# 2017 DAEWOO E&C SUSTAINABILITY REPORT



For the People & Better Tomorrow

# 2017 DAEWOO E&C SUSTAINABILITY REPORT



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# GLOBAL INFRA & ENERGY DEVELOPER



08 Company Overview

VARIATION CONTRACTOR

Geoga Grand Bridge



## CEO Message



Dear respected stakeholders of Daewoo E&C. Thank you for your continued interest and confidence in our business.

Despite a continued economic slump in our country and slowdown in the construction industry due to a prolonged period of low oil prices, we managed to reach KRW 10 trillion in annual sales for the first time since our foundation. Without the commitment and dedication of our employees and suppliers, this achievement would not have been possible. I would like to express my sincere appreciation for your continued support of our business.

This year, we expect a further economic slowdown due to more uncertainty in oil prices and interest rates, less consumer spending and unstable political conditions. For the construction industry in particular, it will be a more challenging year than ever with a continued decrease in the SOC budget, tightened restrictions, falling real estate prices and the risk of restructuring pressure by the government on our industry.

sustainable value:

First, solid management with a focus on profitability. More than ever before, we need to maximize our revenue to ensure financial stability rather than looking towards external growth by undertaking as many projects as we can. Therefore, we will take a more stringent risk management approach when it comes to choosing projects while developing quality investment projects such as a new town development project in Vietnam and establish strong principles to solidify our business management.

Second, the development of new mid- and long-term growth engines. It is difficult to expect the current boom in the future housing industry, which has driven the company's performance over several years, to continue, due to reinforced government regulations and increasing uncertainty in the short term and changes in the demographic structure in the long term such as low-birth rate and aging. Therefore, the importance of new growth engines cannot be stressed enough. To do this, we are going to focus our resources and support on the development of new growth engines based on an extensive analysis of our internal competence and market conditions.

Third, a fulfillment of sustainability management. In addition to seeking financial performance, Daewoo E&C strives to carry out its social responsibility considering various stakeholders and become a company of continuous growth. We will build trust with stakeholders by fair and transparent management activities based on compliance and ethical management. In order to fulfill our environmental and social responsibilities as a construction company, we will strive to improve the organizational culture and cultivate talented people. In addition, we will pursue eco-friendly businesses, promote shared growth with our suppliers and local communities.

In closing, I would like to express my heartfelt thanks to all of our employees and stakeholders who believe in and support Daewoo E&C. We will do our utmost as Korea's representative construction company to gain your trust and respect.

Thank you

At Daewoo E&C, we are going to focus our efforts in the following areas to overcome these challenges and create

April 2017 Daewoo E&C Co., Ltd. **CEO** Chang-min Park

25 2

## **Company Overview**

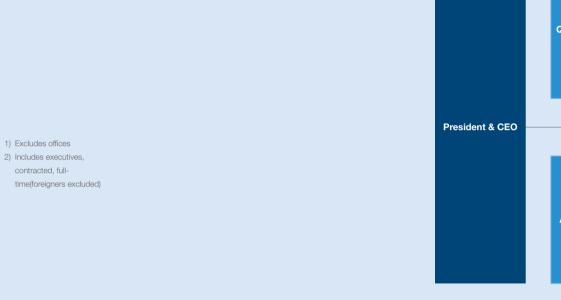
#### About Daewoo E&C

Since its foundation in 1973, Daewoo E&C has led innovation and changes in the industry for improving the quality of people's lives. With 'Power of Construction to Change the World' as our guiding principle, we have never stopped pioneering and taking on new challenges. Based on the financial stability we acquired with the KDB system, we have consistently created business opportunities in global markets and secured growth engines for the future. We are taking the next steps to increase our global presence and expand our vision for changes in the world. With our technical expertise, human resources with creativity and pioneering spirit, we will continue to help bring a better, more sustainable future for all of us.

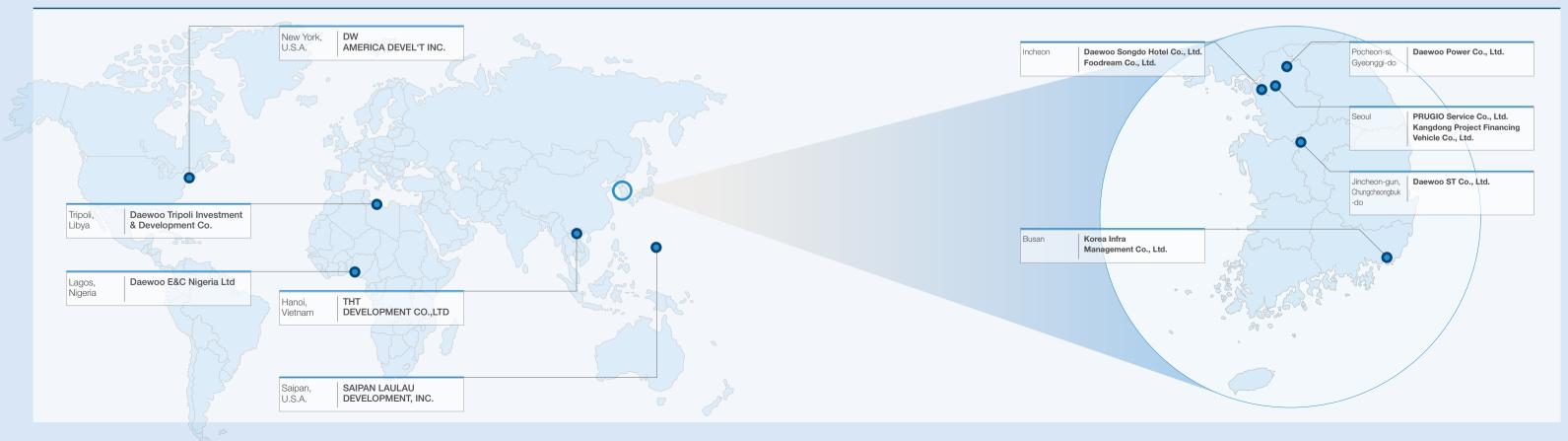
#### Overview

(As of December 31, 2016)

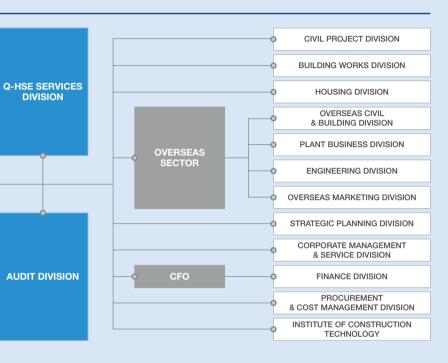
DAEWOO Engineering & Construction Co., Ltd.			
November 1 <sup>st</sup> , 1973			
75, Saemunan-ro, Jongno-gu, Seoul, Republic of Korea			
Chang-min Park			
7 Domestic Branches, 22 Overseas Branches <sup>1)</sup> , and 5 Overseas Subsidiaries			
Korea Development Bank(KDB Value 6 Ltd.)			
6,128 <sup>2)</sup>			
Korean) www.daewooenc.com / English) www.daewooenc.com/eng			



#### **Domestic & Overseas Subsidiaries**

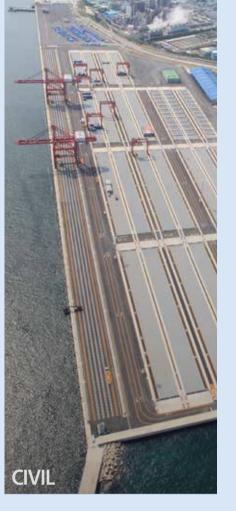


#### **Organizational Structure**



#### **Business Portfolio**

**JEWOO** 



In 2016, Daewoo E&C selectively undertook high-profit projects while diversifying its business portfolio and maximizing its profit margins in response to the worsening business environment and increasing competition to ensure sales growth and liquidity.

We are planning to advance and innovate our technology for an ecofriendly green growth business based on the technological expertise we have gained over the years. In addition, in the era of the national income of 30,000 dollars, we plan to promote the development of convergence port as the base of urban regeneration. Along with our renewable energy business and information communication technology, we will continue to lead the industry by undertaking state-of-the-art city construction projects while building a foundation for sustainable growth.

We focused on our core strengths in response to the low-growth business environment. Taking profitability and safety into account, we plan to secure public offering projects by restructuring our business portfolio and building a database of private contractors, project owners and affiliates. Furthermore, we are moving beyond the simple value chain of 'construction and sales' by strengthening our foundation as a construction developer. We seek to accomplish this by integrating planningfinancing-implementation processes. We will continue to strengthen our foundation for sustainable growth and manage our risk by diversifying our portfolio, thereby strengthening our position as a stable and trustworthy construction firm.

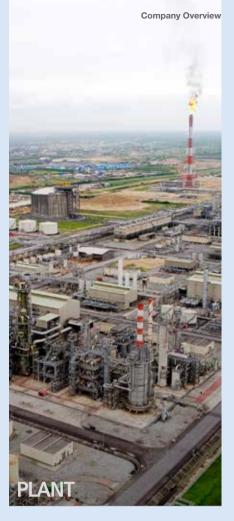
**BUILDING** 



Daewoo E&C has maintained a leadership position in the market by achieving the highest sales for 7 years since 2010 with the PRUGIO brand. This 2017, yet Daewoo E&C will overcome the is the result of our efforts in organizational efficiency and risk management in 2016 and increasing our market share with a focus on our core strength and business opportunities in the housing market. In addition, Daewoo E&C was certified by the government for a realestate service network in 2016 as part of our efforts to become a total real-estate service provider. Meanwhile, we plan to develop new markets by enhancing our performance in the lease, management and distribution businesses for our new growth engine for the future.



The overseas construction recession caused by international situation, such as Brexit, is predicted to be continued in crisis by strengthening our competence to win orders, with our Overseas Civil & Building Division. Moreover, we are going to target niche markets resulted from gradual rise of the oil price and the increasing demand for Infrastructure markets in Asia and the Middle East. Also, the company will improve its capabilities of performance and winning orders through partnerships with local companies. Daewoo E&C will continue to enhance our market control in hub markets while pushing ahead with market re-entry and business diversification in a long term as well as optimizing our business portfolio of each region through Glocalization<sup>1)</sup>.



Unlike 2016 when the oil price remained low, this trend is likely to recover gradually thanks to the agreement on cutting production by OPEC.

In response to this market environment, Daewoo E&C will focus on projects with guaranteed profit margins. In addition, we are going to expand our hub market and develop existing markets in Russia and Asia.

As the power industry is based on private capital expansion, we will focus on private business in both domestic and overseas markets while working on O&M<sup>2)</sup> and IPP<sup>3)</sup> investment in countries in Southeast Asia including Vietnam and Indonesia as a total construction developer.

<sup>1)</sup> Business strategies that pursue both 'globalization' and 'localization'

<sup>2)</sup> Operation & Maintenance business of buildings such as power plants in operation

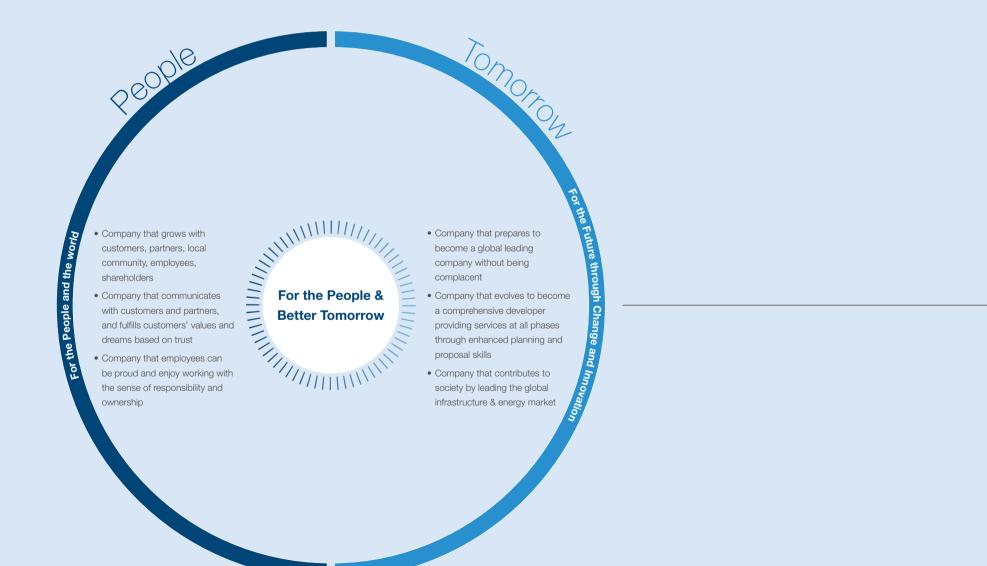
<sup>3)</sup> Independent Power Plant : A privately-funded power generation project that collects investment money after construction of a power plant through private capital

#### Vision 2025

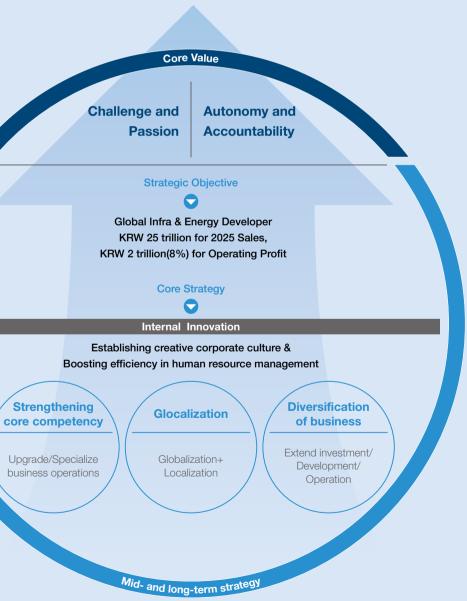
Daewoo E&C's vision is to become a global leader that helps to realize our customers' values and dreams and creates a better future for all our stakeholders from customers to employees. With this vision in mind, we are strengthening our driving force by making changes and innovations while improving the quality of people's lives. With our Vision 2025 'For the People & Better Tomorrow', we present our founding principles and philosophy. Through innovative changes, we will pave the way for a more sustainable future and differentiate our business strategy to become a 'Global Infra & Energy Developer'.

## **Core Value**

The core values of Daewoo E&C "Challenge and Passion" and "Autonomy and Accountability" indicate the company's commitment to challenge constantly with conviction and passion and complete any given tasks under the responsibility and belief. These values signify the company's willingness and commitment to become a global E&C leader. Leveraging years of hands-on experience and technological prowess, Daewoo E&C envisions a more sustainable and innovative future created by our technology, creative human resources and pioneering spirit.



Upgrade/Specialize business operations



#### **Corporate Governance**

#### **Shareholding Structure**

As of December 2016, a total of 415,622,638 shares had been issued and KDB Value 6 Ltd. owns 50.8%. We disclose material information to our stakeholders on a regular basis as required by the Financial Supervisory Service(FSS) and Korea Exchange(KRX).

Major Shareholders		(As of December 31, 2016)
Korea Development Bank(KDB Value 6 Ltd.)	50.8%	
SEBT Investment Ltd.	12.3%	
Kumho Tires Co., Inc.	4.4%	
Asiana Airlines Inc.	2.2%	
Others	30.3%	

#### **BoD(Board of Directors) Organization and Operations**

Our Board of Directors(BoD) consists of 7 directors, including 4 outside directors, to ensure transparency and balance. The company's CEO serves as the BoD chairman as he understands our corporate policies and business situation. Its monitoring and supervisory roles are protected by our internal regulations with a focus on efficient and transparent management.

#### **BoD Organization**

(As of December 31, 2016)

Category	Name	Date of Birth	Background	Rationale
Internal Director	Chang-min Park	Dec.1952	Present CEO of Daewoo E&C	CEO
	Ŭ		Former CEO/President of Hyundai Development Company	
Internal Director	Kyung-taek Lim	Feb.1956	Present Senior Vice President of Daewoo E&C	CFO
			Former Vice President of Korea Development Bank(KDB)	
Outside Director	Sun-jik Kwon	Mar.1950	Former Asst. Director of Donga Daily Newspaper, Editor Bureau	Public Relations Expert
Outside Director	Khan Park	Apr.1949	Former CFO of Bank of Korea	Financial Expert
Outside Director	Hong-kee Ji	Sep.1948	Former President of Korea Federation of Water Science and Engineering Societies	Tech. Expert
Outside Director	Joo-ha Woo	Nov.1956	Former CEO of KOSCOM	Policy Expert
Non-Executive Director	Jin-kyo Oh	Jul.1962	Present Head of KDB Private Equity Fund Division	Protection of Shareholders' Rights

\* On Jan 23rd 2017, Kyung-taek Lim(Internal Director) and Jin-kyo Oh(Non-Executive Director) resigned for personal reasons.

\* On Jan 23rd 2017, Sun-jik Kwon, Khan Park(Outside Director) resigned due to term expiration.

\* On Mar 27th 2017, Hong-kee Ji(Outside Director) resigned due to term expiration.

\* On Mar 28th 2017, Moon-sun Song(Internal Director), Kwang-rim Yoon, Kyu-yoon Choi, and Hyuk Lee(Outside Director) were elected at the regular shareholders' meeting.

BoD	Operations

Category	Sub-category	Unit	2014	2015	2016
Board Meetings	No. of Meetings	Meeting	17	14	16
	No. of Items	Item	48	56	65
	Board Meeting Attendance	%	92.9	98.1	94.8

#### **BoD Committees**

Our Outside Director Nomination Committee holds the right to nominate outside directors and include 3 outside directors for transparency and independence. Meanwhile, the Audit Committee prevents a conflicts of interest and ensures sound corporate governance by conducting audits from the decisionmaking process to follow-up process.

#### Committees

Name of Committee	Role and Responsibilities	Members
Outside Director Nomination Committee	Nominate outside directors for general meeting of shareholders	1 Internal director, 3 outside directors and 1 non-executive director
Audit Committee	Oversees financial reporting and accounting	2 outside directors and 1 non-executive director

#### **BoD Evaluation and Remuneration**

The limits of remuneration in total for BoD members are decided at the General Meeting of Shareholders based on the financial, social and environmental business performance and individual performance. Individual compensation is disclosed through our annual business report and IR website(over KRW 500 million) to ensure transparency. Retirement benefits are paid in accordance with the rules set at the General Meeting of Shareholders with reference to Article 30 of the Articles of Incorporation.

1), 2) Including remuneration of retired director

Category	No. of persons	Remuneration in total	Avg. amount per person
Internal Director(Excl. member of audit committee and outside director)	2	1,612 <sup>1)</sup>	806
Outside Director(Excl. member of audit committee)	2	93 <sup>2)</sup>	46
Member of the Audit Committee or Auditor	3	122	41

#### Remuneration for the Chairman of BoD

#### Director

Young-sik Park

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#### **Remuneration for Directors and the Auditor**

(Unit : person, KRW million)

(Unit : KRW million)

Title	Remuneration in total
Former President & CEO	923



FOR THE PEOPLE

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Ethical Management



# **Health and Safety**

Health and safety management is an important management factor, which not only has a primary purpose of preventing any human damage, but also can have an impact on undermining the morale and productivity of employees. With 'Protect Human Lives through Changes and Innovation' as our goal, we are committed to raising awareness and building a health and safety-focused system through compliance with principles and guidelines.

In 2016, we reinforced our on-site inspection and monitoring system as part of our proactive risk management process by preparing necessary infrastructure and promoting safety culture.

# Key Performance Risk Management Inspections Overseas Breaches

## **Plans for the Future**

#### Enhancement of expertise

- Intensive management of foreign workers Operation of an academy for fostering talents(HSE)
- Implementation of advanced safety and specialized training for overseas on-site HSE<sup>2)</sup>

1) LTIR(Lost Time Injury Rate) : (no. of fatality+lost workday case / total work hours) x 1 million hours 2) Health, Safety and Environment



#### System improvement

 Securing proactive safety measures Gaining ISO14001:2015 certification • Expansion of the overseas project site system for dealing with emergency situations (natural disasters, terrorist attacks, etc.)

#### Improvement of the safety infrastructure

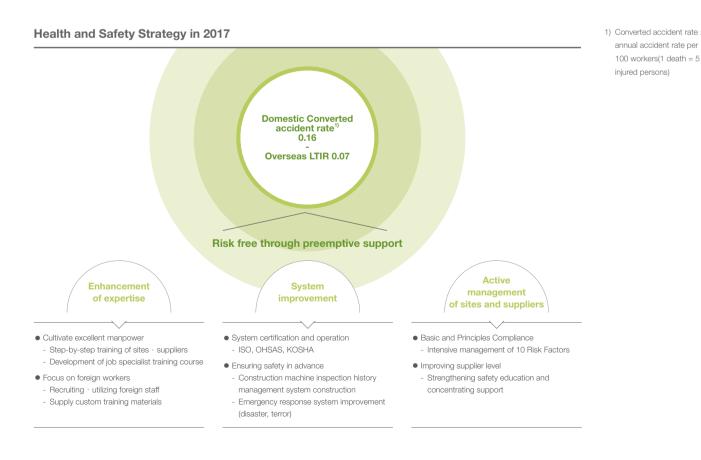
- Expansion of the safety official's operation shutdown authority system
- Increased safety improvement programs for suppliers
- Increased operation of the CLEAR program(for a culture of safety)
- Standardization of HSE organization at overseas project sites
- Revision of the HSE Management System

## **Health and Safety**

At Daewoo E&C, executive officers set an example in the prevention of industrial accidents through communication with the workforce in the field rather than focusing on formal inspections and events. As a result, management and the labor force unite in creating a safety culture by following principles and guidelines. In addition, we avoid working on holidays(Sundays) and review our process management plan while helping our employees refresh their spirits and energy as part of our strategy to prevent accidents and improve productivity.

#### Health and Safety System

Policy	Establish a industry-leading safety cluture with respect for human lives through change and innovation
Action Plan	Compliance with principles and guidelines
	<ul> <li>Compliance with applicable health and safety laws and regulations</li> </ul>
	<ul> <li>Activating preliminary risk assessment</li> </ul>
	<ul> <li>Settlement of prior permission system for High-risk activities</li> </ul>
	Corporate-wide participation
	Means of active communication
	<ul> <li>Distribution of roles and responsibilities</li> </ul>
	<ul> <li>Raising awareness through continuous training</li> </ul>



#### Health and Safety Organizational System

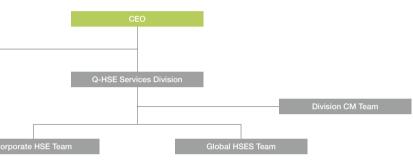
In 2016, the company set the target of securing pre-stability by improving and reforming the health & safety organizational system. Under the guidance of the Q-HSE Services Division which set a corporate-wide HSE goal and action plans, there are the Corporate HSE Team, Global HSE Team and CM(Construction Management) Teams of each division. Our health and safety management system has improved its efficiency by minimizing its organization with the Health & Safety Management Committee monitoring progress at a corporate-wide level under the supervision of the CEO, setting a direction for the future and discussing the areas of improvement and emergency accident status inspection. We also prepared a mid and long-term strategic roadmap and implemented the CLEAR program to raise awareness, develop HSE expertise and HSE Smart Construction as part of our plan to build a comprehensive health and safety management system.

Health and Safety Consultation System

When an issue arises, the Health & Safety Management Committee gathers to discuss pending issues with related committees. The resolutions communicated and implemented by the committee helps to maintain a high standard of safety management that reflects the opinions of each division and their employees.



ganization ember	Committee Chair		
emper	Vice Committee Chair		
	Committee Member		



#### **Enhancement of Health and Safety Management**

#### **Proactive Risk Management**

As part of our risk management in health and safety issues, we developed a leading indicator monitoring system to predict and respond to risks in advance. We also performed 839 health and safety inspections of our domestic and overseas project sites to implement the system in 2016.

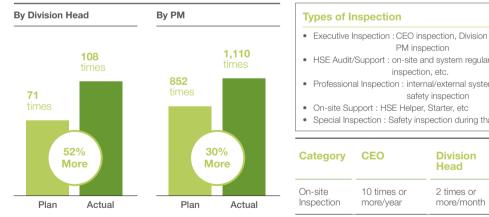
Category	Total	System Audit	Emergency Accident Inspection	Inspection of Construction Equipment	Inspection of Technology	Inspection of Security
Domestic	805	200	100	242	263	-
Overseas	34	23	-	-	-	11

#### **HSE Process Improvement**

In 2016, the Corporate HSE Team implemented a qualification validation system for subcontractors to ensure the reliability of technical positions such as sign holders and traffic controllers and abolished an injury accident penalty discipline system while focusing on the prevention of recurrence. In addition, we have improved our allocation system for safety officials and the management system for construction machinery increasing the inspections of tower cranes, lifts and gondolas before they enter the site.

#### **Enhanced Safety Inspection**

We significantly increased our activities for safety inspection in terms of the frequency of inspections by executive officers and set guidelines for professional inspections. In 2016, we exceeded the number of inspections and our executive officers actively participated in raising awareness in safety at project sites.



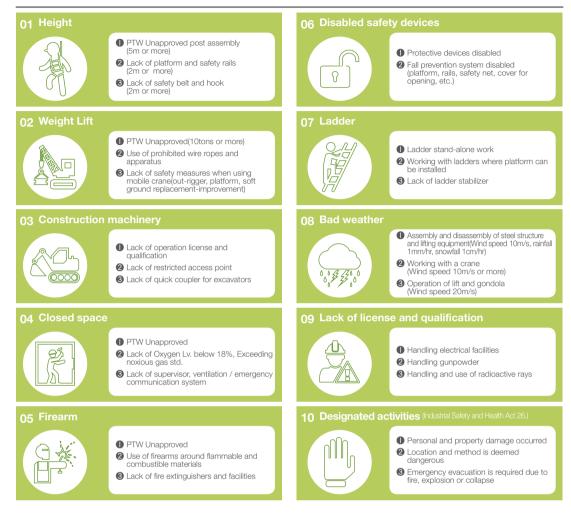
Types of Inspection						
Executive Inspection : CEO inspection, Division Head inspection,     PM inspection						
HSE Audit	<ul> <li>HSE Audit/Support : on-site and system regular audit, HSE theme inspection, etc.</li> </ul>					
Profession	Professional Inspection : internal/external system and technical safety inspection					
	<ul> <li>On-site Support : HSE Helper, Starter, etc</li> <li>Special Inspection : Safety inspection during thawing season, etc.</li> </ul>					
Category CEO Division PM Head						
On-site Inspection	10 times or more/year	2 times or more/month	1 time or more/week			

(Unit : Times)

#### Safety Official's Operation Shutdown Authority System

The Corporate HSE Team established the safety official's operation shutdown authority system to prevent accident in an emergency situation. Once the operation is shut down, we take health and safety measures to ensure our project environment is safe.





#### **CLEAR** Program

1) UA : Unsafe Act

2) SA : Safe Act

UC : Unsafe Condition

SC : Safe Condition

Based on our unique CLEAR Culture, we are operating the CLEAR Program to raise awareness of safety and reduce industrial accidents. CLEAR stands for 'Commitment', 'Listen and Speak', 'Eliminate UA/UC<sup>1</sup>', 'Appreciate SA/SC<sup>2</sup>' and 'Relationship'. While the existing safety management activities were carried out in a forced, penalty-focused manner, the CLEAR Program encourages the voluntary participation of all members based on mutual communication among leaders, managers and workers. In 2016, we completed the development of the CLEAR Program by establishing the areas of key activities and leading indicators while increasing the area of application through internal expert development programs. In the long run, we are going to raise awareness at a corporate-wide level by securing staff from the head office and organizing on-site training through internal experts.

#### Supplier Level Improvement Program

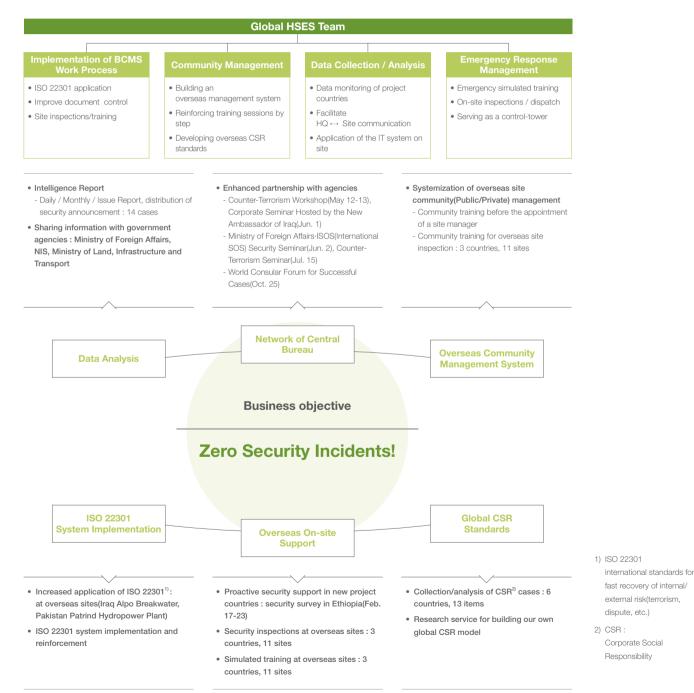
By encouraging suppliers to participate in voluntary safety activities, we are strengthening our preventive activities by improving safety levels. Twenty of the companies that have a high proportion of sales and a large number of disasters were selected to operate the 5-step program procedure. The level of safety was improved by 27.5% compared to the first diagnosis (1st step). In 2017, we plan to expand the target suppliers to further improve accident prevention capabilities.

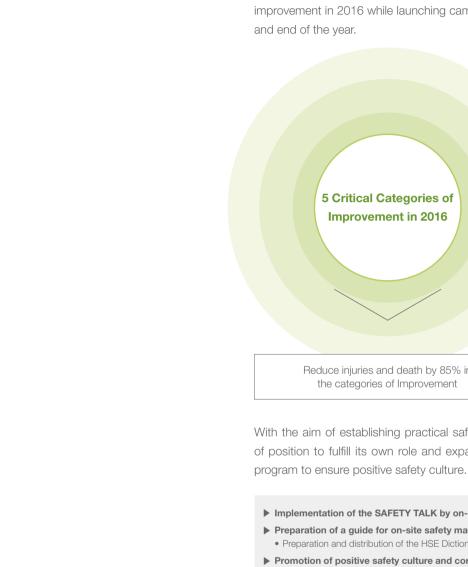
#### **10 Risk Factors for Immediate Operation Shutdown**

#### **Integrated Global HSES Management**

#### **Enhanced Security System in Risk Zones**

In response to an increasing national risk at overseas project sites, we reinforced our security information analysis and emergency control as part of our proactive risk management strategy. The Global HSES Team was able to prevent security accidents at overseas sites through on-site inspection, continuous data analysis, simulated training and coordination with government agencies in 2016. In addition, we are going to build an effective management system to ensure the safety of our employees by creating the Intelligence Report, increasing the application of information with government agencies and proactive security support in new countries.

