

# Connecting Nature with You



K-eco(2019)-경영기획RF-09

2018 K-eco Sustainability Report • Connecting Nature with You



## ABOUT THIS REPORT

This report is the 5th Sustainability Report of the Korea Environment Corporation ("the corporation"). The corporation, as an environmental agency dedicated to the contentment of nature and human beings, published this report in order to share the economic, social, and environmental performance created by its environmental projects with various stakeholders. In particular, the report focuses on the efforts and achievements of the K-eco SDGs to develop and achieve the K-eco SDGs strategy to contribute to the United Nations Sustainable Development Goals (UN SDGs).

### Reporting Criteria

GRI(Global Reporting Initiative) Standards Core Option

### Period

January 01, 2018 - December 31, 2018  
(Includes some activities in the first half of 2019)

### Scope

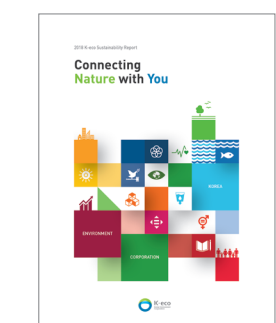
Headquarters and Regional Headquarters of the Korea Environment Corporation  
(Includes some overseas business activities)

### Assurance

The independent third-party assurance

### Contact Information

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### COVER STORY

K-eco business operations enable the drive to create a beneficial cycle that bridges the gap between people and nature while also contributing to the achievement of the necessary UN Sustainable Development Goals (SDGs).



UN Sustainable Development Goals	
3 GOOD HEALTH AND WELL-BEING Good Health	4 QUALITY EDUCATION Quality Education
5 GENDER EQUALITY Gender Equality	6 CLEAN WATER AND SANITATION Clean Water and Sanitation
7 AFFORDABLE AND CLEAN ENERGY Renewable Energy	8 DECENT WORK AND ECONOMIC GROWTH Good Jobs and Economic Growth
9 INDUSTRY INNOVATION AND INFRASTRUCTURE Innovation and Infrastructure	10 REDUCED INEQUALITIES Reduced Inequalities
11 SUSTAINABLE CITIES AND COMMUNITIES Sustainable Cities and Communities	12 RESPONSIBLE CONSUMPTION AND PRODUCTION Responsible Consumption
13 CLIMATE ACTION Climate Action	15 LIFE ON LAND Life on Land
16 PEACE, JUSTICE AND STRONG INSTITUTIONS Peace and Justice	17 PARTNERSHIPS FOR THE GOALS Partnerships for the Goals



### Clean & pleasant natural environment

- Creating an air environment for comfortable breathing
- Healthy and safe water management
- Environmental disaster prevention and restoration
- Strengthening climate change response capabilities



### Safe & sustainable living environment

- Promotion of environmental welfare of vulnerable groups
- Ensuring the right to life and safety of the people and workers
- Responsible waste management
- Minimize the environmental impact inside the K-eco



### Cooperative & symbiotic social environment

- Gain the public's trust through communication
- Economic Development through Job Creation
- Establishment of a fair economic foundation through co-prosperity
- Regional development through social contribution



### Transparent & respectful organizational environment

- Creating a good work culture
- Establishing a culture of integrity without corruption
- Building a human-oriented respect culture for human rights
- Establishment of harmony of labor relations

**K-eco**

“  
We protect  
the sustainable  
future of nature  
and people.  
”

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# CEO Message



The Korea Environment Corporation is committed to promoting the welfare of the people and realizing social values through innovation and harmony.



Dear Stakeholders,

Thank you for your continued interest in and encouragement to the Korea Environment Corporation.

The Korea Environment Corporation is a semi-governmental organization affiliated with the Ministry of Environment that aims to become a global comprehensive environmental service organization and is working on projects related to greenhouse gases to prevent environmental pollution, improve the environment, promote resource circulation, and respond to climate change. In particular, we are doing our utmost to build a clean and safe environment with our people under the vision of a "Happy coexistence of nature and human beings, a professional environmental institution that opens up the future." Through this 2018 K-ECO Sustainability Report, we would like to present our efforts and fruits to our stakeholders.

**First, we are securing future growth engines by strengthening our core competitiveness in the environmental field.**

As a public organization specialized in the environment, the Korea Environment Corporation strives to make the environment industry become a major growth engine for the nation. Above all, we are promoting overseas environmental projects to maintain international competitiveness on the back of our excellent environmental technology and experience, and we would like to build a water industry cluster to develop the domestic water industry and to become a global water environment expert. In addition, through the integrated environmental management system, K-eco is leading the transition to an integrated environmental management system that goes beyond the medium-oriented distributed environment management system.

**Second, we are responsible for the happiness and environmental welfare of the people.**

With the growing demand for environment-friendly services for people's lives, K-eco is doing its best to improve the environment that people can feel. To provide a clean and pleasant environment, we strengthen air and water quality monitoring and manage pollutants around living environments, such as vapor and odor. We also provide safety management and consulting for asbestos, radon, and other carcinogens, and contribute to the creation of a safe living environment by producing toxicity test data for chemical management.

**Third, we realize our social value through job creation and expanding public participation with local communities.**

K-eco is strengthening its participation and communication in order to create quality jobs for the local economy and enhance public confidence in the organization. In order to provide good jobs, we are expanding our investment in core businesses and enhancing the competitiveness of the environment industry to create private jobs. In addition, we are striving to provide environmental services that reflect local issues by expanding public participation and providing windows for people to communicate their opinions directly.

K-eco will continue to strengthen communication with stakeholders, while solidifying the corporation's internal stability and fulfilling its responsibilities as a public entity through management innovation. Let me ask for your warmest encouragement and support so that we can be reborn as an institution that is trusted and loved by the people in the future.

Thanks and best regards,

May 2019  
Chairman of the Board of Directors of  
Korea Environment Corporation

**Jang Jun-young**

# 2018 K-eco Sustainability Highlights



## Clean & pleasant Natural Environment

**26%**  
reduction in  
particulate matter  
in the metropolitan  
area

Expanded by  
**1,111**  
facilities for rapid  
charging of  
electric vehicles  
Enhanced Electric Vehicle  
user convenience

Korea's largest  
sewage treatment  
plant has been moved  
**Completely  
Underground**

Now it is the Citizen's  
Anyang Freshwater Park

Final selection as the  
**Water Industry  
Cluster**  
operating organization



## Safe & sustainable Living Environment

**2,500** Cases  
of asbestos safety  
management  
in vulnerable  
social groups

United States  
**EBI Awards**  
For International  
Environmental Award

Improving the  
perception of separating  
waste nationwide

Recycling amount of 2018  
Increased by  
**30,000** Tons  
year on year

Replacing fossil fuels with  
solid fuel products

**1.87** Million TOE  
per year



## Cooperative & symbiotic Social Environment

**8,465**  
private jobs  
created in the  
environmental field

Awarded the 2018  
Korea Communications  
**Best** award

**Prime  
Minister's  
Commendation**  
'18 Top Company with  
Performance Sharing

**Three Straight  
Years**  
of increases  
in Knowledge property  
rights of performance  
sharing system



## Transparent & respectful Organizational Environment

Maintained Family-  
Friendly Organization  
certification for the  
**Fifth  
Consecutive  
Year**

Acquired  
**ISO37001**  
Certification  
The Anti-corruption  
Management System  
(Environmental Special  
Review Center)

Information protection  
management system  
of Ministry of Science  
and Technology  
(ISMS) for  
**three years  
in a row**

**369**  
non-regular workers  
switched to regular  
employees



# Introduction of Korea Environment Corporation

K-eco is a semi-governmental organization under the Ministry of Environment established by the Korea Environmental Corporation Act, which contributes to the development of environment-friendly countries. We are striving to create a sustainable society where people and nature can coexist by promoting greenhouse gas projects to prevent environmental pollution, improve the environment, promote resource circulation, and respond to climate change.

## Overview

Company name	Korea Environment Corporation
Date establishment	January 01, 2010
Chairman of the Board of Directors	Jang Jun-young
Competent authority	Ministry of Environment
Type of agency	Semi-government organization (commissioned executive)
Headquarters location	Hwangyeong-ro 42, Seo-gu, Incheon Metropolitan City

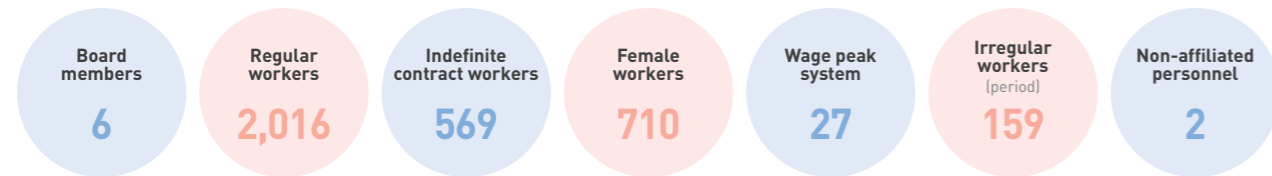
## Major financial performance

[as of December 2018]

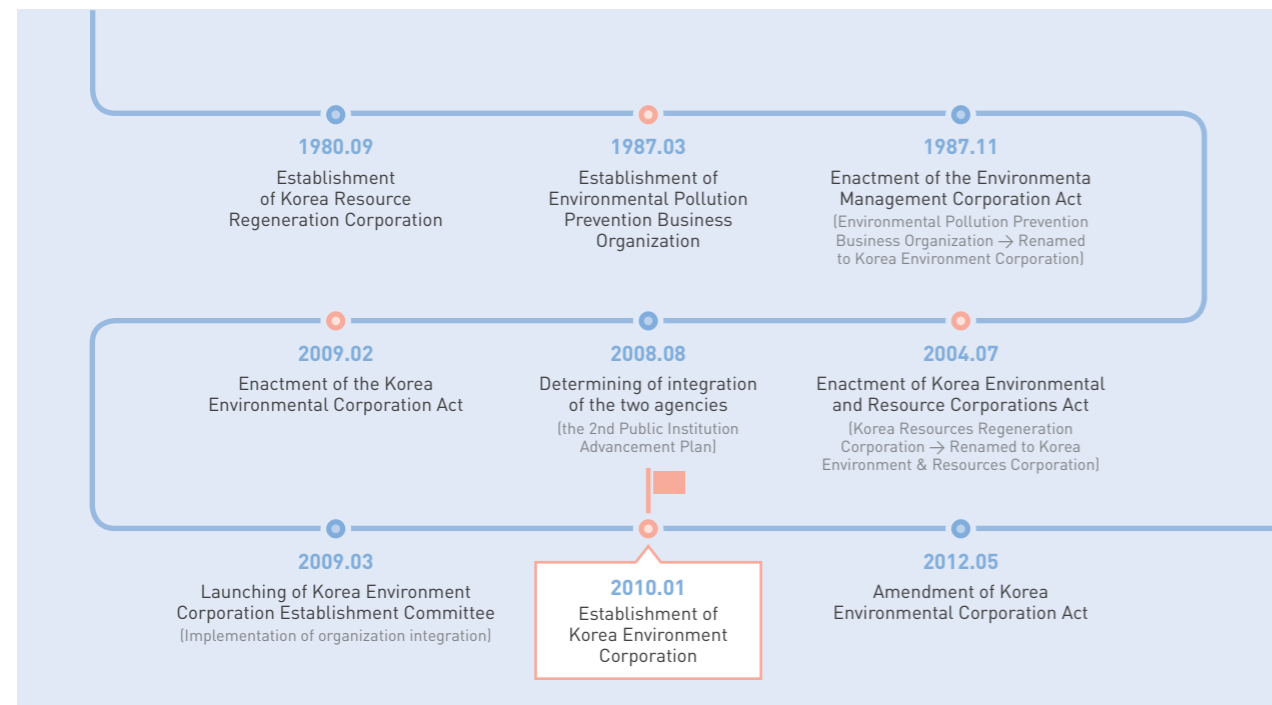
	Assets	KRW 159,276 mil
	Turnover	KRW 1,078,958 mil
	Debt	KRW 239,874 mil

## Personnel Status

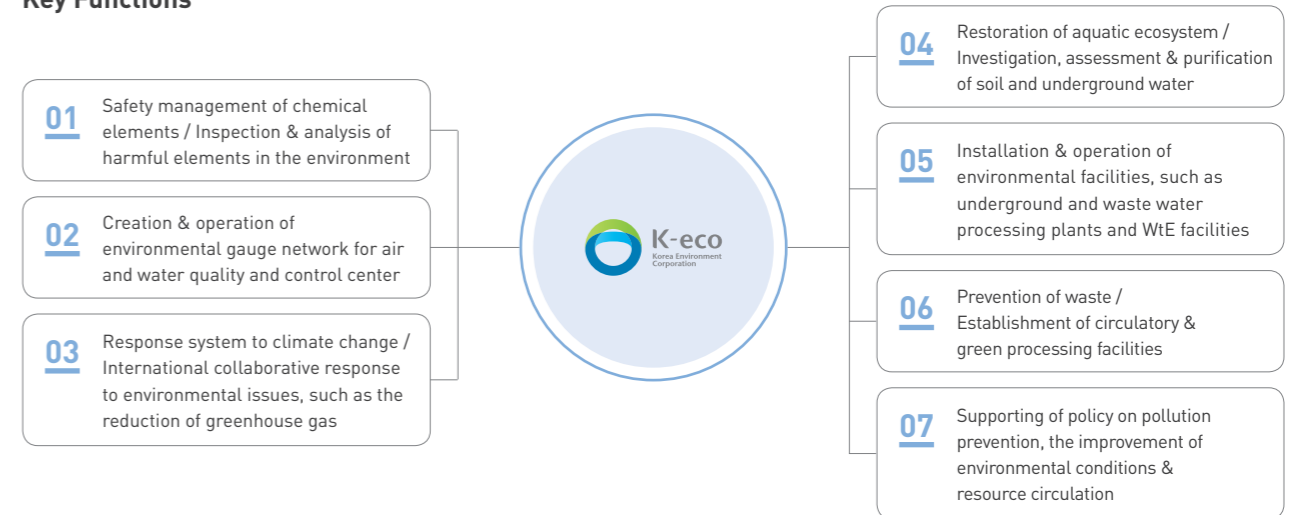
[as of March 2019]



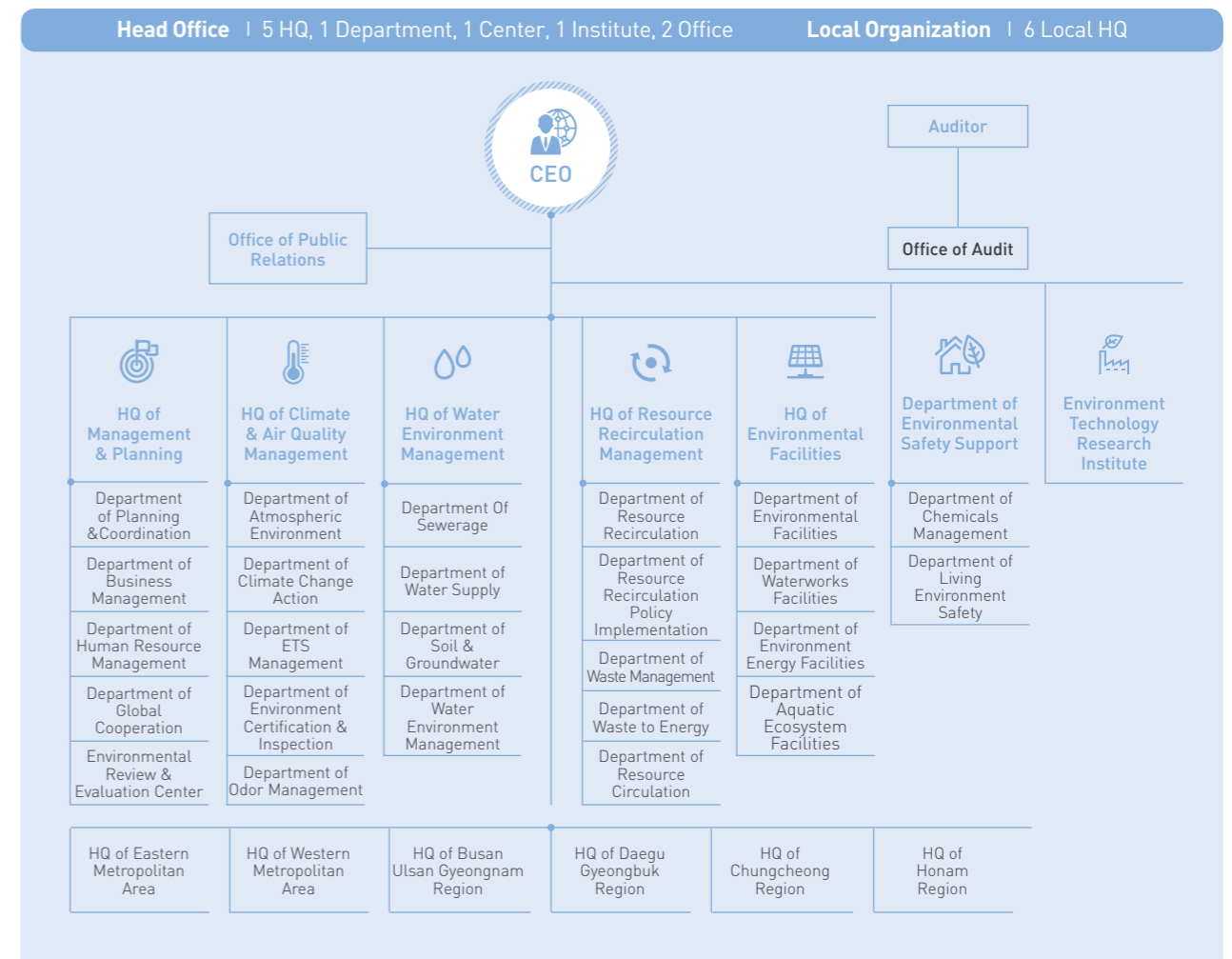
## Corporate history



## Key Functions



## Organizational Chart








# Introduction of Korea Environment Corporation

## Major business

K-eco carries out business throughout the environmental field, including climate atmosphere, water environment, and resource circulation. Through thorough research and management of the environment, K-eco is committed to preserving and improving the nation's environment and protecting the health of the people from environmental pollution.

KOREA ENVIRONMENT CORPORATION

<p><b>Creating a Clean Air Environment</b> climate &amp; air</p> <p>We operate the air pollution monitoring network in a stable manner, measuring exhaust gases and promoting the spread of electric vehicles to create a clean and pleasant atmospheric environment. In addition, we operate businesses to support the government's GHG (Greenhouse Gas) reduction policy and conduct odor management to protect the safety and health of the people.</p> 	<p><b>Creating a Healthy Water Environment</b> water &amp; soil</p> <p>We monitor water quality and improve the water supply and sewage system to provide safe drinking water to the public. In addition, we contribute to the promotion of a clean water environment and promotion of water welfare by preventing and managing water pollution accident.</p> 	<p><b>Sustainable Resource Circulation</b> resource circulation</p> <p>We carry out projects to reduce waste generation, improve resource circulation through recycling, and provide relevant statistical data. We also strive to replace fossil fuels with waste energy resources and build a sustainable resource recycling society.</p> 	<p><b>Creating a safe living environment</b> national health</p> <p>We operate noise monitoring networks, asbestos and radon material safety diagnosis for vulnerable classes that are sensitive to class 1 carcinogens, noise between floors, light pollution, etc. We contribute to environmental welfare by taking into consideration not only the natural environment but also the living environment of the people.</p> 	<p><b>Building the Environment Infrastructure</b> environmental facilities</p> <p>We protect the safety of the people by constructing water ecosystem restoration, water, and sewage facilities, environmental energy facilities, etc. and strengthening the risk management of environmental facilities and installation business. In addition, we aim to have international competitiveness through overseas environmental projects and carry out integrated environmental management to minimize the emission of environmental pollutants.</p> 
<ul style="list-style-type: none"> <li>• Supporting of Greenhouse Gas Reduction Policy</li> <li>• Strengthening climate change response capability</li> <li>• Management of air quality and atmospheric environment</li> <li>• Promotion of automobile environment business</li> <li>• Exercise of odor control</li> </ul>	<ul style="list-style-type: none"> <li>• Support of sewage policy</li> <li>• Support of water supply policy</li> <li>• Management of soil and groundwater</li> <li>• Exercise of water pollution management</li> </ul>	<ul style="list-style-type: none"> <li>• Operation of resource circulation business</li> <li>• Management of resource circulation system</li> <li>• Operation of waste management</li> <li>• Management of waste-to-energy processing</li> </ul>	<ul style="list-style-type: none"> <li>• Provision of green-friendly service for the public</li> <li>• Provision of environmental health services</li> <li>• Management of hazardous Material</li> <li>• Prevention and reduction of environmental pollutant discharge</li> </ul>	<ul style="list-style-type: none"> <li>• Restoration of water ecosystem and operation of installation support project for water treatment facilities</li> <li>• Installation and operation of water supply and sewage facilities</li> <li>• Operation installation support project for environmental energy</li> <li>• Participation of overseas business and international cooperation</li> <li>• Investigation of environmental impact and integration of environmental management system</li> </ul>

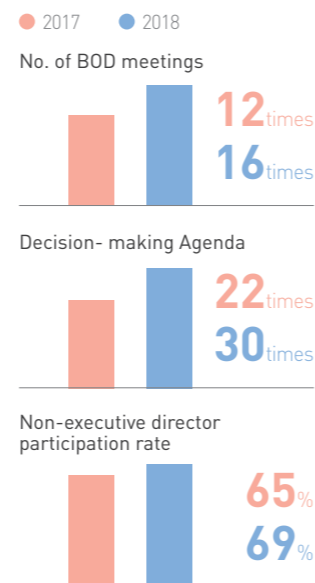
# Sustainability Management Governance

## Composition of the board of directors

The board of directors is the acting, top decision-making body that reviews and determines all serious matters of management, while implementing the operational and supporting functions of management staff. With the goal of strengthening responsible management through the revitalization of the board of directors, we set a new and more active operating direction for the board of directors and reinforced the role of non-executive directors, establishing an effective system for the board of directors to conduct its business in a way that adapts to the management environment. In order to secure non-executive directors with expertise in their fields, the corporation selects candidates from a pool of environment specialists and appoints non-executive directors through the Executive Nominating Committee. In addition, we utilize the expertise of non-executive directors to strengthen consulting and support activities for the overall management of the corporation.

Executives <small>(as of December 2018)</small>				
Division	Name	Gender	Belonging and Position	Tenure
<b>Chief of Organization</b>	Jang Jun-young	Male	Chairman of the Board of Directors	~2021.12.03
<b>Executive Director</b>	Park Chan-ho	Male	Head of Management Planning Division	~2020.12.25
	Cho Gang-hee	Male	Head of the Climate Atmospheric Division	~2020.12.25
	Choi Ik-hoon	Male	Head of Water Environment Division	~2019.12.31
	Park Ung-ryeol	Male	Head of Resource Circulation Division	~2017.05.06
	Jeong Tae-hwan	Male	Head of the Environmental Facility Division	~2020.08.07
<b>Non-Executive Director (official)</b>	Choi Sang-dae	Male	Social budget review officer of the Strategy and Finance Ministry	Until duration of service
	Song Hyung-geun	Male	Director General for natural environment policy of the Environment Ministry	Until duration of service
	Choi Jong-won	Male	Deputy Director of Media Seoul Daily Newspapers	~2020.06.06
	Hong Jong-ho	Male	Professor at Seoul National University's Graduate School of Environmental Studies	~2020.06.06
	Lee Byung-hun	Male	Secretary of the National Unification Advisory Council at Mungyeong city	~2020.07.30
<b>Standing Auditor</b>	Lim Hang	Male	Director General of The Kukmin Ilbo Newspapers	~2020.07.30
	Ryu Sung-chan	Male	Auditor	~2021.01.15

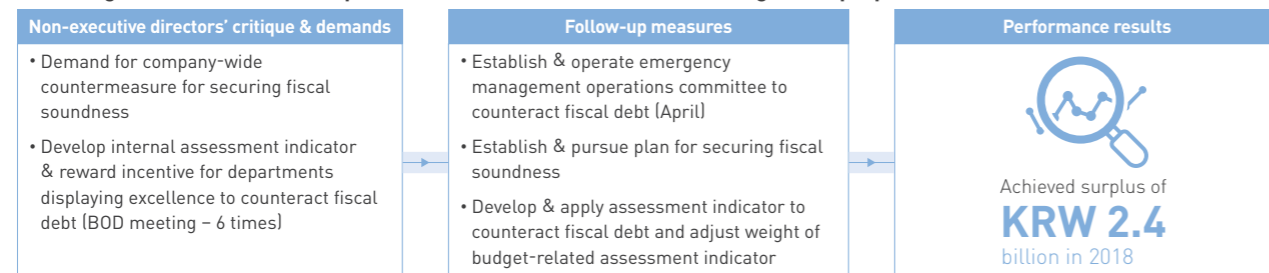
## Status of BOD Operations



## Subcommittee structure and main activities

In 2018, the board of directors' meetings were conducted a total of 16 times with a total of 30 agenda items. Among these, as many as 19 items were proposals for management. According to the proposal calling for the creation of an efficient litigation response system following the reinforcement of specialized staff to prevent the recurrence of and better respond to common litigations, as well as the establishment of a responsible body, an additional in-house lawyer was hired, along with the establishment of a legal support department to incorporate into the 2019 organization plan. Furthermore, the management proposal from the non-executive directors to secure fiscal soundness helped achieve a surplus reaching upwards of KRW 2.4 billion. K-eco adopted an individual director assessment system to help promote BOD operations, followed by the standardization of the BOD meeting schedule to be set for the last Friday of each month. As a result, the improvement of the BOD operations system, including the schedule of maintenance system operations, led to an increase in the attendance rate of non-executive directors.

## Achieving of KRW 2.4 billion surplus with non-executive directors' management proposal for fiscal soundness



## Strengthening function and role of non-executive directors

Under a proposal for the reinforcement of the non-executive directors' role and the promotion of participation in management activity, the conducting of on-site orientation regarding agenda items helped strengthen the orientation program that promotes the awareness of agenda item content among non-executive directors. Additionally, the provision of continual management information, including on-site inspections and management issue reports, led to an increase in the interest and quantity of management proposals among non-executive directors, as well, regarding pending issues of the organization. With the operations of a subcommittee to promote the use of non-executive directors' specialized areas, the resulting conversion of non-regular employees to regular staff positions and the improvement in treatment propelled a rise in job quality. This led to the successful review of possible business operations for advancement into the North Korean market, the creation of future roadmap, and more.

