

BUILDING YOUR TOMORROW TODAY

Doosan Corporation CSR Report 2017



RESPECT FOR PEOPLE

RELIABLE OPERATING

RESPONSIBILITY IN ENGAGEMENT

CSR VALUE CREATION



BUILDING YOUR TOMORROW TODAY

Doosan Corporation CSR Report 2017

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About This Report

Overview of the Report

Doosan Corporation has published its annual Corporate Social Responsibility (CSR) Report, which reflects the opinions of its stakeholders, Since 2013 to share its achievements during the preceding years. The present 5th CSR report aims to disclose Doosan's key CSR achievements in 2017, to its stakeholders, in a transparent manner.

Composition of the Report

Doosan emphasizes leading activities and cases under the Core Issues by selecting key issues based on the degree of interest of the stakeholders and strategic significance. It introduces key policies, management methods, and activities concerning CSR under the Management Report. Data related to these are presented in the Appendix.

Reporting Period and Scope

This report presents Doosan's CSR achievements from January 1st to December 31st of 2017. Certain information in this report relates to activities in 2018 that are deemed to have an important impact on decision-making. It also discloses both the company's plans for 2018 and its mid- and long-term plans, including forward-looking statements based on them. It presents the achievements and activities of domestic worksites with greater business weight, as well as specific details concerning overseas worksites depending on their importance.

Reporting Principles

This report has been prepared to satisfy the Core Options under the GRI (Global Reporting Initiative) Standards. The current guidelines for reporting can be found on pages 68-71.

Independent Assurance

DNV GL has assured the contents and publication process of this report. The assurance statement appears on pages 72 and 73.

Interactive PDF

This report is published in an interactive PDF file including functions for "movement" to desired pages within the report and "Go" to related websites directly.

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Cover Story

Doosan Corporation pursues sustainable growth and continues development by taking on challenges continuously based on innovative reforms.

CEO Message



Doosan is
Dedicated to
Creating New Values
through Innovative
Efforts.

As the first truly modern company in Korea, Doosan has consistently transformed itself in its faithful pursuit of growth during its 122-year-long corporate history. The driving forces, behind the success of today's Doosan, are its spirit of overcoming the fear of failure and embracing new challenges while pursuing change and innovation. These efforts have enabled Doosan to become a top-tier global company specializing in the Infrastructure Support Business (ISB).

Building on the proud history of Doosan, we are creating a better tomorrow. In particular, we are implementing the next wave of innovations through "digital transformation," by which we aim to revamp our practices in exploring new business opportunities and by revolutionizing our modus operandi, in preparation of the Fourth Industrial Revolution.

Doosan is committed to ensuring that its Corporate Social Responsibility (CSR) practices are aligned with the voices of its stakeholders including shareholders, customers, employees, suppliers, and local communities. With the firm belief that the fulfillment of Doosan's CSR lays the foundation for building a better future together with the stakeholders while embodying the company's promise to society, all of Doosan's employees are fully committed to delivering this promise in their respective posts.

We cordially ask for your sincere interest and support as we maintain our commitment to making all the changes and innovations needed to achieve sustainable growth with society.

Thank you.

Chairman of Doosan Group, CEO of Doosan Corporation
Jeongwon Park

Letter to Stakeholders

Dear Stakeholders,

It is my utmost pleasure to share with you the key CSR programs and achievements of Doosan Corporation in the last year through our 5th CSR Report. While pursuing our objective of becoming a “Global Leading High Tech & Distribution Company,” Doosan Corporation is pushing ahead with its pursuit of sustainable growth through business advancement while engaging in management practices that uphold our sincere commitment to fulfilling our social responsibilities.

Achievement of Sustainable Growth through Business Advancement

Doosan Corporation was able to extend its success by continuously pursuing innovation and taking up challenges amid diverse hardships last year. By preemptively responding to changes in the dynamics of the high-end CCL and OLED markets, the Electro-Materials BG has set a new performance record, achieving nearly KRW 1 trillion in sales. The Industrial Vehicle BG recorded a historic turnover by increasing its share in the domestic market while also entering new markets including the United States. Meanwhile, the Mottrol BG moved a step ahead of its competitors to deal with the rapidly growing demand in China by enhancing its overall operational efficiency. In so doing, it was able to make an exceptional leap forward. As for the Retail BG, it was able to make a successful turnaround with surplus, while increasing its market share by attracting large travel agencies. By constructing a new factory at Iksan, the Fuel Cell BG secured the infrastructure required to ensure a stable supply and increase its capacity to meet the ever growing volume of orders.

Despite this growth, Doosan Corporation has yet to address the harsh changes and challenges expected in the coming years. It is barely possible to predict even short-term changes in the global economy due to the swift rise in uncertainty around the world. Notably, big data, artificial intelligence, and other newly emerging technologies such as blockchain are set to bring about unforeseeable changes in the next five years.

Despite such rapidly changing conditions, Doosan Corporation will not stop striving to achieve sustainable growth in its bid to achieve its mid-to-long term strategic agenda, which includes strengthening both its business and global competitiveness, and diversifying its business platforms. The company will continue with its innovative attempts to respond preemptively to such technological changes through digital transformation, which aims to improve its business practices and discover new business opportunities. Doosan has developed a mid-to-long term implementation roadmap, which

includes plans for the deployment of enhanced big data analysis systems and the utilization of diverse AI technologies in order to attain the objective of establishing a corporate-wide IoT system and strengthening the pursuit of digital transformation. By taking these measures and exploring new business lines in order to actively adapt to changes in the future, we will lay the foundation for long-term growth.

Practice of Heartfelt CSR-oriented Management

Doosan Corporation is sincerely dedicated to its CSR-oriented management practices, as displayed by the active participation of the management in the CSR Committee as well as corporate-wide engagement in CSR programs. The company has deployed the “Global CSR Roll-out System” to ensure that its CSR programs are carried out not only in Korea but also overseas. Starting with key worksites in China, Doosan has been closely monitoring the status of its CSR programs and conducting CSR-orientation activities.

Doosan's CSR program standards are higher than those required by society. Doosan not only considers the environment throughout the entire production process - ranging from product planning to waste treatment - but is also fully committed to developing eco-friendly products that create new values. The company is also committed to making safe worksites and minimizing the risk of potential hazards for our employees, suppliers and local communities. A human rights risk management system has been put in place to systematically assess and mitigate any risk of an adverse impact on human rights. Doosan is also actively involved in helping its suppliers to achieve sustainable growth while seeking measures to bring about shared growth with the local community by promoting businesses in the Dongdaemun area. In addition, it consistently runs programs designed to help underprivileged members of society to gain financial independence.

By attentively heeding to the voices of our stakeholders, Doosan Corporation will persist with its efforts to execute well-organized CSR activities from the mid-to-long term perspective. In connection with these efforts, we will achieve sustainable growth and development while fulfilling our social responsibility as a global corporate citizen. In this regard I cordially ask you, our esteemed and valued stakeholders, for your everlasting support.

Thank you.

Chairman of the Doosan Corp CSR Committee, CEO of Doosan Corporation
Hyunsoo Dong

Doosan will Achieve
Sustainable Growth and
Development while
Fulfilling its Social
Responsibility as a
Global Corporate Citizen.



Introduction of Doosan Group

Doosan Group

Korea's Oldest Enterprise

As Korea's first truly modern company, Doosan has experienced constant changes throughout its 122-year-long history. The company's long history began in 1896 when Seungjik Park opened the country's first modern store in Baeogae (currently Jongno 4-ga in Seoul). Since then, Doosan has pursued constant change and growth for more than one century.

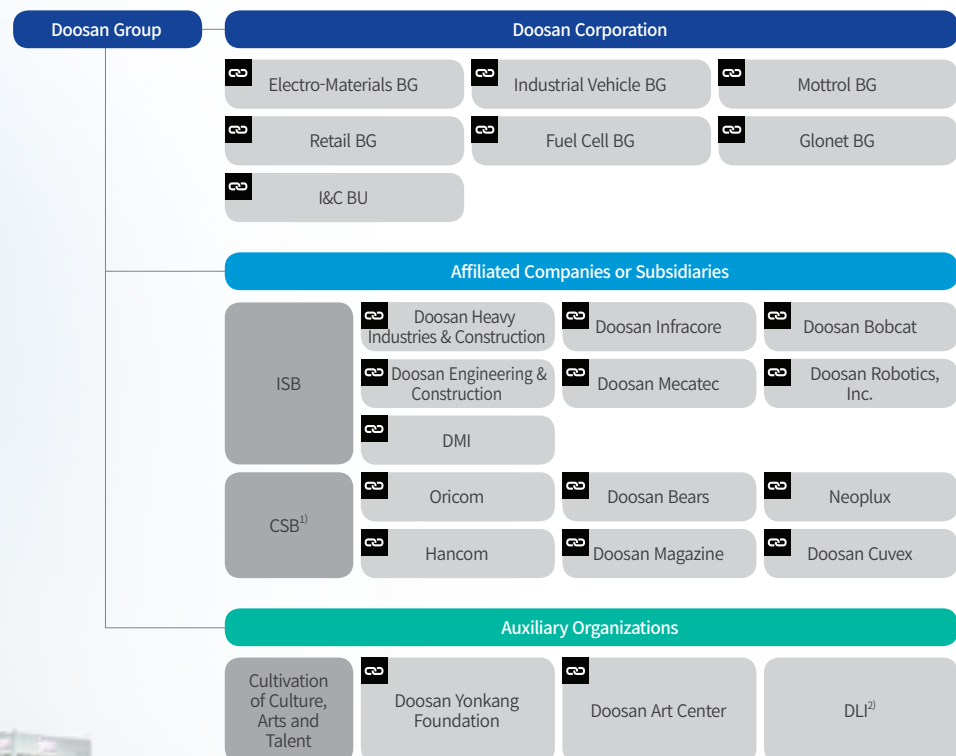
ISB Leader Recognized Worldwide

Doosan leads the power-generating equipment market with its widely recognized world-leading competitiveness. It has definitely become a leader in the global market for desalination solutions, having made remarkable progress and achievements with its core technologies. It also maintains the world's best level in skid steer loaders and attachments among construction heavy equipment. Today, Doosan is the world leader in the ISB (Infrastructure Support Business) field, boasting seventeen world-class products, including power plant and desalination plant equipment, and construction equipment.

New Chapter in Global Enterprise History

Doosan operates 26 domestic affiliates and 116 overseas subsidiaries. Far from resting on its laurels, Doosan continuously raises the bar for constant self-renewal and innovation. By delivering differentiated products and services that build customers' trust and make them feel truly valued, Doosan's vision is to grow along with its customers into a leading global company.

Organization of our key affiliates



1) Consumer & Service Business

2) Doosan Leadership Institute

Doosan's Management Philosophy

WINNING TEAM DOOSAN

The Doosan Way represents the corporate philosophy, culture, and set of management principles that Doosan has developed with the aim of transforming itself into a "Proud Global Doosan." The Doosan Way consists of the following three elements: the Doosan Credo; the People of Doosan ("The Six Traits of Doosan People"); and the Doosan Way Change Model, which serves as the foundation on which the People of Doosan realize the Doosan Way.



Doosan Credo

- A philosophy to be observed by Doosan People
- A charter serving as the criteria and frame of reference for all business conduct and decision-making
- Composed of Aspiration and Core Values

Doosan Credo Structure

Aspiration	Proud Global Doosan Winning Team! Doosan!
Core Values	To establish a Proud Global Doosan, Doosan People practice the nine Core Values of the Doosan Credo on a daily basis wherever they conduct business in the world. The Core Values include the methods by which Doosan People should operate the company's business, the way they should treat and respect each other, and the ways in which they should work with all of Doosan's partners.

Strong Competitive Edge & Advanced Processes and Systems

For continuously strong performance, Doosan strives to secure Strong Competitive Edge, at the same time as optimizing its way of working through Advanced Processes and Systems. This creates a virtuous cycle in which Doosan's people, the individuals who actually determine Doosan's performance as a company, are trained to pursue these same objectives. This positive feedback mechanism results in a winning team.

Doosan People

Regardless of whether they have exceptional capabilities or not, the term "Doosan People" refers to all Doosan employees who incessantly strive to enhance their capabilities while practicing Doosan's Core Values with the mindset of actively contributing to the organization. In addition, Doosan People respect and practice certain fundamental values, placing great importance on the concept of talent. The intrinsic Traits of Doosan People may be summarized as follows:



Limitless Aspiration



Cultivating Talent



Inhwa



Open Communication



Tenacity & Drive



Prioritization & Focus

Introduction of Doosan Corporation

Doosan Corporation

Doosan Corporation, the parent company of Doosan Group, oversees the operations of 25 affiliates involved in diverse business areas, at the same as directly managing its own seven BG/BU; namely, Electro-Materials, Industrial Vehicle, Mottrol, Retail, Fuel Cell and Glonet BGs and Information and Telecommunications BU.

Overview of Doosan Corporation

Name of Company	Doosan Corporation
Date of Establishment	December 18th, 1933
CEO	Park Jeongwon, Dong Hyunsoo, Kim Minchul
Business Areas	Electronic components/materials, forklifts, hydraulic parts, retail, fuel cell, biomaterials
Operating Countries	14 countries including Korea, China, USA, and UK
Headquarters	275 Jangchungdan-ro, Jung-gu, Seoul, Korea

Main business lines of Doosan Corporation

2017 Doosan Corporation Highlight



Total assets
KRW **3,950** billion



Revenues*
KRW **2,768** billion

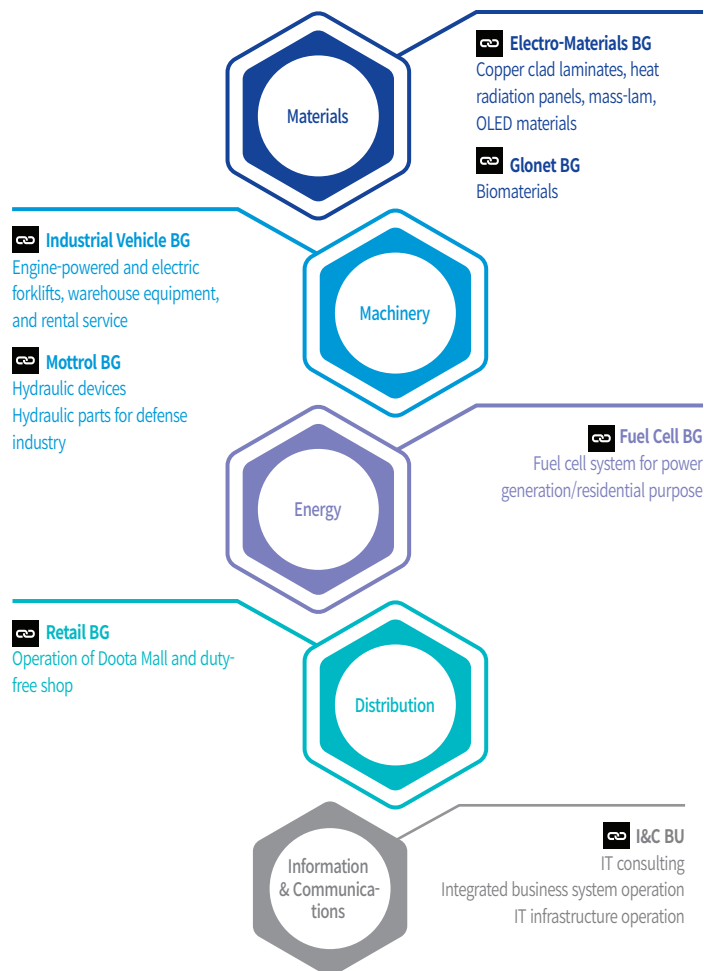


Operating income*
KRW **277.6** billion



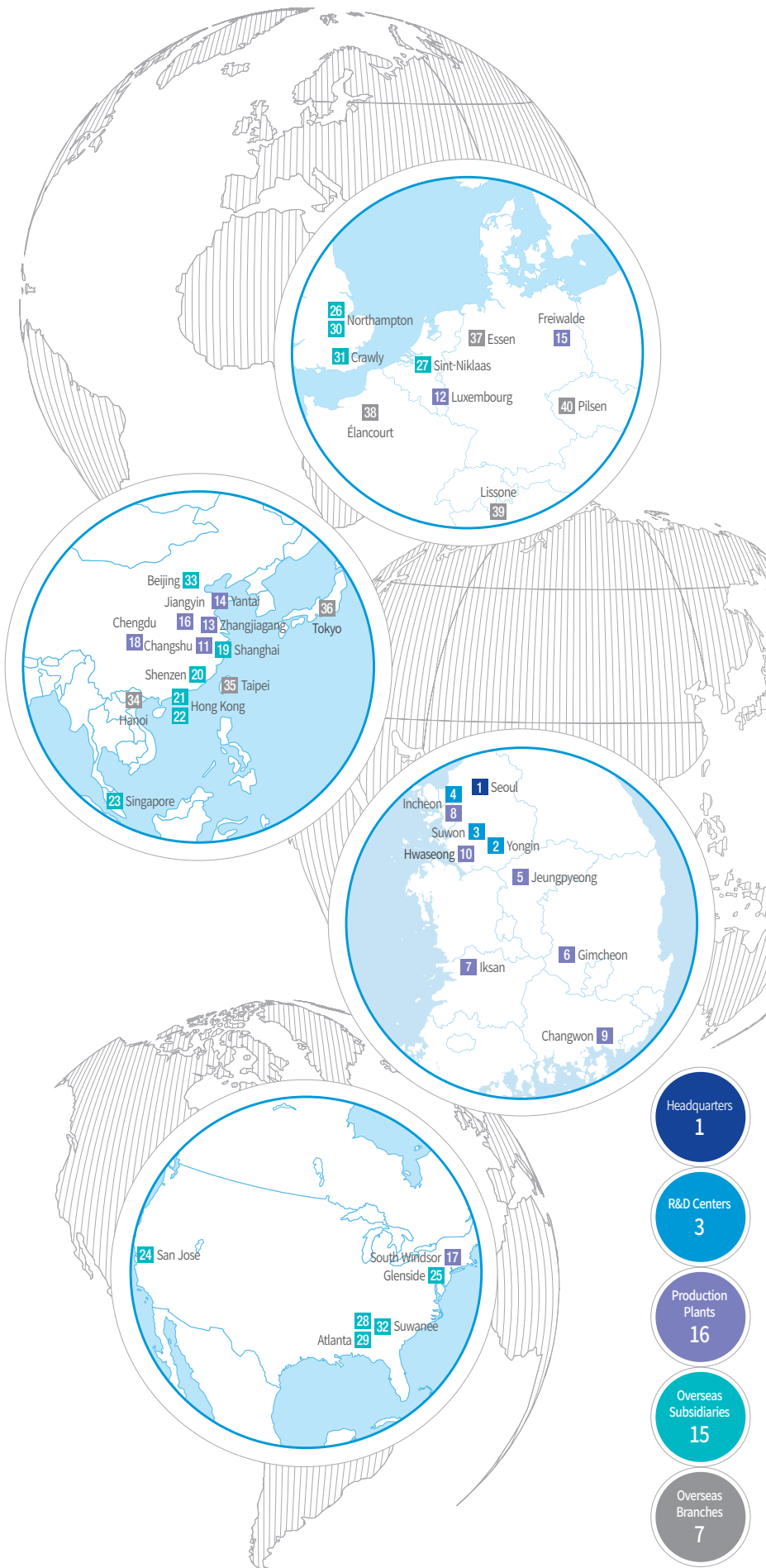
Number of employees
3,600 persons

* Including all overseas subsidiaries of Doosan Corporation as of the end of 2017



Key facilities of Doosan Corporation

Doosan Corporation operates production plants, overseas subsidiaries, and overseas branches in 14 countries worldwide.



Headquarters

1	Doosan Corporation	Seoul, Korea
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R&D Centers

2	Electro-Materials R&D Center	Electro-Materials	Yongin, S. Korea
3	Glonet R&D Center	Glonet	Suwon, S. Korea
4	Industrial Vehicle R&D Center	Industrial Vehicle	Incheon, S. Korea

Production Plants (Domestic)

5	Jeungpyeong Plant	Electro-Materials	Jeungpyeong, S. Korea
6	Gimcheon Plant	Electro-Materials	Gimcheon, S. Korea
7	Iksan Plant	Electro-Materials/ Glonet/Fuel Cell	Iksan, S. Korea
8	Incheon Plant	Industrial Vehicle	Incheon, S. Korea
9	Changwon Plant	Mottrol	Changwon, S. Korea
10	Hwaseong Plant	Fuel Cell	Hwasung, S. Korea

Production Plants (Overseas)

11	DSCS	Electro-Materials	Changshu, China
12	CFL	Electro-Materials	Wolz, Luxembourg
13	CFAP ZH	Electro-Materials	Zhangjiagang, China
14	DIVC	Industrial Vehicle	Yantai, China
15	DLE	Industrial Vehicle	Freiwalde, Germany
16	DMJC	Mottrol	Jiangyin, China
17	DFCA	Fuel Cell	South Windsor, Connecticut, USA
18	Glonet JV	Glonet	Chengdu, China

Overseas Subsidiaries

19	DSC	Electro-Materials	Shanghai, China
20	Shen Zhen	Electro-Materials	Shenzhen, China
21	DSH	Electro-Materials	Hong Kong, China
22	CFAP HK	Electro-Materials	Hong Kong, China
23	DSES	Electro-Materials	Singapore
24	DSEA	Electro-Materials	San Jose, USA
25	CFT	Electro-Materials	Glenside, Pennsylvania, USA
26	DIVUK	Industrial Vehicle	Northampton, UK
27	DIVEU	Industrial Vehicle	Sint-Niklaas, Belgium
28	DIVAC	Industrial Vehicle	Atlanta, Georgia, USA
29	DMHS	Industrial Vehicle	Atlanta, Georgia, USA
30	Rushlift	Industrial Vehicle	Northampton, UK
31	DSIE	I&C	Crawly, UK
32	DSIA	I&C	Suwanee, USA
33	DISC	I&C	Beijing, China

Overseas Branches

34	Vietnam Branch	Electro-Materials	Hanoi, Vietnam
35	Taiwan Branch	Electro-Materials	Taipei, Taiwan
36	Japan Branch	Electro-Materials	Tokyo, Japan
37	Germany Branch	Industrial Vehicle	Essen, Germany
38	France Branch	Industrial Vehicle	Élancourt, France
39	Italy Branch	Industrial Vehicle	Lissone, Italy
40	DSIE-Czech Branch	I&C	Pilzen, Czech

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Business Strategy

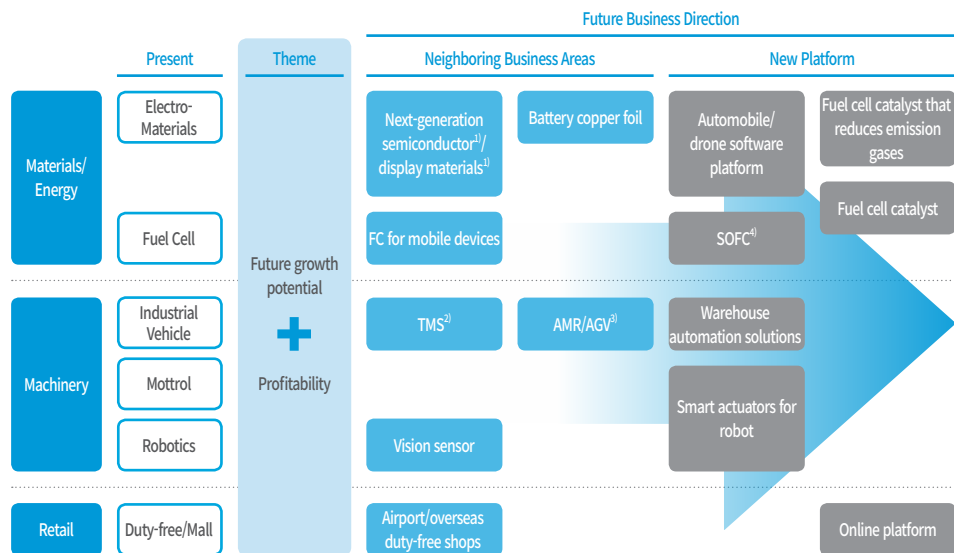
The primary business domains of Doosan Corporation are electronic materials, forklifts, hydraulic equipment, and bio products, although it is striving to increase growth opportunities in all business lines including energy and distribution services. Doosan Corporation will continue growing by expanding its business platforms for new business lines by enhancing its capabilities for market-leading products and technologies, in bid to better meet market demands while increasing the weight of its overseas sales.

