate Action Member” for 8 years in a row since the initial year (2008-2009). Moreover, we have joined the “Worldsteel LCA Project” that collects data on fuels, raw materials and processes used by the members and publishes the “Worldsteel LCI Methodology Report” with the aim of sharing the LCI (Life Cycle Inventory)<sup>2)</sup> data of major steel products and environmental effect analysis results with all stakeholders around the world.



2016-2017 Climate Action Logo

- 1) ISO TC17/WG21, 「Calculation method of CO<sub>2</sub> emissions intensity from Iron and Steel production Part 1: Steel plant with blast furnace(ISO/CD 14404-1) Calculation method of CO<sub>2</sub> emission intensity from iron and steel production — Part 2: Steel plant with EAF(ISO/CD 14404-2)」
- 2) The list of pollutants, including CO<sub>2</sub>, NOx and SOx, generated throughout the entire process from production to distribution and disposal

### Technology Exchange and Forums on Environment & Energy with Global Steelmakers

POSCO hosts the technology exchange meeting to share issues regarding the environment, energy, and climate change with domestic and international steelmakers and build an industry network. We exchanged the information about country-specific environment, policies for CO<sub>2</sub>, energy, and byproducts, and related technologies with China Baowu Steel Group Shanghai, China, in July 2016. In October, we met CSC (China Steel Corporation), a Taiwanese steelmaker, to share exemplary air and water quality control cases and energy efficiency improvement technologies.

In November 2016, we held the “Global Steel Forum for Low-Carbon Future” at the UNFCCC COP22 Korea Pavilion, jointly with the Business Institute for Sustainable Development (BISD) and POSRI. In this forum, global steelmakers, including POSCO, German Thyssenkrupp and Taiwanese CSC, shared information about GHG emission reduction activities, while we also discussed steel's contribution to a low carbon future together with the Japan Iron and Steel Federation, IEA, Worldsteel, and IGES (Institute for Global Environmental Strategies).



Global Steel Forum for Low Carbon Future (Nov. 2016, Marrakesh)

# Safety and Health

## Safety at POSCO

POSCO places highest priority on safety, striving to establish self-motivated safety culture company-wide. The Industry 4.0, in particular, has awakened us to a fresh perception of safety. POSCO is committed to creating safe work environment in a more scientific and effective manner by introducing the latest IoT technology in our safety activities.

Meantime, a 5.8-magnitude earthquake struck the city of Gyeongju in September 2016, leading the public to realize that Korea is never immune to natural disaster. Located as little as 30km away from the epicenter of the earthquake, POSCO's Pohang Works is endeavoring to come up with specific measures in case of natural disasters.

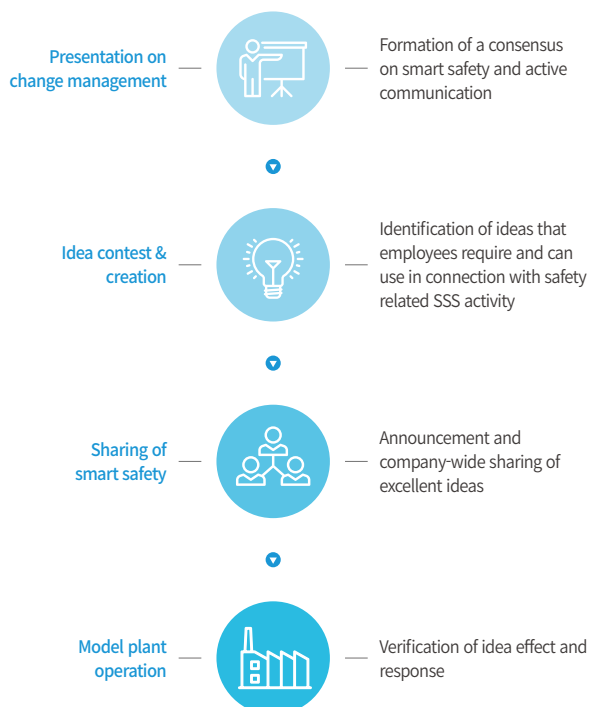


Site Worker

### POSCO Smart Safety

POSCO makes wide ranging efforts to prevent disaster. Under the safety initiative 'POSCO Smart Safety', we embed IoT and Big Data technology into our disaster prevention activities. POSCO believes that we will be able to stop human errors caused by people's nature and habits.

#### POSCO Smart Safety Process



### Safety Score (2012-2016)

(Unit: cases, (fatalities))

#### No. of Accidents

Classification	2012	2013	2014	2015	2016
POSCO	3(1)	10(1)	12(1)	7(0)	10(1)
Outsourcing partners	4(1)	4(1)	3(1)	1(0)	6(3)
Total	7(2)	14(2)	15(2)	8(0)	16(4)

#### Lost Time Injury Frequency Rate

Classification	2012	2013	2014	2015	2016
POSCO	0.08	0.26	0.32	0.19	0.28
Outsourcing partners	0.10	0.10	0.08	0.02	0.16
Total	0.09	0.18	0.20	0.10	0.22

\* Lost-time injury frequency rate = (number of lost-time injuries / total working hours in a year) X 1 million hours

\* Serious accidents

① Accident which causes one or more fatalities

② Accident which simultaneously causes two or more injuries requiring more than three months of recuperation

③ Accident which simultaneously causes 10 or more injuries or occupational disease

\* Total working hours in 2016 = Total (73,262,531 hours), POSCO employees (36,166,842 hours), outsourcing partners (37,095,689 hours)

\* LTIFR in 2016 according to OSHA (Occupational Safety and Health Administration) standard of 200,000 working hours: Total (0.06), POSCO employees (0.03), outsourcing partners (0.04). The figures were round off to the second decimal places.

### Safety Education and Training

To foster safety competence of employees, POSCO implements specific trainings tailored to each class as well as legally required trainings: felt-leadership program for leaders, trainings to enhance onsite safety management competence for site supervisors, and educations to raise awareness of safety and comply with basic safety regulations for general staff. In October 2011, POSCO established the Global Safety Center, equipped with exhibition hall, 4D theater, and experience rooms, to lay the foundation for conducting systematic and continuous training combining theory and practice. Safety education and tour programs for students and citizens are running as well.

#### Tailored Training by Class



Global Safety Center

**Performance in Tailored Training by Class**

Sector	Training/Course
Safety	Gas safety training
	Safety training on high place work and heavy handling work
	Electrical safety training
	Facility safety training
	Safety training on handling dangerous materials
Accident prevention	Firefighting safety training
	Process safety management training
	Accident management training
Health	Industrial health training
	Training on cardiopulmonary resuscitation and emergency treatment

**PSRS (POSCO Safety Rating System) Diagnosis and Consulting**

Based on our safety know-how, we operate the POSCO Safety Rating System, a global-level safety-rating tool. The PSRS conducts quantitative evaluation on safety leadership, organization, equipment, and activities of each company, and then makes best practices into standard models. It also provides tailored improvement methods on insufficiencies and systematic change management consulting. The PSRS procedure starts with establishing a diagnosis plan and forming a team. The team reviews safety activity data in advance and implements surveys, interviews, and site diagnosis by each of 12 elements before scoring. The identified data are put in the Bradley Curve to evaluate the current safety level and the final results are used for carrying out change management and re-diagnosis is conducted regularly to enhance the safety level.

**PSRS Diagnose Procedure**

PSRS Audit	Main Activities by Stage
1 Diagnosis plan	Establishment of diagnosis plans tailored to POSCO Family companies
2 Preparation for diagnosis	Preview of safety activity data of each company (department) before diagnosis
3 Survey	Item pool-type survey, identification of awareness and phenomena
4 Diagnosis by sector	Rating of leadership, organization operation, and execution by each of 12 elements
5 Change management	Improvement of issues pointed out, VOC review and advice
Re-diagnosis of change management	

**POSCO Family Safety Management Awards**

POSCO has been granting the Safety Management Awards to departments and affiliates which contribute to establishing the safety culture of respect for humans since 2010. We select two winners from POSCO’s direct teams and outsourcing partners, respectively, and one affiliates. Pohang Works and Gwangyang Works each produce direct team winner and outsourcing partner winner. POSCO started to give the Safety Management Awards to outstanding overseas production units by newly introducing the overseas category to the Awards in 2016.

**Winners at the 2016 Safety Management Awards**

Classification	Award Winner
POSCO	Iron Making Division of Pohang Works
	Production Technology Division of Gwangyang Works
Outsourcing partner	Daekwang Engineering in Pohang
	Sungkwang Corporation in Gwangyang
Subsidiary	POSCO M-TECH
Local subsidiary	POSCO Vietnam

**ILS (Isolation Locking System)**

POSCO has been operating the ILS since 2008 that shuts down the energy source before repair work and forbids workers to enter operating facilities to fundamentally prevent accident. It is classified into During Stop ILS and During Operation ILS. The former is to shut down the energy source, isolate and lock the facility to prevent it suddenly going into operation while conducting maintenance or repair, while the latter is to control the access of workers to operating facilities in line with the level of danger. For example, the level 1 facility stops operation automatically when the entry way is opened. Moreover, to secure workers’ safety and build an efficient facility management condition from the point of facility inspector’s view through the ILS, the company designated model factories at Pohang and Gwangyang Works and took their double fences away. With the aim of embedding the ILS in our subsidiaries and outsourcing partners, we are proactive in offering tailored trainings, diagnosing the operation of ILS, and suggesting improvement directions to them.

**10 Safety Ironclad Rules**

We have set the 10 Safety Ironclad Rules (SIR) that must be observed at workplaces to prevent accidents. When a worker violates the rules or other safety criteria, the relevant manager issues the SIR card and, when he or she acts safely, the compliment card is issued. Two SIRs in a year cause the warning by the department head and three or more SIRs are brought to the HR Committee. We adopt these strict measures to encourage employees of both POSCO and its outsourcing partners to voluntarily comply with safety rules.

## Health at POSCO

Based on the belief that “Healthy employees make their company healthy,” POSCO concentrates on industrial health work in three areas — disease treatment, health enhancement and working environments. Industrial health management creates a clean working environment for employee health, prevents employees’ diseases and boosts their physical strength. At the same time, this activity checks employees’ health conditions, treats their diseases in early stages, and enhances quality of life.

In 2016, POSCO responded to the Zika virus outbreak by carrying out epidemic prevention activities while educating employees on preventive measures against infectious diseases. POSCO will commit to delivering healthy workplace for all employees.

Occupational Health		
Health Improvement	Work Environment	Disease Treatment
<p><b>Prevention of health hazards</b></p> <ul style="list-style-type: none"> <li>• Health improvement activity (stop-drinking campaign, obesity fight, etc)</li> <li>• Early detection and prevention of disease</li> </ul>	<p><b>Management of work environment and chemical substances</b></p> <ul style="list-style-type: none"> <li>• Inspection on complying with the Occupational Safety and Health Act</li> <li>• Management of personal hygiene protection gear</li> <li>• Chemical substance control</li> </ul>	<p><b>Health check and medical service for POSCO Family companies</b></p> <ul style="list-style-type: none"> <li>• Health check, medical treatment, physical therapy</li> <li>• Vaccination</li> <li>• Psychological counseling.</li> </ul>

### Health Improvement

With the belief that the health of employees is an integral source of corporate competitiveness, POSCO carries out no-smoking, healthy drinking, obesity fight, low salt diet, and “don’t get angry” campaigns. Since 2009, POSCO has pursued smoke-free workplace to encourage employees to quit smoking. We will continue stop-smoking campaign for health improvement of employees and commitment to their families. As for building a healthy drinking culture, Pohang Works executes “No Sharing of Glasses, No Forced Drinking, Practice 123<sup>1)</sup>” campaigns and Gwangyang Works also focuses on the 2-2-2 Movement<sup>2)</sup>. The get-together culture is also being changed from just drinking to going to gourmet restaurants or taking in sports and cultural events.

To prevent obesity, Pohang Works promotes the “eight-week health-up project” consisting of healthy walking, development of healthy diets, and bicycle-riding programs. Our Seoul Office operates the “Proud and Confident Health Up Project,” a customized health improvement program that integrates health consultation from specialists, exercise prescription, and diet management. Moreover, considering that Korean diet is susceptible to lifestyle diseases such as hypertension and obesity due to high amount of sodium, our company cafeteria promotes a low-sodium diet campaign. Gwang-

yang Works is undertaking the “Peaceful Mind” campaign, given that anger is the foremost element threatening health.

- 1) Drinking twice in one week and fewer than three glasses at one sitting
- 2) Pour a glass half full of drink, propose toast twice at most, and end the get-together within 2 hours.



Pohang Health Center      Gwangyang Health Center      Seoul Health Center

### Industrial Hygiene Management

Pleasant work environment can ensure optimum health of employees. To this end, POSCO has made a concerted effort to create comfortable work environment. As part of this, we improved the convenience and performance of personal safety gears that workers wear in sites in collaboration with suppliers. Other activities include the implementations of the “Hearing Protection Program” for areas vulnerable to sound pollution, “Healthy Work Program for Enclosed Areas” for enclosed areas with low oxygen concentration, and MSDS (Material Safety Data Sheet) system in accordance with GHS (Globally Harmonized System of Classification and Labeling of Chemicals) aimed at using chemical substances in appropriate ways. In addition, when demolishing buildings and replacing pipes, we conduct thorough tests for asbestos in advance to fulfill our responsibility for industrial hygiene.

### Stress Management and Psychology Consultation

POSCO has become the first Korean company to run the counseling office for employee health since the mid-1990s. Pohang and Gwangyang Works have been operating psychology counseling office with attending staff since 2005. Employees and their families can receive counseling services by advance reservations via visits, phone calls, and emails. Those include group consultation program, professional consultation by doctors, and free-of-charge drug treatment by external psychiatric hospitals, and are conducted confidentially under the management of the attending staff. Our Seoul Office provides employees with individual consultation, psychological tests, and psychological training service tailored to the level of their psychological stability and age-specific features since September 2014.

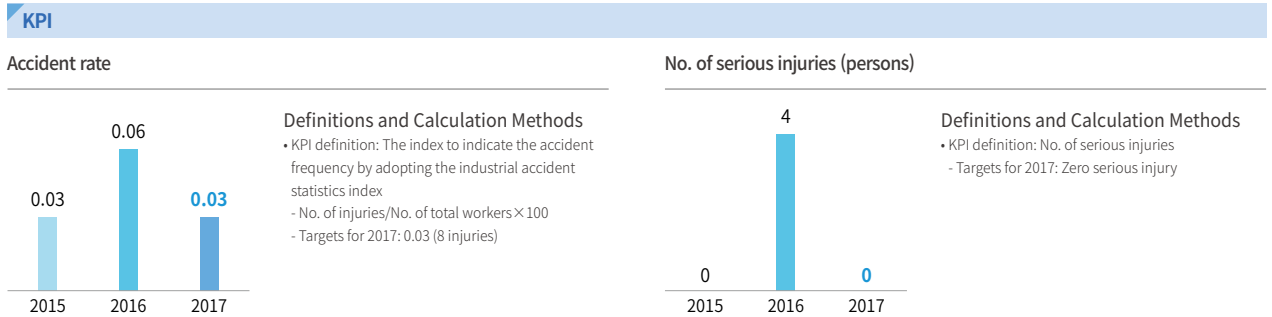
#### Performance in Psychology Consultation

(Unit: cases)

Classification	2014	2015	2016
Pohang Works	1,063	998	767
Gwangyang Works	870	890	529
Seoul Office	212	934	850

\* Special lectures and education on psychological stability in 2016: 48 times at Pohang Works, 144 times at Gwangyang Works, and 54 times at Seoul Office

Safety & Health Strategy and KPI in 2017



CASE REPORT

2+2 Essential Safety Activities

The “2+2 Essential Safety Activities” at POSCO Gwangyang Works is designed to raise employees’ awareness of safety. The activities comprise of two safety techniques 2 (TBM, checking matters pointed out) and other two safety campaigns (Safety Greeting and Good Driver Campaigns).

2+2 Essential Safety Activities Structure



submitting video clips on safety. Employees created video to learn lessons from the past disaster cases, animated video on POSCO safety principles, and short clips featuring family members.

Safety UCC Video Clip



Unique Number for 119 Arrival Point System

Pohang Works introduced ‘Unique Number for 119 Arrival Point System’ in May 2016. The system was set up to help employees notify in-house 119 rescue team of the accurate point to arrive. With the system, employees can call for emergency aid in a swift and accurate manner, securing golden time and minimizing casualties and property damage.

In-house 119 report flow



UCC Competition on Safety

Pohang Works hosted ‘UCC Competition on Safety’ to promote employees’ participation in safety activities. All departments took part in the competition by

# Business Ethics

## Business Ethics

Building upon the Code of Ethics that pledges the practice of global ethics declared on June 2, 2003, POSCO has been growing into a trusted and respected global company. After declaring the Code of Ethics, backed by the CEO's strong philosophy and firm determination for ethical management, POSCO has conducted effective and fruitful implementation activities for various stakeholders in tandem with continued training and promotion, and the establishment of rules and infrastructure befitting a global company. In 2015, POSCO formed the Emergency Management Renovation Committee to overcome internal and external managerial risks and implemented the management renovation initiative 'Clean POSCO' via the Ethical Awareness Subcommittee of the five subcommittees. The renovation initiative highlights tightened code of ethics for ethical management, One-Strike-Out Rule for 4 major unethical behaviors, promoting checks and reports of unethical behaviors, and ethical practice and enhanced education.

POSCO's ethics management is based upon the principle 'do right things in right way'. It means doing meaningful things necessary to achieve company's management goals and employees' performance under the value of 'business ethics' in a fair and transparent manner. POSCO strives to ensure that the ethics management built around employees' voluntary participation is established company-wide.

### Steady Employee Training and Campaigns

POSCO CEO sends message of ethics management to all employees on a yearly basis and all employees make pledge to the Code of Ethics at the beginning of the year. In addition, we have continuously developed and operated online and offline education programs on ethics management. All employees are required to complete the online education on business ethics and sexual harassment. Offline programs are provided to new employees and career changers, while there are also customized courses on offer to fit each circumstance, such as promotion or overseas dispatch.

Following the introduction of the Improper Solicitation and Graft Act, in particular, POSCO offers compliance education for all employees and affiliates. We created guidelines on violation cases of the Act which may be committed at department level and educated all employees with in-house produced video. Public Relations Group and ER Group, which are closely related with the Act, held Q&A sessions and discussions among members to better understand the anti-graft law. In addition, standing auditors and heads of groups held workshops to ensure that no violation of the act is made in the group.

Working with outsourcing partners at works, shift workers are likely to lack ethics awareness because they have relatively less access to ethics education. POSCO offered ethics education on 1,600 managing foremen, enhancing their ethical awareness. In addition to person-to-person education on business ethics trend and audit cases through ethics sessions for the management, executives studied educational materials provided by the Ethical Management Executive Office. Employees who are dispatched overseas are required to be educated on non-ethical cases at foreign works in advance. Works in

certain countries run ethics education independently organized by the local Ethical Management Executive Office.

### Rate of Ethics Training Completion in 2016

Classification	Rate of Completion
Business ethics	98%
Prevention of sexual harassment	99%
Improper Solicitation and Graft Act	99%

The company provides outsourcing partners and employees at suppliers with e-learning on the theory and practice of ethics principles which form the basis of ethics management, while holding seminar on business ethics for representatives of new partners in Pohang, Gwangyang, and Seoul on a yearly basis.

### Rate of Ethics Training Completion of Outsourcing Partners and Suppliers in 2016

Classification	Rate of Completion
Business ethics	89%

In addition, business ethics is regularly publicized to enhance employees' ethical awareness. Every year, internal notices teach employees about ethical systems such as outside lecture fee donations, amounts of money given for congratulations or condolences, and gift return centers and help them put into practice what they have learned. In particular, the company informs employees at overseas worksites of FCPA guidelines or counseling cases by sending 'global ethics observation newsletters'. Moreover, we are steadily holding a human rights advocacy campaign to promote trust and consideration among employees through internal notices and surveys. POSCO also implemented anti-sexual harassment measures, for example, by toughening penalty, promoting healthy team party culture, and offering education. We also introduce new sexual harassment reporting system to ensure that, if leaders commit sexual harassment, in particular, CEO is immediately notified to take actions.

### Building and Spreading Infrastructure for Practice of Ethics

POSCO operates various systems and infrastructure for effective business ethics implementation. Our Code of Ethics is the ethical standards which all employees are expected to abide by. At the Emergency Management Renovation Committee held in 2015, POSCO added into the existing Code of Ethics Guidelines the Ethical Charter and Practice Guidelines which specified CEO's message, and the purpose, course, and decision making standards of Code of Ethics.

As the Improper Solicitation and Graft Act went into effect in September 2016, we revised our standards on money and other valuables, entertainment, and congratulatory or condolence money. What's



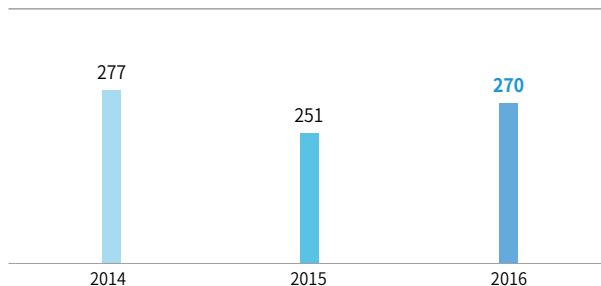
more, we introduced standards which ban our employees from making improper solicitation on government officials. We also performed activities aimed at preventing possible violation of the Act, for example, by distributing 100 copies of guidelines on the anti-graft act, department-customized compliance education and independent investigation on the violation risk.

Since the Emergency Management Renovation Committee meetings in 2015, we have strictly executed the “One Strike Out Rule” to punish those who commit 4 major unethical behaviors - taking bribes, embezzlement, violations of sexual ethics and information manipulation - regardless of their ranks. In 2016, we opened the “Clean POSCO System” to record and manage all the information regarding unethical deeds to establish a clean corporate culture where irregularities have no place.

POSCO Family ran the ‘special period for voluntary reporting and immunity’ on a temporary basis on unethical behaviors. During the campaign, employees at POSCO, its affiliates, outsourcing partners, and suppliers were encouraged to report any money receiving, information manipulation, excessive entertainment, and other unethical behaviors committed within the past five years. The company granted punishment exemption for cases reported voluntarily after a rigorous investigation while taking preventive measures. In addition, the company set the reward for reporting unethical behaviors at KRW 10 million in order to encourage whistle blowing via a wide range of means such as telephone, fax, post mail, and the Internet. The identity of whistleblowers is strictly protected.

#### Reports on Unethical Behaviors

(Unit: cases)



#### Measures Taken by POSCO in 2016

(Unit: cases)

Classification	Inspection
Disciplinary action	54(35%)
Warning	30(19%)
Caution	72(46%)
Total	156

We have improved our ‘ethics practice program’ since September of 2015 to identify and address ethical risks. The self-directed program for business ethics, which used to be operated under the manage-

ment of department heads, was upgraded to ethics practice program conducted under the responsibility of a relevant board member. Practice themes have been expanded from daily ethical risks to business-related ethical risks. Outstanding activity results are used in executive performance evaluation and excellent instances are shared at ‘POSCO Ethics Summit’, hosted by CEO and joined by presidents of groups. We run the Holiday Gift Return Center around national holiday seasons to express gratitude, rather than simply exchanging gifts. If there is any gift not being returned to senders for a reason, the gift is auctioned off to employees. Earnings from the sale is donated to “the POSCO 1% Sharing Foundation” so as to be used for our less-fortunate neighbors.