## Non-Executive directors management proposal increases



Division	Formation	Role	2018 Operational performance
<b>Future Management Committee</b>	Director Lim Hang and two others	Present direction of sustainable management	• Advisory to establish a mid and long-term management strategy • Advisory on the entry into the Northern Policy Environment business
<b>Project Evaluation Committee</b>	Director Hong Jong-ho and one other	Support and monitor the operation of the corporation	• Reviewing the Best Practices for Creative Innovation • Advisory on Operation of Environmental Monitoring System
<b>Social Value Committee</b>	Director Lee Byung-hun and two others	Social Value Promotion Support	• Advisory on the conversion of irregular workers to regular workers

## Remuneration and compensation of directors

The director's compensation is set to an annual salary system in accordance with the Korea Environment Corporation's Remuneration Regulations and is paid by summing up job salary and performance salary. Job salaries reflect job responsibilities, professionalism, and difficulty, and performance salaries depend on the results of previous years' work performance evaluation.

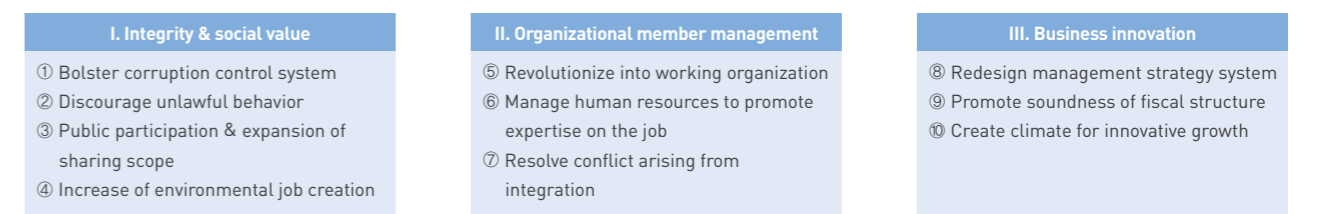
(Unit: KRW 1 thousand)

Division	Number of the people	Average compensation per person	Remarks
<b>Chief of Organization</b>	1	130,594	Annual salary system
<b>Standing Auditor</b>	1	104,476	
<b>Executive Director</b>	5	104,476	
<b>Non-Executive Director</b>	7	14,040	Include meeting attendance pay

## Operation of the Management Innovation Committee

K-eco operates a management innovation committee to prepare business innovation plans and re-check the management functions of the organization. The Management Innovation Committee discusses innovations in business management such as public innovation, integrity ethics, and mutual growth and overall business, including climate-atmosphere, water and sewage, and resource circulation for sustainable management of the corporation. In order to draw up the innovation plan from an objective perspective, we have formed a committee with civic groups, academics, and experts, as well as internal executives, and selected and promoted the top 10 innovation tasks in the three major areas to resolve the problems and complaints derived from them.

## 10 core innovation tasks of Top 3 industries



# Sustainable Fundamentals

K-eco resolves various environmental issues while creating a new environmental paradigm for sustainable growth.

**18**

Establishing K-eco Sustainable Development Goals

**20**

Core Sustainability Management Issues

**22**

Communication with Stakeholders

**26**

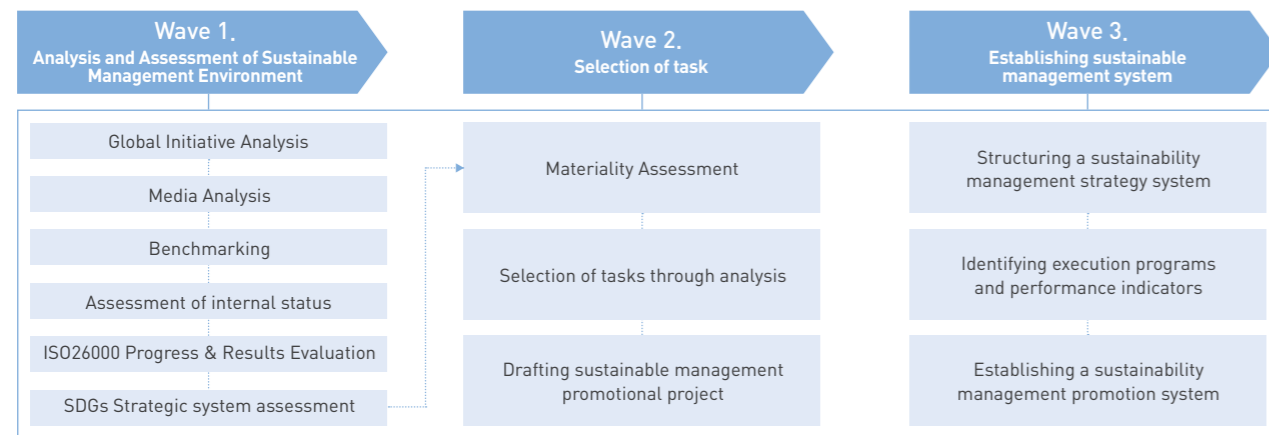
Value Creation Process



# Establishing K-eco Sustainable Development Goals

## Sustainable Development Goal Setting Process

The United Nations has adopted Sustainable Development Goals (SDGs) that include economic, social, and environmental goals to ensure global sustainability. In line with these international trends, the government has also set the goal of strengthening sustainable development as a national task and announced the National Sustainable Development Goals (K-SDGs). In order to pro-actively respond to this global trend, we have established a goal for sustainable development with K-eco. Through this, we will contribute to the development of the entire world and humanity by realizing the environmental welfare of the people and further is contributing to the achievement of the UN SDGs.



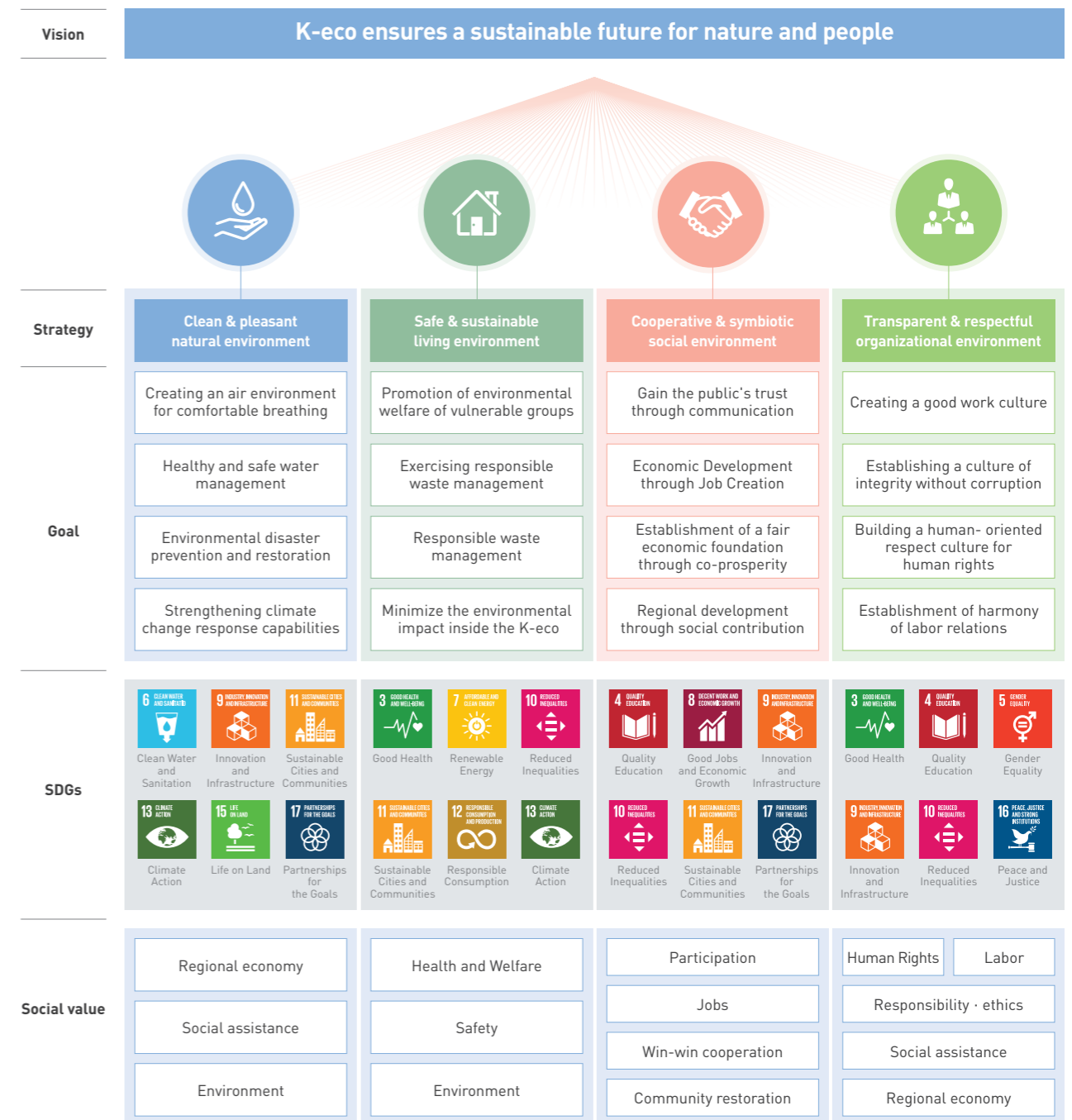
## Sustainable Development Roadmap

We introduced sustainability management for the first time in 2010, and now we are in the phase of establishing sustainability management strategies and managing related performance indicators as a strategic approach. In the future, the company will develop into an organization that will settle into a system and creates sustainable management value by 2030.

	Phase 1 (Until 2010)	Phase 2 (Until 2019)	Phase 3 (Until 2025)	Phase 4 (Until 2030)
<b>K-eco's Sustainable Development Model</b>	Engaging in CSR,	Competitive Advantage Settlement	Legitimacy & Reputation	Value Creation
<b>Governance</b>	• Absent exclusive organization for sustainable management	• Operating exclusive organization for sustainable management	• Considering sustainable management factors when decision making	• Linking with KPI and social value goals
<b>Strategies</b>	• Absent sustainable management strategies	• Establishing sustainable management strategies performance indicators	• Setting strategy direction and goals for each task	• Analyzing strategic impact
<b>System</b>	• Driving separate tasks for each department	• Integrated performance management for sustainable management	• Unifying management system and sustainable management system	• Operating sustainable management system at all time
<b>Internal awareness</b>	• Lack of awareness about necessity of sustainable management	• Spreading awareness about sustainable management	• Internalizing the importance of sustainable management	• Internalizing performance management culture of sustainable management
<b>External communication</b>	• Publishing sustainability report ('10)	• Integrated management of communication channel of the stakeholders	• Settlement of publishing sustainability report • Applying stakeholders' feedback to the management	• Active communication that public feel

## K-eco Sustainable Development Goals

Under the vision of "K-eco to Protect Nature and Man's Sustainable Future," we selected four strategic directions and 16 goals and presented 56 detailed goals accordingly. By doing so, we are going to grow into a responsible professional organization that realizes social values and contributes to the achievement of UN SDGs.



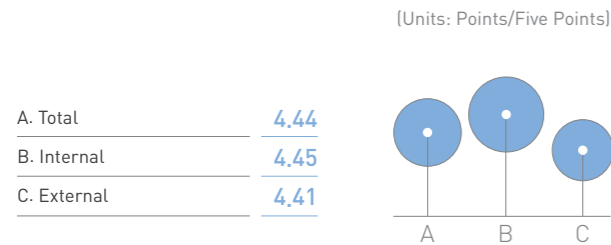
# Core Sustainability Management Issues

The corporation conducted a materiality evaluation to select and report issues that stakeholders believe are important. Based on GRI Standards, we conducted an external environment analysis to configure 27 significant issue pools and surveyed various stakeholders. A total of 1,816 executives, business partners, and members of the general public participated in the survey, and we selected the top 15 issues based on the importance of each issue of sustainability management level diagnosis, media analysis, and benchmarking.

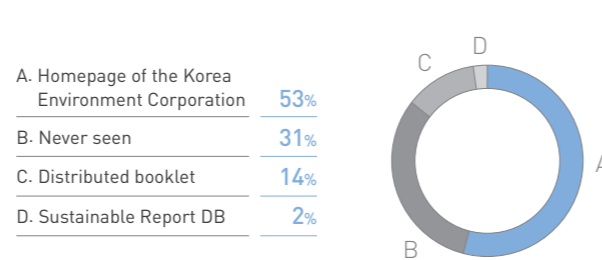
## Questionnaire Survey on Awareness of Sustainability Management

The level of awareness of sustainability management in the corporation turned out to be higher among internal stakeholders than external stakeholders, and 70% of the survey participants know about the corporation's sustainability report, so it is expected to be easier to spread the awareness of the corporation's sustainability management through the report. In addition, the SDGs that the corporation should focus on achieving in the future turned out to be "clean water and sanitation", and "climate change response", and the most effective social value that can be generated is "environment" and the "health and welfare" of the people.

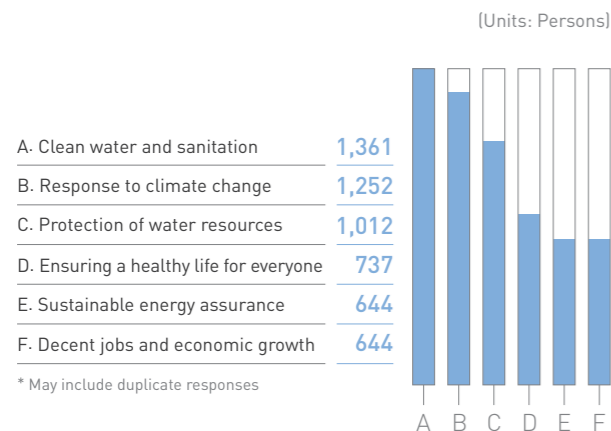
**Do you think K-eco is "a public institution that fulfills its responsibilities in the environment and society as well as in the growth of management"?**



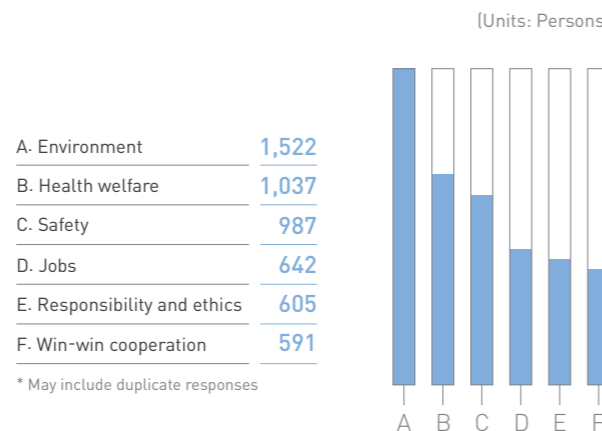
**Have you ever seen the sustainability report of K-eco? If yes, through what means did you see it?**



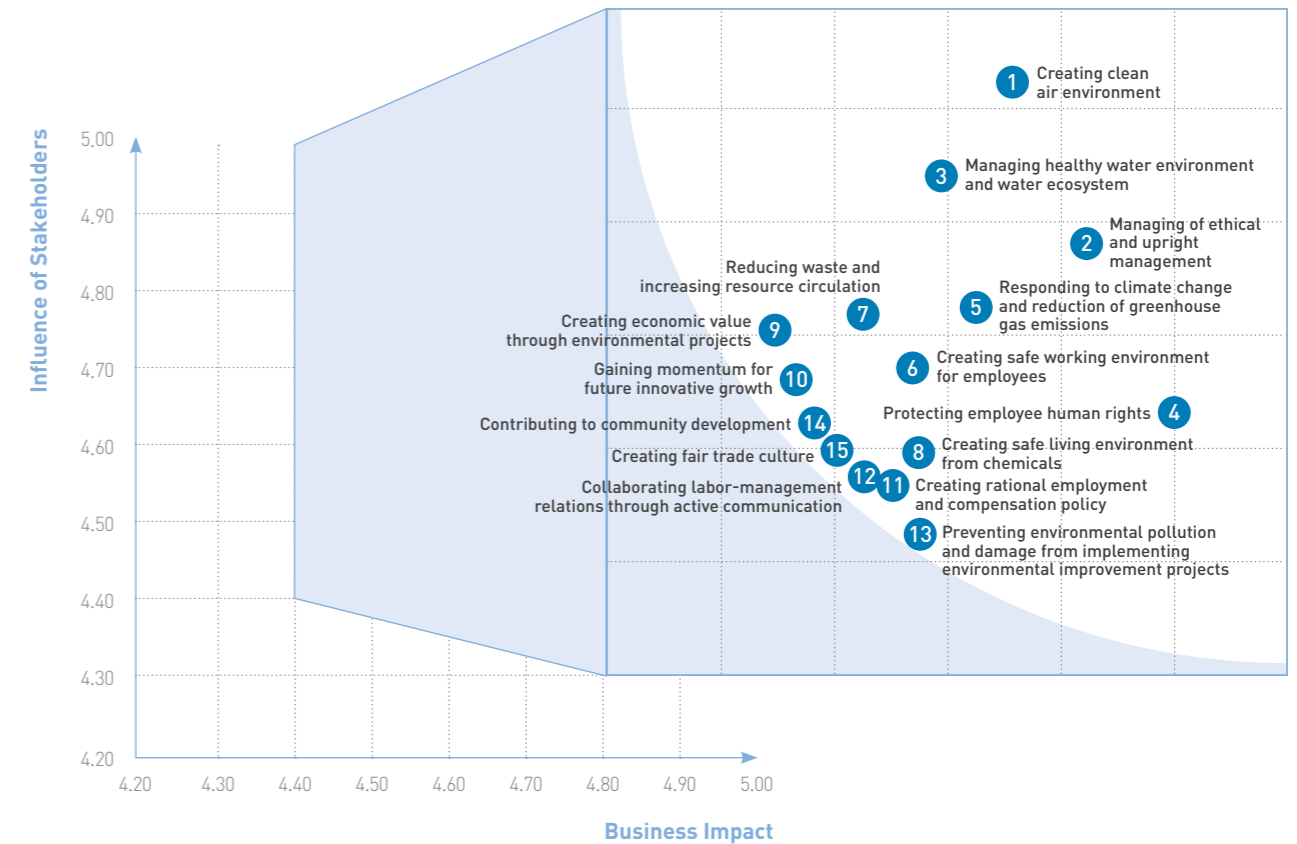
**What do you think is an international issue (UN SDGs) that K-eco can effectively address?**



**What areas of social value do you think K-eco can effectively create?**



## Materiality Assessment Results



Sustainability management strategy	Core theme of sustainability	Material Issues	UN SDGs	Social values	Page
Clean & pleasant natural environment	Clean and pleasant natural environment	1, 3, 5, 13	SDG 6, 7, 11, 13, 15, 17	Environment, regional economy, social assistance	30-41
Safe & sustainable living environment	Safe and sustainable living environment	7, 8, 9, 10	SDG 3, 7, 10, 11, 12, 13	Health and welfare, safety, environment	42-53
Cooperative & symbiotic social environment	Communicating and participating in local communities	14	SDG 4, 8, 10, 11, 17	Participation, jobs, community restoration, social assistance	54-63
	Mutual cooperation for a better society	15	SDG 8, 9, 11, 17	Win-win cooperation, responsibility · ethics	64-71
Transparent & respectful organizational environment	Creating a human-centered workplace	4, 6, 11, 12	SDG 3, 4, 5, 10, 11	Human rights, responsibility · ethics, labor, safety, social assistance	72-81
	Transparent and respectful organizational culture	2	SDG 5, 10, 16	Human rights, responsibility · ethics	82-89

# Communication with Stakeholders

## Communication activities by major stakeholders

The corporation aims to share and spread its vision and create social value through optimized communication among stakeholders. Therefore, we classified stakeholders according to core requirements and established communication strategies. The corporation provides services to stakeholders according to its communication strategy and analyzes the effects of performance evaluation and communication efforts to improve them. The opinions collected through this process are reflected actively in the management and are based on the sustainable operation.

Stakeholder	Core Requirements	2018 Main activities	2018 Communication performance	Value created
Executives and Employees	<ul style="list-style-type: none"> <li>Promoting of internal communication for sharing and achieving management goals of the organization</li> <li>Organizational Development and Innovation</li> </ul>	<ul style="list-style-type: none"> <li>Executive and staff innovation workshops (3 times)</li> <li>Internal and external surveys (2 times)</li> <li>CEO Messages (5 times), SNS, and home page promotion</li> </ul>	<ul style="list-style-type: none"> <li>Vision and Strategy Awareness Raising (94.3 points in 2017 → 95.2 points in 2018)</li> </ul>	<ul style="list-style-type: none"> <li>Creating a Happy Working Culture</li> <li>Strengthening cooperative labor-management relations</li> </ul>
Labor Union	<ul style="list-style-type: none"> <li>Creating trust between labor and management and coexistence by improving working conditions</li> </ul>	<ul style="list-style-type: none"> <li>Labor-management council (4 times), labor-management joint briefing (3 times), and labor-management relationship training (6 times)</li> <li>Labor-management one-heart sports event</li> </ul>	<ul style="list-style-type: none"> <li>Declaration of joint goals between labor and management</li> <li>Achieved no dispute for nine consecutive years</li> </ul>	
Customers	<ul style="list-style-type: none"> <li>Continuous improvement of K-eco service level</li> </ul>	<ul style="list-style-type: none"> <li>Briefing sessions (83 meetings), council meetings (25 meetings), forums (24 meetings)</li> <li>Customer Survey and Satisfaction Survey (13 times)</li> </ul>	<ul style="list-style-type: none"> <li>Utilization of business process reorganization (TMS, correct system, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Realization of win-win cooperation with the establishment of a mutual growth culture</li> </ul>
Business Partners Cooperative company	<ul style="list-style-type: none"> <li>Win-win cooperation and establishment of a mutual growth culture</li> </ul>	<ul style="list-style-type: none"> <li>Mutual growth briefing (83 times), consultation meeting (25 times), forum (24 times)</li> <li>38 mutual growth programs in 19 projects</li> <li>Corporate helper meetings, improvement of the system for strengthening protection of subcontractor rights</li> </ul>	<ul style="list-style-type: none"> <li>Received Prime Minister's Mutual Growth Award</li> </ul>	
Government National Assembly	<ul style="list-style-type: none"> <li>Implementing Government Policy and Participating in K-eco Project Decision Making</li> </ul>	<ul style="list-style-type: none"> <li>CEO Visit Consultation (13 times), Working-level Consultation (40 times)</li> <li>Amendment to the Act on Climate Change Response (Refrigeration Management), etc.</li> </ul>	<ul style="list-style-type: none"> <li>Net increase of 110 employees in the performance of national tasks</li> <li>Reduced 417,000 tons of greenhouse gas by the stable collection of refrigerants</li> </ul>	<ul style="list-style-type: none"> <li>Enhancing the Public Service Function of Public organizations</li> </ul>
Media	<ul style="list-style-type: none"> <li>Popularizing of policy issues and sharing of information</li> </ul>	<ul style="list-style-type: none"> <li>Planning Report to meet the People's Right to Know, contribute to newspaper, Familiarization tour (2 times)</li> <li>Annual public service campaign at YTN (14.54 million viewers, the total exposure of 100 million times)</li> </ul>	<ul style="list-style-type: none"> <li>Ranked #8 among the top 100 public corporations in corporate reputation</li> </ul>	
Community	<ul style="list-style-type: none"> <li>Community win-win and personalized social contribution</li> </ul>	<ul style="list-style-type: none"> <li>One company - 1 community, 1 school, 1 market, 1 river win-win activity)</li> <li>Water supply system construction, electric vehicle support, air quality measurement</li> </ul>	<ul style="list-style-type: none"> <li>Increase in satisfaction with social contribution (30.5 points in 2017 → 32 points in 2018)</li> </ul>	<ul style="list-style-type: none"> <li>Community development</li> </ul>
People	<ul style="list-style-type: none"> <li>Increasing people's right to know</li> <li>Improving environmental service experience</li> </ul>	<ul style="list-style-type: none"> <li>New Media Blogs Visits Average 6,600 per day</li> <li>Conducting "Come Together Environmental Love+," National Environmental Love+ campaign</li> <li>Three Green Plugged Concert (3 times)</li> <li>Enhancement of education contents at the Environmental Love Promotion Training Center (160,000 viewers)</li> </ul>	<ul style="list-style-type: none"> <li>Rising awareness of the people (71.7% in 2017 → 74.5% in 2018)</li> <li>Awarded 2018 Korea Communications Grand Prize</li> <li>Awarded 2018 Korea Internet Communication Grand Prize</li> <li>Awarded 2018 Korea SNS Communication Top Prize</li> </ul>	<ul style="list-style-type: none"> <li>Expanding public communication</li> </ul>

### "In order to achieve sustainable development goals, K-eco needs to make active contributions."

The transition from the Millennium Development Goals (MDGs) to the Sustainable Development Goals (SDGs) highlighted environmental issues, such as water and sanitation, climate change and deforestation, sustainable consumption and production, and biodiversity, which are also particularly important in the Sustainable Development Goals. K-eco is the largest public institution under the Ministry of Environment and is related to most of Korea's environmental areas, such as climate atmosphere, water, soil, resource circulation, environmental infrastructure, and the creation of a safe living environment. Therefore, designation the role of the organization as one that achieves the nation's sustainable development goals. Given that all sustainable development goals are closely linked, I believe that the projects being conducted, especially in the water and climate change sectors, as well as the formation of a resource circulating society, will ultimately contribute to the 2030 Sustainable Development Goals. Our continued expansion with our international organization partnership, such as the UN, will hopefully lead to a more readily achieved attainment of the SDGs.

### "We expect to play a leading role in achieving SDGs with our sustainable management strategy, which is closely linked to UN SDGs."

The company's four major strategies for sustainable management are as follows: clean and pleasant natural environment, safe and sustainable living environment, cooperative and co-existence social environment, and transparent and respectful organizational environment. All of which are succinctly in line with most of the UN SDGs. In addition, the 16 objectives are closely linked to SDGs in the environmental field among the UN SDGs. If we formulate specific KPIs for these goals, prior to an evaluation and improvement of their performance, we will gain momentum in achieving our sustainable development goals. I also hope that the K-eco will contribute to building a sustainable planet, which may then later on lead to the future inclusion of a fifth strategy, contribution of the international community (the Global K-eco Strategy).