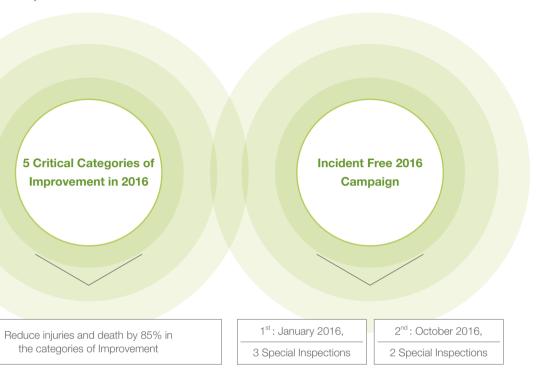




## **Overseas On-site Health and Safety Support**

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As part of our plan in response to several industrial accidents in 2015, we defined 5 critical categories of improvement in 2016 while launching campaigns for the prevention of industrial accidents at the beginning



With the aim of establishing practical safety culture, the company provided support to enable each level of position to fulfill its own role and expanded the range of SA/SC activities and company-wide reward

▶ Implementation of the SAFETY TALK by on-site managers > Preparation of a guide for on-site safety management by managers Preparation and distribution of the HSE Dictionary Promotion of positive safety culture and corporate-wide program Addition of Safe Act/Condition to the existing Unsafe Act/Condition • Rewarding site for activating joint participation of Safe Work Campaign and Safety Observation program

#### **Raising Awareness and Support for Health and Safety**

#### Health and Safety Training

At Daewoo E&C, we provide comprehensive safety training programs for executives, on-site managers, supervisors and safety officials as well as subcontractors. In 2016, we increased training for safety officials and subcontractors with the participation of more than 500 persons. 167 persons took the advanced program for tower crane while more than 700 employees of our subcontractors completed safety training through 17 sessions. In addition, we are committed to raising awareness of health and safety issues by practicing cardiopulmonary resuscitation, safety belt and equipment collision tests using the 'Safety Feeling Space' located in the Institute of Construction Technology.

#### **Self-Improvement Programs for Suppliers**

We are reinforcing our preventive activities by encouraging our suppliers to engage in voluntary safety activities. A 5-step initiative was implemented for twenty of our suppliers that have both a high proportion of sales with our company and also a high disaster incidence rate. By the end of this program, we were able to improve safety levels by 27.5% compared to the initial diagnosis conducted at the first step. In 2017, we plan to expand the target suppliers to further improve our accident prevention capabilities.

#### Health and Safety Management Certification

Daewoo E&C introduced the Health & Safety Management System for the first time in the construction industry. We became the first Korean construction company to acquire the OHSAS 18001 Certification(British Standards Institution) in November 2000 and the obtained KOSHA 18001 Certification(Korea Occupational Safety & Health Agency) in July 2015 as we continued to introduce and enhance our health and safety management system. We were also certified for ISO 22301 which allows organizations to prevent, respond and recover from disruptive accidents as part of social contribution for improving response against terrorist attacks and natural disasters in October 2015. In addition, we will further increase the scope of application for ISO 22301 to enhance safety under any circumstances while improving our corporate reputation and gaining competitive advantages in the global market in 2017.



ISO 22301 certified for the first time in the industry

#### Domestic HSE Training Performance

#### Safety Culture

- Trial operation of the CLEAR program : 2 Housing Division sites - Safety program for suppliers : 27 suppliers - Psychological coaching program : 10 sites, 272 persons HSE Training Performance - Total 1946 persons

#### (22 executives. 180 managers, 1,060 employees, 684 employees of

suppliers) Overseas HSE Training

#### Performance

 Advanced Safety Training - NEBOSH ICC(UK construction safety engineer) : 6 persons - OSHA 30(US construction safety entry level training) : 10 persons - OHSAS 18001(health and safety management system senior reviewer program) : 2 persons

#### **Accident Rate Control**

As the unstable international situation and risk of overseas operation has increased, the advance management of the situation has become more important. Accordingly, we at Daewoo E&C strengthened our ability to analyze security information and manage emergency response situations. As a result, the domestic converted accident rate was 0.24, which was the same as last year, but the overseas LTIR was 0.02, a decrease of 88% from the previous year. In particular, we secured a high level of health and safety management system as we achieved zero accidents in security in other countries. In 2017, we will focus on creating a safe working environment for our employees by further improving our system and fostering expertise with an aim to eliminate risks.

#### Accident Rate Control Performance & Goal<sup>1</sup>

Category		2015 Performance	2016 Performance	2017 Goal
Domestic	Converted accident rate	0.24	0.24	0.16
Overseas	LTIR	0.17	0.02	0.07

#### Plan & Goal

1) The accident rate of 2016

will be confirmed at the

end of Jun 2017 (Safetv

and Health Corporation

announcement)

At Daewoo E&C, our goal is to reduce risks to zero through proactive support under our management policy of 'Top Quality', 'Safe Work Environment' and 'Healthy Employees'. To achieve this goal, we are planning to raise awareness in safety, foster consultants and create a CLEAR Standard Manual(e.g. CLEAR Safety System). We are also going to develop HSE Safety Performance Indicator(SPI) and foster HSE experts through training programs. In the case of overseas safety, we plan to strengthen preventive activities such as establishing on-site voluntary safety system through integrated management of the Global HSES Team and deploying supervisor-led safety activities. In addition, we are going to enhance data analysis and emergency response in close coordination with public agencies and establish a counter-terrorism committee as part of our plan to increase the level of health and safety in other countries. At the same time, we plan to be ISO22301:2015 certified and reinforce our emergency response system while improving our overseas HSE system for the safety of our employees.

# **Customer Satisfaction**

With increasing social interaction through network channels and information sharing among consumers on SNS, consumers have more influence than ever before along with diverse needs. To meet their needs, Daewoo E&C developed its own quality management system. While improving this system on a continuous basis, we seek ways to raise our service quality through direct communication channels. In addition, we focus our resources on satisfying our customers by building a proactive information security system.

Key Performance

#### Plans for the Future

#### Quality management

- Expertise : fostering core quality human resources and customized training
- System : maintaining quality system/ certification and integration of work processes and procedures
- Site and supplier management : upgrading purchase quality system(advanced standardization process), preventative quality control(inspection for zero defects)



#### Customer satisfaction

- Life premium
- Organizing the programs for improved residential services
- Establishing manuals and improving work processes
- Customer satisfaction survey
- Conducting customer indicator-focused surveys required by departments related to order, marketing and product development
- Enhancing the feedback process on completed customer indicators
- Building a CRM system
- Establishing a system for integrated customer management
- Improving the service convenience and analysis of customers' needs

#### Privacy and information protection

- Maintaining personal information protection activities
- Revising the personal information
- protection manual of Housing Division - Increasing the training for internal/external access to personal information

## **Quality Management**

At Daewoo E&C, we offer unique values to our customers through the guality innovation. From groundbreaking to sales, we take actions for stringent quality control while preventing any quality issues through a corporate-wide quality management system. In addition, with close coordination with the Quality Management Team, Inspection Team and Division CM Teams, we provide the highest quality and services building our reputation as a reliable engineering and construction company.

#### **Quality Management System**

#### **Quality Management Organization**

Our corporate-wide quality management organization consists of the Quality Management Team for the general management of quality, the Inspection Team for inspecting the quality of machinery and materials, and special work processes, and the Division CM Teams for managing the quality and service of each division.

#### **Quality Management Team**



Quality system certification, quality training and HR management, quality system audits and assessments, an on-site quality and evaluation of third party inspection management support system, division support(tender, technology), quality assessments of machinery and materials suppliers

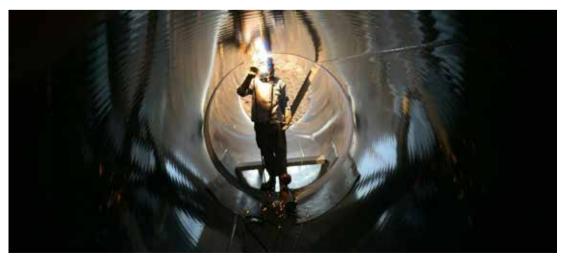


Standardization of machinery and materials Quality control by division, on-site companies, technical support for PJ special work management, support for tender purchase quality

**Division CM Team** 



inspections and work processes, contract construction quality and after-sale service management



Inside of industrial water pipe in Gwangyang industrial water supply facility

#### Details on Improvement of DPMS

 Integration of work flow + protocols(procedures/

instructions /manual)

Improving the integrated search support and coordination through link

• UI/UX

Increasing the convenience of normal users with easier entry of related settings(organization names, description of iobs)

 Integration of work flow + protocols + system(BAROCON, EDM(Electronic Document Management), etc.) in the future

#### **Corporate-wide Quality Monitoring**

and materials.

the process efficiency through integrated work procedures

Expecting to improve





#### Improvement of the Quality Management System

We continue to improve and advance our quality management system by creating and updating manuals, procedures, instructions and work process manuals. So far, we have managed to do this on 390 cases and provided feedback on quality system audits and result analyses with 119 teams and 87 project sites. In addition, we conducted a special audit of suppliers with poor performance and a high level of defective products and assessed the quality of Chinese suppliers of construction/machinery and materials as part of our preventative quality management practice and to secure reliable overseas suppliers.

Furthermore, we improved DPMS(Daewoo Process Mapping System) to use it as a total process management system in accordance with the changes in the ISO 9001:2015 requirements. DPMS is our key workflow diagram. One of the process requirements under ISO 9001:2015 is the decision on process order and interaction. The second is to determine and apply the necessary criteria and methods to ensure effective operation and management of the process.

#### **Quality Assurance of Machinery and Materials**

Daewoo E&C is introducing specialized quality inspection systems to assure the quality of its machinery

#### **On-site Quality Management Activities**

#### **On-site Quality Management Support System**

At Daewoo E&C, we built the on-site quality management support system, Starter and Helper, to improve quality and establish a quality system at the beginning of the project. Starter is the activities of guiding and supporting for stable implementation of the initial quality system at both special/advanced quality management sites while Helper is designed to offer support upon request(problem solving, training and improvement). With these activities, we are able to raise awareness of quality and improve construction quality while satisfying our customers.

#### S-QPI(Site-Quality Performance Indicator)

Daewoo E&C promotes guality management activities in line with internal gualitative assessment and requirements to identify the areas of improvement as part of S-QPI. We are addressing quality issues in 9 areas including construction management scoring 88.6(exceeding our target of 85) in 2016. In 2017, we will continue to strengthen our quality-focused culture and raise awareness to achieve the highest level of quality.

#### **Corporate Quality Group**

Corporate Quality Group is a consultative body for communication between guality managers in site and headquarter. It was held in which at least one person at each project site participated. We ensure that quality management is carried out without any issues by sharing the progress report, quality management plan and external inspection data.

#### **Quality Management Training and Certification**

#### Training and Raising Awareness

In addition to publishing the Quality Standard Glossary, we are working on the development of quality management training materials and content while distributing guality slogans and posters for all our employees to raise awareness in quality management.

#### **Activities**



#### **Quality Management Certification**

In addition to ISO 9001, we maintain and renew our certifications for the Korea Electric Power Industry Code(KEPIC) and American Society of Mechanical Engineers(ASME) to secure our technical expertise for meeting our customers' needs.

#### **Quality Management Certification**



## Plan & Goal

With proactive support and on-site quality risk management, Daewoo E&C pursues quality management in 2017. To do this, we are improving our expertise and systems in quality management while focusing on our sites and suppliers. In the mid- to long-term, we are going to reinforce our corporate-wide control and build an automated quality control system to gain a competitive advantage in quality.



#### ASME

NA

AUTHORIZED

R

- Nuclear : NA, NPT

Englessening & Construction Protein Reprintment 75, Sagntemannen Jengter-gu Based 110-715

Beptister 19, 2014 Overlaw 17, 2011

Sund Site

Build S.A.

CERTIFICATE O AUTHORIZATIO (CORPORATE)



- Nuclear : NR
- Non-nuclear : R



- Fostering core quality human resources
- · Fostering quality managers for overseas projects
- Establishing and operating training programs for experts : 12 programs for quality, 21 programs for technoloav
- Enhancing customized training based on the target/level of expertise
- Maintaining quality system/certification
- Recertifying for the Korea Electric Power Industry Code(KEPIC) for nuclear power plant(Jan. 2017) Changing our certification to ISO 9001:2015(Apr. 2017)
- Recertifying for the American Society of Mechanical Engineers(ASME) for nuclear power plant(Aug. 2017)
- Recertifying for the National Board of Boiler and Pressure Vessel Inspectors(NBBI) for the repair replacement of nuclear power plants(Oct. 2017)
- Integrating management of work processes and procedures
- ▶ Performing preventative on-site quality management
- Supporting the on-site quality management system(Starter/Helper) and promoting on-site voluntary quality activities(S-QPI management)
- Upgrading the purchase quality system(advanced standardization process) Establishing standard plant inspection plans in detail
- Adding Lessons & Learned to the Standard Inspection Checklist
- Enhancing preventive quality-control activities(Zero Defect)
- Reinforcing the management of suppliers with poor performances and a high level of defective products
- Benchmarking advanced engineering companies : certification tracking system, inspector record management system

## **Customer Satisfaction**

Identifying customers' needs through communication is our top priority. We conduct annual customer satisfaction surveys through our call center and PRUGIO Muse to promote communication with our customers. In terms of customer satisfaction service, we run Life Premium program and Uz center and publish 'PRUGIO Life', the montly webzine with various contents including culture, education and health. This allows us to provide houses with an aim to improve the quality of people's lives in safety, healthcare and culture, meeting the varying needs of consumers.

#### **Enhancement of Customer Communication**

#### **Integrated Call Center**

At Daewoo E&C, we integrate our communication channels by establishing an integrated call center throughout the entire business process since 2013. With the unified system, customer management can be conducted more efficiently in the entire process including letting-out, contract, moving-in and AS service. In 2016, despite about 300,000 consultation cases, the company achieved 85.9% immediate response rate, which verifies the company's efficient management system. Since 2014, we linked the Voice of Customer(VOC) with the Integrated Call Center to improve the classification and management of our customer feedback, handling more than 6,000 cases for 7.2 days on average.

#### **PRUGIO Muse**

Daewoo E&C changed its on/offline prosumer group 'Family Garden' which has been in operation since 2006, to 'PRUGIO Muse' to promote more active communication and improve its products and services. The company provides resident-friendly service such as on-line survey, show house monitoring and meeting on product development and works to improve customer satisfaction by motivating customers with PRUGIO culture events. In addition, we broadened a pool of advisors by promoting PRUGIO Muse activities including a surprise event to stimulate the program.

#### Online

• Online events including customer surveys

#### ▶ Offline

• Inspection of show houses, meetings and cultural lectures



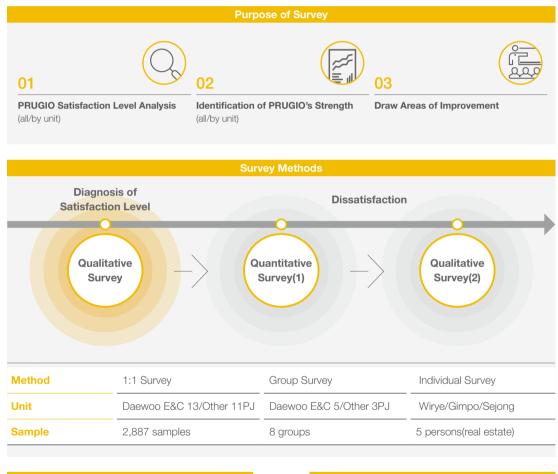
2016 PRUGIO Interior Design Trend Presentation

#### Performance in 2016 Customer

consultation - Integrated Call Center : 298.985 calls(85.9% immediate response rate) - VOC : 6,117 cases(7.2 davs in average)

#### **Customer Satisfaction Survey**

In 2016, Daewoo E&C conducted a customer satisfaction survey to explore areas of improvement and identify the level of customer satisfaction with the PRUGIO brand. As part of the National Customer Satisfaction Index (NSCI), this survey was conducted in two sessions independently by Daewoo E&C as a supplementary survey, following the primary survey in the first half of the year. Through this process, the company conducted quantitative survey on the level of satisfaction with our and other company's products and services, intention to repurchase and brand image and qualitative survey on in-depth satisfaction, complaints and detailed needs. In addition, we registered complaints through customer satisfaction indicator management making continuous improvements to provide products and services that meet the needs of individual customers.



Method	1:1 Sur
Unit	Daewo
Sample	2,887 s

1) Period : first half(JAN-JUN) 2) Surveyed by : Korea Productivity Center(KPC) 3) Areas : all satisfaction items on products and services of Daewoo E&C and other companies 4) Method : NCSI-sponsored contract



#### **Enhancement of Customer Service**

#### **PRUGIO Life**

'PRUGIO Life' is our webzine that provides a wide range of information about residential space, culture, education and health. As a leader among premium brand webzines in the same industry, "PRUGIO Life" won the grand prize in the Web Award Korea for five consecutive years, which is the biggest achievement of award as single service. By reproducing content through two-way



communication with customers and organizing events, we offer premium housing cultural information. In 2016, we won the Korea Internet Communication Award for 7 consecutive years as a leader in web-based communication.

#### **Life Premium**

Daewoo E&C Life Premium Service offers a variety of products with 'Growth', 'Existence' and 'Relation' as the three most important needs for customers as part of our unique value offering



#### Uz Center

The PRUGIO Uz Center consists of convenience facilities and a cultural center for residents while offering a social place by interconnecting various facilities. Such facilities as a fitness club, gold club and library add convenience to the living environment for residents and promote the value of community. At Daewoo E&C, we introduced the Uz Planner to provide human resources, supplies and operating expenses when it is operated by the residents.

#### Uz Center

**Convenience Facilities** 

#### Living & Cultural Center



## Plan & Goal

We plan to further improve our service by maintaining close communication with our customers and identifying their needs through our Integrated Call Center, PRUGIO Muse and customer satisfaction survey. In 2017, we are going to reorganize our programs to meet their demands in order to provide the unique Life Premium service. We are also going to build our own CRM(Customer Relationship Management) system to handle customer feedback while increasing the level of convenience for customers.

#### Life Premium

- Customer Satisfaction Survey

#### CRM System

- Offering convenience facilities to meet the needs of residents - Daycare center for working parents, library for children, etc.
- Customized living and cultural service center for the health and social life of residents
  - Indoor screen golf range and fitness club with a variety of exercise equipment

Songpa PRUGIO Uz Center

• Reorganizing programs to meet housing service trends and residents' demands • Planning and improving items for application by establishing manuals

• Conducting a survey of customer indicators required for project orders, marketing and commercialization Enhancing feedback on existing customer indicators

 Building a system for integration with customer feedback Improving the convenience of using services and needs analysis

## **Privacy and Information Protection**

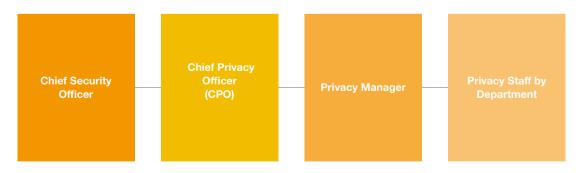
In response to increasing privacy information leakage cases due to the dissemination of information technology, Daewoo E&C has recognized the evolution and risk of hacking skills and strived to prepare proactive information protection system. As we are expanding our business areas into advanced projects such as smart city based on the convergence of IoT<sup>1)</sup> and ICT<sup>2)</sup>, information security technology will be more important than ever before. To deal with this situation, the Chief Privacy Officer (COP), along with its customer service executives based on the CEO as a chief in charge of supervising security, is committed to ensuring the security of personal information for all of our stakeholders. In 2016, the company identified vulnerabilities in the company-wide network, including Daewoo E&C website, server and database, and strengthened information protection system by providing all employees with information security training and conducting relevant campaigns continuously. In 2017, we are going to further enhance our information security standards in accordance with ISO 27001, introduce solutions for DLP(Data Loss Prevention) and ECM(Enterprise Content Management) to improve our reliability and reputation.

#### **Customer Information Protection**

#### **Customer Information Protection System**

Daewoo E&C operates an independent consultative body to manage customer information thoroughly and make improvements after reviewing whether personal information management system complies with the law, security-related policy and internal management standards through regular consulting activities. Further, with the aim of internalizing a security management mindset, we offer security training for all of our employees, dispatched staff members, contractors and suppliers. In terms of subsidiaries, we also organize annual training for staff members in charge of handling personal information.

For our sales management system, those who completed our security training programs are allowed to access personal information and we also implemented technical security measures by operating a visual information processing system in our move-in support center. Furthermore, we conduct inspections of our subsidiaries, sales offices and move-in support centers twice a year to establish a reliable information security system.



#### **ISO 27001 Certification**

Daewoo E&C updated its ISO 27001(Information Security Management System) acquired in 2005 to ISO 27001:2013. We successfully renewed the certification through our advanced information protection protocol and response system in December 2016. As a result, we are able to improve the security level of our data processing system on a continuous basis and gain competitive advantages in the global market.

- 1) Internet of Things : Intelligent technology and services that connect all things based on the Internet to communicate information between people and objects, things and thinas 2) Information and Communication Technologies : Software technology
- necessary for the operation and information management of information devices and all methods of collecting, producing, processing, preserving, transmitting and utilizing information using these technologies.

#### **Security Inspection System**

#### **Personal Information Management Inspection**

In order to check and improve our security level, we conduct inspections in three main areas : administrative, physical and technological. The inspection is performed twice a year(half-yearly) to check the collection, use, storage and destruction(life cycle) of personal information with or without announcement to ensure compliance with the Personal information Protection Act.

#### **Security Status Inspection by Unit**

of our teams/sites.

#### **PC Security Checklist**

Item	Description
Anti-virus software and update	Verify whether anti-virus software is installed and updated
Anti-malicious software	Verify whether internal security software is used
Latest update for security patches(Windows, MS Office)	Verify whether the latest security patches are installed for Windows and MS Office
Windows login password	Verify whether the Windows login password is set
Screen saver	Verify whether the screen saver is enabled
WPM	Verify whether WPM is installed and used
Illegal software	Verify whether any unauthorized software is used (using a software inspection program)

#### Infrastructure Vulnerabilities Inspection

At Daewoo E&C, we inspect the vulnerabilities of our key infrastructure every 6 months as part of our security efforts. Through inspection of our key infrastructure such as server, network and database, we are able to identify areas of vulnerabilities in our server account, access control, anti-virus software patches and services. In addition, we do security checks when introducing new equipment and take immediate measures to provide more safe, reliable services for our customers.

## **Simulated Hacking Test**

In order to identify the areas of vulnerabilities and exposure of personal information on online service sector and web environment, we conduct simulated hacking test on our major websites once a year. We use real hacking scenarios to analyze the vulnerabilities and security status of our data protection system and come up with technological solutions against security threats.



In addition to the CP Inspection carried out by the Compliance TFT, we conduct weekly security inspections in each Unit. We check for any use of illegal software and security compliance on PCs at one

> On server/network/database • Once every 6 months



#### **Prevention of Information Leakage**

#### **Response to New Cyber Threats**

In 2016, there was an increasing number of ATP and ransomware which is installed on user's PC holding documents, spreadsheets and image files hostage. To deal with this, we introduced APT anti-spam solution in August 2016 and applied this solution to our overseas email accounts and subsidiaries' email accounts. In addition, with the operation of cyber terrorism prevention and security control center for 24/7, the company succeeded in blocking any threats by applying its independent analysis system for continuous new/variant malicious codes and detecting the codes systemically. With continuous updates on security software, we are able to respond to ransomware(e.g. iRansom, Cerber) more systematically.

#### **APT : Advanced Persistent Threats**



Uses dynamic technology to analyze files to identify opportunities for advanced threats

Uses inside and outside traffic analysis technology to identify opportunities for persistent threats

#### Ransomware : ransom + ware







seek for targeted attack, which is difficult

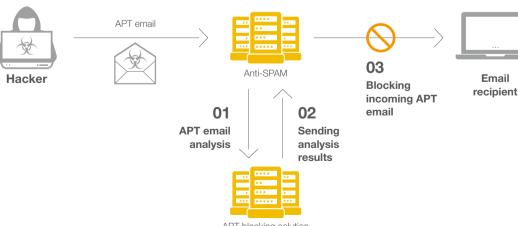
to be identified as threats

Infected through email or malicious link

## Once installed, users are unable to access their system and files

Ransom must be paid otherwise the files cannot be accessed permanently

#### **APT Blocking Solution Process**



APT blocking solution

## Plan & Goal

At Daewoo E&C, we plan to increase the level of information security through registration of manuals and internal and external security training. By building a document centralization system since 2015, we are going to apply the system to 95% of our documents. In addition, we are going to acquire PIMS from Korea Internet & Security Agency to establish our privacy protection system and minimize security breaches on personal information.

#### ▶ Registration of privacy protection manuals

Self-checklist and guidebook

Case studies by situation

a method of attacking users using security vulnerabilities on OS and applications before patched

1) Zero Day Attack :

#### New privacy protection solutions

#### **ECM(Enterprise Content Management) Plan**

Before	
	Importar docume PC and
	Importar scattere
	Disconn commur
	Loss of transfer/
	centrali

 Work process and measures by unit Common/sales/move-in standard forms

• DLP(Data Loss Prevention) solution, patch and PC security solution • Proactive monitoring and tracking of illegal activities of users • Minimization of damage by Zero Day Attack<sup>1)</sup> through latest security patches

	After			
ant and private ents stored on Private I USB		Documents, intellectual properties managed as an asset		
ant work documents ed on several systems		Saving cost and time through integrated search/ recycling		
nected unication system		Active coordination among divisions		
f documents due to r/resignation		Prevention of data leakage through enhanced security and record management		

## ion of documents and management as a corporate asset



대우건설

# **Shared Growth**

Along with government policies on shared growth such as the Fair Trade Act, the demands and expectations by stakeholders for shared growth between small-and mid-sized companies and large companies are on the continuous increase. It is significant to establish shared growth/cooperation system with suppliers, which are our strategic partners, to deal with diverse social and environmental issues more effectively. We are strongly committed to achieving the highest level of sustainability and building trust for shared growth.

Key Performance

## **Plans for the Future**

#### Eco-friendly management

 Green Consumption Guidelines & System - Investigation of the construction industry for the feasibility of implementation (H1) - Review of the applicability of e-Cos (H2)

#### Training support for suppliers

- Training program for the employees of suppliers provided by the Construction Association of Korea(Subcontract Act/Construction Industry Act/Cost Management/Labor Management Training)
- Safety training for the CEOs of suppliers
- Job training for the employees of suppliers

Shared Growth Fund A sworkey Job Training So and A sworkey A sworkey A sworkey A starting to the suppliers of the supplicit o



Communication support for suppliers Meetings for departments and business units, shared growth meetings with major suppliers

#### Promotion of fair trade practices

00 emore shared Growth suppliers sup Meetings with Suppliers sup

- Introduction of a standard subcontract agreement in domestic and overseas operations
- Expansion of the performance sharing system
- Fair pricing for suppliers
- Reduced payment period (18 days  $\rightarrow$  17 days)
- Increased cash payment ratio (94% → 95%)

## **Shared Growth**

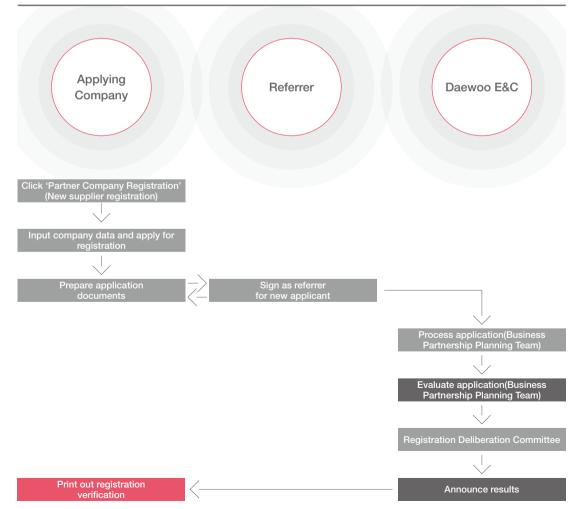
Daewoo E&C pursues shared growth throughout its entire business process, from the selection of suppliers to transactions, risk assessment and support. While maintaining fair practices and objectivity in selecting and evaluating suppliers, we are committed to helping them to become more sustainable as well as reducing risks for both Daewoo E&C and our suppliers.

#### **Selection of Suppliers**

#### Fair Selection & Management of Suppliers

Daewoo E&C ensures the fair selection and management of suppliers using a supplier registration process. Using the IT-based 'e-Cos' website, we collaborate with our suppliers and recruit new suppliers through a corporate-wide evaluation process on an annual basis. The final selection is based on the review conducted by the Business Partnership Planning Team. In this process, we apply policies prioritizing local suppliers and confer additional points to ISO 14001 certified companies as part of our commitment to environmental and social responsibility.

#### **New Supplier Registration Process**



#### **Selection of Overseas Suppliers**

By connecting the overseas outsource tender process to the Daewoo E&C integrated management system, known as BAROCON, we are improving the efficiency and consistency of our selection process. In 2015, we built the 'Global Contractor Registration(PQ Application)' and opened an overseas cooperation system portal in Dec, 2016 to systemize the overseas supplier registration and tender system for improved information sharing and utilization.

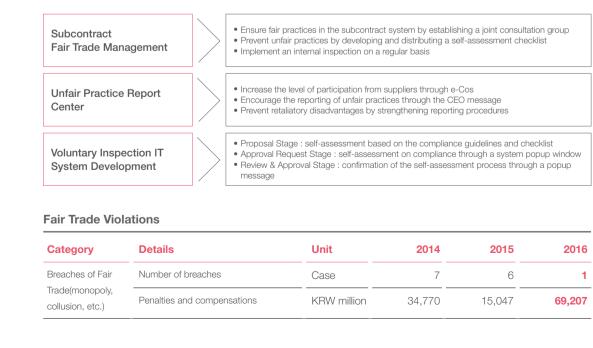
## Fair Trade

#### Fair Trade Management System

Daewoo E&C ensures fair business practices based on the Four Guidelines of Fair Trade as part of our core strategy for compliance. In addition, we have implemented a hotline service, a dedicated banner for ethical management reporting on 'e-Cos' and the 'Daewoo Shinmungo' to enable the reporting and prevention of unethical practices. Furthermore, through efforts to improve trade conditions for our suppliers including the introduction of a subcontract management system at some operating sites, we are helping to improve conditions for our suppliers as well as their suppliers.

#### **Prevention of Unfair Practices**

Daewoo E&C has established and is implementing an ethical management system to maintain the highest level of ethical and transparent practices and ways to apply this system to our suppliers. In addition, we improved the efficiency of our reporting center while developing a fair trade assurance system with our IT department throughout the entire business process. In 2016, we achieved remarkable reduction in fair trade violation cases such as monopoly and collusion after the system introduction.





Global PO Portal

	Unit	2014	2015	2016
fbreaches	Case	7	6	1
and compensations	KRW million	34,770	15,047	69,207

#### **Risk Management of Suppliers**

#### **Risk Evaluation**

Daewoo E&C evaluates risks from the aspects of sustainability including labor, safety, environment and ethical management as we conduct annual headquarters evaluations and semiannual evaluations at our operating sites. We classify our suppliers according to their level such as the best, good and inadequate, etc. depending on the level of risk drawn by results of evaluation and provide good suppliers with benefits such as private contract and exemption of contract implementation guarantee insurance; in contrast, corresponding measures are taken to those disqualified. In addition, we organize a reward & penalty committee on a regular basis to apply restrictions on the suppliers that fail to fulfill their corporate duties such as the payment of wages.