Flowers to congratulate promotion from outside are auctioned online which is open to employees as well as the public. Congratulatory or condolence money from stakeholders difficult to return or employees’ earning from lectures concerning his work-related knowledge will also be donated to “the POSCO 1% Sharing Foundation”. From 2016, employees can donate half of their earning from lecture, instead of the full amount so that their hard work is rewarded.

We will make our utmost effort to lay the foundation for leading all employees to understand and practice corporate ethics with positive and pleasant mindset.

#### Ethical Management that Grows with the POSCO Family Companies

At POSCO, diverse activities are being conducted to establish ethics management group-wide and to take ethics standards across the group to the next level. The ethics practice program, which used to be operated under the management of department heads, has changed to be led by board members. Excellent instances are shared via ‘POSCO Ethics Summit’ while seminar and meetings are held for employees in charge of ethics management to enhance the program execution competency. Following the introduction of the Improper Solicitation and Graft Act, the group distributed compliance guidelines and education materials while conducting campaigns against sexual harassment.

#### Preventing Ethical Risks in Global Business Management

POSCO puts considerable effort into global-level ethical risk prevention at its overseas corporations and offices. As part of our efforts to spread ethical management, POSCO provides collective training to employees and overseas corporation presidents who are about to be dispatched, as well as ethics education and coaching to Korean employees and locally hired employees.

In 2016, we visited POSCO’s overseas corporations in countries with high risks to corruption such as China, Vietnam, and Mexico to conduct ethics education, training, and coaching about the practice of ethics to Korean employees and locally hired employees. In addition, by visiting our overseas corporations, we coached employees there about elements of legal violations such as dining, entertainment, gifts, third-party agent contract, and compliance with the FCPA.

POSCO will support POSCO Family's investigation into overseas corporations to enhance risk prevention activities. POSCO assists in pre-emptive risk prevention activities by designating 'Compliance Staff' at regional representative corporations who perform compliance responsibilities including ethical mindset, and education and coaching to improve practice competency

Furthermore, we updated the 'International Corrupt Practices Act Compliance Guideline' which was established for the first time in Korea by POSCO in 2011, to set up the 'Anti-Corruption Guidelines' and applied it to major subsidiaries. We enhanced the guideline from work reference to the company regulations which serves as basis for punishment while expanding its subjects to include government officials as well as stakeholders, agents, and JVs. Furthermore, we incorporated compliance with the FCPA within POSCO's Code of Ethics. All employees at overseas corporations committed to the 'Employees' Pledge to Honor the Code of Ethics', ensuring strict compliance with global standards.

As a corporation operating globally, POSCO often finds itself facing dilemma over ethical risks or having to deal with conflicts resulting from local business practices and culture. Recognizing this, POSCO compiled and distributed the 'POSCO Guidebook on Global Ethical Compliance Cases' to overseas corporation to help with their well-informed decision-making in various situations. All overseas employees refer to the guidebook before making ethical decisions. They contact the FCPA information center for further inquiry. Meanwhile, POSCO holds the 'FCPA Compliance Council' twice a year, where heads of relevant departments and heads of ethics management teams of major affiliates with standing auditors share ideas on global ethics issues and ethics activities of other global corporations.

## CASE REPORT

### Regulation on prohibiting political donations in accordance with the Anticorruption Guideline

#### Article 6 (Entertainment and Conveniences)

##### 6.1 General Principles

No person at POSCO shall give or receive any entertainment, convenience, money, or valuable with unjustifiable intention in transactions to or from all stakeholders including public officials, customers, and suppliers. The definitions of valuables shall be as follows:

- Securities, real estate, meal, gift, golf
- Expense for transportation, accommodation, etc.
- Right of using products and services and discount on their prices
- Political contribution
- Other tangible or intangible financial benefits such as cancellation of debts, offering of jobs, or granting of rights and interests

## Global Human Rights Management

The importance of human rights management is increasingly growing as corporate influence on society becomes stronger. Moreover, human rights, forced labor, wealth gap, and discrimination issues are stressed in the international community and companies are required to play a role for resolving them. In response, POSCO strives to create work environment without discrimination and enjoy co-prosperity between POSCO Family companies and local communities.

### Human Rights Management Based on Code of Ethics

As a member of the UN Global Compact, POSCO honors the UNGC principles on human rights and labor. In addition, based on POSCO's Code of Ethics, we abide by global human rights standards including the Universal Declaration of Human Rights, UN Policy Framework, and its Guiding Principles. We have also built a corporate culture where discrimination on the ground of race, nationality, gender, age, education, religion, birthplace, disability, marital status, or sexual identity is nonexistent and diversity is respected.

POSCO's Code of Ethics added articles on human rights, environment protection, and social responsibility to contents in response to changes in global business environment. Recent global trend in ethical management requires proactive coexistence and co-prosperity with ecosystems surrounding companies beyond just the practice of anti-corruption. We also see tightening regulations on respect for human rights and environmental protection in local countries. Therefore, we have faithfully supplemented contents about the protection of customers and investors, respect for human rights, environmental protection, co-prosperity, and social contribution. Major contents of the Charter of the Firm Loved by Stakeholders, Environmental Management Policy, Share Growth Rule, and Quality Charter were also included in the Code of Ethics. Best practices of global companies and global standards such as UN Guiding Principles were reviewed in this process. Particularly, we tightened our ethics criteria to prohibit receiving any kind of family event money from suppliers, outsourcing partners and customers. We are committed to creating sound and transparent transaction culture.

It is more meaningful that POSCO's Code of Ethics first specified the rule on respecting human rights in a separate article in Korea. In particular, we are proud of independently stipulating human rights in the Code of Ethics in a concrete way beyond just generally handling it in global regulations, guidelines, and rules. This shows our strong commitment to respecting human rights as a global player.

### Human Rights Protection through Practice of Business Ethics

The vision "POSCO the Great" is built on four management philosophies — Clean POSCO, One POSCO, Creative POSCO and Top POSCO. In particular, the One POSCO aims to share a common goal and change directions among employees and work in union with a sense of ownership to realize the goal. POSCO pursues growth based on social value and co-prosperity with customers, suppliers, and society, which is fulfilled through practical and effective systems in daily

operations beyond just an ideological declaration. The Ethics Counseling Center is proactive in receiving reports on violations of ethics and human rights and taking proper actions against them. The Practice Guidelines of Code of Ethics stipulates "We should not engage in any verbal, physical, or demonstrative acts that may offend others or infringe on others' human rights such as sexual harassment." To this end, e-learning courses and the Sexual Harassment Prevention Counseling Center are operating. Upholding the Ten Principles of the United Nations Global Compact, POSCO complies with the ILO's regulations on prohibiting child labor and forced labor and guarantees the freedom of association. On top of that, we operate a social enterprise "POSCO HUMANS," Korea's first standard workplace for disabled persons, to promote the employment of the disabled and vulnerable groups.

POSCO also strives to minimize human rights abuse in its global business activities. To this end, self-inspection on practicing the human rights management at overseas subsidiaries has been conducted in 2014 and 2016. Going forward, it will continue every year to raise their awareness of human rights in local businesses and prevent human rights risks in advance.

### System for Addressing Human Rights Grievances: Simmungo

POSCO takes heed to stakeholders' voices through various channels. We gather complaints from internal and external stakeholders and take them into consideration in our management activities to make improvements. One of our major efforts in this respect is Simmungo, or grievance mechanism, through which we identify and solve suggestions and grievances in areas such as auditing, shared growth, purchasing and sales. We also run the Unethical Behavior Report Center which conducts regular audits regarding ethical violations, violation risks, and human rights abuse that may arise from business process and takes steps accordingly. In order to ensure that locally hired employees have equal chances to have their voices heard, we updated Simmungo in June 2016 to support English, Chinese, Vietnamese, Iranian, Thai, and Indonesian language.

In order for this system to work properly, the anonymity of an informant must be strictly guaranteed. Therefore, punishment on revealing the identity of informants is stipulated in our regulations. Asking around informants is also prohibited. Furthermore, we do not record any personal information about the informant to prevent any leakage from the start. The Corporate Audit Department personnel hold the "Informant Identity Protection Pledge Ceremony" at the beginning of each year to ensure that informants' identities are protected.

# Employee

## Organizational Culture

### Establish Mutual Respect Culture: Eradicate Power Abuse Practice

Eradication of power abuse in business is one of our initiatives we have undertaken since 2014 to prevent possible conflicts both inside and outside the company and create synergy-generating environment. This is not a simple campaign intended to root out 'power abuse' but to address improper practices one at a time and ultimately transform the very nature of organizational culture. POSCO will strive to embed a 'culture of mutual respect and consideration' in the company to do away with the practice of power abuse in the group, thus delivering improved performance creation.

### Creating Positive Environment: Gratitude Sharing

POSCO provides employees with a guideline and special education programs on how to practice the "Gratitude Sharing" aimed at an interactive communication in their daily work. By continuously encouraging employees to engage in this campaign, we will build a culture of positive work environment where interactive communication and job commitment are boosted.

### Promote Communication: CEO Letter and Meeting with Employees

CEO Letter is delivered on a regular basis to share information on important social and industrial trends necessary to secure future growth engine for the company and build consensus on the future course among employees. POSCO holds meeting between employees and the top management to form solidarity and to find matters for improvements in every area of its business. The meeting was held three times in 2016, boosting employees' pride and sense of unity as members of POSCO.

### Employee Satisfaction Index

The company conducts the P-GWP (POSCO-Great Work Place) survey of all employees every year to understand their satisfaction about organization and job and the level of immersion in works. The results have shown that POSCO employees have world's top class ownership mind and feel a great sense of achievement through their works. In 2016, the organizational culture index in the P-GWP survey was 77 points (out of 100 points), up six points year-on-year. We will continue to embed interactive communication in our corporate culture to enhance employee satisfaction.


#### Result of Employee Satisfaction Survey

(Unit: points, out of 100 points)

Classification	2014	2015	2016
Employee satisfaction	75	71	77

### Improving Work Environment for Female Employees

We build a working environment that alleviates the burden of pregnancy and childcare to help female employees concentrate on their work. We also offer education and information for a future vision for advancement so that they can make the most of their capabilities.



Childcare


**Day Care Center**  
We operate day care centers in Pohang, Gwangyang, and Seoul that can accommodate 480 children, contributing to alleviating a burden of childcare, expanding female employment, and increasing the birthrate.

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**Lounge for Female Worker**  
POSCO has lounges with feeding room for female workers to ensure better work environment.

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**Parental Leave System**  
Legal 90 days' and additionally maximum 2 years' parental leave is available to female employees without disadvantages in promotion and evaluation. Application by just notice ensures easy usage of this system.



Female Career Development

**W-Leadership Program**  
Diverse supports are offered to help female employees overcome career gap caused by childbirth and childcare and have a big picture. We also conduct specialized leadership trainings twice a year to systematically cultivate female leaders.

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**Communication Channel for Female Employees**  
We operate an in-company online blog for all female employees. It plays a role as a venue where they can build networks, share information, and resolve grievances.

### Prohibition on Discrimination and Diversity

Regarding human resources as the most critical power of our growth, POSCO is committed to protecting human rights of employees. This commitment is stipulated in the Code of Ethics and observed in a strict manner throughout the company.

**Practical Guidelines for the Code of Ethics: ④ Respect and Equality**

1. We shall not discriminate or harass for reasons of race, nationality, gender, age, educational background, religion, region, disability, marital status, and sexual orientation.
2. We shall provide equal employment opportunity to those who possess necessary qualification and capability.
3. We shall maintain work environment that respects cultural diversity.

**Job Regulation**

Article 36. (Job security) The company shall not take disciplinary action, terminate employment, suspend or dismissed without a just cause.

### Employment Stability and Job Security

At POSCO, there has been no company-led large-scale layoff or forced termination of employment for business recovery or increasing profitability since its establishment. Job security is guaranteed by the Article 36 of Job Regulation “Employees shall not be terminated or dismissed without a just cause.” Even in case of obvious reasons for dismissal such as violations of laws, the decision on whether to fire the person is made after a strict deliberation by the Human Resources Council. Notification should be mailed 30 days prior to dismissal. If this rule is broken, compensation worth of 30 days’ ordinary wages is compulsory. Going forward, POSCO will continue to improve its rules and procedures to enhance employment stability and job security.

### Flexible Work Program

The company has been operating the flexible work program since July 2011 with the aim of creating an environment for job commitment by flexibly adjusting work hours in accordance with job features and individual needs. Targets for this program are office workers and staff of the head office and steelworks and female employees with children under the age of six or before primary school. They are free to adjust their hours as long as they work eight hours a day including the core hours between 10:00 and 14:00 within 40 hours a week. Our employees are utilizing this system for self-development such as language studies and childcare on personal side, and for late-night concentrated research work on business side.

### Fair Evaluation and Compensation

POSCO operates a fair and objective employee evaluation system to ensure reasonable reward on their performances. Employees set up and implement MBO plans in line with goals of their organizations and annual achievements are evaluated by a 3-stage procedure (self-assessment, 1<sup>st</sup> assessment, and 2<sup>nd</sup> assessment). In particular, to ensure fairness in evaluation, the 2<sup>nd</sup> assessment requires a group discussion (Calibration) on all members’ annual performances in which all of the 1<sup>st</sup> and 2<sup>nd</sup> stage evaluators participate. Assessment results are fed back to evaluate through one-on-one interview. The appeal system is available to any who does not accept the result. Our salary system considers two aspects: the stability of employees’ livelihood and reward adequate for performance. Salary is increased based on service periods and inflation rates, so that employees run their families in a stable manner. Pay increase is differentiated in accordance with their performance evaluation results. In addition, POSCO operates a variable performance-based bonus system under an agreement between labor and management. We apply the same salary standards to both male and female employees.

### Evaluation Procedure

<b>Evaluee</b> Performance input	Registering individual performances and KPIs for the year
<b>Evaluee</b> Self-assessment	Conducting absolute evaluation on objective and quantitative performances on the basis of 100 points
<b>Evaluee-Evaluator</b> Assessment interview	Forming a consensus on annual performances between evaluees and evaluators
<b>One-on-one communication</b> (offline meeting is recommended.)	At least 10-minute interview per person is compulsory.
<b>Evaluator</b> 1 <sup>st</sup> assessment	Fairly evaluating by comprehensively considering interview results, annual performances, and self-assessment results
<b>Evaluator</b> 2 <sup>nd</sup> assessment	Determining final ratings through relative evaluation on the 1 <sup>st</sup> assessment results and affiliated employees’ performances
<b>S~D, 6 ratings</b>	Calibration with the 1 <sup>st</sup> evaluators chaired by the 2 <sup>nd</sup> evaluator is compulsory.

### Welfare Benefits

POSCO contributes part of the company profits to the employee welfare fund to boost employees’ quality of life. The fund is used for loans for housing and living, tuition fee of employees’ children, optional welfare benefit, family events, and supports for handicapped family members. We also operate recreational facilities and medical checkup centers for employees’ leisure life and health improvement. Large-scale culture and sports facilities were built in Pohang and Gwangyang in 2011 and the Goheung Family Center opened in 2012. Medical checkup service for spouse and group insurance were introduced in 2012 and 2013, respectively. We also expanded medical expense supports in 2013. In 2016, the company improved tuition fee support system for multi-child families and launched a vacation in case of the death of maternal grandparents in the gender equality aspect. The GWP (Great Work Place) campaign has been implemented in collaboration with the Labor-Management Council at the enterprise level since 2014. It has contributed to further improving HR and education systems and simplifying administrative works, creating a desirable work environment with high level of affective commitment. We have also pursued a movement to keep basic regulations to sharpen our fundamental competitiveness and at the same time build great workplace for employees.

**Employee Welfare Fund**

(Unit: KRW in billions)

Classification	2014	2015	2016
Contributed amount	58.9	59.3	62.0
Cumulated contribution amount	932.8	992.1	1054.1

**Labor Costs**

(Unit: KRW in billions)

Classification	2014	2015	2016
Payroll <sup>1)</sup>	1,435	1,439	1,492
Allowance for retirement <sup>2)</sup>	129	139	161
Legal welfare expense <sup>3)</sup>	108	112	117

1) Monthly salary, bonus, welfare expenses (lunch money, personal pension subsidy, performance-based benefit, incentive)

2) Allowance for retirement benefits for the year (excluding executives)

3) National pension, health insurance, employment insurance, industrial accident compensation insurance, and wage claim guarantee insurance charges

**Amount of Pension Subsidies**

(Unit: KRW in billions)

Classification	2014	2015	2016
National pension (company's contribution)	37.5	39.0	39.2
Personal pension subsidy	9.7	7.8	8.2
No. of beneficiaries of personal pensions	10,473	6,720	6,646

**Labor-Management Council**

Based on the Act on the Promotion of Worker Participation and Cooperation, the Labor-Management Council was launched as an employee representative body on November 17 1997. It consists of 20 members from the management and labor union. Labor members on a three-year term are selected by direct and secret voting. Currently, the seventh labor members who were appointed in November 2015 are serving. The labor members negotiate on company-wide interests including wage, working system, welfare, productivity, compensation, safety, and health. They attend the company operation meetings and regular and ad hoc meetings to share the information on corporate business activities, playing a role as a communication channel between the management and employees.

The company holds quarterly presentation, discussion meeting and workshop in order to form a consensus on business activities and corporate policies with both labor members and unit members. The Labor-Management Council has affiliate organizations such as Steelworks Council, Division Council, Department-Office Council, and the Factory-Section Council. Particularly, the Factory-Section Council consists of about 390 members as the smallest unit council. The Labor-Management Council not only holds a regular meeting at the end of each quarter to discuss ways for co-prosperity between the company and employees and improvement of welfare benefits, but also strives to solve employees' difficulties and grievances, gaining trust as the representative body. Moreover, the council takes the initiative in the 1% Sharing Movement, GWP campaign, prevention of safety accident, and improvement of organizational culture. It also plays a leading role for the safety SSS (Self-Directed Safety Spread) activities to create happy workplace.

## HR Development



### Recruitment Process

We introduced the Structured Selection method in 2003 to recruit the right people that POSCO looks for and understand applicants' competence. It is a tool to minimize disparity among evaluators and hire talents appropriate for the task by systematically conducting interviews and using evaluation criteria in line with a set procedure. Recruitment process consists of four steps – document screening, PAT

(POSCO Aptitude Test), job competence evaluation, and value suitability evaluation. In order to recruit convergence talents irrespective of major fields of study, POSCO has changed its scheme from existing job group-based to academic course-based (science and engineering, humanity and society) recruitment from 2016. Double majoring applicants get preferential treatment.

\* The followings present POSCO's open new employee recruitment process.

#### Step 1 Document Screening

We evaluate applicants' basic qualifications, motivation for the application, personality, creed, and commitment to growth written in the application form. The level of applicant's job understanding and suitability is assessed through the job essay in which the applicant's academic background, certificates, and activities related to job are described.

#### Step 2 PAT (POSCO Aptitude Test)

PAT is an objective and fair recruitment process to check applicants' basic job competence, creativity, and personality.

Classification	Details	No. of questions/ Time
Aptitude test	Language: Language understanding level/reasoning	120 questions/ 130 minutes
	Math: Data interpretation, data reasoning	
	Space: Space perception	
	Schematic: Schematic reasoning	
	Common sense: Management, economics, society, culture, current affairs and more	
Personality test	POSCO's unique customized personality test to verify applicants' nature and behavioral characteristics required for each job	431 questions/ 75 minutes

#### Step 3 Job Competence Evaluation

Job competence evaluation consists of AP/GD, job suitability interview, and history essay to comprehensively identify applicants' values and job capabilities.

##### AP/GD interview

Applicants are required to conduct AP (Analysis Presentation) on a given task and a group of five to six applicants attend the GD (Group Discussion) on the contents. The AP/GD interview aims to evaluate applicants' strategic thinking, creative problem-solving, teamwork, and communication skill.

##### Job suitability interview

Job suitability interview is carried out to evaluate the level of applicants' job competence in various aspects, such as adjustability into the company, adaptability, growth potential, and knowledge, skills and attitudes appropriate to the job they applied. It is conducted by interviewers from each department based on the National Competency Standards (NCS). Particularly, evaluation on basic engineering capability such as physics, mathematics, and chemistry as well as job knowledge is required for technical jobs.

##### History essay

Applicants describe their opinions about given historical topics, through which the company identify their knowledge in history and the insight of humanities.

#### Step 4 Value Suitability Evaluation

The final step aims to check how appropriate the applicants fit the right people that POSCO looks for. This interview is conducted by the management. Their challenging spirit, creativity, organizational adaptability, and ethicality are comprehensively evaluated through Q&A.

## Global Talents Cultivation

Since its establishment in 2015, the POSCO Group University has been at the forefront of developing human resources (HR) for the entire POSCO Group to realize the vision “POSCO the Great”. While focusing on sharpening the group’s competitive edge in the era of New Normal in 2016, the POSCO Group University nurtured future management leaders and experts armed with POSCO’s visions to grow the group into the global No. 1 company.

### Highlights in 2016

First, we endeavored to rally the commitment of all POSCO employees in realizing IP 2.0. The company renewed management philosophy contents of IP 2.0, Ethics Keystone, and 4 major organizational innovations, solidifying the determination to practice IP 2.0. For department and employees, we developed education to create a trust-based organizational culture by taking into consideration life-cycle of those who receive monthly wages. The education comprises of support for healthy site establishment, introductory course for young employees, and understanding of organization.