Mid- to long-term strategic direction of Doosan Corporation

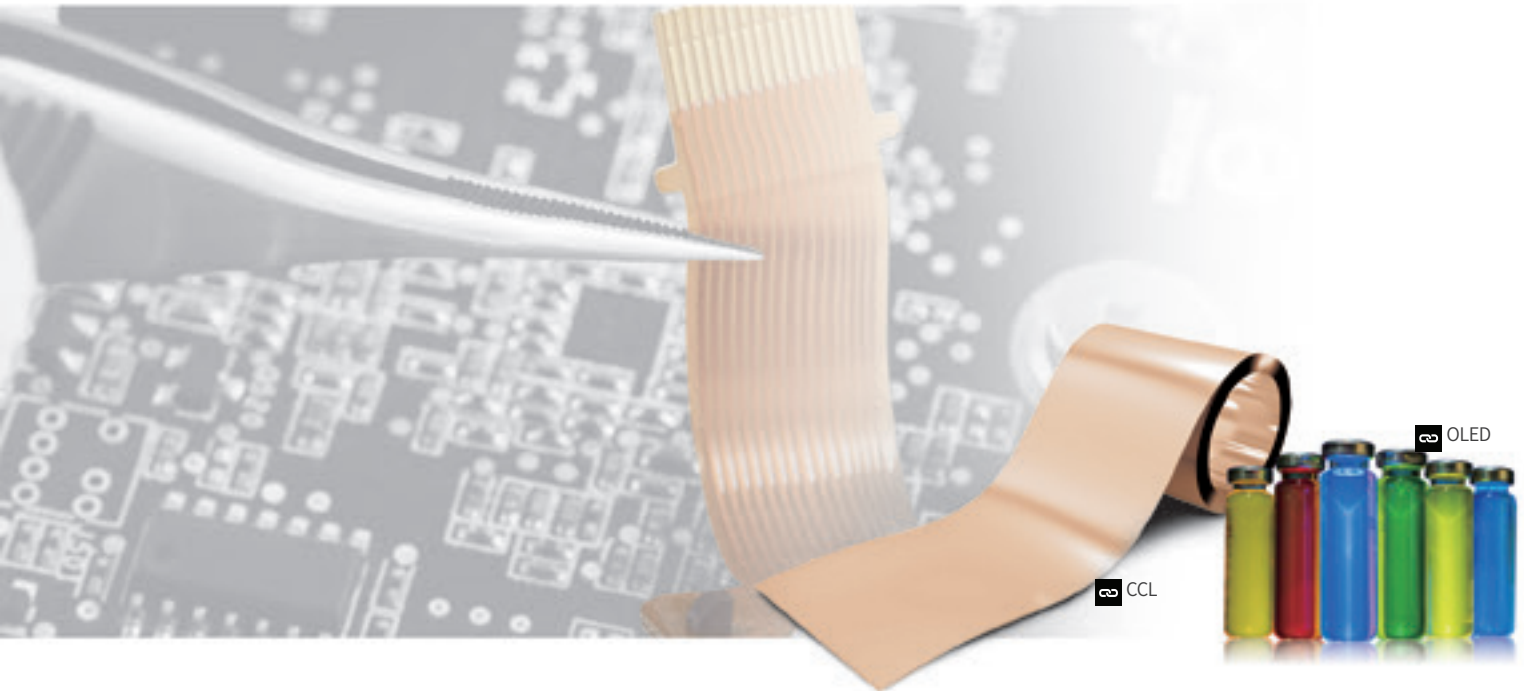


To that end, Doosan Corporation plans to explore new business platforms steadily by preemptively responding to mega trends using external experts and global networks including corporate venture capital investments. At the same time, it will accelerate the growth of existing neighboring business areas by securing new technologies.

Plans to expand the business platforms of Doosan Corporation



1) CPI (Colorless Poly-Imide), TADF (Thermally Activated Delayed Fluorescence), FO-WLP (Fan Out-Wafer Level PKG) etc.
 2) Tele-management System
 3) Autonomous Mobile Robot, Automated Guided Vehicle
 4) Solid Oxide Fuel Cell



Electro-Materials Business Group

Main Business

- CCL¹⁾, OLED²⁾ components, other substrate materials, heat radiation panels, Masslam etc.

Applications

- Smartphone device, network, equipment, computer, home appliances, semiconductor substrate, OLED, industrial machinery, automotive electronic components, etc.

The Electro-Materials BG recorded nearly KRW 1 trillion in sales by preemptively adapting to changes in the high-end CCL and OLED markets. New application areas, including IoT³⁾, servers, and electric cars, are growing rapidly, whereas mobile products, a key application area, are maintaining an annual average growth rate of 3%. Therefore, high value-added products like network and semiconductor CCLs are expected to grow at a faster rate than the average growth rate of all CCL products. Furthermore, the OLED market is expected to grow by more than 25% per year on average until 2022 as mobile and TV display panels make the switch from the existing LED to OLED displays more rapidly.

Key Results



Sales in 2017
KRW **932** billion



Market share of CCL
World's **6**th



High value-added products sales portion
3 %p increase



1) Copper Clad Laminate: Key materials for PCBs (printed circuit boards), essential parts of electronic products

2) Organic Light Emitting Diode: Core materials of display products

3) Internet of Things

4) Sales and Operation Planning



Electric forklifts

Engine-powered forklifts

Industrial Vehicle Business Group

Main Business

- Diesel/LPG engine-powered forklifts
- Electric seated/stand-up forklifts
- Warehouse equipment
- Rental of forklift

The forklift market is showing a growth trend based on the active recovery of the global business even as the price competition intensifies due to excessive supply. The demand for battery-operated forklift trucks increases as the regulation of diesel-engine emission gases has been strengthened owing to the growing concern over the atmospheric environment. The demand for small-sized warehouse equipment has also grown as it is suitable for e-commerce business. Such market trends are expected to persist along with the increasing use of renewable energy and innovation of logistics services based on ICT.

In 2017, the Industrial Vehicle BG recorded the highest sales in its history, thanks to an increase in dealer support, stronger sales channels, as well as a continuous improvement of product competitiveness and successful efforts to develop new markets. By setting up a dedicated production system for industrial vehicles, it has raised its operational capacity to the next level. In 2018, the 50th anniversary year of the company, it plans to further accelerate its production innovation efforts to measurably improve the quality of its products, by developing lithium battery-powered electric forklifts among others, at the same time as maximizing growth and profit by expanding into downstream markets for services and rentals.

Key Results



Sales in 2017
KRW **786** billion



2017 Forklift truck sales
23,000 units





Hydraulic Pump

Hydraulic Valve (MCV)

Travel Device

Swing Device

Mottrol Business Group

Main Business

- Hydraulic components
- Defense systems

Applications

- Industrial heavy equipment including excavators, crawler crane, crawler drill, crusher and screen
- Defense equipment including tank, armored vehicles, launch pad, and helicopter

In the hydraulic parts market, despite the construction sector's recovery from the slump in recent years, price and sales competition between incumbents and new entrants is expected to be continuously fierce. In the defense sector, the government has been steadily increasing the budget for guided missiles, aircraft and naval weapons, while cutting spending on ground weapons, which had previously been the priority area.

In an effort to meet the sharp growth in demand in the Chinese market, the Mottrol BG has improved its overall productivity. This rapid response to the changing demand, outstripping competitors, led to remarkable sales results. The Mottrol BG has also successfully boosted both the cost and quality competitiveness of its products, thus maintaining its position of dominance in the market, and positioning itself to make inroads into new markets. With its sights set on developed country markets like North America and Europe and emerging markets such as India and Turkey, the Mottrol BG is continuously developing new products, while also actively seeking to diversify its product lineup. In the defense sector, the BG is increasingly foraying into such new fields as guided missiles, aircraft and naval weapon systems by capitalizing on its existing core products and technologies. Efforts to expand into overseas defense markets are also underway.

Key Results

Sales in 2017
KRW **415.3** billion

Award given by key Chinese customer
Best supplier award

Market share in China
2017 **17.8** %
(Note: 15.9% in 2016)

Changes in Market	Achievements in 2017	Plans in 2018
Recovery in the construction sector	Sales growth in the Chinese market	<ul style="list-style-type: none"> • Inroads into India and developed countries markets • Diversification into non-excavator lines of business
Intensifying competition in the hydraulic parts market	Improvement of global competitiveness	Securing new defense orders and strengthening the core technology base
Priority shift in the government's defense budget	Diversification of business lines (marine engines, pumps, valves, etc.)	<ul style="list-style-type: none"> • Expansion into new business lines • Continuous acquisition of pilot clients for newly-developed items



Retail Business Group

Main Business

- Operation of duty-free shop that offer nearly 700 popular brands of cosmetics, fragrance, watches, handbags, purses, luggage and clothing.
- The first duty-free in Korea to be open late at night, Doota Duty Free sets itself apart from the competition thanks to its fine selection of youthful and sophisticated K-style products, pleasant shopping environment and great friendly service.

In 2017, the number of Chinese tourists visiting Korea fell due to increasing geopolitical uncertainties. However, this figure is likely to improve starting in the 2nd quarter of 2018, driven by a recovery in group tourism, with the uptrend expected to carry through to 2022.

Despite the unfavorable external environment in 2017, the Retail BG generated stable sales by actively wooing customers through travel agencies and tour operators, and even managed to swing to profit during the 4th quarter by readjusting customer referral fees and store discount rates, which helped improve profitability. The Retail BG added a luxury boutique carrying high-end brands, as well as expanding the overall gamut of brands by 100, which includes watch brands. In 2018, to further boost its competitiveness, the Retail BG plans to increase sales by strengthening its online sales operations and continuously adding new brands for its luxury boutique and global cosmetics.

Key Results



Sales in 2017
KRW **389.8** billion



Market of city-center
duty-free shops
4.7 %

Changes in Market

Number of Chinese tourists visiting Korea shifts to uptrend

Continuous growth of the online and mobile markets

New duty-free stores crop up to intensify competition among downtown duty-free shop

Achievements in 2017

The addition of a new luxury boutique and imported watch brands helps attract more Chinese customers

Preparatory steps taken for the expansion of Doota Duty Free's online outlet

Stable sales thanks to customer referral arrangements with large travel agencies and tour operators

Plans in 2018

Attracting more customers through improved merchandising competitiveness (eg. adding new luxury boutiques and cosmetic brands)

Creation of a continuous source of growth by strengthening online business operations

Improvement of operational efficiency and profitability to ensure continuous sales growth



Fuel Cell Business Group

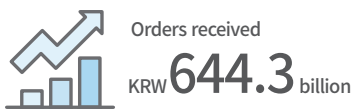
Main Business

- 440kW fuel cell for power generation purpose (PAFC¹⁾)
- 1kW, 600W fuel cell for residential use/5kW, 10kW fuel cell for building (PEMFC²⁾)

The global stationary fuel cell market is forecast to grow to USD 1.62 billion by 2025. In Korea, the demand for fuel cells for both residential homes and commercial buildings is edging up, lifted by large-scale reconstruction and redevelopment projects. The power generation fuel cell market is also expected to steadily expand, helped by the favorable policy environment in the U.S., including measures undertaken to make the national power grid safer, RPS³⁾ by state governments and various new and renewable energy incentives.

In Korea, there has been, in recent years, a policy shift in favor of new and renewable energy-based power generation, with restrictions placed on the construction of new nuclear power plants and a plan afoot to reduce and phase out coal-fired power generation. This is likely to accelerate the growth of the power generation fuel cell market. The completion of its Iksan plant has significantly expanded the Fuel Cell BG's supply capacity, enabling it to successfully handle any future increase in demand.

Key Results



* As the basis of January 2017 to April 2018



Changes in Market	Achievements in 2017	Plans in 2018
<p>Growing importance of fuel cells in the renewable energy market</p> <p>The required ratio of renewable energy supply under the RPS raised in Korea amid the strengthening of environment-friendly energy regulations</p> <p>• U.S. federal tax incentives for renewable energy revived and extended, more stringent RPS at the state level</p> <p>• Growth of hydrogen economy-related industries overseas</p>	<p>KRW 209.3 billion in sales</p> <p>• Domestic production capacity expanded from the completion of the Iksan plant</p> <p>• Development of diverse fuel products (byproduct hydrogen, LPG)</p> <p>• PPA⁴⁾ business model launched in the U.S., posting early results</p> <p>• Supply completed for the U.K. Aberdeen project</p>	<p>KRW 590 billion and 1.1 trillion in projected sales and orders received</p> <p>• Creation of a stable domestic supply network through localization of parts</p> <p>• Start of the construction of the world's largest hydrogen power plant (50MW)</p> <p>• Expanding the U.S. PPA business model and winning large orders from the government and power companies</p> <p>• Discovery of new overseas projects for export sales</p>

1) Phosphoric Acid Fuel Cell, 2) Proton Exchange Membrane Fuel Cell
 3) Renewable Portfolio Standard System: A system requiring the mandatory supply of new or renewable energy by a given ratio against the total power generated by power generating companies
 4) Power purchase agreement (PPA): A long-term contract between a power generation business and an electricity sales business without going through the power market



Glonet Business Group

Main Business

- Pharmaceutical ingredients: PL95E (emulsifier for pharmaceutical use), oleic acid, PC series
- Nutraceutical ingredients: PS series, egg/milk phosphatide
- Cosmeceutical ingredients: Ceramide, Sphingosine, etc.

Applications

- Fat emulsions and emulsifier for pharmaceutical use
- Powder milk, dairy products, and health functional food
- Cosmetics

The Glonet BG specializes in the development and production of phosphatides among the bio industries. A new factory has been constructed to produce new materials - in addition to the existing emulsifier - for medicine and medical suppliers. The Glonet BG is currently preparing for a great leap forward in China and advanced markets by supplying high-quality, global-standard products based on its state-of-the-art facilities. Meanwhile, its food and cosmetics materials departments plan to maintain steady growth by diversifying the product line and exploring potential new customers.

Key Results



Sales in 2017
KRW **35.3** billion



Ecocert certified products
6 accumulated products



Kosher certified products
6 products

Changes in Market

Explosive growth of the AI-aided biotechnology field

Medical and pharmaceutical materials

- Growing demand for new materials
- Growing demand of greater product stability

Food ingredients

- Infant formula market expected to grow

Cosmetic ingredients

- In increasing demand in China and developed markets

Achievements in 2017

- Discovery of new functional materials
- New technologies acquired and new business models developed/discovered

A new production plant added and new markets developed

The improvement of existing products and the development of new products and processes provide the means to viably compete in developed markets

- Intensive marketing campaign targeting Chinese and developed market clients
- Certifications for new clients

Plans in 2018

- Marketing new products overseas
- Creation of engines for future growth

Strengthening global competitiveness by obtaining global certifications and penetrating developed country markets

Diversify product lineup and acquire developed country clients to expand market share

Diversifying product groups by continuously developing and acquiring new technologies, and creating new applied product groups in line with market changes



I&C Business Unit

Main Business

- IT consulting and system integration
- Business system operation
- IT infrastructure operation

I&C BU is in charge of providing a comprehensive range of IT services to all Doosan Group companies, including IT consulting, system integration, business systems and IT infrastructure services. I&C BU also plans to increase its infrastructure and train specialist personnel in order to support the Digital Transformation of Doosan Group companies.

It strives to provide IT services that actually contribute to the reinforcement of customer values. In 2018, I&C BU plans to help ensure the business success of Doosan Group companies by providing competitive IT services amid the rapidly changing technological and business conditions. To that end, it intends to continue providing services aimed at ensuring customer satisfaction while augmenting its technological competencies and field services.

Key Results



Overseas assignment in
14 regions

Ratio of overseas sales

27 %

Materiality Test

Doosan Corporation determines and defines the contents of this report by conducting a materiality test with the participation of the stakeholders in order to identify essential CSR information that could affect the company's decision-making process, which is based on the materiality test framework of the Accountability and GRI Standards. As such, we explored all of the potential issues that could be reported by analyzing internal and external conditions in the context of Doosan's pursuit of sustainability. We selected 39 issues after analyzing business 'relevance' and 'impact' on stakeholders. The materiality test for this report was conducted in January 2018.

Materiality test procedure

Step 1 Identification of Issues

Universe of issues

- Customers, products, and services
- Risk management
- Suppliers
- Environmental management
- Ethical management
- Local communities
- Employees
- Research and development
- Management in general

Step 2 Prioritization

Global benchmarking

To understand the social responsibility issues of identical global industries, we analyzed the CSR reports of thirteen competing companies in Doosan's key business. In doing so, the following issues common to different industries have been confirmed as the top-ranking report issues: "response to climate change," "realization of a safe work environment", and "control of environmental pollutants discharged by business establishments."

Analysis of media research

The core issues were listed according to domain-based relevance by screening articles closely related to social responsibilities among press reports related to Doosan published at home and abroad. The results of the media analysis showed that "efforts to penetrate into new markets" was the most common response, thus reflecting the efforts of each BG to expand into new business areas, followed by "social contribution utilizing the characteristics of each business line" and "enhanced prevention of unfair transactions".

Survey on stakeholders

A total of 289 Doosan employees participated in an online survey conducted in December 2017 in order to assess the level of interest in CSR issues among external stakeholders, including suppliers, customers, investors, and CSR experts. The stakeholder survey found the "realization of a desirable organizational workplace culture" and "control of harmful chemical substances" to be the issues that aroused the most interest.

Analysis of international standards

Doosan assessed the materiality of issues by considering the sustainability-related standards and the DJSI assessment elements, including the GRI Standards, ISO 26000, and UN SDGs. It also added new issues in consideration of prevailing global trends. The analysis revealed that "human-rights oriented management" received a high level of attention.

Internal interview

The level of interest in specific issues was checked by conducting an interview with the responsible departments, including mid- and long-term strategy directions and the New Year's message issued by the management team.

Step 3 Reporting of Issues

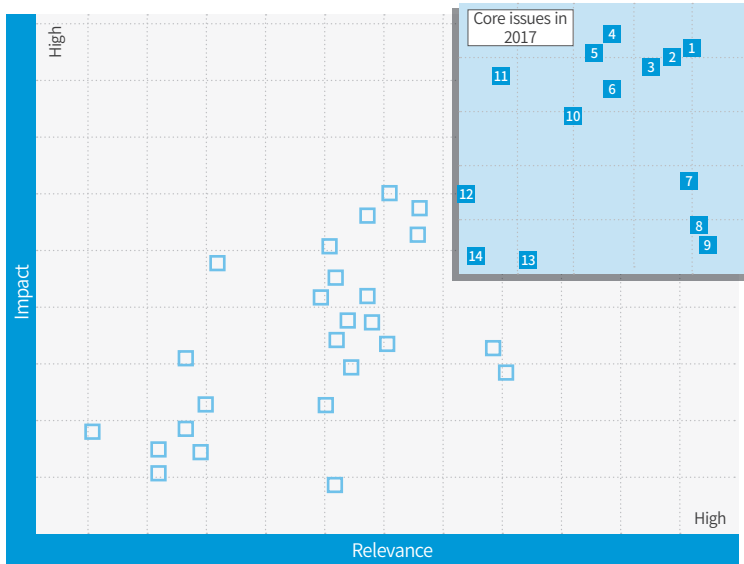
Deciding core issues of Doosan Corporation

A total of 14 core issues were selected after considering their business relevance and impact on the stakeholders. Doosan organizes its reports around these core issues and discloses the company's key relevant activities and achievements.

Materiality test results

A total of 14 core issues were selected considering their business relevance and impact on the stakeholders. Doosan organizes its reports around the core issues and discloses key relevant activities and achievements.