#### **Overview of Supplier Evaluations**

Evaluation Category	Evaluation Cycle	Evaluation Components
Headquarters	Annually	Safety management, quality(defects) management, financial status, level of contribution, technology, reward, corporate sustainability
Operation sites	Semiannually	Construction management, quality management, environmental management, cost management, management evaluation, post-construction management

#### Supplier Screening Criteria(Sustainability Aspect)

Economy	Environment	Society	
<ul> <li>Causing financial loss or damage to</li> </ul>	Causing serious environmental issues	Failing to pay their employees on time	
Daewoo E&C's reputation		or causing other social issues	
Causing serious defects and quality		Causing repeated safety incidents(3	
issues, and failure to address them		or more serious incidents per year,	
Engaging in collusion or spreading false		the death of three or more individuals,	
rumors		having a poor safety assessment score	
		for 2 consecutive years)	

#### Sustainability Management of Suppliers

At Daewoo E&C, we focus on reducing risks to the sustainability of our suppliers by raising awareness and addressing problems. For example, we conducted the 'Clean Holidays Campaign' to promote ethical practices among our suppliers, created an ethical management reporting banner on 'e-Cos' and ran the

'Daewoo Shinmungo' as part of our reporting system.

In addition, we provide incentives of reducing the penalty up to 50% of serious accidents when they occur for suppliers with excellent performance in our sustainability program. Through Safety Check Days, we offer briefings and seminars for the executives and on-site managers of our suppliers.



Unfair Trading Report Center





#### Win-Win Cooperative Association

Daewoo E&C established a Win-Win Cooperative Association as a shared-growth model for technological advancement and added value for small- and medium-sized companies. With 9 small and medium-sized companies, we built a new shared-growth model with the 4S Structure Safety Cooperative combining our technological expertise with the practice of companies in the field of structural safety. With the "KEEP COOP," which was established with four core technology companies in 2016, we expect to not only overcome structural limitations in SMEs such as lack of researchers and technology, but also raise our project competitiveness by securing new value-added business sectors.

#### Win-Win Cooperative Association formed between Daewoo E&C and SMEs

#### 4S Structure Safety Cooper

Total engineering service with rega entire construction period from des maintenance after completion

## Plan & Goal

In 2017, we will increase support for our suppliers by organizing safety training programs for their CEOs and supporting the third-party training programs for job performance by the Construction Association of Korea. In addition, we plan to standardize our subcontract forms and implement a performance-sharing system to ensure fair and transparent business practices. Furthermore, we are reducing our payment term with an increased cash ratio to enable our suppliers to experience a more stable cash flow.

- Job performance improvement training : provided 3 times in 2016 to 195 participants (covering the areas of construction, the subcontract act, and the construction industry act etc.)
- Safety training : provided to on-site managers of existing suppliers as well as to the CEOs and on-site managers of new suppliers
- Environmental training : provided to the supervisors of suppliers based on monthly environmental training materials

cial	
ort	

- Raising the shared growth fund and providing loans(KRW 27.2 billion)
- Financial support for 36 suppliers(KRW 18 billion for the operation fund) • Exemption from and redemption of contract guarantee insurance for excellent suppliers
- Shared growth meetings : sharing policies and programs for shared growth - Employees and executive officers from 111 suppliers
- CEO Meetings : CEOs from 25 suppliers
- Ethical management reporting banner on 'e-Cos' and the Daewoo Shinmungo
- Protecting the anonymity of reporters with restricted access to information
- Cooperation system portal renewed for more effective communication(December 2016)

rative	KEEP COOP
ard to structural safety in the	Total service in all areas of business including core material
esign to construction and	production, integrated management S/W development, design,
	diagnosis, plant building, trial operation and maintenance

# **Ethical Management**

In response to increasing demands for corporate social responsibility and transparency, Daewoo E&C is committed to increasing its social contribution and creating an ethical corporate culture. To do this, we promote ethical decision-making and ensure transparent, fair practices through our internal compliance management system to build trust with our stakeholders. In 2016, we laid the foundation to establish an ethical compliance culture at a corporate-wide level through a more consistent ethical management system.

Key Performance

Outstanding

compliance Leader Award

## **Plans for the Future**

Enhancement of the compliance system Increase the participation of employees through the CP<sup>1)</sup>System • Respond to the Global ESG<sup>2)</sup> Evaluation

through proactive CP management

1) Compliance Program 2) Environment, Social, Governance



#### Solidify CP activities

- Respond to the Anti-Graft Law systematically
- Improve CP inspections/evaluations
- Enhance compliance training
- Build a compliance discussion system
- Promote the internal report system

#### CP support activities

- CP support for suppliers
- Increase overseas CP support

## **Compliance and Ethical Management**

#### **Compliance Reinforcement**

#### **Compliance Strategy**

Daewoo E&C pursues sustainability management by performing fair and transparent tasks and strives to enhance all of domestic and overseas employees' awareness of ethics and compliance with laws. We also set 'Better Tomorrow with Compliance' as our slogan for 2017 to signify realizing compliance for the better future and established and are carrying out various strategies to settle the ethical and law compliance culture.

#### **CP Core Strategy**

Daewoo E&C is focusing on the CP activities for the 8 areas in line with the main tasks. We have set up a compliance guide for each sector and provide guidelines for our employees to follow.



#### **Compliance Strategy by Stage**

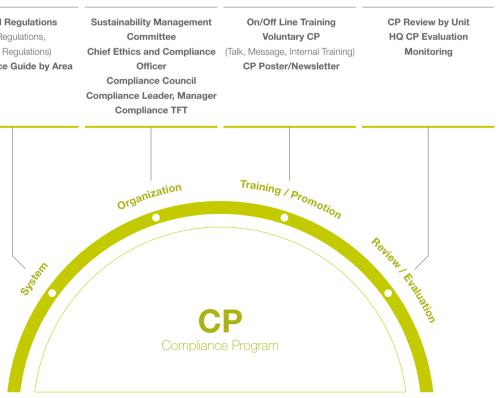
In 2015, we built a foundation for our CP and a managing system to raise awareness of compliance for our employees. As our mid- to long-term plan, we are going to promote a voluntary ethic compliance culture to create a transparent corporate culture while building an ethical management system as a global company.

2015 Introduction

Creating the CP foundation and system(regulations, organizations, programs)

#### **Compliance System**

Internal Regulations (CP Regulations, Ethical Regulations) Compliance Guide by Area



2025~

Global leader in maintaining

sustainable practices

Maturity



Systemizing the CP system Internalizing voluntary CP



Solidifying voluntary CP (ethical compliance culture) Certifying for global CP



#### **Compliance System**

Under the Anti-Graft and Bribery Law that came into enforcement in September 2016, we reorganized our compliance management system to prevent any violation of the law and illegal practices. To raise awareness of the Anti-Graft Law, we established a set of guidelines and distributed guidebooks while implementing an internal report system as part of our strategy to identify and resolve issues in advance. Furthermore, we established a compliance system for our subsidiaries, providing necessary support for the response to third-party compliance risks.

In addition, we prepared a set of anti-corruption guidelines for our overseas employees while taking a proactive approach to compliance risk when undertaking global projects.

#### **Compliance Organization and Roles**

Our compliance organization consists of the Compliance TFT that manages compliance practice, a Sustainability Management Committee that reviews important matters related to compliance and a Compliance Council that handles activities in detail. In addition, the company appoints Chief Ethics and Compliance officer as supervisor, Compliance Leader managing overall CP activities in each division and Compliance Manager in charge of conducting unit-based CP activities to carry out systemic compliance activities.

Organization	Member	Role
Sustainability Management Committee	CEO(Chairman), Executive Officer	Deliberation of key factors for CP operation (incl. ESG and ethical management)
Compliance Officer	Head of Auditor's Office(appointed by BoD)	General operation and management of CP
Compliance TFT	Compliance TFT Manager and Members	CP practice support Training, promotion, review and evaluation
Compliance Council	Compliance Administrator, Compliance TFT Manager and Leader	Discussion of detailed CP activities (progress, areas of improvement, etc.)
Compliance Leader(CL)	Staff from Office/Division Senior Team Staff from Related Teams (HR, legal affairs, overseas contract management, etc.)	General management of CP activities in offices and divisions (CP promotion, training, review, etc.)
Compliance Manager(CM)	Staff from Unit Organization(e.g. team, site, etc.)	General management of CP activities in unit organization

#### **Compliance Training and Promotion**

In 2016, we organized a 3-minute online compliance training program on a monthly basis which previously had been provided once a year. We also organized various events including a slogan, catchphrase, video scenario and column to promote the best ideas about compliance and apply them in practice to encourage employees to participate voluntarily.

In addition, we publish 'Monthly Compliance Newsletter' to share information and webtoons about compliance theories and policy trends. In 2017, we are building a compliance system for more effective management of CP activities to promote employees' voluntary participation.



Monthly Compliance Newslette

The Configer

1) Compliance Score for Division Management Evaluation · 4 Points in 2015 -> 11 Points in 2016 (out of 100)

#### **Compliance Review and Evaluation**

At Daewoo E&C, we are raising awareness of compliance through a review of teams and sites on their CP activities. In addition, we evaluate the CP performance of each division and rate their performance while increasing the importance of the compliance category<sup>1</sup> in our corporate-wide division management evaluation as part of our performance evaluation system.

## **Promotion of an Ethical Management Culture**

#### **Ethical Management Activities**

By strengthening our compliance management, we are raising awareness of ethical conduct at a corporate-wide level while preventing unethical practices in our daily work processes. We organized various campaigns including 'Ethical Holidays', 'Sound Congratulatory Event Notice' and 'Healthy Drinking Culture' to ensure fair, transparent practices when dealing with suppliers and partners with a high risk of unethical conduct. We will continue to raise employee awareness and promote an ethical corporate culture.

#### **Ethical Management Campaign**

Campaigns	Conte	
Ethical Holidays	<ul> <li>No</li> <li>corp</li> <li>Mor</li> <li>adv.</li> </ul>	
Sound Congratulatory Event Notice	<ul> <li>It is</li> <li>Person service</li> </ul>	
Healthy Drinking Culture	<ul> <li>Uph place</li> </ul>	

#### Plan & Goal

In 2017, we are going to internalize ethical awareness to minimize compliance risks and achieve a high level of growth in core areas. Through a compliance system, we plan to further increase employee participation and interest while improving our training program and the CP review and evaluation process. In addition, we are going to build a discussion system to increase the level of support for our employees at project sites while focusing on strengthening the foundation of corporate-wide compliance activities.

#### ▶ Compliance System

- · Consistent, systematic management of CP activities • Increase in employee participation and interest
- . Gradual increase in the response to global ESG evaluations
- Increase in the area of CP review at overseas project sites.

#### tents

preceipt of gifts from our suppliers or other stakeholders during holidays to uphold an ethical rporate culture

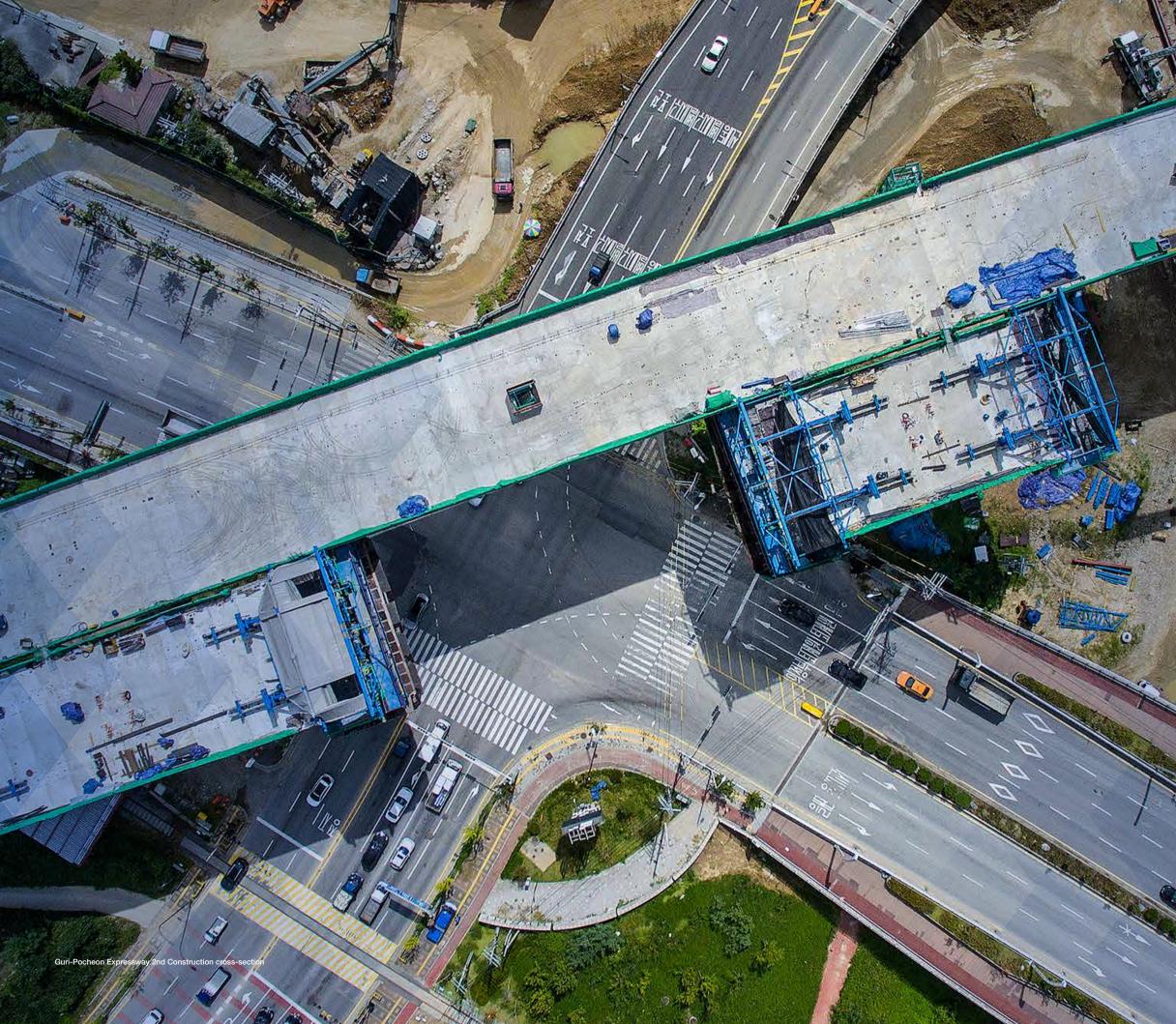
nitoring activities are performed on divisions and project sites to prevent any unethical conduct in vance.

prohibited to announce personal events to suppliers and partners to ensure fair business practice. rsonal or family events may only be announced to coworkers in order to avoid putting any pressure suppliers.

pholding a healthy drinking and party culture under the slogan 'Drink only one type of liquor at only one ace and go home before 9'

Response to ESG(Environmental, Social, Governance) Evaluation • Analysis and improvement in the areas of corporate governance evaluation

> Overseas Compliance Support - Publication of a Sustainability Report optimized for bidding on overseas projects . Specification of CP compliance and responsibilities provisions when signing contracts with overseas agencies and partners

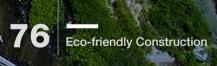


# BEITER TOMORROW



56 Development of Innovative Technologies

64 New Business and Market Development





## **Development of Innovative Technologies**

In the wave of the 4<sup>th</sup> Industrial Revolution, the construction industry is looking for new growth engines for the future. At Daewoo E&C, we are focusing our resources on the development based on the convergence of each of our business areas and ICT/IoT to create a new technology for our future. We are also exploring new business models and strategies for development of innovative technologies with an aim to gain competitive advantages in the market.

# Key Performance

## **Plans for the Future**

#### Technology development for construction & IT convergence

- Construction technology and site innovation system based on ICT/IoT
  Monitoring of structural design/construction
- linked with BIM

  Development and expansion of the home
- IoT service platform

Research projects, industrial property rights, papers
 Cost reduction, restraint of uncollected contracts, support for orders

Eco
 Ze



#### Eco-friendly technology development

Zero Energy House based on energy-saving technology (80%) by 2023
CO<sub>2</sub> capture and captured materials utilization technology of emission gases

#### Future growth engine

- Smart city
- Seawater desalination technology
- Drone technology
- Zero energy building technology
- Carbon resource technology

## **Development of Innovative Technologies**

Daewoo E&C focuses on development of Innovative Technologies in all areas of business including construction, housing, civil engineering, plants and IT to maximize R&D performance and efficiency. As a leading construction and housing development company in Korea, we concentrate our R&D resources to secure fundamental technology for more eco-friendly and sustainable growth. With this goal in mind, we established the Daewoo E&C Institute of Construction Technology(DICT), a first for the construction industry. By bringing together the highest-level of experts as well as researching and putting into practice new and applied technologies that concern the entirety of construction, we are laying the groundwork to create pioneering technology. Through active involvement in technological collaboration with the global institutes, we collect and digest information to achieve the highest level of technological expertise in the industry.

#### Daewoo E&C Institute of Construction Technology(DICT)

#### First Technology Institute in the Industry

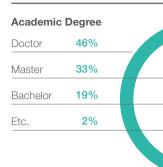
In 1983, Daewoo E&C established DICT to carry out research and experiments for the first time in the industry, opening the chapter for the full-fledged development of construction technology. As a total solution provider responding to the entire value chain from design and construction to maintenance, the institute boasts world-class expertise and is exclusively developing BMC(Building Movement Control) which can predict changes in the building structure during the pre-construction design stage, during the construction process, as well as post-construction. With the development of market-coordinated onsite technology and future-oriented technological innovation, we will gain competitive advantages and pave the way for the future as a global leader in innovation.

#### Organization

About 80% of DICT is composed of the industry's top talents with masters and doctoral degrees(83 persons, As of December 2016). For a more flexible response to changes, we changed its organization structure from business division-oriented to performance-centered with a focus on gaining new momentum for growth. The key to this change is to respond to the 4<sup>th</sup> Industrial Revolution and other paradigm shifts by creating new growth engines for the future and establishing business units to maximize profit generation. This restructuring process is expected to help us support not only our existing businesses and the development of new technologies and construction methods but will also create new value for the creation of future growth engines and enable the DICT to reach beyond Korea to become a leading global technology institute.

Director of DICT						
			Senior Re	esearcher		
R&D Planning Team	Technology Development Team	Technology Commercialization Team	Architectural Engineering Research Team	Civil & Plant Engineering Research Team		
Senior Team Operation	Technology Planning/ Strategic Business Development	Technology Utilization Profit Generation	Construction/ Housing Technological Development & Support	Civil Engineering/Plant Technological Development & Support		
Planning/Performance -	<ul> <li>Technology Planning</li> </ul>	• DMBR	<ul> <li>Structure/Construction</li> </ul>	<ul> <li>Prefabricated Bridge</li> </ul>		
Management	Project Development/	• DBS	• Concrete	<ul> <li>Road/New Type Railroad</li> </ul>		
HR/Compliance	Support Enhancement	• CQC, HIT	Noise/Vibration	<ul> <li>Slope/Fragile Ground</li> </ul>		
<ul> <li>Budget/Accounting</li> </ul>	<ul> <li>Preoccupancy of Future</li> </ul>	<ul> <li>Shingori Concrete Service</li> </ul>	• BIM/PRECON	<ul> <li>Tunnel/Foundation/Pile</li> </ul>		
General Affairs/Facilities	Business	PJ	• Zero Energy	<ul> <li>Seawater Desalination/</li> </ul>		
Management	- Maintenance, Drone	<ul> <li>Smart Construction</li> </ul>	Automation	Water Purification		
Promotion/Training/	- Carbon Resource	<ul> <li>Laboratory Operation</li> </ul>		Automatic Welding/		
Communication	- Smart City			Welding Inspection		
Industrial Property Rights	,					
Management						

#### **DICT HR Organization Ratio**



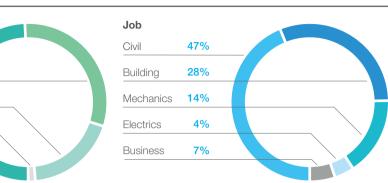
#### **Operation Strategy**

Until now, research organizations in the construction sector have concentrated on providing technical support in the field and developing technology, thus having a relatively smaller business planning functions such as market forecasting, strategy for securing technology and developing new business models. However, companies have an increasing need for such functions in order to manage their technologies more effectively in the long run and stay competitive in the market. In response to this need, we plan our strategy to secure technologies based on the new business forecasts, technological requirements and competition, and business strategies and goals.

To achieve this goal, we are developing new technologies based on the demands proposed in the field and our business divisions. In addition, we established a CEO reward program for the employees who contributed to the reduction of costs and time as part of our R&D virtuous cycle system. Our efforts in innovation will create new values and differentiate our competitive advantages for sustainable growth in the future.







#### **Technology Application by Sector**

#### Civil

We developed super long-span bridge assembly technology(precast deck/barrier/bridge pier), precast modular retaining wall and soft ground improvement technology.





#### **Building/Housing**

We secured smart crack reduction concrete technology, low carbon reinforcement concrete technology and a noise monitoring system to reduce energy by 80%. Also, we could undertake precise construction by using Building Movement Control(BMC) which proved its excellence through application to 20 overseas and domestic projects.

#### **Eco-friendly Plant**

In the plant sector, we developed and applied eco-friendly organic waste-to-energy production technology, carbon capture and material utilization technology, and advanced sewage treatment technology. In addition, we developed technology for an offshore submarine pipeline design technology and explosion-related advanced engineering technology for the localization of technologies.





#### ICT

In response to the 4<sup>th</sup> Industrial Revolution, we incorporated ICT-based Smart Construction including equipment access control and worker positioning-based safety management for civil and construction projects. We applied excavation volume analysis using drones and 3D model-based construction planning while expecting to secure technologies for the improvement of productivity at our work sites.

#### Site-oriented R&D Performance

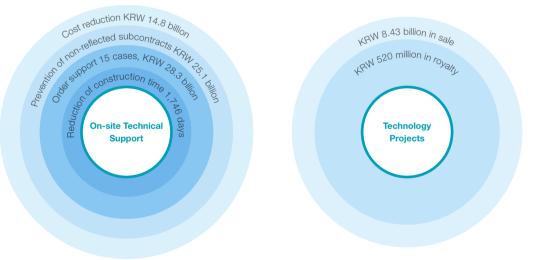
To cope with the high demand for the development of technology required on-site, we are reorganizing our work process to ensure organic coordination and pursue site-oriented R&D activities. Each business division identifies technological demands and keeps DICT updated while applying new technology in the field to reduce construction time and costs for a better chance to win projects. Under this system, DICT completed 10 government funded projects including the 'Development of CO<sub>2</sub> Capture and Large Capacity Storage Technology Using Exhaust Gas Direct Reaction', 'Study on Partial Replacement and Low Carbon Materials for ICT-based Bridge Life Extension' and 24 projects requested by business divisions including the 'Development of Zero Energy Building Structure Element' and 'Development of Technology-based Safety Control System'.

#### **On-site Technical Support**

For more efficient technical support and the quantification of results, we operate a technical support system to solve problems on site. As a result, we are able to save costs and respond in advance to non-reflected subcontracts. With more substantial support at new sites, we further improve our chance for winning the project. Thanks to this on-site technical support, we managed to save KRW 14.8 billion and prevent non-reflected subcontracts at an amount of KRW 25.1 billion, reduce construction time by 1,746 days and support 15 new sites.

#### Technology Business

We are undertaking various projects based on our technologies including the Daewoo Biogas System(DBS), Daewoo Membrane Bio-Reactor(DMBR), Construction by Quick hardening fill using Co-products(CQC), Structural Health Monitoring(SHM) and Building Movement Control(BMC). As a result, we earned KRW 8.43 billion in sales and KRW 520 million in royalties with technical support and our own technology projects.



#### **Growth Engines**

Daewoo E&C Institute of Construction Technology(DICT) is working on cooperation and partnerships with government-funded research institutes and public offices to create growth engines and secure potential markets for a sustainable future. In addition, we are introducing our new technologies to overseas sites to secure the new technology business.

#### R&D achievements and external cooperation

Based on various technology development in 2016, DICT registered 23 patents and applied 19 patents including 'Noise isolation and floor structure', and also registered 2 new technologies ('New technologies for construction of high-load' and etc.), 1 registered patent and 14 additional intellectual property rights including 'Structural soundness monitoring software'. We published 43 domestic and 16 international studies including 'Characteristics of high-purity CO<sub>2</sub> capture using carbonation of alkaline sorbent'.

In addition, we received 6 awards for each major technology research area of DICT including the Presidential Citation for Construction Engineers. We also strengthened our partnership with external organizations by signing 3 project agreements including the Joint Research and Commercialization of Railway Bridges.



#### **R&D** Performance

Category		Unit	2015	2016	2017 Goal
Amount	Investment	KRW 1 million	15,657	14,615	16,450
Manpower	No. of Staff	Person	86	83	83
Result	Projects	Case	39	34	30
	Industrial property rights (Patent, new technology)		45	62	63
	Papers(Domestic, Overseas)		60	59	50
	Awards		6	6	7

#### **Research Project Achievements**

Category	Continued	New	Subtotal	Completed
Business Division Requested Projects	9	15	24	16
Government Projects	8	2	10	4
Total	17	17	34	20

#### **Industrial Property Rights Performance**

Category	Owned		
Patent	329		
New Technology	9		
Others	143		
Total	481		

#### Plan & Goal

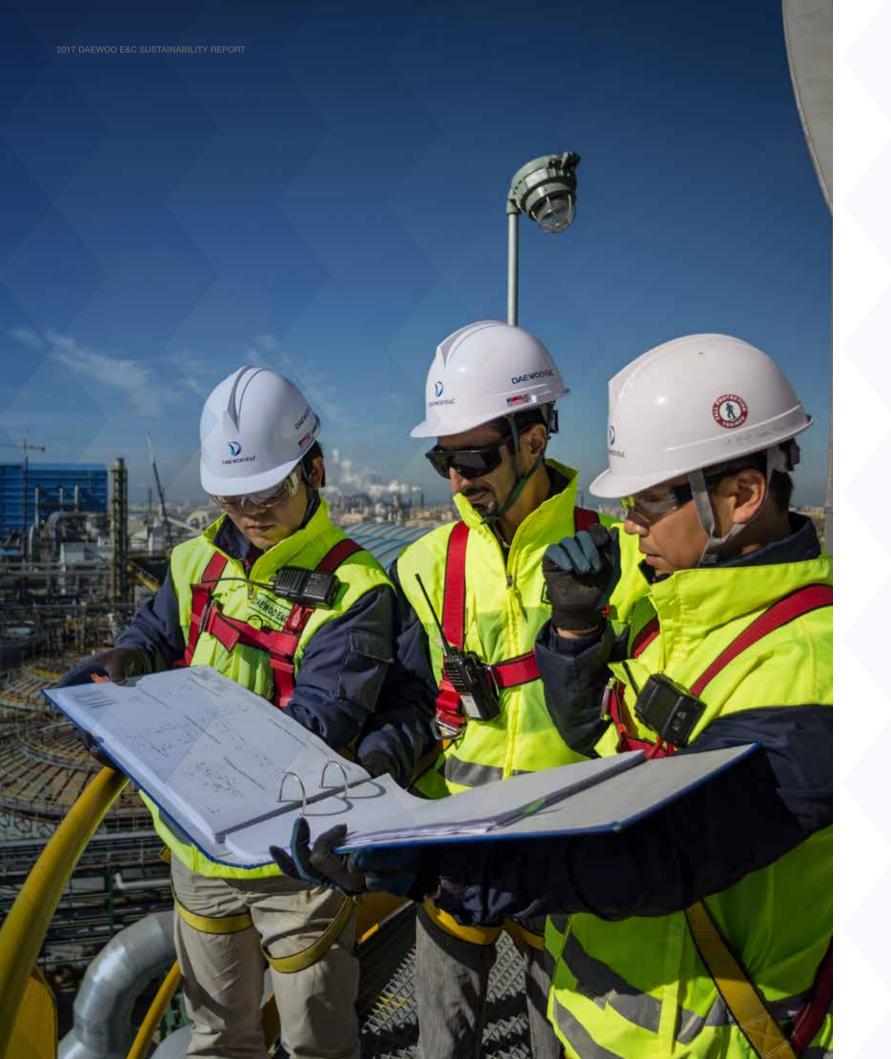
As the 4<sup>th</sup> Industrial Revolution is approaching, IoT and ICT technologies are recognized for their importance. At DICT, we combine our technologies to provide high value-added services and secure a new growth engine while responding to new paradigm shifts with a focus on the 7 New Projects selected by the Ministry of Land, Infrastructure and Transport : drone technology, desalination technology, smart city technology, zero energy building technology and 9 National Strategy Projects selected by the Ministry of Science, ICT and Future Planning : the carbon resource development and fine dust solution technology. Under this plan, in 2017 we will establish a new organization by combining ICT technology for smart cities and drone technology for improving productivity as our growth engine for the future.

(Unit : Case)

(Unit : Case)

2016 Registration Total **Remarks** Pending Registered 19 23 352 10 2 -1

				-
Green Tech.(2), Design(67), Utility	157	14	3	143
Model(6), SW(82)				
	519	38	24	481



# **New Business and Market Development**

Due to a prolonged economic slowdown over the years, many countries are expected to reduce their SOC<sup>1)</sup> budget. To deal with this economic trend, we plan to advance our EPC<sup>2)</sup> performance and improve profitability while exploring new opportunities in the Middle East and Southeast Asia to develop new growth engines for the future. Furthermore, in response to industrial trends for seeking new drivers for growth in the wave of the Fourth Industrial Revolution, we set a goal to develop new technologies through convergence of each business for the future.



#### **Plans for the Future**

#### Discover new business and explore new markets

- Promote new business through cooperation with global / local companies(Botswana, Iran etc.)
- Founding proposal type businesses led by Daewoo E&C

1) Social Overhead Capital : Various public facilities that are the basis of industrial development such as transportation (communication, water), power and sanitation 2) Engineering, Procurement, Construction : A contract method in which the contractor constructs a plant with overall responsibility for design, procurement and construction



- Building a foundation for the total real estate developer
- Strengthening real estate developer
- capabilities through the expansion of
- the front value chain(planning, financing, development)
- Providing comprehensive real estate
- services through lease value chain
- extensions(lease, management, distribution, etc.)
- O&M business
- Renewable energy business

Advancing EPC Capabilities

First to Develop the next cally first to Develop the next cally for th

- Accumulating the detail engineering skills in each discipline
- Improving DAEWOO E&C's own EPC Management System
- Developing its own management system for the efficient outsourcing
- Pursuing Projects by cooperating with global leading companies, and using it as benchmarking opportunities

## **New Business and Market Expansion**

In 2016, the economic slowdown and low oil prices continued globally. The economic recession is expected to be prolonged due to uncertainty in interest rates and declining consumption as well as domestic political risk. In this challenging economic condition, Daewoo E&C is focusing on strengthening the hub market while securing new growth engines for the future. To develop new markets and business areas, we reorganized our business units while planning to increase our global presence through close coorpoeration among our divisions. In addition, we are going to improve our profitability by taking a proactive approach to our changing business portfolio.