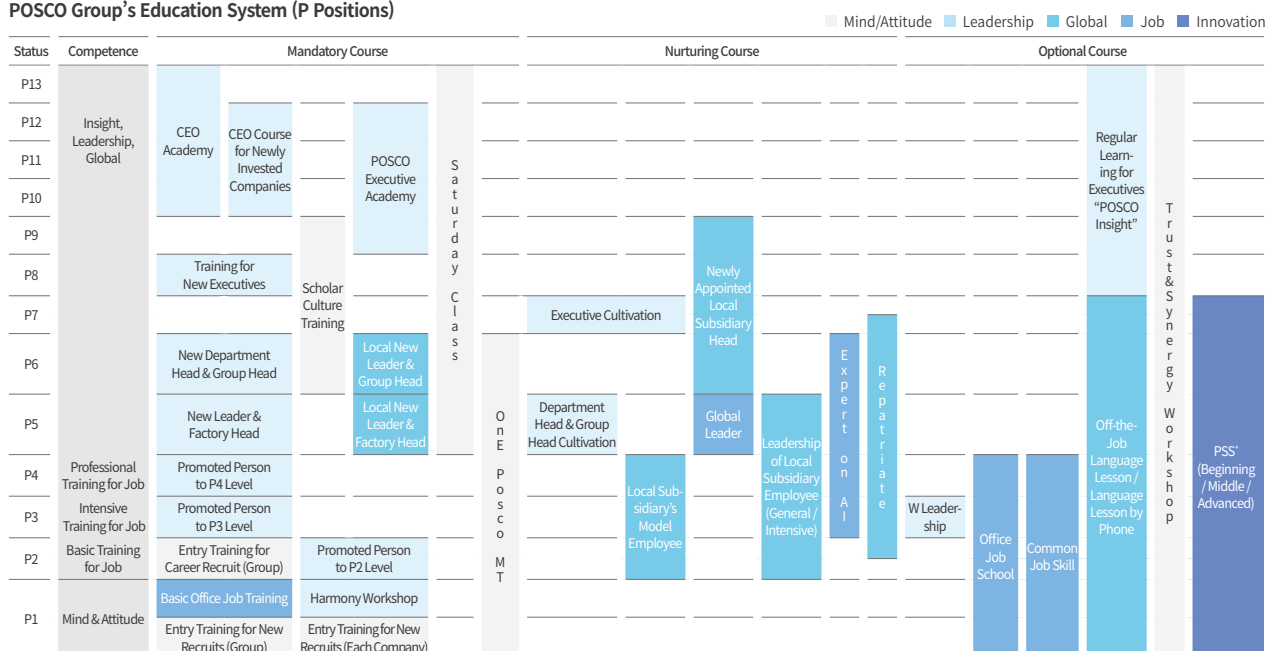
Second, we worked to train talents in a systemic manner to accelerate the 4 major organizational innovations. In order to nurture management leaders, we enhanced the Assessment Center-based customized education, expanding subjects for diagnosis. For ‘new CEO and executive course’, the share of coaching and mentoring was increased gradually while strengthening executives’ job competency by introducing the ‘POSCO Executive Academy’. By redefining the R&R of young employees, position holders studied topics on knowledge, leadership, and group policy. The training course focused on improving competency by solving management issues tasks. Employees to be promoted to P2, P3, and P4 learned classified R&R and

independent job skills. We introduced job competency certification system where employees were required to have their competency recognized after finishing common and advanced job courses.

Third, the performance-related solution provider’s role was enhanced. POSCO strived to establish healthy sites by carrying out My M&S-oriented QSS<sup>+</sup>, foremen QSS<sup>+</sup> practice education, and improvement leaders’ educational contents. Customized coaching, collaborative expert WS, and One-Point lesson supported the project. Also, PSS<sup>+</sup> education system which was revised in 2015 established innovation methodology to operate PJT-based working method and providing job-related education and consulting. Affiliates and overseas subsidiaries provided customized education which reflected the process characteristics (order, contract, and logistics) to train innovation-led class and spread POSTIM which is tailored to overseas subsidiaries. They also carried out PWS process and QSS<sup>+</sup> activities suitable to group’s site situations and innovation capabilities. Externally, the company actively participated in the Government-led shared growth initiatives, for example, by joining the Industry 3.0, Gyungin HUB project, strengthening strategic network with INNOBIZ and KORCHAM, and providing customized education and consulting to colleges, SMEs, and government agencies in Gyungbook province area. We also increase sales in education and consulting based on regional network.

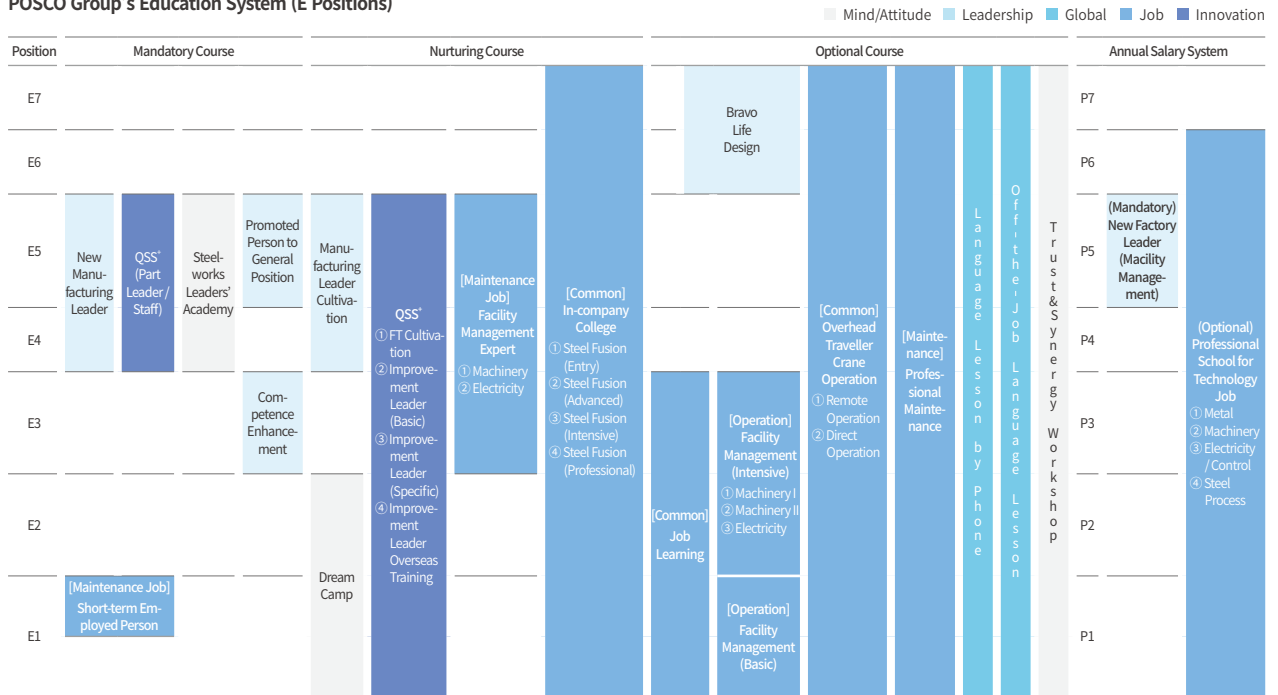
Fourth, we strived to raise our profile as a professional educational institution through management innovation. In the management front, productivity and management system were advanced through innovating its business and revenue structure. In terms of organization management, meanwhile, priority was placed on training con-

POSCO Group’s Education System (P Positions)





POSCO Group's Education System (E Positions)



tent development experts and S-grade instructor, enhancing job category standards of consultant equivalent to research lab, nurturing next-generation consultant candidate, and enhancing ethics-based GWP organizational culture.

**Clear Realization of Management Status and Enhancement of Commitment to Overcoming Current Risks**

Since 2014, POSCO has held IP Concert, a large-scale performance type education course for employees to share the state of management and business conditions and promote teamwork and a common bond. In 2016, employees in their 6<sup>th</sup> to 20<sup>th</sup> year of working for POSCO participated in the two-day intensive camp of awareness education (IP Camp). IP Camp was operated for the purpose of cementing determination to overcome crisis and to encourage mid-level leaders to be armed with awareness. Employees had a chance to reflect upon the role of POSCO in the modern history through topics such as awareness of history, job philosophy, understand management state, and cost management while sharing ideas on how to rise from the era of low growth based on the cases demonstrated by other companies. POSCO operated the positive organization workshop aimed at developing team power of performance generation and value-oriented strength from 2013 to 2016. The unit-based workshop is intended to depart from the existing educational method of focusing on problem-solving but introduce the new organizational development paradigm, Appreciative Inquiry, thus identifying an organization's positive factors and establishing specific execution plans to build an ideal organization envisioned by members. Departments voluntarily applied for the course which took place for two days in Guryongpo Family Camp, Wolpo Camp, Goheung Family Camp, Baekun Mt. Camp, and

Songdon Global Leadership Center.

Furthermore, we contributed to nurturing global talents by spreading group issues through e-learning in a swift manner. A total of 1,189 courses (890 domestic and 299 overseas) were operated with 300,000 employees accessing the HRD portal so far. Three major issues of the group were developed into mandatory courses while timely issues were spread to POSCO and groups such as eradication of power abuse, understanding of the anti-graft act, and POSCO's original technology. Also, we renovated contents (40%) to reflect learners' needs by introducing topics such as understanding of the Middle East, smart MBA, and business book club, contributing to enhancing customized capabilities of the executives at the groups. We also selected and provided excellent e-learning contents to employees such as TOEIC speaking, conversation, grammar, MBA, HR, organization management, and communication leadership.

The post retirement life-long education 'Green Life Design' began in 2001. As there was no retiree in 2016 and 2017 after the retirement age was increased to 60, the life-long education is offered to employees aged 50 or older to help plan life after retirement from a long-term perspective. 'Bravo Life Design' is available in connection with 'Green Life Design'. Participants learn from useful experience and know-how by exploring successful cases of retired POSCO employees, such as becoming a farmer, living in a rural village, working for a new company, and starting a business through collective education and customized consulting about post retirement career and asset and health management. POSCO runs 'Green Life Portal', an online community for both employees and retirees share information necessary to lead happy post retirement life.

Finally, POSCO has run common holiday education of 4 hours on a

quarterly basis for shift workers in our two works since 2016 to establish healthy organizational culture. The topics ranged from leadership skills, safety management, reducing waste, positive mindset, trust and communication to information security, fake subcontract and ethics, cooperation, and health management. The courses were separately offered to foremen and general employees to differentiate responsibilities according to ranks.

### Nurture Next-generation Management Leaders and Train Young Employees into Future Leaders

POSCO runs unique leadership education system to foster next-generation management leaders and support management leaders' performance at their worksites. In 2016, POSCO established 'CEO Academy' for the purpose of responding to future changes in industry and identifying potential industry of new growth. The academy invites outside experts on new technology and business contents to seminars for the top management. Also, in order to enhance executives' understanding and insights on management, 'POSCO Executive Academy' was opened to obtain core knowledge and identify latest trends in different areas by inviting the nation's most renowned professors and experts. All executives in their 2<sup>nd</sup> year of P8 to P12 are required to attend more than one of the courses in five subjects including management strategy, finance, organization HR management, marketing, and technology innovation.

Those promoted are allowed to share management philosophies and the group's values and learn roles and responsibilities required for new positions. After being appointed, EDP is run to select candidates for the next higher positions and foster them, too. We also developed the POSCO-type BDAL process<sup>1)</sup> where excellent leaders are selected and perform long-term tasks to address management issues modeled after actual cases. The course consists of Action Learning, letting learner's present ideas from a multidimensional perspective to create a virtual circle of reflecting ways to solve problems and apply outcome to actual work.

POSCO Group University offers systematic education to new employees of POSCO so that they can become employees with POSCO Group's values and philosophies by developing job-related competency and good character. In 2016, we updated job and character competency education in reflection of the changing industry, adopting educational methodology suitable for the millennial generation. New employees attend the 3-week beginning education and 5-week introductory education to understand 4 major management philosophies<sup>2)</sup>, transforming themselves into employees of POSCO with decent basic competency. To nurture basic competency, we introduced the systemic curriculum based on the 4C<sup>3)</sup> in 2016. The mentor employee system has been designed to help with new employee's adaptation to job. Mentor employees who are selected as excellent talent serve as role model, closely supporting new employees by spreading desirable organizational culture and sharing know-how about company life. In 2016, we enhanced the system's expertise by newly introducing a 2-day training program of mentor employee.

In the meantime, POSCO runs Harmony Workshop for the purpose of helping new employees adapt themselves to new organizations

and grow into manager-level employees. Harmony Workshop is the educational course to let employees realize the true meaning of their work, respect the difference and diversity in organization, and form harmonious relations. This course was conceived in the idea of supporting young employees' adaptation to organization, thus solidifying positive organizational culture. Launched in 2016, the Next Leadership was designed as a discussion program to encourage learners to share ideas on organizational culture improvement and seek balanced growth with other generations. The program is expected to contribute to the organizational development in connection with CEO communication forum. In 2016, 170 employees in their 3<sup>rd</sup> year of work completed the 5<sup>th</sup> education.

1) BDAL process: Project Assigning > Briefing > Developing > Activating > Linked

2) 4 major management philosophies: ethical management, One POSCO, Creative POSCO and Top POSCO.

3) 4C: Compliance, Clarification, Culture, Connection

### Establish systematic education system of global workforce and enhance human competency of local employees

Every year, POSCO's global human training program starts with education for heads of overseas corporations, which was introduced to nurture them into globally competent CEO. The course comprises subjects intended to develop capabilities to analyze and solve management issues such as crisis management competency, financial capability, global business capability, trade response, and labor issue management. Participants evaluated the education as timely and useful in the questionnaire before they returned to their dispatched overseas corporations as they had a chance to learn management know-how from senior executives who had experience as head of overseas corporations. Formerly, overseas employees' education had been exclusively given to those who worked the full two years before being dispatched. However, programs were conducted again to support the soft-landing of the returning employees from overseas corporations. In 2016, we conducted four rounds of education for 102 dispatched employees, strengthening the pipeline for overseas employee training in a systematic manner. In order to strengthen management capability of employees who return to Korea before the end of dispatch, the participation-based PBS and advanced job education were conducted. Employees to be dispatched overseas attended global mind education which required preemptive experience learning.

For core employees among global staff, the HQ conducted 'Global One POSCO' to enhance their awareness by visiting their corporation. The course aims to help employees learn identity and mindset required of POSCO employee and develop the competency to serve as a bridge between overseas employees and those at the HQ. Unlike the education last year, we reinforced the advance learning by introducing topics on leadership, different culture, and flip learning. In addition, POSCO enhanced learner's satisfaction with education by introducing programs, for example, Korean culture experience, solution marketing, lab tour, and works visit.

Education offered for overseas employees are as follows: action learning-based G-JEDP(Global - Junior Executive Development Pro-

gram) for candidate group for managers or higher (30 employees) to address actual issues arising from overseas corporations; G-LD-P(Global - Leader Development Program) which is the Leadership Basic Program for leader candidates selected from general excellent employees (77 employees); excellent overseas employee education to enhance loyalty to the HQ for lower-rank employees (183 employees); and GMP program (6-month dispatch, 6 employees) to learn POSCO's working method and improve network with employees at the HQ. We made sure that each program covers POSCO's values, different culture, Korean culture, and leadership capabilities in a balanced manner to contribute to discovering future management leader by the systematic training of core local employees. Also, we added 9 GTaLK subjects such as negotiation, finance accounting, and entrepreneurship in three languages (English, Chinese, and Japanese, and 27 subjects in total) by using POSCO group's intellectual assets to serve as educational material for employees at overseas corporations. These contents have been uploaded on EP Lite to be readily available for reference.

### **Enhance POSCO Employees' Professional Competency through Job Qualification Certification System and Production Technology Engineer Training**

POSCO conducted four rounds of the Job Qualification Certification Examination in 2016 which was introduced in 2015 for the purpose of enhancing employees' job competency. By taking this test, employees had a chance to build expertise in their job while deepening understanding about other area than their specialty. They also obtained professional knowledge through job school and job competency required of POSCO employees through job-based common course. Job school was well-received by participating employees and internal communicators, as it offered courses on management strategy, marketing, HR, finance, investment, and purchase while the job-based common courses included planning capability, communication skills, and negotiation. In addition, POSCO selects outstanding graduates from Meister high schools, recommended students from colleges, and employees recruited through regular recruitment and provides them with character education and site technical training to nurture excellent production job internship trainees. In 2016, POSCO ran character education program for interns, producing 240 production technology job internship trainees recognized by foremen and part managers. They are required to complete intensive collective training for 3 months in the form of Off-JT at POSCO Group University. After that, they are deployed to worksite departments and work and learn for 9 months in the form of ON-JT. They will receive their final evaluations after 12 months of training. Based on the results of the final evaluations, they will be hired as regular new employees of POSCO.

### **Spread POSCO's Unique Innovative Activities and Enhance Competitiveness through Innovation Training System**

POSCO has a long history of fostering innovative workers and a rich experience of performing tasks. We continue to sharpen competitive

edge based on the accumulated innovation capabilities since the introduction of Six Sigma and POSTIM (POSCO Total Innovation Methodology) which have been systemized as POSCO's unique innovation methodology. The 'project-oriented working method' which produces differentiated outcome by carrying out projects based on creative idea has entered the stabilization stage since it was introduced in 2014. In the latter half of 2016, PSS<sup>+</sup> (POSCO Six Sigma Plus) has been renovated into problem-solving centric system which is more valuable to project execution beyond existing methodologies and tools. In addition to project implementation methodology, we enhanced subjects such as statistical analysis, advanced Excel, report writing, Internet of Things, Big Data, and AI. This course was classified into basic, intermediate, and advanced according to ranks and connected with the innovation belt system. Employees subject to the annual salary system and project team members obtain GB to understand POSCO innovation and problem-solving methodology while full-time project performers must acquire BB certificate to secure independent competency to carry out project. Those who wish to further develop competency can be trained into MBB.

Under the conviction that facility maintenance and improvement capability at site are what defines a company's competitiveness, POSCO has developed QSS<sup>+</sup> (Quality, Stability, Safety Plus) as a classified education which is customized for innovation activities suitable to production sites. The course consists of creation of good working environment for managers (sites supervisor), activity method to maintain the optimal status of site facilities, and inspection and activities to improve management indications at each plant. 70% of the education hours is based on practice. We also developed practice program which is modeled after site facilities to maximize student's participation. Also, to train leaders, we educate problem-solving technique such as problem definition, loss analysis method, and idea spread technique to maximize improvement effect.

In addition, to reduce cost company-wide, we developed 'mindset improvement education on waste reduction' and offered it to executives, managers, engineers and site workers. We have expanded the course to 13 overseas corporations. To that end, we redefined 8 major reductions by reflecting the nature of steel industry while strengthening the connection with actual works by realizing the necessity to improve POSCO's management environment and waste reduction, learning 8 major reduction cases, and practicing reduction identification based on individual work.

### **Develop New Contents and Operate Customized Internal and External Education Courses**

POSCO Group University strives to develop excellent contents to be reflected in the educational courses while training leaders by redefining leadership pipeline in a preemptive manner. New employ course develops and delivers Post Performance Management & Coaching through actual case competition so that new employees learns and simulates 'Best Practice' of member evaluation consisting of target setting, observation and coaching, and evaluation. We also support push-type on boarding program (once a week, 12 weeks in total), helping with new employees' early adaptation to job.

POSCO conducted GPB (Global Platform Business), POSCO's solution marketing best practice program, and 7 rounds of workshop programs tailored for customers. We also offered education for new employees of PECSA(POSCO E&C SAUDI ARABIA) to celebrate the second anniversary of the JV between Saudi Arabia's sovereign fund and POSCO E&C. We also published <Global POSCO, the Great Journey Ver. 2.0>, the best practice book about employees dispatched overseas and their stories for two years in a row, sharing POSCO group's best cases and know-how. Those efforts allowed POSCO Group University to emerge as an HRD institute that not only trains future global management leaders but also contributes to management improvement of relevant agencies and provides customized services and partnership in a timely manner.

Lastly, the Ministry of Employment and Labor introduced a new learning system 'smart training' in 2016 to boost creative training course that makes use of state-of-the-art technology. In our swift response, POSCO developed teaching design type (management strategy simulation), and 4D technology-based type (safety principles), obtaining A-grade national certificate for two types of smart trainings for the first time as Korea's large company. As a result, we contributed to enhancing the capabilities to generate management outcome by raising safety awareness and running management strategy simulation after learning from the company's disaster cases and measures through 4D experience.

### Education Indices

We manage education indices to check the effectiveness of education programs and handle performances regarding employee competence development. Major indices are the number of trainees, training hours per capita, and trainee satisfaction. POSCO pursues training programs which are more effective and essential for nurturing fundamental competitiveness beyond the quantity of trainings. In this regard, training hours and costs per capita have shown a decline, while trainee satisfaction has increased.

Classification	2014	2015	2016
No. of trainees (persons)	356,133	343,199	224,031
Training hours per capita (hours)	128	116	117
Total training costs (KRW in 100 million)	122	200	141
Training costs per capita (KRW in 10 thousand)	68	110	137
Trainee satisfaction (points)	4.65	4.69	4.71

## Employee Data

Classification		2014	2015	2016
No. of total employees	total	17,877	17,045	16,957
	Pohang Works	7,506	7,241	6,969
	Gwangyang Works	6,337	6,150	6,190
	Head Office/Technical Research Laboratories/Offices/Others	4,034	3,654	3,798
Employment Type	Regular workers	17,017	16,321	16,756
	Contract workers <sup>1)</sup>	860	724	201
	Ratio of contract workers	5%	5%	1%
Employment of Seniors <sup>2)</sup>	No. of employees aged 55 and older	2,091	1,915	2,237
	Ratio of employees aged 55 and older	11.7%	11.2%	13%
Gender	No. of female employees	842	879	851
	Ratio of female employees	4.7%	5.2%	5.0%
	No. of female employees with manager position and higher	199	241	279
	Ratio of female employees with manager position and higher	23.6%	27.4%	32.6%
Employment of Handicapped People	Ratio of employees with disabilities	2.4%	2.8%	2.7%
	(POSCO)	241	256	238
	(POSCO HUMANS) <sup>3)</sup>	190	240	239
Average Years of Service		18.1	18	19
Retirement	No. of retirees	1101	757	441
	No. of regular retirees	626	461	-
	Ratio of retirees	6.2%	4.3%	2.53%
Childbirth/Childcare	No. of employees who used maternity leave	67	72	79
	Average length of maternity leave by employee (days/person)	61.6	75.3	73.9
	Rate of return to job after maternity leave	100	100	100
	No. of employees who used parental leave	81	73	88
	(Male employees)	12	6	11
	(Female employees)	69	67	50
	Rate of return to job after parental leave	100	100	96.7
	No. of employees who used paternity leave	499	579	555

1) Contract workers include those rehired after retirement and specialized contract workers such as lawyers and nurses.

2) Seniors are those aged 55 years and older in accordance with Enforcement Ordinance 2 of the Act on Age Discrimination in Employment and the Promotion of Elderly People Employment

3) Standard work place for the disabled

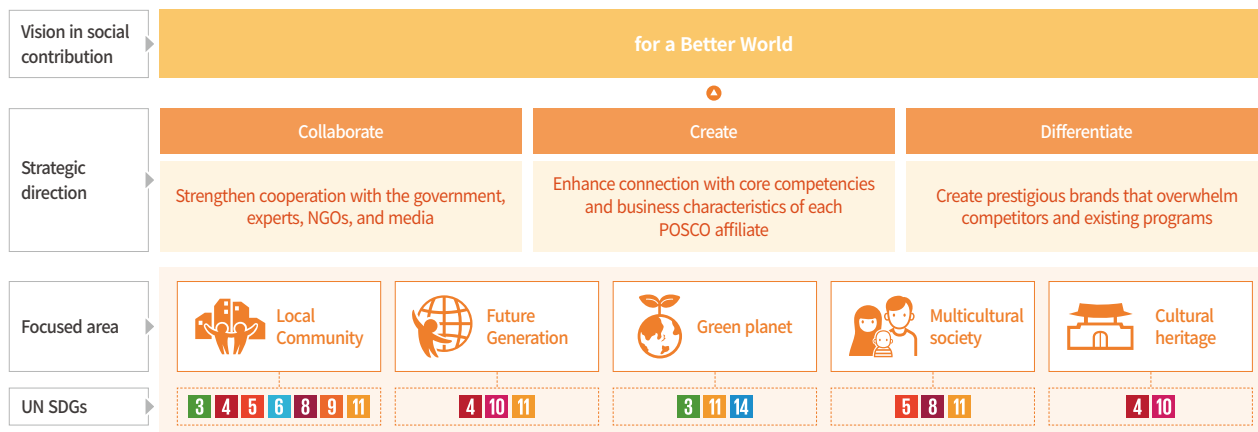
\* Mistakes in data of 2014 were corrected

# Society

Since its foundation, POSCO has been implementing diverse social contribution activities to fulfill its social responsibility aimed at co-prosperity with local communities. We are committed to communicating with all stakeholders and creating social value.