2017 Materiality map



Classification	Issues
Environmental management	1 Control of environment pollutants discharged from business establishments
Employees	2 Realization of a safe work environment
Environmental management	3 Management of hazardous chemical substances
Employees	4 Realization of a desirable organizational culture for workplaces
Suppliers	5 Fair and transparent selection of suppliers
Employees	6 Inducement of core personnel and enhancement of competencies of employees
Suppliers	7 Enhanced efforts for preventing unjust transactions
Local communities	8 CCI activities considering community needs
Local communities	9 CCI activities aligned with business
Customers	10 Quality innovation through thorough quality management
Customers	11 Increased investment in R&D
Customers	12 Development of environment-friendly products and services
Suppliers	13 Support for the stabilized business of suppliers
Environmental management	14 Activities for reducing greenhouse gas emissions and energy consumption

Core Issues	Related Issues	Business Relevance	Key Stakeholders	Page
Innovation for Sustainable Growth	10 11 12	Technology leadership is closely related to current performance in the market as well as the long-term enhancement of business values. It is essential to continue R&D investments while strengthening technology-oriented management as a technology-centered business that seeks to move beyond being a mere manufacturing business.	Customers, Employees	22
Relentless Efforts for Green & Safe Worksites	1 2 3 14	Environmental and safety incidents not only result in direct costs to the company and losses of human resources, but also in damage to stakeholders. Therefore, while producing both direct and indirect impacts on the operation of a business site, they can cause irreparable harm to the company's image.	Employees, Suppliers, Local communities	26
People-centric Culture through Education & Communication	4 6	Talents with expertise are both the engine for future growth and the foundation of business growth. In addition, smooth communication between employees enhances the efficiency of the organization's business processes by promoting understanding among them.	Employees	29
Support for the Growth of Suppliers	5 7 13	It gradually becomes more difficult to secure competitiveness solely through the efforts of a business. As such, win-win cooperation with the suppliers within the value chain of business is an essential element. In addition, risk management should be conducted to review the suppliers' potential issues.	Suppliers	32
Local Community Engagement & Development	8 9	The company's influence on local communities has been growing steadily as Doosan Corporation has grown into a global business. Therefore, Doosan should pursue business management that allows it to develop along with the local communities, as the benefits it has gained from operating its business have increased considerably.	Employees, Local communities	35

CORE ISSUES

Innovation for Sustainable Growth	22
Relentless Efforts for Green & Safe Worksites	26
People-centric Culture through Education & Communication	29
Support for the Growth of Suppliers	32
Local Community Engagement & Development	35
Initiatives to Promote Global CSR Activities	39





Innovation for Sustainable Growth

WHY

What are the issues?

The majority of Doosan's business lines are technology driven. Technology leadership is closely related to current performance in the market as well as the long-term enhancement of business values. As Doosan views R&D as a very important strategic area, it is strengthening its technology-oriented business structure as a corporation that is oriented toward technology rather than production.

HOW

How does Doosan Corporation respond?

Doosan Corporation plans to further strengthen its business competitiveness through market and technology-oriented mid- to long-term R&D strategies and a PRM¹⁾ and TRM²⁾ that reflect them. Its technology management system has three basic objectives: timely R&D based on market and technology analysis, the development of an efficient R&D process and system and the construction of a strategic IP portfolio.

- 1) Product Road Map
- 2) Technology Road Map

How are achievements measured?

 R&D investments to sales

3.7 %

Development of new products/technologies

30 cases

Patent applications

168 cases

Link to Materiality

- Achieving quality innovation via stringent quality control
- Increased investment in R&D
- Development of environment-friendly products and services

Link to UN SDGs



Launch of Environmental-friendly Electric Forklifts Equipped with a Lithium-ion Battery



Lithium-ion battery electric forklifts

Preemptive response to market demand for environmental-friendly forklifts

Customers have shown great interest in environmental-friendly forklifts. As the technology paradigms in the market are changing, environmental-friendly quality of forklifts are now being seriously considered. In April 2018, Doosan, in keeping with such changes, unveiled its range of forklifts powered by a lithium-ion battery, one of its own proprietary environmental-friendly technologies for the first time in Korea. The lithium-ion battery is superior to the lead battery in terms of its economic and environmental performance. Doosan's lithium-ion electric forklifts are equipped with environmental-friendly technologies that are on a par with those of the most advanced global manufacturers.

Leading market changes based on economic and environmental performance

The Industrial Vehicle BG is set to enter advanced foreign markets while leading paradigm changes in the local market for electric forklifts with a range of lithium-ion battery-powered forklifts that have gained a reputation for outstanding economic and environmental performance. The lithium ion battery mounted on the B25S and the BR18S, the two main models in the domestic market, realized a relatively lower Total Cost of Ownership. It has a lifespan three times longer than that of the lead battery, and up to 95% of its rated capacity can be used thanks to its excellent charging/discharging efficiency. In terms of environmental performance, it does not discharge any harmful gases during charging and use because it does not contain any harmful substances. Furthermore, it has acquired the relevant certification as it complies with the EMC Directive 2014/30/EU. In addition, it has secured safety as it is equipped with the functions of continual monitoring and diagnosis of battery state in order to prevent overheating, overcharging, and excessive discharge. Doosan will achieve steady business growth while leading changes in the market with its lithium-ion battery-powered forklifts.

Environmental and economic performance of lithium-ion battery electric forklifts



Lithium-ion battery

Environmental Performance		Economic Performance ¹⁾
Diesel Engine-powered Forklifts	<ul style="list-style-type: none"> Generates exhaust gases containing harmful substances Rapidly rising fatigue of operators due to vibration 	KRW 12.6 million
Lead Battery Electric Forklifts	<ul style="list-style-type: none"> Harmful sulfur dioxide gas emitted when the battery is charged Waste generated, battery needs to be replaced every 3 - 4 years 	KRW 78 million
Lithium-ion Battery Electric Forklifts	<ul style="list-style-type: none"> No gas emitted; battery does not include any harmful substances Low noise and vibration since it is battery-powered (minimizing operator fatigue) 	KRW 71 million

1) Calculated based on the total cost of ownership in seven years, inclusive of fuel and maintenance cost

Development of OLED Technologies



Preemptive development of OLED materials

Doosan Corporation has occupied new markets ahead of the competition by preemptively developing technologies to meet potential demand. For instance, the Electro-Materials BG is a key player in the market for OLED materials. Doosan OLED experienced difficulties in entering the market as the performance of its light-emitting layer failed to match that of materials developed by its competitors, despite having concentrated its resources on the development of light-emitting layers for several years. In the process, however, it understood its customers' requirements for new materials and initiated the development of functional layers to improve the efficiency of the color blue - something that no other businesses were interested in at that time. In 2016, it filed a patent application for devices and materials after one year of preemptive development, having finally succeeded in developing functional layers that demonstrate the world's best performance. In this way Doosan Corporation succeeded in actively exploring and occupying new markets ahead of competitors.

New strong player in the field of OLED materials

Doosan OLED is expected to dominate the aETL¹⁾ markets by 2021 as its technological competence is unrivalled by that of its competitors in view of its proprietary patents and exclusive performances. The technological superiority that enabled the creation of high-value added products also served as a key driver of growth. Sales in 2017 increased fourfold compared with sales in 2011. In addition, it secured patents that will be essential for its long-term growth. Doosan succeeded in acquiring 14 patents and filing 42 patent applications. It has proven its superior technological competence by filing a total of 656 patent applications and acquiring 220 patents. It has also led the display revolution across the world, with Samsung and Apple adopting it for their flagship smart phone models, thus proving its technological superiority.

1) Additional Electron Transport Layer

Case

OLED: a technology that turns imagination into reality

A wearable TV screen, car windshield displaying all necessary navigation information, bathroom mirror displaying weather information or a smart mirror, a dressing room mirror that helps you get the right size and the right fit without having to actually try on a piece of clothes. This is not the stuff of a science fiction movie, but things that can be made into a reality using OLED technology. As the best display device that is currently available in the world, OLED does not require any external light source unlike LCD. It enables the thinnest, lightest display device since it is made of organic materials. Its response speed is 1,000 times faster than LCD. Based on such exclusive features of OLED, it can realize flexible and transparent display devices. In addition, it is a display device that is highly suitable for realizing virtual and augmented reality.



OE Summit: the Innovative Practice Sharing Vehicle



2017 Doosan Corporation's OE Summit

Dissemination of the best practices and promotion of collaboration among BGs through the OE Summit

Doosan Corporation consists of diverse BGs encompassing electronic materials, industrial vehicles, hydraulic appliances, fuel cell, and retail. Amid such diversity, various different OE (Operational Excellence) cases are being steadily disseminated inside Doosan Corporation, enhancing its business competitiveness. To foster such a culture, the CEOs, BG heads, key executives and team leaders of Doosan Corporation gather together to share outstanding OE cases and hold the OE Summit at which they discuss programs for collaboration with each other and disseminate best practices.

Development of strong teamwork based on common objectives

Although they all have different business characteristics, the production, quality, purchasing and R&D units share a common business function and pursue a common objective. Even though their business characteristics differ, Doosan Corporation's enterprise-wide synergy can be generated when they share their diverse experiences and outstanding cases through close collaboration. To enhance collaboration among the different organizations, Doosan Corporation has formed committees on quality, production, and purchasing whose members are recruited from among the executives and team leaders of the related departments of its BGs. The sharing of expertise and know-how among experts from different divisions at such functional committees has translated into success stories where strong teamwork is realized based on their common objectives.

Case

Enhancement of quality competitiveness through the Quality Review Session

The Quality Committee has upgraded Doosan's quality management by establishing a quality-oriented management structure in each BG through the QRS (Quality Review Session). QRS refers to any activity that enhances the quality competitiveness of each BG by providing practical coaching on the transfer of the definition and analysis of essential data, while quality specialists at Doosan check the quality control status by personally visiting the sites of the BGs. In 2017, seven BGs and unit upgraded their quality management structure through 14 QRSs. In particular, the Industrial Vehicle BG and the Mottrol BG reinforced their efforts to identify the fundamental causes of defects.



Quality Review Session

Relentless Efforts for Green & Safe Worksites

WHY

What are the issues?

Because environmental regulations are gradually being strengthened in many countries, including amendments to the standards for the environmental business structure, social awareness of the importance of the safety of business establishments and the health of employees has increased dramatically. Environmental and/or safety accidents may inflict massive damages on suppliers, local communities, and stakeholders as well as incurring direct expenses and causing the loss of human resources. Such accidents can also result in fatal damage to a company's corporate image or reputation.

HOW

How does Doosan Corporation respond?

Recognizing that respect for human life and protection of the environment must figure among its responsibilities and core values, Doosan Corporation operates an EHS-based (Environment, Health, Safety) business structure. It is responsible to all of us, our families, and society. Doosan Corporation does its best to ensure the safety of all regions and communities where it does business as well as the safety of its employees while adhering to the CEO's EHS policies.

How are the achievements measured?

 Environmental investment

KRW **8.8** billion

Accidents involving leak of chemical substances

0 cases

 GHG intensity

6.4 tCO₂e/KRW 100 million

Link to Materiality

- Control of environment pollutants emitted from worksites
- Safe work conditions realized
- Control of hazardous chemical substances
- Reduction of greenhouse gases and energy consumption

Link to UN SDGs



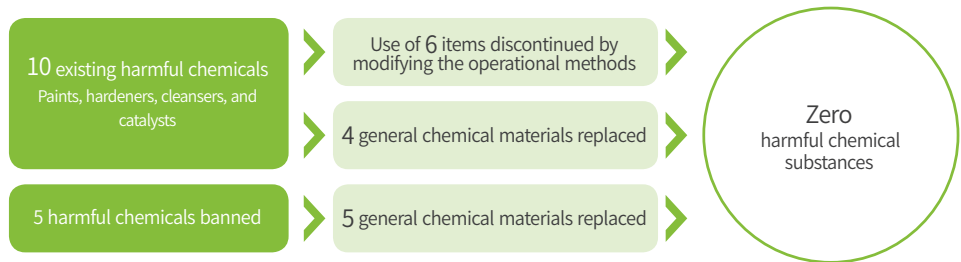
Realization of Environmental-friendly Worksites via the Reduction of Harmful Substances

Initiatives to establish pleasant and safe worksites

Recent accidents related to chemical substances have raised public awareness of and interest in the management of chemical substances. Accidents related to chemical substances may cause direct and indirect injuries to employees in the worksites as well as severe environmental contamination of the local communities. Doosan Corporation prohibits the use of harmful chemicals at its worksites so that all its employees can work in pleasant and safe worksites.

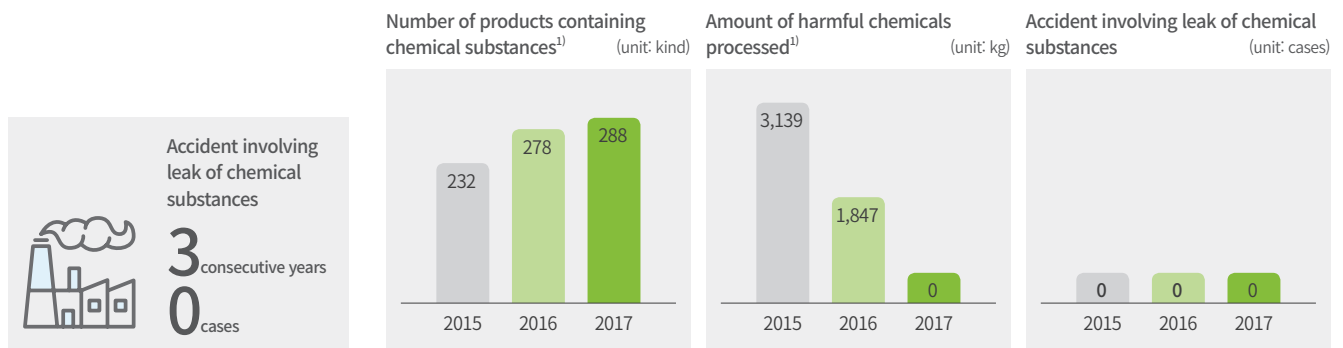
Fundamental blocking of inflow of harmful chemicals into Doosan worksites

The Industrial Vehicle BG has thoroughly blocked the inflow of harmful chemicals into its worksites while replacing all products that contain harmful chemicals upon their detection. To prevent the processing of harmful chemicals that have a negative impact on the human body and the environment, the Industrial Vehicle BG identified ten types of harmful chemicals contained in paints, hardeners, cleansers, and catalysts among 250 chemical substances by thoroughly surveying the inflow path, use, and ingredients of the chemical substances registered with the corporation. Thus, it has requested its field units to switch to the use of replacement substances for such items or to develop products that contain no harmful chemicals. It has also blocked the inflow of products with no history of purchase in recent years by prohibiting their purchase orders. In addition, it fundamentally blocks the inflow of new harmful chemicals into its Worksites by surveying all chemical ingredients before their purchase and restricting the arrival of harmful chemicals through the advanced EHS assessment system.



Realization of worksites that use zero harmful chemicals

By strictly prohibiting the processing of any harmful chemicals, the Industrial Vehicle BG strives to minimize its impact on the regional environment. It will exert its best efforts to prevent accidents from leaks of chemical substances by strengthening its systems to respond to such accidents while reducing the potential hazard of all chemical substances considering their impact on the stakeholders.



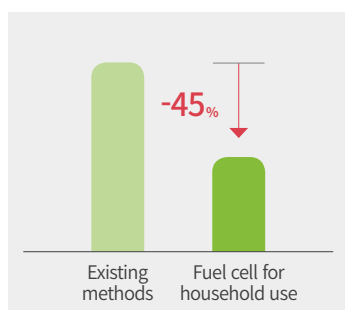
1) Harmful chemicals handled were minimized to 0kg even as the number of products containing chemical substances increased in production processes.

Enterprise-wide Activities to Respond to the New Climate Regime

Changes and opportunities in the new climate regime

Many countries are tightening their environmental-friendly energy policies and regulations because of the new climate regime. Many companies recognize that climate change-related activities are essential to business, including energy saving and the securing of the competencies required to satisfy the new regulations. In addition, they will create new business opportunities and markets by promoting demand for renewable energy among all countries and businesses in response to climate change.

Effect of reducing CO₂ emissions



* This may vary partly depending on the heat use rate.

Increase of environmental-friendly energy with fuel cell

Doosan Corporation does its utmost to fulfill its social responsibility by developing products that create social and environmental values from the long-term perspective. Fuel cell offers a solution to future energy needs that could resolve environmental issues such as global warming by providing highly efficient, environmental-friendly energy that will replace fossil fuels.

The Fuel Cell BG is a leading provider of environmentally-friendly energy with a strong expertise in hydrogen fuel cell technology. Currently, due to a lack of necessary supply infrastructure, hydrogen is extracted from fossil fuels. Electricity and heat are generated through chemical reaction with oxygen in the atmosphere. This electrochemical reaction-based product produces significantly lower amounts of environmental pollutants than traditional combustion reaction-based products. Going forward, the Fuel Cell BG will be manufacturing fuel cells using byproduct hydrogen; in other words, industrial waste hydrogen from chemical plants. This is a yet more environment-friendly and high-efficiency energy source for power generation, which will play an important role in the transition to a hydrogen society.

Improvement of energy consumption at fuel cell

Doosan Corporation actively participates in responding to climate change through the efficient use of energy at its worksites. Doosan clearly discloses information related to its greenhouse gas emissions in its business reports, while controlling such emissions in compliance with the IPCC¹⁾ Guidelines and government control guidelines. Throughout 2017, it concentrated on energy efficiency activities, striving to improve the greenhouse gas intensity through such efforts.

1) Intergovernmental Panel on Climate Change: An international consultative body organized under the UN to develop international countermeasures to climate change.

Key examples of energy saving

Classification	Activities	Reduction Achievements		
Electro-Materials	Replacement of equipment at the Jeungpyeong and Gimcheon plants	Energy	GHG	Cost
	- Improvement of air sweep at the Jeungpyeong plant ; Inverter pump installed at the Gimcheon plant	463 ^{MWh}	492 ^{tCO₂}	KRW 0.12 billion
Mottrol	Devices Installation that reduces the power consumed by processing equipment	Energy	GHG	Cost
	- Hydraulic motor inverter installed on 14 different pieces of equipment at the machining center	370 ^{MWh}	158 ^{tCO₂}	KRW 0.04 billion

People-centric Culture through Education & Communication

What are the issues?

The development of human resources and communication within a business organization are essential elements for providing the best products and services amid the fierce competition in continually changing markets and changes brought about by the transition to the Fourth Industrial Revolution. Talents with expertise and leadership are the engine for future growth as well as the foundation for business growth. Furthermore, enhanced mutual communication among a company's members promotes prompt decision-making by all of the leaders and members, and enhances productivity by accelerating mutual understanding and agreement between the management and the employees.

How does Doosan Corporation respond?

Doosan Corporation operates diverse programs aimed at upgrading leadership skills and promoting job specialization. It operates leadership education programs designed to enhance the leadership skills of team leaders, and junior MBA programs to train future leaders. Moreover, it develops and provides education curricula to upgrade job specialization jointly with field experts. Finally, it provides common, enterprise-wide education aimed at honing employees' basic job capabilities.

How are achievements measured?

 Completion of Junior MBA

66 persons

 Training expenses per Capita

KRW
1.32
million/person

 Total training expenses

46 hours/person

Link to Materiality

- Realization of a corporate culture that makes a better workplace
- Reinforcement of core talents and enhancement of capabilities of employees

Link to UN SDGs

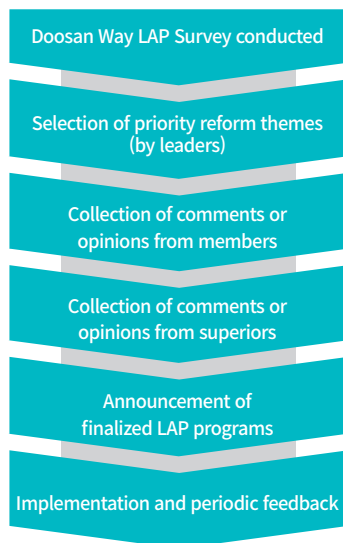


Leader's Action Plan (LAP) to Induce Changes from the Exemplary Actions of Model Leaders



Awarding ceremony for outstanding LAP practice cases

LAP execution process



The Doosan Way of operation that leaders personally practice as role models

At Doosan, leaders think in the Doosan Way, according to Doosan's own management philosophy, and make decisions through communication with the people they lead. This is how we work at Doosan; this is the Doosan-style leadership. LAP is Doosan Corporation's leadership and change program, under which its members learn the Doosan Way and internalize it naturally by observing the way its leaders work.

Driving force of reform programs, selection of reform themes that arouse members' sympathy

The key reason why the LAP has been maintained as a reform program since 2014 is that the practice plans developed by Doosan's leaders are composed of items that win the sympathy of Doosan members. The plans are designed with contents that can induce a "sense of sympathy" rather than one-sided efforts for change by diagnosing the parts experienced by the members and those contemplated by the leaders in advance using a tool called the Doosan Way LAP Survey. Their effectiveness is heightened by organizing the plans in such a way that the members, too, can support the reform processes instead of relying on the efforts of the leader alone.

Case

Power of sympathy that induces members to participate in reform

Hongil Kim, CEO, Changsu Manufacturing Corporation, The Electro-Materials BG
(received the Outstanding LAP practice prize for two consecutive years)

Doosan Corporation leads its members in participating in reform through the LAP programs. The reform starts when the members are induced to sympathize with the direction of growth by steadily presenting it to them in order to attain business successes. It is necessary to help them recognize that they are growing for themselves by discovering the changed methods of working based on such sympathy.

This results in the superior performance of the members. LAP is a program that induces such changes.



Junior MBA Preparing for the Future

Junior MBA program for training future leaders

Leadership and basic management concepts are capabilities that need to be developed from the junior stage. Doosan Corporation has run Junior MBA programs since 2013 in order to foster junior employee into next-generation professional leaders.

Systematic management intelligence education program

Junior MBA programs consist of online and offline courses that run for seven months. Their contents include overall management subjects and leadership contents, including basic concepts of strategy and management, accounting/finance, marketing, strategic thinking, and meeting with CEOs. The lectures are given by instructors recruited from among university professors and industry experts as well as internal specialists. So far, some 66 junior employee who perform diverse job duties, including R&D, quality and sales work, have completed the program.