### "May the K-eco shed light on the future of the Korea's environment to evolve into an international environmental institution."

K-eco's executives and employees are working hard to preserve the environment while developing the environmental industry in Korea. Forty years have passed since the foundation of the Korea Resources Recovery and Reutilization Corporation, and it has become the largest environmental company in Korea, both by name and in reality. I expect the organization to fully devote itself to creating a bright future for Korea's environment and achieve its goal of sustainable development as a global environmental agency. In order to do that, there needs to first be an active campaign to cultivate the international business skills of employees. Secondly, networking with the global community must be strengthened, and third, there must be a greater promotion of international conferences on sustainable development. In closing, I hope joints projects with UN agencies are expanded upon, such as UNOSD, as well as the SDGs 6 Policy Support System Development Project that is currently underway.



## Interview

**Yun Jong-su, Director**  
UNOSD  
United Nations Office for Sustainable Development

# Communication with Stakeholders

## Meeting of Advisory Committee on Sustainable Management Experts

K-eco held a 'Sustainable Management Advisory Committee' to collect opinions on a sustainability management development plan. Advisors from the Ministry of Environment, academia, research institutes, and civic groups participated in discussing sustainable management strategies and core issues and tasks for realizing social values. As a public organization, we will strive to fulfill our social responsibilities and achieve sustainable growth by positively responding to various opinions presented through the Advisory Committee.

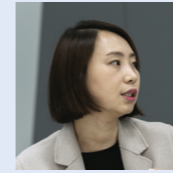
- **Date:** January 29, 2019
- **Location:** Airports Railroad, Seoul Station Conference Room
- **Host:** Korea Environment Corporation
- **Organizer:** THE CSR Co., Ltd.



**Park Jeong-jun,**  
Deputy Director  
Ministry of Environment,  
Environment, Industry and Economy

“Recognition and support of internal stakeholders in sustainability management are essential”

In order to publish meaningful sustainability reports, it is necessary for internal executives and employees to recognize positive changes and developments through this report. In particular, I hope that the report will show the change to a "better company" with the emphasis of "people-oriented workplace creation" for the support of company executives and employees. Rather than include all of the business content, the report must go beyond the core content and describe it in detail.



**Lee Eun-Kyung,**  
Head of Department  
UN Global Compact

“Establishing sustainability management governance and publishing continuous reports”

Governance is needed to comprehensively manage and systematically lead the tasks presented through a sustainability management strategy system. Through this, it is necessary to establish communication channels to collect stakeholder opinions and to internalize social values within the organization. It is also important to continue risk management through the continuous publication of reports, even if it is minor.



**Park Sung-hoon,**  
Chief researcher  
SK Social Value Research

“A report is covering all aspects of the economy, society, and environment”

Due to the business nature of the corporation, the proportion of the environment is inevitably large, but the proper allocation is necessary. When applying for international awards, it is evaluated from the perspective of "organization," therefore non-environmental aspects should also be addressed in a balanced manner. In addition, the report should fully reflect the details of human rights and anti-corruption according to the diagnosis results, such as ISO 26000.



**Son Myung-gyun,**  
Deputy Director  
Ministry of Environment,  
Responsible for sustainable management

“Highlighting the publicity of K-eco”

I hope this report becomes a standardized report for other public institutions and companies to benchmark. It is also necessary to clarify the purpose of the report by clarifying the target. While targeting the general public, it is important to include content that the public can understand and feel in the report, rather than focusing on the company's detailed business.



**Kim Dae-shik,** CEO  
Dream In Gongzone

“Acting Social Contribution with Clear Objectives”

We need to be clear about the goals that we want to create through this activity, not the universal, social contribution that everyone can make. Therefore, it is necessary to establish a clear purpose at the stage of planning social contribution activities, and the values and achievements created through these activities should be linked to public relations.



**Kim Kyung-shin,**  
Professor  
Sungshin University

“Linking Sustainability Management Strategies with Mid- and Long-term Management Strategies”

In the case of K-eco, the publication of the report has been suspended since 2014, and indicators of sustainability management are not in place. Therefore, when aggregating the results of major issues through stakeholder surveys, it is necessary to address a number of issues on various topics in the report. In addition, while planning a mid- to long-term management strategy for 2030, the corporation's sustainability management can be achieved smoothly if the current sustainability management strategy is fully included.



**Choi Seung-il,**  
Professor  
Korea University

“Highlights on the performance of K-eco's original work”

As it is important for the company to perform its duties as an agency acting on behalf of the Ministry of Environment, it is necessary to emphasize the implementation of the policies that are being carried out at the time of preparing the report. Therefore, achieving representation of performance indicators should be given priority to evaluate the implementation of the strategy.



**Park Chan-jun,**  
Student  
K-eco PR Supporter

“It is necessary to actively promote the corporation to strengthen public participation and communication”

K-eco is less recognized by the general public than other organizations. The current publicity through Facebook is not enough to increase awareness because of the strong nature of the event. Therefore, it is necessary to provide content suitable for the trend through YouTube, promotion through the appointment of PR ambassadors, or supporters activities.



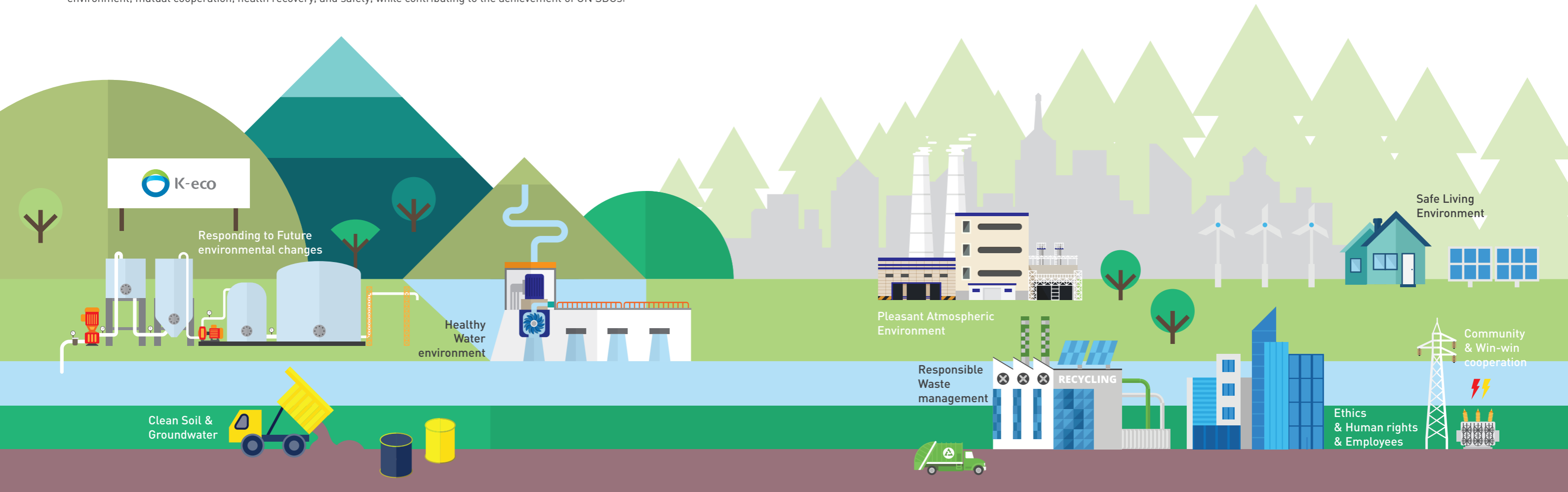
**Oh Soo-gil,**  
Professor  
The Cyber University of Korea

“It is necessary to internalize the organizational culture of sustainability management”

It is important for employees to be aware of K-eco's sustainability strategy and to establish it in the organizational culture. It is necessary to ensure that employees can feel the social value of each team and contribute to the achievement of SDGs on a daily basis. It is also a good idea to organize an annual Sustainability Strategy Contest and to have opportunities to review and encourage the internalization of these values.

# Value Creation Process

The corporation is a global comprehensive environment service organization that provides integrated services for environment-friendly national development. Business operations also enable the creation of a social value system, comprised of the environment, mutual cooperation, health recovery, and safety, while contributing to the achievement of UN SDGs.



## Responding to Future environmental changes



Preparing for a changing environment by securing future growth engines through innovation such as overseas environmental projects and water industry clusters

- 15,000 jobs created by building a water industry cluster
- 9 cases of excavation and promotion of overseas environmental projects

## Clean Soil & Groundwater



Maintaining a safe and clean global environment by cleaning up soil and groundwater and preventing pollution

- 86.36% acceptance rate of soil purification certification
- Establishing an integrated management system for soil environmental information

## Healthy Water environment



Improving water welfare by preventing water pollution and improving water supply and water supply facilities

- 100% success rate of the initial reaction to water pollution accidents
- Expanded to 76 central management areas for urban flood prevention

## Pleasant Atmospheric Environment



Preventing pollution by monitoring air quality and to create a clean air environment in response to climate change by managing greenhouse gases

- 26% reduction in particulate matter emissions in metropolitan areas
- 83 million tons of greenhouse gases are reduced by the emission trading system

## Responsible Waste management



Building a sustainable resource cycle society by reducing waste generation and conducting recycling

- 6.5kg of waste electric appliance recycling per person
- Replacing fossil fuels with solid fuel products 1.87million TOE/year

## Safe Living Environment



Protecting the health of the people by providing an environmental service close to their living conditions

- 2,500 cases of free asbestos diagnoses for the vulnerable class
- 6,232 diagnoses of harmful chemical handling facilities

## Community & Win-win cooperation



Contributing to the development of local communities through strategic social contribution activities and co-prosperity with small and medium-sized business enterprises that have fostered expertise

- Creating environmental sector jobs for 8,465 people
- Rating Good for the accompanying growth assessment

## Ethics & Human rights & Employees



Creating a happy workplace by practicing ethical management without corruption and human rights management centered on people

- Family-friendly certification for five consecutive years
- Fostering 721 K-eco Ph.D. level experts



# K-eco Sustainable Issues



Amid environmental issues being of interest all around the world, various cases of sustainable development are coming to light. Meanwhile, K-eco is funneling energy into the creation of a sustainable environment for future generations, based upon a new environmental paradigm.

**30**

Clean and pleasant natural environment

**42**

Safe and sustainable living environment

**54**

Communicating and participating in local community

**64**

Mutual Cooperation for a better society

**72**

Creating a human-centered workplace

**82**

Transparent and respectful organizational culture

# Clean and pleasant natural environment

## Sustainability Context

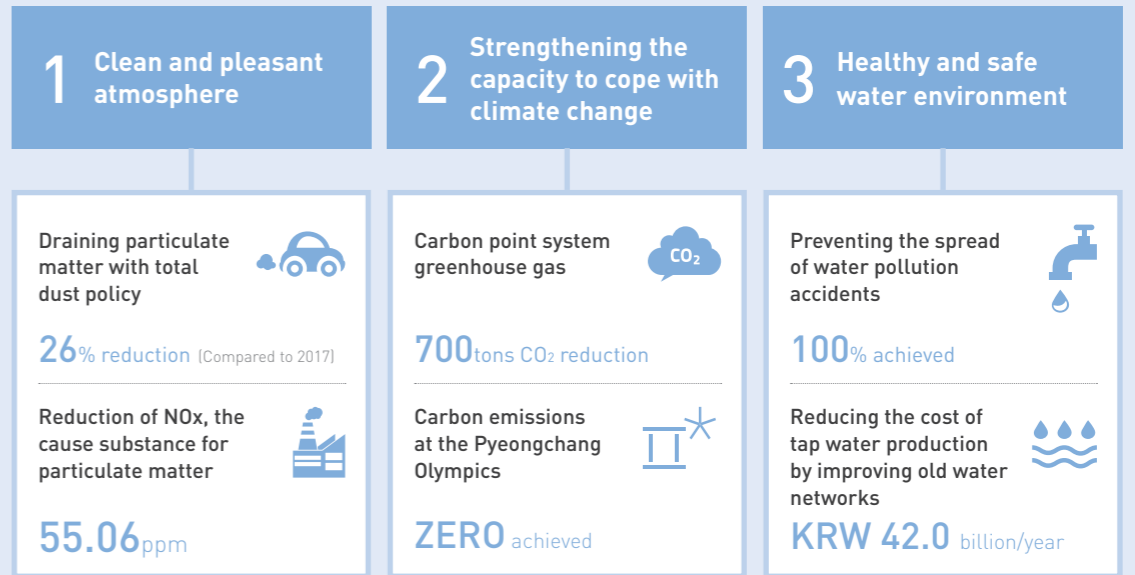
Recently, people's demand for clean water and clean air is increasing as interest and importance in the environment have increased. Active measures should be taken to deal with water pollution caused by oil leaks, waste water from factories, and air pollution caused by high-concentration particulate matter that is highly harmful to humans. As an environmental agency, we strive to create a natural environment where the public can be satisfied and reassured.

## K-eco Approach

The corporation is actively responding to particulate matter issues to create a pleasant atmosphere and making various efforts to operate a greenhouse gas system and raise public awareness in order to effectively cope with climate change. In addition, the corporation is promoting people's water welfare by creating a safe and clean water environment, preventing pollution in the soil, sewage, and aquatic ecosystem, and is committed to becoming a leading agency in the future water industry in accordance with the integrated water management policy.



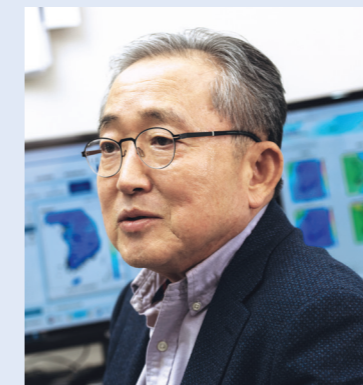
## Strategy & Performance



## Interview

“Contributing to the improvement of the atmospheric environment with accurate and reliable monitoring”

**Koo Yoon-seo, Professor**  
Department of Environment and Energy Engineering, Anyang University



Recently, public concerns about air pollution, such as the high-concentration particulate matter is increasing. As a public organization focused on environmental projects, K-eco (Korea Environment Corporation) is in need of formulating an active response to current issues and must strive to create a clean air environment.

K-eco collects high-quality atmospheric environment data and facilitates its use for national air quality management. This data is provided to the public through Air Korea to provide air pollution status in real time. In addition, K-eco operates a real-time monitoring system to manage air pollutants generated by various business sites and contributes to the improvement of regional air quality by reducing emissions of pollutants based on collected data.

The vast quantities of air quality measurement data handled by K-eco are very helpful in building a relevant policy base. If we enhance the accuracy and reliability of this monitoring system, we believe that we can contribute to clean and clear skies to future generations. We also look forward to actively introducing the latest technologies such as IoT and Big Data to increase value and develop into an organization that leads the next generation of air environment management.

## K-eco Sustainable Development Goals

Goal	Detailed objectives	Relevant SDGs
<p><b>01</b></p> <p>Creating an air environment for comfortable breathing</p>	<p>1-1 Establish and operate diverse environments that accurately measure air pollution and emission levels and provide information in a timely manner and that are accessible to anyone.</p> <p>1-2 Infrastructure that effectively manages emission sources that contribute to air pollution is established and operated.</p> <p>1-3 Minimize air pollution caused by fuel consumption in the transportation sector.</p> <p>1-4 Manage harmful air pollutants to reduce negative environmental effects and protect public health.</p>	
<p><b>02</b></p> <p>Healthy and safe water management</p>	<p>2-1 Preventing water pollution accidents by accurately measuring and managing river water diseases and providing water pollution conditions in real-time.</p> <p>2-2 Expand the public's healthy and safe water rights by supplying tap water with no leakage.</p> <p>2-3 Provide sufficient and equitable water and water services regardless of the area of residence.</p> <p>2-4 Improve water quality and health of the water ecosystem through the improvement of water circulation and revitalization of water reuse and activate water industry clusters to strengthen national water industry competitiveness.</p>	 
<p><b>03</b></p> <p>Environmental disaster prevention and restoration</p>	<p>3-1 Efforts are made to restore soil and sewage environments contaminated with industrialization and development.</p> <p>3-2 Preventing pollution from aquatic ecosystems and activating conservation and restoration activities.</p> <p>3-3 Reducing casualties and economic losses from water disasters such as floods.</p>	 
<p><b>04</b></p> <p>Strengthening climate change response capabilities</p>	<p>4-1 Providing stable support for the implementation of the system to achieve the national greenhouse gas reduction target.</p> <p>4-2 Reinforcing education and awareness activities concerning the response to climate change.</p> <p>4-3 Increasing the actual number of teenagers and adults with the skills needed for employment, quality jobs, and start-up activities by training expert personnel on climate change.</p>	 

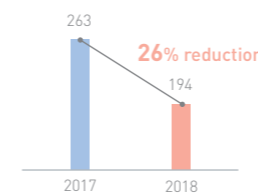


## Efforts for pleasant atmosphere

### Strengthening the monitoring of the atmosphere

The government is taking active measures against high-concentration particulate matter as public concerns are rising recently. As of October 2018, the corporation has strengthened monitoring of harmful substances, such as particulate matter, and operates 57 monitoring stations and 110 measuring networks that can measure seven contaminants. In addition, the company has established a stable monitoring environment by replacing aged equipment, which provides reliable basic data for establishing policies for responding to particulate matter, and strives to address public concerns.

Particulate matter emission (Ton) [as of December 2018]



### Implementing the world's first total pollutant system

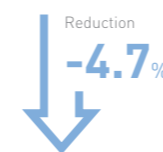
Although the total amount of particulate matter emitted from a business site is subject to legal management, it was difficult to secure the reliability of the total amount of the emission calculation. The corporation overcame these limitations and implemented the world's first total dust system. We are using the chimney emission remote monitoring system (\*TMS) to calculate accurate emissions and, with the regular inspection of devices to ensure proper working order, leading to the full-scale conducting of particulate matter emissions control in metropolis area after securing both accuracy and trust. It has reduced particulate matter emissions and is expected to save about KRW 31.1 billion in social costs annually. We are looking for ways to expand the system for non-TMS-applied businesses in the future and will continue to make efforts to create a clean atmosphere.

\*Tele Monitoring System (TMS): A system that remotely monitors a business by attaching an automated measuring device.

### Emergency Reduction Measure Issuance Criteria

- Must exceed an avg. of 50 µg/m<sup>3</sup> on the current day, between the hours of 12 am and 4 pm, and forecast an excess of 50 µg/m<sup>3</sup> for the next day [as per current metropolitan area-based issuance criteria]
- Must issue a watch & warning for the relevant cities and provinces on the current day, between the hours of 12 am and 4 pm, and forecast an excess of 50 µg/m<sup>3</sup> for the next day
- Expected to exceed 75 µg/m<sup>3</sup> tomorrow [very bad]

### Particulate matter emissions on days conducting emergency reduction measures



### Management of air pollutants using IoT

The organization is striving to monitor the emission of four to five types of air pollutants from businesses and small businesses that were not managed through the existing chimney TMS. Using IoT technology, we prepared a system to manage the operation status of pollution prevention facilities and finally selected 25 pilot operation sites after consultation with about 200 businesses. Various measuring instruments such as temperature meters, differential pressure meters, and pH meters are installed at selected sites and are being verified in real-time. It expands the scope of real-time monitoring to provide a basis for a monitoring system for all businesses that emit air pollutants.

\*IoT (Internet of Things): Technology that integrates information and communication technologies into various objects to exchange data on the Internet in real time.

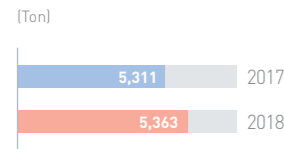
### Active response to particulate matter emergency reduction measures

Amid the increased public anxiety over highly-concentrated particulate matter, the government is currently conducting emergency reduction measures to counteract the pollution. The K-eco created a response center system to operate matters from advanced monitoring of air quality to post-maintenance procedures. Through monitoring of air quality levels via the National Ambient Air Monitoring Information System (NAMIS), K-eco is able to more readily determine the adequacy of requirements for issuance of emergency reduction measures. Upon such issuance, Airkorea provides notification to the public, enabling a more prepared response to particulate matter in the air. Moreover, supplementary measures are provided for insufficiencies, post facto, following the analysis of reduced emissions at on-site operations. These efforts are an indication of the organization's striving to, not only protect public health, but also to provide a sustainable level of pleasant air quality.



## Management of Pollutants for the Elimination of Public Complaints

### Oil mist recovery volume



### Management of contaminants and steam at gas stations around daily life

Due to the emission of odors and harmful VOCs, oil mist requires additional management to promote a pleasant daily environment and safety protection of the public. Most large gas stations are well managed, while gas stations of a smaller scale rarely receive any professional care. The organization conducts vapor collection facilities inspections and technical support to encourage the improvement of capacity for facility maintenance. This has brought about a decrease in the rate of inadequacy of these facilities, while, as of 2018, as many as 3,229 sources of emission, following the year-on-year increase of 73, are being managed. The resulting increase of recovered resources enabled the removal of harmful elements from the immediate environment while contributing to public health and safety.

### For the contribution of reducing odor

Won the Prime Minister's Award



### Minimizing civil petitions by improving odor pollution

The corporation is one of the nation's top stench specialists and strives to create an environment where the public can breathe freely. As residents began to enter the administration center integration city of Sejong City, a stench-causing complaint was filed at the first environmental base facility in the nearby. The local government tried to solve this problem on its own, but as difficulties ensued, the corporation and the local government reached a business agreement and carried out the 'Deodorization of the Village's First Environmental Base Facility.' The corporation carried out a precise diagnosis for analyzing the cause of the odor and carried out improvement projects, such as sealing the sewage treatment plant, according to the diagnosis results. Through this, we reduced the stench concentration by 86% and contributed to the development of a pleasant living environment for the people.

### Road dust after improvement of vehicle operation methods



### Road dust management to reduce particulate matter

The corporation is operating a mobile measuring system for clean road environment management. Using six mobile vehicles, we conducted a Re-scattering Road Dust measurement. To reduce, as well as to measure, road dust, the corporation presented the best operation plan for cleaning vehicles in Gangseo-gu, considering the time zone of each vehicle and the pollution concentration. The Gangseo-gu Office operated a cleaning car at the suggestion of the corporation, which reduced the density of road dust in areas where residential areas are centered from 120µg/m<sup>3</sup> to 59µg/m<sup>3</sup>.

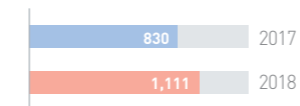
\* Resuspended Road Dust: Particulate matter accumulated alongside roads that gets resuspended in the air due to traveling vehicles on account of vehicle emissions, tire abrasion, abrasion of brake pads, and other causes



Mobile monitoring system for resuspended road dust (left) •

Vapor collection facilities inspections (right) •

### Increase of high-speed chargers



### Charging infrastructure for electric vehicles



## Improving convenience for eco-friendly electric vehicle users

### Building an electric vehicle high-speed charging infrastructure

Under the comprehensive plan for particulate matter management, the government is pushing to supply 350,000 electric vehicles and install 10,000 high-speed chargers by 2022 to reduce air pollutants and particulate matter emissions from mobile pollutants. As a result, the corporation has established charging infrastructures for electric vehicles in order to create conditions for supplying eco-friendly electric vehicles and to make driving conditions for operation. In order to improve the inconvenience experienced by electric vehicle users due to insufficient charging infrastructure and long charging time, we analyzed the driving patterns and future demands of electric vehicle users and reviewed the trend of high-speed charger use and possible future deployment of electric vehicles, including the status of vehicle registration and operation. Reflecting the results of the analysis, high-speed public chargers were installed around public facilities such as highways, public parking lots, and multi-use facilities, and in 2018, 1,111 high-speed chargers, the largest volume in history was installed in line with the rapid speed of electric vehicles supply.

#### Efforts to build a charging infrastructure

Analysis of installation points by using patterns of electric vehicle and future demand analysis

In 2018, 1,111 rapid chargers were installed, the largest volume in history

#### Achievements made by deploying charging infrastructure

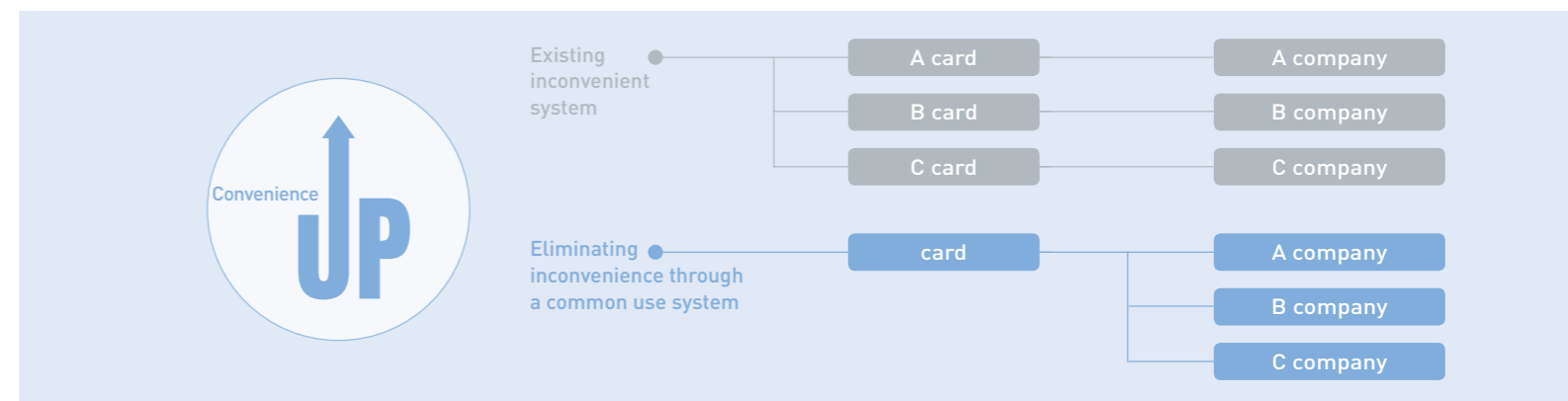
Approximately 56,000 (total) electric vehicles were supplied as of 2018.