We set our mid- and long-term strategic goal as a 'Global Infra & Energy Developer' to achieve KRW 25 trillion in sales and KRW 2 trillion in operating profit. To do this, we need to advance and specialize our business performance along with R&D investment while establishing new business strategies to expand the areas of investment, development and operation as part of our diversification plan. As a growing global corporation, it is also important to focus our limited resources on the right projects to overcome the economic crisis.

#### Discover new business and explore new markets

#### **New Business Strategy**

In 2016, Daewoo E&C aims to undertake new growth engine projects through the diversification of its business portfolio. We are transitioning into becoming a total real estate developer by leveraging the synergy between the housing and construction sectors and incorporating IT to explore new business opportunities in the IoT market. Meanwhile, the Civil Project Division focuses on profitability through new business models including renewable energy while the Plant Business Division is gaining growth momentum in Southeast Asian countries such as Vietnam and Indonesia. In addition, we are working on expanding our business based on sound management by utilizing the EPC Management System developed by our company and collaborating with advanced companies to improve efficiency throughout the entire business.

#### New Business Strategy by Division

Civil Project Division	Building Works Division	Housing Division	Overseas Civil & Building Division	Plant Business Division
Renewable energy : focus on solar/wind power energy project Smart City : new market development and maintain high revenue R-Project : lead the market with proactive actions Seawater desalination : lead the projects through technological innovation and strong performance	<ul> <li>Expansion of market areas through a review of diversification (Planning/proposal &amp; public PF)</li> <li>Securing project orders through Precon</li> <li>Building a database of project owner/affiliates and strengthening networks with developers</li> <li>Improving profit in development through investment and selection of strong position(Internally developed projects and equity investment)</li> </ul>	<ul> <li>Securing profitable land and strengthening risk management through diversification</li> <li>General project order</li> <li>taking orders based on demand/supply projection, new project development e.g. Military Mutual Aid Association</li> <li>Urban maintenance</li> <li>making sales through compliance with licensing schedule, taking key projects orders by improving brand value</li> <li>Strengthening public sales performance according to increasing public projects</li> </ul>	<ul> <li>Improving the basis for project orders and performance</li> <li>Utilizing local construction companies of the Strategic Planning Division</li> <li>Expanding the PPP<sup>1</sup>/IPP projects of the Overseas Marketing Division</li> <li>Undertaking a Korean style new urban development project overseas(ex. housing in Saudi Arabia)</li> </ul>	<ul> <li>Prioritizing projects based on profitability</li> <li>Planning project orders and performance strategies through cooperation with leading companies</li> <li>Participating in overseas IPP projects and plant O&amp;M in Southeast Asia e.g. Vietnam, Indonesia</li> </ul>

1) Public-Private Partnership : Through the cooperation system, the government supports private interests(corporates, NGO, etc.) to enter into developing coutries

#### **Global Market Expansion** Strategy

Daewoo E&C is going to improve its risk-reviewing process and focus our resources to undertake profitable overseas projects. In other words, our plan is to focus on infrastructure, power plants and petrochemical projects with competitive advantages while utilizing our existing sales force in base markets. We are also planning to distribute risks through partnerships with leading EPC companies in order to undertake projects with a solid base. As overseas project owners are demanding new business models with financing, we are committed to developing new overseas projects based on infrastructure funds and investment funds. While further enhancing our market position in the long-term, we are going to reduce our reliance on the African and Middle Eastern markets and diversify, advance again our regional business portfolio.

#### **Global Network**





	No.	Country	Company
t Branch	12	Vietnam	Hanoi Branch
g Branch	13	Malaysia	Kuala Lumpur Branch
1	14	Singapore	Singapore Branch
:h	15	Philippines	Manila Branch
٦	16	Indonesia	Jakarta Branch
ranch	17	Japan	Tokyo Branch
ı	18	China	Beijing Branch
	19	Egypt	Cairo Branch
anch	20	Columbia	Bogota Branch
:h	21	Iran	Teheran Branch
inch	22	Venezuela	Caracas Branch
- 1-			

Subsidiary					
No.	Country	Company			
01	New York, U.S.A.	DW AMERICA DEVEL'T INC.			
02	Hanoi, Vietnam	THT DEVELOPMENT CO.,LTD			
03	Tripoli, Libya	Daewoo Tripoli Investment & Development Co.			
04	Saipan, U.S.A.	SAIPAN LAULAU DEVELOPMENT, INC.			
05	Lagos, Nigeria	Daewoo E&C Nigeria Ltd			

#### **Global Business Reorganization**

Due to global financial tightening from 2015, the percentage of private investment business has increased in the construction industry. To deal with this economic trend, we recognized the importance of increasing private investment projects and established overseas investment and development teams as part of our global business strategy. In particular, we organized new overseas PPP/IPP units and formed partnership with local companies and global leaders to increase our overseas investment projects. As part of these efforts, we participated in the tender for the Botswana Coal Fired Power Plant jointly with the Korea Electric Power Corporation, signed an MOU for the development of the Iran Sirjan Combined Cycle Power Plant with Gohar and Korean Western Power Co., Ltd. and discussed a Coal Fired Power Plant project with the Vietnamese government.

#### **Global Business Support**

Overseas Investment and Development Team	Overseas Marketing Team of Each Division	Global HR & Service Team	Global HSES Team	International Legal Affairs Team
<ul> <li>Reinforcing our development performance and overseas investment and development project through new PPP/IPP units</li> </ul>	Closely coordinated project order activities and performance and management(Civil/ Building/Plant)	<ul> <li>Proactive labor management support : timely/proper staffing through monitoring of supply/demand</li> <li>Overseas mobile support : organizing the Project Mobile Support Council</li> </ul>	<ul> <li>Intensive support for countries with high-risk, on- site instruction and inspection, dispatching security managers</li> <li>Reinforcing security management system_building IT infrastructure-based management system</li> </ul>	<ul> <li>Overseas on- site contract management/claim support</li> <li>Providing overseas legal consultations and building a database</li> </ul>

#### **Overseas Urban Development Project**

Recognizing that the construction industry is progressing towards a convergence industry that combines development, financing, construction and management, we are preparing ourselves to respond to the diversification of processes and markets. The Hanoi 'Starlake City' Development Project is our first project that converged the entire business process, from urban development planning to financing, construction and sales, based on our own know-how and technical expertise. Based on this project, the Overseas Civil & Building Division decided the direction of our new business to be development of housing and complex self-sufficient city. We signed a partnership agreement of a new urban development project in Riyadh, Saudi Arabia in March 2016 and we plan to pursue more overseas urban development projects in the future.



Aerial View of Starlake City in Hanoi, Vietnam

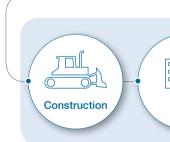
#### **Highway Construction Project in Ethiopia**

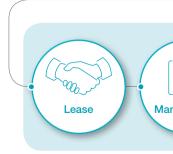
In February 2016, Daewoo E&C won a USD 82 million deal to construct a highway in Ethiopia, the center of East Africa, and kicked off the project. According to the plan, the project will link the two regions of Meki and Zeway in Oromia, a state in central Ethiopia, by a 37-kilometer four-lane highway. Once completed, a wide road network connecting Ethiopia with Kenya as far as Mombasa on the east coast will be opened up. It is likely to revive bilateral trade between the two East African nations, and also will help Ethiopia, a landlocked country to expand the marine logistical network and boost regional economic growth. Thanks to this deal, Daewoo E&C is able to expand its presence in not only North African countries such as Nigeria, Algeria, Libya and Morocco but also Botswana in South Africa and Ethiopia in East Africa.

## **Diversification of the Business Portfolio and Creating New Growth Engines**

Enhance performance as a developer\_







Strengthen expertise in lease management additional profits through operation and management based on solid construction performance

# Increase development profits + create synergy through financing ₩ Financing Developmen Build a foundation for new growth engine **Diversify products** Sales

## Building a Foundation for the Total Real Estate Developer

ΞØ Distribution Management Residential Reform Service Generate stable profits based on solid construction performance +

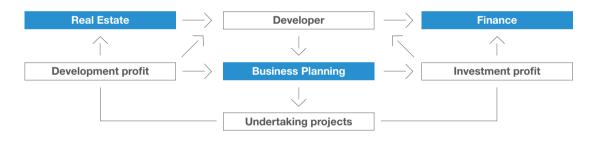
### Acquired preliminary certification for the Total Real Estate Development Service

Daewoo E&C is preparing to make a leap into becoming a total real estate services provider including 'Lease - Trading - Distribution - Management' by expanding existing value chain of 'Development - Sales - Construction'. To this end, we are developing a specialized brand and system for leasing management and obtained the preliminary certification of network-type total real estate development services from the government.

With this preliminary certification, Daewoo E&C will be able to provide the total services that consumers want with a one-stop service along with the PRUGIO Service, while maintaining the existing business. Accordingly, we plan to provide total services including financing, lease management, consultation for evaluation, legal affairs and accounting, changing our business process from 'Development-Construction →Sale' to 'Sale→Lease Management→Sale'.

### Enhancement of Performance as a Real Estate Developer

At our Building Works Division, we plan our business diversification by undertaking planning/proposal and public projects. In addition, we are expanding our value chain to include 'planning/financing/development' by carefully selecting projects with a high potential for sales and diversifying our business models as a total real estate developer to create new growth engines for the future.



### **Private Sector-led Development Project**

Our Plant Business Division is working on the construction of combined cycle power plants, coal-fired power plants and nuclear power plants in North Africa and the Middle East. Further, with the aim of implementing the private power generation project as new next-generation growth business, the company launched construction for Pocheon complex private power generation project at the class of 940MW in August 2014, which began its commercial operation in March 2017. As a result, we have achieved steady growth in profitability over the next 30 years, and we have achieved the mid- and long-term strategic goal, 'Global Infra & Energy Developer'.

Based on the IPP project experience, we are strengthening our partnerships with developers around the world in order to explore and develop private-financed projects. As part of our mid- and long-term strategies, we plan to participate in large IPP equity investment and plant O&A projects in Southeast Asia such as Vietnam and Indonesia while strengthening our expertise as a total power developer.

In the areas of our strength, we are focusing on profit generation through cost reduction while forming partnerships with leading companies to improve our performance in design and purchase and build a solid business structure for the success of the project. Furthermore, for timely completion of projects that require less construction time, we are increasing the installation of modules while leveraging the design/ purchase management strategy with a focus on development to meet the project timeline and quality requirement.

### **O&M Business R-Project(Rehabilitate)**

The R-Project is an undertaking private investment in construction projects including the renovation, repair, reinforcement and expansion of the existing social infrastructure with enhanced safety, efficiency and durability. First, we explore a profit generation model through pilot projects and expand the areas of business to grow into a market leader.

### **Renewable Energy Business**

**Renewable Energy** sectors.

### **Seawater Desalination**

Daewoo E&C is working on the commercialization of low-energy desalination technology through several R&D projects undertaking as part of the government policy. Based on the partnership with leading technology companies such as Doosan Heavy Industries & Construction, we are going to secure more technical expertise and develop business models to improve our market position.



The Civil Project Division is planning to develop a new revenue creation model by improving the business performance of our employees and exploring new projects with a focus on the solar and wind power

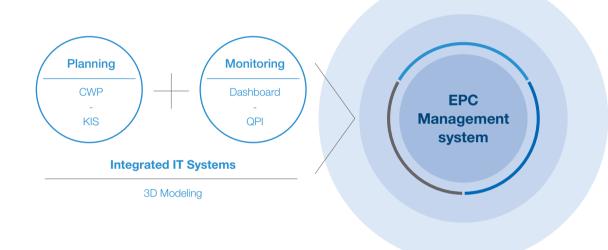
Pocheon Compound Private Power

### Advanced EPC integration capability

### Enhance project management by introducing management techniques

We are expanding and reinforcing our business competence that was focused on the construction sector. At Daewoo E&C, we are strengthening our capabilities for the detail engineering and project management by benchmarking the global leading companies, who manage their whole E/P/C process systematically. In addition, we are building the management foundation for more accurate input and efficient outsourcing to maintain strong profitability.

Based on an IT system including 3D Modeling, we completed our internal basis for Glocalization through a new management process and remote monitoring system in 2016 while planning to build a platform for cooperation with suppliers in 2017.



### CWP(Construction Work Package) : Management of the Construction-Oriented Unit System

At the center of our EPC project action plan and management, there is construction. Based on the construction plan, we set the common unit of management for projects while managing the progress and budget. In 2016, our internal work process system was improved to make it easier to calibrate our strategy based on priority. As a result, we are better equipped to handle a changing situation in a timely manner. The agility we gained is an essential factor for fast tracking projects for more profitability.

### ▶ KIS(Knowledge Input System) : Strategy Program for Project Performance

Although projects are performed in the order of E(Engineering), P(Procurement) and C(Construction), our projects are planned in reverse order to expedite the construction process as we plan the construction requirement resources and timeline first(C). Then, we plan the procurement of materials and machinery(P) and strategy to execute the construction and purchase plans(E). The finalized plans are strategized through our internal program known as KIS(Knowledge Input System) and implemented by each organization.

### ▶ Dashboard : Monitoring BAROCON Project E/P Performance Status

In 2016, Daewoo E&C developed a dashboard for monitoring project E/P performance in real time. Now, we can monitor the design progress and procurement of materials and machinery at our project sites worldwide. Furthermore, we can identify and respond to risks in advance. We are applying it in practice for the S-Oil Residue Upgrading Complex(RUC) in Ulsan and the Al-Zour Refinery in Kuwait in 2017

### ▶ QPI(Quality Performance Indicator) : Project Performance Quality Indicator

We have introduced a performance quality indicator for each area of EPC. This allows us to categorize and quantify the items that were managed based on qualitative methods and identify the trend by measuring them on a regular basis to identify problems in advance

### **ICT Convergence**

### Convergence & Combined Service Development for the 4<sup>th</sup> Industrial Revolution

In response to the Fourth Industrial Revolution and low-growth market environment, our resources are focused on the development of a new construction business using IoT and ICT convergence services as our new growth engine for the future. In 2016, accumulated technology and expertise are applied in practice at overseas project sites as well as domestic sites while building our reputation through cooperation with the central and local governments and public organization.

# ID card scanner)

# Construction/Safety IoT Project(Smart Construction) • Selection of pilot sites and completion of the first phase(Civil : Seohae Line Railway 4, Building : Wirye Woonam Station PRUGIO) • Application of access control in dangerous areas(e.g. tunnel pit) and fire/suffocation prevention technology(safety) • Improvement and application of site access control system : 18 sites, application of new technology(iris recognition, Home IoT Work Process Development & Application for Sales Sites • Signing a MOU with LG U+ for Home IoT(June 8, 2016) • Installation of Home IoT promotional booths at show houses : Yeonhee Park, Poil Central, Shiheung Central PRUGIO(3) • Further application to housing/construction sites

### Smart City(IT Convergence City)

The Smart City Project is building innovative cities where people can freely use cutting-edge information communication technologies. In partnership with leading telecommunication service providers, LG CNS and KT, we aim to develop our own brand for road renovation projects.



# **Challenge Team Composition**

As part of our preparations for the 4th Industrial Revolution, we established a challenge team to discover creative and innovative ideas. The Challenge Team, which consists of voluntary support from the 2nd to 4th year staff, voluntarily carries out freely chosen assignments such as new growth engines, schemes, tasks, and processes. Daewoo E&C helps them to do what they want to do outside of the established framework for the year, and if the challenge team wants to cooperate with other organizations and advise the experts, the strategic planning team will be the coordinator. The challenge team is expected to be a catalyst for creating an voluntary corporate culture and driving innovation and change.

IoT Smart Switch

# Plan & Goal

At Daewoo E&C, we defined Core Competence Enhancement, Diversification of Business and Glocalization as our core missions for systematic performance of mid- and long-term strategies and gaining competitive advantages in our future business. To achieve 2025 'Global Infra & Energy Developer', we have established the following roadmap.

### Plan for the Future by Business Division

Division		2017
Civil		<ul> <li>Operate convergence/combined system for new growth eng         <ul> <li>Review new target growth business progress and create a roadm</li> <li>Develop additional projects and discuss action plans</li> </ul> </li> <li>Secure new growth driving projects and increase sales</li> <li>Enhance the public and private project performance         <ul> <li>Increase the sales and improve the cost efficiency for privat projects</li> <li>Differentiate design sales and focus on large profitable projects</li> </ul> </li> </ul>
Building	Ĵ∃	<ul> <li>Build a database of project sites</li> <li>Diversify business</li> <li>Strengthen internal competence <ul> <li>Improve the level of performance through an internal training syst</li> <li>Enhance the performance of Developers with training performance development and planning</li> </ul> </li> </ul>
Housing		<ul> <li>Enhance competitive advantages and maximize profits         <ul> <li>Build a solid business portfolio by SBU</li> <li>Diversify business models(e.g. private sector participated projects</li> <li>Improve brand performance(promotion of the premium brand projects in key regions)</li> <li>Enhance competitive edges in designs/products</li> <li>Establish a system to respond to changing markets</li> <li>Reinforce risk management by business process</li> </ul> </li> </ul>
Overseas Construction	E P	<ul> <li>Strengthen business foundation</li> <li>Focus on core business models in overseas business locations</li> <li>Secure projects and enhance competitive advantages thr partnerships</li> <li>Strengthen preemptive reponse to risk</li> </ul>
Plant		<ul> <li>Undertake projects based on profitability <ul> <li>Strengthen strategic partnerships</li> <li>Focus on construction projects in our areas of strength</li> </ul> </li> <li>Seek ways to undertake development projects with financing <ul> <li>Enhance competitive advantages in EPC</li> <li>Form partnerships for exclusive media outlets</li> <li>Secure competitiveness in pricing though Chinese and Indian corr</li> <li>Undertake proposal-type development projects</li> </ul> </li> <li>Strengthen development projects <ul> <li>Utilize ECA and overseas investment funds</li> <li>Maintain strong relationships with developers, financing compasuppliers</li> </ul> </li> </ul>
ICT Convergence		<ul> <li>Undertake construction + ICT convergence pilot projects</li> <li>Construction/Home IoT Platform : expected to increase sites/proj</li> <li>VR(virtual reality show house) : 3-4 pilot sites planned</li> <li>Improve the expertise of Smart City and propose projects</li> </ul>

	3-Year Plan for the Future				
<b>ngine</b> dmap vate-investment	<ul> <li>Optimize the mid- and long-term business portfolio <ul> <li>Reach the 12% target for new growth driving business(public 32%, private 56%)</li> </ul> </li> <li>Develop and promote new growth driving projects <ul> <li>Create a profit generation model through technological innovation and business partnerships</li> </ul> </li> <li>Develop human resources with a mid- and long-term perspective <ul> <li>Foster special process experts</li> <li>Focus on the development of developers</li> </ul> </li> </ul>				
ystem 9 programs on	<ul> <li>Build a foundation for sustainable growth</li> <li>Maintain strong performance in the contract business</li> <li>Manage the network with project owners</li> <li>Secure projects through technical sales</li> <li>Increase the performance as a Developer</li> <li>Undertake planning/proposal type projects</li> <li>Secure a database of development sites</li> </ul>				
cts) and and secure	<ul> <li>Stabilize business operation and risk management <ul> <li>Meet the groundbreaking timeline for construction business</li> <li>Enhance public sales performance</li> <li>Manage move-in risk</li> <li>Create a foundation for the total real estate development service : develop brand/system for lease management</li> <li>Undertake New Stay and Happy Housing projects</li> <li>Perform small- and medium-sized pilot projects : secure pilot projects with lease management</li> </ul> </li> </ul>				
s through strong	<ul> <li>Build a foundation for strengthening the portfolio</li> <li>Diversify the countries where core business models are carried out</li> <li>Diversify the business models of base countries</li> <li>Localize business processes in major countries</li> </ul>				
<b>ing</b> companies apanies and fuel	<ul> <li>Distribute risk in new markets <ul> <li>Strengthen partnerships with leading construction and engineering companies</li> <li>Advance the management of leading businesses</li> </ul> </li> <li>Enter the modularization market <ul> <li>Plan to reduce risk and deal with environmental restrictions</li> <li>Generate profit through a simplified subcontract process</li> <li>Gain competitive advantages for the best location and market positioning</li> </ul> </li> <li>Enhance performance with the existing business models <ul> <li>Improve the pricing models for combined coal and gas power</li> <li>Focus on commercial nuclear power plants</li> </ul> </li> <li>Increase private investment and O&amp;M projects <ul> <li>Domestic : develop follow-up projects and secure business rights(Pocheon Combined #2, etc.)</li> <li>Overseas : build a foundation for PPA-based projects with stable profit generation(Thermal(Gas Combined / Coal), Renewable)</li> <li>Develop overseas O&amp;A projects by improving the domestic performance of Daewoo Power Co., Ltd.</li> </ul></li></ul>				
projects	Link with high value added projects     Incorporate ICT into the housing lease business     Link O&M(plant/facilities management)     Undertake Smart City(road/infrastructure) ICT				

# **Eco-friendly Construction**

Eco-friendly management is now a key area of business along with creating profit. Daewoo E&C is taking the initiative as an eco-friendly corporate to gain competitive advantages through proactive management activities while meeting legal requirements. To do this, we are going to focus our capabilities on renewable energy, the Zero Energy House and eco-friendly construction materials.



### **Plans for the Future**

### Renewable energy business(wind power/ solar power)

- Collection of project information and
- securing EPC participation performance Fostering the project development
- performance of employees • Increase in equity participation projects : EPC + O&M
- Business development competence : review of the selection of project sites and equipment
- Development of project sites  $\rightarrow$  undertaking internally developed projects  $\rightarrow$  review of profit structure

1), 2) Effect of developing eco-friendly concrete/cement materials

### ▶ The Zero Energy House

- Pilot project for reducing energy for apartments by 80% Construction of the 2023 Zero Energy
- House by securing the optimum elemental

### technology and program

### Eco-friendly construction materials

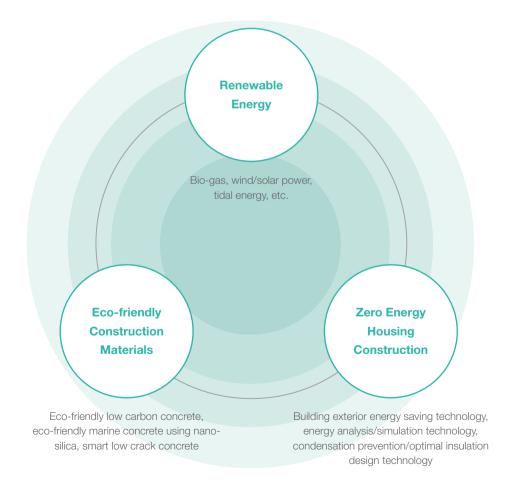
- Application of carbon capture utilization technology, DECO<sub>2</sub>(Daewoo Elimination of  $CO_{2}$ )
- Development of low environmental impact concrete and cement

# **Eco-friendly Construction**

Corporate social responsibility requirements for the environment are increasing steadily. Recognizing that our environment is for the future generation, we are undertaking eco-friendly projects including the development of renewable energy, eco-friendly construction materials, processes and technologies. In response to unstable oil prices and increasing demand for diversification of energy sources due to climate change agreements, we are working on the development of renewable energy and eco-friendly projects in the areas of housing, construction, civil projects and plants with an aim to build Zero Energy Houses by 2023 and make the world a better, cleaner place to live.

### Daewoo E&C Eco-friendly Construction

The construction industry is closely associated to the environment due to the large amount of energy consumed in construction materials, construction works, inhabitation, usage, and also the waste produced. We need the expertise and experience in developing eco-friendly technologies and renewable energy in order to minimize the impact of building structures on the environment and secure convenience and comfort for residents.



### **Renewable Energy**

We are actively reviewing and expanding our business in renewable energy including the technology for recycling sewage sludge, livestock manure and food waste into biogas. In addition, based on the government project funded by the Ministry of Oceans and Fisheries, 'Design of Wind Power Support Structure and Development of Concrete Support Structure', we obtained a license for the Haenam Onshore Wind Power Development Project in July 2015 and Jeju Solar Power Development Project in September, which is planned to commence construction in May 2017. Furthermore, we are discussing the expansion of these projects with the related divisions.

Project	• Jeji
Description	• Bui owr ren
Туре	• Puk
Location	• 111
Scale	• Pov
Period	<ul><li>Cor</li><li>Op</li></ul>



### eju Solar Energy Project

uilding a solar power plant on tangerine farms that are scheduled to be closed, villagevned facilities and public areas to create income streams for residents and supply newable energy for Jeju Province.

ublic Offering

1 places in Jeju

ower Capacity : 47.515 MW

onstruction : 18 months (Mar. 2017 - Aug. 2018) peration : 20 years (Sep. 2018 - Aug. 2038)

### **Zero Energy House Construction**

### **Eco-friendly Technology 'Green Premium'**

Developed by Daewoo E&C, Green Premium is a technology for Zero Energy Houses based on a convergence between passive energy technology for minimizing energy consumption and active technology for energy self-sufficiency. Apartments designed with Green Premium technology provide a smart control switch which includes real-time monitoring of energy, gas shutdown, lighting control, security settings and elevator call and heating energy saving system, standby power shutdown. It also uses a remote gauging/monitoring system for collecting and analyzing 5 factors which are electricity, gas, cold and hot water supply and heating. In addition, energy saving devices such as a wind speed controlling multi-segment chamber, sensor-type sink water saver and ultra water-saving toilet are installed to create an eco-friendly residential environment.

### **100% Energy Self-Sufficiency House**

The 'Zero Energy House' is a concept of having a self-sufficient energy supply in the apartment complex. Daewoo E&C developed 'Green Premium' technology based on this concept with an aim to implement it by 2023. We are also planning to develop biogas energy using high concentration food waste and sewage sludge for application first in the domestic market and overseas projects in the future.

### Concept of zero energy building



### **Development of Eco-friendly Construction Materials**

### **Reducing the Environmental Impact of Construction Materials**

In response to increasing environmental concerns about construction wastes, we are committed to the development of eco-friendly and sustainable construction materials. In order to reduce the use of cement which produces a large amount of CO2, we successfully developed eco-friendly concrete and cement materials by mixing industrial byproducts such as fly ash and blast furnace slag to reduce consumption of natural resources and GHG emissions. This allows us to reduce the use of cement by more than 40% compared to regular concrete and carbon emissions by 79kg per 1m<sup>3</sup>.

### **Carbon Capture Technology**

In 2016, we became the first company to develop the CCU(Carbon Capture and Utilization) technology, DECO<sub>2</sub> (Daewoo Elimination of CO<sub>2</sub>) which will allow us to significantly reduce GHG emissions and be used as a core technology in the global market. In 2016, we completed the basic and implementation designs for a carbon capture plant(40tCO2/day) while planning to develop a technology for the installation of a pilot plant and optimization of its operating efficiency using civil engineering and construction materials for commercialization by 2019.

# **Eco-friendly Construction Certification**

Eco-friendly building structures must be built in consideration of our limited resources, energy and production of wastes while harmonizing with the surrounding environment and providing healthy, comfortable living for their residents. At Daewoo E&C, we are building eco-friendly structures based on our technologies development in 2016 and working on their certification in terms of green buildings and energy-efficiency rating.

### **Eco-friendly Certification Status in 2016**

Project	Certification	Project	Certification		
Dongtan Happy Village	G-SEED Preliminary Certification :	Gyeongju Hyeongok	G-SEED Preliminary Certification :		
PRUGIO	'Green 4 <sup>th</sup> grade'	2-cha PRUGIO	'Green 4 <sup>th</sup> grade'		
Hanam Hills Part	G-SEED Preliminary Certification :	Uiwangjangahn District	G-SEED Preliminary Certification		
PRUGIO	'Green 2 <sup>nd</sup> grade'	Park PRUGIO	'General'		
Cheongju Technopolis	G-SEED Preliminary Certification :		Building Energy Efficiency Preliminary		
PRUGIO	'Green 4 <sup>th</sup> grade'		Certification '2 <sup>nd</sup> grade'		
Daechi District 1	Pending for G-SEED 'Best'	Yeongjongdo Haneul City PROGIO XI	G-SEED Preliminary Certification 'Good'		
Gangnam Station 3-cha	G-SEED Certification 'Excellent'	Pyeongtaek Sosabeol	Wirye Jungang PRUGIO Preliminary		
Studio apartment		PRUGIO	Certification 'Good'		
Songdo EduFore	G-SEED Certification 'Good'		Building Energy Efficiency Preliminary		
PRUGIO	Building Energy Efficiency Certification		Certification '2 <sup>nd</sup> grade'		
Songpa Park Habio Complex	'1 <sup>st</sup> Grade' G-SEED Certification 'Good'	Ilsan Edu Fore PRUGIO	G-SEED Preliminary Certification 'General' Building Energy Efficiency Preliminary Certification '2 <sup>nd</sup> grade'		
Wirye Art River PRUGIO Site	G-SEED Certification 'Good' Building Energy Efficiency Certification '1 <sup>st</sup> Grade'	Jaegidong Station Complex Building Site	G-SEED Certification 'Good' Building Energy Efficiency Certification		
Yeoksam Station	Building Energy Efficiency Preliminary	Wirye Jungang PRUGIO	'2 <sup>nd</sup> Grade'		
Central PRUGIO City	Certification '1 <sup>st</sup> grade'		G-SEED Certification 'Good'		
Siheung Central PRUGIO	G-SEED Preliminary Certification	Site	Building Energy Efficiency Certification '1 <sup>st</sup> Grade'		
	Building Energy Efficiency Preliminary	Poil	G-SEED Preliminary Certification		
	Certification '1 <sup>st</sup> grade'	Central PRUGIO	'General'		
Bucheon Jung-dong Central Park PRUGIO	G-SEED Preliminary Certification 'Good' Building Energy Efficiency Preliminary Certification '1 <sup>st</sup> grade'	Dongtan Station PRUGIO City	G-SEED Preliminary Certification 'Good' Building Energy Efficiency Preliminary Certification '1+grade'		

# Plan & Goal

At Daewoo E&C, we will continue to focus our efforts on eco-friendly housing, construction and energy development to become an eco-friendly construction company with the highest level of expertise.