Steady operation and improvement of education programs

Diverse learning methods are implemented to enhance the effectiveness of the education programs, including online and offline lectures, team discussions, and simulation programs. The degree of participants' understanding is surveyed through management simulation, online and offline evaluations, and set team/individual tasks. Students who have participated in the program have widened their business perspective, developed their insight into business management, and learned about the close relationships among diverse business activities. To help them update their expertise continually after completing the program, they are provided with opportunities to participate in leadership forums. Doosan Corporation plans to operate a junior MBA program in 2018 by adding a subject on the Fourth Industrial Revolution in order to enhance the participants' business insight capabilities.



4th Junior MBA program

Support for the Growth of Suppliers

WHY

What are the issues?


It is gradually becoming more difficult to secure competitiveness with the efforts of a business alone. To secure a sustainable existence and growth, the competitiveness of all stakeholders involved in the operation of a business should be enhanced through their mutual collaboration. The scale of Doosan's supply chain has been expanding steadily thanks to newly started business projects and the acceleration of overseas products. The joint capability of the supply chain has also had a growing impact on the company's business success.

HOW

How does Doosan Corporation respond?

Doosan has enacted guidelines for managing a sustainable supply chain. It has augmented its supply chain CSR management system with the focus on four areas: labor/human rights, health & safety, the environment, and ethics/fair transactions. Furthermore, Doosan plans to expand its programs for evaluating and supporting the growth of its suppliers to second- and third-tier suppliers, which it has continuously operated as part of its efforts to upgrade the CSR of the supply chain network.

How are achievements measured?

 Number of suppliers subject to sustainability assessment

123 companies

 Total purchases from SMEs

KRW **693** billion

Ratio of contracts considering the ESG elements

62 %

Link to Materiality

- Fair and transparent selection of suppliers
- Enhanced efforts for preventing unjust transactions
- Support for the stable management of suppliers

Link to UN SDGs

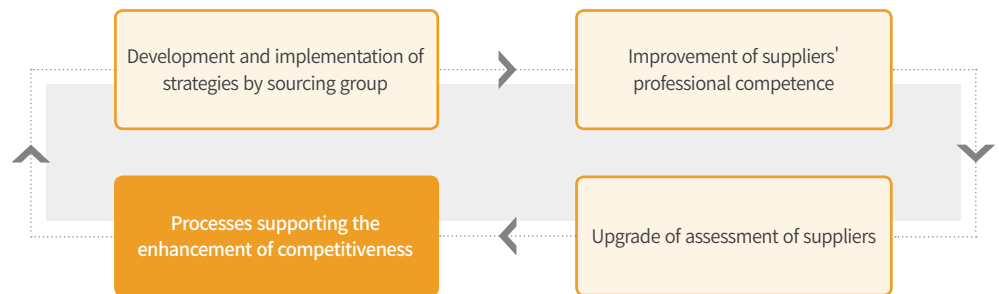


Shared Growth through Enhanced Competitiveness of Suppliers

Practice of shared growth with suppliers

By growing with its suppliers, Doosan Corporation looks to continue increasing its competitiveness across all stages of the production and supply process. Poor supplier relationship management compromises a company's competitiveness by hindering the procurement and management of raw materials. Conversely, the wide availability of stable sources of supply has a positive influence on production efficiency, thereby also boosting a company's market competitiveness. The resulting gain in product reliability ultimately leads to enhanced long-term performance for the company. Doosan Corporation continuously carries out activities to build suppliers' capacity in key areas, including management, product quality, production technology, environment and safety; thereby contributing to favorable outcomes for their own competitiveness.

Processes supporting the enhancement of competitiveness



Customized and differentiated support focusing on the field

Doosan Corporation offers its suppliers practically-focused training programs that are tailored to their individual needs, which are distinct from the customary type of short-term support aimed at tackling specific issues at hand. By providing support in select areas for critically needed improvements and upgrades, Doosan Corporation is helping to strengthen the core competitiveness of its suppliers.

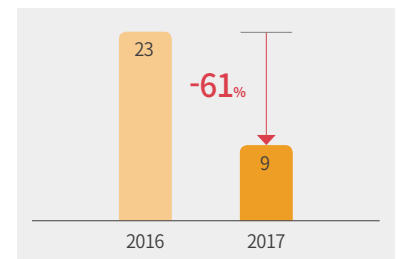
In 2017, the Mottrol BG provided support to five suppliers through a comprehensive program that will benefit 37 total suppliers by 2022. Going forward, to expand business opportunities for them, the Mottrol BG will put in place a purchase performance compensation program rewarding suppliers of good standing. Through such support programs, the plan is to build a system that allows Doosan Corporation to grow along with its suppliers over the long term.

Case

Enhancement of manufacturing technological capabilities of Wugyeong Co., Ltd

The Mottrol BG has helped Wugyeong Co., Ltd., a supplier of key components of track drive motors, enhance its manufacturing technology. Following a recent change in manufacturing process, the company experienced a sharp increase in defect rate; a situation that demanded immediate action. This issue was selected as one of the tasks for the supplier training program. Casting solidification analysis was performed through simulation along with nonconformity analysis. Based on the results of analysis, support was provided to set up an ERP system enabling the standardization of production processes, LOB and the management of process traceability. This has helped cut the number of quality failure events from 23 in 2016 to only nine in 2017.

Reduction of quality failure cases (unit: cases)



Supporting Shared Growth, Supplier Sustainability Assessment

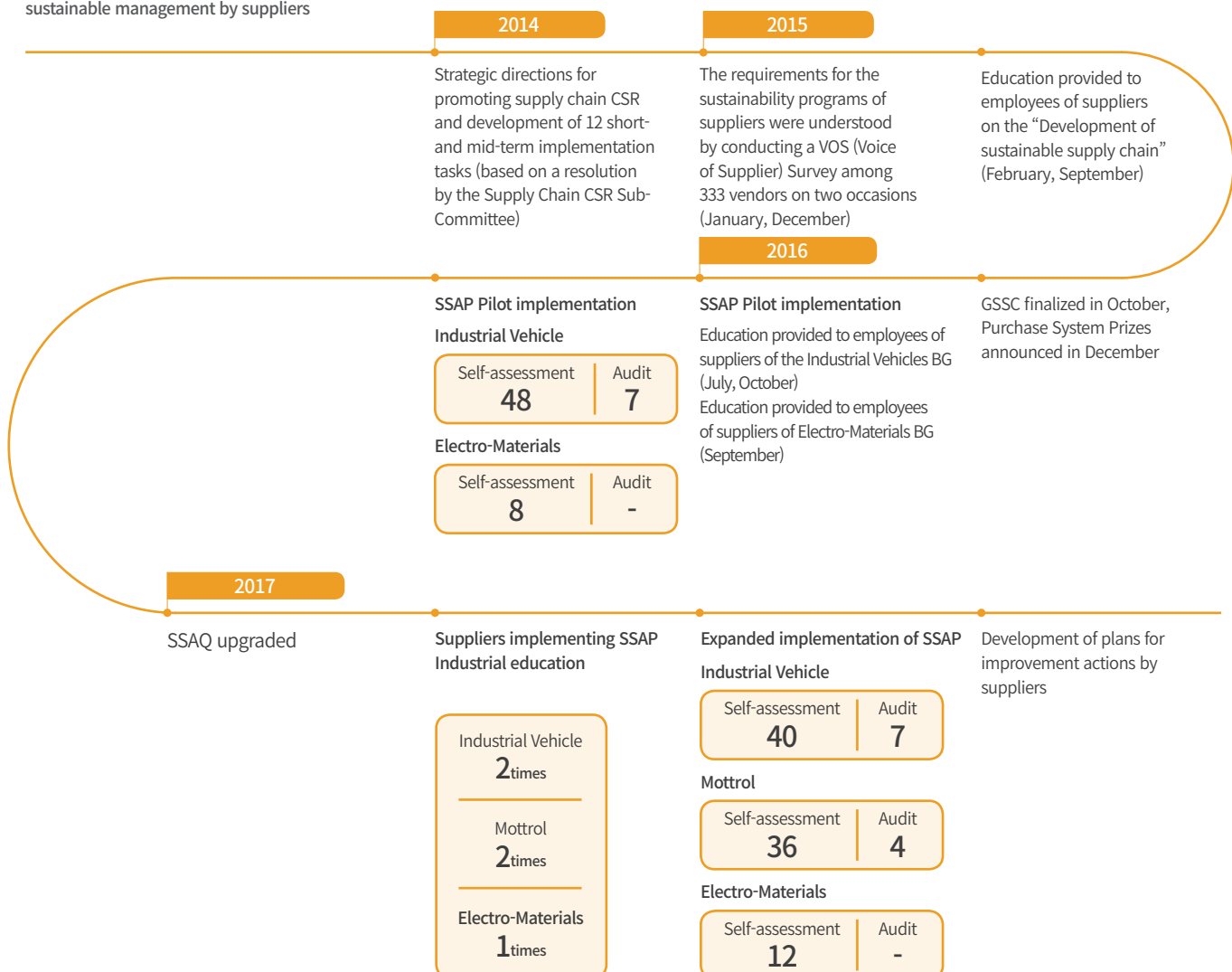
Identification of risk factors related with sustainable management by suppliers

As Doosan Corporation continues to foray into new business areas and expand its overseas operations, the number of its suppliers is steadily growing. This trend in turn is increasing the impact of the collective capacity of Doosan's suppliers as a whole on the competitive edge of its business. At Doosan, to more comprehensively manage risks such as supplier financial stability, environmental safety and social risks, the scope of its CSP programs is being extended to include supply chains.

Supplier sustainability assessment

To ensure the sustainability of its supply chains, since 2014, Doosan Corporation has been putting in place a program for assessing supplier sustainability, aligned with its CSR strategy. In 2016, the SSAQ (Supplier Sustainability Self-assessment Questionnaire) and the SSAP (Supplier Sustainability Assessment Program) were piloted. In 2017, the number of self-assessment items was increased to 52 in four areas including general management, human rights/labor, health/safety and the environment. Audits are conducted to identify potential supplier sustainability risks and mitigate them before they materialize.

Status of assessment and achievements of sustainable management by suppliers



Local Community Engagement & Development

WHY

What are the issues?

The growing stature of Doosan Corporation as a global firm has resulted in a significant increase in its impact on the local community, as well as the local community's impact on it. As economic benefits reaped by Doosan from its business operations have increased, its obligation to give back to the community has grown commensurately.

HOW

How does Doosan Corporation respond?

Doosan has set itself the mission of “enhancing the future competitiveness of the community and company value through the group-wise implementation of strategic corporate community involvement” rather than carrying out short-term initiatives. Doosan has planned and implemented systematic corporate community involvement initiatives designed to attain its vision of becoming a “Top 100 Global CSR Leading Company by 2025.” Doosan is striving to grow together with the local community by actively implementing its initiatives in collaboration with the key social organizations based in the local community where our worksites are located.

How are achievements measured?



Link to Materiality

- CCI activities considering community needs
- CCI activities aligned with business

Link to UN SDGs



Woori Doori, Sports for Youth with Disabilities



Woori Doori Teeball

Local community engagement programs with employees

Doosan corporation has conducted various CCI activities based on voluntary participation and opinion of employees, while growing with local communities by providing steady support and conducting one-off activities. In particular, employees have felt an ever increasing sense of satisfaction with the company and a stronger sense of ownership by personally participating in such CSR activities.

Enhancement of physical strength and sociability of disabled youth through teeball

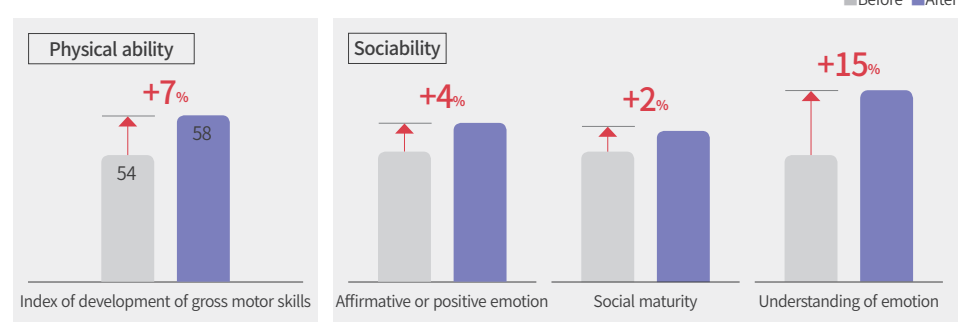
Since 2016 we have operated the “Woori Doori” sports program, which is designed to enhance the physical strength and social skills of youths with disabilities in the areas where our worksites are located, including Seoul, Incheon, Iksan, and Changwon. In 2017, over 500 volunteers consisting of employees and undergraduate students participated in Teeball¹⁾ games with physically disabled children and youth. In addition, they held year-end athletics events at which the children got to experience diverse sports while competing based on the Teeball skills they had learned so far. The Woori Doori programs have contributed to enhancing their sociability as well as their physical ability. In so doing, Doosan helps physically disabled children grow into healthy citizens in a warm-hearted environment.

1) Teeball is both a team sport and a simplified version of baseball and softball.

Examples of change among the participating students

Student “K” was barely enthusiastic about anything, often failing to go to school due to personal issues resulting from hardship. Soon after he started playing Teeball, however, he was able to get along well with friends, displaying a bright disposition. The Woori Doori program is believed to have provided students with memories they were unlikely to experience on their own in their lifetime. Many students suffer great hardship, particularly those with physical disabilities.

Changes in physical ability and sociability of participating students²⁾



2) Measurement of effects: Hyeja Jeon, professor, Soonchunhyang University Daeyeon Kim, professor, Korea National Sport University

Doosan Day of Community Service

Doosan's unique CSR culture engages every member around the world

Doosan celebrates the "Doosan Day of Community Service" each year. On the day, employees from all its worksites around the world practice sharing with their neighbors and local communities simultaneously. Now established as a CSR culture unique to Doosan, it involves over 1,700 personnel from 29 business establishments in 5 countries around the world.



Case

CSR activities by Fuel Cell America

Employees of Fuel Cell America (FCA) have carried out diverse CSR activities for local communities in and around Connecticut, where its business facilities are located. They cleaned up fallen leaves and improved the landscape around the relevant facilities and repaired them in cooperation with "Oak Hill," an organization that provides comprehensive services for physically disabled citizens. In addition, they cleaned up riverside areas and local parks together with members of "Riverfront Recapture," a non-profit organization that has actively enhanced the quality of life of local residents. They also helped with the inspection, sorting and packing of food provided to alienated people together with members of "Foodshare."



Shared Growth by Reviving the Business of Dongdaemun Market




Seoul 365 Fashion Show

Growing together with the Dongdaemun neighborhood

A company and its community depend on each other to grow and prosper. A relationship of trust between them is indispensable for both parties for their long-term development. Doosan is committed to expand and develop together with the Dongdaemun neighborhood, which is its very birthplace. Doosan's plan for Doota Duty Free in particular is to build a win-win relationship with local businesses by making it benefit and revitalize the local economy.

Local development through Dongdaemun Future Foundation

Doosan's  Dongdaemun Future Foundation was established in 2015 to help stimulate local businesses based in the Dongdaemun neighborhood. With an initial capital layout of KRW 20 billion (including KRW 10 billion from Doosan Group and a private donation of KRW 10 billion from Chairman Park Yongmaan), the Foundation is currently carrying out a series of projects to revitalize the Dongdaemun district in cooperation with companies, the local administration, and universities. One of the projects aims to return profits generated from the operation of Doota Duty Free to the local community and thereby spur a virtuous cycle of local growth. In a bid to revive local business in the area, Doosan's Dongdaemun Future Foundation held diverse events throughout 2017, including the Dongdaemun Festival, the DDP Night Market, and the Summer Fiesta. In addition, it selected and trained rising designers through the 365 Fashion Show and Survival Fashion K events, and provided foreign language classes and operated joint workplaces to promote shared growth with local small businesses.

Initiatives to promote traditional markets in the local community

Doosan Corporation has participated in the project to establish a "Globally Famous Product Market at Dongdaemun" with the aim of developing the Dongdaemun Wholesale Fashion Market into a world-renowned hotspot and tourist destination. As part of this effort, it has implemented diverse projects to transform eight traditional apparel markets in the Dongdaemun market area into a globally famous products market. Representative projects among the diverse activities include the development of brands specialized as Dongdaemun designs, the development of specialized arcades, the operation of education programs for local merchants, consolidated marketing of the globally famous product market, and the development of an integrated global website.

Initiatives to Promote Global CSR Activities

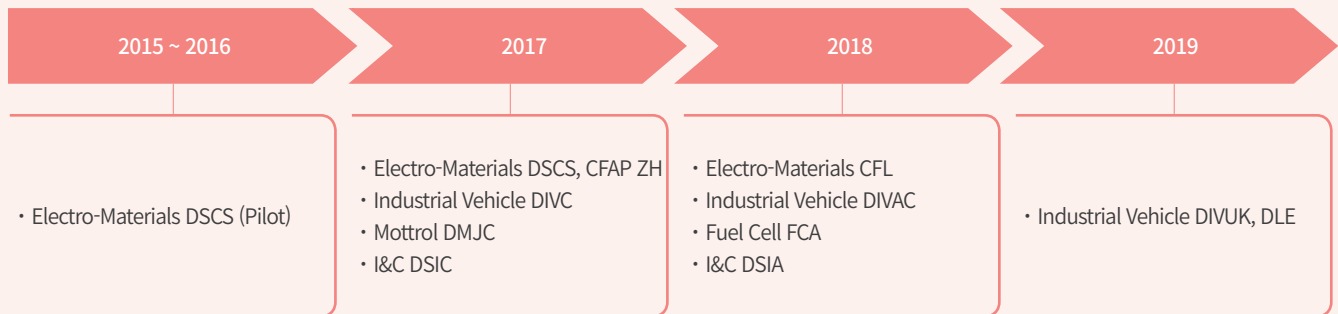
Foundation for practicing global CSR management

Doosan Corporation is a global business that operates manufacturing and sales corporations and other worksites in many countries around the world. As public interest in all CSR domains across the world has increased, calls from the international community for responsible business activities that address the gradually expanding CSR-related regulations of each country are gradually intensifying. Doosan Corporation has deployed a structure for expanding CSR activities among its overseas subsidiaries in order to satisfy such demand effectively. It plans to heighten the CSR mindset of its employees by steadily expanding its CSR activities in the USA and in various European countries, following on from those undertaken by its China subsidiary in 2017. In addition, such efforts will greatly contribute to the dissemination of Doosan's core values to businesses that have been newly acquired through M&R.

Promotion of systematic CSR Roll-out overseas

Doosan Corporation has developed a mid- and long-term roadmap to carry out CSR Roll-out in its global worksites effectively. It also plans to implement the relevant activities for improvement tasks drawn up in 2017. It will complete its mid- and long-term CSR globalization plans by 2020.

Mid- to long-term roadmap for CSR Roll-out



CSR Roll-out activities in China

As the first project, it carried out activities aimed at spreading the CSR mindset throughout its Chinese facilities. As part of these efforts, CSR education was provided to every member of the organization, and improvement tasks were drawn up through interviews with the employees responsible for diverse duties. The progress of the improvement tasks will be shared at quarterly CSR operation meetings to be hosted by the head of the BG. Doosan's CSR Roll-out activities will contribute to enhancing CSR orientation among employees of the company's worksites in China.



Interview with personnel in charge at the Fuel Cell BG



Mottrol BG DMJC representatives CSR education

MANAGEMENT REPORT

















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CSR Achievements and Plans

	Key Activities in 2017	Plans in 2018
 Innovation for Sustainable Growth	<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;">  R&D </div> <ul style="list-style-type: none"> • Development of PRM/TRM based on market sensing • Deployment of enterprise-wide integrated IP system 	<ul style="list-style-type: none"> • Enhancement of PRM/TRM process operations • Development of enterprise-wide integrated IP strategies
	<div style="border: 1px solid #ccc; padding: 5px;">  Responsible products </div> <ul style="list-style-type: none"> • Deployment of systems for verifying reliability • Definition of environment-friendly products 	<ul style="list-style-type: none"> • Settlement of systems for verifying reliability • Selection of environment-friendly evaluation indicators
 Relentless Efforts for Green & Safe Worksites	<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;">  Environmental management </div> <ul style="list-style-type: none"> • Improvement of facilities that handle hazardous chemicals • Enhancement of recycling of wastes • Reasonable response to the certified emission reduction (CER) trading system 	<ul style="list-style-type: none"> • Development or organization of energy management system • Monitoring of greenhouse gases discharged
	<div style="border: 1px solid #ccc; padding: 5px;">  Health and safety management </div> <ul style="list-style-type: none"> • EHS leadership activities and enhancement of EHS education • Introduction of programs maintaining the EHS basics • Development of standards for computing EHS cost 	<ul style="list-style-type: none"> • Reshuffle of EHS IT System • EHS Training augmented for worksites • Improvement of EHS guidelines/processes
 People-centric Culture through Education & Communication	<div style="border: 1px solid #ccc; padding: 5px;">  Development of communication and capabilities of employees </div> <ul style="list-style-type: none"> • Enhancement of feedback concerning complaint counseling • Increase of communication channels among employees • BG-level Training and Development Programs / Expansion of the Women in Leadership Program • Implementation of education programs for technicians 	<ul style="list-style-type: none"> • Enhancement of risk management procedure for human rights • Promotion of balance between work and life • Extension of programs for protecting diversity • Extension of education for job duties and technology posts
 Support for the Growth of Suppliers	<div style="border: 1px solid #ccc; padding: 5px;">  Supply chain management </div> <ul style="list-style-type: none"> • Enhancement of systems for securing sustainable supply chain • Enhanced assessment and physical survey of supply chain risk • Provision of guidance for the improvement of supply chain risk 	<ul style="list-style-type: none"> • Increase of supply chain CSR for suppliers overseas • Expansion of activities for the improvement of supply chain risk • Establishment of processes for controlling conflict minerals
 Local Community Engagement & Development	<div style="border: 1px solid #ccc; padding: 5px;">  Corporate social responsibility </div> <ul style="list-style-type: none"> • Organization of a curriculum composed of representative CCI programs • Elevation of the level of programs (enhancement of communication of operational council) • Expansion of beneficiaries of representative CCI programs 	<ul style="list-style-type: none"> • Development of CSR culture • Program diagnosis, deriving improvement methods • Improvement of CSR operational system

Mid- to Long-term Plans	Key Performance Indicators		
<ul style="list-style-type: none"> • Preemptive R&D based on technology platforms • Possession of preemptive IP portfolio 	 R&D investments to sales 3.7 %	 Development of new products/technologies 30 cases	 Patent applications 168 cases
<ul style="list-style-type: none"> • Augmentation of reliability verification • Standards for evaluation of environment-friendly products and achievement management 	 Ecocert acquirement 6 cases <small>* Glonet BG</small>	 Customer satisfaction index 3.6 points <small>* Mottrol BG</small>	
<ul style="list-style-type: none"> • Operation of energy management system • Deployment of energy management system • Expansion of greenhouse gas control areas 	 Environmental investment KRW 8.8 billion	 Accidents involving leak of chemical substances 0 cases	 GHG intensity 6.4 tCO ₂ e/KRW 100 million
<ul style="list-style-type: none"> • Introduction of programs monitoring unsafe behaviors • Dissemination of culture of EHS practice to overseas worksites 	 Occupational accident rate 0.25 %		
<ul style="list-style-type: none"> • Enhancement and increase of global human rights management • Expansion of work-life balance • Global diversity management • HR development overseas 	 Completion of junior MBA 66 persons	 Number of Change Agents 156 persons	 Human rights education hours 2,968 hours
<ul style="list-style-type: none"> • Connection between purchase strategies and supply chain CSR risk management • Augmentation of supply chain CSR collaboration • Deployment of conflict minerals control system 	 Number of suppliers subject to sustainability assessment 123 each	 Total purchases from SMEs KRW 693 billion	 Ratio of contracts considering ESG elements 62 %
<ul style="list-style-type: none"> • Promotion of CSR culture • Renewal of programs • Improvement of CSR operation system 	 CCI investment KRW 7.3 billion	 Employee volunteering 2,242 persons	 Volunteer hours 7,623 hours

CSR Strategy and Key Activities

CSR value structure

Doosan declared its firm resolution to practice CSR management by establishing the “Doosan Way” in order to create a “Proud Global Doosan.” Moreover, to anticipate and promptly respond to the various CSR requirements and standards within and outside Korea, a group-wide CSR strategy has been established consisting of clearly-defined objectives and missions, four key areas and ten priority tasks.