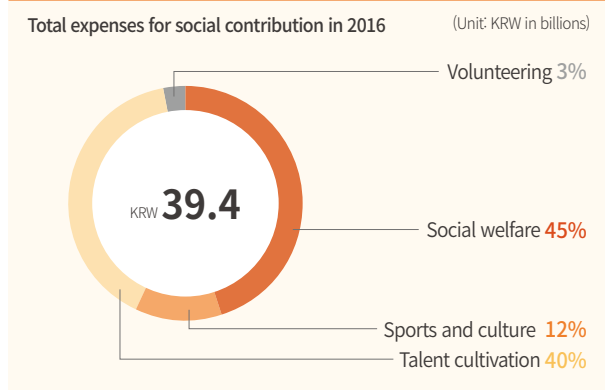
## Strategic Directions and Focused Areas

We carry out practical and effective social contribution activities based on three strategies and five focused areas. And those are continually improved through monitoring.

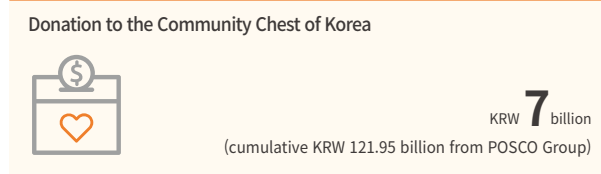


## Social Contribution Performances in 2016

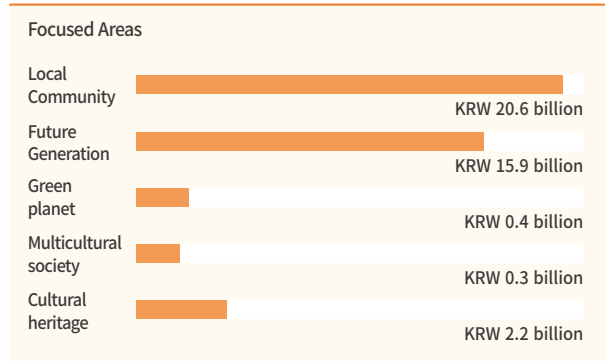
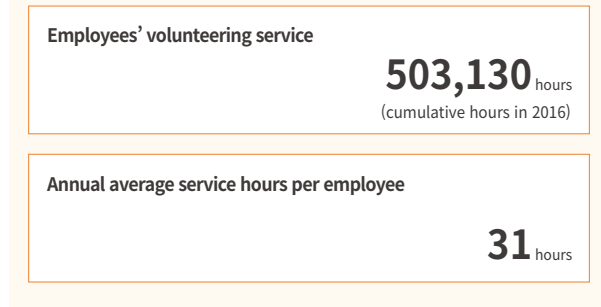
### Expense



\* Based on classification criteria of the Federation of the Korean Industries.



### Volunteering



### No. of contributors to the POSCO 1% Foundation



## Local Community (UN SDGs 3 4 5 6 8 9 11)

POSCO regards shared growth with Local Community as one of our essential responsibilities. The local communities in the 52 different countries where POSCO Group operates are our valued stakeholders. POSCO lays the foundation for growth of local communities by supporting housing, job, culture, and education in Pohang, Gwangyang, Cilegon City where Indonesian integrated steel mill is situated, and in Vietnam where POSCO's plant operates. Also, we encourage employees to take part in the sharing activities with local communities by carrying out voluntary works in daily life.

### Activities for Sister Village

Starting with Hagwang Village, Gwangyang in 1988, we have continued our "One Department for One Village" activities. We have 202 sister villages in which POSCO employees participate in an array of philanthropic activities. The living environment in sister villages is taking turn for the better as POSCO employees work together with local residents in seeking shared growth.

#### Sister Village

(Unit: cases)

Classification	No. of sisterhood relationships		
	Village	Organization	Total
Pohang	121	6	127
Gwangyang	66	9	75
Total	187	15	202

\* Population in Pohang: 522,030 persons, population in Gwangyang: 155,700 persons (as of the end of December 2016)

### Sharing Saturday

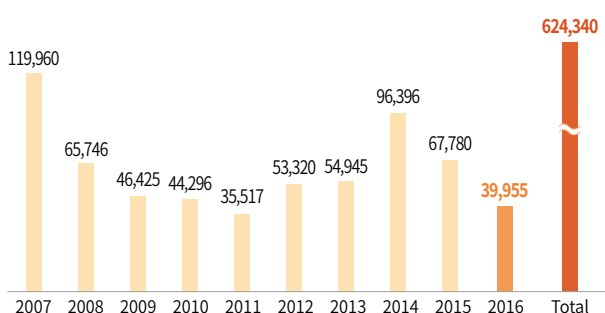
POSCO employees visit marginalized class in need or welfare institutions on one Saturday of every month in 'Sharing Saturday' program and perform voluntary activities to create inclusive society.

### Donating Lecture Fees

POSCO has conducted the "Donating Lecture Fees" campaign, where employees donate fees received for external lectures back to society since 2007. Such donations go to the POSCO 1% Sharing Foundation as scholarships for local teenagers through the Chin Chin Rainbow Program of the foundation.

#### Donation of Employees' Lecture Fees

(Unit: KRW in million)



### POSCO Steel House

Since 2009 when POSCO first donated steel houses for fire-stricken families using our expertise in steel, the company has been providing low-income families who lost their houses to fire across the nation with steel houses. In 2016, POSCO built 22 steel houses made of environmentally friendly materials and have earthquake-proof design for six families whose houses had burned down, helping these families come back to normal lives quickly.



POSCO Steel House

### Job Creation by Supporting Social Enterprises

POSCO supports the establishment of social enterprises for the purpose of improving quality of life through stable job creation. Following the setup of POSWITH in December 2008, the nations' first standard workplace to be recognized for the disabled, POSCO continued to open POSECOHOUSING, Gwangyang POSPLATE, and Incheon Songdo SE. In January 2013, POSCOHUMANCE was launched by merging POSWITH and POSECOHOUSING. What's more, we transferred our shares in POSPLATE and Songdo SE as well as our technologies to NGOs and other institutions for free in a bid for returning our profits to society.

### Home Care for The Seniors

In Pohang, POSCO operates Home Care for The Seniors by hiring low-income senior citizens from the community who provide home care services to other elderly people with chronic diseases. In 2015, 180 senior citizens with geriatric illness received nursing service and 30 others found jobs through this project.

### Project to Support Overseas Welfare Facilities

We support 100 welfare facilities in 11 countries such as Malaysia, Mexico, India, Indonesia, China, Turkey, Thailand, the Philippines, Poland, and Japan in which POSCO's overseas corporations and offices are located. Employees there visit welfare facilities and carry out voluntary work on a regular basis. We are also providing better educational environments and living conditions from building toilets and giving hygiene education at schools in local communities to building libraries, giving meal money and operating sports days and cultural programs.

## Future Generation (UN SDGs **4 10 11**)

With a belief that talents cultivation ensures a better future, POSCO has conducted an array of activities aimed at fostering future talents such as establishment of schools, operation of college student volunteer corps, and scholarship supports based on the foundation spirit of contributing to the nation's growth.

### POSCO Youth Volunteer Corps "Beyond"

The POSCO Youth Volunteer Corps "Beyond" was launched in 2007 to let college students experience and feel coexistence with others. Every year, 100 college students are selected as the "Beyond" members to conduct sharing activities such as building the Love House, and exchanging culture. In 2016, in particular, the third Vietnam Beyond consisting of 20 local college students held the Korea-Vietnam cultural event jointly with local youth groups, implementing sharing activities beyond borders.



POSCO Youth Volunteer Corps "Beyond"

#### Overseas Volunteering Activities of POSCO Youth Volunteer

2008	Delhi, India	Built 10 houses in the impoverished village of Bawana
2009	Chonburi, Thailand	Conducted volunteering activities together with employees in Thailand and a visit to POSCO-TBPC
2010	Bandung, Indonesia	Built 10 houses in local quake-stricken areas
2011	Bogor, Indonesia	Employees of Krakatau Indonesia participated in the house-building volunteer work.
2012	Tien Giang Province, Vung Tau Province, Vietnam	Participated in Vietnam POSCO Village project with the house-building volunteering service
2013	Delhi, India	Built additional 10 houses in the impoverished village of Bawana
2014	Vung Tau Province, Vietnam	Built 10 houses in Tan Thanh district and conducted joint volunteering activities by launching the first "Vietnam Beyond" consisting of local college students
2015	Vung Tau Province, Vietnam	Built 10 houses in Tan Thanh district, supported the construction of Steel Bridge, and held a cultural exchange event jointly with Vung Tau Youth Association
2016	Vung Tau Province, Vietnam	Built 10 houses in the POSCO Village, Tan Thanh district, and held a cultural exchange event jointly with Vung Tau Youth Association

### Dream Bridge

POSCO is running the Dream Bridge, a tailored career counseling program to help middle school students find out their dreams and talent. In particular, this program provides middle school students in island areas and impoverished villages with both career counseling programs and visits to POSCO steelworks. It also features that our employees engaging in HR, training, marketing, translation, data processing, and engineering visit to their schools to deliver more practical information and supports.



Dream Bridge

### POSCO Educational Foundation and POSCO TJ Park Foundation

POSCO established The POSCO Educational Foundation and POSCO TJ Park Foundation which operate schools and scholarship projects in order to offer promising students at home and abroad better educational opportunities, contributing to cultivating future talents.

#### POSCO Educational Foundation

Established in 1971, POSCO Educational Foundation has been operating 13 schools (two kindergartens, five elementary schools, two middle schools, and four high schools) in Pohang, Gwangyang, and Incheon. It devotes itself to developing students' aptitude by promoting related education among those schools with the aim of fostering creative and ethical talents who can fulfill their duty and responsibility as a global citizen.

#### Major Activities of the POSCO Educational Foundation

School operation	<b>13</b> schools (two kindergartens, five elementary schools, two middle schools, and four high schools)
Donation (1976-2016)	<b>984</b> billion (KRW 910.8 billion for education and facilities, KRW 68.8 billion for profitable business, KRW 4.4 billion for employee welfare fund)



### POSCO TJ Park Foundation

Starting as the Steel Scholarship Foundation in 1971, POSCO TJ Park Foundation is running diverse scholarship projects named POSCO TJ Park Prize, POSCO Asia Fellowship, TJ Park Science Fellowship, and POSCO Regional Scholarships, to nurture future talents in Korea and other Asian countries.

#### Major Projects of POSCO TJ Park Foundation

##### POSCO TJ Park Prize

- Aim to commemorate the achievements of the founder, TJ Park, and to stir up POSCO's founding spirit of "respecting creativity, nurturing talent, and promoting philanthropy"
- Awarded 32 persons for 10 years since the inception in 2006
- Winners in 2016 (held the award ceremony on March 30, 2016)
  - Science Prize: Cho, Yoon-je (Professor of Life Science, POSTECH)
  - Education Prize: KUMOH Technical High School
  - Philanthropy Prize: Raphael Clinic



##### POSCO Asia Fellowship

- Academic and cultural exchange project aimed at enhancing mutual understanding among Asian countries and creating friendly image for Korea and POSCO
- Major projects
  - Scholarships to Asian students studying in Korea: 324 students from 28 countries since 2005 (including four African students)
  - Fostering Asia-specific professionals: 93 persons from 21 countries since 2006
  - Supports for research on Asian humanities and social science: 256 projects from 15 countries since 2005 (196 in Korea, 60 in other countries)
  - Scholarships to leading Asian universities: 3,844 students in 33 universities of 17 countries since 2005
- Quarterly literary journal "ASIA": Published 42<sup>nd</sup> edition since the launch in May 2005



##### TJ Park Science Fellowship

- Select 30 graduates in doctoral studies, post-doctoral researchers, and young assistant professors in the fields of mathematics, physics, chemistry, and biology and support them for two to three years in order to cultivate world-class scientists
  - Supported a total of 243 persons since November 2009



##### POSCO Regional Scholarships

- Major projects
  - POSCO Rising Star Scholarship
    - : Promising high school students in Pohang and Gwangyang are selected and provided with high school fees and special scholarship when they enter the university. (715 students since 2006).
  - POSCO Vision Scholarship
    - : Scholarship is awarded to students who work hard despite difficult circumstances (311 students since 2006).



## Green Planet (UN SDGs 3 11 14)

As POSCO operates steelworks by the seashore, we have continued to improve marine environment together with local fishermen and we strive to take a leading role in protecting the sea. The Clean Ocean Volunteer Group, composed POSCO employees, is playing a vital role in cleaning the sea through their environmental protection activities.

### Ocean Cleaning Activities

The Clean Ocean Volunteer Group consisting of in-company scuba diving club members started in 2009 to help improve the marine environment. In 2016, the group carried out environmental protection activities such as removing marine litter in coastal areas of Pohang, Gwangyang, Seoul, Incheon, and Changwon where POSCO Family companies' business sites are located, in which a total of 1,369 members participated.

#### Clean Ocean Volunteer Group's Activities in 2016

Classification	Volunteers (persons)	No. of activities	No. of participants	Amount of removal (tons)
POSCO Pohang	245	34	788	64
Gwangyang	40	14	318	67
Seoul	26	7	239	3.5
Sub total	311	55	1,345	134.5
Group affiliates	59	3	24	1
Total	370	58	1,369	135.5

#### Clean Ocean Volunteer Group's Cumulative Activities (2009~2016)

Classification	Volunteers (persons)	No. of activities	No. of participants	Amount of removal (tons)
POSCO Pohang	245	284	10,453	674
Gwangyang	40	86	1,903	581
Seoul	26	38	754	58
Sub total	311	408	13,110	1,313
Group affiliates	59	44	5,997	54
Total	370	452	1,907	1,367



Clean Ocean Volunteer Group

### Improvement of Low-income Families' Residential Environment

POSCO has strived to improve residential environment of low-income families (energy-poverty class) by organizing the Green Home Voluntary Service Corps together with affiliated companies including POSMATE and POSCO Energy in 2016. Major activities of the corps include papering walls, laying new insulation, replacing conventional bulbs with energy-efficient LED bulbs, and donating furniture by using employees' talent and ability. The level of energy efficiency improvement after these activities is monitored to raise effectiveness. Until 2016, the Green Home Voluntary Service Corps improved residential environment of 39 households.

## Multicultural Society (UN SDGs 5 8 11)

Today, the increase of multicultural families has become a critical issue for Korean society that pursues national unification. In response, POSCO is proactive in supporting them to get jobs and live a stable life with the aim of helping them grow into members of our society.

### Supports for "Café O Asia"

"Café O Asia," established by POSCO and SESNET (Social Enterprise Support Network), is the first social cooperative certified by the Ministry of Employment and Labor. It is a social franchise brand created by a cooperative of small-scale cafes. Café O Asia hires migrant wives to support their self-reliance and adjust to their new life in Korea. It reduces costs through group purchasing and marketing and invests profits generated from the franchise business in campaigns for multicultural families and new job creation. Meanwhile, multicultural events and training sessions are implemented to help franchised cafes play a part in multicultural networks.

#### Social Cooperative for Multicultural Café "Café O Asia"

- Obtained certification as the first social cooperative by the Ministry of Employment and Labor on January 15, 2013
- 96 employees (including vulnerable class and migrant females) are working at 29 franchised cafes as of December 2016.

### Helping Multicultural Women Become CEOs

Beyond creating jobs and education for migrant wives, we provide start-up assistance program for their integration into Korean society and economic independence. Migrant wives often work as daily employees or have difficulties in dedicating many hours to job due to childcare, which cause relatively lower economic stability. POSCO has thus presented career path and model through which they can be grown as apprentices, baristas, managers, and ultimately CEOs. In 2016, a migrant wife from the Philippines opened a store in Shindae-bang and another from North Korea started Baedari branch. In 2017, POSCO plans to offer a more systematic education on becoming CEO through advance start-up academy and select three teams to help start business.



Helping Multicultural Women Become CEOs (CEO of the Café O Asia, Lunar Jennerian)

## Cultural Heritage (UN SDGs **4** **10**)

POSCO takes the initiative in preserving cultural assets and heritage for the purpose of promoting the excellence and pride of Korea's traditional culture. POSCO has held Yi-Eum Exhibition aimed at reinterpreting the use of intangible cultural heritage in modern era and the Small Concert for Our Heroes also known as "Woo Young Eum" to provide support and appreciation to manufacturing workers in cooperation with the POSCO 1% Sharing Foundation<sup>1)</sup>. Moreover, we share the joy of art and culture with more people through a wide array of Mecenat activities, for example, by organizing music concerts and operating cultural facilities.

1) For more information, see the POSCO 1% Sharing Foundation's cultural heritage preservation projects on page 109.



Yi-Eum Exhibition to Connect Generations

### POSCO Center Music Concert

First organized in 1999, the POSCO Center Music Concert is loved by local residents to enjoy cultural life. Over the past 16 years, a total of 167 concerts have been held. The concert is one of the most popular concerts in Teheran-ro by presenting various genres from Korean traditional music, to K-pop, classical music and opera. In 2015, the program was reborn into the POSCO Kids Concert and held six concerts for children and their parents. The concert attracted 3,058 audiences in 2016.



POSCO Kids Concert

#### POSCO Kids Concert in 2016

Date	Title	Genre	Age	Audience (persons)
Feb. 13 (Sat.)	Choi Hyun-woo' Magic Show	Magic	4~15	611
Apr. 15 (Fri.)	Paper Dad	Musical	4~10	350
Jun. 17 (Fri.)	Peter and Wolf	Ballet	7~15	497
Aug. 20 (Sat)	Secret Jyujyu	Musical	4~10	594
Oct. 15 (Sat)	Tobot Mission Game	Musical	4~10	517
Dec. 17 (Sat)	Nutcracker Suite	Ballet	7~15	489
Total				3,058

### POSCO Art Museum

Since its opening in 1998, the POSCO Art Museum has contributed to introducing local residents to a wide variety of art exhibitions and discovering emerging artists. With the vision of 'an easy-to-reach museum and an open space in your life', the POSCO Art Museum plans programs transcending the past and present, the tradition and modern era, and times and genres. In 2016, the Museum organized a total of eight exhibitions including "The Four Gracious Plants are blooming again," and "Lee LeeNam - The Glitter of PoseidLEE's Eyes," drawing some 40,000 visitors.



POSCO Art Museum

### POSCO Hyoja Art Hall / Baekun Art Hall

POSCO runs Hyoja Art Hall (Pohang, opened in February 1980) and Baekun Art Hall (Gwangyang, opened in July 1992) to give residents in Pohang and Gwangyang better access to cultural life and expand the foundation for art and culture. The art halls present classical music, operas, ballet, plays, pop concerts, and movies which are open to the public for free. In 2016, about 22,000 audiences watched 26 movies in Hyoja Art Hall. 14 local cultural organizations rented the facilities without charge. Baekun Art Hall showed two movies every month (total 24 movies) and lent spaces for events (40 cases) to art organizations and POSCO Family companies, through which 98,549 persons and 27,375 persons enjoyed movies and events, respectively. Particularly, 14 exhibitions were held to offer local people chances for introducing steelworks and sharing culture and arts. In particular, POSCO has held the Korean college traditional music festival for the popularization of Korean traditional music and foster young Korean classical musicians at Baekun Art Hall in every October since 2008.



Hyoja Art Hall in Pohang

## POSCO 1% Sharing Foundation

The POSCO 1% Sharing Foundation is a non-profit organization which is operated by a fund that employees of POSCO, affiliated companies, and outsourcing companies donate 1% of their salary every month.

### Vision

With the vision of “Sharing 1% for a Better World,” the foundation is committed to spreading the value of sharing and creating a better tomorrow.

### Purpose

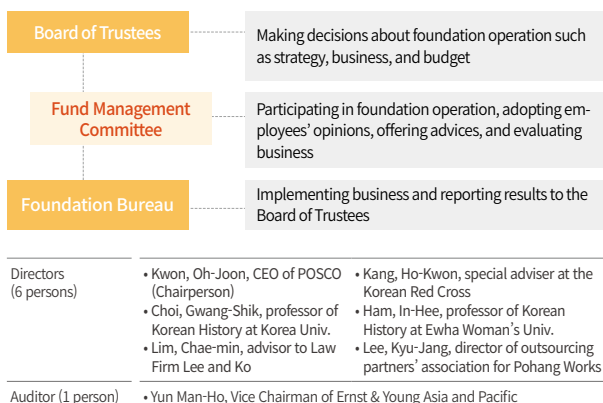
We pursue sustainable growth together with local communities by engaging in diverse social contribution activities to spread the culture of 1% sharing.

- Promoting social welfare of marginalized people in Korea
- Conducting relief activities at developing regions at home and abroad and supporting self-reliance of people in such regions
- Fostering culture and art and preserving traditional culture
- Achieving other goals of the foundation

### Operation Direction



### Organization



### Projects of the Foundation

Major social contribution projects of the POSCO 1% Sharing Foundation include building the POSCO Steel Village, preserving cultural heritage, supporting self-reliance of future generations, carrying out volunteer services with employees.

#### POSCO Steel Village

##### Constructing the POSCO Steel Village in Vietnam

The POSCO Steel Village Project, a representative project of the POSCO 1% Sharing Foundation, is building a total of 104 houses for low-income families in Ba Ria-Vung Tau province where POSCO Vietnam is located. This project started in 2014 in collaboration with local government and the Habitat for Humanity, an NGO, as part of the migration policy for poor people in that area. As of the end of 2016, 85 houses were built, and remaining 19 houses will be completed by April 2017. POSCO Vietnam, POSCO SS Vina, POSCO A&C, and many affiliates have joined this project and a lot of volunteers including “Beyond” and local employees have also provided supports in many ways.



POSCO Steel Village in Vietnam

##### POSCO Steel Village Project

This project aims to build 104 houses with the participation of POSCO Group employees and members of the POSCO Youth Volunteer Corps “Beyond” in Vietnam. The local government offers land and the POSCO 1% Sharing Foundation pays the construction costs. POSCO A&C is responsible for house design that use steel as a main resource of roof and pillars, maximizing housing performance.

#### Building Steel Welfare Facilities in Korea

This project is to build welfare facilities for the underprivileged in local communities by capitalizing on POSCO's unique “Steel House Construction Method,” supporting their self-reliance. The POSCO 1% Sharing Foundation has built the Happy Steel House for senior citizens in Pohang (Jan. 2013), Happy Steel Welfare Center for vision- and hearing-impaired people in Gwangyang (Jan. 2014), Gangbuk Youth Dream Center for children and youth in Seoul (Jun. 2015), and Donggurang Steel Land for the youth in Incheon (2016). Particularly, the Donggurang Steel Land, as a kids café, has diverse facilities such as not only artificial climbing wall, jungle gym, and futsal pitch where children can foster creativity and healthy body but rest zones for their parents. Other features include petal-shaped exterior design made of corrugated steel pipes, open view by “steel curtain wall,” high-manganese flooring to prevent noise, and more. The Donggurang Steel Land will be a nice landmark for Incheon.