→ Approximately 110,000ton- CO<sub>2</sub>eq of greenhouse gas reduction effect

### Charging an electric vehicle anywhere with a single card

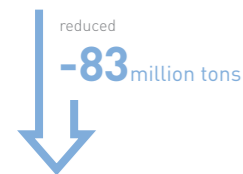
The corporation has established a 'Combined Use System of Charging Facilities' so that users can use the electric vehicle charging stations of all charging service providers with a single member card. In the past, it was difficult for electric vehicle users to carry charging cards from various charging service providers in order to use their specific electric vehicle chargers, as it was not possible to issue membership cards for each charging service provider nor to use third-party charging service providers. To address this inconvenience, the corporation established a system to link the information of the charging facilities of the Ministry of Environment and eight private charging service operators to the charging information system operated by the corporation and jointly use it with members of each company. It enabled about 7,400 charging facilities nationwide to be available with a single card, increasing user convenience.

### With one card charging facilities are available

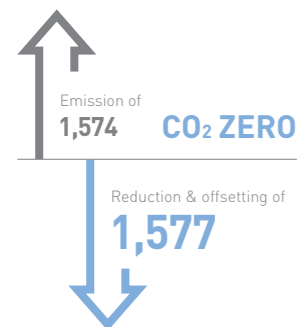




As a result of the 1st operation, Greenhouse gas emissions forecast (compared to BAU)



CO<sub>2</sub> emission and reduction & offsetting (a thousand tons)



## Operating the greenhouse gas reduction system.

### Companion of the Government's greenhouse gas reduction policy

In order to accomplish the national greenhouse gas reduction goal (37% emissions reduction year-on-year until 2030) based on the Framework Act on Low Carbon, Green Growth, K-eco currently conducts a number of operations. The company is managing businesses that emit and consume more than a certain amount of greenhouse gases; central government agencies, local governments, educational institutions, public institutions, and state-run hospitals are all targets of the management system for greenhouse gas emission and energy consumption. In addition, the company is operating a greenhouse gas emission trading system that encourages activities to reduce greenhouse gas emissions through free carbon emission trading among businesses. Also, the company has established itself as a partner of the national greenhouse gas reduction policy by supporting local governments to establish a foundation for greenhouse gas management while performing statistical work on national greenhouse gas emission in the waste sector.

### Stable operation of emission trading system

To ensure stable operation of the emission rights trading system, which has been in effect since 2015, the corporation has carried out technology support projects in various areas, including allocation of emission rights, emission certification, and external business and trading markets. The emission rights trading system ended its first planning period from 2015 to 2017, and the second planning period involving more than 600 companies has been in operation since 2018. The stable introduction and operation of the emission rights trading system made it mandatory for companies to reduce greenhouse gas emissions and made it clear that the main culprit of the reduction was companies. In addition, we are laying the groundwork for the future expansion of the international carbon market under the Paris Agreement by preempting the first carbon market in Asia and accumulating operational experience.

### Systematic whole process refrigerant management system

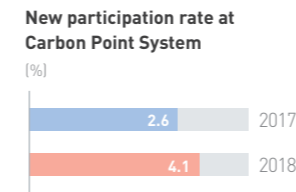
Refrigerant is one of the greenhouse gases that cause climate change, and the importance of its management is increasing internationally. The need for refrigerant management is increasing, but the nation's refrigerant management system is still in its infancy. In order to improve awareness of the need for refrigerant management and manage it in a safe and proper manner, the corporation implements 'preparation of refrigerant management standards' and 'registration system for refrigerant recovery classes.' In addition, the company is leading the integrated management of refrigerant to reduce greenhouse gas emissions and protect the ozone layer by establishing and operating the refrigerant information management system(www.rims.or.kr) for efficient management of the production, use, recovery, and processing of refrigerant.

\* Refrigerant: A chemical substance that absorbs heat and reduces temperature through circulation within a refrigeration unit and is primarily used in refrigerators or air conditioners

### Achieve "Zero carbon emissions" at Pyeongchang Winter Olympics

The Pyeongchang Winter Olympics, a global festival, planned to have zero carbon emissions throughout the preparation, hosting, and operating stages of the Olympics with the goal of 'Carbon Responsible Games.' For this, the corporation established strategies for low-carbon and eco-friendly and contributed to operations. New, renewable energy development was conducted to promote a reduction of greenhouse gases while providing an eco-friendly means of transportation for athlete delegates and spectators. Also, the company operated the 'Environmental and Greenhouse Gas Information Supply System (\*EGIS) to provide real-time information on greenhouse gases and promote the distribution of a carbon emissions donation from the public and private sectors to help balance out the amount of greenhouse emissions. It enabled the world's first-ever zero carbon emissions from the Winter Olympics, paving the way for the country to become a climate-advanced nation.

\* EGIS (Environment Greenhouse Gas Information System): The Greenhouse Gases Integrated Information System provided comprehensive environmental information during the competition period, including greenhouse gas emission information, air quality concentration, and stadium indoor air quality



International Trend of Climate Change Newsletter



Climate change PR portal

## Response to climate change in people's lives

### Empowering the competitiveness of climate change in education

The corporation has been supporting the operation of the Graduate School of Climate Change Specialization since 2006 in order to cultivate master's and doctorate degrees in response to the climate change agreement and expand related infrastructure research. From 2011, the Green Campus system provides education and research to foster future eco-friendly human resources, disseminate eco-friendly culture, and create eco-friendly calibrations to reduce greenhouse gas emissions. In conjunction with the educational community, we are strengthening its responsiveness to prepare for climate change in a variety of ways.

### Reducing greenhouse gases in the life of people, carbon point system

A lot of greenhouse gases are generated in everyday life during electricity, water supply, city gas, and automobile use. So we have a carbon-point system that allows people to reduce greenhouse gases and contribute to climate change in their daily lives. The system was improved to provide incentives for households, schools, and commercial facilities to give carbon points to reduce electricity, water usage, and city gas consumption. Recently, we have improved the system by shortening the incentive payment period and increasing the participation benefits in order to stimulate participation because of the lack of public interest. In addition, we conducted an 'Automobile Carbon Point System' pilot project to reduce greenhouse gas emissions from automobile operations. As a result, the average mileage per participant decreased by 6 km per day and saved 185 tons of CO<sub>2</sub>. Through these programs, we are strengthening our capability to increase the contribution of the people in reducing greenhouse gas emissions and respond effectively to climate change.

### Worry about climate change together

We are sharing the trends of the international community on climate change and are setting up a forum for discussion in order to prepare countermeasures in Korea. In addition to holding events like the Talanoa Dialogue to help the public and experts share more in-depth opinions, we held the Climate Change Expert Forum four times to listen to expert opinions and held one Civil Society Conference to listen to the opinions of the public. In addition, we publish the Climate Change International Trend Newsletter every month on our company website to provide the latest information on climate change policies and domestic and overseas climate change, and we operate the Climate Change Public Relations Portal to make it easy to find out about climate change anytime, anywhere. Through these activities, we will increase public awareness of climate change and contribute to the national greenhouse gas reduction policy.





## Healthy and safe water environment



Preventing the spread of pollution



Water quality monitoring

## Creating safe water environment

### Preventing water pollution accidents and preventing the spread of pollution

In order to create a safe water environment, we are preparing for water quality management and ecosystem damage in the public waters. We have successfully managed 33 cases of water pollution accidents and achieved 100% prevention of pollution in 2018. In addition, in order to strengthen the response capacity of the site in the event of a water pollution accident, we have put in the effort to create a healthy and safe water environment by introducing advanced technology and establishing a preventive control infrastructure.

#### Establishment of site-oriented prevention control system

**Improving human capacity**

- Develop and utilize virtual reality (VR) training content to improve the proficiency of preventive measures

- Compared to the theoretical type, the satisfaction rate of education increased by 7.3%

**Disaster support management**

- Established an exclusive reserve for the prevention of the four major rivers
- Replacement of old rubber boats and prevention vehicles

- Three times increase in stockpile area, 63% reduction in moving distance in case of an accident

- Mobility enhancement

**Strengthen water meter monitoring**

- Water meter monitoring and real-time sharing of on-site aerial images using drones

- Real-time transmission and sharing of on-site situations to respond to emergencies

- Deployment of one common drone at each accident site (total four units) by regional headquarters

### Strengthen water quality monitoring and provide real-time water quality information

We monitor the water quality of 966 domestic and wastewater discharge sites across the country in real time to manage the emission surcharge for the contaminated load. Considering the trend of the continuous increase in the circulation of chemicals every year, we are expanding the eco-toxicological management range of the discharge facilities to public waters to manage ecological risks. Meantime, we built 70 automated water quality monitoring networks nationwide to comprehensively monitor water pollution, and have made efforts to prevent the spread of damage and prevent damage by responding promptly to 900 water pollution alerts every year. In addition, we provide the basic water quality data of streams nationwide to all citizens in real time to enhance the utilization of water environment information.

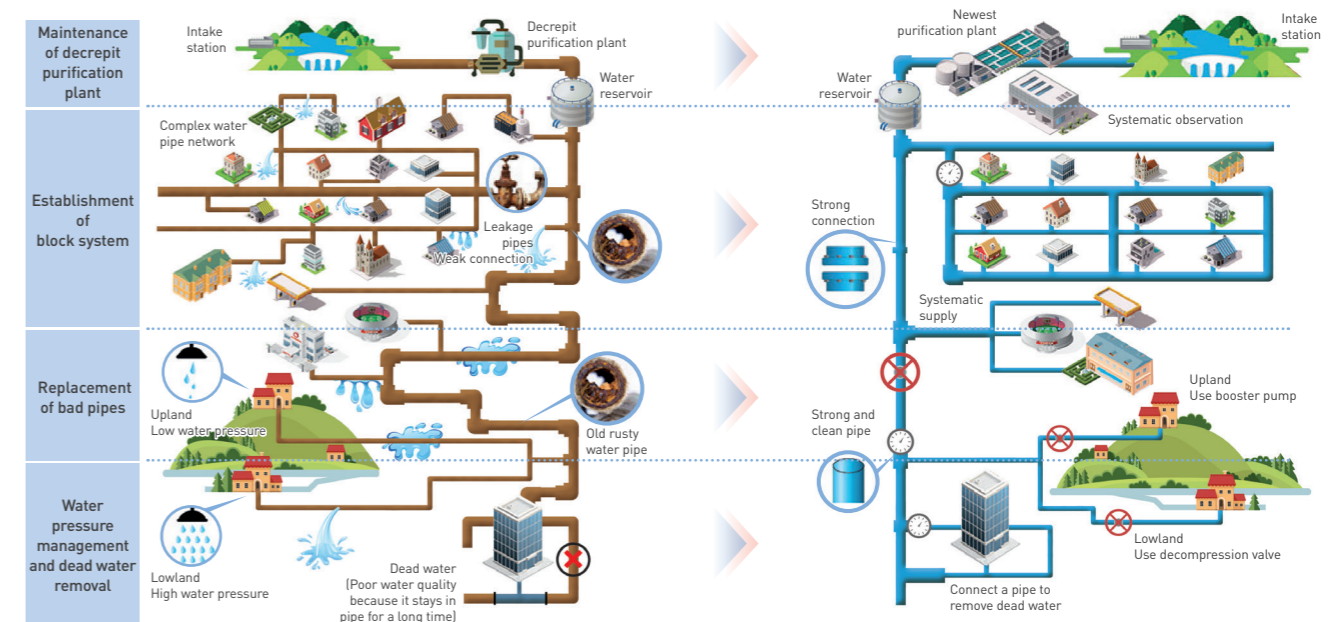
#### Water quality TMS operation and water quality monitoring items

<b>Stream water quality monitoring</b>	96.7% real-time monitoring of the nation's domestic and wastewater emissions → Reduction of water pollutants by 46.3% compared to 2008, before the attachment of water quality TMS → Improved reliability of measurement data by amendment of Communication Standard (January 01, 2018)
<b>Response to water pollution monitoring alarm</b>	Establishment and operation of water quality automatic measuring network in 70 locations across the country's four major rivers → Real-time water quality monitoring (8 ~ 22 types, including VOCs, heavy metals, TOC, T-N, and T-P) → Public disclosure of water quality information (8 items) (www.koreawqi.go.kr)

### Modernization project of old-age water supply networks

In order to supply safe and clean tap water, we are working with the Ministry of Environment to modernize local waterworks. We are improving the old water supply network in the country and modernizing the tap water supply system to reduce tap water supply, improve tap water quality, and prepare for droughts. Starting with 20 projects (based on local governments) in 2017, we plan to support 103 projects nationwide by 2028. We expect to reduce tap water supply by 158 million m<sup>3</sup> per year and reduce water production cost by KRW 42 billion annually.

#### Improving the business model of the leakage water pipeline



#### Urban flood prevention project according to local characteristics

**Customized design is required according to the characteristics of the flooded area**

- Lack of space for setting up rainwater storage facilities
- Sewage water reflux due to insufficient capacity of sewage pipeline capacity
- Urgency to prevent flooding due to a large number of semi-underground houses

**Application of deep underground tunnel (Bucheon city)**

- Application of deep underground tunnel to sewage for the first time
- Simultaneous resolution of space shortage and flooding

#### Inspection and improvement of water quality of small scale water facility

Rural communities, like farming and fishing areas where the local water supply is not connected, are usually supplied with drinking water through village water supplies or small water supply facilities. Moreover, the facility is operated by representatives of local residents, including the head of the village. In such cases, due to lack of expertise, it is difficult to comply with the water quality standards. Therefore, we conduct on-site inspection of small-scale waterworks facilities. We are working with the Environment Agency to conduct on-site inspections at 260 small-scale water facilities with concerns to exceed water quality standards and prepare measures to strengthen the management of the disinfection facility. Through this, we create an environment to prevent the waterborne communicable diseases of 12,000 residents in the affected area and improve the quality of water service.

#### Expanding the urban flood prevention project

Climate change is causing repeated urban flooding due to the intensity of the torrential rain. In order to improve this, the corporation is promoting urban flood prevention projects considering the topography and weather. In order to prevent flooding, we provide policy support to 76 business areas through the project. Furthermore, the corporation has installed the Deep Sewage Tunnel for the first time in Korea in 33 regions and has implemented customized sewage maintenance by region, including the expansion of sewage pipes and the establishment of low-current facilities and pumping stations. As a result, all 18 areas including Cheonan and Bucheon, where the flood prevention project was carried out, received no flood damage during the torrential rains in 2018 and we were able to secure public safety from natural disasters.

## Sustainable water environment virtuous cycle system

Changes in Bakdal sewage treatment plant



### Changes in Bakdal sewage treatment plant, Anyang freshwater park

The Bakdal Sewage Treatment Plant, which is responsible for the sewage treatment of Anyang City, has been operating for 25 years and the sewage treatment efficiency has been reduced, and complaints have been continuously generated due to bad odor. In response, the corporation implemented the Anyang Fresh Water Park project to move the sewage treatment facilities underground. Setting up sewage treatment facilities underground, we also contributed to improve water quality in Anyang stream by improving sewage treatment capabilities, and to minimize odor complaints, we strengthened the stench standards and installed prevention facilities. On the ground, we made a park where citizens could enjoy leisure activities, transforming the sewage treatment plant, which was recognized as an unpleasant facility, into a resting place in the city. Through this project, we provided a new paradigm to overcome the NIMBY phenomenon of environmental facilities and contributed to the improvement of the water environment in Anyang City through proper sewage treatment.

### Activating sustainable water reuse

Due to changes in the environment in the future, Korea is expected to experience extreme droughts by region and season. Water reuse is an effective management method that can improve the water resource structure which has been dependent only on dams and river water, and a method for recycling sewage treated water, wastewater, and rainwater to river water, industrial water and agricultural water, etc. through reprocessing and water quality management that are suitable for use. The corporation contributed to the increase in the volume of reusable water, which is a sustainable recycling resource, through expert technical review and technical support (147 cases in 2018) on water reuse management plan and water reuse project of the municipality. In addition, we are making efforts to solve water shortage problems and water quality improvement in streams at the same time by reviewing sewage reuse first when establishing water supply expansion plans through the improvement of systems related to water reuse.

Tree-well filter



### Eco-friendly water circulation city using the natural circulation of rainwater

As the amount of land mass occupied by asphalt, concrete, and impervious surfaces continues on the rise, rain water cannot seep into the ground, causing it flow into surrounding stream areas, which leads to the disruption of water circulation and the direct contamination of water sources. In response, the K-eco actively promotes its trial project to eliminate rainwater runoff, utilizing low impact development (LID) techniques that include pervious concrete blocks, tree-well filters, vegetation culture plants, bioretention, and more, has enabled the reduction of rainwater runoff and contaminants, as well as the creation of an operations management guide. This has provided the foothold needed to conduct support projects for water circulatory cities of Daejeon, Gimhae, and more, while setting its sights on the continued increase of water circulation in urban areas through the expansion of the implementation scope of LID.

\* LID (Low Impact Development, LID): Techniques for restoring the natural water circulation system by allowing rainwater to penetrate the ground through means such as the use of water permeable pavement, thereby reducing runoff

Infiltration ditch



#### Background and Contents of Water Circulation City

Background	Project contents
Various water circulation problems in urban area due to the increase in impervious surface (water quality deterioration, urban heat island, etc.)	Pilot project for three years in Ochang and Jeonju City
In order to expand the LID technique, it is necessary to verify the amount of leakage and pollutant reduction effect of the drainage area by technology elements.	Reduction of runoff (19%) and BOD pollutant (20%)
Need to secure a successful application model by introducing LID techniques	Identifying and solving problems caused by the operation of the four seasons of the LID technique applied at the facility

## Special page

# The leap to the center of the world water industry, National Water Industry Cluster

The corporation has been selected as the national water industry cluster operating agency in recognition of its diverse experience and expertise in water-related areas such as sewage and wastewater treatment, reuse and waterworks. Therefore, we are making efforts to make Korean water companies take the lead in the world water industry through industrial water clusters.



### Start of Integrated Water Management Policy

So far, the domestic water management policy has been dualized into the Ministry of Environment and the Ministry of Land, Infrastructure, and Transport. Over the past two decades, there have been constant calls for unifying the management system in order to efficiently manage water quality, water ecosystem, and water disaster. As a result, the government unified its water management functions with the Ministry of Environment, thereby laying the foundation for sustainable integrated water management.

### Establishment of the national water industry cluster to foster the water industry

The global water market is currently worth KRW 800 trillion and growing at an annual average rate of 3.7%. However, the domestic water industry is stagnating every year, and global competitiveness needs to be secured. Accordingly, the government is implementing policies to develop the domestic water industry and strengthen international competitiveness in line with the era of integrated water management. One of them is to organize national water industry clusters to provide systematic support, and the corporation is selected as an operating agency acknowledged for its expertise in water management.

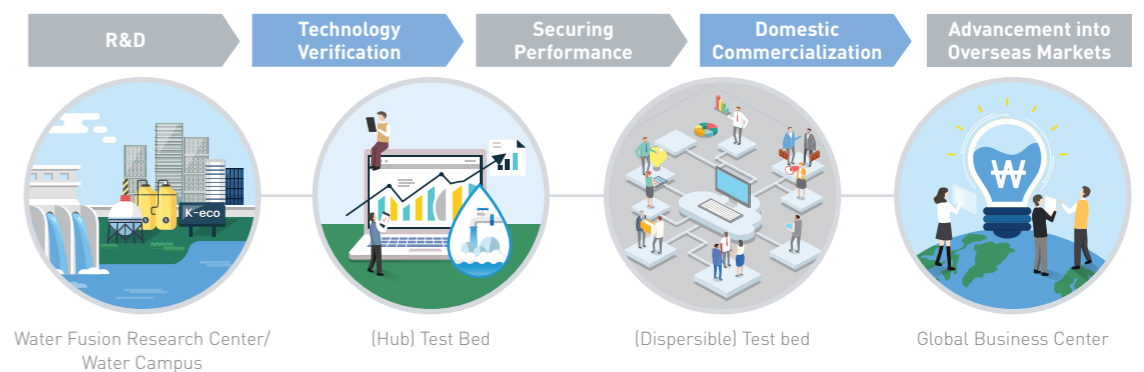
### Leap to the hub of national water industry development

In order to effectively operate the National Water Cluster, the corporation collected expert opinions and investigated overseas cases. In order to set up the water industry cluster early, we are conducting briefing sessions on corporate attraction for each region, supporting the discovery of star enterprises for cluster boom up, activating the water fusion research center, and establishing national and international networks and cooperation systems through MOU. The corporation will do its best to create an environment that can secure global competitiveness by actively supporting technological competitiveness and advancing into overseas markets through the support of the entire lifetime from the research and development of domestic water companies to commercialization.

### 2025 Goal



### One-Stop System Training Strategy for Advancement in Global Market



# Safe and sustainable living environment

## Sustainability Context

Demand for environmental services is increasing as the standard of living of the people improves and the demand for welfare increases. Therefore, the Ministry of Environment has set the goal of high-quality environmental welfare to realize the happiness of the people, provides environmental services for the public to experience, and strives to improve the quality level of environmental services in order to create a healthy and safe living environment.

## K-eco Approach

K-eco manages hazardous chemicals, radon, and asbestos to create a safe living environment and protect the health of the people. We also try to improve the environmental degradation of living conditions such as noise between floors and indoor air quality. In addition, we reduce the generation of waste and promote recycling to realize a sustainable society.



## Strategy & Performance

1 Strengthen chemical management for public safety	2 Responsible waste management for Resource Circulation Society	3 Creating reliable living environment
<p>Reduction of national dioxin emissions </p> <p>5 consecutive years</p> <p>Environmental hazard test data was offered to small and medium enterprises </p> <p>381 cases</p>	<p>Waste electrical &amp; electronic products amount of recycling per capita </p> <p>6.5kg achieved (Up 5% from the previous year)</p> <p>Replacing fossil fuels with solid fuels </p> <p>1.87 million TOE/year</p>	<p>United States EBI Awards </p> <p>International Environment Award received</p> <p>Asbestos safety management for vulnerable people </p> <p>2,500 cases</p>

## Interview

“Contributing to the establishment of a sustainable resource circulation society through stable operation of a resource circulatory system”

**Jang Yong-Cheol, Professor**  
Department of Environmental Engineering, Chungnam National University



With the expansion of mass production and consumption activities following economic development, waste production is also on the rise. For the sustainable development of our society, we need to create a sustainable resource circulation society that recycles used resources.

As an environment-specialized public organization, K-eco has contributed greatly to building a resource circulation society in Korea. We are firmly committed to the role of supporting the establishment of the national resource circulation policy and currently operate the resource circulation system in a stable manner. Especially, we are actively operating a wide variety of systems compared to other countries such as the EPR (Extended Producer Responsibility) recycling system, the waste disposal charge system, the resource circulation performance management system, the waste treatment charge system, etc., which contributes greatly to our pursuit of a sustainable resource circulation society.

K-eco has many talented people involved in resource circulation. We will help these excellent personnel learn the most advanced practices through various overseas training programs and field trips and apply them appropriately in the domestic resource circulation sector, so that the corporation will build a resource circulation society and become a leading public organization in the world. In addition, in line with the era of the Fourth Industrial Revolution, we also look forward to rapidly introducing technology and systems applicable to the resource circulation sector so that we may better prepare for a rapidly changing future and become an institution that plays a pivotal role in ensuring the livelihood of the next generation with a sustainable resource circulation society.

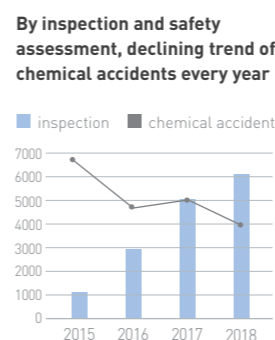
## K-eco Sustainable Development Goals

Goal	Detailed objectives	Relevant SDGs
<p><b>05</b></p> <p>Promotion of environmental welfare of vulnerable groups</p>	<p>5-1 Improving the quality of people's lives by providing a close-to-life environment service that reduces living pollutants.</p> <p>5-2 Protecting the health of vulnerable groups by minimizing exposure to Group 1 carcinogens (radon, asbestos, dioxin) in our daily lives.</p> <p>5-3 Advancing chemical management to create a society safe from chemicals.</p>	 
<p><b>06</b></p> <p>Ensuring the right to life and safety of the people and workers</p>	<p>6-3 Supporting the installation of safety facilities for small construction sites.</p>	
<p><b>07</b></p> <p>Responsible waste management</p>	<p>7-1 Achieving the goal of national resource circulation in order to realize a sustainable circular economy.</p> <p>7-2 Reducing waste generation and expand recycling to improve resource sustainability and reduce negative environmental impacts.</p> <p>7-3 Providing information on resource recycling and resource circulation to promote the public convenience and enhance public awareness.</p>	 
<p><b>08</b></p> <p>Minimize the environmental impact inside the K-eco</p>	<p>8-1 Minimizing the environmental impact of the corporation's internal activities.</p> <p>8-2 Utilizing our resources efficiently and control environmental damage caused by organizational operations.</p> <p>8-3 Promoting sustainable green consumption through the expansion of green purchases.</p>	 

### Strengthen chemical management for public safety

**What are the toxic chemicals?**

Toxic substances, licensed substances, restricted or prohibited accident substances, chemicals that may be harmful, hazardous, or feared to be hazardous. According to the National Institute of Environmental Research [Regulation on Classification and Labeling of Chemicals] classification, around 904 kinds of inducing substances, 64 kinds of prohibited substances, and 69 kinds of accident prevention substances are classified as toxic.



### Production of hazardous test data for chemical safety

As public concerns about chemicals in daily life have risen following the humidifier disinfectant accident, the government has implemented "Laws on Registration and Evaluation of Chemicals." To ensure that no harmful chemicals are distributed in the country, companies are given the responsibility to demonstrate that the chemicals they handle are safe. Therefore, companies that are obliged to register chemical substances must submit the toxicity test data, but this is a great burden to small and medium enterprises because the cost of producing toxicity test data per chemical substance is high. We are reducing the cost burden on the industry by producing toxic test data for the chemicals that are handled mainly by small and medium enterprises, and are in urgent need of registration, at a low price. With this effort, we are preventing a second case of the humidifier disinfectant accident and relieving public anxiety about chemicals.