CSR governance

As Doosan’s supreme decision-making body, the CSR Committee develops CSR strategic directions, reviews CSR-related management activities, and inspects the progress of improvement tasks and implementation plans. The CSR Committee is composed of representatives from all of the company’s BG/BU, business divisions, and management division, as well as executives from its key departments.

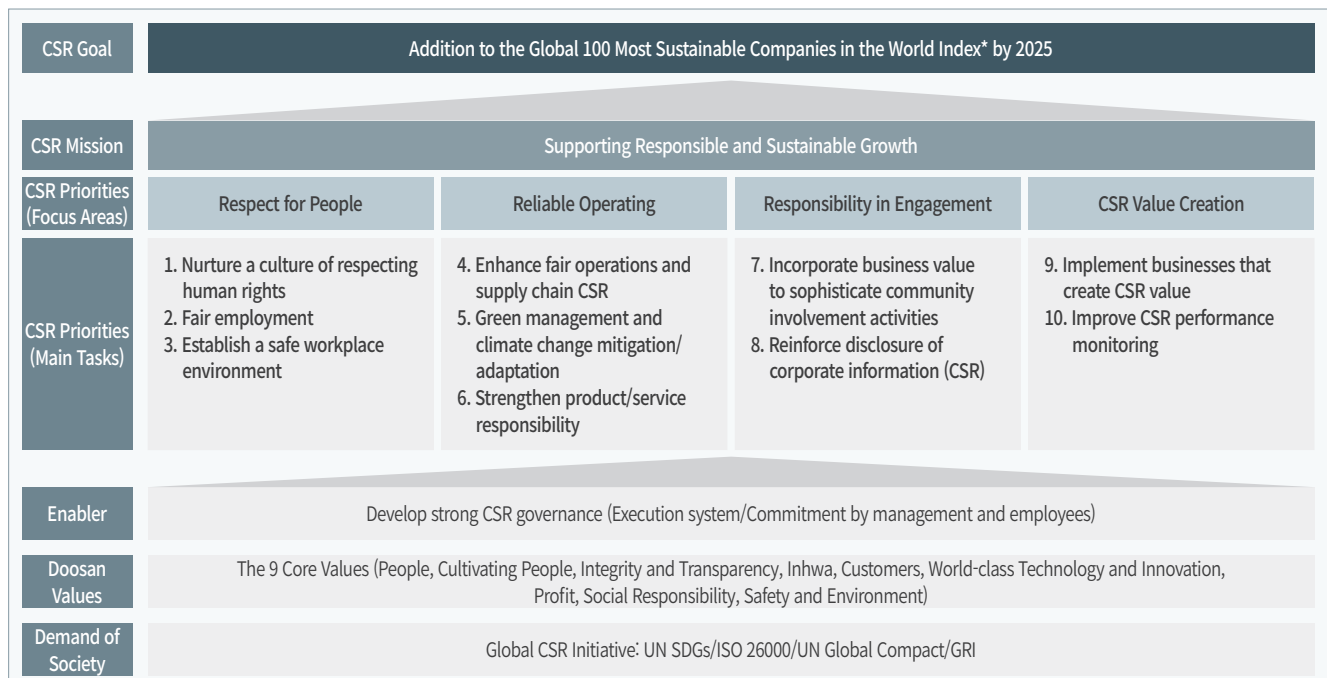
The head of the business division serves as the chairperson, with the relevant officers assuming responsibility for five subcommittees, namely, the HR, EHS, R&D, Supply Chain and CSR subcommittees. The heads of BG/BU participate in the CSR Committee as its members to enable each business division to aggressively promote CSR activities. The CSR Committee holds three meetings per year, at which the progress and plans of tasks are reported by each BG/BU. Furthermore, the meetings serve as a forum for designing improvement plans through in-depth discussion of key CSR issues.

Key CSR activities

Doosan Corporation operates a CSR team dedicated to carrying out CSR management more effectively. It also induces collaboration among its BG/BU and teams at the same time by operating systems for the smooth performance of strategic tasks.

The CSR team diagnoses the CSR of management activities in order to survey economic, environmental and social risks and opportunities each year, and reports the outcome to the CSR committee chairperson and the heads of the BG/BU. The team develops action plans by drawing up improvement tasks through subcommittees composed of working-level personnel belonging to BG/BU. The members in charge of the five subcommittees report the plans for implementing the tasks to the CSR Committee after surveying the progress of their respective subcommittee. In addition, CSR reports on the achievements and plans reported by the CSR Committee are published each year to share and communicate with stakeholders in and outside the Group.

In 2016, a system was put in place for horizontal deployment of BG-level best practice factors in CSR at overseas worksites. In 2017, Doosan Corporation began to introduce its CSR operation system overseas, starting with its worksites in China. Key accomplishments include the strengthening of human rights management, revamping of the supplier evaluation system to spread CSR practices to the supply chain, improvement of the energy management system based on energy requirements per unit of output, establishment of an environmentally-friendly product development strategy, due diligence on privacy and data security and raising related awareness, and active involvement in community interests and social causes.



*Standards published by the World Economic Forum, Davos, Switzerland

3 Transparency of Governance

Composition of the BOD

The Board of Directors (BOD) is responsible for deliberating and voting on major business issues and making decisions on matters stipulated by laws and corporate by-laws, matters delegated by the general shareholders' meeting, and other important matters concerning the company's basic management policies and operations. As of March 2018, the Board consists of seven Directors, of which four are external Directors. There are three committees established under the Board, which are composed wholly of external Directors: the Audit Committee, Internal Transaction Committee and the External Director Candidate Nominating Committee.

BOD operations

The BOD makes decisions on major items of agenda and integrates shareholders' feedback into the decision-making process through the BOD and IR Events to make deliberation more effective. Pursuant to the applicable laws, Doosan allows all directors to participate in the decision-making process by such means as real-time voice communication, whereby directors are deemed present at the relevant BOD meetings. The BOD can host ad-hoc meetings when deemed necessary, and can also delegate a portion of its authority to the BOD committees to ensure swift and efficient decision-making, in which case thorough reviews are performed and the details of deliberation and outcomes are reported to the BOD. Meetings of the BOD are convened when a majority of the directors are present, and decisions are made when the majority of directors support such decisions. If a quorum with weighted voting is required by the laws and regulations, such a quorum is observed. Directors cannot vote by proxy, and directors with personal interests in certain agenda items cannot vote on them. In 2017, the BOD met eleven times with an average attendance rate of 95%.

Independence of the BOD

The BOD maintains three or more outside directors, thus satisfying the target it set, namely, that outside directors should always make up the majority of all directors. In this way, balanced and objective decision-making is facilitated, while the checking functions of the BOD have been reinvigorated. Directors who have interests in specific matters are restricted from voting on such matters. There are three committees under the BOD (including the Audit Committee), each of which is composed solely of outside directors so as to ensure independence and transparency. For the Audit Committee to perform audits effectively, the committee may request a report on the company's operations or an investigation of the status of its corporate assets. If deemed necessary for auditing, the committee may also request the relevant employees or external auditors to attend meetings while seeking advice from experts at the company's expense.

Procedure and standards for the appointment of outside directors

To fully perform the BOD's role in promoting checks and balances, Doosan preserves the independence of the outside directors pursuant to the stringent requirements set forth by commercial law. Outside director candidates are nominated by the Outside Director Candidate Nominating Committee, which is composed of three external experts, and are selected by the general shareholders' meeting.

Approval of key matters

The BOD approves key management issues, including the disposal or transfer of important assets and the borrowing of assets worth a large amount pursuant to the relevant statutes or internal regulations. In 2017, it approved 38 cases that were referred to it, including the 80th Annual Financial Statement and the business report. The details of such issues are disclosed in the business report and other related documents to ensure transparency.

Composition of the BOD

Classification	Name in Full	Major Career	Duties	Date Appointed for the First Time
Inside Directors	Jeongwon Park	(Presnet) Chairperson of Doosan Corporation (Presnet) Chairperson of Doosan Construction Co., Ltd.	CEO, Chairman of the BOD	2016
	Hyunsoo Dong	(Presnet) Vice chairperson of Doosan Corporation	CEO	2018
	Minchul Kim	(Presnet) Vice president of Doosan Corporation	CEO	2018
Outside Directors	Gwang-su Song	(Present) Advisor to Kim & Chang law firm (Previous) 33rd Prosecutor General	Internal Transaction Committee, Outside Director Candidate Nominating Committee	2013
	Chang-hwan Kim	(Present) Advisor to SG Tax & Consulting Group (Previous) Commissioner of Busan Regional Tax Office	Audit Committee, Internal Transaction Committee	2013
	Doo-hee Lee	(Present) Professor of Korea University Business School (Previous) Dean of Korea University, Business Management School	Audit Committee Outside Director Candidate Nominating Committee	2018
	Hyung-ju Kim	(Present) Professor of Seoul National University, Engineering College (Previous) Vice dean of Seoul National University, Computer Engineering Department	Audit Committee Internal Transaction Committee Outside Director Candidate Nominating Committee	2017

* As of March 2018

Transparency of Governance

Diversity of outside directors

Doosan Corporation has adopted various procedures for organizing its BOD so that diverse viewpoints can be reflected in its management, including gender, specialization, industrial experience, and origin. It is also striving to enhance the expertise and diversity of its board members as well as their individual capabilities.

Evaluation and compensation

Directors' compensation is determined within the director compensation limit approved by the general shareholders' meeting. Outside directors receive standard fixed pay, whereas inside directors receive a compensation package consisting of salary, incentive pay, and severance pay in a fair and transparent manner in accordance with the executive management policy.

Stakeholder communication

The BOD interacts with Doosan's stakeholders through internal and external communication channels such as disclosures and IR events. To promptly provide management information to shareholders and stakeholders, decisions made at the general shareholders' meeting and key decisions made on business operations are disclosed immediately.

BOD Committees			
	Audit Committee	Internal Transaction Committee	Outside Director Candidate Nominating Committee
Members	Chang-hwan Kim Doo-hee Lee Hyung-ju Kim	Gwang-su Song Chang-hwan Kim Hyung-ju Kim	Doo-hee Lee Gwang-su Song Hyung-ju Kim
Responsibility	Audit Company's accounting and business operations and review the operational status of the internal accounting management system	Deliberate on and approve internal transactions pursuant to the fair trade law	Recommend outside director candidates
Activity Description	Review the outcomes of accounting audits performed by external auditors, consult on non-audited services, review the operational status of the internal accounting management system, etc.	Approve inter-affiliate transactions, etc.	Recommend outside director Candidates, etc.

* As of March 2018

Stakeholder Engagement

Doosan Corporation defines its stakeholders as those who wield direct or indirect influence on its business activities. Its key stakeholders include shareholders, investors, customers, employees, suppliers, local communities, and government agencies. Doosan operates communication channels to listen to the opinions of its stakeholders and reflect them in its management. The outcome of the stakeholders' participation is reflected in Doosan's management activities. The achievements of our major activities are disclosed transparently in the annual CSR Report.

Channels for engagement by stakeholders

Stakeholders	Major Issue	Communication Channel
Customers	<ul style="list-style-type: none"> Handle customer complaints and strengthen customer satisfaction initiatives Improve product quality and strengthen product accountability 	<ul style="list-style-type: none"> VOC Technical review meetings Customer satisfaction surveys
Shareholders & Investors	<ul style="list-style-type: none"> Participate in the decision-making process through general shareholders' meetings Healthy corporate governance 	<ul style="list-style-type: none"> General shareholders' meetings Disclosure IR events Website
Employees	<ul style="list-style-type: none"> Job satisfaction and welfare improvement Active organizational communication Build mutually beneficial labor relations 	<ul style="list-style-type: none"> Employee surveys Corporate newsletters In-house intranet Labor-management council
Local Communities	<ul style="list-style-type: none"> Regularly gather feedback from local communities Support the growth of local communities in the vicinity of worksites 	<ul style="list-style-type: none"> CCI programs Discussion meetings with local communities Sisterhood ties and partnerships
Governments	<ul style="list-style-type: none"> Legal and regulatory compliance Public-private cooperative partnership 	<ul style="list-style-type: none"> Participation in government-led projects Partnership agreements with governmental and public organizations
Suppliers	<ul style="list-style-type: none"> Assist suppliers in strengthening competitiveness and capacity Expand the sharing of information 	<ul style="list-style-type: none"> Cooperative Council Hotline Technical review meetings

Interview with experts

Doosan Corporation interviewed experts to identify and reflect key issues related to its CSR activities while surveying the expectations of its stakeholders. It listened to the opinions of experts specializing in corporate governance, customers, shared growth with suppliers, environment, and CSR on the current status of Doosan Corporation and the direction it will have to take. The experts were interviewed individually, and the questions were reorganized in a way to assist the stakeholders' understanding of the issues.



Jinsoo Yoon, Division Head, Korea Corporate Governance Service

“ Since the introduction of the Korea Stewardship Code, calls for the correction or improvement of unhealthy business practices have been growing louder as shareholder voting rights have been exercised by the National Pension Fund and numerous institutional investors more actively. Doosan Corporation has done its best to deploy a transparent governance structure. It will attempt to become a leading business in the field of CSR by strengthening its governance structure to meet the global standards, such as enhancing independence in the organization and management of its BOD and by collecting and reflecting more stakeholders' opinions in managerial decision-making.

“

Consumer-related complaints have been raised incessantly against the local retail industry, including leaks of personal or private information and false hype. Under such circumstances, communication with the consumers is more important than anything else. Actual consumer-oriented management of duty-free shops must be put into practice by understanding the consumers' voice and requirements. Doota Duty Free Shops try to satisfy customer needs by offering K-style goods and differentiated theme zones. They are also expected to make concerted efforts to create shared values with the local community.

”



Sungkyung Kang, Director, Korea Consumers' Foundation



Taeksu Kim, Senior Consultant, Korea Productivity Center

“ Suppliers have gradually become more important in terms of quality and cost in business operations. Furthermore, the government is urging businesses to promote joint projects or develop an ecosystem in which they can grow together with secondary and tertiary suppliers instead of simply providing them with unilateral support. Doosan Corporation has induced substantial achievements such as enhancing the field productivity of its suppliers as well as preemptively responding to such changes through its programs for upgrading their competitiveness.

”

“

Climate-related Financial Disclosure activities have attracted significant attention globally in connection with the environment. In Korea, the need for an enhanced circular economy system is being heightened. So far, Doosan Corporation has made successful efforts to monitor and address such changes. It is necessary to participate in international initiatives considering the global objectives and directions and to disclose information concerning active participation in the development of environmental objectives, and the achievements of such activities.

”



Jungnam Kim, Director, KPMG



Yongho Woo, Director, Community Relations Center

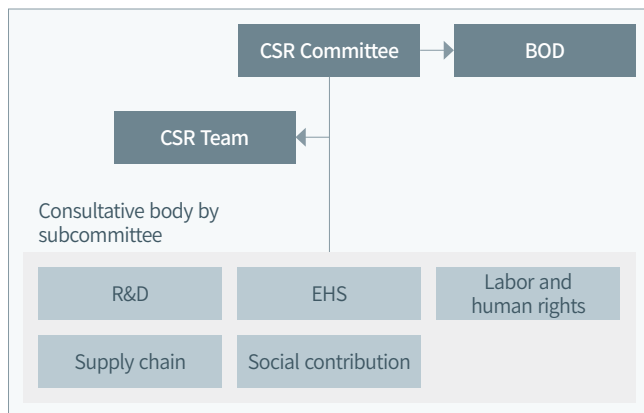
“ The atmosphere for cooperation and collaborative governance was recently heightened by promoting the social economy around local communities. Accordingly, businesses are required to create social values based on a spirit of social entrepreneurship while promoting active CSR activities that help develop local communities. Doosan Cooperation is expected to carry out CSR activities that have a significant social impact along with the activities it has successfully conducted thus far, including those related to education, culture, and sharing.

”

Risk Management

Risk management system

Recognizing that risk management is one of its key business management systems, Doosan Corporation carries out enterprise-wide risk management of business activities at all its worksites across the world. Key risks are recognized by classifying them into financial and non-financial risks.



Financial risk management

Doosan Corporation focuses on financial risk management with the aim of improving its financial structure and enhancing efficiency in the execution of funds in order to generate stable and continuous management achievements in conditions where risks are likely to arise in connection with market, credit, liquidity and exchange risks. In particular, it focuses on improving its financial structure and enhancing its fund management efficiency. Financial risk management is primarily led by the Treasury Team, which sets financial risks and management policies by closely working with other relevant teams, while identifying, evaluating, and hedging financial risks. In addition, Doosan aims to minimize the impact of financial risks that can arise through regular monitoring.

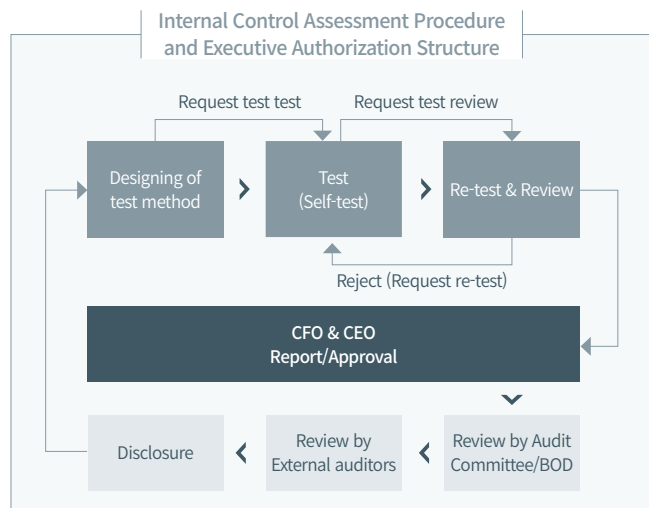
Non-financial risk management

Non-financial risks are managed by dividing them into business and sustainability risks. Each of Doosan's BG/BU manages business risks, while sustainability risks are managed by the CSR team of the business division in collaboration with the relevant departments. The CEO of Doosan Corporation BG, along with the heads of the BG/BU and the executives responsible for each division participate in three annual CSR Committee meetings in order to inspect enterprise-wide activities and achievements related to sustainability risk and identify and manage factors requiring improvement.

Internal control system

Doosan Corporation operates internal control assessment systems in order to enhance the transparency and reliability of information. The Doosan Internal Control Assessment System (DICAS) includes not only internal accounting management systems but also items related to operational efficiency and compliance as risk factors subject to control. It assesses every aspect of the company's business operations, including - but not limited to - finance, sales, purchase, and production. All BG/BU of Doosan Corporation perform a quarterly internal assessment by team, whereupon the Compliance Team inspects their performance. The outcome of the assessment is reported to the Audit Committee and the BOD via the CFO and the CEO based on the internal accounting management system and the Act on External Audit.

In 2018, Doosan plans to manage risks by applying the internal control assessment system to its newly launched business lines and overseas subsidiaries and branches around the world, including those in America and Europe. In addition, it intends to augment its operational systems continuously, while supplementing the internal control and management standards in response to the strengthened audit of the operational status of the internal accounting management system by external auditors based on the recent amendment to the Act on the External Audit of Shareholding Companies.



Emerging risk

Doosan Corporation manages emerging risks which may occur in the long run but are highly uncertain risks that are expected to have a grave impact on business in the event they actually arise. To manage emerging risks, Doosan identifies them by analyzing the political, economic, social, technological, legal, regulatory, and environmental elements of the macroscopic environment related to company business. Doosan constantly implements and monitors plans to mitigate each risk after determining the priority based on the time of its possible occurrence and its potential impact on business.