- Development of Eco-friendly Technologies Construction of a CO<sub>2</sub> capture reactive pilot plant for gas emission Commercialization of high-rise Zero Energy Houses
- Development of Eco-friendly Construction Materials Development and use of eco-friendly cement materials

Eco-friendly Green Growth and Renewable Energy Projects

· Focusing on projects based on water treatment and biogas power generation technology and business performance • Development of new renewable energy projects using wind/solar/tidal power in the global market

# SUSTAINABILITY

11/1



Sustainability Management System Sustainability Management System | Stakeholde



Economy



110 Society

Seoul Forest PRUGIO



 $\bigcirc$ 

 $\bigcirc$ 

270

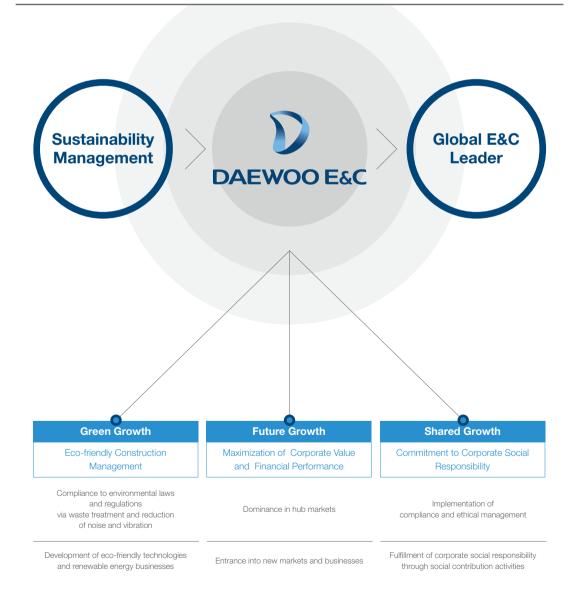
# **Sustainability Management System**

# **Daewoo E&C Sustainability Management**

Since the establishment of its sustainability management system in 2012, Daewoo E&C has tracked its progress in sustainability in terms of profitability, environmental soundness and social responsibility.

Under the vision of 'For the People & Better Tomorrow', we focus our social, environmental and financial resources on introducing changes and innovations based on our core values : 'Challenge and Passion', and 'Autonomy and Accountability'.

### Sustainability Management System



### Sustainability Management Committee

Established in 2015, Sustainability Management Committee reviews and resolves the key policies and operation results of ESG, ethical practice and CP process. In 2016, Sustainability Management Committee resolved the compliance status and plans for 2017 while awarding organizations and employees with excellent performance as part of the on-going CP operation activities.

### **Sustainability Management Committee Organization**

Chai	rm
CI	ΞO
	-

### **Sustainability Assessment**

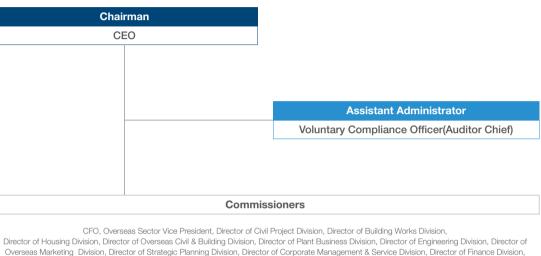
Daewoo E&C has been recognized by several external assessments for demonstrating a high level of sustainability performance. In 2016, we were ranked 24<sup>th</sup> in the Channel News Asia Sustainability Ranking(Companies with excellent ESG performance in Asia) co-hosted by Sustainalytics and Channel NewsAsia, CSR Asia. In the environmental field, we received the Leadership A- from the CDP. In addition, the ESG evaluation results of the Korea Corporate Governance Association in 2016 show that the rating has risen compared to 2015, and we are striving to become a company that continues to grow.

### '2016 Channel NewsAsia Sustainability Ranking' 24th

'Channel NewsAsia Sustainability Ranking' is selecting and presenting the top Asian 100 companies including China, India, Indonesia, Singapore, Taiwan, Japan, Korea, Hong Kong and the Philippines, with sustainability in Asia through ESG evaluation. Daewoo E&C has been selected as one of the top 100 construction companies in Korea and has been recognized internationally for sustainability performance for the second consecutive year.

### CDP

CDP is a climate change project that requests and evaluates information on greenhouse gas emissions and climate change response of companies and provides them to investment banking institutions. Daewoo E&C has won the Leadership A- for 2 consecutive years in recognition of its commitment to climate change, including greenhouse gas reduction and low-carbon technology development.



## Overseas Marketing Division, Director of Strategic Planning Division, Director of Corporate Management & Service Division, Director of Finance Division, Director of Procurement & Cost Management Division, Director of Daewoo E&C Institute of Construction Technology(DICT), Head of Q-HSE Services Division

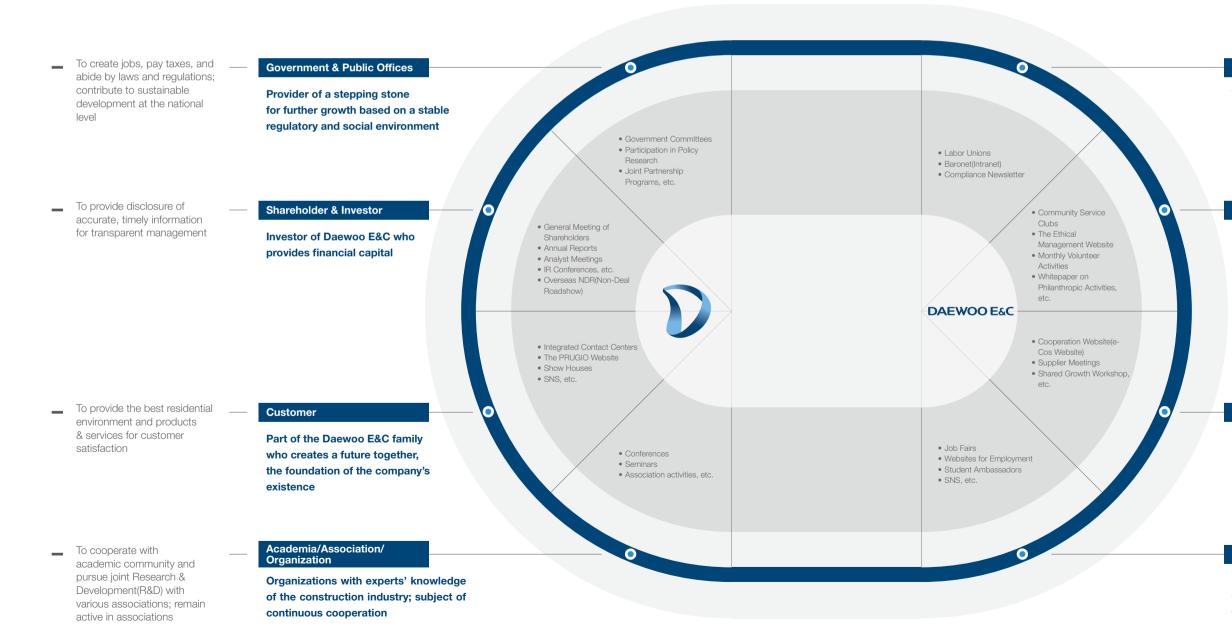
# **Stakeholder Engagement**

### **Strengthening Stakeholder Communication**

We understand that communication with stakeholders is essential for the fulfillment of social responsibilities as well as the sustainable growth and business management of Daewoo E&C.

In consideration of their impact and importance, we defined 8 key stakeholder groups : Government, Shareholder and Investor, Customer, Academia/Association/Organization, Employee, Local Community, Supplier and Future Generation. With diverse communication channels, we identify the expectations set by our stakeholders and promote shared growth through active communication.

### Key Stakeholders & Communication Channels



### Employee

The most valuable human resources that comprise Daewoo E&C; a partner for sustainability management To improve employee satisfaction by strengthening their capabilities and enhancing their quality of life

### Local Community

Local communities and members affected by Daewoo E&C's business operation To actively pursue philanthropic activities and contribute to community development

### Supplier

Partner who supports our operation by supplying energy and resources

To provide technological and administrative support, establish a transparent, fair relationship for the supplier's growth

### **Future Generation**

Leaders of tomorrow; all entities that should not be neglected from a long-term perspective To contribute to economic growth and social stability & inclusion

# **Materiality Test**

### **Material Issues for Sustainability**

### **Materiality Test Process**

At Daewoo E&C, we identify core sustainability issues through a materiality test and prepare our Sustainability Report('Report') based on these issues. With reference to an international standards analysis of sustainability management, corporate benchmarking and media surveys, we prepare a list of sustainability issues and select core sustainability issues based on internal and external survey and expert feedback in accordance with AA1000SES, which is the international standard for stakeholder engagement. The Report also reflects the characteristics and relevance of the selected issues.

### **Identification of Material Issues & Report Application Process**

### Step #1. Identification

Step #2.

Engagement

Step #3.

Step #4.

**Materiality Test** 

of Sustainability Issues

Internal & External Stakeholder

- Internal and external issues
- International standards of sustainability management (GRI G4, ISO26000) - Other external environment(Media survey, industrial benchmarking)
- Compose a pool of Daewoo E&C's sustainability issues

### Internal & external stakeholder survey

- Business/social impact of sustainability issues - Internal stakeholders : materiality of business impact - External stakeholders : materiality of social impact
- External expert assessment

### Social impact

- Survey of external stakeholders, media survey and industrial benchmarking
- Business impact
- Survey of internal stakeholders and external expert assessment

### • 10 material issues

- 10 material issues identified through employee interviews and a review of business strategies and internal documents based on the results of the materiality test
- Contents related to the main Report topics
- Composing storylines by topic and planning the content overview

### **Materiality Test Results**

Based on the 10 material issues identified through the materiality test the table of contents for the Sustainability Report is reorganized in accordance with their inclusivity and response.

Indirect Economic Effect	Compliance	Sound Governance
	Construction	Risk Management
Privacy Protection	Compliance	Fair Trade/Anti-corruption
Biodiversity Protection	Environmental Compliance	Financial Performance
Fair Supplier Selection	Response to Climate	R&D
Supply Chain Risk Management	Change	New Market(Business) Development
Human Rights	Protection of Environment	Industrial Health and Safety
Protection	Employment	Eco-friendly Constructions and Services
	Employee Development	Customer Satisfaction
	Employee Benefits	Cooperation/Shared Growth
	Labor Relations	
	Social Contribution Activity Healthcare for Local	
	Community	
		Core Issues
		General Issue
		□ Other Issues

### **Material Issues**

Sound Governance Industrial Health and Safety

**Customer Satisfaction** 

Cooperation · Shared Growth

# Fair Trade · Anti-corruption R&D

New Market(Business) Development

Eco-friendly Constructions & Services

**Financial Performance** 

Risk Management



Preparation of the Sustainability Report

Identification of Material Issues

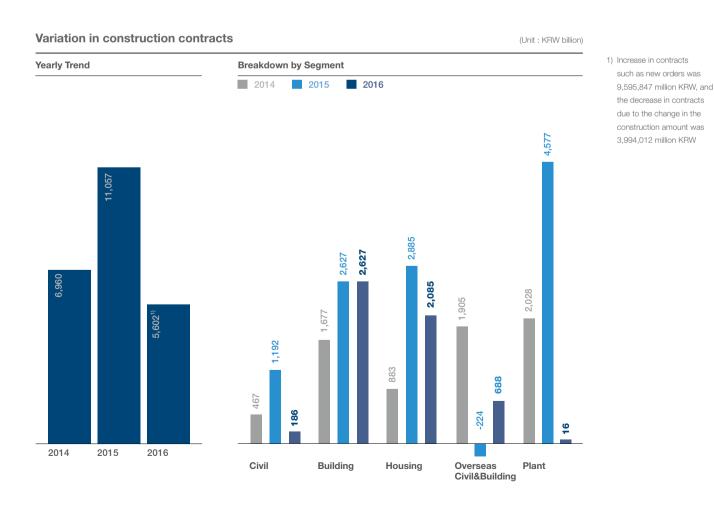
GRI G4 Aspects	2017 Report Contents
Governance	Corporate Governance
Industrial Health and Safety	Health and Safety
Customer Health & Safety, Products & Services Labeling	Customer Satisfaction
Anti-corruption, Anti-competition, Compliance, Supplier's Environment/Labor Practice/Social Impact Analysis, Grievance Handling Process	Shared Growth
Anti-corruption, Ethics & Integrity, Compliance	Ethical Management
Financial Performance	Development of Innovative Technologies
Financial Performance	New Business & Market
Raw Materials, Products & Services	Eco-friendly Construction, Development of Innovative Technologies
Financial Performance	New Business & Market Development, Economy
Strategy & Analysis	Risk Management

### **Financial Performance**

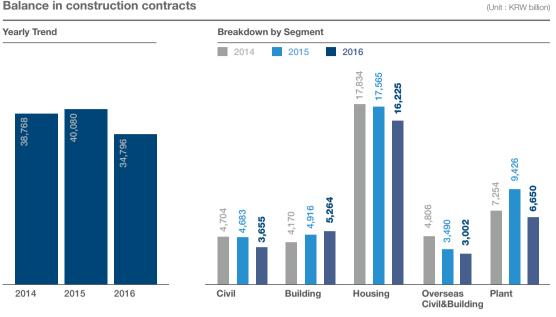
### **Strategic Direction**

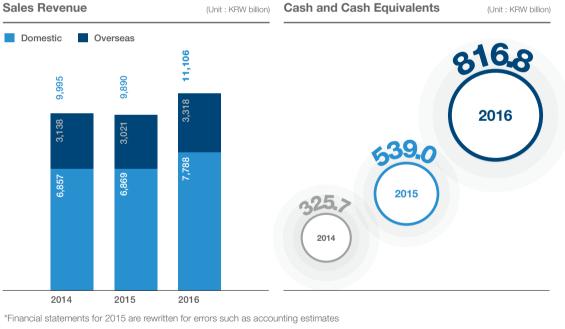
2016 has been a challenging year for the construction industry as the low-growth environment continues globally. Although our domestic market saw some improvement thanks to the government's economic policy that supports the real estate sector, the challenges in overseas markets were prolonged due to low oil prices and increasing competition as well as declining project orders and revenues. Despite this, we managed to reach KRW 10 trillion in sales for the first time in our history as we have been ranked in first place in housing supply for 7 consecutive years. However, our financial performance suffered due to some potential losses in certain overseas projects.

In 2017, we expect an even more challenging business environment due to political risks in our country with continued decreases in the SOC budget, tightened restrictions, falling real estate prices and the risk of restructuring pressure from the government on our industry. Recognizing this crisis as an opportunity, at Daewoo E&C we are focusing all our resources to maximize profits and secure financial stability to regain trust in the market.



**Balance in construction contracts** 





### Credit Ratings by Evaluating Agency

Evaluating Agency	Ratings	Category	
	Commercial Paper		
Korea Ratings	A2	Regular evaluation	
NICE Investors Service	A2	Regular evaluation	
Korea Investors Service	A2	Occasional evaluation	

### Economy

(As of December 31, 2016)

### **Key Business Performance by Sector**

The challenges for the construction industry continue in 2016 due to low oil prices and the economic recession in the Middle East. The civil & building sector entered a state of long-term low growth with decreasing new project orders and conservative industrial trends, despite which we reached KRW 1.221 trillion in sales by leading the domestic market. In the construction sector, we reached KRW 2.2809 trillion in sales thanks to positive market conditions and an aggressive market strategy with a focus on commercial and residential complexes and studio apartments. In the overseas civil&building business sector, we achieved KRW 1.1761 trillion in sales. In 2016, the housing market exceeded expectations and continued to stabilize. Taking a proactive approach to changing market trends, we managed to supply 30,000 units to projects with a high potential in terms of revenue and sales performance and were ranked in first place in housing supply for 7 consecutive years from 2010 with KRW 3.5046 trillion in sales. In the plant sector, we inducted on strengthening our foundation based on our expertise and experience in various projects we undertook over the years while diversifying our business portfolio through domestic and overseas project development, overseas plant operation and renewable energy.

### [Civil]

### Munpyeong Bridge wins the Civil Engineering Structure of the Year 2016 Bronze Prize

At the Day of Civil Engineering hosted by the Korea Society of Civil Engineers on March 30, 2016, the Munpyeong Bridge won the Civil Engineering Structure of the Year 2016 Bronze Prize. The Munpyeong Bridge is a curved independent pylon cable-stayed bridge designed and constructed by Daewoo E&C and is expected to contribute to improved accessibility between the administrative center complex city, Daejeon Techno Valley and Gapcheon Expressway.

### [Civil]

### Daewoo E&C won the construction of Pohang-Yeongdeok Highway No. 65 line

In June of 2016, Daewoo E&C was selected as the final contractor for the construction of the No. 65 high-speed railway linking Pohang-Yeongdeok. The project includes 6 bridges and 6.32 km of bridges connecting the Pyongjin-ri, Songra-myeon, Buk-gu, Pohang-si, Gyeongbuk and Namjeong-myeon, Buyeo-ri, Youngduk-gun, and three tunnels. Daewoo E&C holds 55.5% of the total construction contract worth KRW 88.6 billion, and the construction period is expected to be 84 months from the start date. Through this project, which aims at balanced national development, the East Sea Coast will expand the road network for tourism resources development and secure the linkage function between expressways, and it will be reborn as a global economic zone with global competitiveness.

### [Building]

### Selected as a construction company for the F-35A Hangar

In April 2016, Daewoo E&C was selected as a construction company to build the hangar for the Air Force's next generation fighter(F-X) F-35A through technical and price assessments conducted by the Ministry of National Defense. The project is worth KRW 240 billion. We were recognized for our superior technological expertise. The F-X Project is to introduce 40 Lockheed Martin F-35A fighters from the end of 2018 to 2021, and the Air Force is also expanding the F-35A hangar and other airfield facilities.

### [Housing]

Daewoo E&C - Hyundai Redevelopment Project

In December 2016, Daewo for the Haeundae Udong D Located in 229, U1-dong, 3,030-unit apartments with m<sup>2</sup>. Based on the design r 3,188 households in total of redevelopment sites in Bus The Daewoo E&C / Hyunda schedule, such as the cor cost due to the soil conditi to provide an excellent res members.



### Daewoo E&C - Hyundai Development Company, Selected for the Haeundae Udong District 3

In December 2016, Daewoo E&C and Hyundai Development Company were selected as the contractors for the Haeundae Udong District 3 Redevelopment Project, the largest redevelopment site in Busan.

Located in 229, U1-dong, Haeundae-gu, Busan, the Udong District 3 Redevelopment Project is to build 3,030-unit apartments with(39-story above the ground, 3 underground floors) on an area of 111,695.5400 m<sup>2</sup>. Based on the design resented by Daewoo E&C and Hyundai Development Company, there will be 3,188 households in total with a contract amount of KRW 662 billion. Udong District 3 is one of the best redevelopment sites in Busan thanks to its scenic view of Haeundae.

The Daewoo E&C / Hyundai Development Company Consortium established a realistic plan for the project schedule, such as the construction time and move-in date without any adjustment of the construction cost due to the soil condition and making favorable offers to the union members. This project is expected to provide an excellent residential environment serving as a landmark and meet the expectation of union



### [Housing]

### Daewoo E&C - SK E&C Win the Suwon Paldal District 8 Redevelopment Project

In January 2016, Daewoo E&C and SK E&C won the 'Suwon Paldal 8th District Redevelopment Project'. The project consists of a total of 3,614 households in an area of  $163,781 \text{ m}^2$ , 52-unit apartments(20-stories above the ground, 3 underground floors) and service facilities. The total contract amount is KRW 675.2 billion and Daewoo E&C owns 60%, which amounts to KRW 405,1 billion. The Suwon Paldal District 8 is located within walking distance of Maegyo Subway Station(Bundang Subway Line); Suwon Station(Line 1) and KTX are also close to the site. In addition, there are Suwon Middle School and High School and an elementary school is expected to be built. This district is recognized as a key redevelopment project in Paldal-gu/Gwonseon-gu considering the neaby facilities such as Suwon City Hall, Homeplus, Lotte Mall. Winning the largest redevelopment project in Suwon, Daewoo E&C secured a superior position in the urban maintenance projects in Suwon, Paldal-gu and Gwonseon-gu and expect to improve the quality of life of residents.

### [Overseas Civil & Building]

### Daewoo E&C Wins the Ganges River Bridge Construction Project Worth KRW 535 billion

Daewoo E&C won the Bihar New Ganga Bridge Construction Project in India as its first overseas construction order in 2016. The company won the project jointly with L&T(Larsen & Toubro Ltd.), the largest construction company in India. The project is worth USD 480 million(KRW 535 billion) and Daewoo E&C takes a 50% stake(USD 240 million, KRW 267.5 billion) in the consortium. The length of the construction is expected to be 48 months from the time of breaking the ground. Starting with the automobile manufacturing plant construction project in 1995, Daewoo E&C clinched deals worth a total of 2.3 billion in India, including the Korba coal-fired power plant in 1996, an electronics plant in 1997 and a hydroelectric power plant construction project in Dhauli Ganga in 2000. With the latest contract, the company has re-entered the Indian construction market after 16 years. This is the result of successful completion of world class bridge construction projects such as Geoga Bridge and Gwangan Bridge. It is anticipated that the combination of Daewoo E&C's bridging technology and L&T's know-how will create a great synergy in the future. The project is a result of the organizational restructuring that has gathered the company's capabilities and functions. The success of the project will further strengthen our foundation in the overseas civil engineering field.

# [Overseas Civil & Building]

Daewoo E&C won a KRW 689.2 billion highway construction project in Qatar where the 2022 World Cup will be held. The company was recognized for its expertise and work performance for the KRW 1 trillion New Orbital highway construction project which is currently undertaking. Despite its short length, the E-Ring project is expected to generate substantial revenue with a high cost as it includes 3 multiintersections.

Daewoo E&C expects that the project will give the company the upper hand to win other infrastructure construction projects in the country which will host the World Cup. To overcome sluggish market conditions, the company is diversifying its business portfolio by undertaking infrastructure projects such as roads and bridges. Daewoo E&C expects an increased number of profitable overseas projects in the future.

### [Overseas Civil & Building]

Households to Saudi Arabia

Daewoo E&C and Hanwha E&C signed a memorandum of understanding in March 2016 to build 100,000 houses in Saudi Arabia over the next 10 years. Ordered by Saudi Arabia's Ministry of Housing and financed by the Saudi government, this project is to build the Dahiyat Alfursan New Town(twice the size of Bundang, 38km<sup>2</sup>) located 14 kilometers east of Riyadh Airport for 600,000 residents. The total project cost is estimated to be about USD 18 - 20 billion(KRW 21 - 23 trillion), and it is expected to be the biggest overseas construction project in the history of Korea.

This is one of the key projects of the King of Saudi Arabia, who was crowned in the last year, to build a housing division in order to solve the housing problem. In January of 2016, they announced a plan to invest USD 400 billion(KRW 464 trillion) to supply 1.5 million houses for the next 7 years. As Daewoo E&C is expected to continue receiving orders for large-scale housing and infrastructure construction projects in Saudi Arabia, the company will build a bridgehead for Saudi Arabia to win new projects in the Middle East and North Africa as well.

### Daewoo E&C wins KRW 689.2B highway project in Doha, Qatar

# Daewoo E&C and Hanwha E&C Consortium signed MOU on construction of New City with 100,000

### [Plant]

### Groundbreaking Ceremony for Ulsan S-Oil RUC Project

In May 2016, Daewoo E&C held a groundbreaking ceremony for the Ulsan S-Oil Residue Upgrading Complex(RUC) Project, which is the single largest plant construction project in Korean history. The module installation technology and optimized project planning are utilized to complete the project in a short period of time on a small construction site.

## [Plant]

### Daewoo E&C Signs Deal for Combined Cycle Power Plant in Sirjan, Iran

In December 2016, Daewoo E&C, Korea Western Power and Gohar Energy signed an MOU for the development of a combined cycle power plant in Sirjan, Iran. The project was ordered by Iran's largest investment firm Omid for the development of a 500-megawatt(MW) combined cycle power plant. The estimated value is USD 500 million(KRW 550 billion) and the capacity may increase in the future.

By 2022, the Iranian government is planning to install additional power plants whose combined capacity will top 5,000 MW each year to 50,000 MW by promoting private investment, foreign funds and technologies. In addition, Iran also plans to renovate some outdated power facilities generating a total of some 17,000 MW.

The partnership will pave the way for us to diversify our revenue streams and gain a superior position in the IPP business in Iran, thereby expecting more project orders in the future.

# Indirect Economic Effects

### Induced effect by industrial indicators

1) Domestic Sales(KRW 7.8 trillion) × employment inducement coefficient(10.2)

2) Domestic Sales (KRW 7.8 trillion) x production inducement coefficient(2.225)

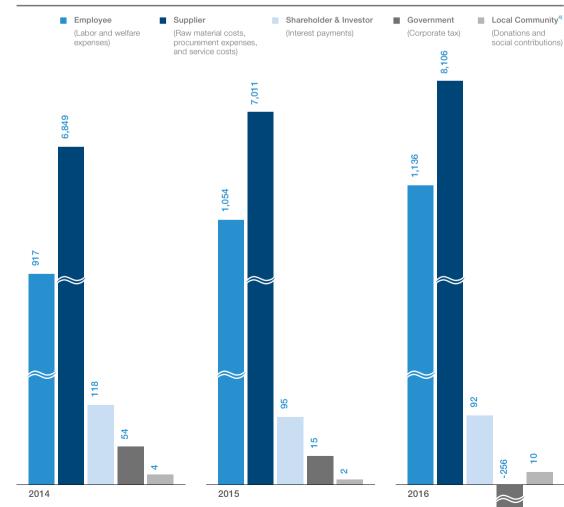
3) Domestic Sales (KRW 7.8 trillion) x valueadded inducement coefficient(0.733)

By creating job opportunities and placing procurements from local suppliers, Daewoo E&C actively engages in revitalizing local communities. Having achieved the largest sales record yet with KRW 11.1 trillion in total and KRW 7.8 trillion domestically, Daewoo E&C contributed significant indirect economic effects in 2016 in terms of job creation, production inducement, local hires at overseas operation sites, and value-add. Using the Bank of Korea's job creation coefficient by 2014, a total of 79,438 jobs were created in Korea through Daewoo E&C's business activities in 2016

4) Numerical correction by calculation of redundancy of former data

# (Labor and welfare expenses)





(Unit · KRW billion)



- Production Inducement Effect : The level of directly and indirectly induced production per unit increase in company demand
- \*\* Value-Added Inducement Effect : Measures directly and indirectly induced added-value to the industry

### **Distribution of Economic Values to Stakeholders**

# **Risk Management**

### **Risk Management System**

### **Proactive Risk Management**

In line with our mid- and long-term business strategy, we are using proactive risk management to undertake projects in both the domestic and global markets more efficiently. To incorporate risk management process in our business, we established a corporate-wide risk management system to ensure a stable business operation.

In 2015, we internalized our management system by expanding the area of risk management and, in 2016, established a risk management system while introducing IT system, internalizing the RM system based on cooperation/sharing practice and enhancing overseas site management/support. In 2017, we plan to reinforce our core risk management process for more efficient operation of our new project review committee on tender and contract as part of our proactive risk management strategy.

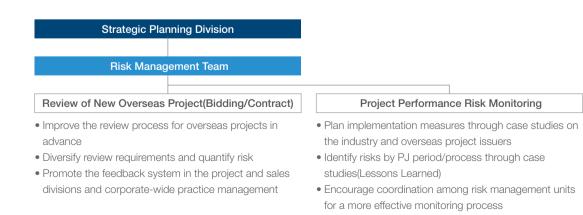
Through these efforts and commitment, we are further stabilizing our corporate-wide risk management system to cope with the fast-changing business environment and to strengthen our business operation.

### **Corporate-wide Risk Management**

To achieve more sustainable growth, we are working on the implementation of a corporate-wide risk management process including selection of core risk areas. This year, we will increase the level of corporate-wide participation in risk management planning and establish the Daewoo E&C Risk Breakdown Structure while reviewing and applying our risk classification system as a foundation for more effective risk management.

### **Risk Management Organization**

The RM(Risk Management) Division was transferred to the Strategic Planning Division for the integration of corporate-wide business management and more advanced management in 2017. The Risk Management Team is working on the management of objective indicators for more proactive risk identification and management while introducing a role of Stage Gate for effective business management throughout the entire project phase. We are also working on proactive risk management by implementing a reviewing process for new projects and PJ risk monitoring. In addition, we are focusing on establishing an ongoing response plan to reduce risks through core risk management by the Risk Management Team.



### Efficient Reviewing Process New Overseas Projects

- · Enhance corporate-wide risk manager through the integration of project order performance process
- · Establish the review guidelines and dec making process
- · Improve the decision-making system for efficient performance of tender projects

### **Risk Management Activities**

### **Project Risk Management**

We are building a proactive risk management system by preparing a risk assessment table and management ledger at the project bidding stage. The result of risk assessment and plans are used as an objective indicator for review committees on overseas projects. After being awarded the project, we continue our management process. In addition, we are working in parallel on the quantification of risks as well as qualitative factors.



### **Case Studies**

In order to identify risks in the project bidding and performance stage, we are working on case studies. Through the risk management process of the industry and overseas project issuers, we check the risks by period/process by reviewing Lessons Learned. In addition, ideas are shared among the project/sales divisions and other teams with ongoing risk management planning and feedback for more proactive risk management.

### Analysis of Unfavorable Provisions & Establishment of a Country Risk Database

To avoid damage caused by unfavorable contract provisions and to gain know-how, we conducted analyses and case studies to deal with these issues and implement them according to the countries, process and issuer type. In addition, we align them to our integrated project management system and plan to increase and systemize the list as a reference for overseas project operation in the future. Furthermore, we created a country risk database on finance, tax, politics, economy and culture in about 50 countries with more than 70 categories for sharing on our intranet(Baronet).

### 2017 Risk Management Improvement Plan

s for	Solid Corporate-wide Risk Management	
ent	Select core risk and plan risk management	
nd	Increase the level of participation of working	
	units and establish more detailed plans	$ \longrightarrow $
sion-		
more		
S		



### **Environmental Management System**

### **Environmental Management Policy and Organization**

Environmental management is an essential part of corporate social responsibility in response to the increasing environmental impact caused by fine dust and climate change due to global warming etc. In addition, the strengthening of domestic and overseas environmental laws and regulations and the increasing demand by stakeholders are a risk factor for our business operation. At Daewoo E&C, we are committed to our sustainable future by improving our environmental management system and taking initiatives for the protection of our environment.

### **Environmental Management Policies**

- Compliance and operation of an environmental management system based on ISO 14001
- Prevention of environmental contamination from construction activities
- Reflection and implementation of feedback on environment and climate change from stakeholders

### **Environmental Management Goals**

- · Prevention of environmental violations and accidents
- · Setting and achieving goals to save energy and resources
- . Setting and achieving goals to reduce costs for waste disposal compared to sales

The Corporate HSE Team manages the corporate-wide implementation of our environmental management system under the Q-HSE Services Division. With an increased number of overseas projects being developed, the Global HSES Team promotes environmental management in overseas sites while making ongoing efforts for its improvement and management by each site.