Donggurang Steel Land in Incheon

### Indonesian Social Enterprise PT KPSE SI

In 2014, the POSCO 1% Sharing Foundation founded PT KPSE Services Indonesia ((PT Krakatau POSCO Social Enterprise Services Indonesia) in Cilegon City where POSCO's integrated steel mill is located in cooperation with the Korea International Corporation Agency (KOICA). This enterprise offers vocational trainings to the youths in Samangraya, Kubangsari, and Tegalratu villages and returns its revenues to the local communities through social contribution activities. Selected trainees engage in mechanical maintenance, welding, drainageway management, and recourse recycling in the steel meal for six months and also take training programs inducing computer education for enhancing job competence every weekend. When their skills are improved, they are positioned to more stable jobs at our suppliers and outsourcing partners. As of 2016, about 78% of trainees succeeded in getting jobs and in April 2016, the fifth trainee group was launched.



Gully cleanup activity of the Indonesian social enterprise PT KPSE SI

### Myanmar Steel Bridge

The POSCO 1% Sharing Foundation is carrying out a project to build steel bridge in Yowa Village, Myanmar. By replacing aged wooden bridges which raise safety concerns with steel ones, we expect that villagers can cross the bridge safely and the local economy will grow as new bridge will bring in traffic to village. 2.5 meters wide and 20 meters long, Myanmar steel bridge is built with prefabricated method. Materials prepared in Korea are delivered to Myanmar where the bridge is assembled and laid. The thick plates and PosMac produced in Pohang Works are used in the framework. Designed by POSCO A&C and built by POSCO E&C, the bridge delivers utmost safety. As the design and manufacturing process is finished, the construction began in January 2017 with completion expected in May.

### Preservation of Cultural Heritage

#### Small Concerts for Our Heroes

The POSCO 1% Sharing Foundation has held a concert (named Woo Young Eum) to honor manufacturing workers since 2015, as part of a project to support major intelligible cultural heritage. The concert is designed to offer a thankful and cheering message to manufacturing workers in the industrial complex in Gusan, Jechon, and Youngam in 2016. With the crossover of traditional music and popular songs, the concert was dedicated to the task of popularizing our cultural music. The concert also gave less known singers an opportunity to introduce their own songs. We are intending to put on more concerts in 2017.

#### 2016 Concert Summary

##### 4<sup>th</sup> Concert | Gusan National Industrial Complex (March, 350 participants)

Performers: Park, Ae-ri (Korean classical musician), You, Yeol (singer), Ryu, Jeong-Pil (tenor), Eoulim (Korean classical band), Youth Chorus (Gusan citizens' choir), etc.

##### 5<sup>th</sup> Concert | Jechon Industrial Complex (May, 400 participants)

Performers: Nam, Sang-Il (Korean classical musician), Malo (jazz singer), Travel Sketch (folk song duo), Goraeya (Korean classical band), etc.

##### 6<sup>th</sup> Concert | Daebul National Industrial Complex in Yeongam (July, 350 participants)

Performers: Kim, Young-Im (Korean classical musician), Woo, Ju-Ho (baritone), Kingstone Rudieska (ska band), Kim, Ga-Hyun and Choi, Jeong-Min (pansori geniuses), etc.

### Connecting Generations, Yi-Eum Exhibition by Decorative Knifemaker<sup>1)</sup>

Jangdo is a little knife with sheath used for self-defense and decoration. Decorative Knifemaker, organized as the second project of the Connecting Generations, Yi-Eum Exhibition, featured craftsman Park Jonggun, the intangible cultural property and other 12 sculptors in their pursuit of reinterpreting the use of Korean traditional knife in present days. At the Yi-Eum-Exhibition held at the POSCO Center (Sep 27- Oct 12, 2016) and Ilsan KINTEX (Nov 11 – Nov 13), 44 works were exhibited and attracted 3,866 visitors. The revenue from the sales of exhibited works was donated to Department of Traditional Arts and Crafts of Korea National University of Cultural Heritage. Chairperson Seo Dosik of Korea Cultural Heritage Foundation (professor at Seoul National University) who is also serving as art director of the Yi-Eum exhibition said, "the project presents us with an excellent opportunity to prove that traditional cultural properties are not merely legacy of the past but they can generate new values today". The foundation will continue to support the exhibition to help preserve our traditional handicrafts.

1) Jangdojang (Decorative Knifemaker): The national cultural property No. 60. Jangdo, or decorative knife, refers to small portable knife used for self-defense or decoration in everyday life. The craftsman of Decorative Knife is called Jangdojang.

**Support for the Future Generation’s Self-reliance**

**Chin Chin Rainbow Project<sup>2)</sup>**

The POSCO 1% Sharing Foundation offers customized career guidance to young students in need in cooperation with Ministry of Gender Equality & Family through Chin Chin Rainbow Project. This project provides promising students with assistance for certificate examination and school study. In addition, a wide variety of programs are offered such as tour of relevant agency, best case presentation, reunion, and regular voluntary works. In 2016, a total of 58 students benefitted from this project.

2) Chin Chin Rainbow: Celebrating its third anniversary, the Chin Chin Rainbow connotes a friend who help adolescents with diverse backgrounds and stories such as rainbow colors realize their dreams.

**POSCO Care**

POSCO Care is the project to subsidize medical cost for child patients from low-income family in the local community, thus ensuring that they grow into confident leader in the future. In 2016, POSCO supported their cancer treatment cost, purchase of special treatment equipment, burn surgery, full mouth recovery treatment, and laser treatment across the nation.

**Beneficiaries**

Name	Gender	Diagnosis	Supports
Choi, OO	Male	Langerhans Cell Histiocytosis	Anticancer treatments, etc.
Shim, OO	Male	Lennox Gastaut Syndrome	Special medical equipment
Kong, OO	Male	Deep-seated 2&3 Degree Burn	Surgery fee
Ha, OO	Female	Cement Dental Caries	Entire teeth rebuilding fee
Park, OO	Female	Ota Nevus	Laser treatment fee

**Employee Volunteer Participation**

**POSCO 1% Foundation Volunteer Corps**

Inaugurated in 2015, Employee-led Global Volunteer Corps dispatched 112 employees of the 3<sup>rd</sup> and 4<sup>th</sup> term Corps to the POSCO Steel Village site in Vietnam for a 9-day house building voluntary works in 2016. The Corps members worked in school for the disabled and orphans, building houses for local residents (home partners) living in poor conditions. Local employees at four corporations in Vietnam (POSCO-Vietnam, POSCO SS Vina, VST, and VHPC) also joined hands with the members dispatched from Korea in building houses. In January 2017, 40 employees on the 5<sup>th</sup> term Corps carried out voluntary house building works.

**Talent Donation Corps**

The POSCO 1% Sharing Foundation encourages employees of POSCO Family companies to join talent donation activities. They display their skills in making furniture, teaching students, photographing, repairing facilities, and many volunteer services, delivering love to the underprivileged in the local communities. In 2016, a total of 23 talent donations corps implemented volunteer services in Pohang, Gwangyang, and Seoul, 21 of which were sponsored by the foundation.

**Customized Volunteer Service**

Customized volunteer service is promoted to motivate employees to join sharing love activities and give beneficiaries more practical helps. Each department can develop volunteer services meeting needs of beneficiaries and require supports to the POSCO 1% Sharing Foundation. And then, the foundation supports their requirements corresponding to its strategic directions. In 2016, 79 volunteer service projects – 41 from 24 departments of Pohang Works, 24 from 19 departments of Gwangyang Works, 14 from 13 departments of Seoul Office, and 23 from 18 local subsidiaries in 10 countries – received supports from the foundation.

**Donors-selected Services**

The fund of the foundation is raised by employees’ donations and the Group’s matching grants. Therefore, the POSCO 1% Sharing Foundation helps each subsidiary who is a donor to implement customized social programs that meet the characteristics of local communities where their worksites are located. In 2016, 21 subsidiaries carried out a total of 85 social contribution programs in this manner.

## CASE REPORT

### POSCO Employees' Voluntary Service

Our employees spend 31 hours on voluntary services on an annual basis. Starting with a sisterhood relationship in 1988, our voluntary service has extended to diverse sharing activities with local communities, through which our company was able to create a better community environment and gain trust from local residents. Recently, talent donation based on job features, skills, and professionalism is implemented as well. We will continue to focus on voluntary services that can offer more practical and effective supports to beneficiaries.

#### Techno Pro Bono Corps

POSCO Technical Research Laboratories implements Techno Pro Bono activity aimed at developing and distributing tools and instruments such as special chair for farmers, lighter spade, wear-resistant sickle, and seedling transplanter for sister villagers and residents. The self-developed special chair features wide casters and backstop bearing which can roll in one direction, ensuring stability and helping farmers alleviate pain in the waist and knee when working on their farms and in greenhouses. The lighter spade made of the high strength steel produced at POSCO is 20% lighter than current ones and demonstrates high wear resistance by special heat treatment. To make a strong sickle which can cut not only grasses but also trees, we tried to remake the form of traditional sickle with high strength and high toughness made of steel loaded with manganese. We have a plan to make much lighter and more durable spades and sickles through design optimization going forward.

#### Cultural Assets Preservation Volunteer Corps

Employees interested in our cultural assets join the Cultural Assets Preservation Volunteer Corps to receive cultural property education from experts and perform cultural asset preservation activities, in which their families are also able to participate. Every year, about 150 members visit not only mountain fortresses, royal palaces, and royal tombs which are well-known but unsung cultural assets for care and promotion.

#### Voluntary Photographing Corps

The Voluntary Photographing Corps takes pictures for multicultural families, single-parent families, and the elderly who cannot visit photo studios. The corps members encompass not only beginners interested in photographing but also those who have skills. They receive photo education for over 20 hours and provide one-stop service from taking pictures to retouching and printing.

#### Voluntary Agricultural Machine Repair Corps

The Voluntary Agricultural Machine Repair Corps, consisting of about 90 employees working at Facility Technology Department of Gwangyang Works, visits farmers to repair broken agricultural machines. They completed special trainings on agricultural machine repair for two months from the Gwangyang Agricultural Technology Center. They visit farm villages in local areas on weekend and holidays to repair various agricultural machines such as cultivators, farm masters, power saws, sprayers, mowers, rice-planting machines.

#### Voluntary Wallpapering Service Corps

Major activity of the Voluntary Wallpapering Service Team in Gwangyang is to offer services in wallpapering or floor papering to senior citizens who live alone and grandparents-supported families in local communities. A lot of team members have obtained the license for wallpapering by completing three-month course hosted by Gwangyang City to give better services.

#### Teaching Service Corps

The Teaching Service Team, launched by 30 engineers with short service years at Gwangyang Works, provides children at community child centers with academic guidance. They teach children English, mathematics, and other subjects and strive to engender interest in study. In addition, they offer diverse programs aimed at enhancing creativity and counseling about grievances to children, helping build an upright character.

#### Reform Volunteer Corps

Reform Volunteer Group fixes up houses to improve the living environment of local residents. The Group has joined forces with outsourcing partners and PHP suppliers to reach out to larger communities. Members attend wallpapering, linoleum flooring, and window fixing classes to upgrade house fixing skills. In 2016, 172 members renovated 37 houses in 6 villages in Pohang.

#### Golden Time Service Corps

20 employees, most of them from Safety and Fire Department, with first-class licenses in first aid treatment offer voluntary teaching service on first aid treatment and cardio-pulmonary resuscitation (CPR) in school, public institutions, and welfare facilities in Pohang. They also join local events to provide first aid service and spray fire extinguisher. They attend class to enhance professional competency.

#### Voluntary Service Corps for Children's Happiness

Voluntary Service Team for Children's Happiness was organized to provide children who experienced abuse with chances to develop social skills and obtain both psychological and emotional stability. Employees at Pohang Works are teamed up with children 1:1 and perform group activities such as cultural experience and outdoor program. What's more, they protect children from being abused again through intensive monitoring with the help of professionals.

#### Hand Acupuncture Service Corps

Organized in June 2016 by employees at Pohang Works, Hand Acupuncture Service Team attend professional education on hand acupuncture and massage before practicing service for senior citizens in local community. A total of 50 members performed 55 rounds of voluntary works for 1,061 elderly people over six months.

**Talent Donation Activities**

Service Corps	Major Activities	Area
Clean Ocean Volunteer Group	Preserving the marine ecosystem by removing marine waste and starfish in coastal area where POSCO Group's worksites are located	Nationwide
Cultural Assets Preservation Volunteer Group	Offering special education on cultural assets and preserving cultural assets in Seoul	Seoul
Voluntary Photographing Corps	Taking photos of senior citizens, single-parent families, and multicultural families who cannot visit photo studios due to hardship	Seoul
Green Home Team	Helping low-income families reduce energy costs by papering wall, laying linoleum, replacing LED lights, and diagnosing energy efficiency	Seoul
Voluntary Furniture Service Team	Making customized home furniture for low-income families	Seoul
Techno Pro Bono Corps	Developing ergonomic agricultural equipment and repairing diverse farming tools by capitalizing on advanced technologies of our research laboratories with the aim of helping farmers around our steelworks	Pohang, Gwangyang
Voluntary Service Team for Children's Happiness	Providing elementary and middle school students with diverse education opportunities in order to help them have sense of self-respect and dreams of a better future	Pohang
Reform Volunteer Group	Reforming houses of low-income families such as recipients of National Basic Livelihood benefits and senior citizens living alone	Pohang
Serving Volunteer Group	Visiting senior citizens in local areas to become companions and deliver warmhearted services, and widening relationship with local communities	Pohang
Golden Time Service Team	Offering voluntary teaching service on first aid treatment and cardio-pulmonary resuscitation (CPR) in school, public institutions, and welfare facilities	Pohang
Happiness Sharing Mural Service Team	Contributing to making Pohang beautiful by painting murals on walls of certain residential areas	Pohang
Love Study Room Volunteer Team	Employees' talent donation to teach local adolescents who have difficulties in advanced learning due to economic hardship	Pohang
Electrical Repair Volunteer Team	Replacing old lighting systems and checking safety of local houses to prevent electrical hazards	Pohang
Hand Acupuncture Service Team	Offering hand acupuncture and massage services to ailing senior citizens by employees who completed professional education	Pohang
Friend Volunteer Group	Supporting group wedding ceremony for multicultural families, helping hand for farming villages, and inviting multicultural families to provide educations on Korean culture since 2003	Gwangyang
Engineer Teaching Volunteer Group	Providing customized education on English, math, and science to children of local childcare centers by capitalizing on engineers' talents	Gwangyang
Voluntary Agricultural Machine Repair Corps	Repairing agricultural machinery, house gates, and steel structures of local farming families by employees with ironsmith and maintenance skills	Gwangyang
Voluntary Wallpapering Service Team	Replacing wallpaper and linoleum of houses resided by senior citizens living alone and children raised by grandparents	Gwangyang
Foot Massage Volunteer Group	Visiting local senior citizen welfare facilities to offer foot massage and love-sharing services	Gwangyang
PC Repair Volunteer Team	Repairing broken PCs at public facilities such as community and welfare centers in local communities	Gwangyang
Electric Device Repair Volunteer Team	Arranging wires and broken electric facilities in local welfare centers twice a month	Gwangyang
Hairdressing Volunteer Team	Offering free mobile hairdressing services to senior citizens who have difficulties in moving around	Gwangyang
Photographing Volunteer Team	Visiting sisterhood villages and senior citizen centers around steelworks to take photos of aged people	Gwangyang



# 03

## Financial Statements

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## Independent Auditors' Report

### The Board of Directors and Shareholders

POSCO:

March 2, 2017

We have audited the accompanying consolidated financial statements of POSCO and its subsidiaries ("the Company"), which comprise the consolidated statements of financial position as of December 31, 2016 and 2015, the consolidated statements of comprehensive income (loss), changes in equity and cash flows for the years then ended, and notes, comprising a summary of significant accounting policies and other explanatory information.

### Management's Responsibility for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with Korean International Financial Reporting Standards, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

### Auditors' Responsibility

Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We conducted our audits in accordance with Korean Standards on Auditing. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the entity's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

### Opinion

In our opinion, the consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Company as of December 31, 2016 and 2015, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with Korean International Financial Reporting Standards.

### Emphasis of matter

Without qualifying our opinion, we draw attention to the following key audit matters with regard to production-to-order transactions. Pursuant to "Practical Guide to Korean Standards on Auditing 2016-1", audit matters related to entities engaged in production-to-order transactions are of significance in our audit of the consolidated financial statements, which determination is based on our professional judgment and communications with those charged with governance. These matters were addressed in the context of our audit of the consolidated financial statements as of and for the year ended December 31, 2016 as a whole, and we do not provide a separate opinion on these matters. We have considered the results of audit procedures for the following key audit matters in forming our audit opinion of the consolidated financial statements.

#### (a) Overview

An overview of key audit matters related to the industry with production-to-order transactions described in this audit report is as follows. Certain subsidiaries of POSCO, including POSCO ENGINEERING & CONSTRUCTION CO., LTD. and POSCO ICT, are engaged in production-to-order transactions. Sales in relation to production-to-order transactions are approximately 13% of consolidated sales for the year ended December 31, 2016. As mentioned in note 3 to the consolidated financial statements, when the outcome of a construction contract can be estimated reliably, the Company recognizes contract revenues and contract costs associated with the construction contract as revenue and expenses, respectively, based on the percentage-of-completion method at the end of the reporting period. The percentage-of-completion is calculated based on the ratio of contract costs incurred for work performed to date to estimated total contract costs. The gross amount due from customers for contract work is presented for all contracts in which costs incurred plus recognized profits (less recognized losses) exceeded progress billings. The gross amount due to customers for contract work is presented for all contracts in which progress billings exceed costs incurred plus recognized profits (less recognized losses).

**(b) Identification of significant risks and audit procedures**

We identified the significant risks through discussions with auditors of certain subsidiaries in industry with production-to-order transactions and review of their audit documentation of identified significant risks. We also reviewed their audit procedures in responding to those significant risks, which were conducted based on their professional judgments. Our procedures included the review of the subsidiary auditors' audit results, inquiries and application of analytical and other procedures on their audit results. The identified significant risks and major audit procedures for the Company's production-to-order transactions are as follows:

**1) Revenues recognized by the input method**

We identified significant risks associated with revenues recognized by the input method. The variation of estimated amounts has significant impact on profit for the year ended December 31, 2016 and future periods because the uncertainty of estimated total contract revenues and costs is high for large-scale development constructions at initial stage, and constructions with delays and possibility of being discontinued of construction.

The following audit procedures were performed regarding revenues recognized by the input method.

- Inquiry, observation and inspection of documents whether the internal control and computerized systems are designed and operated effectively to make appropriate accounting treatments in relation to revenue recognition by the input method
- Inquiries as to significant changes and progress of the contracts as of December 31, 2016
- Analytical review of key financial indicators (effects of changes in profit or loss due to changes in total contract revenue and total contract costs, trade receivables and outstanding balances of due from customers)
- Inquires as to rationale and reliability of estimated result of construction contract, the type of the contracts and classification of the contracts
- Inspection of document regarding the terms of the contract
- Inquiries about the appropriateness of applying the percentage of completion method for major projects in the early stages of the construction contract, and examination of documents on the basis of conclusion

**2) Uncertainty of estimated total contract costs**

The changes in estimated total contract costs were W493,902 million for the year ended December 31, 2016 (see note 29(d) to the consolidated financial statements). We identified significant risks regarding uncertainty of estimated total contract costs based on the impact on profit or loss for the year ended December 31, 2016.

The following audit procedures were performed regarding the impact of uncertainty of estimated total contract costs on the consolidated financial statements.

- Inquiry, observation and inspection of documents whether the internal control is designed and operated so that total contract costs could be reliably estimated.
- Analytical review of the effects on the net income as a result of changes in estimation of the total contract costs.
- Analytical review of the components of the total contract costs of major projects and inspection of documentation on the estimation of total costs for samples selected
- Retrospective review of the rationale of estimation on the total contract costs and inquires and inspection of documents as to the cause of the changes for major projects in which significant changes in estimated total contract costs were made.
- Inquires as to rationale and reliability of the estimated result of total construction contract for major projects.
- Analytical review of major projects to see if there was a significant difference between the progress and the rate of completion according to the input method as of December 31, 2016.
- Inquiries and inspection of document regarding whether the results of evaluation of the potential risk factors such as the early stage of the contract and the process delay were appropriately reflected in the total contract cost estimate
- Inquiries and analytical review of significant changes in total contract costs since December 31, 2016

**3) Assessment of the percentage-of-completion**

The changes in estimated total contract costs were W493,902 million for the year ended December 31, 2016 (see note 29(d) to the consolidated financial statements). We identified significant risks regarding assessment of the percentage-of-completion as uncertainty of estimated total contract costs increased.

The following audit procedures were performed regarding total contract costs and cumulative incurred contract costs in assessing of the percentage-of-completion.

- Inquiries, observation and inspection of documentation on whether the internal control is designed and operated effectively in the review of the calculated construction progress and to record the progress properly
- For selected samples from contract costs incurred during the year ended December 31, 2016, inspection of documentation on existence and timing of occurrence, and performance of cut-off test
- Recalculation of percentage-of-completion for major construction projects
- Inquiries as to the reasonableness of cumulative incurred contract costs and the progress rate
- Analytical review of identification of costs to each project

#### 4) Recoverability of due from customers for contract work

As of December 31, 2016 and December 31, 2015, the amounts of due from customers for contract work are W964,304 million and W1,218,031 million, respectively, or 10% and 13% of consolidated trade accounts and note receivable (see note 29(b) to the consolidated financial statements) as of the respective reporting dates. We identified significant risks regarding the recoverability of due from customers for contract work as the amounts of due from customers for contract work are significant.

The following audit procedures were performed regarding the recoverability of due from customers for contract work.

- Inquiries, observation and inspection of document on whether the internal controls are properly designed and effectively operated to respond to the risks associated with estimates on possibility of recovery
- Inquiries as to the financial soundness of clients, payment condition, timing of delivery, and condition of billing terms
- Analytical review on the quarterly trends and inquiries of significant changes in due from customers compared to the amount at the end of the previous reporting period
- Review of the reasonableness of the basis for the evaluation of the possibility of the recovery of the amount related to the unbilled construction balance
- Inspection of billing document on the samples selected from billed receivable balance as of year-end.

#### 5) Accounting for the variation of construction work

The variation of construction contracts due to changes in estimated total contract costs had significant influence on profits or loss of the construction contracts (see note 29(d) to the consolidated financial statements). We identified significant risks regarding the accounting for the variation of construction work.

The following audit procedures were performed regarding accounting of the variation of construction work and disclosures.

- Inquiries, observation and inspection of document regarding whether the internal controls are properly designed and operated effectively to respond to the risks associated with measurement and change the total contract revenue for each project
- For selected samples on the constructions contract and contracts with changes, inspection of document on the basis of the calculating total contract revenue
- Inspection of document for compliance with recognition requirements for contract revenue when the contracted revenue increased through the construction work change other than the initially agreed upon contracted amount
- For selected major customers, confirmation letter as to the total contract amounts as of December 31, 2016

## Other Matters

The procedures and practices utilized in the Republic of Korea to audit such consolidated financial statements may differ from those generally accepted and applied in other countries. Accordingly, this report and the accompanying consolidated financial statements are for use by those knowledgeable about Korean auditing standards and their application in practice.