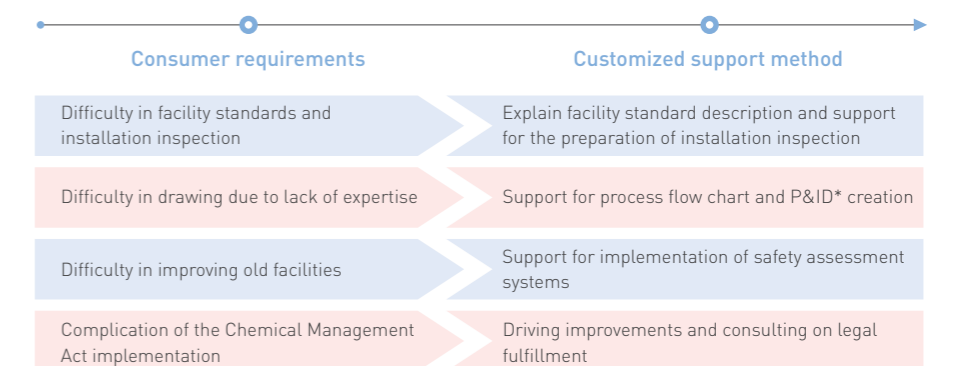
### Support for chemical safety management

#### Inspection and safety diagnosis of hazardous chemicals handling facilities

As chemical accidents frequently occurred at facilities dealing with hazardous chemicals, such as the Gumi hydrofluoric acid leak in 2012, the public's anxiety about chemical safety continued. For this reason, we have been preventing chemical accidents by conducting regular and periodic inspections and safety diagnoses of chemical treatment facilities since 2015. In order to improve the efficiency of inspection work, we reduced the time required for the administrative process by moving the application process online, from application to notification of results. Moreover, to ensure the reliability of the inspection, we have conducted training for nondestructive inspection and explosion-proof chemical handling and introduced specialized inspection equipment to enhance the expertise. We will enhance the convenience of handling complaints by upgrading the inspection management system of hazardous chemical substance handling facilities in the future. In addition, we will identify and eliminate potential accident risk factors of hazardous chemical substances facilities handling, through safety diagnoses from 2019 in order to prevent chemical accidents and increase preventive effects.

#### Supporting chemical safety management at small and medium scale business sectors.

We provide various types of technical support to small and medium businesses that lack chemical safety management capabilities. As a result of Phase 1 support (2014 - 2017), satisfaction with consulting was high, but the improvement was low. In order to increase the effectiveness of technical support, we have investigated the needs of consumers and improved the existing methods. Based on the results of the analysis, we expanded our consulting method in the Phase 2 support (July 2018) and customized it, thereby reducing the burden on chemical safety management of small and medium enterprises and contributing to the gradual reduction of chemical accidents.



\*P&ID (Piping & Instrument Drawing): A schematic diagram of a process's facilities, piping, instrumentation, etc.

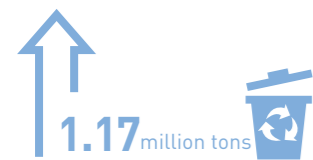
## Responsible waste management for Resource Circulation Society

### Strengthening the sustainability of resources

#### Life-cycle management system from generation to disposal of wastes, Resource recycling performance management system

Because the waste reduction system of the existing work sites depended on the voluntary goal set by the target workplace, the waste reduction effect reached its limit, and a new waste management policy was required. As a result, the government abolished the existing system and implemented the Resource Circulation Performance Management System. The system is to evaluate and manage the performance of the project sites by establishing resource circulation goals (circulation utilization rate and final disposal rate) to the enterprises that discharge large amounts of waste from their workplaces. This system will increase the circulation of resources and induce suppression of the final disposal leading to landfill. In addition, we provide financial and technical incentives to the companies that have achieved excellent results, so that we can achieve our national resource recycling goals early.

#### Waste recycling Expanded



#### Waste disposal charge system leading to a resource recycling society

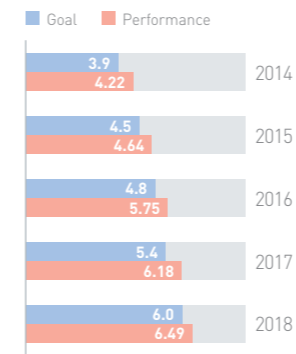
The "Basic Law on Resource Circulation" was enacted to maximize recycling instead of incineration or landfilling of wastes to the greatest extent possible, creating a new system known as the Waste Disposal Charge System. This system is an economic incentive system that allows recyclable waste from workplaces to be recycled, and the corporation is running this business on consignment. Currently, we actively provide education and promotion to those who are required to pay for waste disposal as an early stage of the system. In the future, we will strive to stabilize this system quickly to minimize the final disposal of waste and increase the recycling utilization rate to contribute to a sustainable cyclical economy in which resources and energy are part of virtuous cycles.

#### Environmental recycling assessment for activating new recycling technology

From the planning stage of waste recycling, the corporation conducts a recycling environmental assessment to predict and assess the impact of recycling technologies and methods on the environment and the human body in advance to promote safe waste recycling. Recycling environmental assessment systems can be used when it is recycled using a new method, or when waste in direct contact with soil or groundwater is directly recycled, as is the case with filling and cover materials. It helps new recycling technologies to enter the market and contributes to the safe and reliable recycling of more wastes.

#### Achieve national recycling goals 5 consecutive years

[electrical & electronic product recycling targets, Unit: kg/capita]



#### Operating a system to increase recycling

The corporation operates a system to reduce waste generation and promote recycling. The company operates a 'waste charge system' to prevent waste that is difficult to recycle and a 'voluntary agreement system' to find recyclable resources among items subject to waste charges and promote recycling. In addition, the company strives to maximize the national waste resource circulation through the Extended Producer Responsibility (EPR), we plan to gradually increase the number of recycled items in the future to lay the foundations for a resource recycling society.

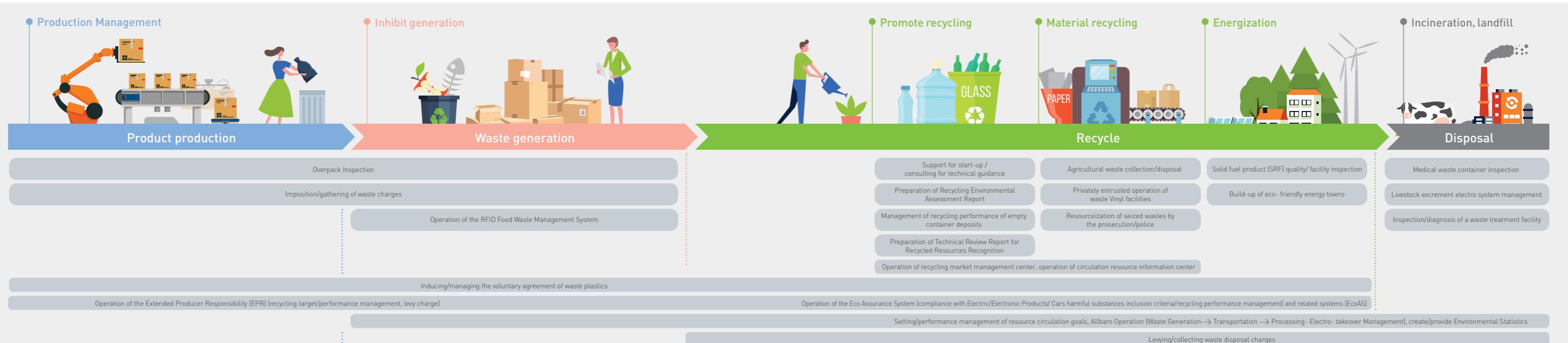
#### Achieve national recycling goals by strengthening the operation of the eco-assurance system

To expedite recycling of electric/electronic products and cars, the corporation operates an eco-assurance system that restricts the use of harmful substances in product design and production and mandates the collection of the discarded product. In 2018, we supported the revision of the sub-law of "Law on the Resource Circulation of Electric and Electronic Products and Cars" to expand the compulsory credit list for electrical and electronic products, thereby laying the foundations for raising the national recycling performance. Also, to increase the recycling of small electronics such as cell phones and irons, we have installed small waste appliance boxes in apartments to increase the ease of disposal. With these efforts, we have been able to exceed our national recycling targets (electrical & electronic product recycling targets) for the fifth consecutive year and contribute to building a resource recycling society.

#### Revised Separate-Disposal criteria

In the meantime, it has been difficult to separate and dispose of some items properly due to the difference of separate-disposal criteria according to each municipality and items. As a result, recycling companies are facing difficulties due to additional costs, such as removing foreign substances for recycling. To improve these problems, a 'Revision of Separate-Disposal Criteria' forum was held with the Ministry of Environment, K-eco, recycling companies, and producers. We discussed the revision of the Separate-Disposal Guidelines through seven meetings. In order to promote the revised standards to the public, the corporation has supported the application of 'Separate disposal of my hand' and contributed to the activation of resource circulation through easy separation and disposal.

#### Role of Corporation by Waste Disposal Flow



## Ensuring the safety of waste

Preparation and increased accessibility of hazardous information data

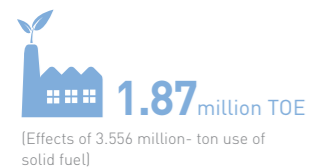


### Provide Harmful Information for the Prevention of Waste Safety Accidents

Lack of information on waste hazards can lead to fires, explosions, and spillage during waste disposal. In order to prevent such accidents, the corporation supports the preparation of harmful waste information. As it became mandatory to prepare hazardous information data from April 2018, the corporation was designated as the only specialized agency in preparing harmful information data in Korea (as of 2018) and prepared and provided 337 harmful information data packets to 215 workplaces. In addition, as an administrative and technical support for mitigating the burden of the emitter (workplace) who prepares harmful information data on their own, the corporation conducted 'exclusive consulting centers', operated 'visiting solution teams', carried out 'field tour training', and developed 'easy-to-understand' guidelines to provide direction.

Division	Contents of promotion
<p>Mixed waste</p>	<ul style="list-style-type: none"> <li>Preparation of Harmful Information Data Standardization</li> <li>Prepare and accessibility of harmful information about mixed wastes (337 cases, 215 sites)</li> </ul>
<p>Single type of waste</p>	<ul style="list-style-type: none"> <li>Opening of a consultation center for preparing waste harmful information data</li> <li>Developing and providing an easy-to-understand method of preparing harmful information (Manual)</li> <li>Field Tour Training (56 times, 7,355 people)</li> <li>Operating Visiting Solution Team (supported Samsung Electronics and five other companies)</li> </ul>

Replacing fossil fuels with solid fuel products



### Energization of Waste Resources, Solid Fuel Products

K-eco is striving to develop energy from waste resources. Due to the nature of the product, it is important to ensure the reliability and safety of the user when dealing with solid fuel. To enhance the environmental safety of fuel, the corporation conducts quality and facility inspection, and offers technical support and consulting for manufacturing facilities. In addition, we conduct regular inspections to check the use of safe, solid fuel products, such as air pollution emission concentration measurements and disclose the results. Through these activities, we are addressing the public's concerns about solid fuel products and ensuring the sustainability of resources.

\* Solid fuels: Eco-friendly fuels adequately manufactured according to quality standards by using lumber waste, artificial resin waste, and other flammable waste matter

#### Improvement of Environmental Safety by the Life Cycle of Solid Fuel



- Study on the method of granting a quality grade
- Distribution of guidebook for methods of material selection of manufacturing facilities and technical consulting, etc.



- Technical consulting for improving the environment of solid fuel manufacturing facilities
- Addition of management standards for the improvement of manufacturing facilities



- Research on the Environmental Impact Analysis and optimization of facilities
- Technical consulting on emission pollutant reduction plan of facilities

## Implementation of ICT-based proper waste treatment for safe living environments

Ministry of Public Administration and Security



### Waste management system applying to 4th industrial technology

As damage to environmental pollution caused by illegal waste disposal and public concerns have increased, proactive surveillance using new technologies in the era of the fourth industrial revolution is required. In order to establish a thorough waste management system, K-eco intends to improve existing systems by introducing 4th industrial technologies such as IoT\* and artificial intelligence. In order to eliminate illegal activities, we will add a monitoring function that minimizes manual input and compares input information with field information. Moreover, we have secured the budget for the first phase of the project. The corporation will establish a national waste safety monitoring system to carry out continuous efforts for a safe living environment.

\* IoT (Internet of Things): Technology that integrates information and communication technologies into various objects to exchange data on the Internet in real time

#### Establishment of National Waste Processing Monitoring System

	Phase 1. 2019	Phase 2. 2020	Phase 3. 2021
Budget	KRW 2.24 bil	KRW 8.98 bil	KRW 6.83 bil
Objective	Improvement of central control and filing services	Connection of waste information and creation of remote monitoring system	Creation of functional information integration services
Details	<ol style="list-style-type: none"> <li>Creation of infrastructure of monitoring system</li> <li>Establishment of remote monitoring trial run (50 locations / Reach 5%)</li> <li>Promotion of input medium diversification</li> </ol>	<ol style="list-style-type: none"> <li>Establishment of statistics analysis system and mobile filing services</li> <li>Expansion of processing manager-run remote monitoring (630 locations / Reach 64.3%)</li> <li>Sharing of waste processing information &amp; linking with related information from other ministries</li> </ol>	<ol style="list-style-type: none"> <li>Creation of functional information platform (AI)- Automated monitoring &amp; early prevention</li> <li>Expansion of processing manager-run remote monitoring (980 locations / Reach 100%)</li> <li>Provision of public safety information services</li> </ol>

Medical wastes



### Ensuring safety by proper treatment of medical wastes

Medical waste generation is increasing rapidly every year, but the capacity of dedicated treatment facilities to handle it is reaching its limit. The corporation strengthened the separation-disposal of medical waste in order to reduce them drastically. Previously, they have mixed both ordinary hospital waste and medical waste with potential infection, but we have set up guidelines on how to separate and discharge it. As a result of a pilot project ran in six large hospitals from August 2018, we were able to reduce the amount of waste generated and eliminate the medical waste disposal limit. At the same time, we were able to prevent national health risks by eliminating unauthorized speculation and neglect.

### RFID\*-based waste management

The corporation operates a food waste management system that charges a fee based on the amount of waste produced to reduce the emission of ever-increasing food waste. In particular, because food waste information released using RFID is automatically sent to the central system, efficient management of not only fees but also generated statistics is possible. In order to continue to spread the RFID Food Waste Weighted System, we provided education to 32 local governments. As a result, 149 local governments are participating in RFID system in 2018, which is 8% higher than previous year.

\*Radio Frequency Identification (RFID): A technology that uses radio frequencies to identify objects, people, etc.



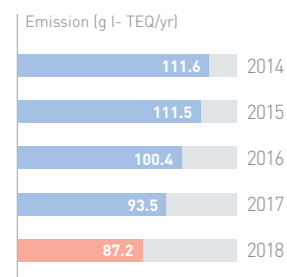


## Management of class 1 carcinogens in daily life

### Strengthening the safety management of asbestos

K-eco currently runs a support program for the operation and policy of a management system for the safe use of asbestos in order to prevent any negative impact to public health. In 2018, to ensure effective asbestos safety management in public facilities used by vulnerable social groups, such as children, several free asbestos safety diagnosis activities geared toward 2,500 small daycare centers were run, including investigations into the use of asbestos construction materials, asbestos safety management consulting, hazard assessment, and more. In order to alleviate public concern over residual asbestos in schools, a matter previously igniting controversy, several specialized management technology support programs for asbestos in schools were conducted, including the participation in specialized countermeasures for asbestos safety management in schools, which was established between the pertinent government ministries, such as the Ministry of Education, Ministry of Environment, and Ministry of Employment and Labor. In addition, field specialists were employed to school asbestos monitoring groups comprised of parents of school children, civic group members, and more, followed by construction operations for the elimination and removal of asbestos. The process was completed with a residual asbestos investigation for safety assurance and conducting of an on-site technology advisory board. Training for the conducting of residual asbestos investigations was also provided to those involved to ensure the optimal effectiveness of monitoring groups. As a result, during the summer break of the 2017 school year, 34% of schools participating in operations for the elimination of asbestos came up positive for signs of asbestos, while the next year in 2018, saw a complete elimination of any residual matter, enabling all schools to commence the school year on schedule. Looking ahead, K-eco aims to contribute to the creation of an environment that can ensure the public's peace of mind by eradicating of any overlooked problem areas through the bolstering of asbestos safety management for vulnerable social groups.

### Reduction of national dioxin emissions 5 consecutive years



### Reduction of national dioxin emissions

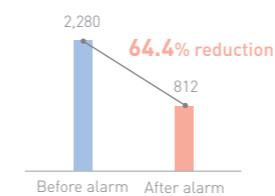
The corporation carries out the management of harmful substances that can pollute the surrounding environment or harm public health. In particular, Dioxin, one of the persistent pollutants (PPs), is a class 1 carcinogen, and emission reduction is essential for a safe living environment. Therefore, we are supporting voluntary reductions in dioxin emissions from small- and medium-sized emission facilities. Currently, customized technology support programs for specialized training on emissions reduction, as well as small- and medium-sized emission facilities, are being conducted, while management operations are run to ensure tolerable emissions levels are not exceeded through on-site inspections. Thanks to this effort, national dioxin emissions have been steadily declining over the last five years. Additionally, the entire process of dioxin sample collection becoming open to the public has enabled the anxiety among local community residents over incineration plant operation to naturally subside.

### Radon free measurement and reduction

The corporation is the only public institution in Korea that provides an indoor radon measurement service and conducts a 'free measurement and reduction consulting' project for radon, which is closely related to public health. We measure indoor radon concentrations for applicants and provide living rules and methods to reduce them. Especially, in case of high concentration housing with high radon levels, we perform precise measurements on site and support alarm installation and radon reduction work. Leveraging this project, we provided 1:1 customized consulting in 2018 to quickly settle public anxiety about radon beds. In the future, the corporation will actively respond to national safety issues and strive to create a safe living environment.



Before and after the alarm number of vibrations detected



## Improvement of living environment inhibition factor

### Resolving noise between floors with people

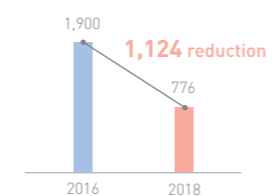
As the noise between floors of apartment buildings has expanded from disputes between neighbors to social problems, the corporation operates the "Among Neighbors Center for Floor Noise" to coordinate the disputes caused by the floor noise and solve the troubles of the residents. Although there has been a lot of complaints about noise between floors recently, the response force is limited, and it takes us a lot of time to conduct field diagnoses. Therefore, in order to alleviate this problem, the corporation has introduced a management system\* that can prevent noise in advance by giving a warning through an alarm when vibration is detected. It allowed us to prevent noise between floors in advance, reducing civil complaints and improving the effectiveness of field diagnoses. In recognition of its contribution to restoring the community by solving social problems such as noise between floors, the system was selected as an excellent case of innovation in 2018. In the future, we will expand and apply the noise prevention model of the vibration sensor alarm in cooperation with LH Korea Land and Housing Corporation.

\* Voluntary participation of 12 apartment buildings in Gyeonggi-do Province known for frequent occurrence of civil complaints

### Procedures for the management of noise between floors using vibration sensors

1. Vibration sensor installation	2. Alarm warning when overstepping the criteria	3. Monitoring noise between floors	4. Send complaints by SMS
Installation of vibration sensor for each generation to determine noise intensity and noise source of origin	Warning tone alarm at the device when the vibration noise level is overstepping the criteria	Vibration noise level can only be viewed by the real-time monitoring manager and the generation concerned	In case of complaints, the noise analysis data between floors is notified to the relevant generation by SMS

Mapo library CO<sub>2</sub> concentration (ppm/annual average)



### Improvement of indoor air quality in the library using IoT

To protect public health, the corporation manages indoor air pollution by measuring indoor air quality for public facilities. As a result of monitoring the measured data, we found that the concentration of carbon dioxide (CO<sub>2</sub>) in the library is above the threshold. We wanted to improve the air quality of the library through the Making Smart Library Without Sleepiness project because the high CO<sub>2</sub> concentration reduces the amount of oxygen and causes sleepiness. The corporation has linked the indoor air quality measurement network with IoT so that when the CO<sub>2</sub> concentration in the library room exceeds the standard value of 1,000 ppm, the air conditioner will automatically run to reduce the concentration below 800 ppm. This project was able to reduce the CO<sub>2</sub> concentration in the Mapo library significantly, and the Incheon Metropolitan City is benchmarking this case to promote the indoor air quality management project using the CO<sub>2</sub> concentration sensor. In the future, we will expand these excellent models by applying IoT to the third round of countermeasures to improve subway air quality.

### Reduction of noise in small-scale construction sites by rent noise reduction materials

Although small construction sites are often adjacent to residential areas, there is no obligation for a noise prevention facility, and noise-related complaints come up as a result. To solve this problem, we operate a noise reduction material BANK, which provides free rental of soundproof walls, soundproof curtains, etc. owned by the complex to small-scale construction sites. When comparing the noise levels before and after installing the noise-proof materials optimized for the site conditions, the average noise of 4dB (A) was reduced, and the complaints were resolved.

## Providing information for a safe living environment

### Water quality information of my town, National Water Supply Information System (www.waternow.go.kr)

Lack of information on daily tap water is increasing public anxiety. In order to provide customized water information to the public, the corporation has established a mobile web service called 'Water Quality Information of My Town' that allows users to check tap water quality information anytime, anywhere. It provides water quality information on water purification facilities based on location and makes it easy and efficient for citizens to access all water quality information, including carcinogenic substances. It contributes to improving the reliability of tap water and eliminating public anxiety about drinking water.

2018 Awarded



### Providing waste and resource circulation statistics, Resource Circulation Information System (www.recycling-info.or.kr)

The corporation is compiling statistical data on waste and resource circulation, including the price survey of recyclable resources, the status of the volume-rate garbage disposal system, and the nationwide waste statistics survey. This data is used as the basis for establishing or improving the resource circulation industry policy and is provided through the resource circulation information system for anyone to use for their own purposes. In addition, to improve the quality of the statistics, we have prepared places to listen to opinions from various stakeholders and continue to improve the statistics by reflecting the needs of users. We will try to improve the system for the convenience of users through management and improvement.

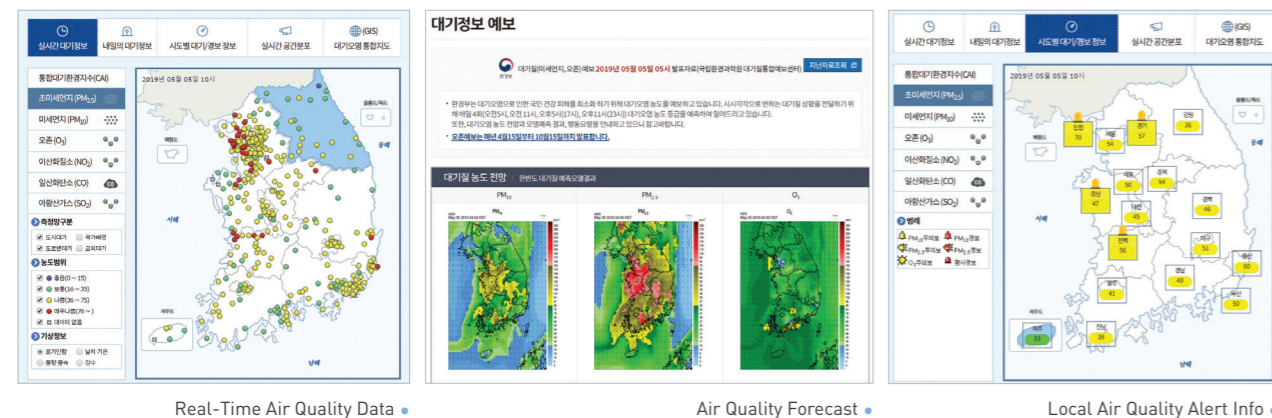
### Check the concentration of particulate matter in real time, Air Korea (www.airkorea.or.kr)

The frequency of high-concentration particulate matter, which is dangerous to the public's health, is increasing the demand for a clean air environment without particulate matter. In response, the corporation operates the website 'Air Korea' to provide real-time air quality information to the public. Air Korea organizes data collected through the National Ambient Air Monitoring Information System (NAMIS) to make it easier for the public to understand and provides information on air quality and forecasts in real time. We also operate a mobile app called 'Air Information of My Town' to ensure the public's right to know about particulate matter anytime and anywhere, ensuring the right of the people to know about particulate matter.



Mobile app 'Air Information of My Town'

Airkorea



Real-Time Air Quality Data

Air Quality Forecast

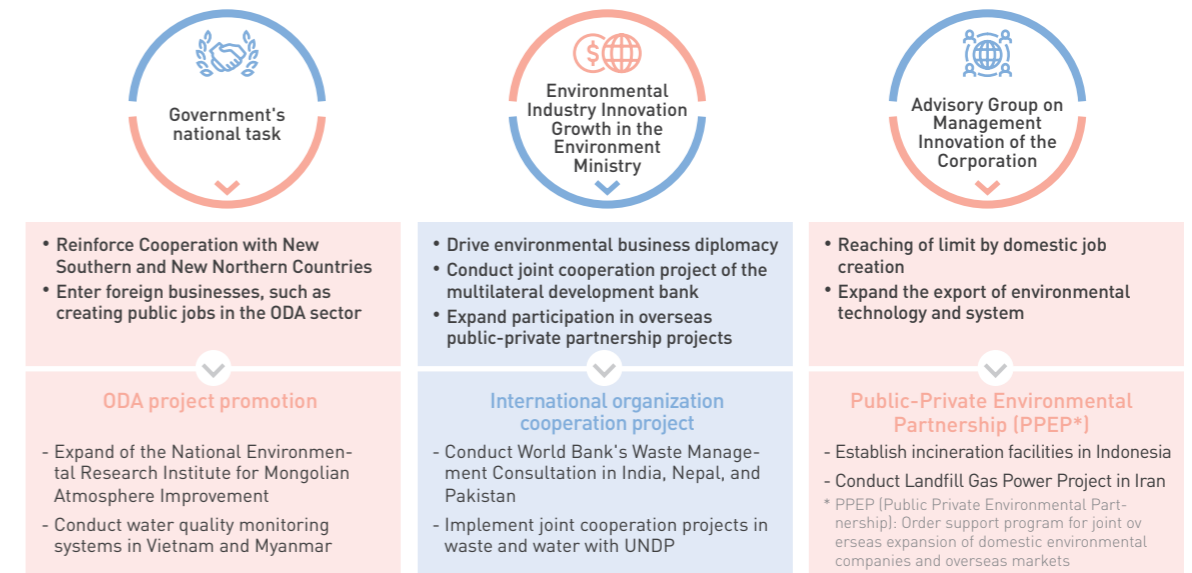
Local Air Quality Alert Info

## Special page

# Innovative growth through overseas environmental business

The corporation is promoting overseas environmental projects to secure future growth engines and grow into a professional organization with international competitiveness. We carry out environmental ODA and international cooperation projects in areas where we can perform our core competencies.