Key Emerging Risks		Potential Impact on Business	Risk Mitigation Activities
Changes in Technologies	<ul style="list-style-type: none"> Changes in markets attributable to new technological trends 	<ul style="list-style-type: none"> Business falling behind on the market as it fails to capture new growth opportunities in a timely manner 	<ul style="list-style-type: none"> Analysis of market opportunities for technological changes Introduction of Product Development Roadmap and Technology Development Roadmap reflecting technological trends
Fluctuations in Markets and Business	<ul style="list-style-type: none"> Slow growth of existing main markets Intensified price competition due to excessive supply Emergence of new competition elements 	<ul style="list-style-type: none"> Decreased sales of existing main products Decreased profitability due to decline in selling prices and competition for securing of supply volume Decrease in market share 	<ul style="list-style-type: none"> Reshuffle of product portfolio: Focus on high-performance, high value-added products Expansion of business lines: Provide a total solution across the entire value chain, veering away from existing business lines Increased sales in overseas/emerging markets
Procurement of Raw Materials	<ul style="list-style-type: none"> Supply imbalance of imported raw materials (if raw materials export is limited by supplying countries based on their priority on domestic industries) 	<ul style="list-style-type: none"> Production disruption due to shortage of raw materials Customer dissatisfaction and damage to corporate image due to failure to deliver ordered products 	<ul style="list-style-type: none"> Diversification of supply channel of raw materials
Climate Change and Environmental Risks	<ul style="list-style-type: none"> Enhanced environmental regulation Depletion of fossil fuels/unstable supply 	<ul style="list-style-type: none"> Market opportunities lost by failing to satisfy environmental regulations 	<ul style="list-style-type: none"> Update of Product Development Roadmap and Technology Development Roadmap considering environmental impact Promotion of product innovation using alternative energy as energy sources

Anti-corruption/Ethical Management/Fair Trade

Anti-corruption and Ethical Management

Doosan's Code of Ethics

To ensure sustainable growth, Doosan has enacted its code of ethics as the guiding principles for the employees' performance of their duties in order to fulfill its corporate social responsibility, including Inhwa, customer-centered business philosophy, and transparent management. Doosan encourages its suppliers as well as all its employees to comply with the code of ethics. Doosan has also enacted and adhered to the detailed regulations for the code of ethics so as to embed the code in the work and life of its employees.

* Click the following link to view further details concerning Doosan's Code of Ethics
<http://www.doosan.com/kr/csr/csr-code/code-of-conduct/>

Anti-corruption and ethics education

To enhance the ethical business mindset of its employees, Doosan Corporation conducts ethical business education each year and collects sworn statements to observe the code of conduct from all of its employees. In addition to cyber education, collective education and ethical business education programs and workshops, in 2017, Doosan provided online education for office workers and collective education for technical workers at overseas subsidiaries in six different languages: English, Chinese, French, Vietnamese, German, and Czech. In 2018, Doosan provided ethics education to its suppliers to further consolidate the foundations for ethical business.

Anti-corruption questionnaire survey from suppliers' employees

Furthermore, Doosan conducted an anonymous questionnaire survey on 298 of its suppliers to prevent corruption or malpractice while surveying the status of the ethical business practices of their employees. It also reflected for improvement in its ethical business policies by assessing the level of ethical business and anti-corruption of all its employees.

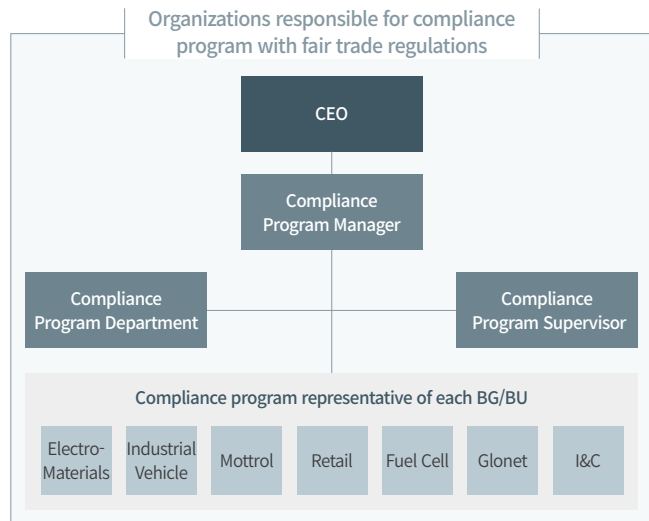
Whistleblowing system

Doosan has set up an internal confidential reporting system to establish a transparent and fair system of ethical management. By keeping the details of such reports confidential, it protects informants and ensures that they do not suffer any disadvantages. Major issues are investigated and reported to the CEO and the Audit Committee. Doosan Corporation operates a cyber whistleblowing center at its website, where anyone can file a report either anonymously or under their real name. In 2017, it received 17 tip-offs concerning violations of Doosan's anti-corruption policies or code of ethics. Based on these reports, it improved the internal business processes, conducted preventive education, and took disciplinary action against those concerned.

Fair Trade

Compliance program with fair trade regulations

Since 2004, Doosan Corporation has operated a compliance program with fair trade regulations in order to promote transparent and legitimate business activities and to foster a culture of compliance with fair rules while fulfilling its corporate social responsibility. In 2017, it amended its manual for the fair trade regulation compliance program to allow working-level employees to apply it to the performance of their duties. It also concentrated on preventing violations of the law by monitoring fair trade practices while providing its employees with education on the Act on Fair Transactions in Subcontracting, Act on Fair Agency Transactions, and Act on Fair Transactions in Large-scale Franchise, and Retail Businesses. It plans to continue providing such education for its employees while strengthening the monitoring of fair trade practices.



Research and Development

Enhancement of Technological Competitiveness

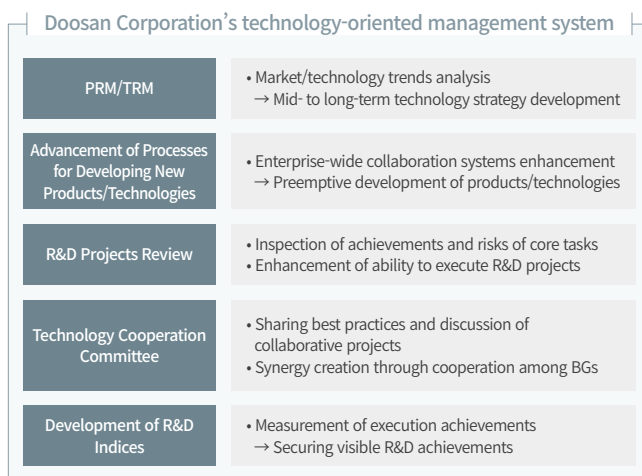
Market-based technological competitiveness

Doosan Corporation practices technology-oriented management that leads the innovation of technologies, products, and solutions based on market and customer requirements and analysis of rapidly changing technology trends. It steadily explores and preemptively secures innovative technologies in order to develop, in a timely manner, market-leading products according to its mid- and long-term business strategies. All of Doosan Corporation's BG/BU have strengthened PRM¹⁾ and TRM²⁾ with specific action plans, and have reoriented their mid- and long-term growth objectives towards rapid growth and a highly profitable business portfolio, based on an analysis of changes in markets and the technological environment.

- 1) Product Development Roadmap
- 2) Technology Development Roadmap

Enhanced ability to practice technology-oriented management

To enhance its ability to practice technology-oriented management, Doosan Corporation operates various assemblies organized and managed by the CEO. The periodic R&D Project Review inspects newly started projects and the ongoing progress of R&D Projects. Technology Cooperation Committee discusses agenda items common to all BGs, such as AI and digital transformation, to draw up implementation tasks. In 2017 in particular, it developed R&D indices so that the achievements of technology-oriented management can be monitored and continuously assessed. In 2018, it plans to enhance its execution capability by implementing timely decision-making and efficient operational practices.



Establishment of enterprise-wide integrated IP strategy

Doosan Corporation has established a leading IP portfolio management system based on its enterprise-wide patent strategies. In 2017, it has completed the development of an integrated IP management system and deployment of an AI-based IP analysis solution. The new IP system is being actively used to analyze new business and new technologies in our existing businesses in order to determine key relevant strategic patents.

Development of Environment-friendly Products

Eco-friendly product development initiatives

The Industrial Vehicle BG defines environment-friendly products as Eco-products and Premium Eco-products based on its assessment of environment-friendly product indicators. In addition, it conducts R&D aimed at increasing the proportion of environment-friendly products among all the BG's products. In 2017, it formed a committee to respond to REACH³⁾ and REACH Registration⁴⁾ in collaboration with the relevant departments and suppliers. It will continue activities to enhance the environmental performance of products.

- 3) Registration, Evaluation, Authorization & Restriction of Chemicals
- 4) REACH registration is performed in three stages depending on the amount of substances. The 3rd registration is scheduled for completion by 31 May 2018.

Eco-friendly product grade of the Industrial Vehicle BG		
	Definition	Indicators
Eco-product	Products that meet all the regulations in its respective markets and satisfy all the indicators	<ul style="list-style-type: none"> Emission Noise
Premium Eco-product	Products that satisfy additional customer requirements and recommendations by market while satisfying the standards for Eco-product	<ul style="list-style-type: none"> Emission Noise Energy consumption rate

The Electro-Materials BG built its R&D roadmap around developing an environment-friendly product portfolio based on environment-friendly elements such as lead-free materials, halogen-free materials, light-weight automotive materials, low-power display materials, and renewable energy parts. In addition, it has designated the review of environment-friendly products as an essential aspect of the interim inspection during product development, and only releases products after verifying their harmful or toxic nature in advance.

The Mottrol BG has established plans and objectives for the development of products that will meet the requirements of international environmental regulations, including REACH and RoHS, with regard to the development of environment-friendly materials. In 2017, it completely prohibited the use of parts containing hexavalent chromium, a designated priority pollutant.

Certification of safe environmental-friendly products

The Glonet BG develops all its products using only natural ingredients. In particular, it verifies that its key ingredients are GMO-free through stringent inspection. The production process is closely monitored through the GMP system, at every step, from raw materials to final products. Meanwhile, by obtaining the PSM5) and ISO 14001 certifications, a safe and healthy workplace is guaranteed for employees. The Glonet BG has replaced toxic solvents with environment-friendly ones, and uses minimal amounts of solvents in its production processes. Due to these efforts, it acquired six Ecocerts, strict organic certifications of the EU, in 2017.

- 5) Process Safety Management

Customer Satisfaction and Quality Management

Customer Communications and Quality Management

Customer communication channels

Doosan has improved customers' perception of product quality by strengthening the quality of its services at the customer contact point. The Electro-Materials BG promoted various Q-Day activities on a weekly basis at the initiative of the quality departments as part of a drive to reduce the number of customer complaints. On Q-Day, it carries out activities to discuss improvement plans while sharing issues related to customers and internal quality. As a result of these improvement activities, the number of VOC cases decreased by 40% in 2017 compared to the previous year. The Mottrol BG was able to shorten the response time to customer claims by improving its system for monitoring the entire process from the receipt of a claim to the final resolution of an issue. In addition, it is steadily improving the customers' perception of quality by strengthening the network with customer companies at home and abroad and by actively reflecting the voice of the customer. The Fuel Cell BG ensures that after-sales service requests are promptly processed upon reception through the VOC process. It has also established a system whereby the improvement points identified through the VOC - by operating weekly quality and service meetings - are reflected in both product improvements and the development of new products. Meanwhile, the Retail BG has constructed an integrated VOC database to respond to customers' requests efficiently and systematically. It carries out activities aimed at improving services based on the information acquired from all channels, including on- and off-line customer centers, shops, and goods delivery spots. Furthermore, it has improved customer-centered thinking and the reception ability of employees at contact points by waging service campaigns. On the other hand, the Glonet BG operates a system that monitors and inspects all processes from the reception of issues to the final resolution of reported problems. Problems are recognized and improved on an enterprise-wide basis by periodically disclosing the status thereof - from reception to completion by stage - to all members. In 2017, it provided the sales personnel of its overseas retailers with opportunities to visit factories, and with education on local markets and products, including education for the personnel of overseas retailers.

Reflection of customers' opinions in product development

By reflecting the opinions collected from customers in product development, it was possible to improve both customer satisfaction and product values. The Industrial Vehicle BG holds the monthly "Quality Conference" at which the departments in charge of sales, quality assurance, and R&D get together to discuss how to provide the best products to satisfy customer requirements. In addition, it reflects customers' opinions in its products by operating the quarterly "Product Advisory Group," which is composed of the home office sales and dealer council, as well as the "Service Manager Meeting" and the "Meeting of Mid-Level Sales Personnel."

The Mottrol BG supplies optimized products through close communication with the customers from the initial review of specifications to the mass-production stage. To that end, it develops products that reflect customers' opinions through technology exchange meetings, promotion, and development processes. Similarly, the Glonet BG designs products to meet the target customers' needs (quality and price requirements) through close communication with them from the initial review of specifications to mass production. In addition, it provides key foreign customers with education on technology exchange and products.

Protection of customers' personal information

Doosan Corporation implements its own internal personal information management plans to prevent customers from incurring damages due to leaks of their personal information. In the last five years, there was no leak of Doosan customers' personal information.

Enhancement of quality management systems

Doosan Corporation strives to satisfy the quality requirements of its global customers by acquiring the relevant quality certificates. The Electro-Materials BG completed the process of switching to the quality management system IATF-16949¹⁾ certification at all its domestic worksites and the Changsu Corporation in order to enter the automotive materials market in 2017. As for the Industrial Vehicle BG, it operates a quality management system based on the ISO9001 Quality Management System by introducing a customer-oriented quality assessment system and steadily improving programs for enhancing the competitiveness of its suppliers in securing parts of reliable quality. The Mottrol BG operates a quality management system based on ISO9001, and has upgraded its quality management by deploying SPC²⁾ in conjunction with its suppliers. It also responds preemptively to changes in quality management systems by acquiring a certification for the AS9100 Rev. D³⁾ specifications, which were strengthened based on situation analysis and risk-based thinking of the organization. The Fuel Cell BG conducts quality management based on ISO9001, KGS Design Group Inspection, KS, and other quality management system certifications. In the future, it plans to acquire the CE (Conformity to European) certification. As for the Glonet BG, it acquired certificates under the revised standards for IISO9001 and ISO14001:2015 by developing new manuals and systems. The I&C BU operates the quality management system it established based on ISO9001 and ISO20000 (International Standards for IT service).

1) Certification of the latest TS16949, Quality Management System for automotive Industry under ISO9001

2) Statistical Process Control

3) Certification of the latest AS9100, Quality Management System for aerospace Industry under ISO9001

Quality Management

Quality improvement efforts by BG/BU	
	Key Activities
Electro-Materials	<ul style="list-style-type: none"> • Deployment of data-based management system - Application of real-time monitoring of key indicators and early alarm system - Enhancement of quality through big data analysis
Industrial Vehicle	<ul style="list-style-type: none"> • Task force team activities for enhancing the quality competitiveness of suppliers • SENX activities (SENX¹⁾, 3rd-generation DFSS²⁾ • Enhancement of product competitiveness by upgrading the quality management system (DCA³⁾, benchmarking)
Mottrol	<ul style="list-style-type: none"> • Digital inspection certificate being issued by suppliers • Quality management level under upgrade by deploying the SPC system linked with suppliers • Deployment of Q-Cost⁴⁾ management system
Fuel Cell	<ul style="list-style-type: none"> • Production data collected based on statistical quality management • Quality audit performed on key part vendors • Management of product installation standardization and registration of customer complaints
Glonet	<ul style="list-style-type: none"> • Quality management and improvement plans drawn up for mass production • Supplier quality audited
I&C	<ul style="list-style-type: none"> • Service request management based on standard processes • Project audit enhancement

- 1) Speed Engineering-X
- 2) Design for Six Sigma
- 3) Doosan Customer Audit: The activities assessing the quality of the finished vehicles in terms of external appearances and 170 other items using one or two sample vehicles from the customer's viewpoint
- 4) Losses caused by quality issues

Talent Management

Employee Communication

Change Agents

A Change Agent (CA) is an employee who is appointed to lead and execute changes at Doosan Corporation. Since the launch of the Doosan Way in 2012, CAs have engaged in active communication within their respective organizations and units. The remit of each CA is to support the main task of their team and ultimately to realize the Doosan Way through that task. As of the end of 2017, 156 CAs including administrative and technical staff at home and abroad were leading the communication culture at Doosan Corporation.

Town hall meetings at home and abroad

Doosan Corporation's top management team conducts global field management. It frequently holds town hall meetings hosted by members of the top management team so that employees can speak with one voice concerning the direction it pursues as a global business. The ideas and opinions of the top management are delivered directly to employees across the world, working as a driving force to unify Doosan members.

Labor-management culture based on mutual trust

Doosan Corporation has established win-win labor-management relations while enhancing mutual understanding through active communication between labor and management. It holds quarterly labor-management council meetings, as well as council meetings, joint activities, and management briefing sessions led by field managers. In 2017, it was selected as a "Business with an Exemplary Labor-Management Culture" by the Ministry of Employment and Labor in recognition of its contribution to the development of local communities through joint CSR activities between labor and management.



Doosan Corporation Industrial Vehicle BG selected as Business with an Exemplary Labor-Management Culture

Talent Management

Development of Human Resources

Leadership education

Doosan Corporation operates diverse education programs designed to enhance leadership skills. A company-wide junior MBA program is offered to non-executive staff, including Assistant Managers, to provide them with an opportunity to acquire general knowledge of business management. In addition, it has conducted leadership education for technical personnel.

Each BG operates leadership education programs suited to their specific characteristics. For instance, the Electro-Materials BG conducted a short-term MBA course to enhance the basic financial accounting skills of its team leaders. The Glonet BG enhanced the communication capability of its team leaders with the Team Leader Quantum Jump course and the Communication Leadership course. The Retail BG also conducted leadership education to enhance the leadership skills of the deputy managers who control sales employees.

Job capability education

Doosan Corporation conducts job education to enhance the expertise of its employees. It also strives to reinforce job skills for new business projects in a timely manner. Its BGs conduct enterprise-wide quality education for those responsible for quality duties. In particular, the Industrial Vehicle BG conducted R&D education for newly hired employees to enhance the R&D job skills of those who are responsible for R&D. The Retail BG ran education and coaching programs to enhance MD job capabilities, the core competence of the BG. The Fuel Cell BG has developed education systems for its service teams as well as a Customer Response Manual for use in education.

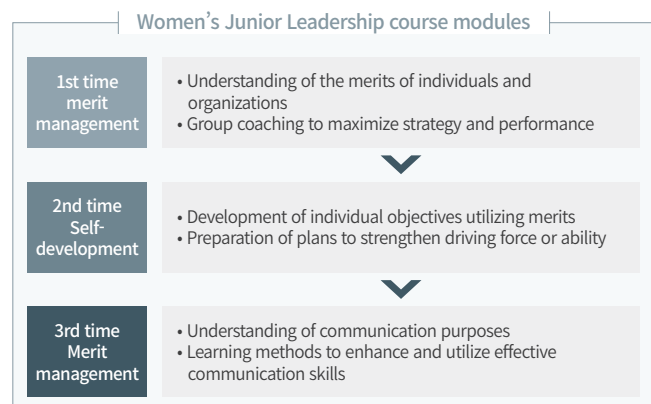
	Key Achievements
Electro-Materials	<ul style="list-style-type: none"> Short-term MBA programs conducted on two occasions (completed by 21 employees)
Mottrol	<ul style="list-style-type: none"> R&D Academy 20 courses conducted (completed by 206 employees)
Retail	<ul style="list-style-type: none"> MD management capabilities enhancement course conducted (completed by 10 employees) MD coaching conducted 4 times (completed by 8 employees)
Fuel Cell	<ul style="list-style-type: none"> Winning Doogather Workshop conducted for service teams (completed by 32 employees) Basic job skill education conducted for service teams (completed by 12 employees)
Glonet	<ul style="list-style-type: none"> Team leader leadership enhancement course conducted (completed by 26 employees)
I&C	<ul style="list-style-type: none"> Enterprise-wide IT trend competence enhancement program conducted Job skill development system deployed for China corporation (DSIC)

Expanding leadership by female managers

To foster the professional growth of female employees and create a company in which all members thrive, a Women's Council has been in operation since 2014. The Women's Council operates tailored education programs designed to promote the steady growth of female employees. In the first quarter of 2018, the "Junior Leadership Course" was attended by 31 employees from various BGs and companies in which Doosan Corporation invests. The education program covered issues such as merit management, personal development, and communication and sympathy on three occasions. Percentage of female managers¹⁾ in 2017 is 10%.

Furthermore, the Women's Council held an event in Seoul and Incheon titled "Let's go to work mommy and daddy!" for employees with preschool kids in a bid to promote a better work-life balance. The event was attended by 149 employees who toured the company with their children, giving them an opportunity to communicate with each other and foster a stronger sense of unity.

1) It means above directors and below executives, including team leaders



Female junior leadership education

Human Rights Management

Principles of human rights management

Doosan respects the basic human rights of all people regardless of their origin, religion, gender, race, or any other attributes. Its respect for human rights is duly reflected in its Credo and code of ethics. To prevent risks related to human rights in the entire value chain operated by Doosan Corporation, it has deployed an articulate management system for risks related to human rights. It believes that human rights form the basis of sustainable development.

Complaint handling procedures

Doosan operates the Ombudsperson program and various other complaint handling programs to provide the necessary help by offering counseling on complaints raised by employees. In 2017, it improved access to its complaint handling processes and augmented complaint handling by increasing the offline complaint counseling personnel and channels.

Education and campaign on human rights management

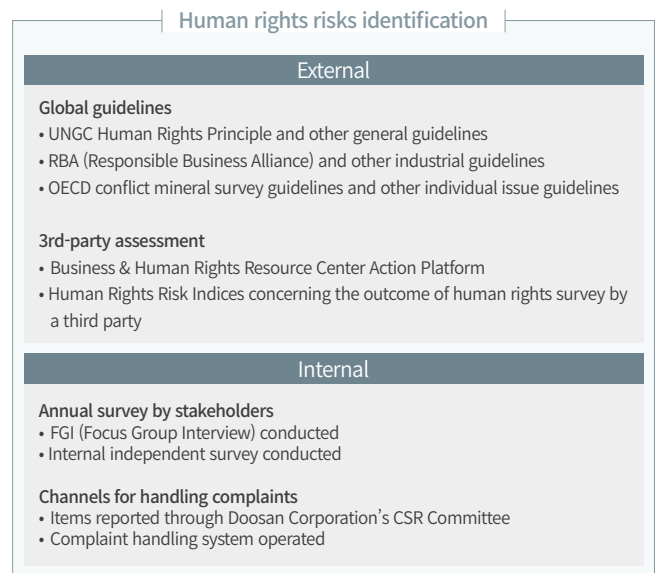
Doosan Corporation runs diverse education and campaign programs designed to foster a positive approach to human rights management. In 2017, it conducted skills enhancement education for internal human rights instructors. It also conducts enterprise-wide human rights education programs for all of its employees. In addition, it waged an enterprise-wide human rights campaign to prevent human rights violations. Each month Doosan selects and shares topics related to respect for human rights with the aim of fostering a culture of mutual respect and encouraging active practice by all employees.