152, Teheran-ro, Gangnam-gu, Seoul, Korea  
(27<sup>th</sup> Floor, Gangnam Finance Center, Yeoksam-dong)

CEO of Samjong KPMG  
**Kim Kyo-tae**

This report is effective as of March 2, 2017, the audit report date. Certain subsequent events or circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying consolidated financial statements and notes thereto. Accordingly, the readers of the audit report should understand that the above audit report has not been updated to reflect the impact of such subsequent events or circumstances, if any.

## Consolidated Statements of Financial Position

As of December 31, 2016 and 2015

(in millions of Won)

	December 31, 2016	December 31, 2015
<b>Assets</b>		
Cash and cash equivalents	2,447,619	4,870,185
Trade accounts and notes receivable, net	9,786,927	9,595,935
Other receivables, net	1,539,742	1,679,879
Other short-term financial assets	5,224,911	3,910,387
Inventories	9,051,721	8,225,205
Current income tax assets	46,473	33,765
Assets held for sale	311,958	57,281
Other current assets	894,484	808,252
<b>Total current assets</b>	<b>29,303,835</b>	<b>29,180,889</b>
Long-term trade accounts and notes receivable, net	51,124	120,338
Other receivables, net	762,912	863,258
Other long-term financial assets	2,657,692	2,341,460
Investments in associates and joint ventures	3,882,389	3,945,333
Investment property, net	1,117,720	1,084,292
Property, plant and equipment, net	33,770,339	34,522,855
Intangible assets, net	6,088,729	6,405,754
Defined benefit assets, net	83,702	
Deferred tax assets	1,476,873	1,315,580
Other non-current assets	567,680	629,000
<b>Total non-current assets</b>	<b>50,459,160</b>	<b>51,227,870</b>
<b>Total assets</b>	<b>79,762,995</b>	<b>80,408,759</b>
<b>Liabilities</b>		
Trade accounts and notes payable	4,073,286	3,125,348
Short-term borrowings and current installments of long-term borrowings	10,194,807	12,371,032
Other payables	1,851,659	2,129,093
Other short-term financial liabilities	149,748	202,117
Current income tax liabilities	446,071	377,962
Liabilities of disposal group held for sale		34,202
Provisions	114,865	102,320
Other current liabilities	2,084,961	1,788,852
<b>Total current liabilities</b>	<b>18,915,397</b>	<b>20,130,926</b>
Long-term trade accounts and notes payable	44,512	11,098
Long-term borrowings, excluding current installments	12,510,191	12,849,199
Other payables	208,559	134,470
Other long-term financial liabilities	81,309	54,696
Defined benefit liabilities, net	123,604	182,025
Deferred tax liabilities	1,642,939	1,676,658
Long-term provisions	337,739	221,692
Other non-current liabilities	60,351	77,773
<b>Total non-current liabilities</b>	<b>15,009,204</b>	<b>15,207,611</b>
<b>Total liabilities</b>	<b>33,924,601</b>	<b>35,338,537</b>
<b>Equity</b>		
Share capital	482,403	482,403
Capital surplus	1,397,791	1,383,623
Hybrid bonds	996,919	996,919
Reserves	(143,985)	(594,756)
Treasury shares	(1,533,468)	(1,533,898)
Retained earnings	41,173,778	40,501,059
<b>Equity attributable to owners of the controlling company</b>	<b>42,373,438</b>	<b>41,235,350</b>
<b>Non-controlling interests</b>	<b>3,464,956</b>	<b>3,834,872</b>
<b>Total equity</b>	<b>45,838,394</b>	<b>45,070,222</b>
<b>Total liabilities and equity</b>	<b>79,762,995</b>	<b>80,408,759</b>

## Consolidated Statements of Comprehensive Income (Loss)

For the years ended December 31, 2016 and 2015

(in millions of Won, except per share information)

	2016	2015
Revenue	53,083,513	58,192,345
Cost of sales	(46,393,962)	(51,658,098)
Gross profit	6,689,551	6,534,247
Selling and administrative expenses		
Administrative expenses	(2,291,540)	(2,395,248)
Selling expenses	(1,553,686)	(1,728,956)
Operating profit	2,844,325	2,410,043
Share of loss of equity-accounted investees, net	(88,677)	(506,054)
Finance income and costs		
Finance income	2,231,980	2,557,073
Finance costs	(3,014,190)	(3,387,054)
Other non-operating income and expenses		
Other non-operating income	215,136	549,048
Other non-operating expenses	(755,720)	(1,442,298)
Profit before income tax	1,432,854	180,758
Income tax expense	(384,685)	(276,939)
Profit (loss)	1,048,169	(96,181)
Other comprehensive income (loss)		
Items that will not be reclassified subsequently to profit or loss:		
Remeasurements of defined benefit pension plans	20,540	41,954
Items that are or may be reclassified subsequently to profit or loss:		
Capital adjustment arising from investments in equity-accounted investees	134,590	(82,509)
Net changes in the unrealized fair value of available-for-sale investments	310,608	(187,854)
Foreign currency translation differences	(11,491)	66,280
Other comprehensive income (loss), net of tax	454,247	(162,129)
Total comprehensive income (loss)	1,502,416	(258,310)
Profit (loss) attributable to:		
Owners of the controlling company	1,363,310	180,647
Non-controlling interests	(315,141)	(276,828)
Profit (loss)	1,048,169	(96,181)
Total comprehensive income (loss) attributable to:		
Owners of the controlling company	1,822,533	33,017
Non-controlling interests	(320,117)	(291,327)
Total comprehensive income (loss)	1,502,416	(258,310)
Basic and diluted earnings per share (in Won)	16,627	1,845

## Consolidated Statements of Changes in Equity

For the years ended December 31, 2016 and 2015

(in millions of Won)

	Attributable to owners of the controlling company							Non-controlling interests	Total
	Share capital	Capital surplus	Hybrid bonds	Reserves	Treasury shares	Retained earnings	Sub total		
<b>Balance as of January 1, 2015</b>	<b>482,403</b>	<b>1,083,718</b>	<b>996,919</b>	<b>(408,773)</b>	<b>(1,534,457)</b>	<b>40,967,558</b>	<b>41,587,368</b>	<b>3,703,996</b>	<b>45,291,364</b>
<b>Comprehensive income (loss):</b>									
Profit (loss)	-	-	-	-	-	180,647	180,647	(276,828)	(96,181)
Other comprehensive income (loss)									
Remeasurements of defined benefit pension plans, net of tax	-	-	-	-	-	38,771	38,771	3,183	41,954
Capital adjustment arising from investments in equity-accounted investees, net of tax	-	-	-	(81,418)	-	-	(81,418)	(1,091)	(82,509)
Net changes in the unrealized fair value of available-for-sale investments, net of tax	-	-	-	(183,077)	-	-	(183,077)	(4,777)	(187,854)
Foreign currency translation differences, net of tax	-	-	-	78,094	-	219,418	33,017	(291,327)	(258,310)
<b>Total comprehensive income (loss)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>(186,401)</b>	<b>-</b>	<b>219,418</b>	<b>33,017</b>	<b>(291,327)</b>	<b>(258,310)</b>
<b>Transactions with owners of the controlling company, Recognized directly in equity:</b>									
Year-end dividends	-	-	-	-	-	(479,958)	(479,958)	(32,410)	(512,368)
Interim dividends	-	-	-	-	-	(159,987)	(159,987)	(67,700)	(227,687)
Changes in subsidiaries	-	-	-	-	-	-	-	(311,548)	(311,548)
Changes in ownership interests in subsidiaries	-	301,029	-	-	-	-	301,029	857,244	1,158,273
Interest of hybrid bonds	-	-	-	-	-	(43,574)	(43,574)	(24,187)	(67,761)
Disposal of treasury shares	-	(35)	-	-	559	-	524	-	524
Others	-	(1,089)	-	418	-	(2,398)	(3,069)	804	(2,265)
<b>Total transactions with owners of the controlling company</b>	<b>-</b>	<b>299,905</b>	<b>-</b>	<b>418</b>	<b>559</b>	<b>(685,917)</b>	<b>(385,035)</b>	<b>422,203</b>	<b>37,168</b>
<b>Balance as of December 31, 2015</b>	<b>482,403</b>	<b>1,383,623</b>	<b>996,919</b>	<b>(594,756)</b>	<b>(1,533,898)</b>	<b>40,501,059</b>	<b>41,235,350</b>	<b>3,834,872</b>	<b>45,070,222</b>
<b>Balance as of January 1, 2016</b>	<b>482,403</b>	<b>1,383,623</b>	<b>996,919</b>	<b>(594,756)</b>	<b>(1,533,898)</b>	<b>40,501,059</b>	<b>41,235,350</b>	<b>3,834,872</b>	<b>45,070,222</b>
<b>Comprehensive income (loss) :</b>									
Profit (loss)	-	-	-	-	-	1,363,310	1,363,310	(315,141)	1,048,169
Other comprehensive income (loss)									
Remeasurements of defined benefit pension plans, net of tax	-	-	-	-	-	9,787	9,787	10,753	20,540
Capital adjustment arising from investments in equity-accounted investees, net of tax	-	-	-	124,626	-	-	124,626	9,964	134,590
Net changes in the unrealized fair value of available-for-sale investments, net of tax	-	-	-	314,428	-	-	314,428	(3,820)	310,608
Foreign currency translation differences, net of tax	-	-	-	10,382	-	-	10,382	(21,873)	(11,491)
<b>Total comprehensive income (loss)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>449,436</b>	<b>-</b>	<b>1,373,097</b>	<b>1,822,533</b>	<b>(320,117)</b>	<b>1,502,416</b>
<b>Transactions with owners of the controlling company, Recognized directly in equity :</b>									
Year-end dividends	-	-	-	-	-	(479,974)	(479,974)	(50,333)	(530,307)
Interim dividends	-	-	-	-	-	(179,992)	(179,992)	-	(179,992)
Changes in subsidiaries	-	-	-	-	-	-	-	49,250	49,250
Changes in ownership interests in subsidiaries	-	8,650	-	-	-	-	8,650	(16,544)	(7,894)
Interest of hybrid bonds	-	-	-	-	-	(43,832)	(43,832)	(24,253)	(68,085)
Disposal of treasury shares	-	32	-	-	430	-	462	-	462
Others	-	5,486	-	1,335	-	3,420	10,241	(7,919)	2,322
<b>Total transactions with owners of the controlling company</b>	<b>-</b>	<b>14,168</b>	<b>-</b>	<b>1,335</b>	<b>430</b>	<b>(700,378)</b>	<b>(684,445)</b>	<b>(49,799)</b>	<b>(734,244)</b>
<b>Balance as of December 31, 2016</b>	<b>482,403</b>	<b>1,397,791</b>	<b>996,919</b>	<b>(143,985)</b>	<b>(1,533,468)</b>	<b>41,173,778</b>	<b>42,373,438</b>	<b>3,464,956</b>	<b>45,838,394</b>

## Consolidated Statements of Cash Flows

For the years ended December 31, 2016 and 2015

(in millions of Won)

	2016	2015
<b>Cash flows from operating activities</b>		
Profit (loss)	1,048,169	(96,181)
Adjustments for:		
Depreciation	2,835,843	2,836,663
Amortization	378,004	381,583
Finance income	(882,905)	(1,165,340)
Finance costs	1,501,953	1,852,862
Income tax expense	384,685	276,939
Impairment loss on property, plant and equipment	196,882	136,269
Gain on disposal of property, plant and equipment	(23,826)	(22,730)
Loss on disposal of property, plant and equipment	86,622	101,732
Impairment loss on goodwill and intangible assets	127,875	161,412
Share of loss of equity-accounted investees	88,677	506,054
Impairment loss on assets held for sale	24,890	133,547
Gain on disposal of assets held for sale	(23,112)	(227,956)
Loss on disposal of assets held for sale	254	190,357
Costs for defined benefit plans	333,139	245,402
Bad debt expenses	202,717	337,235
Loss on valuation of inventories	152,249	152,952
Increase to provisions	189,914	86,903
Others, net	7,073	(21,643)
	5,580,934	5,962,241
Changes in operating assets and liabilities	(425,815)	2,754,039
Interest received	206,839	198,193
Interest paid	(691,264)	(831,566)
Dividends received	152,559	237,715
Income taxes paid	(602,004)	(622,612)
Net cash provided by operating activities	5,269,418	7,601,829
<b>Cash flows from investing activities</b>		
Acquisitions of short-term financial instruments	(18,578,809)	(13,037,990)
Proceeds from disposal of short-term financial instruments	17,177,409	10,595,379
Increase in loans	(603,332)	(295,689)
Collection of loans	557,064	308,906
Acquisitions of available-for-sale investments	(328,151)	(87,824)
Proceeds from disposal of available-for-sale investments	280,066	308,161
Acquisitions of investment in associates and joint ventures	(173,769)	(77,155)
Proceeds from disposal of investment in associates and joint ventures	7,914	11,813
Acquisitions of investment property	(45,735)	(61,478)
Proceeds from disposal of investment property	11,624	1,120
Acquisitions of property, plant and equipment	(2,324,112)	(2,560,244)
Proceeds from disposal of property, plant and equipment	44,330	59,031
Acquisitions of intangible assets	(138,181)	(289,148)
Proceeds from disposal of intangible assets	8,672	12,832
Proceeds from disposal of assets held for sale	305,813	127,133
Cash paid in acquisition of business, net of cash acquired	4,503	-
Cash received from disposal of business, net of cash transferred	21,223	469,576
Others, net	18,844	(19,099)
Net cash used in investing activities	(3,754,627)	(4,534,676)
<b>Cash flows from financing activities</b>		
Proceeds from borrowings	1,988,665	1,779,097
Repayment of borrowings	(4,274,895)	(3,509,970)
Repayment of short-term borrowings, net	(885,861)	(846,230)
Capital contribution from non-controlling interest and proceeds from disposal of subsidiaries while maintaining control	24,704	1,260,053
Payment of cash dividends	(708,970)	(822,570)
Payment of interest of hybrid bonds	(68,097)	(67,725)
Others, net	(26,513)	(34,256)
Net cash used in financing activities	(3,950,967)	(2,241,601)
<b>Effect of exchange rate fluctuation on cash held</b>	<b>12,611</b>	<b>23,496</b>
<b>Net increase (decrease) in cash and cash equivalents</b>	<b>(2,423,565)</b>	<b>849,048</b>
<b>Cash and cash equivalents at beginning of the period</b>	<b>4,871,184</b>	<b>4,022,136</b>
<b>Cash and cash equivalents at end of the period</b>	<b>2,447,619</b>	<b>4,871,184</b>



## Separate Statements of Financial Position

As of December 31, 2016 and 2015

(in millions of Won)

	December 31, 2016	December 31, 2015
<b>Assets</b>		
Cash and cash equivalents	120,529	1,634,106
Trade accounts and notes receivable, net	3,216,209	2,740,104
Other receivables, net	246,061	246,431
Other short-term financial assets	4,130,963	3,326,012
Inventories	3,995,291	3,427,011
Assets held for sale	764	25,892
Other current assets	22,859	28,083
<b>Total current assets</b>	<b>11,732,676</b>	<b>11,427,639</b>
Long-term trade accounts and notes receivable, net	14,040	19,895
Other receivables, net	87,669	93,757
Other long-term financial assets	2,145,570	1,804,374
Investments in subsidiaries, associates and joint ventures	15,031,385	15,737,287
Investment property, net	86,296	86,752
Property, plant and equipment, net	22,257,409	21,514,150
Intangible assets, net	508,890	490,762
Defined benefit assets, net	81,621	-
Other non-current assets	110,197	134,793
<b>Total non-current assets</b>	<b>40,323,077</b>	<b>39,881,770</b>
<b>Total assets</b>	<b>52,055,753</b>	<b>51,309,409</b>
<b>Liabilities</b>		
Trade accounts and notes payable	1,082,927	577,856
Short-term borrowings and current installments of long-term borrowings	364,840	1,985,722
Other payables	866,074	946,735
Other short-term financial liabilities	16,508	25,676
Current income tax liabilities	315,530	227,569
Provisions	14,154	22,840
Other current liabilities	37,219	31,281
<b>Total current liabilities</b>	<b>2,697,252</b>	<b>3,817,679</b>
Long-term borrowings, excluding current installments	3,778,014	3,303,105
Other payables	117,310	37,656
Other long-term financial liabilities	72,742	81,496
Defined benefit liabilities, net	-	10,472
Deferred tax liabilities	1,015,966	994,867
Long-term provisions	29,506	21,954
Other non-current liabilities	15,516	16,623
<b>Total non-current liabilities</b>	<b>5,029,054</b>	<b>4,466,173</b>
<b>Total liabilities</b>	<b>7,726,306</b>	<b>8,283,852</b>
<b>Equity</b>		
Share capital	482,403	482,403
Capital surplus	1,156,303	1,247,581
Hybrid bonds	996,919	996,919
Reserves	284,240	(30,018)
Treasury shares	(1,533,468)	(1,533,898)
Retained earnings	42,943,050	41,862,570
<b>Total equity</b>	<b>44,329,447</b>	<b>43,025,557</b>
<b>Total liabilities and equity</b>	<b>52,055,753</b>	<b>51,309,409</b>

## Separate Statements of Comprehensive Income

For the years ended December 31, 2016 and 2015

(in millions of Won, except per share information)

	2016	2015
<b>Revenue</b>	<b>24,324,933</b>	<b>25,607,221</b>
<b>Cost of sales</b>	<b>(19,903,596)</b>	<b>(21,473,390)</b>
<b>Gross profit</b>	<b>4,421,337</b>	<b>4,133,831</b>
Selling and administrative expenses		
Administrative expenses	(889,277)	(890,446)
Selling expenses	(896,723)	(1,005,136)
<b>Operating profit</b>	<b>2,635,337</b>	<b>2,238,249</b>
Finance income and costs		
Finance income	756,480	896,406
Finance costs	(882,511)	(734,569)
Other non-operating income and expenses		
Other non-operating income	81,869	465,316
Other non-operating expenses	(401,841)	(1,197,119)
<b>Profit before income tax</b>	<b>2,189,334</b>	<b>1,668,283</b>
Income tax expense	(404,288)	(350,012)
<b>Profit</b>	<b>1,785,046</b>	<b>1,318,271</b>
<b>Other comprehensive income (loss)</b>		
<b>Items that will not be reclassified subsequently to profit or loss:</b>		
Remeasurements of defined benefit plans, net of tax	(768)	38,910
<b>Items that will be reclassified subsequently to profit or loss:</b>		
Net changes in unrealized fair value of available-for-sale investments, net of tax	314,258	(124,060)
<b>Total comprehensive income</b>	<b>2,098,536</b>	<b>1,233,121</b>
<b>Basic and diluted earnings per share (in Won)</b>	<b>21,899</b>	<b>16,067</b>

## Separate Statements of Changes in Equity

For the years ended December 31, 2016 and 2015

(in millions of Won)

	Share capital	Capital surplus	Hybrid bonds	Reserves	Treasury shares	Retained earnings	Total
<b>Balance as of January 1, 2015</b>	<b>482,403</b>	<b>1,247,616</b>	<b>996,919</b>	<b>94,042</b>	<b>(1,534,457)</b>	<b>41,188,908</b>	<b>42,475,431</b>
<b>Comprehensive income:</b>							
Profit	-	-	-	-	-	1,318,271	1,318,271
Other comprehensive income (loss)							
Remeasurements of defined benefit plans, net of tax	-	-	-	-	-	38,910	38,910
Net changes in unrealized fair value of available-for-sale investments, net of tax	-	-	-	(124,060)	-	-	(124,060)
<b>Transactions with owners of the Company, recognized directly in equity:</b>							
Year-end dividends	-	-	-	-	-	(479,958)	(479,958)
Interim dividends	-	-	-	-	-	(159,987)	(159,987)
Interest of hybrid bonds	-	-	-	-	-	(43,574)	(43,574)
Disposal of treasury shares	-	(35)	-	-	559	-	524
<b>Balance as of December 31, 2015</b>	<b>482,403</b>	<b>1,247,581</b>	<b>996,919</b>	<b>(30,018)</b>	<b>(1,533,898)</b>	<b>41,862,570</b>	<b>43,025,557</b>
<b>Balance as of January 1, 2016</b>	<b>482,403</b>	<b>1,247,581</b>	<b>996,919</b>	<b>(30,018)</b>	<b>(1,533,898)</b>	<b>41,862,570</b>	<b>43,025,557</b>
<b>Comprehensive income:</b>							
Profit	-	-	-	-	-	1,785,046	1,785,046
Other comprehensive income (loss)							
Remeasurements of defined benefit plans, net of tax	-	-	-	-	-	(768)	(768)
Net changes in unrealized fair value of available-for-sale investments, net of tax	-	-	-	314,258	-	-	314,258
<b>Transactions with owners of the Company, recognized directly in equity:</b>							
Year-end dividends	-	-	-	-	-	(479,974)	(479,974)
Interim dividends	-	-	-	-	-	(179,992)	(179,992)
Business combination	-	(91,310)	-	-	-	-	(91,310)
Interest of hybrid bonds	-	-	-	-	-	(43,832)	(43,832)
Disposal of treasury shares	-	32	-	-	430	-	462
<b>Balance as of December 31, 2016</b>	<b>482,403</b>	<b>1,156,303</b>	<b>996,919</b>	<b>284,240</b>	<b>(1,533,468)</b>	<b>42,943,050</b>	<b>44,329,447</b>

## Separate Statements of Cash Flows

For the years ended December 31, 2016 and 2015

(in millions of Won)

	2016	2015
<b>Cash flows from operating activities</b>		
Profit	1,785,046	1,318,271
Adjustments for:		
Costs for defined benefit plans	111,086	119,183
Depreciation	2,061,408	2,065,521
Amortization	79,655	70,742
Bad debt expenses	54,130	(7,373)
Finance income	(508,824)	(681,205)
Finance costs	565,366	522,190
Loss on valuation of inventories	11,843	15,254
Gain on disposal of property, plant and equipment	(19,579)	(11,000)
Loss on disposal of property, plant and equipment	93,536	90,852
Impairment loss on property, plant and equipment	58,388	70,674
Impairment loss on investments in subsidiaries, associates and joint ventures	184,283	327,776
Gain on disposal of assets held for sale	(6,814)	(409,578)
Loss on disposal of assets held for sale	-	209,775
Impairment loss on assets held for sale	-	95,737
Contribution to provisions	15,520	2,174
Income tax expense	404,288	350,012
Others	(13,143)	1,093
Changes in operating assets and liabilities	(694,145)	998,125
Interest received	80,865	79,847
Interest paid	(192,795)	(263,483)
Dividends received	144,388	629,435
Income taxes paid	(375,393)	(454,084)
Net cash provided by operating activities	3,839,109	5,139,938
<b>Cash flows from investing activities</b>		
Proceeds from disposal of short-term financial instruments	17,038,277	9,273,767
Proceeds from disposal of long-term financial instruments	-	3
Proceeds from disposal of available-for-sale financial assets	266,976	135,236
Decrease in short-term loans	-	69,443
Decrease in long-term loans	-	514
Proceeds from disposal of investments in subsidiaries, associates and joint venture	4,850	4,713
Proceeds from disposal of intangible assets	7,076	3,570
Proceeds from disposal of assets held for sale	166,791	1,294,908
Proceeds from business combination	24,250	-
Acquisition of short-term financial instruments	(17,870,819)	(11,879,166)
Increase in short-term loans	-	(65,208)
Acquisition of available-for-sale investments	(271,434)	(1,526)
Increase in long-term loans	(66)	(139)
Acquisition of investment in subsidiaries, associates and joint ventures	(329,071)	(451,265)
Acquisition of investment property	-	(346)
Acquisition of property, plant and equipment	(1,875,111)	(1,466,910)
Payment for disposal of property, plant and equipment	(18,358)	(22,732)
Acquisition of intangible assets	(21,050)	(37,313)
Net cash used in investing activities	(2,877,689)	(3,142,451)
<b>Cash flows from financing activities</b>		
Proceeds from borrowings	1,082,339	23,671
Increase in long-term financial liabilities	4,422	3,850
Repayment of borrowings	(2,844,151)	(1,453,075)
Decrease in long-term financial liabilities	(8,720)	(4,701)
Payment of cash dividends	(665,168)	(639,561)
Payment of interest of hybrid bonds	(43,719)	(43,600)
Net cash used in financing activities	(2,474,997)	(2,113,416)
<b>Changes in cash due to foreign currency translation</b>	-	7,268
<b>Net decrease in cash and cash equivalents</b>	<b>(1,513,577)</b>	<b>(108,661)</b>
<b>Cash and cash equivalents at beginning of the period</b>	<b>1,634,106</b>	<b>1,742,767</b>
<b>Cash and cash equivalents at end of the period</b>	<b>120,529</b>	<b>1,634,106</b>

# 04

## Assurance Report

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## Independent Assurance Report

### To the management of POSCO

We have been engaged by POSCO (the “Company”) to perform an independent assurance engagement in regard to the following aspects of POSCO REPORT 2016 (the “Report”).