### Internal and external demands



### Environmental Cooperation Project for New Southern and New Northern Countries

In conjunction with the government's global foreign policy, the corporation is exploring overseas environmental projects of the Environmental Cooperation Agency. In the case of the New Northern Countries, we are working on projects in conjunction with the environmental area of the Northern Economic Cooperation Committee. We are working to find atmosphere improvement cooperation projects in Mongolia and Kemerovo in Russia. In the case of New Southern Countries, we submitted proposals for new environmental ODA projects to Vietnam, Cambodia, and Myanmar and conducted a feasibility study.

### Consulting support for WB's development of waste management policies in mountainous areas

In December 2018, we won a service contract known as 'Sustainable Waste Management Policy Development' in the mountainous area from the World Bank (WB). In cooperation with the World Bank's KGGTF, K-eco has operated a program for many years to share Korea's green growth and related infrastructure technologies and experiences with people in developing countries. In recognition of our program's performance, we have been able to win contracts for developing policies for waste management in the Himalaya of Pakistan and India. We have been awarded the project for the second consecutive year since 2017; we will strive to participate in overseas environmental projects continuously in the future.

### External cooperation project for environment improvement on the Korean peninsula

The corporation is preparing external cooperation projects with neighboring countries to resolve environmental issues that affect the Korean Peninsula directly or indirectly. Through joint technology development and mutual cooperation between South Korea and North Korea, we are working on a plan to resolve pending issues such as analyzing the causes of particulate matter generation in Korean peninsula and China and preparing mitigation measures. In addition, we will make an effort to develop infrastructure related to air, water, and waste in South and North Korea in preparation for the reunification era and forging international cooperation for the disposal of recyclable waste, which has become an international issue.

# Communicating and participating in local communities

## Sustainability Context

Communication and participation with local communities are becoming more important as realizing the social value of public institutions is growing in emphasis recently. Therefore, it is necessary to expand public participation and contribute to the development of the community by promoting social contribution activities linked to business characteristics. In addition, there is a growing demand for quality jobs. Therefore, we must contribute to expanding the employment base of the environmental industry by solving environmental problems and expanding investments in environmentally vulnerable areas.

## K-eco Approach

The corporation realizes the importance of environmental welfare for the public and seeks regional development through strategic social contribution in environmental fields. In accordance with our social contribution promotion strategy, we are implementing sharing for mutual benefit with the local community and activating communication by expanding public participation. In addition, we are expanding jobs through strategies for creating good jobs, nurturing future talents, and strengthening the competitiveness of the environmental industry.



## Strategy & Performance

<b>1</b> Coexistence with the community	<b>2</b> Resolve community issues through participation	<b>3</b> Creating jobs in the environment sector and nurturing future talents
2018 Public-service Customer Satisfaction Index (PCSI) Achieved <b>Grade A</b> 2018 Korea Communications Awarded <b>Grand Prize</b>	Increase in satisfaction with social contribution <b>32 points</b> (30.5 points in 2017) Corporate reputation part of the top 100 public institutions Ranked <b>8th</b> (Korea Reputation Center)	Creating Private Jobs in the Environment Sector <b>8,465 people</b> Training environmental experts <b>196 people</b>

## Interview

“Contributing to community development through social contribution activities”

Sun Sang-Kyu, Chairman  
Gangseo and Yangcheon Environmental Movement Alliance



The Gangseo and Yangcheon Environmental Movement Alliance signed an MOU with K-eco in 2017 in pursuit of joint efforts to protect and improve the environment in Gangseo and Yangcheon areas. In 2018, we worked together to eliminate harmful plants that disturb the ecosystem of Anyangcheon Stream as part of the One company cleanup One stream initiative. Through these activities, we were able to provide a pleasant living environment for the people of Anyang while helping create a resting place where they enjoy nature and its beauty.

While working together with K-eco for nature-cleaning activities, we were able to experience K-eco's strong volition in working to contribute to the local community. We have thoroughly invested ourselves for the co-existence and development with the local community by forming a social volunteer group to systematically carry out volunteer activities and using our business capabilities to solve blind spots in environmental welfare.

K-eco runs a strategic social contribution program linked to the characteristics of its environmental business. I wish that you are able to continually develop upon these programs in the future and create environmental value, on a broader scope, under mid- to long-term objectives. I look forward to the continued development of the corporation as an organization that creates social value and contributes to the realization of the environmental welfare of the people.

## K-eco Sustainable Development Goals

Goal	Detailed objectives	Relevant SDGs
<p><b>09</b></p> <p>Gain the public's trust through communication</p>	<p><b>9-1</b> Securing public trust by implementing effective and responsible policies and systems for the people and customers.</p> <p><b>9-2</b> Expanding the disclosure of environmental and management information and provide convenience for the public to access information in a stable manner.</p> <p><b>9-3</b> Conducting inclusive activities and strengthening public communication by ensuring citizen's decision-making at all levels of society.</p> <p><b>9-4</b> Expanding opportunities for participation in environmental education so that all the people are aware of the environment and sustainable development.</p> <p><b>9-5</b> Publishing our sustainability report and disclose our efforts and achievements in sustainability management.</p>	
<p><b>10</b></p> <p>Economic Development through Job Creation</p>	<p><b>10-1</b> Creating good jobs in the environmental field.</p> <p><b>10-2</b> Increasing youth employment and expand the conversion of non-regular employees to regular employees.</p> <p><b>10-3</b> Pursuing high resource-efficient industrialization through environment-friendly industrial activities and technological innovation.</p>	
<p><b>12</b></p> <p>Regional development through social contribution</p>	<p><b>12-1</b> Growing together with the community through active community participation.</p> <p><b>12-2</b> Promoting South-North Korea cooperation for peace and prosperity.</p> <p><b>12-3</b> Supporting strengthening the environmental industry's capacity to implement SDGs in developing countries.</p>	



## Corporate Social Responsibility (CSR) Promotion System

The corporation carries out CSR activities to realize environment welfare by creating a pleasant and safe living environment for all people. We are promoting professional CSR activities such as resource circulation sharing bazaars and education utilizing environmental competence in connection with the company's work.

Goal	Creating a pleasant and safe living environment for all people			
Promotion strategies	Linking to environmental competence	Contribution to economic revitalization	Solving social problems	
Execution target	Vulnerable layer	Children and youth	Community	Global
	Customized social contribution in connection with business	Educational donations and youth employment support	Improving the local environment and supporting the Pyongchang Winter Olympic Games	Establishing a friendly atmosphere for overseas environment projects

## Sharing through social contribution

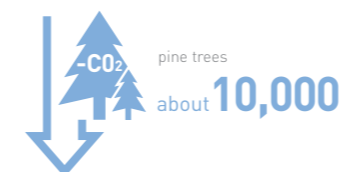
### A beautiful one-day bazaar

The corporation held a 'beautiful one-day bazaar' to reduce environmental pollution by spreading the sharing culture. The Beautiful One-day Bazaar is an event that, despite it currently not being in operation at households or offices, donates products with sound features to the Beautiful store and provides funding support to the underprivileged with profits acquired through daily resale activity. The corporation's employees donated 6,600 items and bazaars were held at seven stores across the country. By donating KRW 7.7 million in sales generated through the event, we were able to simultaneously reduce carbon emissions from the donation of goods and revitalize resource circulation through recycling and reuse.

### Making murals in an old housing complex

The corporation completes regional CSR activities that reflect the needs of residents. In cooperation with the volunteer group, Dream In Gongzone, we created a mural on the street to improve the local residential environment. In order to change the dark and gloomy alleys between homes, we painted the external walls of the alley the locals' favorite animals, flowers, and the bright faces of the kids. This activity was able to create bright and vibrant alleys and contribute to improve upon the environment of local communities.

### Decreased carbon effect



\* Indicate approximate number provided by BeautifulStore as a reference

Various social contribution activities



## Provision of Educational Content for Promotion of Eco-friendly Culture

### Operation of Environment Love PR Education center

The corporation runs the Environment Love PR Education so that people can feel amicable toward environmental preservation and can easily implement eco-friendly life in their lives. With seven regional promotion education centers, we provide environmental content for residents to participate and learn directly. In 2018, we held a children's environment experience to celebrate Earth Day at the Environment Love PR Education in Mapo-gu, Seoul. Participants learned about air, water, and natural circulation as they walked around the Promotion Education Center, and children were provided with a customized inter-floor noise education. In addition to these experiences, we also contribute to promoting the importance of the environment through various contents and enhancing the public's sense of eco-friendly life.



Children's Environmental Workshop with K-eco



10 Environmental Common Sense to Know Before You Become a Middle School Student

### Climate class to get closer

The corporation strives to spread the atmosphere of responding to climate change and reducing greenhouse gas emissions to local communities. In response, the corporation provided training for green leaders at seven elementary schools, including Wanjung Elementary School and Kyungmyung Elementary School in western Incheon. Accessible and fun explanations were provided to students regarding concepts on climate change and how to practice living a "green" lifestyle. After education, 85% of the students became interested in climate change. With these activities, we are helping to establish eco-friendly lives and contribute to the cultivation of future human resources in the field of climate change.

### Providing environmental content that the public sympathizes with

The corporation produces environmental books for the purpose of using them as educational material to foster environmental conservation awareness. The book "10 Environmental Common Sense to Know Before You Become a Middle School Student" has been selected as the best environment guide book by the Ministry of Environment in 2018 and has been distributed to 647 public libraries in 17 local governments as well as being registered as an e-book in the Incheon E-Library. In addition to its efforts to expand the contents of excellent environmental education based on its target, the corporation will continue to provide useful environmental information contents that can be easily accessed in the future, including the serialization of public consensus content that is combined with new media to Naver's main "School Zem".

## Together with Environment Love+ Green Relay Campaign

To spread the eco-friendly lifestyle, the corporation carried out the "Together! Environment Love+" green relay campaign for the people from July to December 2018. This campaign was held on the corporate blog where, every month, a mission for eco-friendly action subject to Environment Day was presented, and the participants could complete the tasks and authenticate to SNS. Various missions, such as reducing the use of plastic products or disposable products and implementing proper separate-disposal habits, have been provided to encourage people to enjoy their eco-friendly life in their daily lives.



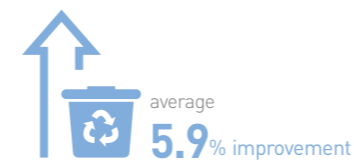
Green Relay Campaign



## Resolve garbage problem with 'Good Separate-Disposal' campaign

In order to prevent the waste disruption caused by the suspension of collecting waste vinyl, the corporation carried out a collaboration among the Corporation - Local Governments - Collecting Companies - Distribution Support Centers. We carried out a "Good Separate-Emission" campaign for residents of about 5,000 households in six apartments in Yangsan City, Gyeongsangnam-do Province to promote and educate them on how to comply with the separate-disposal guidelines for recycling. Following these campaigns, the rate of compliance with the Separate-Disposal guidelines for Recyclables increased by 76.9%, which is 5.9% better than before. By improving awareness through the participation of residents, we improved the quality of recycling, which contributed to solving the fundamental problem of separate-disposal.

Separate disposal of recyclables  
Guideline compliance rate



Increase households of eco-friendly energy town



## Eco-friendly energy town with the local community

The corporation has activated communication with residents to overcome the NIMBY phenomenon of waste treatment facilities and to change their perception. With the establishment of environment treatment facilities in existing villages, there was a conflict in the community, and a number of households moved out due to the odor. Therefore, the corporation turned the environment processing facilities into bioenergy and fertilizer facilities to create eco-friendly energy towns that are better to live in. To actively accommodate the opinions of the residents, we held village meetings and tried to reflect the requirements as much as possible, such as the hot water supply and the greenhouse installation using incineration heat. We also formed a regional eco-friendly energy town promotion team to support the residents continuously. As a result of these improvement efforts, the number of households in the village has increased, and 20 residents have been hired as business manpower, contributing to the revitalization of the village.

### Revitalizing Rural Economy by Improving Eco-friendly Energy Towns

Status	Requirements	Improvements	Effects
Use of LPG gas in energy-scarce areas	A clean village	Urban gas and hot water supply through biogas processed livestock excrement	Reduce heating costs
Lack of basic living infrastructure and odor		Installation of water supply & sewerage and odor-reducing facilities	Reduction of odor
Long-distance access to facilities for the elderly in rural areas	Expansion of village convenience facilities	Installation of sauna facility operated by the waste heat of incineration facility	Convenience benefits for residents
Non-Establishment of community self-governing organization and place		Community Center Setup	Joint decision making is possible
Many residents are agriculture workers near the processing facility	Residents' profit business	Establishment of the greenhouse using incineration heat to grow high-value crops	Expected increase in residents' income
Operation of waste treatment facility village and photovoltaic power generation		Sale of compost and sale of electricity using photovoltaic facilities	

Eco-friendly Energy Town



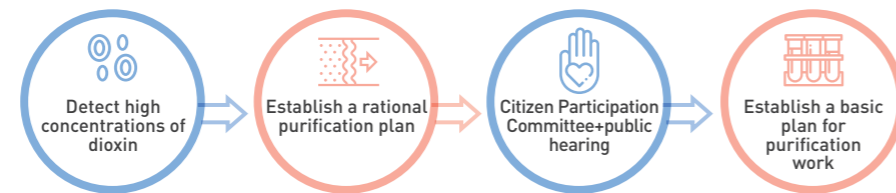


Contaminated Soil Purification

## Citizen Participation Type Contaminated Soil Purification Project

As a result of conducting a soil environmental pollution survey at a US military base in Camp Market where US troops are expected to return to South Korea in accordance with the Korea-US agreement, dioxin as a level 1 carcinogen was detected at a high concentration in 7 out of 33 sites. It was the first case of high concentration dioxin detected in domestic soil, and there was no legal standard or a systematic purification method. However, the immediate response was needed because the dioxin-detected Camp Market is adjacent to a large apartment complex, which could have a direct impact on the health of residents. Therefore, the corporation started a soil purification project to protect the health of the people and tried to ease the anxiety of residents by providing them with a chance to participate in the project. Through the Citizen Participation Committee, we discussed the purification standards of dioxin and held a public hearing for the residents to decide the purification methods and the purification standards. Through this consultation process, we have established a basic plan for the purification project and will do our best to promote the continuous participation of the residents until the completion of the project.

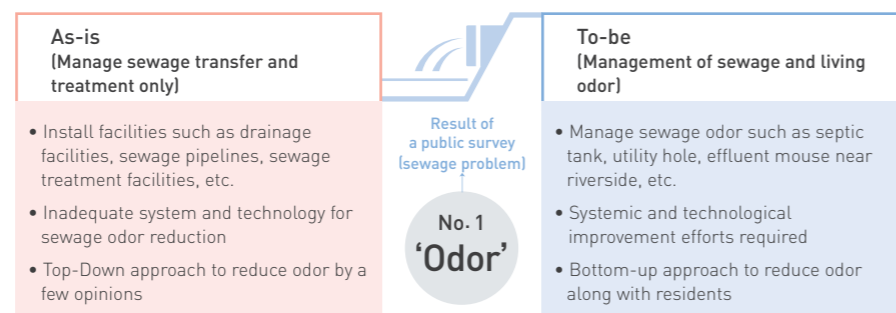
### Procedure for Dioxin purification plan



## Resolving the sewage odor problem with residents

The number of complaints about stench is increasing every year in old towns and integrated sewage treatment areas that are vulnerable to sewage odor. In response, the corporation established a cooperative system for smell management of sewage water in order to create a pleasant living environment for residents in areas that are vulnerable to odor and to improve the odor which residents can feel. To this end, the Ministry of Environment - Sungnam City - K-eco signed an agreement and introduced a system for citizens to participate in all the process of reducing odor. A total of 110 residents living in the sewage stench area have formed the 'Citizens Improvement Group of Sewage Odor,' and we will reflect the citizens' feelings and citizen's opinions first when analyzing the effects of odor reduction project. Through these processes, we are making efforts not only to improve the environment of simple numerical values, but also to improve the uncomfortable environment connected with the business of the corporation, and to improve the public's experience.

### Improvement of sewage odor management methods



## K-eco's Good Job Creation Strategy

K-eco strives to employ its Good Job Creation Strategy that actualizes the societal value of public institutions while being reflective of government policy and the changing climate of management.

Vision		"Creating Good Jobs" to drive the realization of social value		
Strategic direction	Building a job infrastructure	Job creation	Improvement in job quality	Customized job support
Strategic task	<ul style="list-style-type: none"> <li>Establishment of the job creation system</li> <li>Enhance industrial competitiveness of small and medium-sized enterprises</li> <li>Employment stepping stone by nurturing environment industry</li> </ul>	<ul style="list-style-type: none"> <li>Expansion of public employment</li> <li>Strengthen the creation of private jobs linked to core businesses</li> <li>Promote innovative growth business and discover new business</li> <li>Support for social economy enterprises and revitalization of the local economy</li> </ul>	<ul style="list-style-type: none"> <li>Conversion of irregular workers to regular workers</li> <li>Creating a workplace without discrimination against irregular workers</li> <li>Job sharing</li> <li>Improvement of working conditions</li> </ul>	<ul style="list-style-type: none"> <li>Eliminate youth unemployment</li> <li>Strengthening support for women job</li> <li>Strengthen job support for new middle-aged</li> <li>Expanding job support for the socially underprivileged</li> </ul>

## Creating Jobs by Strengthening Industrial Competitiveness

### Strengthening job creation support for regional recycling companies

In the resource recycling industry, the resource recycling market is shrinking due to continuous oil price declines and the economic slowdown, and efforts are needed to boost it. Accordingly, we associated with the Kyungbuk Economic Promotion Agency to provide know-how on the field of resource circulation of the corporation and support the local recycling companies to gain competitiveness by linking the financial strength of Kyungbuk Economic Promotion Agency. In particular, in order to create jobs, we recommended the workforce to 44 companies and linked them to hire. In the future, we will work hard to enhance the employment of the recycling industry by strengthening the foundation of the recycling industry through collaboration with related organizations.

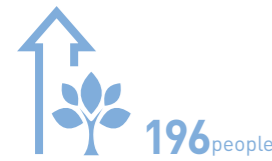
### Reinforcement of the Private Start-up ecology

The corporation is making efforts to create jobs by revitalizing private ecological start-ups. We expanded support for startups that were previously only provided to the recycling industry to the resource circulation industry and increased funding to reduce the burden on companies. In this way, the corporation provided about KRW 16 million to four young and self-employed companies and created 13 new jobs in three companies. In addition to the expanding subsidies, we have supported licensing consulting to start-ups and created 52 jobs. Furthermore, the corporation provided OpenAPI related to air pollution, including public data such as air quality status and measurement station information to private companies, thereby activating related businesses such as app development using this data and creating an additional 393 jobs. In the future, the corporation will support private companies in many ways to lower barriers to start-ups and create stable jobs.

### Strengthening the private start-up ecology









Human resource development in 2018



## Employment stepping stone by talent nurturing in the environment industry

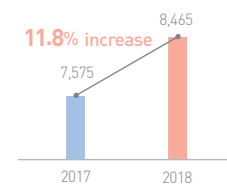
The corporation strives to cultivate experts in the fields of the international environment, climate change, and the future environmental industry. We have established partnerships with universities to provide training on the international environment, climate change, waste energy, chemicals, etc. to help them grow their expertise. In the future, we will continue to educate experts in each field to contribute to the creation of youth jobs.

### Expert training program by sectors

 <b>Training international environmental experts</b>	<ul style="list-style-type: none"> <li>Cultivate human resources capable of actively responding to international environmental cooperation demands</li> <li>Selection and training of talented personnel to support an internship in international organizations</li> </ul>
 <b>Nurturing Professionals for GHS Management</b>	<ul style="list-style-type: none"> <li>Educate specialists to manage and reduce GHG emissions in the industry through theoretical training and field training</li> <li>Send field exercises, such as climate-related companies, public institutions, research organizations, and NGOs, etc.</li> </ul>
 <b>Operation of Graduate School of Specialized in Climate Change</b>	<ul style="list-style-type: none"> <li>Nurturing of master's and doctorate-level professionals to actively respond to climate change area</li> <li>Improve practical skills and create jobs through industry-academic link based field practice</li> </ul>
 <b>Air conditioning Training of Refrigerant Management Specialists</b>	<ul style="list-style-type: none"> <li>Produce experts who can professionally retrieve refrigerant as a result of the introduction of 'the refrigerant recovery business registration system.'</li> </ul>
 <b>Operation of the Graduate School of Specialized in Waste resource energization</b>	<ul style="list-style-type: none"> <li>Training specialized personnel customized on-site, such as training courses in the field of waste resources energy development, basic research on industry-academic connections, and internships</li> </ul>
 <b>Cultivate experts for information management of harmful and hazardous chemical</b>	<ul style="list-style-type: none"> <li>Training core professionals through the development of regular courses and operation and education curriculum required for the implementation of the 'Act on Registration and Evaluation of Chemical Substances, etc.'</li> <li>Training in the form of internships at industrial sites for three months</li> </ul>

## Enhance private-sector job creation in connection with core business

Private job (persons)



The corporation is creating private-sector jobs through environmental investments, such as expanding environmental businesses linked to core businesses and promoting new businesses. We are investing in 26 core businesses in the areas of climate atmospheres, water environment, resource circulation, environmental facilities, and environmental safety to enhance employment effects. This has resulted in the securing of as many as 8,465 jobs in 2018. In the future, we will strive to drive private economic growth through innovative growth and social, economic revitalization.

### Environmental Investment Business Sector and Investment Amount

Division	Environmental Investment Business	Investment in 2018 (KRW 1 million)
Climate atmospheres	Three projects, including building electric vehicle charging infrastructure, operating, etc.	87,122
Water environment	Two projects, repairing old sewer pipelines and preventing urban flooding.	504,920
Resource circulation	Four projects, including solid fuel product quality rating system quality control	2,828
Environmental facilities	Four projects, including waterworks and sewage facility installation support	594,742
Environmental safety	Eight projects, including safety diagnosis of hazardous chemical handling facilities	13,496
New business, etc.	Three projects, New businesses such as wastewater management using IoT, and innovation growth	415
Total		1,203,523

## Special page

# Efforts to revitalize public participation and communication

The corporation is striving to introduce a national communication channel to listen and utilize the voice of the people more positively. As the existing National Proposal System has been used as a simple complaint center, we held a contest of ideas 'See better K-eco' to improve it and foster a culture of management in which citizens participate and cooperate with us.

### "See better K-eco"




Through the website, we received ideas from the public about ideas and unreasonable practices in the business field such as atmosphere, water environment, resource circulation, and living environments for a month in October 2018. Through this, a total of 154 national ideas were received, and five ideas were finally selected by applying the criteria of innovation, value, feasibility, and effectiveness to the received ideas. The selected ideas will be reflected in the 2019 Innovation Promotion Plan for the corporation, and we will designate the responsible departments, establish detailed plans, and conduct performance management.



### Strengthen communication channels with the people

Through the idea contest, "See the better K-eco," held to listen to various opinions of the people, the corporation has been able to provide a communication platform for the people to participate in the improvement of society and help create a better environment. In the future, the corporation will build a public participation system that can discuss and answer the public's ideas with them. Through this, we plan to promote the participation and communication of the people and reflect various opinions to the operation of the corporation so that we can diagnose and solve the problems from their viewpoint.

### Results of selecting excellent ideas and department in charge

Division	Ideas	Department in charge
 <b>The best award</b>	Improvement of customer service quality through the improvement of K-eco complaints operation	Management Assistance Office
 <b>Excellence Award</b>	'We are the Guardian of the Clean Water' Education Program	Public relations office
 <b>Participation award</b>	The need to improve electric vehicle charging platform for a clean atmosphere	Environmental Certification Inspection Office
	Particulate matter measuring system at the bus stop in my town	Atmospheric Environment Department
	Contact information for reporting unfair trade practices and abuse of power	Audit office

# Mutual Cooperation for a better society

## Sustainability Context

For sustained growth of the nation, it is essential to secure industrial competitiveness and, especially necessary, to strengthen the capability of small and medium-sized enterprises (SMEs). Public institutions should play a leading role in shared growth to fulfill their social responsibilities, and their efforts are required to co-exist with SMEs. Therefore, they should contribute to establishing a culture that grows together through fair competition by creating an ecosystem of sustainable shared growth.

## K-eco Approach

K-eco has established strategies for promoting shared growth to support conditions for the mutual growth of SMEs and social enterprises. Based on this, we are implementing benefit sharing and supporting sales channels to strengthen the competitiveness of small cooperative companies. We are also making efforts to improve unfair trading practices and spread the culture of fair trade through subcontracting guidance and unfair contract checklists.



## Strategy & Performance

<p><b>1</b> Shared growth through the creation of a win-win culture</p>	<p><b>2</b> Support for sales channels and overseas expansion of SMEs <small>(small and medium-sized enterprises)</small></p>	<p><b>3</b> Establishing a fair partnership</p>
<p>Shared growth Evaluation grade</p> <p><b>Good</b></p> <p>Increase in benefit sharing and intellectual property rights</p> <p><b>3</b> consecutive years</p>	<p>Selected as an excellent company in 2018 performance sharing</p> <p><b>Commendation from Prime Minister</b></p> <p>Benefit sharing, with trial purchase Sales of SMEs in 2018</p> <p>Attained KRW <b>2.2</b> bil</p>	<p>Usage record of subcontracting guidance system</p> <p><b>9,271</b> cases</p> <p>2018 Institutional integrity increase in 'Contract field' Average</p> <p><b>2.65</b> points</p>

## Interview

“ Enabling mutual cooperation with SMEs with generous support through a performance-sharing system ”

Shim Sang-Hyun, CEO  
INNO Envitech Co., Ltd.




INNO Envitech Co., Ltd. participated in the performance-sharing system, one of K-eco's policies for mutual cooperation with SMEs, and developed a cleaning and deodorizing system using an air Washer.

K-eco was very supportive during the development of this this system. During the development process, in fact, we were able to refer to the vast amount of data offered by K-eco and received generous advice from experienced K-eco experts. In particular, it was very difficult to find a test site for the odor reduction system, but thankfully, K-eco was able to arrange a test bed site. The technology we developed in collaboration with K-eco has enabled our company to grow significantly. We've more than doubled our sales compared to the previous year and have been able to hire additional staff as we grow. In addition, we are gradually expanding welfare benefits for our employees amid an increasing satisfaction rate among them, as well.