Campaign on human rights management

Assessment and inspection of human rights related to labor

In accordance with the national Guide to Human Rights Impact Assessment and Management and Doosan Corporation's internal Guide, an assessment was conducted in all business divisions, on 35 items across 8 areas. It has developed or implemented improvement plans for the key risks of all worksites whose human rights record was assessed, including those related to the employment of physically disabled persons, records concerning personal information in the recruitment and HR management systems, augmentation of the processes based on the assessment outcome, and augmentation of education related to unfair labor practices. Doosan has been steadily increasing recruitment of physically disabled persons, and personal information obtained through the Group's employment portal, it is destroyed or deleted pursuant to the relevant statutes. It has also deployed a system for publishing individual evaluation/reward statements to allow employees to check the details of their individual performance evaluation and reward. It plans to provide education on unfair labor practices to all of its worksites within the third quarter of 2018.



EHS Management

Environmental Management

Response to and monitoring of new environmental regulations

As global public awareness of and interest in environmental issues such as environmental pollution, water shortage, natural disasters and climate change has increased significantly over the years, the importance of addressing them is also being increasingly emphasized. In this regard, Doosan has deployed an environmental management system designed to minimize the impact of company business on the environment. It preemptively responds to government regulations and trends by steadily monitoring business activities and surveying their impact on local communities. Furthermore, it has conducted in-depth expert education to secure essential EHS capabilities and enhanced its execution ability through participation in EHS participatory activities.

Stewardship of hazardous chemical substances

Doosan updates the regulations and countermeasures each quarter by keeping an enterprise-wide inventory of chemical substances. In particular, the Industrial Vehicle BG has fundamentally blocked the inflow of harmful chemicals by replacing those specified in the Chemicals Control Act or restricting purchases thereof. Doosan manages chemical substances by promoting organic cooperation among the production, purchase, and research departments. For the purchase of any new chemical substances, specific data including the Material Safety Data Sheet (MSDS), certification of verification of chemicals, and Letter of Confirmation (LOC) must be reviewed in advance. In addition, employees responsible for handling chemical substances at worksites periodically attend education courses on the safe handling of chemical substances, emergency actions to be taken in the event of exposure to chemical substances, and the importance of systematically wearing personal protective gear. All worksites also inspect the chemical handling facilities, including those intended for the storage, custody, and use of chemical substances. The company also devised and supplements items for improvement based on expert diagnosis.

Control of air pollutants

Doosan keeps the atmospheric pollutant emissions generated at its worksites below 50% of the standard allowed under the relevant statutes. In addition, it has reduced their environmental impact by developing more stringent standards than those stipulated in the statutes. In particular, the Glonet BG has reduced foul odors by retrieving the organic solvent containers used at its worksites, and has performed systematic monitoring in the neighboring areas for effective management since 2017.

Management of water use and effluents

Doosan Corporation manages water resource risks to reduce the risks related to the depletion of water resources and the maintenance of a stable water supply. It also maintains the density of water pollutants in final effluents below 50% of the current standard.

Environmental investment management

Doosan Corporation operates a system for the management of environmental expenditure to internalize its environmental management system. Its environmental investments are mainly focused on installing or replacing pollution prevention or environmental protection facilities and on constructing wastewater treatment stations and waste storage warehouses. The Glonet BG invested KRW 68 million in the replacement of its wash tower, a facility for preventing air pollution. As for the Mottrol BG, it spent KRW 53 million on the installation of a dust collector, while the Industrial Vehicle BG invested KRW 14 million in improving conditions at its washing station.

Waste management

To reduce the volume of discharged waste, Doosan separates its wastes according to its nature and state, and then legally treats them under its "Allbaro System".¹⁾ For the legal treatment of wastes generated by various processes, Doosan periodically educates and evaluates the vendors responsible for treating wastes. It also maintains consistent efforts to reduce the volume of wastes discharged by its processes. In 2017, the Mottrol BG reduced the amount of waste paint by 35% by modifying its painting method, thereby improving profitability and contributing to waste reduction simultaneously. Furthermore, the Industrial Vehicle BG reduced the cost of disposing of waste plastic resin scraps by KRW 24.67 million per year by collecting them separately.

1) Allbaro System: As the IT-based waste management system of the Korean government, it controls the entire processes of waste management from discharge to transportation and final treatment.

Response to climate change

Doosan discloses information related to the greenhouse gas emissions of its facilities in its business report, and controls them according to the IPCC Guidelines and the government's own guidelines. Doosan's statements of its greenhouse gas emissions and energy consumption and its plans for monitoring them are verified by a third party each year. Throughout 2018, Doosan Corporation will steadily strengthen its activities to reduce greenhouse gas emissions by setting a reduction target and introducing a system for managing the basic energy unit in order to participate actively in the government's efforts to respond to climate change.

Health and Safety Management

EHS leadership activities

Doosan Corporation has strengthened voluntary EHS management among the heads of its organizations based on the management team's deep interest in and support for EHS. All leaders personally perform diverse EHS leadership activities, including field EHS inspections, safety dialog, and EHS meetings. Through these measures, it has effectively raised the safety awareness of all its employees, thus contributing to the prevention of safety accidents at its worksites.

Worksites and facilities that continue operating in the event of a crisis

Doosan conducts BCM¹⁾ training each year to secure operational continuity by rapidly responding to disasters while protecting both its employees and valuable assets in the event of a critical situation. In 2017, the Electro-Materials BG conducted training on fire caused by Synthetic Heat Transfer Fluid and leaks of hazardous materials, while the Mottrol BG provided training on the necessary response and countermeasures to storms, floods, and fires. In addition, the Industrial Vehicle BG conducted training on worksite evacuation in the event of earthquake or fire, whereas the Glonet BG held a BCM drill in preparation for chemical leaks and fires caused by leaks. All of these activities were successfully conducted according to the relevant manuals and procedures, including ensuring employee safety, emergency aid, minimization of losses of assets, and actions for recovering normal operations.

1) Business Continuity Management: Management system designed to ensure the continuity of business operations in the event of a disaster or crisis



Emergency training



EHS leadership activity

Creating safer worksites together

Doosan Corporation has deployed a mutual cooperation system with our suppliers in order to establish safe and healthy worksites. In 2017, the Electro-Materials BG's Iksan and Gimcheon factories, the Industrial Vehicle BG, and the Mottrol BG participated in the "Win-Win Safety and Health Cooperation Program" systematically operated for a total of 16 suppliers, including safety and health-related education and support for hazard assessment.

Enhancing employee health

Doosan Corporation conducts periodic health examinations to enhance the health of its employees as well as those of its suppliers. It strives to protect their health by providing steady health counseling and effective tracking and management of those suspected to be suffering from illness. It has developed and operates diverse health enhancement programs for its employees, including a quit-smoking fund, an anti-obesity program, and a healthy diet management program. In addition, it actively operates preventive programs for health promotion. It closely controls areas related to mental health, including stress assessment and counseling.

Safety management of outsourced construction work

Doosan Corporation implements well-organized safety management programs that follow the internal processes for construction work safety management protocols in order to prevent the occurrence of industrial accidents at worksites related to outsourced work. In particular, the Industrial Vehicle BG contributes to raising the safety awareness of workers by conducting safety education and introducing a system in which education completion certificates are awarded to personnel involved in construction work. In addition, the Electro-Materials BG carries out prevention activities against diverse risks that may arise during construction work by operating an advance risk examination procedure for outsourced construction work.

Basic compliance with EHS rules

All of Doosan Corporation's worksites carry out activities designed to ensure basic compliance with the EHS rules and prevent the recurrence of safety accidents caused by non-compliance with those rules. They select items that must be observed without fail in order to prevent accidents based on risk assessment by worksite and process. By linking them to periodic education, publicity, inspection, and citation, all employees are naturally encouraged to comply with the safety rules with an advanced level of safety awareness.

Supply Chain Management

Sustainable supply chain management

Doosan Corporation assesses the sustainability of its suppliers in order to secure a sustainable supply chain. In so doing, it identifies areas for improvement among its suppliers and supports their efforts to achieve sustainability through feedback and education. It also promotes CSR activities among its suppliers by distributing guidelines on the establishment of a sustainable supply chain to them. It plans to spread the CSR activities to its overseas suppliers as well as its secondary and tertiary suppliers.

Shared growth with suppliers through localization

Doosan Corporation supports the localization of parts that are currently imported from abroad, thereby providing its suppliers with new business opportunities. The Fuel Cell BG has completed the localization of five fuel cell system parts¹⁾ which used to be sourced from overseas, providing suppliers in the region with new business opportunities valued at KRW 6.4 billion.

1) Super Module, PPs, RMs, CMs, Enclosure

Enhancement of suppliers' competitiveness through reforms

Doosan Corporation has performed diverse win-win activities to enhance the product competitiveness of its suppliers, including the provision of education by experts and the transfer of problem-solving methods. In particular, the Industrial Vehicle BG has fostered a win-win cooperation culture by improving the suppliers' factory environment and sharing its inventory control know-how and outcomes, and by forming internal task force teams with the Korea Productivity Center. As a result of these activities, the productivity and process quality of eight suppliers has improved significantly in the past two years.



Enhancing the competitiveness of suppliers

Management of conflict minerals

To eliminate social issues - including human rights violations, child labor, and sexual abuse - in Congo (DRC), Sudan, and Tanzania and other conflict-ridden African countries, advanced countries restrict the commercial use of four minerals (tin, tungsten, tantalum, and gold) mined in those regions by designating them as conflict minerals.

Doosan Corporation had devised and implemented various supply chain policies in connection with products and parts containing the relevant minerals or the actual minerals in order to participate in international community purpose and efforts concerning conflict minerals. Furthermore, it plans to introduce a procedure for checking whether the parts supplied by its suppliers contain any of the relevant minerals based on its conflict mineral management policies.

Guidelines on establishing a sustainable supply chain

Doosan Corporation sets the basic rules that should be observed by suppliers that supply products or services based on its guidelines on the establishment of a sustainable supply chain. These guidelines define the requirements that must be met by the suppliers, including those pertaining to labor and human rights, health and safety, environment, ethics, and fair trade. All suppliers dealing with Doosan Corporation are encouraged to comply faithfully with these guidelines.

Corporate Social Responsibility



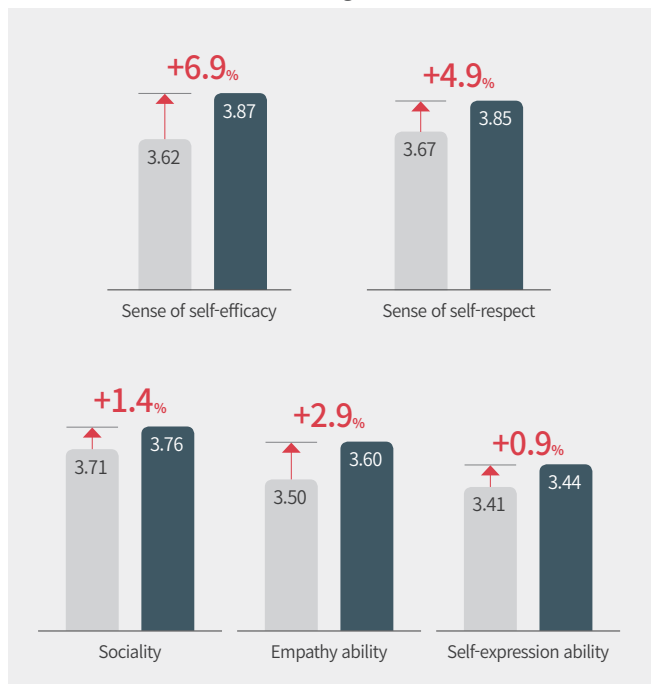
Time Traveler program

Launched in 2012, the Time Traveler program is Doosan Corporation’s representative program for cultivating youth in low-income family the emotions by helping to communicate with others and to develop an keen eye for viewing the world through photography theory, field practice photography, and human studies. In 2017, a total of 234 children and youth participated in the program, which provided education for newly elected students, in-depth education for existing students who had previously completed the courses, and education for alienated children and youth. Students who participated in the program held an exhibition to showcase 100 photos and essays with the theme “Hi! Youth” after completing the education courses. Moreover, a workshop was held to discuss the effects produced by the Time Travelers program on the emotional development of its youth participants over the past five years and to present case studies by participants and instructors. Future plans for the program were also discussed during this workshop.

CSR programs linked to business characteristics

Since 2014, the I&C BU has operated a program known as "Da-dox-geo-rim" which is designed to promote the intellectual and social growth of children while preventing their addiction to the Internet by encouraging them to read books. In 2017, it provided a tailored reading class for 120 children at Eden I Ville, a nursing home, and the Hanbit Children’s Center, thereby helping them to enhance their basic language skills and improve their emotional stability.

Effectiveness of the Time Traveler Program¹⁾



1) Measurement of effects: Kyeongeun Jeong, professor, social welfare, Chodang University

Matching grant by employee participation

Doosan Corporation raises charity funds jointly with its employees based on its matching grant initiative. It runs a scholarship project called “Youth Start!” and the "Single Mom's Future" program, which is designed to help single mothers become independent, based on selection by a Fund Committee composed of employees. Through the Youth Start scholarship program, the fund provided KRW 100 million worth of scholarships to 32 students from low-income family, thus allowing them to continue with their university education. Employees participate in the screening process for scholarship and provide support for their continued growth through various exchange such as volunteer activities and book mentoring. As a program aimed at helping single mothers to become independent, "Single Mom's Future" assisted 164 single or unmarried mothers who raise children and their groups with employment, vocational training, and emergency living allowances. In addition, it provided counseling and monitoring services courtesy of single mom mentoring activists during the education period.



Youth Start!

Sharing Tea with Love

Since 1991, Doosan has held “Sharing Tea with Love” events under a brotherhood agreement with the Baekdusan unit. This long-running CSR program has continued for 27 years, delivering warmth to soldiers serving on the front line in Kangwon-do. It has delivered 8,000 boxes of instant coffee and donation money in 2017.



Sharing Tea with Love

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Economic/Social/Environmental Data

Economic Performance

Financial Performance

Category		Unit	2014	2015	2016	2017
Balance Sheet	Total assets	KRW Million	3,509,598	3,478,223	3,744,673	3,950,029
	Current assets		639,610	713,534	810,638	980,974
	Non-current assets		2,869,988	2,764,689	2,934,035	2,969,055
	Total liabilities		1,399,060	1,368,966	1,632,123	1,750,271
	Current liabilities		742,714	870,354	1,042,961	1,319,120
	Non-current liabilities		656,346	498,612	589,161	431,151
	Total equity		2,110,538	2,109,256	2,112,550	2,199,759
	Capital		134,838	134,838	134,838	34,846
	Capital surplus		667,085	668,082	678,233	80,215
	Other capital adjustments		-368,143	-426,551	-428,592	-395,601
	Other accumulated income (loss)		35,661	42,963	39,338	48,546
	Earned surplus		1,641,097	1,689,925	1,688,734	1,731,753
	Total liabilities and equity		3,509,598	3,478,223	3,744,673	3,950,029
	Income Statement		Operating income	1,995,372	1,873,556	2,067,136
Sales		1,825,125	1,759,222	1,887,802	2,530,569	
Dividend profit		170,247	114,334	179,334	94,260	
Operating expenses		1,738,924	1,660,155	1,841,764	2,348,072	
Cost of sales		1,434,886	1,377,076	1,476,840	1,932,771	
Selling, general, and administrative expenses		304,038	283,079	364,924	415,301	
Operating profit		256,448	213,401	225,371	276,757	
Non-operating profit		32,647	44,342	42,678	90,329	
Non-operating expenses		83,015	97,708	113,753	114,347	
Net income before income taxes		206,080	160,035	154,297	252,739	
Corporate tax expense		19,680	36,711	495	47,638	
Income from continuing operations		186,399	123,324	153,802	205,100	
Income/Loss from discontinued operations		0	0	0	0	
Net income		186,399	123,324	153,802	205,100	

Economic Performance

Credit Rating

Category		Unit	2014	2015	2016	2017
Credit Rating	Korea Investors Service, Inc.	Grade	A+	A	A-	A-
	Korea Ratings Corporation		A	A	A-	A-
	NICE Information Service Co.		A	A	A-	A-

Distribution of Economic Outcomes

Category		Unit	2014	2015	2016	2017
Investors	Interest expenses	KRW 0.1 Billion	414	382	382	423
Shareholders	Dividend		735	723	913	1,004
Customers	Sales (exclusive of dividend payouts)		18,251	17,592	18,878	25,306
Suppliers	Purchasing expenditure		11,882	10,718	13,003	14,416
Employees	Salary, severance pay, benefits, etc.		2,816	2,674	2,896	2,857
Government	Taxes and utility charges, corporate tax expenses		245	408	44	516
Local Community	Donations, corporate community involvement expenses		81	171	74	73
Total				34,424	32,668	36,189

*The cost for the local community category may vary from the previous report due to changes in internal data collection methods.

R&D¹⁾

Category		Unit	2014	2015	2016	2017
R&D	R&D investment	KRW 0.1 Billion	475	453	630	880
	R&D investment to sales		2.6	2.6	3.2	3.7

1) 2016 data revised based on adjustment of calculation scope

Customer Satisfaction

Category		Unit	2014	2015	2016	2017
Customer Satisfaction Index (Electro-Materials BG)		Point	-	3.5	3.5	3.5
Customer Satisfaction Index (Mottrol BG)			3.6	3.4	3.8	3.6

Anti-corruption/Ethical Management

Category		Unit	2014	2015	2016	2017
Ethical Management Education	Education Hours per Capita	Hours/Persons	0.99	1.76	1.0	1.0
	Education participants	Persons	2,117	1,890	2,295	2,056

Sustainable Supply Chain

Category		Unit	2014	2015	2016	2017
Sustainability of Supply Chain	No. of key suppliers	Suppliers	278	365	342	235
	No. of suppliers subject to sustainability assessment		-	-	121	123
	Total purchases from suppliers	KRW 0.1 Billion	11,882	10,718	13,003	14,390
	Purchases from key suppliers		9,081	7,367	7,474	9,668
	Total purchases from SMEs		5,898	5,059	6,309	6,930

* Doosan Corporation identifies key suppliers by reflecting the operational characteristics of each BG while analyzing the following: 1) strategic importance, 2) consultative body organization, 3) scale above a given level, 4) supply of key parts, 5) replacement infeasible, and 6) requirements of suppliers subject to subcontracting.