CEC	(Civi	Head of I Project/Building Worl	<b>Divisions</b> ks/Housing/Plan	t Business)	
Q-HSE Servic	es Division	Civil Proje	ect Building Works	Housing	Plant Business
Environment I	Executives	Environme Executive		Environment Executives	Environment Executives
Corporate HSE Team	Global HSES Team	Civil Constructi Manageme Team		Housing Construction Management Team	Plant Construction Management Team

### **Roles & Responsibilities of the Environment Manager**

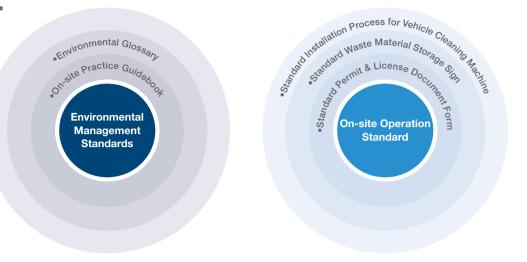
To deal with new environmental laws and policies more effectively, it is essential to take initiatives in the operation of the environmental management system. In 2015, the Corporate HSE Team redefined the appointment procedures of Onsite Environment Managers and roles to improve productivity and reduce environmental risk. Each person is appointed in the area of management, public affairs and construction for environmental management operation and work process. In 2016, the level of adaptation and efficiency was improved through the HSE-One Stop Service and training programs.

### Site Environment Organizational Structure

\*\*\*\*\*\*



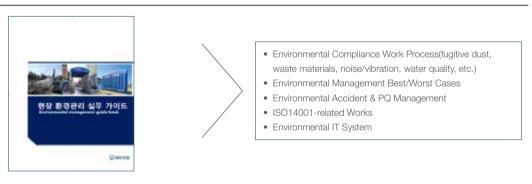
### Systemization of On-site Environmental Management Standards



### **On-site Practice Guidebook/Glossary**

We revised and distributed the 'On-site Practice Guidebook for Environment Management' to raise awareness of on-site environmental management. The guidebook provides guidance throughout the entire construction process. We also published the 'Environmental Glossary' to increase the understanding of environmental terms for new environment managers and those included in the guidebook.

### **On-site Practice Guidebook**





### Example of Glossary

Terms	Definition	PAGE <sup>1)</sup>
Emergency	A plan established to deal with	V-15
plan	emergency situations e.g. oil spill,	
	fire, failure of vehicle cleaning	
	machine	

### **Standard Permit & License Document Form**

We standardized our permit and license document forms to prepare our application in a more accurate, efficient manner and prevent environmental violations. It includes a report form for fugitive dust, preliminary report for specific construction work and a disposal plan for construction waste material.

### Standard Waste Material Storage Sign

As a result of HSE Audit of waste material storage signs, there are a number of issues that need improvement and there is a lack of awareness of environment managers in their importance. Therefore, we prepared standard signs for waste material storage to integrate our internal regulations, ensure compliance with Article 7-2 and Enforcement Regulations Article 14 of Waste Control Act and prevent administrative orders.

### Standard Waste Material Storage Signs

지정	폐기물 보관표지	건설	몌기물 보관표지		사업경	폐기물 보관표지		
<ol> <li>폐기물의 종류:</li> </ol>	② 보관가능용량 : m <sup>3</sup>	① 패기물의 봉류 : ① 보관용량 : m <sup>1</sup> ()			① 폐기율의 종류:	② 보관용량 :	m <sup>3</sup> .	P
d) 관리책임자 :	() 보관기간 : - (일간)	③ 관리책임자 :	(0 보관기간 : 간)	- (22	③ 큔리책임자 :	④ 보쿤기간 : 간)	- 53	(留
(5) 취급 시 주의사용 ○ 보균 시: 1) 부시되거나 비존되지 않는 재절에 보급 기·성동의 이상태로 흐르지 않게 보급 3) 보급함 추천 취지적업 증계 ○ 운반 시: 1) 시동물이 외부로 흐르지 않게 문한 2) 적기를 운반시 지원대기물 취업대로 문한 ○ 처리 시: 1) 지정비기를 취업대로 통한 2) 적기를 인내서 취실 및 취업을 통한 지적 2) 적기를 인내서 취실 및 취업을 통한		이 폐기물 성성/공부별 구.	: 가면상 폐기물이 5% 야		(1) 보관 시 주의사항 ○ 페기물이 해당 페기물 1 ○ 페기물 성상/공유명 구 ○ 방관달개 및 빛을 유입	2관광소와 부합하는 지 확인 문하여 보관 양지열객 설치	1	
⑥운반(처리)예용장소:		(6) 운반(처리)예정장소:		④ 운반(처리)예정장소 :				



### **Changes in Permit & License Document**

Category		Before (Areas of Improvement)	After (Measures)
Fugitive Dust	Target Projects	Only 1 item reported	New projects added • Additional report for civil projects and landscaping
	Other Reduction Measures	4 missing items	Mining, extraction, outdoor cutting, and outdoor polishing added
	Strict Standards	Not reported	Additional preparation and report(temporary storage, loading/ unloading, transportation) • Target projects only(10 times of the projects with fugitive dust)
Specific	Equipment	Missing items	A number of equipment(11 types) indicated
Construction Work	Other Reduction Measures	Inconsistency by site	Unified reduction measures <ul> <li>Facilities operation, noise/vibration reduction, and response to public complaints</li> </ul>
Waste Materials	Disposal Plan	Missing items (Waste disposal, etc.)	Report-required waste materials indicated(7 types)
	Disposal Service Confirmation	Supplier's preparation and submission	Organized by authority offices for submission

### **Standard Installation Process for Vehicle Cleaning Machine**

We established a standard installation process for vehicle cleaning machine in line with the Clean Air Conservation Act to prevent violations(side-watering facilities installation) identified by the HSE Audit and reduce the risk of being subject to penalties imposed by the Ministry of Environment and local authorities.

### Installation of Vehicle Cleaning Machine



### **Environmental Audit & Training**

### **HSE Audit**

penalties in 2016.

### **HSE Audit Results**

Category	Civil	Building	Housing	Plant	Total
HSE Audit(System)	12	10	9	4	35
HSE Audit(Site)_Fugitive Dust	13	4	12	2	31
Total	25	14	21	6	66

Each year, we carry out an HSE Audit to ensure and supervise compliance with environmental regulations. In 2016, we performed the audit on 66 sites and identified the areas of excellence and improvement. In addition, we reinforced our environmental compliance check and as a result ensured zero fines and

### **Environmental Management Training**

We provide training programs for our employees and suppliers to improve job performance in environmental management and the level of on-site compliance for the prevention of environmental accidents. A total of 31,720 environment managers, on-site managers, on-site workers and suppliers' supervisors participated in the programs in 2016. On-site training is provided once a month based on the monthly on-site training materials distributed by the Corporate HSE Team.

### **Environmental Training Performance**

(As of December 31, 2016)

Item	Training Courses	Date	No. of Participants
Host	Job competence training for environment managers(Level I)	1 <sup>st</sup> session : Apr. 18 2 <sup>nd</sup> session : May 18 3 <sup>rd</sup> session : Nov. 29	161
	Job competence training for environment managers(Level $ \mathbbm{I} $ )	1 <sup>st</sup> session : Oct. 17~18 2 <sup>nd</sup> session : Oct. 20~21	79
Support	2016 3 <sup>rd</sup> management supervisory council(Southern Region)	Nov. 15	24
	2016 3rd management supervisory council(Central Region)	Nov. 16	16
	2016 3rd management supervisory council(Western Region)	Nov. 18	21
	2016 3rd management supervisory council(Seoul Region)	Nov. 22	32
	2016 3rd management supervisory council(Eastern Region)	Nov. 24	21
Monthly	On-site environmental training(Civil Project Division)		5,459
Environment Training	On-site environmental training(Building Works Division)		9,151
(On-site)	On-site environmental training(Housing Division)		11,016
	On-site environmental training(Plant/Power Business Division)		5,740
Total			31,720

### **Environmental Management Reinforcement Plan**

We plan to introduce ISO14001:2015 in 2017 in line with the revised ISO 14001 which is the international standard set by ISO. Currently, we have completed our analysis of the revised version of ISO 14001:2015 and are working on our documents and system for recertification review. In addition, we will provide continuous support for environmental management through the HSE One-Stop Service as part of our commitment to improving the environmental management system and the expertise of environment managers.

### 2017 Key Environmental Management Action Plans

- ISO 14001:2015 Recertification
- Analysis of revised version of ISO 14001:2015(complete)
- Revision of environmental management documents
- Creation of DPMS by process and application of the system
- Development and update of the environmental system(BAROCON)
- Preliminary review for recertification
   Completion of review and recertification for ISO 14001:2015
- Management of Waste Materials

   Waste material disposal cost in 2017 : 0.19%(against sales)
   Identification and registration of local waste material disposal service providers
   Improvement of the waste material disposal registration management system

### Climate Change

### **Strategic Direction**

Under the Post 2020 which will replace the Kyoto Protocol ending in 2020 according to the Paris Agreement effective in November 2016, all 196 countries are subject to the requirements for GHG reduction whereas only 37 developed countries are subject to the obligations in the previous protocol. Korea established the '2030 National GHG Reduction Framework and Roadmap' based on the mid- and long-term climate change strategy and detailed action plans. In this roadmap, our country set a goal to reduce GHG emissions by 37% against the BAU by 2030. Out of 315 million tons in total reduction, we plan to reduce by 219 million tons in Korea and 96 million tons in other countries. In line with this goal, Daewoo E&C established response measures for continuous GHG reduction seeking new opportunities and ways to improve energy efficiency. As a large amount of GHGs are emitted throughout the entire construction process, we implemented a monthly monitoring and management system to control our GHG emissions.

### **GHG Emission Control**

Since 2012, we have improved our integrated management system BAROCON be adding a GHG inventory system, which allows us to measure energy consumption and control GHG emissions more effectively in all our work sites. We also set a reduction goal by division based on the automatic calculation of emissions as part of our initiatives for controlling GHG emissions.

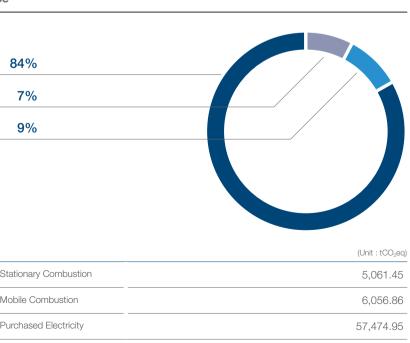
### **Energy Control**

For more efficient control of energy consumption, we monitor consumption by energy source, building and work site in real time. In addition, we are working on our energy consumption reduction programs to raise awareness among employees and research staff and executive officers at a corporate-wide level.

### **GHG Emissions by Source**

Purc	nased E	lectric	ity	
Statio	onary C	ombus	stion	

Direct GHG	S
	M
Indirect GHG	Ρ



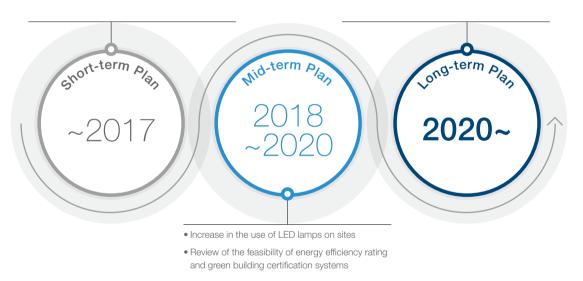
### **GHG Reduction Plan**

To respond to the '2030 National GHG Reduction Framework and Roadmap', we are re-establishing our mid- and long-term action plan and carrying out reduction activities at a corporate-wide level. We plan to encourage these activities focusing on sites with a large amount of emissions through a real-time monitoring system and develop corporate-wide reduction items. We will also take a more proactive approach in the disclosure of GHG-related information for greater transparency and trust with stakeholders.

• Introduction of ISO50001

• Setting a goal to reduce by 2.1% each year

- Allocation of the reduction goal at a corporatewide and division level and monthly monitoring through BAROCON
- Continuous communication through job-training programs and promotion of saving energy when using electronic and office appliances
- Replacement of lights by LED lamps at underground parking lots and emergency exits



### **Disclosure of Environmental Information**

At Daewoo E&C, we are working on our corporate reputation based on our response to the demand for the disclosure of environmental information. In 2016, we were ranked 24<sup>th</sup> among Asian companies for the Sustainalytics(Netherlands) ESG assessment and rated A for ESG by the Korea Corporate Governance Service. Furthermore, in 2016, we won the Carbon Management Sector Honours with Leadership A- for CDP for 2 consecutive years. We also actively participated in the disclosure of environmental information and a chemical substances statistical survey, thereby demonstrating strong transparency in our business practice.

## Management of Air, Waste and Hazardous Materials

### **Air Pollution Mitigation**

At Daewoo E&C, we reinforced our HSE Audit on fugitive dust in our construction sites in order to improve the quality of air and people's lives. In 2015, we increased our audit on fugitive dust to civil project work sites which we did only in spring along with the HSE-Starter Program for new construction sites. As a result, we can identify the management status and take necessary measures to make improvement. The results are reported to the HSE Team within a week and shared with the sites to raise the employees' awareness of environment.

# **Companies**

According to the special guidelines on fine dust set by the Ministry of Environment in June 2016, Daewoo E&C also joined its efforts to reduce fugitive dust in its construction sites. The agreement is effective for 2 years from November this year. Under the agreement, companies clean the roads and set up a wind gauge to check the wind speed. If the speed exceeds a certain limit, the construction work will be temporarily stopped. In addition, we will make additional plans to pave the roads and spray dust inhibitor while dealing with public complaints on fine dust to improve the quality of air and people's lives.

### **Fugitive Dust Agreement Execution Plan**

Contents	Plan
Cleaning roads near construction site	1 time/month
Setting up wind gauge	Portable wind gauge purchased(excl. sites with tower crane)
Paving temporary roads, dust inhibitor	Notified as recommendation, performance management
Submission of execution plan	Participating sites selected, plans collected and submitted
Submission of progress report(1 year)	Performance checked by site, key areas of inspection added



### Agreement on Fugitive Dust between Ministry of Environment and Construction

Signing Ceremony between Ministry of Environment and Construction Companies for Fugitive Dust Reduction

### Waste

We store the waste produced by our construction site separately and outsource it for disposal. Since 2011, we have used the 'Waste Disposal Service Provider Registration System<sup>1)</sup>, nationwide, in which disposal companies are selected based on their performance and encouraged to comply with the guidelines based on a reward and penalty system. Starting 2017 we plan to improve the system to apply stricter requirements for registration and increase the pool of companies by updating the registration frequency. In addition, registered companies will be given registration certificates to encourage their cooperation and build pride.

Assessment of Registered Waste Disposal	
Companies in 2016	

· · · · · · ·									
Category				Rating	Total	Category	Company	Reward/ Penalty	Remarks
	Blue	Yellow	Red	Reg. Cancelled		Reward	3 companies including IK	Warning waived	Top 10%
Business	9	12	2	-	23				
Record(Yes)						Penalty	3 companies including Garam Industry	Warning	Bottom 5~10%
Business	6	11	1	13	31				
Record(No)							13 companies	Reg.	2 warnings or
Total	15	23	3	13	54		including Gyeongwon	cancelled	no business for 2 years

2016

Reward/Penalty based on Assessment in

### **Hazardous Chemical Substances**

In accordance with our internal procedures, we identify hazardous chemical substances including bentonite slurry, paint, oil, epoxy and bond and store them in a safe place in compliance with laws. We have installed special storage facilities for waste oil and lacquer and outsource it for proper disposal.

### **Biodiversity**

### **Biodiversity Protection Policies**

At Daewoo E&C, we assess endangered species around our construction sites through an environmental impact analysis and establish a plan to minimize the impact on our eco-system. In accordance with the Wildlife Protection and Management Act, we apply guidelines for the preservation of wild animals to our projects. In 2017, we plan to increase structures such as fences to create paths for animals and prevent road kill.

### Land & Aquatic Biotope

In our project sites, we secure parks and green areas to protect biodiversity and natural habitats for wildlife. In addition, we create land and aquatic biotope using the land available in and outside the project location to minimize the environmental impact and preserve our eco-system.



PRUGIO Biotope in Juk-dong, Daeieon-

1) Waste Disposal Service Provider Registration A system for developing and registering local waste disposal companies based on their performance

**Eco-friendly Activities & Performance** 

### **Environmental Campaign**

By running environmental campaigns by division, team and site, we raise awareness about environmental protection and promote an eco-friendly culture while protecting the environment in our local community. In 2016, 4,956 of our employees joined environmental campaigns such as environmental cleaning activities.

### **Environmental Investment**

We invested in the disposal of waste, improvement of environmental management system and training programs executing 97.3% of our environmental budget for 2016. In 2017, we plan to invest KRW 100 million in the environmental sector by maximizing efficiency.

### Awards

Daewoo E&C was recognized for its environmental management in the industry, receiving various awards and winning contests in 2016.

### **Environmental Awards in**

### Site/Team

Busan Outer Ring Highway 8

Banpo Central PRUGIO Summit

Technology Commercialization Team

Corporate HSE Team



201	16
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Date	Awarded by	Category
 Dec. 31	Minister of Environment	Contribution to Environmental Preservation
 Dec. 1	Director of Seocho District Office	Outstanding Construction Site
 Nov. 30	President of Korea Environment Corporation	Contest Winner
Nov. 1	CDP	Sector Honours

### **Recruiting and Developing Human Resources**

### Recruitment

Daewoo E&C is an equal opportunity employer which does not discriminate with regard to gender, educational or regional background and guarantees fair treatment. We ensure that women and applicants from rural areas have more opportunities for employment as part of our social responsibility program. In August 2016, we adopted a wage peak system to increase the stability of jobs and take a proactive approach to HR management to better deal with risks.

### **Performance Evaluation and Compensation**

We conduct fair and objective evaluations of our employees based on their job performances and social contributions and provide compensation accordingly. To do this, we set individual performance ratings and differentiate salary increase rates based on their achievement and competency. In 2016, we took the initiative in performance-based HR management by further improving our employee evaluation system.

### Human Resource Development System

At Daewoo E&C, we provide various HR development programs including the New Executives Course, Team/On-site Manager Leadership Course, Promoted Staff Training, and Domestic On-site Manager Development Course as part of our commitment to HR development strategy.



### **HR** Training and Performance

Category	Sub-category	Unit	2014	2015	2016
Training Performance	Total Training Hours	Hours	627,428	501,455	474,176
	Total Training Cost	KRW 1M	3,833	4,067	4,046

### **Global Communication Expertise**

As part of our overseas business strategy, we are improving our language education policy. We invite external instructors to teach language courses for our executive officers while providing support for intensive English study courses, English phone conversation programs and English Restart courses. In addition, we established language courses for employees working in overseas projects to improve our employees' communication skills.

### **Executive Language/Intensive Courses in 2016**

Training Course	Period	No. of Participants
Language course for executives	Feb. 15 - Dec. 14 (12 weeks, 3 sessions)	92
Intensive English study course	May 16 - Oct. 28 (5 days, 12 sessions)	142

### Analysis of Intensive Course Performance in 2016

Simulated TO	EIC Speaking	Special Corpo (Certified Score)	Special Corporate TOEIC Speaking (Certified Score)		
Score	Level	Score	Level		
93	4	110	5	17	

### **PM Competency Enhancement**

We established a long-term training system for EPC Project Managers(PM) in the areas of design, purchase, construction, trial operation, contract/claim, public affairs and processes in 2016. The program is available to staff and assistant managers. After 2017, training program operation, other than PM Competency Enhancement, will be transferred to each division for more job-oriented operation.



### New Employee Overseas Site OJT and Mentoring Program

Our new employees take overseas site OJT for 3 months after the entry-level training program so they can learn about the site and better adapt themselves to the organization. We also support mentoring programs with senior employees to help them expand their human network and provide learning experience.





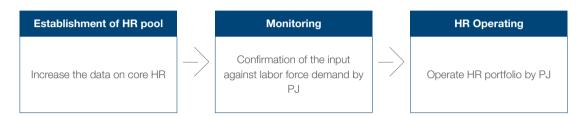
### **Knowledge-Sharing Culture**

At Daewoo E&C, we have systems and programs to create a culture that promotes knowledge sharing. We have organized a Sharing Class where we provide special lectures on construction management and employees donate their talent to each other. We also encourage self-improvement through our training grade system.

### **Global Support for Labor Affairs and Mobile**

### **Overseas Human Resource Operation**

At Daewoo E&C, we conduct job performance surveys and manage a pool of human resources to recruit talented human resources with expertise and experience in overseas projects. In addition, we complete a proactive response process through intensive monitoring of the return on HR input in order to improve the HR management efficiency while creating an efficient HR portfolio by increasing the pool to the Philippines, India and Bangladesh to include other countries as well.

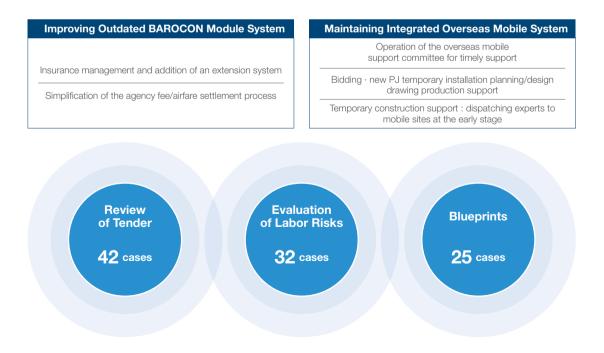


### **Overseas Labor Affairs Management Support**

In order to support labor management at overseas sites/HQ managers, in 2016, we published a labor management practice manual for Nigeria, Morocco and the Middle East and share information from HR supply to follow-up by country. In addition, we standardized on-site labor management practices and discussed labor issues and complaints through guidance and inspection at the SAFI Plant in Morocco.

### **Overseas Mobile Support**

To support overseas on-site mobile, we published a case study on license and permit and mobile manual to minimize errors from 2016 to early 2017 while ensuring close coordination between the site and HQ by organizing an Overseas Mobile Support Committee.



### Foreign HR Operation

- Status
- Entire overseas site performance : total of 2.951 persons(rate of staffing: 86%)
- Becruitment of global specialized HR(foreign employees) : on-site(6)/ HQ(5)
- · Timely/proper supply : check and analysis of actual input against the annual HR requirement plan
- Local recruitment and local HR management : creating a pool of excellent HR and research on HR suppliers

### **Strategic Direction**

At Daewoo E&C, our goal is to achieve 'low-cost, high-efficiency HR management' through an advanced overseas HR management process. To do this, we are improving our HR pool based on the internal system(BAROCON) to secure top talents while increasing the role of the agency in follow-up management. In addition, we plan to minimize risks in local labor practices by taking a proactive approach in local recruitment, the labor-related system and social changes.

Diversification of sending countries 10 countries or more	Oper speci
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### **Overseas Human Resource Management Plan**

We are reinforcing our own HR pool management and the agency's to support the re-employment and relocation of talented human resources. To do this, we are building a human resource management environment by developing and improving the BAROCON system. In addition, we are creating the foundation for our global HR support through diversification of sending to countries for a more efficient human resource portfolio.

### **Overseas Mobile Support Plan**

At Daewoo E&C, we dedicate our efforts for early completion of mobile by operating an Overseas Mobile Support Committee while preventing errors in implementation. Furthermore, we are developing both domestic and overseas temporary installation companies with strong performances to ensure their pool is managed efficiently to support our project.





### Achieving low-cost, high-efficiency HR management and overseas mobile support

- Timely/proper supply : rate of staffing 90%, re-employment rate 10% or higher
- Competitive advantages in global resource : enhancing supplier pool management, promoting re-employment/relocation
- Optimum HR portfolio : increase employment in Nepal, Vietnam and Sri Lanka
- Increase in the role of HR agencies : developing human resources(incl. local manpower)
- System-based HR management environment : improving the BAROCON labor module for greater user convenience
- Inspection of overseas on-site labor management : Qatar, Algeria, Saudi Arabia, etc.
- Build-up labor management practice : increase in training for officers, sharing case studies, etc.
- Proactive support for peak time/de-mobile sites, more effective follow-up
- Support for overseas transfer : enhancement of partnership with organizations
- (embassies, airlines) / emergency support
- Distribution and application of license and permit case studies/mobile manuals
- Customize mobile business area : Improve overseas PJ system TFT and consulting service(Reflecting needs of business divisions)
- Temporary installation planning/design support for tender and new sites : increasing the application of standard drawings and mobile manuals
- Proactive operation of the Mobile Support Committee : active support for early mobile of new projects • Support for temporary installation : dispatching experts to mobile sites in the beginning, technical support

### **Employee Welfare and Benefits**

### **Emotional Management Event**

We boost our employees' morale and confidence through emotional programs. One of the most popular programs is 'More Precious Than Flowers', which takes place every May. During this program, employees invite their parents and spend two days taking a tour of our office, construction site, and buildings we constructed and DICT. They have dinner at the Sheraton Hotel Songdo, which was built by Daewoo E&C and in 2016 the CFO joined the dinner. In addition, we organize a photo contest to improve teamwork and communication among employees and boost a sense of belonging and pride in their jobs. They submit photos of their family members and coworkers each half of 2016 and prizes are awarded based on the votes cast by employees. Employees working in other countries can enter the contest online and it provides a great opportunity for them to get together and enjoy quality time. In addition, we invite employees' children to take a tour of the main office building in Gwanghwamun, Daewoo E&C Housing Culture Hall PRUGIO Valley, and Pocheon IPP Site to give them opportunities to learn about their parents' jobs and build a sense of pride every year.





Photo Contest

### Life & Work Balance Program

At Daewoo E&C, we are committed to improving the quality of life for our employees and their family members as part of our welfare programs. For the exhausted employees, we are helping to improve organizational communication as well as managing organizational stress. We also carry out three health campaigns to support employees' working environment and encourage blood donation activities. In 2016, 275 employees participated in organizational health workshops in 8 sessions and we provided 197 individual counseling sessions and 7 family counseling sessions through our (Mind-Care Counseling Center). In addition, we organized an anti-smoking program and metabolic syndrome prevention campaign for our employees as part of our corporate-wide welfare strategy.







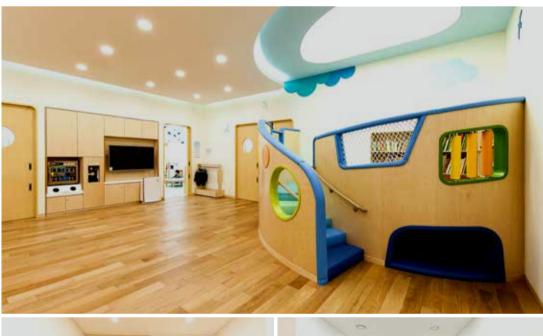
Organizational health workshop

Metabolic syndrome control campaig

Blood donation campaign

### **PRUGIO Daycare Center**

Selected as an 'Excellent Family-Friendly Company' in 2013 for the first time in the industry, we are increasing our efforts in family-friendly management. In March 2016, we opened the PRUGIO Daycare Center to provide childcare services for our employees as well as financial support and leave for their families. In addition, we are creating a better working environment for childbirth and childcare by reducing work schedules for employees who are pregnant less than 12 weeks, or more than 36 weeks. As a result, 99% of our employees return to work after maternity leave, which proves that we are a leading familyfriendly company.





PRUGIO Davcare Center

### Labor-Management Relations

### Labor Union & Joint Labor-Management Committee

At Daewoo E&C, we respect the rights of our employees and the freedom to join a labor union and collective bargaining. Since the establishment of the integrated labor union and joint labor-management committee, there has been no labor dispute for 18 years. We operate our joint labor-management committee with an aim to pursue mutual benefits and find the best solutions based on respect and understanding of important business matters. In addition, any material issues and changes in our business management are shared and discussed immediately. In 2016, we reached an agreement regarding the salary peak system, reduction of working hours and joint leave.

### Status of Joint Labor-Management Committee

Category	Detail	Unit	2014	2015	2016
Portion of Union Regi	strants	%	26.5	26.3	29.3
Labor-Management	No. of Meetings	Times	4	4	4
Committee Performance	No. of Issues Voted	Cases	4	6	6

# Labor Practice and Human Rights

# Labor Practice & Human Rights Policies

Daewoo E&C complies with the Labor Standards Act and publicly supports the United Nations Universal Declaration of Human Rights and Recommendations on Child Labor of International Labor Organization(ILO) as part of its efforts to advocate for human rights. We strictly prohibit any child labor and forced labor in all our work sites. In 2013, we joined the United Nations Global Compact(UNGC) and declared our intent to fulfill our social responsibility with respect to human rights and labor practices.

### **Sexual Harassment Prevention & Human Rights Education**

As part of our commitment to human rights and labor practice, we have incorporated our education programs on sexual harassment prevention human rights, CP, sustainability and environment/society/ governance into our compliance training since 2014. In 2016, 5,946 employees completed our sexual harassment training program.

### Completion of Sexual Harassment Prevention and Human Rights Training

Category	Unit	2014	2015	2016
No. of Completion	Person	6,318	6,420	5,946

# Community

### **Social Contribution Activity System**

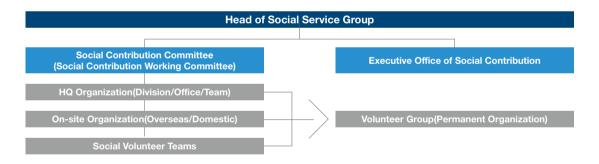
### **Strategic Direction**

As a global corporate citizen, Daewoo E&C focuses on three areas in its social contribution - Environmental Protection, Talent Donation and Sharing - in an effort to help neglected people in our society and make the world a better place to live. In addition to strong volunteer activities, extensive experience and expertise in the construction industry with a focus on improving social welfare infrastructure, we signed a business agreement with the Ministry of Gender Equality and Family to increase the number of co-education and nursing homes in March 2017. Furthermore, all employees participate actively in all social contribution activities, such as promoting programs with family through diversifying CSR activities.



### **Organization for Social Contribution**

Since the establishment of Daewoo E&C Social Service Group composed of on-site organization and social volunteer teams in 2007, we encourage our employees to join in volunteer activities through various social contribution programs every year.



### **Social Contribution Performance**

Category	Sub-category	Unit	2014	2015	2016
Social Contribution	Annual No. of Participants	Person	11,508	5,645	957
Performance	Total Expenditure	KRW 1M	4,200	1,540	9,749
	Operating Expense	KRW 1M	1,170	50	25
	Donation(culture, art, etc.)	KRW 1M	3,030	1,490	9,723
	Avg. Svc Hours/Person	Hour	2.7	3.9	3.9
Relay Volunteer	No. of Times	Time	6	5	6
Activities	No. of Participants	Person	424	241	286

# **Direction for Global Social Contribution**

Daewoo E&C is increasing its global presence through social contribution activities worldwide including in Kuwait, Qatar and Vietnam. Under our sustainability management plan, we take a consistent and proactive approach in our contribution by focusing on technology transfers, educational support and medical services. In addition, we are meeting the needs of people and companies by establishing a network with local communities.