There are many difficulties in developing and commercializing new technology among SMEs. I look forward to seeing more and more opportunities for collaboration between K-eco and SMEs in the future and hope that these efforts will reward Korea's environmental industry the ability to acquire even greater global competitiveness.



## K-eco Sustainable Development Goals

Goal	Detailed objectives	Relevant SDGs
<p><b>11</b></p> <p>Establishment of a fair economic foundation through co-prosperity</p>	<p><b>11-1</b> Strengthening our international competitiveness by promoting the capability of the company by shared growth with SMEs.</p> <p><b>11-2</b> Supporting the revitalization of the social economy to establish a sustainable basis for the environmental industry and secure industrial competitiveness.</p> <p><b>11-3</b> Reducing emission of pollutants and improving the environmental management level of a company by promoting the integrated environmental management system.</p> <p><b>11-4</b> Encouraging and promoting effective public, public-private, and civil-social partnerships.</p>	

Our commitment for K-eco SDGs



## Progress for shared growth

K-eco is promoting shared growth in order to strengthen the competitiveness of SMEs in the environmental field and create a culture that grows together.

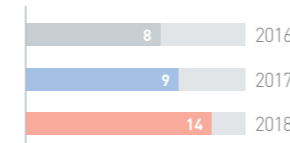
Vision	Leading company of environmental industry ecosystems with SMEs			
<b>Promotion strategies</b>	Strengthening the competitiveness of SMEs in the environmental field	Support expansion of sales channels for small cooperative companies	Establishing a fair partnership	Shared growth and cultural creation
<b>Detailed assignment</b>	<ul style="list-style-type: none"> <li>Technology improvement for small cooperative companies.</li> <li>Support for strengthening the capacity of SMEs</li> </ul>	<ul style="list-style-type: none"> <li>Enhanced support for the marketing of high-tech products</li> <li>Discovering new environmental markets and extension of participating companies</li> </ul>	<ul style="list-style-type: none"> <li>Continued expansion of public purchasing for SMEs</li> <li>Strengthening the system of subcontracting prices and fund management</li> </ul>	<ul style="list-style-type: none"> <li>Shared growth, communication-strengthening, and cultural creation</li> </ul>

## Technology improvement for small cooperative companies

### Patent management and utilization for technology improvement of SMEs

K-eco signed an MOU with Korea Innovation Promotion Association to promote the technology transfer of SMEs to improve the technology of SMEs by using the patented technology it has. This agreement provides the patent rights for environmental technology by K-eco and KISA will identify the SMEs that need the technology and promote the technology transfer. Also It has created an opportunity for private companies to utilize superior environmental technology at a cost or free of charge. In 2018, K-eco transferred the patents in the waste field owned to SMEs, realizing social value through win-win cooperation. In the future, K-eco will secure more objective technology value by conducting a valuation of all the patents it owns and plans to enhance the utilization of patents held by K-eco through exchange and cooperation with other institutions.

Number of patent registrations  
Rising for three consecutive years (cases)



The prime minister citation

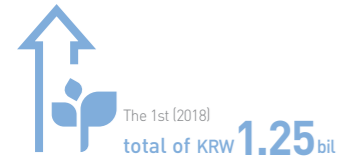


### Benefit sharing

K-eco is implementing 'benefit sharing' that achieves common goals and shares performance in cooperation with SMEs. It is a system to strengthen the competitiveness of SMEs and provide systematic support for R&D revitalization and technical development in stages. In 2018, 48 projects were registered under benefit sharing, and patent registration also has continued to increase every year as joint technology development has expanded. In particular, this year's best case, selected through the Benefit Sharing Competition, was selected as an outstanding company for 2018 organized by Ministry of SMEs and Startups and was awarded the prime minister citation.

## Promoting social and economic companies through the creation of joint funding

Supporting for start-up and scale-up companies



K-eco signed an MOU to support social and economic companies in Incheon and has created and operated joint funding. The fund is operated through the 'Social Solidarity Bank', a specialized management agency, and will be used for financial support, management consulting, and sales channels support of social and economic organizations in Incheon. In 2018, the fund was donated to two social and economic two start-up companies and three scale-up companies. In 2019, K-eco will select and support eight additional companies including four start-up companies and four scale-up companies in order to provide opportunities especially for second-class citizens. Through these activities, K-eco contributes to the creation of jobs and social value for social and economic companies locally and strives to become a role model of excellent collaboration among public institutions for other institutions.

## Reinforcement of capacity for small resource recycling enterprises

Economic profit creation through Corporate Assistance Project



### Corporate Assistance Project

K-eco is promoting the "Corporate Assistance Project" for the development of the resource recycling industry and is working with experts in the field of environment to provide appropriate support to companies all over the country. Systems that enabled support to business lacking sufficient informational infrastructure were promoted, while improvements were made to systems suffering from inadequacy to alleviate any difficulties of business operations. This support system was implemented toward resource circulation businesses nationwide, amid the creation of economic benefits through reductions in processing costs with the availability of financial consulting services, as well as the marketing of recycling goods and a reduction of waste production. K-eco has its sights set on establishing and promoting its Corporate Assistance Project to support the growth of the resource circulation industry.

### A project to strengthen the structure of the recycling industry

As the cost of recycling increased due to the garbage crisis, the profits of small recycling companies decreased and financial difficulties increased, therefore K-eco has made efforts to stabilize the recycling market and support businesses. We established the recycling market management center TF and expanded the support of recycling business operators by improving the EPR system. Furthermore, we surveyed businesses in order to carry out "A project to strengthen the structure of the recycling industry" and analyzed the results to confirm the areas where support was needed the most. We plan to strengthen our support by establishing a cooperative system with related institutions to solve the problems discovered through the investigation.

#### 'A project to strengthen the structure of the recycling industry' for the promotion of start-up SMEs

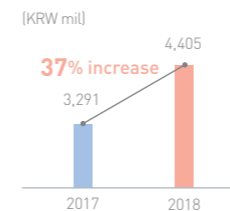
<b>STEP01.</b>	Conducting surveys to improve the productivity of recycling business operators (July to August)
<b>STEP02.</b>	DB of analysis status for survey result (September) <ul style="list-style-type: none"> <li>Participation of 223 out of 306 recycling business operators that have fulfilled their obligations to the convention (72.9%)</li> <li>Difficulties in expanding production facilities due to the recovery of waste and lack of funds for recycling are analyzed as major difficulties, thus led to an increased need for concentrated support</li> </ul>
<b>STEP03.</b>	Collaboration build-up of 'A project to strengthen the structure of the recycling industry' <ul style="list-style-type: none"> <li>Collaborative promotion of support projects for start-up businesses such as loan support with Korea Environmental Industry &amp; Technology Institute (KEITI)</li> </ul>

Support for sales channels and overseas expansion of SMEs

Sales by SMEs



Purchases of social enterprises



Supervising sewer construction project in Vietnam

## Growth of SMEs by strengthening support for sales channels

### Support for sales channels of excellent technology development products

To support the growth of the companies by supporting the sales channels for excellent technology development products of SMEs, K-eco is giving opportunities to promote the project if it is selected as an excellent project among benefit sharing. In 2018, K-eco operated a promotional booth for exhibiting excellent products at a banquet for environmental facility supervisors with International Environmental Industry Technology & Green Energy Exhibition (ENVEX), which resulted in positive outcomes for SMEs sales. Through this, K-eco is contributing to the market launch and sales enhancement of SMEs.

### A demonstration purchase system of technical development for small and venture businesses

K-eco has introduced a demonstration purchase system to support the growth of the company by helping start-up SMEs find their way to initial markets. To activate this system, we provided education to all departments to guide the system and we held consultations with 29 companies at the public procurement promotion conference and 20 companies at the purchase conference of Incheon public organizations. Through these efforts, we have purchased technology development products from three companies including start-up and first-step companies and plan to increase the purchase targets gradually.

### Support for sales channels of social enterprises

To improve the sustainability of social enterprises, K-eco has supported sales channels which improves the system of small purchase contracts in K-eco to purchase products and services of social enterprises first. Previously, the department voluntarily selected companies for printing and purchasing souvenirs but we changed the system so that the products of social enterprises and social cooperatives could be purchased first. In addition, we held a purchase conference for social enterprises and cooperatives to conduct 1:1 consultation with 20 local companies, through which we purchased about KRW 50 million worth of products from five companies. It is contributing to sustainability by providing a good way for social enterprises to grow.

## Support for overseas expansion of SMEs through collaboration

K-eco operates the Public-Private Environmental Cooperation Partnership Program (\*PPEP) based on its experience and technology to encourage the overseas expansion of the domestic environment industry. We are currently in the process of receiving a maintenance project of a sewer line in Ho Chi Minh City, Vietnam and we are working on a proposal for a joint project of urban environment maintenance businesses in Tonle Sap, Cambodia in 2018. We will continue to contribute to the international competitiveness of the domestic environmental industry by promoting joint-venture overseas business.

\*PPEP (Public Private Environmental Partnership): Order support program for joint overseas expansion of domestic environmental companies and overseas markets

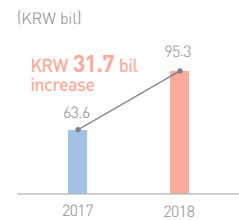


## Establishing a fair partnership

### Efforts to spread fair trade culture

K-eco uses the systems of subcontracting guidance and win-win payment to improve the culture of unfair subcontracting and protect the rights and interests of the economically weak. The system of subcontracting guidance, which used to apply only to general construction works of over KRW 5 billion, has become mandatory when ordering any construction over KRW 3 billion since 2018. In addition, K-eco conducted training on the system and distributed related manuals to activate the payment of win-win payment for the payment of smooth subcontracting. Such efforts have led to the issuance of KRW 900 million in win-win bonds, and K-eco will continue to do its best to prevent non-payment of subcontracting in advance and spread fair trade culture.

Subcontract direct payment



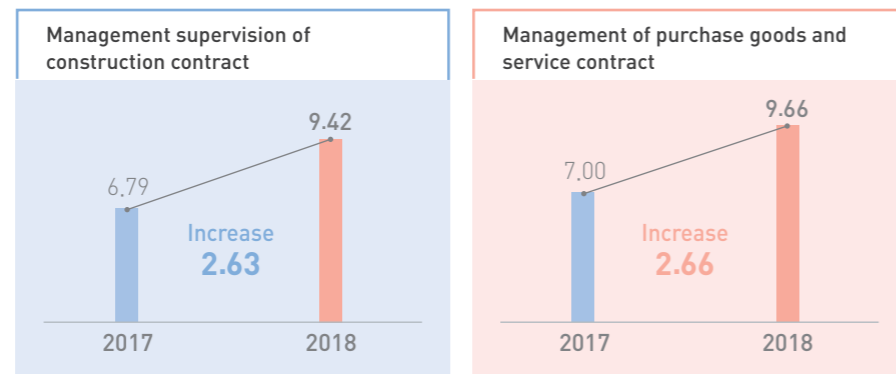
#### Step-by-step introduction plan of subcontracting guidance

Introduction of subcontracting guidance (2014-2016)	Expansion of subcontracting guidance (2017-2018)	Mandatory subcontracting guidance (2019-2020)
<ul style="list-style-type: none"> <li>Recommendation for the use of fixed price (Estimated price of KRW 8.2 billion)</li> <li>No link between KONEPS (Korea On-line E-Procurement System) and system</li> </ul>	<ul style="list-style-type: none"> <li>MOU with K-eco - PPS (Public Procurement Service)</li> <li>Ordering construction and mandatory use of subcontracting guidance when the estimated price is over KRW 3 billion</li> </ul>	<ul style="list-style-type: none"> <li>Mandatory use of K-eco ordering construction and subcontracting guidance</li> <li>Real-time monitoring of subcontracting contracts</li> </ul>

### Reinforcement of the rights and interests of subcontractors

K-eco received vulnerabilities in contracts as a result of measuring institutional integrity and actively improved them and made efforts to prevent unfair practices. We have made a mandatory checklist for unfair contracts so that we can self-diagnose unfair contracts, such as the contents of work during ordering, and have strengthened site inspection. We also appointed a win-win cooperative executive to strengthen the internal control system and held a committee to improve the contract system. Through these efforts, we have been working on expanding the use of standard subcontracting contracts and strengthened the situation inspection of subcontracting management to protect the rights and interests of subcontractors.

#### Institution integrity of "Contract field"



## Special page

# Integrated environmental management system that minimizes and optimizes pollutants in the workplace

### Complex but less effective environmental regulations

Over the past 40 years, domestic pollutant management has been conducted separately for air, water, and soil and has uniformly regulated only the concentration of outlets without reflecting the characteristics of the industry. However, the management of mutual influence must be considered comprehensively since environmental pollutants affect the environment in various ways. Therefore, it has been raised that the effect of improving the actual environment is minimal while current regulations have increased the cost of managing the environment for companies.

### How can environmental pollution be effectively prevented?

The government implemented an 'Integrated environmental management system' to recognize the problems of existing environmental regulations and unify complex and redundant regulations. By integrating management methods that have been done previously by the media, we have been able to improve the efficiency of management for environmental pollutants and increase the effectiveness of environmental improvement. K-eco will be designated as a special examination institution for the environment that will manage the smooth implementation of the integrated environmental management system.

### Integrated environmental management system that reduces the burden of companies

With the implementation of the integrated environmental management system, the license for the pollutant emission facilities, which had been distributed to up to 10 facilities, was integrated into one integrated environmental management plan. It has reduced unnecessary administrative waste and improved the convenience of companies requiring permission. In addition, we have reduced the burden on companies by effectively reducing emissions of pollutants in accordance with industrial conditions and providing a 'Best Available Techniques Standard'. Through this kind of comprehensive environmental management, there has been a resulting improvement of the environment that can be felt by the public, as well as an increase in corporate participation, enabling the mutual growth between environment and industry.

#### 2018 Achievements

- 18 cases Integrated permission Technical review
- The effect of 66% reduction in particulate matter (dust, SOx and NOx) according to the approval of integrated permission (No.1 and 2)
- 486 employees' input per year Customized service delivery of the workplace for public-private win-win cooperation at all times
- Anti-corruption management system The first introduction of an affiliated organization (Realization of Internal Ethics Management)



# Creating a human-centered workplace

## Sustainability Context

The government is making efforts to create a good workplace without discrimination. Accordingly, the government is making efforts to improve the quality of employment by expanding socially acceptable employment, such as employment of vulnerable social groups and minimization of non-regular positions. In addition, activities to create a happy organizational culture, such as work-life balance and a safe working environment, are emphasized. Therefore, K-eco is doing its best to realize social value through people-centered management.

## K-eco Approach

K-eco expands open employment for the recruitment of vulnerable social groups and creates a workplace free of discrimination by carrying out the conversion of non-regular workers to regular workers. We also provide training to enhance our capacity to provide equal opportunities for executives and employees. In addition, we have established a safety management system for a safe working environment and strengthened the health care of employees. By doing so, we are contributing to create happy workplaces focused on people.



## Strategy & Performance

1 Equal opportunity and respect for diversity	2 Communicating and empathizing organizational culture	3 Healthy and safe working environment
<p>Conversion of non-regular workers to regular workers</p> <p><b>369</b> people</p> <p>Education satisfactory rate of</p> <p><b>94.6</b> [6.6% year-on-year increase]</p>	<p>Family-friendly certification maintaining</p> <p><b>5</b> consecutive years</p> <p>Using the flexible work system</p> <p><b>470</b> employees</p>	<p>2018 Disaster Response &amp; Safety Drill in Korea</p> <p>Recognition of <b>Excellence</b></p> <p>Construction sites</p> <p>Achievement of <b>0%</b> fatality rate</p>

## Interview

“ Striving to create a people-oriented, positive workplace ”

**Bang Hyeon-hong, Head of Division**  
Human Resources Management  
Division of K-eco



We faithfully comply with the 52-hour work week to ensure that employees can have a "life after work" while promote a sound workplace culture through work-life balance. In fact, every Wednesday is designated as "Family Love Day" to encourage employees to leave work on time. This program has been certified as a family-friendly company for its fifth consecutive year since 2013 from the Ministry of Gender Equality and Family in recognition of its contribution to prioritizing family-friendliness within the work environment.

Additionally, following the incorporation a of a flexible work hour program that allows for freer work hours, 470 employees are using the system, as of 2018, with an increase in employee job satisfaction amid new improvements, including child care, family care, and self-development.

At the same time, the corporation implemented a human rights-oriented management system to achieve a "zero death rate" through ensuring the safety of workers in sub-contracting companies in order to create a safe working environment for construction workers while carrying out the social responsibility of sub-contractors. In addition, in order to create a safe and pleasant laboratory work environment for hazardous chemical analysis staff, our laboratory risk assessment has propelled continuous improvement upon the working environment by preventing safety accidents. We finally were also able to earn recognition as an "excellent workplace" by the Korea Occupational Safety and Health Agency.

Looking ahead, we seek to implement various welfare policies to help employees enjoy a happy work life. We will also strive to create a happy workplace by creating an organizational culture that succeeds under a mutual prosperity based on identifying with one another through progressive communication between labor and management.

## K-eco Sustainable Development Goals

Goal	Detailed objectives	Relevant SDGs
<p><b>06</b></p> <p>Ensuring the right to life and safety of the people and workers</p>	<p><b>6-1</b> Reducing casualties and economic losses from disasters and develop and implement a comprehensive disaster risk management system.</p> <p><b>6-2</b> Protecting the rights of all workers and create a safe and healthy working environment.</p>	
<p><b>13</b></p> <p>Creating a good work culture</p>	<p><b>13-1</b> Establishing a fair and socially acceptable employment process.</p> <p><b>13-2</b> Providing a fair and equal opportunity and the environment by eliminating discriminative treatment based on age, gender, disability, etc.</p> <p><b>13-3</b> Strengthening the system and support for enhancing the capacity of female employees.</p> <p><b>13-4</b> Promoting the sustaining of a "work-life" balance among all employees and management.</p> <p><b>13-5</b> Ensuring sufficient budget and manpower to provide quality education at all levels of education.</p>	  
<p><b>16</b></p> <p>Establishment of harmony of labor relations</p>	<p><b>16-1</b> Seeking mutual benefit through smooth communication between labor and management.</p> <p><b>16-2</b> Solving fair treatment and wage gap for work of equal value.</p> <p><b>16-3</b> Activating communication channels to handle grievances of executives and employees and actively resolve and support them.</p>	

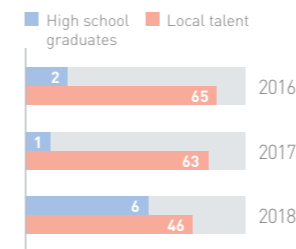


Equal opportunity and respect for diversity

### Non-regular workers conversion to regular workers



### Socially acceptable employment (persons)



## Fair personnel matters without discrimination

### Conversion of non-regular workers to regular workers

In order to convert non-regular workers to full-time positions, K-eco conducted a 'full-time conversion review committee' in accordance with government guidelines. Through the committee, K-eco confirmed the target of the procedure of conversion and method of employment. The conversion process was conducted by evaluation of qualifications and personality, written examination, and an interview. As a result, 243 non-regular workers were converted to full-time positions, 52 of conversion vacancies were filled through new recruitment, and a total of 295 employees were converted to full-time positions. Subcontract workers such as cleaning, security, and facilities have also been converted to full-time positions. Through application reviews and interviews, 70 of the 74 employees were converted to full-time positions and vacancies will be filled with four new employees. In this process, K-eco is contributing to provide good jobs and improve working conditions.

### Employment of talent focused on the ability by blind recruitment

The corporation employs a blind recruitment process to select its future talents based on their abilities, without being influenced by gender, age, school, etc. Originally, blind recruitment was practiced solely when bringing in new or contract employees, however, in 2018, K-eco was able to expand upon that scope to include experienced employees as well. In addition, we are selecting personnel based on their job performance through the NCS process to choose talented personnel in a competency-based way. By promoting such open employment, we are employing young talents including 173 new employees and 127 youth internships.

\* NCS (National Competency Standards): Government systemization of knowledge, technology, behavior, and other content areas, required for conducting business operations on-site

### Employment practice by socially acceptable employment

K-eco conducts open employment such as local talent and high-school graduates to realize socially acceptable employment without any discrimination due to academic background, region, etc. In 2018, we employed high school graduates by finding suitable jobs for them, such as the operation of waterworks. We expanded recruitment opportunities for local talent by recruiting districts and hired nine people in the waterworks integrated operation center. In the future, K-eco will continue to expand employment for various employee groups to fulfill its social responsibility as a public institution.

### Expansion of female employment ratio and manager

In K-eco is striving to cultivate female talents. As the culture of work-life balance and cultivating female talent has settled, the number of female applicants is increasing. In 2018, 36.6% of the new employees were hired as female talents and seven women who had been away from the workforce were hired to support the return of women to society. K-eco also has a career management system to cultivate female talents to expand female managers and secure a pool of women's preliminary managers with ability and leadership. With this effort, the number of female talent promotions with ability and leadership is increasing, and the number of female managers continues to increase.

Division	2016	2017	2018
Female managers above grade 3	16people (0.8%)	19people (0.9%)	22people (1.1%)
Female managers above grade 4	83people (4.1%)	89people (4.3%)	99people (4.8%)

## Fair and reasonable compensation

### Reasonable compensation system

In order to establish a reasonable and fair pay system, K-eco is implementing a reorganization of its pay system focused on duties, abilities, and achievements by reflecting the characteristics of the institution.

Goal	Securing of reasonable compensation focused on duty, ability, and achievement		
Strategic task	Spread of acceptance of annual salary system based on performance for senior management	Reorganization of the pay system focused on work	Realization of equal pay for work of equal value
Implementation task	<ul style="list-style-type: none"> <li>Operation of an annual salary system in accordance with governmental guidance</li> <li>Reinforcement for fairness of evaluation</li> </ul>	<ul style="list-style-type: none"> <li>Simplification of the pay system for all employees</li> <li>Introduction of wages based on job function for regular worker's conversion</li> </ul>	<ul style="list-style-type: none"> <li>Solution of wage differential by affiliated institutions</li> <li>Discrimination solution of non-fixed term labor and non-regular position</li> </ul>

### Realization of equal pay for work of equal value

Wage differential by affiliated institutions has been created in K-eco as several institutions are integrated. In order to solve this problem, we established the 'Council for the solution of wage differential', jointly organized by labor and management, for the realization of equal pay for work of equal value. In addition to conducting internal wage agreements, management continues to persuade outside parties to secure external resources and through these efforts, it strives to strengthen its performance-oriented organizational culture by the integration of organizations that resolve and reconcile conflicts between the affiliated institutions.

## Organization to develop specialty

### Reinforcement of capacity for executives and employees through a human resources development strategy

To enhance the capacity of its executives and employees, K-eco is pursuing the strategy for human resource development strategy linked to its management strategy. We are doing our utmost to foster 'Global talent with the ability to create new growth engines of the future' by developing the capacity of our members.

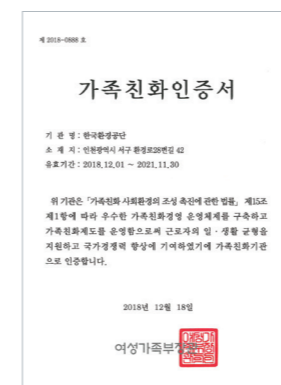
Goal	Fostering global talent with the ability to create new growth engines of the future					
Type of talent	Professional talent	Outstanding talent	Incorruptible talent	Talent of organizational harmony		
HRD Strategy	Internalization and practice of key value	Development of global human resources	Reinforcement of work profession	Customized education by life cycle	Harmony and cooperation	Support for public education

### Promotion of K-eco experts by fostering major talent

In 2011, the corporation established the "Human Resource Development Plan for Selection and Concentration," aiming to nurture 800 global environmental specialists by 2020. As specialists in the field of environment with vast experience and know-how, we are focusing on international cooperation to strengthen our global competitiveness and expand our overseas business, by utilizing the expertise of professionals within the corporation to provide specialized professional training through a process that consists of selecting our most qualified environmental experts and dispatching them to international organizations. This job training scheme has enabled us to improve the level of education provided and strengthen the competence and expertise of our employees, leading to the nurturing of 721 K-eco experts as of 2018 thanks to the maximized effectiveness of our training system.



### Family-friendly certification Maintaining five consecutive years



### For water supply



\* Accommodating right to organize labor union & people's right to be supplied clean water

## Reinforcement of work-life balance

### Reducing working hours for an evening life

With the revision of the Labor Standards Act, compliance with the working hours of 52 hours per week has become mandatory. To cope with this, K-eco held meetings for departments that needed emergency duties to relieve long hours of work and conducted expert consultation. In order to prevent overtime work as much as possible by changing working methods and provide proper compensation in case of unavoidable circumstances, we have conducted labor and management agreements on related matters. Through these efforts, we prepared a basis for reducing the working hours of our employees and improving their quality of life.

### Organization with a balance of work and family

Following K-eco's designation of every Wednesday as Family Day, staff is encouraged to leave work on time, enabling a more family-oriented company culture. Flexible work hours are also available so as to promote a freer work schedule. In order to increase the usage rate of flexible work hours, several options are provided, including optional and flexible work hours. Also, in 2018, as many as 470 people chose to employ flexible work hours, indicating a year-on-year increase of 79 people. This is all part of a greater effort to create a work environment that is more satisfactory to everyone across the board, promoting an increased "work-life" balance.

## Labor-management culture in harmony with open communication

### Establishment of Communication Channels to Build Consensus with Workers

In order to ensure smooth labor-management communication, the corporation has set up three-way communication channels for formal and informal communication and strives to ensure that all labor-management communication activities lead to the resolution of major issues.

Direction of communication	Permanent communication channel	Site-centered communication	System improvement through communication
	<ul style="list-style-type: none"> <li>Sharing current issues and bottom-up feedback</li> <li>Expanding informal communication with trade unions</li> </ul>	<ul style="list-style-type: none"> <li>Continuous CEO-Site communication</li> <li>Strengthening of labor-management relations at regional offices</li> </ul>	<ul style="list-style-type: none"> <li>Expanding communication channel with non-regular workers</li> <li>Continuous strengthening of labor-management briefings</li> </ul>

Activating the communication channels	Formal communication channel	Informal communication channel
	<ul style="list-style-type: none"> <li>(Labor and management) labor-management council, executive-leader negotiations, joint consultative body</li> <li>(Employees) Leadership training, sharing of issues at monthly meetings</li> <li>Innovation junior board, local labor council</li> </ul>	<ul style="list-style-type: none"> <li>(Labor-management) CEO's online communication room, CEO's dialogue channels, etc.</li> <li>(Employees) Labor-management meetings, employee surveys</li> <li>Labor-management communication boards, communication channels for non-regular workers</li> </ul>

### Resolving key issues through active communication between labor and management

Outside experts and labor-management participated in the council for conversion of non-regular employees to full-time workers, which examined aspects such as elderly-friendly jobs, minimum wage, and wage level before and after conversion, and resulted in the conversion of 100% of non-regular workers (369 in total) into full-time workers through. In addition, major issues such as performance evaluation, were solved following a discussion of possible ways to assign a position and job title to non-regular employees by organizing and operating a TF to improve the labor-management joint personnel management system.