Environmental Performance

Environmental Efficiency

Environmental Investment (Domestic/Overseas)

Category		Unit	2014	2015	2016	2017
Environmental Investment and Expenses	Total	KRW 0.1 Billion	96.9	80.2	101.2	88.2
	Domestic		87.6	52.8	72.6	61.9
	Overseas ¹⁾		9.3	27.4	28.6	26.3

1) Modified as scope of overseas data to collect has expanded (Changshu, CFL, DLE, DMJC, FCA)

Air Pollutants

Category		Unit	2014	2015	2016	2017
NOx Emissions		Tons	55.1	56.7	58.2	55.4
SOx Emissions			1.6	0.3	1.2	1.0

Water Use (Domestic/Overseas)

Category		Unit	2014	2015	2016	2017	
Total Water Use		Thousand Tons	669	1,008	967	1,011	
Water Use by Resource	Domestic		Total	576	559	500	515
			Water supply	386	383	427	457
			Groundwater	190	176	73	58
			All other sources	0	0	0	0
	Overseas ²⁾		Total	93	449	467	496
			Water supply	93	379	414	416
			Groundwater	0	0	0	0
			All other sources	0	70	53	80

2) Increased as scope of overseas data to collect has expanded (Changshu, CFL, DLE, DIVC, DMJC, FCA)

Discharge of Wastewater (Domestic/Overseas)

Category		Unit	2014	2015	2016	2017
Discharge of Wastewater	Total	Thousand Tons	219	401	415	413
	Domestic		212	181	168	179
	Overseas ³⁾		7	220	247	234
Chemical Oxygen Demand (COD)		ppm	17	20	21	22
Biochemical Oxygen Demand (BOD)			11	12	18	16

3) Modified as scope of overseas data to collect has expanded (Changshu, CFL, DLE, DMJC, FCA)

Environmental Performance

Environmental Efficiency

Consumption of Resources

Category		Unit	2014	2015	2016	2017
Consumption of Key Raw Materials	Total	Tons	62,596	52,121	56,588	65,097
	Copper foil		8,544	6,651	6,501	5,634
	Glass fabric		19,930	17,852	20,125	18,042
	Epoxy resin		11,168	10,190	10,066	9,679
	Steel plate		4,114	3,993	3,503	4,178
	Casting materials		18,572	13,201	16,196	27,230
	Egg yolk powder		100	99	104	124
	Ethanol		58	26	19	56
	Acetone		84	37	32	106
	Steel use stainless plate		14	32	19	21
	Steel use stainless tube		2	9	5	6
	Steel sheet		10	31	18	21
Use of Recycled Materials	Consumption	Tons	125	56	45	141
	Consumption rate	%	51.7	34.6	28.8	49.0

Waste Generation (Domestic/Overseas)

Category		Unit	2014	2015	2016	2017
Total Waste Generation			18.0	19.4	18.1	18.0
Waste Generation by Type	Domestic	Total	17.1	16.6	15.1	14.7
		General waste	8.8	8.7	8.1	7.5
		Designated waste	8.3	7.9	7.0	7.2
	Overseas ¹⁾	Total	0.9	2.8	3.0	3.3
		General waste	0.4	1.9	2.0	2.2
		Designated waste	0.5	0.9	1.0	1.1
Waste Generation by Discharge Method	Domestic	Recycle	11.6	10.4	9.7	10.3
		Landfill	0.8	1.0	0.7	0.5
		Incineration	4.7	5.2	4.7	3.9
	Overseas	Recycle	0.8	2.7	2.8	2.8
		Landfill	0.02	0.03	0.03	0.2
		Incineration	0.05	0.1	0.2	0.3

1) Increased as scope of overseas data to collect has expanded (Changshu, CFL, DLE, DIVC, DMJC, FCA)

GHG Emissions (Domestic/Overseas)

Category			Unit	2014	2015	2016	2017
Total GHG Emissions				86.2	165.6	172.3	189.8
GHG Emissions	Domestic	Total	Thousand tCO ₂ e	78.9	77.5	81.6	86.0
		Scope 1		26.0	29.2	28.9	25.1
		Scope 2		52.9	48.3	52.7	60.9
	Overseas ¹⁾	Total		7.2	88.1	90.8	103.8
		Scope 1		4.0	10.5	10.1	8.9
		Scope 2		3.3	77.5	80.6	94.9
GHG Emissions by BG	Electro-Materials			64.2	138.2	139.9	151.1
	Industrial Vehicle			4.3	4.3	4.2	6.2
	Mottrol			9.0	7.5	7.5	9.1
	Fuel Cell			-	7.6	9.8	11.1
	Retail			0	0	2.7	4.2
	Glonet			2.1	1.9	1.9	2.1
	ETC ²⁾		6.6	6.0	6.3	6.0	
GHG Intensity (GHG Emissions/ Sales)	Total		tCO ₂ e /KRW 0.1 Billion	4.6	7.8	7.4	6.4
	Domestic		4.3	4.4	4.3	3.4	
	Overseas		10.8	24.7	20.2	23.3	

1) Increased as scope of overseas data to collect has expanded (Changshu, CFL, DIVC, FCA)

2) CC, Administration Center, Information & Communications included

Energy Consumption (Domestic/Overseas)

Category			Unit	2014	2015	2016	2017
Energy Consumption				1,674	2,209	2,312	2,442
Energy Consumption by Type	Domestic	Total	TJ	1,592	1,563	1,646	1,725
		Electricity		1,089	995	1,061	1,189
		Fuel		503	568	564	481
		Others		-	-	21	55
	Overseas ³⁾	Total		82	646	666	717
		Electricity		37	513	533	550
Fuel		45	133	133	167		
Energy Intensity	Total		TJ/ KRW Billion	0.9	1.0	1.0	0.8
	Domestic		0.9	0.9	0.9	0.7	
	Overseas		1.2	1.8	1.5	1.6	

3) Increased as scope of overseas data to collect has expanded (Changshu, CFL, DLE, DIVC, DMJC, FCA)

Social Performance

Talent Management

Composition of Human Resources

Category		Unit	2014	2015	2016	2017
Total Employees			3,929	3,942	4,165	3,600
Employees by BG/BU ¹⁾	Electro-Materials	Persons	1,338	1,313	1,265	1,251
	Industrial Vehicle		576	535	520	546
	Mottrol		516	500	484	460
	Information & Communications		539	486	464	432
	Corporate Office/CC/ Administration Center		486	527	433	292
	Retail		-	-	327	249
	Fuel Cell		71	91	223	292
	Glonet		73	70	73	78
Employment Type	Full-time		3,593	3,645	3,722	3,541
	Contract		336	297	443	59
Gender	Male		3,441	3,703	3,479	3,067
	Female		488	239	686	533
Employees Overseas	Asia		-	-	-	786
	Europe		-	-	-	490
	Americas		-	-	-	646

1) FM: 330 in 2014, 420 in 2015, 376 in 2016

Employment and Turnover

Category		Unit	2014	2015	2016	2017
New Recruit	Full-time	Persons	216	76	371	259
	Contract		247	163	226	74
Employment Diversity	Disabled	Persons	51	37	50	42
	Veteran		45	29	32	44
Employment Turnover		%	8.1	4.3	5.8	4.7

Labor Practices

Category	Unit	2014	2015	2016	2017
Ratio of Unionized Workers ²⁾	Persons	74.5	78.0	78.8	79.1

2) Ratio of employees belonging to the labor union = Number of employees belonging to the labor union / Number of employees eligible to join the union

Assessment of Achievements

Category	Unit	2014	2015	2016	2017
Ratio of Employees Who Received Formal Performance Evaluation ³⁾	%	99.5	99.3	99.8	99.8

3) For administrative workers

Health and Safety

Category	Unit	2014	2015	2016	2017
Occupational Accident Rate	%	0.18	0.12	0.15	0.25
LTIFR ⁴⁾		2.19	0.79	0.35	1.17

4) Lost Time Injury Frequency Rate

Development of Capabilities of Employees

Category		Unit	2014	2015	2016	2017
Total Training Expenses		KRW Million	9,616	7,328	5,685	4,728
Total Training Hours		Hours	272,205	243,900	189,532	103,487
Training Expenses per Capita		KRW 1,000/ Person	2,447	1,859	1,365	1,313
Training Hours per Capita		Hours/ Persons	127	118	82	46
Education Status ¹⁾	General education	Hours/ Persons	118	111	71	35
	Anti-sexual harassment education		1.3	1.2	1.3	1.3
	Compliance Program education		6.1	4.7	2.1	1.4
	Information security education		6.3	3.2	5.4	4.6

1) The total training hours per person is not equivalent to the sum of training hours per person by specific training course

Parental Leave and Pension

Category		Unit	2014	2015	2016	2017
Parental Leave	Employees who took parental leave	Persons	22	36	33	39
	Employees reinstated after taking parental leave		16	24	24	29
	Employees who worked for 12 months or longer since their reinstatement following parental leave		8	10	13	20
Pension	Funds under management	KRW Million	81,641	102,364	122,749	128,396
	Defined Benefits (DB)	Persons	3,507	3,490	3,329	2,828
	Defined Contribution (DC)		18	39	29	39

Human Rights

Category		Unit	2014	2015	2016	2017
Human Rights Education		Hours	2,689	2,403	3,111	2,968
Employees Participating in Human Rights Education ²⁾		%	-	-	100	100
Suppliers Subject to Human Rights Assessment			-	-	6	8

2) Human rights education was conducted for all of the domestic employees for up to 30 times, excluding those stationed overseas and those on leave. Education materials were provided to those who could not attend the collective education courses to allow self-study.

Corporate Community Involvement

Category		Unit	2014	2015	2016	2017
CCI Investment		KRW Million	8,078	17,058	7,400	7,288
Employee Volunteering		Persons	2,371	3,131	2,564	2,242
Volunteer Hours		Hours	10,379	17,166	9,199	7,623

Business Association

Category		Unit	2014	2015	2016	2017
Total Expenses		KRW Million	891.0	816.6	855.4	675.8

* Top five expenses in 2017: Korea Employers Federation (KRW 75 million), Fuel Cell Industrial Development Association (KRW 67 million), North America Fork Lift Truck Association (KRW 54 million), Cheongju Chamber of Commerce and Industry (KRW 35 million), Changwon Chamber of Commerce and Industry (KRW 30 million)

GRI Index

General standards

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Independent Assurance Statement

Introduction

Doosan Corporation (hereinafter referred to as “Doosan”) commissioned DNV GL Business Assurance Korea Ltd. (hereinafter referred to as “DNV GL”), part of DNV GL Group, to undertake independent assurance of the ‘2017 Doosan Corporation CSR report’ (the “Report”). The assurance engagement is based on the assumption that the data and information provided by Doosan to us are complete, sufficient and authentic.

Scope of assurance

The assurance engagement of DNV GL is limited to data in 2017. The assurance engagement is as follows:

- Evaluation of the Report for the adherence to the principles for defining report contents and the principles for defining report quality as set forth in AA100APS (2008)
- Verification of disclosures to check the Report is prepared ‘In accordance’ with the GRI Standards (Core option)
- Evaluation of the process for determining material topics and management approach to material topics, and process of generating, gathering, and managing qualitative and quantitative data

Verification Method

We performed our work using AA100APS (2008) and DNV GL’s assurance methodology VeriSustain 5.0^{TM1}, which is based on our professional experience and international assurance best practices. We provide a moderate level of assurance over non-financial disclosure presented in the Report. The verification was carried out in March and June 2018. The site visits were made to Headquarters in Seoul and the plant in Incheon, Korea. The assurance engagement was conducted in the following method based on sampling.

- 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 test report
- Visited Incheon Industrial Vehicle plant and tested environmental and safety data gathering process

Limitations

The engagement excludes the sustainability management, performance and reporting practices of Doosan’s other 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. Financial statements of Doosan, data announced on DART system of the Financial Supervisory Service (<http://dart.fss.or.kr>), and data on the website (www.doosan.com) of Doosan subject to assurance are not included in the scope of assurance.

Data assurance was conducted by checking the basis in a limited scope, including inquiry, analysis, and limited sampling method, on the data collected by Doosan. The aggregation and calculation process for building economic performances was reviewed and tested by the verification team. Also, environmental and social data were verified using the aggregated data. The directors of Doosan have sole responsibility for the preparation of the Report. The responsibility of DNV GL in performing the assurance work is to the management of Doosan in accordance with the terms of reference. 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

Based on the work undertaken, nothing comes to our attention to suggest that the Report does not properly describe the adherence to the AccountAbility in AA100APS (2008) nor is prepared ‘in accordance’ with GRI Standards’ Core option. Further opinions with regards to the adherence to the following Principles are made below;

1) The VeriSustain protocol is available upon request at DNV GL’s website (www.dnvgl.com)

The foundation principle of inclusivity

Doosan has identified internal and external stakeholder groups including customers, shareholders and investors, employees, local communities, government, and business partners. Doosan engages with selected stakeholders. Engagement ways, major expectations, and concerns of stakeholder groups and Doosan's corresponding responses and communication ways are described in the Report.

The principle of materiality

Doosan has conducted materiality test while preparing the Report. Various issues have been derived by analyzing the topics affecting Doosan's business activities, various global standards, internal information, competitors' reports and news articles. Issues have been prioritized material reporting issues. The verification team evaluated that the material topics determined by the materiality test, the impact of material topics, and the response to those issues are also reflected in the Report.

The principle of responsiveness

The communication process with stakeholders has been established, and appropriate responses to stakeholders' views, concerns, and expectations are reflected in the Report. The Report covers the sustainability categories of economic, environmental, and social impacts and provides stakeholder with the sustainability performance associated with material topics and decisions during the reporting period.

Further opinions with the principles of report quality of GRI Standards as follows:

Report Quality: Accuracy, Balance, Clarity, Comparability, Reliability, and Timeliness

The assurance engagement team evaluated the accuracy and reliability the Report by testing the data and information on a sampling basis and did not note any intentional errors or misleading descriptions. The data provided in the Report was gathered from respective facilities of Doosan and processed by the dedicated team in Headquarters. The verification team conducted interviews with the personnel, reviewed the process of gathering and processing data and information, and verified the supporting documents and records. Doosan could improve the data collection process and present the sustainability performance for the past three years, to allow for comparability over time. Any errors or misstatements identified during the assurance engagement were communicated and corrected prior to the Report being published. The information in the Report indicates the time period to which it relates.

Competence and Independence

DNV GL applies its own management standards and compliance policies for quality control, in accordance with ISO/IEC 17021:2011 - Conformity Assessment Requirements for bodies providing audit and certification of management systems, and accordingly maintains a comprehensive system of quality control, including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements. We have complied with the DNV GL Code of Conduct²⁾ during the assurance engagement and maintain independence where required by relevant ethical requirements. This engagement work was carried out by an independent team of sustainability assurance professionals. DNV GL was not involved in the preparation of statements or data included in the Report except for this Assurance Statement. DNV GL maintains complete impartiality toward stakeholders interviewed during the assurance process. DNV GL has no other contract with Doosan and did not provide any services to Doosan in 2017 that could compromise the independence or impartiality of our verification.

June 2018
Seoul, Korea

In Kyoon Ahn



Country Representative
DNV GL Business Assurance Korea Ltd.



2) DNV GL CoC is available at DNV GL's website (www.dnvgl.com)

Greenhouse Gas Verification Statement

Scope of verification

The verification scope covers all greenhouse gas emission facilities under the operational control of Doosan Corporation.

Verification standards

The verification was performed based on the Administrative Guidelines for the Greenhouse Gas Target Management System (Ministry of Environment Notice No. 2016-255) Guidelines for Reporting and Certification of Volume of Emissions under the National Greenhouse Gas Inventories System (Ministry of Environment Notice No. 2014-154).

Verification procedure

The verification was planned and performed according to the procedure set forth under the Administrative Guidelines for the Greenhouse Gas and Energy Target Management System. In particular, the verification was performed at a reasonable level of assurance. It was also confirmed through internal review that the procedure was effectively performed throughout the entire verification processes.

Limits of verification

The verification implies the inherent limits that may occur in the processes applying the standards and methods.

Verification opinion

The conclusions below are presented with regard to the data concerning volumes of greenhouse gases emitted and energy used as indicated in the statement.

- 1) Doosan Corporation prepared its 2017 greenhouse gas emissions statement based on the Administrative Guidelines for the Greenhouse Gas Target Management System.
- 2) The materiality test of Doosan Corporation's greenhouse gas emissions and energy consumption volumes for 2017 revealed that they satisfy the criteria for 5% or less based on their volume as the company emits less than 500,000 tCO₂e.
- 3) Therefore, we hereby present an unqualified opinion on the Doosan Corporation's Greenhouse gas emissions and energy consumption volumes for 2017.

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30 March 2018

Korea Foundation for Quality, Inc
Byeongtaek Yu, Representative



Volume of greenhouse gas emissions of Doosan Corporation

Scope (based on the definition under the Administrative Guidelines for the Greenhouse Gas Target Management System)	2017
Volume of directly emitted greenhouse gases (Scope 1)	25,113
Volume of directly emitted greenhouse gases (Scope 2)	60,889
Total volume of greenhouse gas emissions	86,003

The data above correspond to the CO₂ converted tonnage value based on the Corporation's domestic worksites.

UN Global Compact

We at Doosan Corporation joined the UN Global Compact in 2014 and have been abiding by its 10 principles in the four areas of human rights, labor, environment, and anti-corruption. By integrating international standards on socially-responsible management into our business conduct and by standing firm on our commitment to socially-responsible management, we aim to fulfill our social responsibility and role as Korea's leading company in global sustainable management.



Category	Principles	Page
Human Rights	Principle 1 Businesses should support and respect the protection of internationally proclaimed human rights; and	55
	Principle 2 make sure that they are not complicit in human rights abuses.	55
Labour	Principle 3 Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;	53
	Principle 4 the elimination of all forms of forced and compulsory labour;	55, 58
	Principle 5 the effective abolition of child labour; and	55, 58
	Principle 6 the elimination of discrimination in respect of employment and occupation.	55
Environment	Principle 7 Businesses should support a precautionary approach to environmental challenges;	56
	Principle 8 undertake initiatives to promote greater environmental responsibility; and	26-28
	Principle 9 encourage the development and diffusion of environmentally friendly technologies.	23, 28
Anti-corruption	Principle 10 Businesses should work against corruption in all its forms, including extortion and bribery.	50

Membership & Awards

Membership

Classification	Associations and Organizations
Doosan Corporation	Korea Chamber of Commerce and Industry, Korea Employers Federation, Korea Industrial Technology Association, Korea Advertisers Association, Korea Mecenat Association, Fair Competition Federation, Korea Listed Companies Association, Korea IR Service
Electro-Materials BG	Korea Industrial Technology Promotion Association, Korea Display Industry Association, Institute of Microelectronics Packaging, Macromolecular Research, Korea Chemical Society, Materials Research Society of Korea, Reliability Association of Korea, Iksan Chamber of Commerce and Industry, Iksan Business Environment Council, Iksan Safety and Health Managers' Council, Iksan Regional Fire and Hazard Managers' Council, Jeonbuk Regional Chemical Plant Council, Korea Environmental Preservation Association-Jeonbuk Regional District, Jeonbuk Environmental Management Association, Korea Industrial Safety Association, Korea Fire Safety Association, Korean Nurses Association, Korea Industrial Safety Association, Cheongju Chamber of Commerce and Industry, Chungcheong Regional Chemical Safety Association, Korean Industrial Health Association North Gyeongbuk Division, Korea Customs Logistics Association, Gyeongbuk Employers Federation, Gimcheon Chamber of Commerce and Industry, Korea Environmental Preservation Association-Gyeongbuk Regional District, Korea Fire Safety Association-Gyeongbuk Regional District, Korea Engineers Association-Gyeongbuk Regional District, Korea Electric Engineers Association, Gimcheon Regional Fire Managers' Council, Daegu-Gyeongbuk process safety Management Council, Western Gyeongbuk Environmental Engineers Association, Gumi-Gimcheon Safety Management Association
Industrial Vehicle BG	World Industrial Truck Statistics (WITS), China Fork Lift Truck Association (CITA), North America Fork Lift Truck Association, Korea, Industrial Safety Association, Korea Construction Equipment Association, Korea Industrial Technology Promotion Association, Korea Fire Safety Association, Korea Construction Equipment Manufacturers Association, Incheon Environmental Volunteer Association
Mottrol BG	GyeongNam Employers Federation, Changwon Chamber of Commerce and Industry, Korea Association of Machinery Industry, Korea Construction Equipment Manufacturers Association, Korean Nurses Association (Gyeongnam Nurses Association), Korea Fire Safety Association, Korean Industrial Health Association KISANHYUP, Environment Health Safety(EHS), Korea Sanitation Association, Korea Electric Engineers Association, KOITA R&D Directors' Council, Korea Customs Logistics Association, Volvo Construction Machine, Korea Society of Fluid Power and Construction Equipment, Japan Fluid Power Society, Korea Defense Industry Association, Korea Industrial Complex Corp,
Retail BG	Korea Duty Free Association, Seoul Chamber of Commerce
Fuel Cell BG	Korea Hydrogen Association, Korea New&Renewable Energy, Fuel Cell Industrial Development Association, Iksan Business Environment Council, Iksan Safety&Health Association, Environmental Engineers Association Jeonbuk Regional District
Glonet BG	Korea Head of Research Center Association, Korea Electric Engineers Association, Iksan Chamber of Commerce and Industry, Iksan Business Environment Council, Jeonbuk Regional Chemical Plant Council, Iksan Safety and Health Managers' Council, Iksan Regional Fire and Hazard Managers' Council, Korean Industrial Health Association, Energy Engineers' Association, Suwon Chamber of Commerce and Industry, Korea Fire Safety Association
I&C BU	Korean Personnel Improvement Association, Korea Information and Communication Contractors Association, Korea SW Quality Council, Seoul Chamber of Commerce and Industry

Awards

Classification	Name of award	Hosted by	Date awarded
Electro-Materials BG	Industry and Trade Minister's Prize (commemorating Commerce and Industry Day)	Korea Chamber of Commerce	2017. 3
	Kyeongbuk Energy Efficiency Grand Prize awarded by the Kyeongbuk Governor	Kyeongbuk Provincial Government	2017. 11
	Prize by the Chairman of the Korea Energy Agency	Korea Energy Management Corp.	2017. 11
	Health Management Citation by the Jeonbuk Governor	Jeonbuk-do Province	2017. 10
	Citation by the Korea Red Cross Jeonbuk Blood Center	Red Cross blood center, Jeolla-bukdo	2017. 12
	Encouragement Prize in CPR Contest	Jeungpyeong Fire Station	2017. 3
Industrial Vehicle BG	Prime Minister's citation on the 13th Construction Equipment Manufacturers' Day	Korea Construction Equipment Manufacturers' Association	2017. 12
	Industry Minister's citation on the 13th Construction Equipment Manufacturers' Day	Korea Construction Equipment Manufacturers' Association	2017. 12
	Association Chairman's citation on the 13th Construction Equipment Manufacturers' Day	Korea Construction Equipment Manufacturers' Association	2017. 12
	Industry, Trade, and Energy Minister's prize at the 24th Awarding Ceremony of the Business Innovation Grand Prize	Korea Chamber of Commerce	2017. 11
	Designated as Business with Outstanding Labor-Management Culture for 2017	Ministry of Employment and Labor	2017. 8
	Encouragement Prize, 2017 Labor-Management Partnership Outstanding Worksite Contest	Korea Labor Foundation	2017. 11
Mottrol BG	Outstanding Defense Vendor (management reform part)	Defense Acquisition Program Administration	2017. 12
	Citation at the Health Administrator National Contest	Business Occupational Health Council	2017. 11
Retail BG	Citation by the Korea Duty Free Association	Korea Duty Free Association	2017. 11
	Citation by the Korea Tourism Association	Korea Tourism Association	2017. 11

TF Members

Category	Team
Electro-Materials	Biz Strategy Team, HR Team, Labor-Relations Team, Strategic Purchasing Team, EHS Team, U&M Team, Quality Planning Team, Business Management Team, Technology Planning Team, Product Development Team
Industrial Vehicle	Biz Strategy Team, HR Team, Technology HR Team, Purchase Team 1, EHS Team, Production Technology Innovation Team, Quality assurance Team, Domestic Sales Team, Quality Management Team, Research Strategy Team, Management Team
Mottrol	Biz Strategy Team, HR Team, Technology HR Team, Purchase Team, EHS Team, Organic Quality Team, Overseas Sales Marketing Team, R&D Team 1
Retail	Management Control Team, HR Team, Management Support Team, EHS Part, Sales Team
Fuel Cell	FA Team, Management Control Team, HR Team, Management Support Team, Purchase Team, EHS Team, Quality Team, BizStrategy Team, Sales Team, RD&E Team, Research Lab
Glonet	FA Team, HR Team, Technology HR Team, Management Team, EHS Team, QA Team, Sales Team 1, Product Development Team 1
Information & Communications	Strategy Team, HR Team, Purchase Team, Quality Innovation Team
CC	HR Doosan Way Part, Business Strategy 1 & 2 Team, Business Development Team, HRM Team, HRD Team, Win-Win Cooperation, EHS Team, BD & Technology Strategy team, OE Team , compliance Team, Communication Team, CSR Team
Administration Center	Accounting 1 Team , IR Team, Planning & Management Team, Management Support Team, Financing Team, HR Team
Corporate Office	Legal, HRM, CR

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