### **Areas of Activities**

Technology Transfer

Educational Support

Medical(Volunteer) Suppor

Improvement of Living Environments



### Country

- Algeria
- Nigeria
- Nigeria
- Vietnam
- Qatar
- Morocco
- Singapore, Kuwait, Morocco
- Nigeria
- Algeria

### Performance

- Field Training School
- Professional Training Center(completed)
- Building and renovation of schools
- Renovation of libraries and donation of books
- Scholarship award and internship programs
- Blood donation
- Free medical treatment for eye disease
- Tuberculosis control project support(completed)
- Environment cleaning project
- Environment cleaning project
- Well development project(completed)
- Donation of home supplies

### **Domestic Social Contribution Activities**

With the voluntary participation of our employees, the Relay Volunteer Activities represents our social contribution. Rather than organizing one-time events or donations, we focus on raising awareness about social contribution. Since 2016, our employees' family members have joined as well. Each of our work sites visit local welfare facilities to help out and clean the environment.

### **Talent Donation**

Every year, our employees renovate and repair local welfare facilities. In 2016, we helped repair outdated facilities in the Europyeong Home of Peace, Home of Angels and Holt Ilsan Welfare Town.

- Eunpyeong Home of Peace, Home of Angels
- Holt Ilsan Center

### **Environmental Improvement**

As part of our relay volunteer activities with families, we organized 'Wall Painting with Family Members'. 172 employees and their family members spent two days improving the environment in Majang-dong with the Volunteer Center. In addition, we renovated outdated facilities and cleaned the environment in local areas.

- Wall painting in outdated areas
- Renovation of outdated facilities

### **Sharing Activities**

100 new employees visited 104 Village and delivered 4,000 briquettes through Seoul Bab Sang Community in January 2016. The program has been organized every year since 2011 and it will continue in the future with new recruits. In December 2016, the company President and 30 employees made kimchi with 300 cabbages and donated it to the Eunpyeong Home of Angels.

- Donation of briguettes to senior citizens and low-income families
- Donation of kimchi to broken families

### **Other Activities**

Every month, we join the 'Coin Collecting Fund' donating a small part of our paychecks. In addition, we organize volunteer campaigns for broken families, people with disabilities and newborn babies(knitting hats) while encouraging our employees to participate in blood donation.

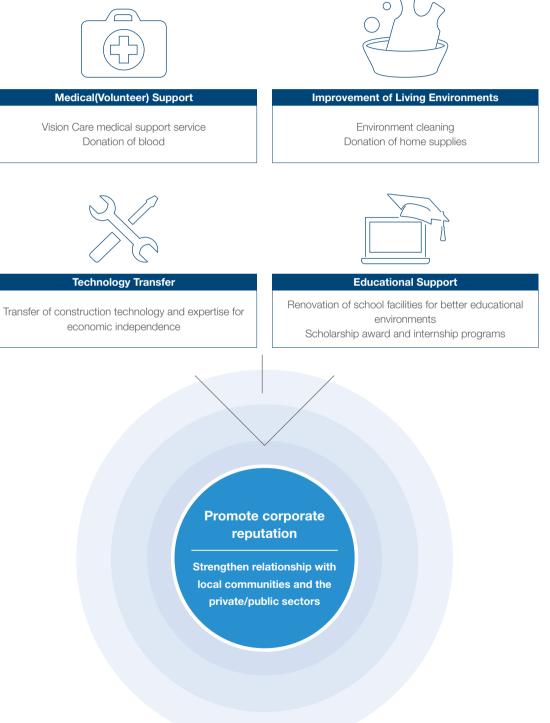
- Social volunteer activities for people with severe disabilities
- Knitting hats to save newborn babies
- Corporate-wide blood donation campaign



# **Overseas Social Contribution Activities**

To familiarize ourselves with local cultures and strengthen our partnership with local industries, we dedicate our efforts to solving social issues in countries where we do business.







### **Technology Transfer**

For the purpose of helping a local community to gain economic independence, we operated Training Schools that provide education on engineering and construction. To help secure manpower and create jobs in local areas we provided professional training. It was first introduced for the LNG Train Construction Project in Arzew, Algeria in 2008. In 2016, we continued to foster local manpower in construction sites in Boughzoul.



### **Educational Support**

We are also supporting educational system and talented people in local communities. In May 2015, we renovated a school library and donated books in Eleme, Nigeria. In March 2016, we awarded scholarships and provided an internship program for University of Port Harcourt students. In addition, we signed an agreement for an internship program with National University of Civil Engineering in Vietnam to strengthen our local network and foster talents as part of our strategy to build a growth engine for the future.



### Medical(Volunteer) Support

Since 2012, Daewoo E&C has contributed to medical services for eye disease with 'Vision Care', a private volunteer organization composed of Korean ophthalmologists. In January 2016, 180 volunteers donated Type O blood at the request from Hamad National Hospital in Qatar. We maintain a close relationship with the local community by making contributions to local healthcare.



### Improvement of Living Environments

Daewoo E&C also takes initiatives to improve the quality of life in local communities by donating living supplies and cleaning the environment. At CFP(Clean Fuel Project) site in Kuwait and Alexandra Condominium Project site in Singapore, we helped create a better environment for the local community. In June 2016, we donated living supplies for people in need at our project site in Boughzoul, Algeria as part of our commitment to improving people's quality of life.







2017 DAEWOO E&C SUSTAINABILITY REPORT

# **APPENDIX**

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Sustainability Management Performances

Independent Third-Party Assurance Statement

Assurance Statement on Greenhouse Gas Emissions

GRI G4 Content

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United Nations Global Compact

ISO 26000

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Membership/Consolidated Subsidiary List

About This Report

# **Sustainability Management Performances**

### Economic Performance

Category	Details	Unit	2014	2015	2016	Notes
Orders	New orders	KRW billion	6,960	11,057	5,602	
	Order backlog	KRW billion	38,768	40,080	34,796	
Sales by Region	Domestic sales ratio	%	68.6	69.5	70.1	
	Overseas sales ratio	%	31.4	30.5	29.9	
Sales by Business	Total sales	KRW million	9,995,023	9,889,965	11,105,930	
Division	Civil Project Division	KRW million	1,284,615	1,212,931	1,220,799	
	Building Works Division	KRW million	2,327,658	1,883,265	2,280,893	
	Housing Division	KRW million	2,896,374	3,197,464	3,504,608	
	Overseas Civil & Building Division	KRW million	610,597	1,092,441	1,176,142	Former Overseas Infrastructure Division
	Plant Business Division	KRW million	1,516,917	2,404,950	2,791,724	Plant Business & Power Plant
	Power Plant Division	KRW million	1,255,280	-	-	Divisions integrated
	Other	KRW million	103,582	98,914	131,764	
Stakeholder Value	Employee	KRW million	916,853	1,053,997	1,136,468	Labor and welfare expenses
Distribution	Supplier	KRW million	6,849,091	7,011,008	8,106,029	Raw material costs, procurement expenses, and service costs
	Investor, shareholder	KRW million	118,234	95,238	92,385	Interest payments
	Government	KRW million	54,073	14,822	-256,210	Corporate tax
	Local Community	KRW million	4,200	1,540	9,749	Donations and social contributions
Board of Directors	Meetings convened	No. of meetings	17	14	16	_
(BoD) Operation	Agenda items	No. of cases	48	56	65	
Performance	Attendance	%	92.9	98.1	94.8	
Audit Committee Meetin	gs	No. of meetings	5	5	6	_
External Director Nomina	ating Committee Meetings	No. of meetings	-	-	2	

\*Changes of financial statements for 2015 due to errors such as accounting estimates

### **Environmental Performance**

Category	Details	Unit	2014	2015	2016	Notes
Greenhouse	Total site emissions	tCO <sub>2</sub> eq	54,347	58,210	60,509	Scope 1+2
Gas(GHG)	Total building emissions	tCO <sub>2</sub> eq	8,886	8,298	8,080	Scope 1+2
Emissions	Total emissions	tCO <sub>2</sub> eq	63,233	66,508	68,589	Scope 1+2
	GHG intensity	tCO2eq/KRW 100 million	0.922	0.968	0.881	(Scope 1+2) / Domestic Sales
Energy	Total site consumption	TJ	1,076	1,153	1,202	
Consumption	Total building consumption	TJ	171	159	157	
	Total consumption	TJ	1,247	1,312	1,359	
	Energy intensity	TJ/KRW 100 million	0.018	0.019	0.017	Total consumption / Domestic Sales
Waste	Volume treated	Ton	628,471	422,498	597,000	Domestic site
	Treatment cost	KRW 100 million	156	108	153	Domestic site

\*Difference between the sum of GHG emissions by source and total emissions due to cut-off by site \*Retroactive application of unit-level emissions according to sales change in 2015

Social	Performance	
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Category	Details	Unit	2014	2015	2016	Notes
Total Employees		No. of persons	6,211	6,174	6,128	Executives, Contracted, Professionals, Full-time(foreigne excluded)
Type of	Executives	No. of persons	47	39	56	
Employment	Full-time	No. of persons	4,089	4,053	4,043	Specialized Executives included
	Contracted	No. of persons	389	412	442	Contracted Executives included
	Others	No. of persons	1,686	1,670	1,587	
Employment by	Domestic	No. of persons	5,002	4,950	5,198	
Region	Overseas	No. of persons	1,209	1,224	930	Excludes local employees at overseas sites
Employee Diversity	Male	No. of persons	5,591	5,600	5,573	
	Female	No. of persons	620	574	555	
	Seniors	No. of persons	432	424	366	Over 55(born before 1960)
	Foreigners	No. of persons	75	70	27	Not included in total head cour
	Disabled	No. of persons	64	65	65	
New Hires	Male	No. of persons	136	90	83	Full-time only
	Female	No. of persons	19	20	12	
Retirement/	Male	No. of persons	144	135	145	
Resignation	Female	No. of persons	8	13	17	
Training and	Total training hours	Hours	627,428	501,455	474,176	
Education Performance	Total cost	KRW million	3,833	4,067	4,046	
Information	Training per person	Hours	-	4 m 35s	4m 30s	
Security Education	Annual No. of Participants	No. of persons	-	6,499	4,759	
	Total training hours	Hours	-	496	357	
Childbirth Leave	Persons on leave	No. of persons	178	208	252	
	Persons returned from leave	No. of persons	171	204	250	
	Return to work rate	%	96%	98%	99%	
Parenting Leave	Persons on leave	No. of persons	23	33	17	Retrospective application due t
	Persons returned from leave	No. of persons	22	27	14	changes in standards
	Average leave	Days	245	275	234	
Labor Union Member	rship	%	26.5	26.3	29.3	
Accident rate	Converted accident Rate(Domestic)	%	0.25	0.24	0.24	
	LTIR(Overseas)	No. of cases per million hours	0.07	0.17	0.02	
Social Contribution	Annual No. of Participants	Person	11,508	5,645	957	
Performance	Total Expenditure	KRW million	4,200	1,540	9,749	
	Operating Expense	KRW million	1,170	50	25	
	Donation(culture, art, etc.)	KRW million	3,030	1,490	9,723	
	Avg. Svc Hours/Person	Hour/Person	2.7	3.9	3.9	
Relay Volunteer	No. of Times	Time	6	5	6	
Activities	No of Participants	Person	424	241	286	
	n Survey Result	Rank	4 <sup>th</sup>	4 <sup>th</sup>	6 <sup>th</sup>	NCSI

# **Independent Third-Party Assurance Statement**

### Introduction

DAEWOO Engineering & Construction Co., Ltd. ("DAEWOO E&C") commissioned DNV GL Business Assurance Korea, Ltd. ("DNV GL"), part of DNV GL Group, to undertake independent assurance of 2017 DAEWOO E&C Sustainability Report (the "Report"). The directors of DAEWOO E&C have sole responsibility for the preparation of the Report. The responsibility of DNV GL in performing the assurance work is to the management of DAEWOO E&C in accordance with the terms of reference. DNV GL's assurance engagements are based on the assumption that the data and information provided by the client to us as part of our review have been provided in good faith.

### Scope of assurance

The scope of assurance includes a review of sustainability activities and performance data over the reporting period from 1st January to 31st December 2016. This also includes

- Evaluation of the principles for defining the sustainability report content in the Global Reporting Initiative (GRI) Sustainability Reporting Guidelines 4.0
- Evaluation of the process for determining material aspects for reporting and the management approach to material issues and the process for generating, gathering and managing the quantitative and qualitative data in the Report.

### **Basis of our opinion**

We've performed our work using DNV GL's assurance methodology VeriSustainTM1, which is based on our professional experience, international assurance best practice including International Standard on Assurance Engagements 3000 (ISAE 3000). We applied the limited level of assurance. The audit was carried out from February and till April 2017. The site visits were made to DAEWOO E&C's Headquaters in Seoul and DAEWOO Institute of Construction Technologyin Daejeon, Korea. We undertook the following activities as part of the assurance process

- challenged the sustainability-related statements and claims made in the Report and assessed the robustness of the underlying data management system, information flow and controls;
- interviewed representatives from the various departments;
- conducted document reviews, data sampling and interrogation of supporting databases and associated reporting systems as they relate to selected content and performance data;
- · reviewed the materiality assessment report.
- Site (Daewoo Institute of Construction technology in Daejeon) visit and test of data gathering process

### Limitations

The engagement excludes the sustainability management, performance and reporting practices of DAEWOO E&C' subsidiaries, associated companies, suppliers, contractors and any third-parties mentioned in the Report.

DNV GL did not interview external stakeholders as part of this Assurance Engagement. Economic performance based on the financial data is cross-checked with internal documents, the audited consolidated financial statements and the announcement disclosed at the website of Korea Financial Supervisory Service (http://dart. fss.or.kr) as well as DAEWOO E&C's website (www.daewooenc.com). These documents, financial statements and the announcements are not included in this Assurance Engagement. Limited depth of evidence gathering including inquiry and analytical procedures and limited sampling at lower levels in the organization were applied. The baseline data for Environmental and Social performance are not verified, while the aggregated data at the corporate level are used for the verification. DNV GL expressly disclaims any liability or co-responsibility for any decision a person or an entity may make based on this Assurance Statement.

### Conclusion

On the basis of the work undertaken, nothing comes to our attention to suggest that the Report does not properly address the adherence to the Principles for defining report content in GRI G4. In addition, nothing comes to our attention to believe that the Report does not meet the GRI G4 and Construction and Real Estate Sector Disclosure in accordance – 'Core' option of reporting. Further opinions with regards to the adherence to the Principles are made below;

1 The VeriSustain protocol is available upon request at DNV GL Website (www.dnvgl.com)/assurance/reporting/verification.html

### Stakeholder Inclusiveness

DAEWOO E&C has identified internal and external stakeholder groups such as Customers, Local community, Employees, Government, and Shareholders, Subcontractors and Suppliers, Academia / Industry association / Institute, Future generation. DAEWOO E&C engages with the stakeholders at the company and business unit levels through various channels. The examples of approaches to engage with selected stakeholders and relevant organizations are described in the Report. In addition, main responsibilities of DAEWOO E&C for respective stakeholder groups are addressed.

### **Sustainability Context**

The stakeholders can review DAEWOO E&C's vision (Vision 2025) and mid and long term strategy from the Report. The value creation model for stakeholder developed in 2015 is provided in the Report as well. DAEWOO E&C addresses how material issues grouped into 10 key aspects are managed and what was achieved in 2016, which would help the stakeholder understand the management approaches toward the material aspects.

### Materiality

DAEWOO E&C has conducted the materiality assessment to prepare the Report. 25 issue pools were used on internal and external stakeholder survey to rate the material issues. 10 material issues are prioritized accordingly. DAEWOO E&C takes into account the consistent way of selecting material issues so that the decision made by the management and daily operation are fully aligned with strategic sustainability management. The audit team has reviewed the materiality assessment process and confirms relevant material issues prioritized from the process are addressed in the Report.

### Completeness

The Report has covered sustainability performances of DAEWOO E&C and management approach to material issues for the reporting period. The reporting boundary includes the operations over which DAEWOO E&C implements management control in 2016 however the quantified performance data for the environmental aspects are collected from the projects and 6 building properties only in Korea. DAEWOO E&C should consider expanding reporting boundary. The material environmental performance data generated from international projects should be reported once it is determined material.

### Accuracy and Reliability

The audit team has sampled data and tested accuracy. Based on the test, the intentional error or misstatement is not noted from the data and information disclosed in the Report. Data owners were able to demonstrate the origin and interpretation of the data in a reliable manner. The data was identifiable and traceable.

### **Competence and Independence**

DNV GL Business Assurance is part of DNV GL Group and a global provider of certification, verification, assessment and training services, helping customers to build sustainable business performance. Our environmental and social assurance specialists are present in over 100 countries. The assurance work was performed by independent team which meets DNV GL's competence requirements. DNV GL was not involved in the preparation of any statements or data included in the Report except for this Assurance Statement. The audit team has complied with DNV GL Code of Ethics during the assurance engagement.

April 2017 Seoul, Korea

DNV.GL

In Kyoon Ahn Country Representative

DNV GL Business Assurance Korea, Ltd.

# **Assurance Statement on Greenhouse Gas Emissions**

# **GHG Verification Summary** DAEWOO ENGINEERING & CONSTRUCTION CO., LTD.

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### Verification Scope

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Korean Standards Association has conducted reasonable GHG emissions verification based on GHG report provided by DAEWOO ENGINEERING & CONSTRUCTION CO., LTD which includes Scope1 and Scope2.

### Verification Standards and Guidelines

To conduct verification activities, verification team applied verification standards and guidelines. The standards and guidelines are as follows.

· GHG&Energy Target Scheme guideline(2016-255) provided by Ministry of Environment, Republic of Korea

· Verification guideline for management of GHG emissions trading scheme(2016-015) provided by Ministry of Strategy and Finance, Republic of Korea

·KS Q ISO 14064-1,2,3 : 2006

· IPCC Guideline.

### Verification Conclusion

As a result of verification activities, verification team has found no significant errors. Therefore, Korean Standards Association confirms that following emissions data are adequately quantified.

			(unit : tonCO <sub>2</sub> eq)
	GHG E	missions	
Year	Scope 1	Scope 2	Total
2016	11,118	57,475	68,589

\* There is a difference between the total quantity of GHG emission and the sum of each workplace's emission. (Decimal place is not considered when calculating the emission of each workplace.)

PRESIDENT OF KSA

March 28, 2017 Back, Sou Hyum

KOREAN STANDARDS ASSOCIATION

# **GRI G4 Content Index**

### **General Standard Disclosure**

	or Detail	Pages	Note
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ganizat I-3	ion Profile	8	
	Report the name of the organization Report the primary brands, products, and services	10-11	
	Report the primary Urands, products, and services Report the location of the organizations headquarters	8-9	
	Report the number of countries where the organization operates, and names of countries where either the organization has significant operations or that are specifically		
-6	relevant to the sustainability topics covered in the report	8-9	
-7	Report the nature of ownership and legal form	8	
-8	Report the markets served	8-9, 67	
	Report the scale of the organization, including :		
	- Total number of employees - Total number of operations		
-9	<ul> <li>Net sales(for private sector organizations) or net revenues(for public sector organizations)</li> <li>Total capitalization broken down in terms of debt and equity(for private sector organizations)</li> <li>Quantity of products or services provided</li> </ul>	8, 90-91	
	a. Report the total number of employees by employment contract and gender		
	b. Report the total number of permanent employees by employment type and gender		
-10	<ul> <li>Report the total workforce by employees and supervised workers and by gender</li> <li>Report the total workforce by region and gender</li> </ul>	127	
10	e. Report whether a substantial portion of the organization's work is performed by workers who are legally recognized as self-employed, or by individuals other than	1 - 1	
	employees or supervised workers, including employees and supervised employees of contractors f. Report any significant variations in employment numbers(such as seasonal variations in employment in the tourism or agricultural industries)		
-11	report any significant valuations in employment numeric numeric sources are accurately significant valuations in employment numeric sources are accurately expertences and the percentage of total employment numeric sources are accurately expertences.	127	
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13	Report any significant changes during the reporting period regarding the organization's size, structure, ownership, or its supply chain	8, 126	
14	Report whether and how the precautionary approach or principle is addressed by the organization	98-99	
15	List externally developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes or which it endorses.	133-134	
16	List memberships of associations	135	
ntified	Material Aspects and boundaries		
17	a. List all entities included in the organization's consolidated financial statements or equivalent documents	8-9, 67, 135	
	<li>b. Report whether any entity included in the organization's consolidated financial statements or equivalent documents is not covered by the report</li>		
18	a. Explain the process for defining the report content and the Aspect Boundaries b. Explain how the organization has implemented the Reporting Principles for Defining Report Content	88-89, 136	
19	D. Explain fow the organization has implemented the region of beining report content     List all the material Aspects identified in the process for defining report content	89	
20	Las al ner material Aspecta identities in the process no terming report content.	88-89	
21	For each material Aspect, report the Aspect Boundary within the organization	88-89	
22	Report the effect of any restatements of information provided in previous reports, and the reasons for such restatements	126-127	
-23	Report significant changes from previous reporting periods in the Scope and Aspect Boundaries	136	
ikehold	er Engagement		
-24	Provide a list of stakeholder groups engaged by the organization	86-87	
-25	Report the basis for identification and selection of stakeholders with whom to engage	86-87	
-26	Report the organization's approach to stakeholder engagement	86-87	
-27 port Pr	Report key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting. Report the stakeholder groups that raised each of the key topics and concerns file.	19, 29, 43, 49, 57, 65, 77, 88-89	
-28	Reporting period	136	
-29	Date of most recent previous report	136	
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	Independence		
	Term of governance organization		
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Relations Occupational Health and Safety Training and Education Society Anti-corruption Anti-competitive Behavior	G4-DMA           G4-LA6           G4-LA7           G4-CRE6           G4-DMA           G4-LA9           G4-LA9           G4-DMA           G4-S03           G4-S04           DMA           G4-S07           G4-DMA           G4-S08           G4-DMA	Generic disclosures on management approach         Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender         Workers with high incidence or high risk of diseases related to their occupation         Ratio of business sites operating global safety health system         Generic disclosures on management approach         Average hours of training per year per employee, by gender, and by employee category         Generic disclosures on management approach         Total number and percentage of operations assessed for risks related to corruption and the significant risks identified         Communication and training on anti-corruption policies and procedures         Generic disclosures on management approach         Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes         Generic disclosures on management approach         Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes         Generic disclosures on management approach         Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations         Generic disclosures on management approach         Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations         Generic disclosures on management approach         Signifi	19         19, 27, 127         22-24         132         110, 127         49         50         52-53         43, 49         45         43         46	
Relations Cocupational Health and Safety Training and Education Society Anti-corruption Anti-competitive Behavior Compliance Supplier Assessment for Impacts on Society Product responsibility Customer Health and	G4-DMA G4-LA6 G4-LA7 G4-CRE6 G4-DMA G4-LA9 G4-LA9 G4-SO3 G4-SO4 DMA G4-SO7 G4-DMA G4-SO8 G4-SO8 G4-DMA	Generic disclosures on management approach         Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender         Workers with high incidence or high risk of diseases related to their occupation         Ratio of business sites operating global safety health system         Generic disclosures on management approach         Average hours of training per year per employee, by gender, and by employee category         Generic disclosures on management approach         Total number and percentage of operations assessed for risks related to corruption and the significant risks identified         Communication and training on anti-corruption policies and procedures         Generic disclosures on management approach         Total number or legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes         Generic disclosures on management approach         Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations         Generic disclosures on management approach         Significant actual and potential negative impacts on society in the supply chain and actions taken         Generic disclosures on management approach         Reneric disclosures on management approach         Generic disclosures on management approach         Generic disclosures on management approach         Generic disclosures on mana	19         19, 27, 127         22-24         132         110, 127         49         50         52-53         43, 49         45         43	
Relations Cocupational Health and Safety Training and Education Society Anti-corruption Anti-competitive Behavior Compliance Supplier Assessment for Impacts on Society Product responsibility Customer Health and	G4-DMA           G4-LA6           G4-LA7           G4-CRE6           G4-DMA           G4-LA9           G4-DMA           G4-SO3           G4-SO4           DMA           G4-SO7           G4-SO8           G4-DMA           G4-SO10           G4-SO10           G4-DMA	Generic disclosures on management approach         Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender         Workers with high incidence or high risk of diseases related to their occupation         Ratio of business sites operating global safety health system         Generic disclosures on management approach         Average hours of training per year per employee, by gender, and by employee category         Generic disclosures on management approach         Total number and percentage of operations assessed for risks related to corruption and the significant risks identified         Communication and training on anti-corruption policies and procedures         Generic disclosures on management approach         Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes         Generic disclosures on management approach         Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations         Generic disclosures on management approach         Significant actual and potential negative impacts on society in the supply chain and actions taken         Generic disclosures on management approach         Reneric disclosures on management approach         Significant actual and potential negative impacts on society in the supply chain and actions taken         Generic disclosures on management approach	19         19, 27, 127         22-24         132         110, 127         49         50         52-53         43, 49         45         43         46         29         33	
Relations Cocupational Health and Safety Training and Education Society Anti-corruption Anti-competitive Behavior Compliance Supplier Assessment for Impacts on Society Product responsibility Customer Health and Safety	G4-DMA G4-LA6 G4-LA7 G4-CRE6 G4-DMA G4-LA9 G4-LA9 G4-SO3 G4-SO4 DMA G4-SO7 G4-DMA G4-SO8 G4-DMA G4-SO10 G4-DMA	Generic disclosures on management approach         Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender         Workers with high incidence or high risk of diseases related to their occupation         Ratio of business sites operating global safety health system         Generic disclosures on management approach         Average hours of training per year per employee, by gender, and by employee category         Generic disclosures on management approach         Total number and percentage of operations assessed for risks related to corruption and the significant risks identified         Communication and training on anti-corruption policies and procedures         Generic disclosures on management approach         Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes         Generic disclosures on management approach         Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations         Generic disclosures on management approach         Significant actual and potential negative impacts on society in the supply chain and actions taken         Ceneric disclosures on management approach         Reneric disclosures on management approach         Significant actual and potential negative impacts on society in the supply chain and actions taken         Ceneric disclosures on management approach	19         19, 27, 127         22-24         132         110, 127         49         50         52-53         43, 49         45         43         46         29	
Relations Cocupational Health and Safety Training and Education Society Anti-corruption Anti-competitive Behavior Compliance Supplier Assessment for Impacts on Society Product responsibility Customer Health and	G4-DMA           G4-LA6           G4-LA7           G4-CRE6           G4-DMA           G4-LA9           G4-DMA           G4-SO3           G4-SO4           DMA           G4-SO3           G4-SO4           DMA           G4-SO3           G4-DMA           G4-SO4           DMA           G4-DMA           G4-PR1           G4-DMA	Generic disclosures on management approach         Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender         Workers with high incidence or high risk of diseases related to their occupation         Ratio of business sites operating global safety health system         Generic disclosures on management approach         Average hours of training per year per employee, by gender, and by employee category         Generic disclosures on management approach         Total number and percentage of operations assessed for risks related to corruption and the significant risks identified         Communication and training on anti-corruption policies and procedures         Generic disclosures on management approach         Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes         Generic disclosures on management approach         Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes         Generic disclosures on management approach         Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations         Generic disclosures on management approach         Significant actual and potential negative impacts on society in the supply chain and actions taken         Percentage of significant products and services categories for which health and safety impacts are assessed f	19         19, 27, 127         22-24         132         110         110, 127         49         50         52-53         43, 49         45         43         46         29         33         29         23	

**UN Global Compact** 

In 2012, Daewoo E&C joined the UN Global Compact(UNGC), a strategic policy initiative for businesses that are committed in their corporate social responsibilities. By upholding the 10 Principles on human rights, labor, environment, and anti-corruption and participating in the global standards, we show our dedication towards corporate social responsibility.

### **UN Global Compact 10 Principles & Related Activities**

Areas	Principles	Activities	
Human Rights	<ol> <li>Businesses should support and respect the protection of internationally proclaimed human rights.</li> </ol>	<ul> <li>Specifies in the Daewoo E&amp;C Ethics Charter 'We uphold all international and national laws governing human rights, the environment, culture and the economy'</li> <li>Owned human report and the training for all events (CD)</li> </ul>	85, 117
	2. Businesses should make sure they are not complicit in human rights abuses.	<ul> <li>Sexual harassment prevention training for all employees(CP education)</li> </ul>	
Labor	<ol> <li>Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.</li> </ol>	<ul> <li>Abides by Korean Labor Standards Act</li> <li>Operates Labor Union and Joint Labor-Management Committee</li> </ul>	117
	4. Businesses should uphold the elimination of all forms of forced and compulsory labor.	Abides by the International Labor Organization(ILO)'s Convention Concerning the Prohibition and Immediate Actions Toward the	117
	5. Businesses should uphold the effective abolition of child labor.	Elimination of the Worst Forms of Child Labor <ul> <li>Abides by Korean Labor Standards Act</li> </ul>	
	<ol> <li>Businesses should uphold the elimination of discrimination in respect of employment and occupation.</li> </ol>	<ul> <li>Implements fair evaluation and compensation</li> <li>Operates family-friendly welfare and benefits program</li> </ul>	110, 114-116
Environment	7. Businesses should support a precautionary approach to environmental challenges.	<ul> <li>Obtains and maintains environmental management system certification</li> <li>Response to climate change through greenhouse gas emission management</li> <li>Systematization of on-site environmental management standards, environmental audit and training</li> </ul>	100-101 103-105
	<ol> <li>Businesses should undertake initiatives to promote greater environmental responsibility.</li> </ol>	<ul> <li>Operates a Waste Management Company Registration System</li> <li>Environment campaigns for each division, team and site</li> <li>Environmental awards</li> </ul>	100-109
	<ol> <li>Businesses should encourage the development and diffusion of environmentally friendly technologies.</li> </ol>	<ul> <li>Developed and applied Green premium</li> <li>Obtained eco-friendly construction certification</li> <li>Reducing the environmental impact of construction materials</li> <li>Developed and applied CCS technology</li> </ul>	80-81
Anti-corruption	10. Businesses should work against corruption in all its forms, including extortion and bribery.	<ul> <li>Systemized CP system</li> <li>Voluntary CP Participation</li> <li>Training and promotion of compliance</li> <li>Conducted ethical management campaigns</li> </ul>	50-53

\*Daewoo E&C's projects and services



# **ISO 26000**

ISO 26000 is an international standard for Corporate Social Responsibility that is comprised of seven core subjects : organizational governance, human rights, labor practices, the environment, fair operating practices, customer issues, and community involvement and development. Daewoo E&C will use ISO 26000 as a guiding principle to further strengthen sustainability management and fulfill roles and responsibilities as a corporate citizen.