### Scope and subject matter

The information for the year ended December 31, 2016 (hereinafter, collectively referred to as the “Sustainability information”) on which we provide limited assurance consists of:

- The Company’s conclusion on meeting the principles of Inclusivity, Materiality and Responsiveness in the AA1000 Account Ability Principles.
- The non-financial information, stated in “GRI (Global Reporting Initiative) Standard Index (the pages 136 through 141)” as subject to an external assurance (the “Sustainability Data”) is prepared based on the reporting principles set out on GRI Standard with Core option.

We read the other information included in the Report and considered whether it was consistent with the Sustainability Information. We considered the implications for our report in the case that we became aware of any apparent misstatements or material inconsistencies with the Sustainability Information. Our responsibilities do not extend to any other information.

### Assurance work performed

We conducted our engagement in accordance with ISAE 3000<sup>1)</sup> and AA1000AS<sup>2)</sup> The term ‘moderate assurance’ used in AA1000AS (2008) is designed to be consistent with ‘limited assurance’ as articulated in ISAE 3000. Our assurance is a Type II assurance engagement as defined in the AA1000AS (2008).

Our work involved the following activities:

1. Interviews with the personnel responsible for internal reporting and data collection to discuss their approaches to stakeholder inclusivity, materiality and responsiveness.
2. Visits to the Company’s headquarter in Pohang, Pohang Works, Seoul office and 7 POSCO subsidiaries’ headquarters to understand the systems and processes in place for managing and reporting the Sustainability Data.
3. Review of samples of internal documents relevant to output from the risk assessment process, sustainability-related policies and standards, the sustainability materiality assessment matrix and other documents from stakeholder-engaged activities.
4. Evaluating the design and implementation of key processes and controls for managing and reporting the Sustainability Data.
5. Limited testing, through inquiry and analytical review procedures, of the preparation and collation of the Sustainability Data.
6. Interviews with the management of the Company.

### Respective responsibilities of the management of the Company and Samil PricewaterhouseCoopers

The management of the Company is responsible for establishing reporting principles that meet the principles of Inclusivity, Materiality and Responsiveness in the AA1000APS, measuring performance based on the reporting principles, and reporting this performance in the Report.

Our responsibility is to provide a conclusion based on our assurance procedures in accordance with ISAE 3000 and AA1000AS.

This report, including the conclusion, has been prepared for the management of the Company as a body, to assist the management in reporting on the Company’s sustainability performance and activities. We do not accept or assume responsibility to anyone other than the management of the Company as a body and the Company for our work or this report save where terms are expressly agreed and with our prior consent in writing.

### Inherent limitations

Non-financial performance information is subject to more inherent limitations than financial information, given the characteristics of the subject matter and the methods used for determining such information. Qualitative interpretations of relevance, materiality and the accuracy of data are subject to individual assumptions and judgments.

A limited assurance engagement is less in scope than a reasonable assurance engagement under ISAE 3000. Consequently, the nature, timing and extent of procedures for gathering sufficient, appropriate evidence are deliberately limited relative to a reasonable assurance engagement.

In particular:

- We did not attend any stakeholder-engaged activities. Therefore our conclusion is based on our discussions with the management and the staff of the Company, and our review of sampled documents provided to us by the Company.
- The scope of our work was restricted to 2016 performance only, as set out in the scope and subject matter section above. Information related to the year ended December 31, 2015 and earlier periods have not been subject to assurance by us.

1) International Standard on Assurance Engagements 3000 – ‘Assurance Engagements other than Audits or Reviews of Historical Financial Information’ issued by International Auditing and Assurance Standards Board

2) AA1000 Assurance Standard(2008), issued by AccountAbility

### Conclusion

Based on the results of the assurance work performed, our conclusion is as follows.

#### On the AA1000APS principles

- Inclusivity

- The Company has collected concerns and opinion through stakeholder communication channels that include those of Customers, Partners, Stakeholders, Communities and Employees.
- Nothing has come to our attention to suggest that material stakeholder groups were excluded from these channels.

- Materiality

- The Company has identified most relevant and significant sustainability issues through process for identifying material issues.
- Nothing has come to our attention to suggest that material issues were omitted in this process.

- Responsiveness

- The Company has included in the Report its response to the material sustainability issues which are defined through process for identifying material issues.
- Nothing has come to our attention to suggest that there were material deficiencies in the issue management system.

Nothing has come to our attention that causes us to believe that the Sustainability Data for the year ended December 31, 2016 is not fairly stated, in all material respects, in accordance with the Company's internal reporting principles set out on GRI Standard with Core option.

### Recommendations

As a result of our work, we have provided the following recommendations to the management.

- POSCO will need to strengthen the process of data compilation in accordance with the revised GRI Standards as a guideline for sustainable management, in order to achieve reliability in data collection and management.
- It is recommended that POSCO expands on its performance indicators used in the assessment of each division, in response to the need for effective implementation of sustainable management and inducing substantial group-wide improvement on sustainability issues.
- To materialize the value of POSCO's sustainable activities executed group-wide, it is recommended that the company measures the financial impact of social and environmental elements and share the result with internal and external stakeholders.

Samil PricewaterhouseCoopers  
Seoul, Korea

**Jae Heum Park**, Partner

*Samil PricewaterhouseCoopers*

*Jaeheum Park*

May 29<sup>th</sup>, 2017



## Independent Assurance Report On Carbon Reporting

### To the management of POSCO

We have been engaged by POSCO (the “Company”) to perform an independent assurance engagement in regard to the following aspects of Climate Change of POSCO REPORT 2016 (the “Report”) on the pages 68 through 83.

### Scope and subject matter

The information for the year ended December 31, 2016 (hereinafter, collectively referred to as the subject matters) on which we provide limited assurance consists of:

- Direct (Scope 1) and indirect (Scope 2) CO<sub>2</sub> emissions per ton of crude steel for the year ended December 31, 2016 as described in table on page 73.
- Social GHG Reduction Effect data and the amount of investments in energy recycling facilities and process innovation that were completed in 2016 and investments initiated in 2016 for the research and development projects to reduce CO<sub>2</sub> emissions on page 73 through 75.

We read the other information included in the Report and considered whether it was consistent with the subject matters. We considered the implications for our report in the case that we became aware of any apparent misstatements or material inconsistencies with the subject matters. Our responsibilities do not extend to any other information.

### Assurance work performed

We conducted our limited assurance engagement in accordance with the International Standard on Assurance Engagements 3000 – Assurance Engagements Other than Audits or Reviews of Historical Financial Information (“ISAE 3000”) and in respect of direct (Scope 1) and indirect (Scope 2) CO<sub>2</sub> emissions per ton of crude steel, International Standard on Assurance Engagements 3410 - Assurance Engagements on Greenhouse Gas Statements (“ISAE 3410”) issued by the International Auditing and Assurance Standard Board.

For the subject matters of limited assurance, our work included primarily inquiries of Company’s personnel and analytical procedures applied to the subject matters. We planned and performed our work so as to obtain moderate assurance as to whether the subject matters are free of material misstatement.

### Respective responsibilities of the management of the Company and Samil PricewaterhouseCoopers

The Company’s management is responsible for the preparation and fair presentation of the subject matters in accordance with the criteria set forth in the POSCO GHG Accounting Guidelines and the POSCO Carbon Reporting Procedures.

Our responsibility is to provide a conclusion on the subject matters based on our assurance procedures.

This report, including the conclusion, has been prepared for the management of the Company as a body, to assist the management in reporting on the Company’s carbon emissions performance and activities. We do not accept or assume responsibility to anyone other than the management of the Company as a body and the Company for our work or this report save where terms are expressly agreed and with our prior consent in writing.

### Inherent limitations

Non-financial performance information is subject to more inherent limitations than financial information, given the characteristics of the subject matters and the methods used for determining such information. The absence of a significant body of established practice on which to draw allows for the selection of different but acceptable measurement techniques that can result in materially different measurements and can impact accuracy and comparability. The precision of different measurement techniques may also vary. Furthermore, the nature and methods used to determine such information, as well as the measurement criteria and the precision thereof, may change over time. It is important to read the subject matters in the context of the POSCO GHG Accounting Guidelines and the POSCO Carbon Reporting Procedures.

A limited assurance engagement is less in scope than a reasonable assurance engagement under ISAE 3000. Consequently, the nature, timing and extent of procedures for gathering sufficient, appropriate evidence are deliberately limited relative to a reasonable assurance engagement.

In particular, the conversion of material used to carbon emissions is based upon, inter alia, information and factors derived by independent third parties and our assurance work has not included examination of the derivation of those factors and other third party information.

### Conclusion

Based on the results of the assurance work performed, our conclusion is as follows.

- Direct (Scope 1) and indirect (Scope 2) CO<sub>2</sub> emissions per ton of crude steel for the year ended December 31, 2016 are fairly stated, in all material respects, in accordance with the POSCO GHG Accounting Guidelines.
- Nothing has come to our attention that causes us to believe that Social GHG Reduction Effect data for the year ended December 31, 2016, and the amount of investments in energy recycling facilities and process innovation that were completed in 2016 and investments initiated in 2016 for the research and development projects to reduce CO<sub>2</sub> emissions are not presented fairly, in all material respects, in accordance with the POSCO Carbon Reporting Procedures set out on GRI Standard guidelines with Core option.

Samil PricewaterhouseCoopers  
Seoul, Korea  
**Jae Heum Park**, Partner

*Samil PricewaterhouseCoopers*

*Jaeheum Park*

May 29<sup>th</sup>, 2017



# 05

## Norms and Guidelines

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## Code of Ethics

### I . CEO Message

The proud foundational spirit of patriotism in steelmaking based on sacrifice and service is the spiritual foundation that must be permanently preserved and cultivated by all POSCO members.

The values of integrity, fairness and trust have been the greatest assets that made POSCO what it is today, and they also embody the greatest value criteria that will sustain POSCO and open up a new future.

POSCO's business focus, which first began from steel, is broadening its scope; and its sphere of activity is also now reaching out to the world beyond Korea. Our ethical standards should also be enhanced to meet those of world-class levels.

I will place utmost priority to ethics in management, and raise the company to the upper echelon of the global business community. To this end, I will channel all necessary interests and efforts as a CEO and spare no management resources. We must keep in mind that with regards to POSCO's management philosophy, ethics should always take priority over benefits when the two are in conflict; and we must always give top priority to ethics in all judgments and behaviors.

We will strictly adhere to a zero tolerance policy for the four unethical practices, such as accepting bribes, embezzlement, fabrication of information, and violation of sexual ethics. Our esteemed employees! We must firmly establish an ethical corporate culture and allow ourselves to become the best trading partner for clients, the best investment for shareholders, and the best workplace for the enduring happiness of employees.

Accordingly, we must evolve POSCO into a company that achieves win-win growth and development alongside all of our stakeholders. This is the way for us to fulfill our vision of POSCO the Great.

September 2015  
POSCO CEO **Kwon Ohjoon**

### II . Ethics Charter

#### ① Preamble

This code of ethics establishes the ethical values and behavioral standards that must be preserved and developed by all POSCO Group employees by inheriting the foundation spirit of patriotism in steelmaking based on sacrifice and service while reflecting the new spirit of the times.

It is our unchanging value to establish a corporate image that can be trusted by all stakeholders with the highly prioritized value criteria of integrity, fairness and honesty.

As a result, POSCO enacted the code of ethics in 2003 that must be adhered to by all employees, and explicitly included the US Human Rights that claim to support respect for human life and dignity in 2014. At this time, POSCO has amended the code of ethics with tighter ethical standards according to the intent of management innovation that places the highest value on ethics in management.

This code of ethics consists of the preamble, followed by the principles of ethics that reflect compliance and responsibility of employees regarding the code of ethics, and practical guidelines that set the standard for ethical decision-making.

All employees of POSCO Group must strictly comply with the principles of ethics and practical guidelines set by this code of ethics in all aspects of business.

This is how we all can proudly preserve the credibility of POSCO as we know it today, formed by the blood, sweat, and tears of our founding members.

### ② Principles of Ethics

#### ① Duty of Compliance with the Code of Ethics

- We must comply with related rules and regulations in all areas of the world where POSCO is conducting business operations.
- We must retain our dignity as POSCO employees and make efforts to maintain the company's reputation.
- We must preserve integrity, fairness and trust throughout all jobs and business relations.
- We must not become engaged in activities in which there are conflicts of interests between the company and individual.
- We must not irrationally discriminate against other employees or stakeholders based on race, nationality, gender, age, academic background, religion, disability, marriage, and gender identity, and respect individual dignity and diversity.
- We must make efforts to create a safe workplace and protect the environment.
- We must be devoted to establishing an ethical culture by taking responsibility and practicing ethical conduct.

#### ② Role and Responsibility of Employees

Employees must understand and practice all aspects of the code of ethics, and comply with domestic and international laws regarding anti-corruption as members of a global company.

#### Understanding and Complying with the Code of Ethics.

- We must fully understand and faithfully comply with all aspects of the code of ethics.
- Regarding situations in which there are conflicts concerning the code of ethics, decisions must be made after consulting with the department head or the Ethics Management Office.
- We must take responsibility for unethical conduct.

#### Reporting and Consulting Unethical Conduct

- If we find out that our or others' behavior conflicts with the code of ethics, we must immediately report to and consult with the department head or the Righteous Management Office.
- We must be aware of various methods to report or consult about cases in which there are conflicts over the code of ethics.

#### Role and Responsibility of the Leader

The leader must perform a key role in enhancing the competitiveness of the company by preventing and eradicating unethical conduct through ethical compliance.

- ① Decision-making
  - The leader has the obligation to make decisions with ethics being the top priority whenever the company's benefits conflict with ethics.
- ② Operational accountability
  - The leader possesses unlimited liability in unethical conduct, and must take supervisory responsibility in case of unethical conduct by his or her subordinates.
- ③ Job performance
  - The leader strictly abides by the laws and company regulations, does not pursue private interests, is devoted to creating corporate values, and does not deal with corrupt stakeholders.
- ④ Elimination of favors and solicitations
  - The leader eliminates all forms of favors and solicitations and prohibits business influence in relation to outsiders.
- ⑤ Respect for humans
  - The leader strives to eliminate conduct that impairs respect for fellow humans such as sexual harassment and verbal abuse in the organization.

#### ⑥ Practical activities

- The leader is devoted to increasing the level of ethical practice to that of world-class levels by taking the initiative in operating the 'Ethical Practice Programs'.

The leader must prevent unethical conduct of affiliated members, and take the following measures in case of occurring such conduct.

#### ① Training and counseling on ethics

- The leader must provide training and counseling on ethics for relevant staff.
- The leader must have relevant staff understand the importance of compliance with the code of conduct and practice of ethical conduct.

#### ② Precautions for unethical conduct

- In case of unethical conduct that occurs habitually, the leader must isolate the cause, improve the process, and fundamentally take preventive measures.
- The leader must report to or consult with the Righteous Management Office immediately after receiving a report that a member has violated the code of ethics.

### ③ Penalties for Violation of the Code of Ethics

Employees violating the code of ethics may receive certain penalties including dismissal according to related regulations. In particular, the zero-tolerance policy is applied to unethical conducts such as accepting bribes, embezzlement, fabrication of information, and violation of sexual ethics\*.

#### Conducts Subject to Penalty

- If one has violated the code of ethics or demanded others to do so
- If one has not immediately reported a violation of the code of ethics that he or she is aware of or is skeptical about
- If one does not cooperate with the investigation of the Righteous Management Office regarding matters that may have violated the code of ethics
- If one takes retaliatory action against other employees who reported an issue regarding ethical management

\* Accepting bribes: Conduct that receives money or valuables exceeding the scope which is socially acceptable from stakeholders, Embezzlement: Conduct that misappropriates company's money or assets illegally, Fabrication of information: Conduct that forges, conceals, and distributes business information in an untruthful manner, Violation of sexual ethics: Conduct that causes sexual humiliation by sexual harassment or assault.

## III. Practice Guidelines

### ① Practice of Ethics and Compliance with Law

As a global enterprise, we will nurture ethical corporate culture by performing management activities faithful to basic principles and complying with laws and ethics.

#### ① Money and Other Valuables

- Money and other valuables mean money (e.g. cash, gift certificates, and memberships) and things that can bring economic benefits.
- By all means, employees must not offer or receive money or valuables from stakeholders\*. However, any of the following conditions is excluded.
- Gifts for promotion or publicity that do not exceed 50,000 KRW
- Souvenirs which are imprinted with stakeholder companies' logos that do not exceed 50,000 KRW and are generally offered to participants in the events hosted by stakeholders
- Gains on congratulations and condolences that do not exceed 100,000 KRW (including wreath and condolence flowers)
- If money and other valuables were received unknowingly or involuntarily, such money and valuables should be returned, or if not returnable, should be reported to the compliance department.

\* Stakeholders: Employees, customers, business partners, subsidiaries, outsourcing partners, public institutions at home and abroad, and international organizations (including their employees) that can give or take direct or indirect influences on rights or interest in line with business operation.

#### ② Entertainment

- Entertainment means a variety of activities carried out for the purpose of business networking and business meetings including meals, drinks, golf, shows and games.
- Employees must not exchange in forms of entertainment with stakeholders that exceed 100,000 KRW per person. If this is required due to the nature of the business, employees must obtain approval from their department head in advance. If they have inevitably participated in a form of entertainment that exceeds 100,000 KRW, they must report to the Righteous Management Office. Entertainment at drinking places with hosts/hostesses is prohibited regardless of the amount.
- However, food and drink not exceeding 30,000 won per person is permitted to be offered to relevant persons, including public officials, journalists and school employees only when strictly necessary to facilitate the performance of duties or for social relationships.

#### ③ Convenience

- Convenience means provision or receipt of benefits such as transportation, accommodation, sight-seeing and support for an event.
- Provision or receipt of convenience exceeding customary level whether transportation or accommodation is prohibited, except for the convenience generally provided to all participants in the event.
- In the event that entertainment exceeding customary level was received or provided unavoidably, such activity should be reported to the compliance department.

#### ④ Congratulatory or Condolatory Money

- Employee should not notify his or his co-worker's congratulatory or condolatory event to interested parties. Notification through a third party will be deemed notification by the employee himself/herself.
- Information on congratulatory or condolatory event should be provided through the congratulatory/condolatory bulletin board, and use of work e-mail or sending out a written notice (wedding invitation or obituary notice) for such purpose is prohibited. The permitted scope of the relatives for the purpose of notification of congratulatory or condolatory event is limited to the employees or their spouses' grandparents, parents and children.
- Employees are encouraged not to spend more than 50,000 KRW, which is a generally accepted amount based on social customs, as expenditure for congratulations and condolences among employees. However, the amount of congratulatory or condolence money including wreaths or condolence flowers for stakeholders should not exceed 100,000 won.
- In no event employees may receive any congratulatory or condolatory money from an interested party. In the event that any congratulatory or condolatory money was received unavoidably, the money should be returned to the provider or forwarded to the compliance department.
- Upon the request of the compliance department, employees and executives should submit a record relating to the congratulatory or condolatory money received from and returned to the interested party.
- One should not receive congratulatory or condolatory wreath from the interested party. In the event that the wreath was received unavoidably, it should not be displayed.
- Executives and employees will not throw an extravagant wedding at an expensive venue such as a five star hotel.

#### ⑤ Requests/Recommendations

- Employees must not make requests/recommendations regarding the following matters through in-house acquaintances or outsiders, and must register on the 'Clean POSCO System' upon receiving requests/recommendations. However, registration is not necessary if such requests/recommendations are immediately refused and thus are withdrawn by those who requested.

- Request for special favors in equipment/material purchasing and various contracts
- Request for preferential treatment and special favors in various personnel affairs such as employment, promotions, rewards and punishment, and change of assignment
- Request for preferential treatment such as excessive conveniences and favors beyond conventional procedures
- Request for negligence in management and supervision such as inspection or repair
- No one shall solicit a public official or person performing his or her duties specified in the Improper Solicitation and Graft Act directly or through a third party to commit improper acts.

#### ⑥ Pecuniary Transactions

- One should not engage in pecuniary transactions with an interested party such as lending or borrowing of money, providing a guarantee, or leasing of a real estate.
- In the event one had to enter into a pecuniary transactions with an interested party unavoidably, it should be reported to the compliance department.
- One should legitimately obtain and use other company information including competitor's information.

#### ⑦ Support for Events

- One should not receive any support from an interested party, whether money or other valuables, in relation to any event organized by the department or as company extracurricular activities.
- Any form of convenience received from an interested party such as transportation, venue or services in relation to such event will be deemed receipt of money or other valuables for the event.
- In the event that the interested party's support to an event was received unavoidably, it should be reported to the compliance department.

#### ⑧ Inappropriate Use of Budget Resources

- One should not use budget resources (such as meeting expenses and business promotion expenses) for personal purposes.
- As a general rule, company expenditure should be paid by a corporate credit card in accordance with the purpose of the budget and the guidelines prescribed by law.

#### ⑨ Protection of Information and Assets

- One should strictly protect confidential or important information of the company.
- One should relay important information that comes to one's attention promptly to the person who needs to know such information for performance of his job.
- One should not fabricate information or disseminate false information.
- One should refrain from using company supplies and facilities for purposes not directly related to work.