### ISO 26000 Core Subject and Related Activities

Human         Dec digence         Operated CP Review by Unit, Implementation of Internal report system         E2 53           Human rights field subtores         Conducted an ethical management compains         63           Accidence of comploity         Included subtainability factors is suppliar assessment, penaltad unquilified suppliars         64           Discrimitation and vumeable groups         Fair estudied subtainability factors is suppliar assessment, penaltad unquilified suppliars         61           Out and political rights         Complied with Kores Labor Standards Act, LD alandards         61         61           Fundamental propies and rights at works         Complied with Kores Labor Standards Act, LD alandards         61         61           Fundamental propies and rights at works         Complied with Kores Labor Standards Act, LD alandards         61         61           Fundamental propies and rights at works         Complied with Kores Labor Standards Act, LD alandards         61         61           Fundamental propies         Complied with Kores Labor Standards Act, LD alandards         61         61           Fundamental propies         Operated Labor Libor Management Foundards         61         61           Fundamental propies         Operated Labor Libor Management foundards         61         61           Fundamental propies         Operated Labor Libor and Joret Labor Management foundards	Core Subject	Issues	Related Activities	Pages
Fights         Human rights risk altuationa         Conducted an ethical management campaign         53           Moderno of complexity         Included austimicity factors in suppler assessment, presided ungusfilled supplers         46           Perceking greances         OP Management System including Pohibition of illigal enpisyment and unfair treatment         110           Descrimination and vulneable groups         Fair enduation and compensation         117           Economics, social and collurating rights         Correlied with Keres Labor Standack Act, ILO standards, conculd sexual breasment prevention training         117           Inudemental principies and sights         Correlied with Keres Labor Standack Act, ILO standards, conculd sexual breasment prevention training         117           Conditions of work and social protection         Correlied with Keres Labor Standack Act, ILO standards, conculd sexual breasment prevention training         117           Fair Standards         Constand Labor Libor Standack Act, ILO standards, conculd sexual breasment prevention training         117           Fair Standards         Correlied with Keres Labor Standack Act, ILO standards, conculd sexual breasment prevention training         117           Fair Standards         Correlied with Keres Labor Standack Act, ILO standards, conculd sexual breasment prevention training         117           Fair Standards         Correlied with Keres Labor Standards Act, ILO standards, conculd sexual breasment preventin training         117<	Governance	Structure of decision making and process	Operated Audit Committee and Outside Director Recommendation Committee under the Board of Directors	14-15
Human right risk shatafore         Conducted an efficied meangement compaign         63           Headwing griswance         CP Management System including Human inspire assessment, pankized unqualified suppliers         100           Circle of policity         Frier evaluation and compensation         110           Circle of policity institu         Complex with Kores Labor Standards Act, LLO standards         117           Circle of policity institu         Complex with Kores Labor Standards Act, LLO standards         117           Frier double with Kores Labor Standards Act, LLO standards         Complex with Kores Labor Standards Act, LLO standards         117           Circle of with Kores Labor Standards Act, LLO standards         Complex with Kores Labor Standards Act, LLO standards         117           Circle of with Kores Labor Standards Act, LLO standards         Complex with Kores Labor Standards Act, LLO standards         117           Fried Circle of with Kores Labor Standards Act, LLO standards         Complex with Kores Labor Standards Act, LLO standards         117           Fried Circle of with Kores Labor Standards Act, LLO standards         116         117         116           Fried Condition of wick and associal protection         Complex with Kores Labor Standards Act, LLO standards         116           Fried Condition of wick and associal protection         Operated Circle of wick and associal protection         116           Fried Condi	Human	Due diligence	Operated CP Review by Unit, Implementation of internal report system	52-53
Pescking grievences         CP Management System including Prohibition of liegal engloyment and unitab testment         110, 11           Discrimination and vulnerable groups         Fair evaluation and comparation         110           CM and political rights         Compiled with Kores Labor Standards Act, ILO standards, ILO standards, ILO standards, act, ILO standards, ILO standardstandardstact, ILO standards, ILO standards, ILO standards, ILO	Rights	Human rights risk situations	Conducted an ethical management campaign	53
Discrimitation and vulnerable groups         Fair evaluation and componention         110           Civil and political rights         Completed with Kores Labor Standards Act, LO elandards         117           Economic, social and cultural rights         Operated framily-friendly programs, childbalth and parenting keep policy         114-11           Endomerated principles and rights at work         Completed with Kores Labor Standards Act, LO elandards         017           Conditions of work and ascel protection         Operated Endoted With Kores Labor Standards Act, LO elandards         117           Conditions of work and social protection         Operated Endoted With Kores Labor Standards Act, LO elandards         117           Heath and safety at work         Operated Endoted With Kores Labor Standards Act, LO elandards         20-23           Human dovelopment and training in the         Provided training and excetion based on tabent Avecks Balance Program         117           Functional         Operated Endotencial Management Evaluation Standards         107         108           Functional of polition         Operated Endotencial Standards         107         108           Functional differencial Ark Wates Hozzadus Chernical Management Indukting Agreement on Fuglike Dust between         107         108           Fair Completion         Protection of standards         106         106         106           Fair Completion a		Avoidance of complicity	Included sustainability factors in supplier assessment, penalized unqualified suppliers	46
Civil and political rights         Complex With Korea Labor Standards Act, ILO standards         111           Econome, social and cultural rights         Operated tamly-friendly programs, civilititit and parenting leave policy         114-112           Labor         Findamental principles and rights at works         Complex With Korea Labor Standards Act, ILO standards, conducted social harassment prevention training         117           Practical         Concilied With Korea Labor Standards Act, ILO standards         114-116           Social dislogue         Operated Encilient Merca Labor Management Committee         114-116           Social dislogue         Operated Encilient Merca Labor Standards Act, ILO Standards         117           Manna divelopment real training in the         Operated Keath & Safety Committee, Immediate Operation Stundards         20-23           Haum advelopment and training in the         Provided Training and education based on tatent divelopment strategy         101-111           Sustainable mecures use         Operated Act, Wasts, Hauarokus Coherical Management culture, Agreement on Fugitive Dust between Minetry of Environment and Construction Materials         60           Fair Compation         Internateed Elhical Management Culture, Operated CP         53           Responsible political involvement         Signed 1 and paticipation in relevant associations and academic sociaties of business divisions         53           Fair Compation         Internateced Elh		Resolving grievances	CP Management System including Prohibition of illegal employment and unfair treatment	110, 117
Economic social and cultural rights         Operated family-friendly programs, childbirth and patenting leave policy         114-116           Fundamental principles and rights at works         Complied with Kores Labor Standards Ad, LO standards         Standards           Callor         Employment readistricting         Complied with Kores Labor Standards Ad, LO standards         Standards           Conditions of work and social protection         Operated Emotional Management Event, Life & Work Balance Program         117           Bocial dialogue         Operated Labor Union and John and John Management Event, Life & Work Balance Program         20-23           Human development and training in the workplaze         Operated Labor Union and John Labor-Management Event, Life & Work Balance Program         20-23           Environment         Provided training and education based on talent development and training in the workplaze         Provided training and education based on talent development and training and education for an environment, and Construction Companies         107-108           Statianable resource use         Developed Eco-triendly Construction Management Liduding Agreement on Fugitive Dust between Protection of the environment, and Construction Companies         107-108           Fair Operating         Anti-Complion         Internated Ethical Management Lidure, Operated CP         53           Protection of the environment, and Construction Companies         106         106           Responsibility in the valu		Discrimination and vulnerable groups	Fair evaluation and compensation	110
Fundamental principles and rights at works         Completed with Korea Labor Standards Act, ILO standards, conducted sexual hansament prevention training         117           Labor         Conditions of work and accile protection         Operated Emotional Management Event, ILO standards         114         114           Practices         Conditions of work and accile protection         Operated Labor Management Event, ILO standards         114         116           Practices         Conditions of work and accile protection         Operated Labor Management Event, ILO standards         20-23           Health and safety of work         Operated Labor Management Event, ILE & Work Balance Program         116-111           Health and safety of work         Operated Aix Waste, Hazardous Chemical Management Including Agreement on Fugitive Dust between         20-23           Environment         Prevention of poliution         Operated Aix Waste, Hazardous Chemical Management Including Agreement on Fugitive Dust between         80           Environment         Sustainable resource use         Developed Construction Materials         80           Cimate charge mitigation and adaptation         Operated Ethical Management Culture, Operated CP         83           Protection of the environment, bicdwently         Signed in and patricipated in relevant ascolations and academic societies of business divisions         115           Fair Compretion         Operated Ethical Management Culture, Opera		Civil and political rights	Complied with Korea Labor Standards Act, ILO standards	117
Labor Paradiose         Employment net networking         Complete with Kores Labor Standards Act, ILO standards         117           Conditions of work and social protection         Operated Emotional Management Event, Life & Work Balance Program         114-116           Social dialogue         Operated Labor Union and Joint Labor Management Committee         117           Heath and safely at work         Operated Labor Union and Joint Labor Management Committee         20-23           Human development and training in the workplace         Provided training and education based on talent development strategy         110-113           Environment         Provided training and education based on talent development including Agreement on Fugitive Dust between Ministry of Environment and Construction Management Including Agreement on Fugitive Dust between Ministry of Environment and Construction Maragement Including and a scalability for the standards and restoration of natural habitats         106           Fair Corportion         Internalized Ethical Management Cuture, Operated CP         45           Fair Corportion         Applied sustainabbility factors in supplier evaluation, penalized unqualified suppliers         46           Pronoting social responsibility in the value and restoration of natural habitats         Operated CP         45           Fair competition         Operated CP         45         50           Pronoting social responsibility in the value and scalabined consumpany         Applied sustainabbility factors i		Economic, social and cultural rights	Operated family-friendly programs, childbirth and parenting leave policy	114-116
Practices         Conditions of work and social protection         Operated Emotional Management Event, Like & Work Baience Program         111-116           Social dialogue         Operated Labor Union and Joint Labor-Management Committee         117           Heath and safety at work         Operated Heath & Safety Committee, Immediate Operation Struttown         20-23           Human development and training in the workplace         Operated Ak; Waste, Hazardous Chemical Management Including Agreement on Fugitive Dust between Ministry of Environment and Construction Companies         07-106           Environment         Meention of polition         Operated Ak; Waste, Hazardous Chemical Management Including Agreement on Fugitive Dust between Ministry of Environment and Construction Companies         07-106           Function of the environment, Liobudy Construction Materials         00         07-106           Orizate change mitigation and adaptation         Operated CPC instruction Materials         06-0           Protection of the environment, Liobudy Barty Including land & aquatic biolope         03-0         05-0           Protection of the environment, Liobudy Barty Including Lind Sustainabitity factors in supplier evaluation, ponalized unqualified suppliers         06-0         06-0           Protecting costen responsibility in the value         Applied custainability factors in supplier evaluation, ponalized unqualified suppliers         06-0         06-0           Protecting customers heath and sefety         A		Fundamental principles and rights at works	Complied with Korea Labor Standards Act, ILO standards, conducted sexual harassment prevention training	117
Conditions of work and social protection         Operated Emotional Management Event, Like X Work Balome Program         114-11           Social dialogue         Operated Labor Union and Joint Labor-Management Committee         117           Environment         Operated Labor Union and Joint Labor-Management Committee         117           Internal development and training in the workplace         Operated Hath X Staffy Committee, Immediate Operation Shutdown         20-23           Environment         Provided training and education based on talent development strategy         107-108           Function of pollution         Operated AK, Waste, Hazardous Chemical Management including Agreement on Fugitive Dust between         107-108           Function of the environment, biodiversity         Protected OFGE Emission and Energy Control         108           Fair Competition         Internalized Ethical Management Culture, Operated CP         53           Fair Competition         Internalized Ethical Management Culture, Operated CP         64           Promoting social responsibility in the value         Applied austainability factors in supplier evaluation, penalized unqualified suppliers         64           Promoting social responsibility in the value         Applied austainability factors in supplier evaluation, certificating standards         63           Fair Competition         Operated CP         Fair Competition         63           Promoting social respo	Labor	Employment and employment relationships	Complied with Korea Labor Standards Act, ILO standards	117
Heath and safety at work         Operated Heath & Safety Committee, Immediate Operation Shutdown         20-23           Human development and training in the workplace         Provided training and education based on talent development strategy         107-102           Environment         Prevention of polition         Operated Air, Waste, Hazardous Chemical Management including Agreement on Fugitive Dust between         107-102           Environment         Eustanable resource use         Developed Eco-friendly Construction Companies         80           Cimate change mitigation and adaptation         Operated Air, Waste, Hazardous Chemical & aquatic biotope         108           Fair Corperating         Protection of the environment, biotidiversity         Protected Eco-friendly Construction Materials         60           Fair Corperating         Anti-Corruption         Internalized Ethical Management Culture, Operated CP         63           Fair Competition         Operated CP         45         46           Promoting social responsibility in the value         Applied sustainability factors in supplier evaluation, penalized unqualified suppliers         46           Castomer         Fair Competition         Operated Deeveo E&C Shimmungof         45           Sustainable consumption         Developed and applied Green premium, Eco-friendly Construction Certification         33           Sustatanable consumption         Developed and applied Green	Practices	Conditions of work and social protection	Operated Emotional Management Event, Life & Work Balance Program	114-116
Human development and training in the workplice         Provided training and education based on talent development strategy         110-111           Environment Environment         Prevention of pollution         Operated AV, Wate, Hazardous Chemical Management including Agreement on Fugitive Dust between Ministry of Environment and Construction Companies         00           Sustainable resource use         Developed Eco-friendly Construction Materials         00           Ordection of the environment, biddhorship         Operated AHG Emission and Energy Control         00           Fair Operation of natural habitats         Protection of the environment, biddhorship         Protection of the environment, biddhorship         00           Fair Compatition         Operated CPG         Protection of the environment, biddhorship         93           Fair Compatition         Operated CP         Applied sustainability factors in supplier evaluation, penalized unquelified suppliers         46           Protecting of the Respect for property rights         Operated CP         45         00         00         00         00         00         00         00         00         00         00         00         00         00         00         00         00         00         00         00         00         00         00         00         00         00         00         00         00		Social dialogue	Operated Labor Union and Joint Labor-Management Committee	117
workplace         workplace           Environment Environment Sustainable resource use         Operated Air, Waste, Hazardous Chemical Management including Agreement on Fugitive Dust between Ministry of Environment and Construction Companies         60           Sustainable resource use         Developed Eco-friendly Construction Materials         60           Climate change miligation and adaptation         Operated CHG Emission and Energy Control         105           Protection of the environment, biodiversity         Protected biodiversity including land & aquatic biotope         53           Fair Conception         Internalized Ethical Management Culture, Operated CP         53           Propotetion         Operated CP         45           Promoting social responsibility in the value         Applied sustainability factors in supplier evaluation, penalized unqualified suppliers         46           Customer Issues         Fair merketing         Prohibiled unvolvement         50           Customer Issues         Fair marketing         Operated Daewoo EAC 'Shimmungo'         45           Customer Issues         Caster resolution         Operated Integrated Call center, PURGIO Muse         50           Customer envices, support, and complaint and disput ensolution         Operated Integrated Call Center, PURGIO Muse         36.37           Customer envices, support, and complaint and disput ensolutin         Operated PURGIO Life. Life Preminum		Health and safety at work	Operated Health & Safety Committee, Immediate Operation Shutdown	20-23
Response between the second			Provided training and education based on talent development strategy	110-111
Climate change mitigation and adaptation         Operated GHG Emission and Energy Control         101           Protection of the environment, biodiversity and restoration of natural habitats         Protected biodiversity including land & aquatic biotope         108           Fair Operating         Anti-Comption         Signed in and participated in relevant associations and academic societies of business divisions         153           Practices         Fair competition         Operated CP         45           Fair competition         Operated CP         45           Promoting social responsibility in the value chain         Applied sustainability factors in supplier evaluation, penalized unqualified suppliers         46           Promoting social responsibility in the value chain         Operated Daewoo E&C 'Shimungo'         45           Respect for property rights         Operated latevice and applied Green premium, Eco-friendly Construction Certification         46           Sustainable consumption         Developed and applied Green premium, Eco-friendly Construction Certification         46-44           Costorner data protection and privacy         Updated ISO 27001 certification, SItsonghiten security Inspection System, Prevention of Information Leakage         46-44           Controner data protection and privacy         Updated ISO 27001 certification, Sitsonghiten security Inspection System, Prevention of Information Leakage         46-44           Controurty involvement	Environment	Prevention of pollution		107-108
Protection of the environment, biodiversity and restoration of natural habitats         Protected biodiversity including land & aquatic biotope         108           Fair Operating Predictions         Anti-Corruption         Internalized Ethical Management Culture, Operated CP         53           Predictions         Responsible political involvement         Signed in and participated in relevant associations and academic societies of business divisions         135           Promoting social responsibility in the value chain         Operated CP         45           Promoting social responsibility in the value chain         Operated Deavoo E&C 'Shinnungo'         45           Customer ISSUES         Fair marketing         Prohibited unethical display of advertisement and complied with advertising standards         50           Customer ISSUES         Fortecting customers' health and safety         Acquired global quality certifications(ISO 9001, KEPIC, ASME, NBBI, etc.)         33           Customer service, support, and complaint         Operated Cal Center, PURGIO Muse         34-11           Access to essential services         Operated PURGIO Life, Life Premium, Uz Center services         36-37           Customer data protection and privacy         Updated ISO 27001 certification, Strenghten security Inspection System, Prevention of Information Leakage         38-11           Access to essential services         Operated UZ Center, PURGIO Muse         36-37           Educatio		Sustainable resource use	Developed Eco-friendly Construction Materials	80
and restoration of natural habitats         internalized Ethical Management Culture, Operated CP         53           Fair Operating Practices         Anti-Corruption         Signed in and participated in relevant associations and academic societies of business divisions         135           Fair competition         Operated CP         45           Fair competition         Operated CP         45           Promoting social responsibility in the value chain         Applied sustainability factors in supplier evaluation, penalized unqualified suppliers chain         46           Respect for property rights         Operated Daewoo E&C 'Shimungo'         45           Customer susses         Fair marketing         Protecting customers' health and safety         Acquired global quality certifications(ISO 9001, KEPIC, ASME, NBBI, etc.)         33           Sustainable consumption         Developed and applied Green premium, Eco-friendly Construction Certification         80-81           Customer service, support, and complaint and dispute resolution         Operated INEgrated Call Center, PURGIO Muse         34-7           Customer data protection and privacy         Updated ISO 27001 certification, Strenghten security Inspection System, Prevention of Information Leakage         38-81           Community involvement         Conducted company-wide community service relay and social contribution activities in overseas sites         118-123           Education and awareness         Operate		Climate change mitigation and adaptation	Operated GHG Emission and Energy Control	105
Practices         Responsible political involvement         Signed in and participated in relevant associations and academic societies of business divisions         135           Fair competition         Operated CP         45           Promoting social responsibility in the value         Applied sustainability factors in supplier evaluation, penalized unqualified suppliers         46           Respect for property rights         Operated Daewoo E&C 'Shinmungo'         45           Customer         Protecting customers' health and safety         Acquired global quality certifications (ISO 9001, KEPIC, ASME, NBBI, etc.)         33           Sustainable consumption         Developed and applied Green premium, Eco-friendly Construction Certification         80-81           Customer data protection and privacy         Updated ISO 27001 certification, Strenghten security Inspection System, Prevention of Information Leakage         34-41           Access to essential services         Operated Uz Center, PURGIO Muse         34-37           Community involvement         Conducted company-wide community service relay and social contribution activities in overseas sites         118-125           Protection and skills development         Diversified the nationality of foreign employees, engaged in community when proceeding with overseas         118-125           Community involvement         Diversified the nationality of foreign employees, engaged in community when proceeding with overseas         110-113			Protected biodiversity including land & aquatic biotope	108
Responsible political involvement         Signed in and participated in relevant associations and academic societies of business divisions         135           Fair competition         Operated CP         45           Promoting social responsibility in the value chain         Applied sustainability factors in supplier evaluation, penalized unqualified suppliers         46           Respect for property rights         Operated Daewoo E&C 'Shimungo'         45           Customer Issues         Fair marketing         Prohibited unethical display of advertisement and complied with advertising standards         50           Sustainable consumption         Developed and applied Green premium, Eco-friendly Construction Certification         80-81           Customer service, support, and complaint and dispute resolution         Operated PURGIO Life, Life Premium, Uz Center services         36-37           Customer data protection and privacy         Updated ISO 27001 certification, Strenghten security Inspection System, Prevention of Information Leakage         38-41           Access to essential services         Operated Uz Center, PURGIO Muse         34,37           Community Involvement         Community Involvement         Conducted company-wide community service relay and social contribution activities in overseas sites         118-123           Developped and applied free intionality of foreign employees, engaged in community when proceeding with overseas projects         50-67           Community Involvem	Fair Operating	Anti-Corruption	Internalized Ethical Management Culture, Operated CP	53
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Issues         Protecting customers' health and safety         Acquired global quality certifications(ISO 9001, KEPIC, ASME, NBBI, etc.)         33           Sustainable consumption         Developed and applied Green premium, Eco-friendly Construction Certification         80-81           Customer service, support, and complaint and dispute resolution         Operated Integrated Call Center, PURGIO Muse         34           Customer data protection and privacy         Updated ISO 27001 certification, Strenghten security Inspection System, Prevention of Information Leakage         36-37           Access to essential services         Operated Uz Center, PURGIO Muse         34, 37           Community involvement and         Conducted company-wide community service relay and social contribution activities in overseas sites         118-123           Involvement and         Supported a local school in Nigeria and Vietnam         122           Development         Education and culture         Supported a local school in Nigeria and Vietnam         112-113           Involvement and         Diversified the nationality of foreign employees, engaged in community when proceeding with overseas         110-113           Protection durine creation and skills development         Expanded Production Inducement Effect, Value-Added Inducement Effect and Job Creation Effect         97           Health         Welfare facilities maintenance and improvement, overseas health activities including Vision Care         120, 121 <td></td> <td>Respect for property rights</td> <td>Operated Daewoo E&amp;C 'Shinmungo'</td> <td>45</td>		Respect for property rights	Operated Daewoo E&C 'Shinmungo'	45
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Education and awareness         Operated Uz Center, PURGIO Muse         34, 37           Community involvement and Development         Community involvement         Conducted company-wide community service relay and social contribution activities in overseas sites         118-123           Education and culture         Supported a local school in Nigeria and Vietnam         122           Employment creation and skills development         Diversified the nationality of foreign employees, engaged in community when proceeding with overseas         110-113           Technology development and access         Acquired R&D achievement including ICT Convergence         62-63, 7           Wealth and income creation         Expanded Production Inducement Effect, Value-Added Inducement Effect and Job Creation Effect         97           Health         Welfare facilities maintenance and improvement, overseas health activities including Vision Care         120, 122		Customer data protection and privacy	Updated ISO 27001 certification, Strenghten security Inspection System, Prevention of Information Leakage	38-41
Community involvement       Conducted company-wide community service relay and social contribution activities in overseas sites       118-123         Involvement and       Education and culture       Supported a local school in Nigeria and Vietnam       122         Employment creation and skills development       Diversified the nationality of foreign employees, engaged in community when proceeding with overseas       110-113         Technology development and access       Acquired R&D achievement including ICT Convergence       62-63, 7         Wealth and income creation       Expanded Production Inducement Effect, Value-Added Inducement Effect and Job Creation Effect       97         Health       Welfare facilities maintenance and improvement, overseas health activities including Vision Care       120, 122		Access to essential services	Operated PURGIO Life, Life Premium, Uz Center services	36-37
Involvement and Development       Education and culture       Supported a local school in Nigeria and Vietnam       122         Development       Education and culture       Supported a local school in Nigeria and Vietnam       110-113         Development       Enchnology development and access       Acquired R&D achievement including ICT Convergence       62-63, 7         Wealth and income creation       Expanded Production Inducement Effect, Value-Added Inducement Effect and Job Creation Effect       97         Health       Welfare facilities maintenance and improvement, overseas health activities including Vision Care       120, 122		Education and awareness	Operated Uz Center, PURGIO Muse	34, 37
and       Education and culture       Supported a local school in Nigeria and Vietnam       122         Development       Employment creation and skills development       Diversified the nationality of foreign employees, engaged in community when proceeding with overseas projects       110-113         Technology development and access       Acquired R&D achievement including ICT Convergence       62-63, 7         Wealth and income creation       Expanded Production Inducement Effect, Value-Added Inducement Effect and Job Creation Effect       97         Health       Welfare facilities maintenance and improvement, overseas health activities including Vision Care       122	Community	Community involvement	Conducted company-wide community service relay and social contribution activities in overseas sites	118-123
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Health     Welfare facilities maintenance and improvement, overseas health activities including Vision Care     120, 122		Technology development and access	Acquired R&D achievement including ICT Convergence	62-63, 73
		Wealth and income creation	Expanded Production Inducement Effect, Value-Added Inducement Effect and Job Creation Effect	97
Social investment Built national infrastructure such as roads and bridges 92-95		Health	Welfare facilities maintenance and improvement, overseas health activities including Vision Care	120, 122
		Social investment	Built national infrastructure such as roads and bridges	92-95

# **Membership**

Division	Associations and Institutes
Engineering Division	Engineering Financial Cooperative, Korea
Q-HSE Services Division	Construction Safety Organization of CEO: Environment Institute, Korea Society for C KOSHA 18001 Council, Korea Safety Mar
Building Works Division	IBS Korea, KMU Industry-Academic Coop and Refrigerating Engineers of Korea, Kor Sustainable Environment and Building Sys Architecture and Environment, Korean So Engineers, Koran Institute of Electrical and Management Association
Corporate Management & Service Division	SeriCEO, Construction Industry Human R National Commander's Council, Korean H Federation, Korea International Trade Ass Association, Korea Information Systems A
Audit Division	UN Global Compact
Overseas Marketing Division	Korea Construction Association, Korea Fa Association of Korea, Korea Federation of Association, Korea Information and Comr Society, Korea-Algeria Association, Interna
Institute of Construction Technology	International Association for Bridge and S Society of Civil Engineers, Architectural In Korea Institute of Science and Technology Urban Habitat, Korea Carbon Capture and
Plant Business Division	Korea Gas Union, Korea Plant Industries / Coating Experts Society, Korean Radioac International Cooperation, Korea Project N Association(Chemical Engineering Group)
Finance Division	Korea Electric Engineers Association, Eng
Strategic Planning Division	Korea Chamber of Commerce & Industry, Contractors
Housing Division	Korea Remodeling Association, Korea Gre of Information & Telecommunication Facili Environmental Restoration Technology
Civil Project Division	Korean Society of Civil Engineers, Road E Engineering and Management, Korean Na Korea Road & Transportation Association, Association, Korea Water Resources Asso Korean Society for Railway, Korean Tunne Harbors Association, Korean Society of C
Overseas Civil & Building Division	International Hydropower Association, Ko

# **Consolidated Subsidiary List**

Company Name	N
Daewoo Steel Tech Co., Ltd.	St
Daewoo Songdo Hotel Co., Ltd.	Н
PRUGIO Service Co., Ltd.	C
Korea Infrastructure Management Co., Ltd.	0
Foodream Co., Ltd.	Fo
Gangdong Project Financing Vehicle Co., Ltd.	N
Daewoo Power Co., Ltd.	P
DW AMERICA DEVEL'T INC.	U
Daewoo Tripoli Investment& Development Co.	Li
SAIPAN LAULAU DEVELOPMENT, INC.	Si
THT DEVELOPMENT CO., LTD	R
Daewoo E&C Nigeria Ltd	N

a Engineering & Consulting Association, Korea Electric Engineers Association

Ds, Construction Safety Manager Committee, Association of Construction OHS Manager, Maekyung Safety & Construction Quality, Korea Construction Quality Association, Korea Environment Construction Association, anagement & Science, KEPIC WEEK Contribution(Korea Electric Association)

operation Foundation, Korea Green Building Council, Architectural Institute of Korea, Society of Air-conditioning orean Institute of Electrical Engineers, Korea Institute of Building Construction, Korean Institute of Architectural ystems, Korea Military Supplies Cooperative, Korea Developer Association, Korea Institute of Ecological ociety of Living Environment System, Korean Association of Air Conditioning Refrigerating and Sanitary nd Electronic Material Engineers, Korean Institute of Illuminating and Electrical Installation Engineers, Korea Facility

Resource Manager Council, Korea Emergency Plan, National Association of Reservist Battalion Commander, Human Resource Development Association, Korea Construction Engineers Association, Korea Employers sociation, Korea Fire Facility Association, Korea Software Technology Association, Korea Personnel Improvement Audit and Control Association

acility Management Association, Korea Specialty Contractors Association, The Construction Management of Construction Contractors, Construction & Economy Research Institute of Korea, Korea Electrical Contractors munications Contractors Association, Korea Plant Industries Association, Korea-Vietnam Friendship, Korea-Arab national Contractors Association of Korea

Structural Engineering, International Federation for Structure Concrete, American Concrete Institute, American nstitute of Japan, Japan Society of Civil Engineers, Korea Construction Transport New-Technology Association, gy Information, Korea Industrial Technology Association, Korea Concrete Institute, Council on Tall Buildings and nd Storage Association

s Association(PEA Club), Korea Institute of Plant Engineering & Construction, Korea Electric Association, Korea ictive Waste Society, Korea Atomic Industrial Forum, Korean Nuclear Society, Korea Nuclear Association For Management Association, Korea Plant Industries Association(Plant Business Group), Korea Plant Industries ), Professional Infrastructure Developers Association

gineering Financial Cooperative, Korea Engineering and Consulting Association

, Federation of Korean Industries, Korea-Indonesia Partnership Council, Korea Federation of Construction

reen Roof & Infrastructure Association, Korean Institute of Traditional Landscape Architecture, Korea Institute ilities Engineering, Korean Institute of Landscape Architecture, Korea Housing Association, Korea Society of

Engineering Association of Asia & Australasia. Korean Society of Steel Construction, Korea Institute of Construction Jational Committee on Irrigation and Drainage, Korea Road Forum, Korean National Committee on Large Dams, n, Korea Society of Road Engineers, Korean Society of Hazard Mitigation, Korea Water and Wastewater Works sociation, Korean Society of Coastal Disaster Prevention, Korean Geotechnical Society, Korea Railway Association, eling and Underground Space Association, Korea Association of Waste to Energy Technology, Korea Ports & Coastal and Ocean Engineers, Korea Environmental Industry Association

International Hydropower Association, Korea Railway Association(International Cooperation Committee)

### Main Business Total Assets Steel structure manufacture, equipment lease 95 684 162.752 Hotel business 25,843 Construction and maintenance Operation of roads and related facilities 14,658 Food and beverage industry 6.361 1,109 Non-housing building construction Power plant facilities maintenance 6,625 J.S. development business 159 128 884 Libva Tripoli hotel Saipan golf resort 64,949 Real estate investment and development 457,772 Nigeria power plant business 118

(As of December 31, 2015, Unit : KRW million)

# **About This Report**

Since 2012, Daewoo E&C has published a sustainability report to communicate with various stakeholders. This sixth edition of report contains key policies, activities and achievements related to sustainability management at Daewoo E&C and can be downloaded from the website.

### Reporting Standard

This report is based on the Global Reporting Initiative(GRI) G4 guidelines and Construction & Real Estate Sector Supplement. In terms of the 'accordance' principles set forth in the G4 guidelines, this report satisfies the 'In Accordance - Core' option of disclosure.

### Reporting Period

This report covers key sustainability activities and achievements from January to December 2016(Qualitative performance data includes those up to March 2017). In terms of quantitative performance, data for the last three years is presented for time series analysis.

### • Reporting Scope

This report covers all sites and buildings in which our operations take place - both domestic and overseas. quantitative environmental data, however, is limited to domestic sites and buildings in use as of 2016(289 sites and 6 buildings in total). Financial performance is reported based on separate standards of K-IFRS.

### Questions about the report

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