#### ⑩ Compliance with Antitrust Laws

- One should comply with relevant international and local antitrust laws and not engage in anti-competitive practices such as collusion with competitors with respect to production, prices, bidding or market segmentation.
- One should not demand any form of compensation or make inappropriate request to customers or business partners using one's dominant position.
- One should respect the rights and property of others including their intellectual property rights, and should not try to enter into transactions or make profits by infringing upon such rights.

### ② Employees and Executives' Work Life Balance

We will pursue personal growth and corporate development by maintaining work and life balance, and create a happy workplace by establishing a corporate culture of mutual respect.

#### ① Pursuit of Work Life Balance

- We will try to improve the quality of life of the executives and employees by providing benefits helpful for maintaining stable life.
- We will support executives and employees to achieve their individual visions, and allow them flexibility in terms of the time, places and methods in performing the work.

#### ② Provision of Opportunity for Education and Growth

- We will organize work environment and systems where creativity can be enhanced.
- We will support executive's and employee's education and participation in development programs such that they can fully develop their potentials.

#### ③ Fair Evaluation and Compensation

- We will make impartial and systematic evaluation system of the executives and employees based on their individual competency and performance and provide appropriate compensation therefor.

#### ④ Creation of Healthy Organizational Culture

- Executives and employees will work for open corporate culture through open communication.
- Executives and employees will remove barriers between departments and pursue cooperative atmosphere.

### ③ Creation of Customer Value and Building Trust

Recognizing that customers' trust and success is the future for us, we will always respect customers' opinions, understand customers and create values that are helpful for customers' growth.

#### ① Realization of Customer Satisfaction

- We will perform customer-oriented work where the voice of customers is heard and respected.
- We will actively accommodate customer's legitimate demand and reasonable suggestions.

#### ② Creation of Customer Value

- We will satisfy customer's needs by providing the best products through continuous technology development.
- Executives and employees will try to understand the domestic and overseas market situation and develop service mind that respects customers' culture and practices.

#### ③ Obtaining Customer Trust

- We will pay due attention to the safety and health issue of the customers in our management activities, and not provide any product or service that might threaten customer's safety and health.
- We will protect customer information and comply with relevant laws and regulations.
- We will provide accurate information to customers on a timely basis.

### ④ Duty of Good Faith and Fair Dealings Toward Investors

We will maximize investors' values by realizing legitimate profits through transparent decision making and effective management activities.

#### ① Pursuit of Increased Shareholder Value

- We will make profits through transparent decision making and efficient management, and increase corporate and shareholder value at the same time.

#### ② Impartial Provision of Investment Information

- We will not provide information that might affect the decision making of investors to only certain investors, nor provide partial information.
- We will not directly trade stocks or securities nor recommend trading to others using insider information obtained while working for the company.

### ③ Transparent Calculation and Provision of Financial Information.

- We will process all financial information based on accurate transactions records implementing appropriate process and control.
- We will prepare financial reports in accordance with generally accepted accounting standards.
- We will provide sufficient and accurate information regarding management of the company to investors so that investors may freely make investment decisions at its own responsibility.

## ⑤ Building Win-Win Relations with Business Partners

We will establish fair trade system based on mutual trust and build a corporate eco-system where interested parties co-exist and grow together.

### ① Building Mutual Trust

- We will pursue fair dealings with our business partners on equal footing and based on mutual respect.
- We will strictly protect information received from transactions with business partners in accordance with the terms of the relevant contract and the relevant laws.
- We will support business partners to comply with anti-competition related laws and regulations.

### ② Pursuing Mutual Growth with Business Partners

- We will pursue mutual benefits by sharing fruitful outcome with business partners.
- We will cooperate and communicate openly with business partners such that business partners may provide high quality products and services.
- We will provide fair opportunities and reasonable transaction terms to business partners so that they could grow as our long term business partner.

### ③ Support for Continuing Development of Business Partners

- We will endeavor to build a stable supply chain by providing technical and financial supports to business partners.
- We will endeavor to expand the potential pool of business partners that can grow with us in harmonious development of overall corporate eco-system.

## ⑥ Contribution to the Country and Society

We will contribute to the growth of the country and society by fulfilling our responsibilities and duties as a global corporate citizen.

### ① Roles and Attitude as a Corporate Citizen

- We will respect the laws and the regulations of the local laws and regulations as well as local culture and tradition, and endeavor for mutual development with the country and society.
- We will encourage participation of and endeavor to communicate with interested parties in performing management activities that may affect country and society.
- We will encourage business partners to participate in activities for the development of the country and the society.

### ② Contribution to the Development of the Country and the Society

- We will discharge our obligations in the community by creating and maintaining stable jobs and paying taxes in time.
- We will actively participate in social service activities, such as volunteer works and disaster relief work, and initiate nonprofit activities in various fields including culture, arts, sports and education.
- We will provide support for resident's effort to improve quality of their lives and pursuit of happy life.

## ⑦ Protection of Environment and Preservation of Eco-system

We will establish an environmental management system, strengthen our ability to deal with environmental risks and implement environment-friendly management through open communication.

### ① Implementation of Environmental Management System

- We will effectively implement environmental management system, evaluate impacts and risk of business activities on environment and analyze and manage the results of environmental management.
- We will share benefits and issues with various interested parties, and jointly carry out environmental protection activities.
- We will convince business partners to believe that protection of environment is fundamental social responsibility of a company, and support business partners to comply with laws and regulations related to environmental protection.
- We will support business partners to manufacture products and provide services while protecting the public health and minimizing adverse effects on the environment and the natural resources of the community.

### ② Complying with Environmental Laws and Improvement on Environmental Impacts

- We will endeavor to comply with environmental laws and to improve impacts on the environment in the overall process of developing, producing and using products.
- We will minimize discharge of pollutants by introducing environment-friendly manufacturing process and applying technologies optimized for prevention of pollution.

### ③ Dealing with Climate Changes

- We will endeavor to reduce consumption of fossil fuels or materials, and to minimize discharge of greenhouse gas by improving energy efficiency.
- We will enhance competitiveness by developing innovative low-carbon technology.

### ④ Protection of Environment and Eco-system

- We will endeavor to restore the eco-system and preserve biological diversity through effective use of natural resources and by-products.

## ⑧ Protection of and Respect for Human Rights

We will respect human rights, support international standards for human rights and strengthen dignity of all interested parties by improving freedom, safety and quality of life.

### ① Respect for International Standards Regarding Human Rights

- We will support and respect internationally recognized standards on human rights, such as Universal Declaration of Human Rights, Guiding Principles on Business and Human Rights, UN Global Compact, and OECD Guidelines for Multinational Enterprises.
- We will establish clear policy and system for protection of human rights and endeavor not to violate human rights in our management activities.
- We will support business partners to comply with internationally recognized human rights standards and regulations, protect their employee's human rights and treat them fairly.

### ② Due diligence in Relation to Human Rights

- We may, at our discretion, conduct due diligence on management activities that might violate human rights or cause complaints.
- We will endeavor to find reasonable resolutions if, upon conclusion of the human rights due diligence, we believe our management activities have violated human rights or caused complaints.
- We will communicate with the relevant interested parties regarding human rights related activities and results thereof.

### ③ Protection of Executives and Employees

- We will not engage in verbal, physical or demonstrative acts that may offend others or infringe other's human rights such as sexual harassment.
- We will respect privacy of executives and employees, will not slander or defame others, and will protect personal information.
- We will not compel works through mental or physical coercion.
- We will comply with local labor laws and international standards with respect to the age and labor conditions of minors.
- We will strictly comply with safety regulations, and will take appropriate actions upon discovery of risk factors.

### ④ Respect and Equality

- We will not discriminate or harass for reasons of race, nationality, gender, age, educational background, religion, regional origin, disability, marital status, and sexual orientation.
- We will provide equal employment opportunity to those who possess necessary qualification and capability.
- We will maintain work environment that respects cultural diversity.

### ⑤ Assurance for Legitimate and Humane Employment Terms

- We will take prompt actions for human rights issues raised by executives and employees through the company grievance procedure.
- We will offer adequate employment terms such as guaranteeing proper working hours to enable the employees to maintain life with dignity.

### ⑥ Efforts to Respect Community Human Rights

- We will endeavor to listen to the opinions of the community and resolve issues of violation of human rights caused by our management activities in the community.

## Supplementary Provision\_ Management and Operation of New Code of Conduct

### ① Compliance with the Ethics Code

- This Code should be referred to for one's actions and decision-making, and complied with in good faith.
- The compliance department will handle overall management of this Code while operation of the detailed terms will be managed by the relevant department responsible therefor.
- Company may establish a separate standard for more efficient operation of this Code as it deems necessary.

\* Department in charge of management responsible: Department responsible for control, reporting, and evaluation of risks in eight sectors (sales, purchasing, production, R&D, investment, management, raw materials, and facility) for the practice of the Code of Ethics

### ② Responsibility of the Executives and Department Head

- Executives and department heads should frequently provide education and advice to employees under their control to help them fully understand this Code.
- Executives and department heads should take appropriate preventive measures to ensure that employees under their control do not violate this Code.

### ③ Obligation to Report and Protection of the Whistleblower

- Violation of this Code should be reported to the compliance department in the most expeditious and convenient manner.
- When reported of its employee's violation of this Code, executives and department heads should immediately report the same to the compliance department.
- Compliance department may verify the relevant facts with respect to the violation of this Code at its discretion, and the relevant executives and employees should fully cooperate therewith.
- Executives and employees should not discriminate or disclose the whis-

tleblower.

- If the whistleblower's right is likely to be prejudiced, whistleblower may be assigned to a different position as per his wishes.
- When executives and employees become aware of a whistle blowing, whether due to his job or inadvertently, they should keep it in confidence. Disclosure of the same may subject him to disciplinary actions.
- The guidelines for reporting of any unethical behavior including receiving or giving of money from or to the interested parties and compensation for the reporting will be separately established.

### ④ Reward and Disciplinary Actions

- Company may, in accordance with the relevant regulations, offer a reward or appropriate compensation to executives or employees who contributed for accomplishing the objective of this Code.
- Company will sanction executives and employees who violated this Code in accordance with the relevant regulations.
- Company may restrict access of former executives and employees to the company whose employment was terminated due to violation of this Code.

### ⑤ Operation of Ethics Management Committee

- Company may establish and operate an Ethics Management Committee for reporting, examination and resolution of important ethics matter. The guidelines therefor will be separately established.

### ⑥ Interpretation

- If any of the family members, relatives, or acquaintances of executives or employees violates this Code while acting under the name of the executives or employees, such violation will be deemed violation of the executives and employees.
- Any questions regarding interpretation of this Code or matters not specifically set out herein will be directed to the compliance department for guideline.

### ⑦ Amendment

- Compliance department may amend this Code as it deems necessary, provided that the amendment the head of the compliance department deems significant will require signature of the representative director.
- Additional clause (revised on Aug. 13, 2003): (enforcement date). These guidelines begin to take effect on Aug. 13, 2003.
- Additional clause (revised on Apr. 1, 2004): (enforcement date). These guidelines begin to take effect on Apr. 1, 2004
- Additional clause (revised on Aug. 24, 2004): (enforcement date). These guidelines begin to take effect on Aug. 24, 2004
- Additional clause (revised on Jun. 9, 2006): (enforcement date). These guidelines begin to take effect on Jun. 9, 2006.
- Additional clause (revised on Jun. 24, 2009): (enforcement date). These guidelines begin to take effect on Jun. 24, 2009.
- Additional clause (revised on Nov. 9, 2009): (enforcement date). These guidelines begin to take effect on Nov. 9, 2009.
- Additional clause (revised on Jan. 3, 2011): (enforcement date). These guidelines begin to take effect on Jan. 3, 2011.
- Additional clause (revised on Aug. 13, 2012): (enforcement date). These guidelines begin to take effect on Aug. 13, 2012.
- Additional clause (revised on Jun. 2, 2014): (enforcement date). These guidelines begin to take effect on Jun. 2, 2014.
- Additional clause (revised on Sep. 1, 2015): (enforcement date). These guidelines begin to take effect on Sep. 1, 2015.
- Additional clause (revised on Sep. 28, 2016): (enforcement date). These guidelines begin to take effect on Sep. 28, 2016.
- Additional clause (revised on Apr. 28, 2017): (enforcement date). These guidelines begin to take effect on Apr. 28, 2017.

## Code of conduct for POSCO Group supplier

The Code of Conduct for POSCO Group Supplier states fundamental principles which suppliers who supply goods and services to POSCO Group including POSCO, its affiliates and joint venture companies.

Every Clause of this document is equally important and consists of 7 parts which suppliers should comply with, such as respect for basic rights of employees, safety and health, environment, ethics, protection of business secrets and intellectual property rights, quality management, win-win growth and contribution to the local community.

### ① Respect for basic rights of employees

Suppliers shall protect and respect employee's rights and treat them fairly.

#### ① Freely Chosen Employment

- Every work shall be voluntary and employees can retire freely if there is a reasonable notification.
- Supplier cannot force employees to transfer their ID, passport or work permit that government issued, on condition that supplier hires them.

#### ② Prohibition of Child Labor

- Suppliers shall follow ILO Convention No. 138 and domestic regulation on the minimum age for admission to employment and work.
- In other words, suppliers shall not hire a child under 15 (in case of a developing country that exempt from ILO Convention No. 138, under 14) or minimum age that is regulated by domestic law.
- Suppliers shall follow every legislation and regulation about internship program.
- Employees under 18 shall not carry out dangerous work in terms of the safety and health.

#### ③ Non-Discrimination

- Suppliers shall not discriminate employees based on race, color, religion, gender, sexual orientation, age, physical condition, political view, nationality, nation and marital status and treat them fairly for hiring practices such as employment, promotion, compensation and training opportunities.

#### ④ Working Hours

- Except for an urgent situation, suppliers shall follow working hours; include overtime determined by law. And all of overtime work shall be voluntary and awarded as extra pay of appropriate level.

#### ⑤ Wages

- When suppliers pay wage to employees, suppliers shall follow all the relevant law that is related to wages such as minimum wages, overtime payment and welfare benefits.

#### ⑥ Humane treatment

- There shall not be inhumane treatment that includes sexual harassment, sexual abuse, physical punishment, physical or psychological coercion, and insulting as well as intimidating employees by giving them inhumane treatment.

### ② Safety and Health

Suppliers shall provide safe and healthy working environment to employees and take proper measures to prevent employees from being exposed to potential safety hazards.

#### ① Working Environment

- Suppliers shall follow the relevant law, regulations and orders in order to manage every workplace safely and healthily where producing or working is executed. To achieve this, suppliers shall make the best effort to use an authorized safety management system and provide potable water and hygienic toilet and also furnish minimum facilities of safety and convenience such as a fire and emergency response system, appropriate light and ventilation.

### ③ Environment

Suppliers shall follow laws and regulations related to protection of the environment and understand that protection of the environment is the fundamental social responsibility of enterprises. They also comply with public health and safety in the course of manufacturing process, and minimize negative effects on the environment of the local community and natural resources.

#### ① Hazardous Substance

- Suppliers shall comprehend chemicals and other substances that have possibilities to pollute environment and manage to assure of safe handling, moving, storing, using, recycling or reusing and definite discarding.

#### ② Waste water, Solid waste and Air Pollution

- Suppliers shall understand the nature of substances and control and handle them within the legal limits before emitting or discarding the waste water, solid waste, Volatile Organic Compounds, aerosol, corrosive, mercuric oxide, ozone-unfriendly substance and byproduct of combustion from facility operation, industrial process and sanitary facility.

#### ③ Pollution Prevention and Reduction of Resource Usage

- Suppliers shall fundamentally reduce or eliminate all kinds of waste including waste water and energy by making an endeavor for improvement such as alteration of production, maintenance and facilities, replacement of raw materials, preservation, recycling and material reuse.

### ④ Ethics and Fair Trade

POSCO Group and suppliers shall abide by the following articles to satisfy the social responsibilities and sustainable growth.

#### ① Business Integrity

- POSCO Group and suppliers shall keep the highest level of integrity in all kinds of business and an inappropriate action is strictly prohibited such as corruption, coercion, intimidation and embezzlement.

#### ② Observance of the special clause of ethics practice

- Suppliers ought to follow regulations on "the Special Clause of Ethics Practice" of POSCO Group and will face sanctions under the same clauses when they violate it.

**③ Observance of Fair Trade**

- Suppliers shall follow laws and regulations related to fair trade and try not to offend against the fair trade order such as unfair practice of trading.

**④ Confidence-Building**

- Suppliers shall not offend against confidence of the whole POSCO supply chain by libeling other people or companies through spreading false information on the purpose of slandering other interested parties such as members of POSCO Group and competitors.

**⑤ Protection of Business Secrets and Intellectual Property Rights**

Suppliers shall not reveal or provide any kinds of technical data, information and intellectual properties obtained from business with POSCO Group, to other parties without a prior written consent of POSCO Group.

**① Management and protection of confidential information**

- Suppliers shall use technical data, information and intellectual properties obtained from the process of supplying products and services to POSCO Group within permits of POSCO Group, and protect them actively.

**② Protection of intellectual property rights**

- Suppliers shall not infringe intellectual property rights or illegally use patents, design, trademark of others when supplying products and services to POSCO Group.

**⑥ Quality Management**

Suppliers shall make the best of realizing the World Best Supply Chain by providing products and services of the best quality to POSCO Group.

**① Quality Control**

- Suppliers shall try to supply guaranteed products in order for POSCO Group to produce and supply the world-class products.

**② Change Control**

- When something that influences quality, caused by changing facilities, materials and working methods, suppliers shall inform that in advance and prevent defects beforehand.

**③ Mutual quality control by suppliers**

- Suppliers shall try to contribute the quality of products and services of other suppliers in business relationship through supporting technology and quality to them.

**⑦ Win-win Growth and Contribution to the Local Community**

Suppliers shall actively participate in win-win growth and contribution activity to the society for constructing healthy corporate ecosystem and developing the local community.

**① Win-win growth**

- Suppliers shall make the best to participate in win-win growth for constructing healthy corporate ecosystem and spread to other companies who are in business relationship with them.

**② Contribution to society**

- Suppliers shall actively carry out a contribution activity to the local community for continuous job creation and economic development of the region.

POSCO Group hopes for good communication with suppliers in order to run a better business. And POSCO Group expects suppliers to suggest specific ways that POSCO Group can help suppliers perform the Code of Conduct for POSCO Group Suppliers.



# 06

## APPENDIX

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## GRI INDEX

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	102-3	Location of headquarters		8	●
	102-4	Location of operations		8	●
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	102-6	Markets served		8	●
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	102-49	Changes in reporting		None	●
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GRI Standard	Disclosure	ISO26000	Page/URL	Assurance	
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<b>Indirect Economic Impacts</b>					
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	103-3	Evaluation of the management approach		44-45	●
GRI 206: Anti-Competitive Behavior 2016	206-1	"Legal actions for anti-competitive behavior, anti-trust, and monopoly practices"	6.6.1-6.6.2, 6.6.5, 6.6.7	Refer to page 443 of 2016 Business Report at <a href="http://dart.fss.or.kr/">http://dart.fss.or.kr/</a>	
<b>GRI 300 Environmental Topics</b>					
<b>Materials</b>					
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary		60-61	●
	103-2	The management approach and its components		60-61	●
	103-3	Evaluation of the management approach		60-61	●
GRI 301: Materials 2016	301-1	Materials used by weight or volume	6.5.4	60-61	●
	301-2	Recycled input materials used	6.5.4	60-61, 80	●
	301-3	Reclaimed products and their packaging materials	6.5.4	60-61	●

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GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	6.5.4	68-71	●
	103-2	The management approach and its components		68-71	●
	103-3	Evaluation of the management approach		68-71	●
GRI 302: Energy 2016	302-1	Energy consumption within the organization	6.5.4	8, 33	●
	302-2	Energy consumption outside of the organization	6.5.4	8, 33	●
	302-3	Energy intensity	6.5.4	8, 33	●
	302-4	Reduction of energy consumption	6.5.4-5	76-79	●
	302-5	Reduction in energy requirements of products and services	6.5.4-5	76-79	●
<b>Water</b>					
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary		56-58	●
	103-2	The management approach and its components		56-58	●
	103-3	Evaluation of the management approach		56-58	●
GRI 303: Water 2016	303-1	Water withdrawal by source	6.5.4	33, 59	●
	303-2	Water sources significantly affected by withdrawal of water	6.5.4	33, 59	●
	303-3	Water recycled and reused	6.5.4	33, 59	●
<b>Biodiversity</b>					
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary		62	●
	103-2	The management approach and its components		62	●
	103-3	Evaluation of the management approach		62	●
GRI 304: Biodiversity 2016	304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	6.5.6	62-63	●
	304-2	Significant impacts of activities, products, and services on biodiversity	6.5.6	62-63	●
	304-3	Habitats protected or restored	6.5.6	62-63, 106	●
	304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	6.5.6		
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GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	6.5.5	68-71	●
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GRI 305: Emissions 2016	305-1	Direct (Scope 1) GHG emissions	6.5.5	8, 33, 71-73	●
	305-2	Energy indirect (Scope 2) GHG emissions	6.5.5	8, 33, 71-73	●
	305-3	Other indirect (Scope 3) GHG emissions	6.5.5	8, 33, 71-73	●
	305-4	GHG emissions intensity	6.5.5	8, 33, 71-73	●
	305-5	Reduction of GHG emissions	6.5.5	74-75	●
	305-6	Emissions of ozone-depleting substances (ODS)	6.5.3, 6.5.5	59-60	●
	305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	6.5.3	59-60	●
<b>Effluents and Waste</b>					
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary		58	●
	103-2	The management approach and its components		58	●
	103-3	Evaluation of the management approach		58	●
GRI 306: Effluents and Waste 2016	306-1	Water discharge by quality and destination	6.5.3-4	58-59	●
	306-2	Waste by type and disposal method	6.5.3	33	●
	306-3	Significant spills	6.5.3	None	●
	306-4	Transport of hazardous waste	6.5.3	None	●
	306-5	Water bodies affected by water discharges and/or runoff	6.5.3	62	●
<b>Environmental Compliance</b>					
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary		56-57	●
	103-2	The management approach and its components		56-57	●
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GRI 307: Environmental Compliance 2016	307-1	Non-compliance with environmental laws and regulations	4.6	None	●

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	103-3	Evaluation of the management approach	52	●	
GRI 308: Supplier Environmental Assessment 2016	308-1	New suppliers that were screened using environmental criteria	6.3.5, 6.6.6, 7.3.1	52-53	●
	308-2	Negative environmental impacts in the supply chain and actions taken	6.3.5, 6.6.6, 7.3.1	52-53	●
<b>GRI 400 Social Topics</b>					
<b>Employment</b>					
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	403-3	Workers with high incidence or high risk of diseases related to their occupation	6.4.6, 6.8.8	84	●
	403-4	Health and safety topics covered in formal agreements with trade unions	6.4.6, 6.8.8	94	●
<b>Training and Education</b>					
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary		95	●
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	103-3	Evaluation of the management approach		95	●
GRI 403: Training and Education 2016	404-1	Average hours of training per year per employee	6.4.7	100	●
	404-2	Programs for upgrading employee skills and transition assistance programs	6.4.7, 6.8.5	97	●
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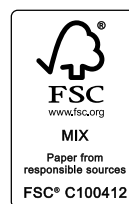
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