### Common council for solution of wage gap

#### Consulting body

Composition	Management reps 10 Labor union reps 10
Role	Agree on resolution plan through first half of 2019

#### Working-level operations

Composition	Management reps 6 Labor union reps 6
Role	Current status and data analysis, propose & review wage gap relief plan, function as advisory group for services

### Use of educational and actual work duty



Achievement of 93.5%



OHSAS 18001 certification



Training for safety and health management managers and supervisors



### Safety Management System

K-eco is trying to create a safe workplace with healthy workers. K-eco is pursuing various tasks with the aim of enhancing the safety of the people and workers by establishing a safety management system. In particular, K-eco acquired the Occupational Health and Safety Assessment Series (OHSAS 18001) in 2018 to improve the safety structure of construction sites. K-eco will establish a disaster management system to respond to environmental disasters in the future fully.

Goal	Strengthening the safety of the people and workers by establishing a proactive industry and disaster safety management system	
Direction of progress	Strengthening of responsibility for industrial safety and health	Reinforcement of management on natural disasters
Practice of tasks	<ul style="list-style-type: none"> <li>Establishment of a responsible safety management system</li> <li>Reinforcement of facility safety inspections and education</li> <li>Improvement of work conditions for emotional workers</li> </ul>	<ul style="list-style-type: none"> <li>Establishment of disaster prevention, response, and restoration system</li> <li>Strengthening the prevention of damage, such as that from urban floods</li> <li>Strengthening the National Disaster Safety Training</li> </ul>

### Internalization of safety culture

#### Safety management education and training

K-eco is trying to spread a safety culture and strengthen prevention activities to prevent industrial accidents and safety accidents. Industrial safety and health education were provided to all employees and experience education were encouraged at the 'General safety experience center' with workshops by departments to enhance workers' safety awareness. In addition, K-eco has strengthened professional training for employees in charge of disaster and safety management and the training of safety and health management officers and supervisors was carried out thoroughly. In the future, K-eco will establish a safety management system and strengthen prevention activities to internalize and settle safety culture.

#### Safety Inspection Day, Implementation of regular and self-safety check

To enhance the capacity to respond to environmental disasters and improve awareness of safety culture movements, K-eco designated the fourth day of each month as Safety Inspection Day, and it selected safety themes that matched the characteristics of K-eco and conducted events of prevention and preparation to identify and remove hazards of disaster and safety control. In August 2018, K-eco focused on eliminating safety threats by actively implementing safety measures for construction workers due to heat waves and in the future, it will expand participation of outside experts in regular and self-safety inspections. It contributes to raising the safety awareness of workers and enhancing prevention activities.



Safety Inspection Day

### Safe workplace

#### Reinforcement of health care for executives and employees

K-eco has improved the health and welfare infrastructure to cope with safety accidents of executives and employees and respond quickly to various accidents. First, K-eco set up an in-house health room for initial response to work stress and accidents. This was followed by the signing of an MOU with a nearby affiliated hospital to ensure prompt action, such as assigning ambulances and medical personnel first in case of emergency. In addition, 700 employees were able to receive checkups by expanding the scope of comprehensive medical checkups that were previously conducted for employees 40 years of age but now including employees ten years after joining the company. Likewise, we are working to improve the working environment for vulnerable workers, such as pregnant women and the disabled, thereby creating a healthy work environment in which everyone can work with confidence.



Emergency Response Procedures

#### Support for psychology consultation of emotional workers

K-eco operates a central call center to deal with inter-floor noise complaints between neighbors. Since the call center is a communication window that directly responds to emotionally furious customers and the stress of employees is so high that support for psychology consultation is needed, K-eco has implemented measures to protect the health of and protect against violations of human rights for call center employees. K-eco measured the intensity of emotional labor, held 1:1 psychology consultation, and conducted an emotional healing program. In addition, a person in charge of reporting and consultation was designated within the department so that we could hear employees' grievances at any time, and a circular work system was implemented so that they would be assigned to other departments every two years. This support was implemented prior to the enforcement of the Industrial Safety and Health Act, K-eco is preemptively and actively responding to the healthy work environment of emotional workers.

#### Enforcement of Occupational Safety and Health Agency Safety Evaluation of the working environment in the analysis room

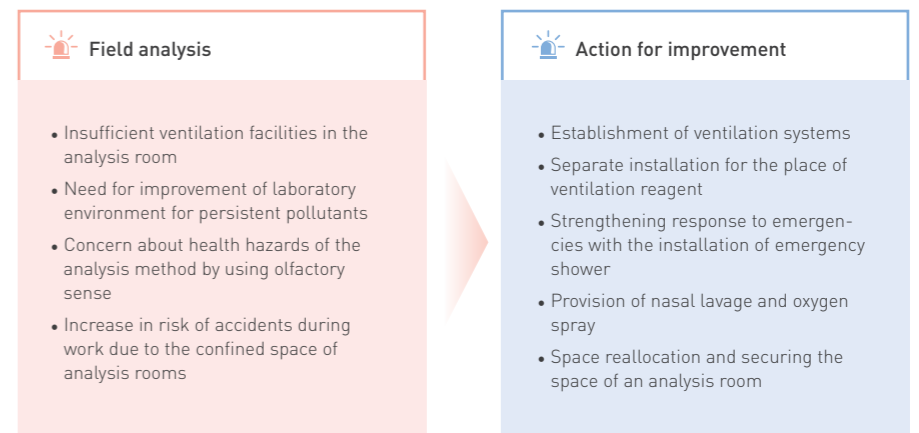


Accident-free, safe laboratory facilities



#### Safe laboratory working environment

K-eco conducted a risk assessment to create a safe and pleasant working environment for the departments that operate a laboratory. To prevent safety accidents in the laboratory as much as possible, we developed a checklist to excavate risk factors and conducted a risk assessment by finding safety-related risk factors such as whether they are properly ventilated when handling chemicals. As a result, we tried to reduce the risk of accidents as much as possible by developing improvement plans and especially for facilities handling with hazardous materials, we analyzed these in more detail than other laboratories to create safe laboratories.



## Disaster preparation with the public

### Public-participatory Safety Drills

K-eco contributed to the 'Construction of a Safe Korea' to increase the role of public institutions in enhancing environmental safety that values people's lives. K-eco operated a disaster safety program at the height of a child, including disaster preparation training with children in the local community using the publicity training center for environment love. A total of 356 people participated in three daycare centers, three preschools, and two elementary schools. As a result of these efforts, K-eco has been selected as an excellent institution for disaster response safety training in Korea and it will continue to strive to spread the movement for safety and culture in the daily life of the people.

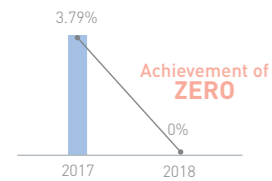


Children's Disaster Safety Program

### 2018 National Safety Assessment

The National Safety Assessment is an act of prevention to inspect and improve the state of safety management across society through the participation of central government, self-governing bodies, public institutions, and the general public. It was run in 2018, from February 5 and March 30, and entailed the thorough inspection of facility management, currently in operation by K-eco, including government office building and construction sites. Additionally, it promoted the increase of public interest of safety, alongside promotional activity to encourage reporting potentially danger situation in everyday life through a public complaint platform. This enabled the prevention of accidents following advanced inspections, and the achievement in 2018 of a death rate of zero at construction sites.

#### Death rate at construction sites



Ministry of Science and ICT  
Information Security Management  
System Certification (ISMS)



## Reinforcement of information security stability

### Multilateral efforts to protect personal information

K-eco carries out administrative and technical measures to safely protect 5.5 million cases of personal information it currently has. In a managerial aspect, a complete enumeration survey and readjustment were conducted to minimize the retention of personal information and the actual condition of management was periodically checked. In addition, K-eco enhanced its ability to protect personal information by upgrading internal management guidelines, including maintenance of internal regulations with resident registration numbers and revision of countermeasures for infringement accidents. In technical aspects, K-eco operated solutions exclusively for personal information to prevent personal information from being generated and exposed and conducted regular monitoring. Through this, K-eco achieved zero personal information leakage in 2018 and will respond effectively and systematically to infringement incidents by strengthening the personal information protection policy.

### Operation of a stable information system with the establishment of an integrated disaster recovery center

The seriousness of information and communication damage caused by disasters is emerging externally and especially, in the case of K-eco, it is necessary to operate a stable information system in response to the increasing demand for environmental information of the nation for issues such as particulate matter. Thus, K-eco established an integrated disaster recovery center in (former) Jeonbuk branch office located in Jeongeup of Jeonbuk-do Province so that it can operate a remote computer center if the headquarters' computer center is suspended due to natural disasters, power outages and cyber-attacks. At present, K-eco has currently built infrastructure and plans to distribute its headquarters equipment and duplicate important systems in the future. Through this system, K-eco is strengthening the information protection management system by operating an information system that guarantees the continuity of the business even if the main center has a failure.

## Special page

# Spread of organizational culture with harmony and coexistence

In promotion of a content workplace, K-eco strives to create a common ground between labor and management through communication while conducting activities for the improvement of organizational culture to create a bond among workers.



### Place for communication between the chairman and employees

K-eco is continuously strengthening culture of communication between labor and management. The chairman's office is always open. K-eco practices strengthening the communication channel between labor and management representatives through frequent meetings with union leaders. During conversations between the chairperson and employees, not only union leaders but also general employees can freely ask questions and listen to the chairman about the direction for the operation of institution and management plan of the business. It is becoming a valuable place for communication for both labor and management to think about and cooperate with the chief of an institution to discuss and cooperate with each other to understand how the management policy of a head office and the needs of employees can be harmonized.



### Adoption of declaration for labor and management cooperation

At the 9th anniversary of its foundation as an integrated institution, K-eco has adopted the joint statement of labor and management under the banner of creating a new Korea Environmental Corporation by unifying the labor and management under the future of hope. In time for the foundation anniversary of K-eco, about 300 executives and employees from the headquarters and local offices gathered in one place with the representatives of labor unions and management to adopt and recite the declaration on the public practice of joint action plan focusing on five areas.

### Declaration for labor and management cooperation

- First, K-eco puts the realization of public and social values as its top priority and strives to provide quality environmental services,
- Second, K-eco rejects any discrimination by origin, region, educational background, gender, and so on, recognizes the value of members' work equally, and innovates into a trusted institution and organization by enhancing fairness and transparency in decision making.
- Third, K-eco considers and respects the other person, does not engage in any activity that causes sexual shame, and takes the lead in creating a gender equality culture with the prevention of sexual harassment and sexual violence.
- Fourth, K-eco improves the competitiveness of existing businesses, strives to secure future growth engines, takes the lead in creating a new company culture, and realizes sustainable management by promoting social contribution and local economy,
- Fifth, K-eco provides a safe workplace, prevents safety accidents of the workplace, and creates a safe workplace from disasters.

### Spread of labor-management partnership through the selection of excellent departments in labor-management culture

K-eco annually selects and rewards departments of excellence in labor-management culture. K-eco is conducting a fair and objective selection through a metrical evaluation index consisting of a non-metrical evaluation index, performance of labor-management council, and educational performance of labor-management relations, including their management philosophy of labor-management relations by the director and department director, labor-management cooperation programs, efforts for dealing with grievances, efforts for innovation of the workplace, efforts for labor conditions and industrial safety, and encouraging benchmarking between departments through sound competition of departments every year. Through these efforts, K-eco is striving to build a better company and a better place to work by strengthening labor-management partnerships and contributing to the realization of cooperative labor-management relations.



# Transparent and respectful organizational culture

## Sustainability Context

Recently, the government has established and actively managed a five-year comprehensive anti-corruption plan to fight against corruption. As public institutions are also required to enhance their anti-corruption and integrity through responsible and ethical management, it is necessary to strengthen the related activities by establishing a foundation for ethical management to prevent corruption within the institution and to secure trust in the people.

## K-eco Approach

K-eco continues to manage the risk of corruption in order to establish a culture of integrity without corruption. K-eco has established an ethical management strategy to become an ethical agency of integrity and is training its employees to internalize a culture of integrity. In addition, it strives for the spread of an ethical culture of integrity by establishing a clean civil audit system and a network of integrity, which contributes to the creation of a transparent K-eco that is trusted by the people.



## Strategy & Performance

<p><b>1</b> Creating an organizational culture of integrity</p>	<p><b>2</b> Making an ethical culture of integrity together</p>	<p><b>3</b> Creating a culture of respect for human rights</p>
<p><b>Anti-corruption management system</b></p> <p>Acquired <b>ISO37001</b> <small>(Examination center of environmental experts)</small></p> <p><b>Audit training</b></p> <p><b>84% increase</b> <small>(56 hours in 2017 103 hours in 2018)</small></p>	<p><b>Expanding the staff pool for a clean civil audit</b></p> <p><small>(Commissioned personnel 20→30 people Extension of commission period two years→three years)</small></p> <p><b>Financial performance with an internal control system</b></p> <p>Attained <b>KRW 4.5 bil</b></p>	<p><b>National Human Rights Commission Course Training</b></p> <p>Progress in <b>1,649</b> people</p> <p><b>12th National Sustainable Management Awarded</b></p> <p><b>Comprehensive Grand Prize in public institution</b></p>

## Interview

“ Strengthening Transparency of Institutional Management through Clean Corporate Culture ”

**Kang Mun-sik, Head of Department**  
Audit Office of K-eco



In order to establish strict public service discipline and establish a clean organizational culture, the corporation conducts internal control activities to enhance transparency of the organization management.

Also, establishing a clean corporate culture and absolving irregular business practices pushed us create an anonymous reporting center on our official website. We are continuously conducting integrity training to improve upon awareness of both employee and executive staff.

In addition, restoring the confidence of the people requires our establishing and operating an integrity improvement task force team (TFT) under the direct supervision of the Standing Auditor to prepare measures to improve integrity and check the implementation performance. Through the Anti-Bribery Management System (ISO 37001) Certification, we plan to establish a corruption prevention system that meets international standards by establishing a corruption risk management paradigm.

This year, the corporation recorded a below-average performance in the evaluation of the integrity and anti-corruption assessment of public institutions conducted by the Anti-Corruption & Civil Rights Commission. Under the 2019 Anti-Corruption Plan, we will work toward the promotion of various anti-corruption policies to ensure that integrity is the core value of our operations, and that it will serve as the top asset of the corporation and the driving force for individual employee growth, while doing our utmost to establish a clean and transparent organizational culture, as well.

## K-eco Sustainable Development Goals

Goal	Detailed objectives	Relevant SDGs
<p><b>14</b></p> <p>Establishing a culture of integrity without corruption</p>	<p><b>14-1</b> Reducing corruption and bribery.</p> <p><b>14-2</b> Improving the level of integrity by establishing a transparent ethics management system.</p> <p><b>14-3</b> Training for executives and employees and external communication are strengthened to establish a clean culture.</p>	
<p><b>15</b></p> <p>Building a human-oriented respect culture for human rights</p>	<p><b>15-1</b> Establishing and implement a policy to eliminate all discrimination by building an organizational culture that respects human rights.</p> <p><b>15-2</b> Strengthening the education of human rights so that all learners can contribute to the sustainable development of organizations and societies.</p> <p><b>15-3</b> Abolishing sexual violence in all areas against women and other sexual abuse.</p> <p><b>15-4</b> Strengthening the protection of digital rights.</p>	 

Our commitment for K-eco SDGs



## Becoming an Ethical Organization with Integrity

As society's integrity and transparency are emphasized, the corporation strives to become a trusted ethical organization with integrity for the people. Therefore, we have established a company-wide ethical management system and are actively implementing related activities. In addition, we determined the major policies of ethical management through the Open Management Committee, which is the highest deliberation and resolution body and checked anti-corruption and integrity measures through the Anti-Corruption Countermeasures Committee. Through this, we will raise the transparency of internal and external organizations and lay the foundation for ethical management.

### Ethical management promotion system

Vision		Clean K-eco Trusted by the People	
Direction of propulsion	Enhancing the Ethical Management Infrastructure	Preventive ethical environment creation	Increase transparency of organization operation
Implementation task	<ul style="list-style-type: none"> <li>Improvement of execution ability including operation of a dedicated ethics management organization</li> <li>Maintenance of Code of Ethics and Internal Regulations</li> </ul>	<ul style="list-style-type: none"> <li>Diagnosis and focus on vulnerable areas</li> <li>Operate programs for internalizing the ethical culture of integrity</li> </ul>	<ul style="list-style-type: none"> <li>Expanding Organizational and Personnel Audits</li> <li>Establishing and operating a record classification system</li> <li>Activation of Integrity Citizen Auditor</li> </ul>
	Propulsion system	<p><b>Propulsion organization</b></p> <ul style="list-style-type: none"> <li>Open Management Committee, Anti-corruption Countermeasures Committee</li> <li>(Dedicated) Integrity Inspection Team, Human Resource Development Team</li> <li>Integrity Citizen Auditor System, Integrity Cluster</li> </ul>	<p><b>Normative system</b></p> <ul style="list-style-type: none"> <li>Regulations for Ethical Management of K-eco, Basic Plan for Ethical and Human Rights Management</li> <li>Code of conduct of employees, integrity contract for human rights and jobs, personnel regulations, prevention regulations for sexual harassment and sexual violence, etc.</li> </ul>

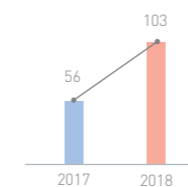
## Internal Control System for Ethics Management

The corporation has an internal containment system for anti-corruption and integrity and has strengthened independence and expertise to enhance the effectiveness of audits. It has also operated an audit organization under the supervision of a standing auditor, ensuring independence by guaranteeing the right of recommendation and tenure of the auditors. In addition, we have a personalized training and auditor capacity management system to ensure the expertise of auditors. We will continue to make efforts to enhance the integrity of the corporation by establishing an advanced audit system based on its professional competence.

### Key Performance of Internal Containment System

Internal control role	Management support role	Internal Containment role
<p><b>Standing auditor</b></p> <p>Comprehensive audit 13 times, Specific audit six times, Service audit seven times, Ordinary audit 1,355 times</p>	<p><b>Non-Executive Director</b></p> <p>Attendance to the board and proposal for management, 19 cases</p>	<p><b>Ethics Compliance Consultation</b></p> <p>Operate seven centers to vitalize ethical counseling and internal accusation</p>
<p><b>Ombudsman</b></p> <p>Integrity Citizen Auditors Meeting 4 times (Amendment of regulations for the Work Process of the Treatment of Harmful Chemical Substances)</p>		

Auditor training time (hours)





## Internalization of Ethics and a Culture of Integrity





### Strengthening anti-corruption infrastructure through internal ethics regulations

The corporation has strengthened its internal regulations to modify its ethics management infrastructure. We have revised the Code of Conduct for employees and the guideline for the operation of Integrity Mileage to raise the ethical awareness of employees and create the foundation for internalizing an ethical culture with integrity. In addition, we provided motivation for ethical practice activities by linking the integrity incentive system with the organization and individual-based performance. In particular, in the event of the occurrence of anti-corruption activities, we have enhanced the effectiveness of the protection system for public benefit whistle-blowers by strengthening the guidelines for protecting public benefits claims & whistle-blowers. Like this, we strive to increase incentives based on integrity and create a transparent organizational culture through the revision of ethical regulations.

### Strengthen employees' sense of ethics

In order to establish an ethical culture, the corporation operates programs that can enhance the sense of ethics for all employees. The will of the executives was communicated through the declaration of the "management's commitment to integrity." The corporation also implemented a customized education program for all employees to be part of the integrity policy. On this note, special focus was put on three major areas that are vulnerable to corruption (①construction contracts and purchase of goods ②fairness in the ordering of work ③effectiveness of the protection system for public interest claimants), and strengthened integrity education for the personnel in charge. Through these activities, we are strengthening and spreading a culture of integrity within the organization.

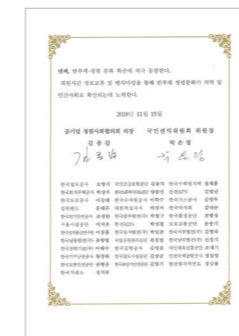
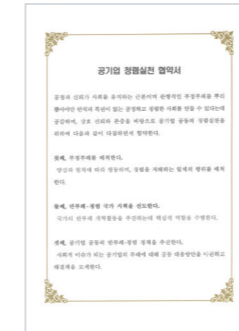
#### Customized training programs for all employees to participate in the Integrity Policy

- 
**Executive staff Senior staff**
  - Customized education such as the anti-graft law and property registration for executives including Chairman (1 time)
  - Education against the department head or higher about anti-graft law and case studies of unfair business instruction (68 people)
- 
**Life-cycle integrity education**
  - 2018 New Employees (Internship and Indefinite Contracts) Integrity Education (150 people)
  - Leadership training by promotion level (3rd ~ 4th class, 5th class) in In the first half of 2018 (68 people)
- 
**Workers vulnerable to corruption**
  - Integrity education, including technical advisory design review committee members, construction supervisors, and designers (4 times, 426 people)
- 
**All employees**
  - Mandatory integrity education by utilizing contents of the Institute for Integrity and Training, subsidiary of the Anti-corruption & Civil Rights Commission (13 courses, 2,428 people)
  - Invited professional instructors from the Institute for Integrity and Training and had a special lecture in "Creating an organizational culture of integrity" (256 people)
  - Integrity education, including the anti-graft law through the education of visiting education about communication with integrity (18 times, 2,488 people)



Executive staffs training in 2018

### Public Enterprise Integrity Agreement



The launching ceremony of the Public Enterprise Integrity Council

## Strengthening ethical execution capability

### Building a Network of Integrity

The corporation has built an integrity network to create an anti-corruption society with integrity. We organized with the Incheon Metropolitan City, the Public Enterprise Integrity Council, Incheon Int'l Airport Corporation, and private companies to conduct anti-corruption activities. In 2018, we held four sessions of the Incheon City 'the Integrity Practice Conference' and one session of 'the Public Institutions' Integrity Cluster' in Incheon and participated in integrity campaigns and related workshops. Through this, we contribute to spreading ethics and a culture of integrity inside and outside the organization.

### Operation of the Integrity Citizen Auditor System

The Corporation operates an Integrity Citizen Auditor System to promote stakeholder participation and establish an ethical culture of transparency. In 2018, the Integrity Citizen Auditor System lead to the holding of four regular meetings and comprehensive audits, and the revision of the "Rules for the Handling of Hazardous Chemical Substances," reflecting the popular opinion that the improvement of chemical management is a necessity. In the future, we will continue to expand the participation of external experts in the auditing process to ensure objectivity and fairness and to create a better ethical culture. We will continue our activities to secure the objectivity and fairness of auditing and to create a better ethical culture.

### Efforts to improve internal integrity

As a result of the internal integrity investigation, it was urgently needed to respond to "unfair business instructions." In order to solve this problem, the corporation operates a 'Moving Integrity Counseling Center' to resolve internal employee complaints. In addition, we operated an Unfair Business Instruction Reporting Center so that we could receive reports online, and conducted a survey to identify the types and causes of unfair business instructions. These efforts have created a transparent organizational culture and enhanced the fairness of our work.

### Integrity Call to increase external integrity

The Corporation operated an Integrity Call to improve the transparency of institutional operations by improving external integrity, which is highly vulnerable. For the past year, we conducted a survey on eight questions, including satisfaction with work processing, inconvenience, and system improvement, among external customers who have been involved in construction, goods, and service contracts. The survey was conducted over the phone and online, and the complaints were forwarded to the relevant department to be improved. Through these activities, the corporation has contributed to improving customer satisfaction and agency integrity.





Creating a culture of respect for human rights

National Human Rights Commission course students educated



1,649

## Ethics and human rights education for the spread of human rights culture

The corporation is spreading a human rights culture through participative education for executives and employees. In 2018, we provided all employees National Human Rights Commission's course education on the understanding of human rights and the administration. In addition, we have established healthy values through online and offline education on preventing the four violence, including sexual harassment in the workplace. This diverse education allowed the establishment and spread of a sense of respect for human rights in the organization.

## Active response to eradicating sexual harassment and sexual violence

Under the Framework Act on Gender Equality, the operation of four major anti-violence systems, including sexual harassment, is an essential element for healthy workplace culture. In response, the corporation has prepared measures that are more sensitive to eradicating sexual harassment and sexual violence in the workplace and actively responding to related issues. We have conducted violence prevention training and strengthened disciplinary measures against perpetrators to prevent such problems from happening fundamentally. By doing so, we have contributed to preventing sexual harassment and sexual violence in the workplace and establishing the correct values.

## Strengthening preemptive approach to human rights violations

In order to protect the human rights of our executives and employees, the corporation has strengthened the procedures for preventing human rights violations against minorities. Prior to improving the problem, we identified cases of human rights violations and found that one of the corporation's minority employees, lower-level female employees, were suffering from sexual harassment at work. Also, for disabled employees, the business administration department expressed antipathy toward staffing, resulting in a low employment rate. It was deemed to be lacking in empathy and understanding for the minority class, and we have strengthened our awareness education once a year to 10 times a year. Besides, we have improved the existing operation of the Grievance Committee to make it easier to ask for help when relevant issues occurred. The corporation has made such efforts to internalize human rights-centered culture and to improve the working environment of the minority classes.

Measures to strengthen grievance procedure to prevent human rights violations



- Clarification of difficulties handling procedures
- Including outside experts in the committee
- Continuing improvement and implementation of the basic plan for anti- sexual harassment and sexual violence measures
- Internalization of an organizational culture without sexual harassment and sexual violence

## Special page

# Establishing the Foundation of Human Rights Respect Value

Responsibility for the realization of social values of public institutions is expanding, and the government emphasizes human rights-oriented policies. To proactively respond to this trend, the corporation aims to establish a human rights management system to strengthen prevention and protection of human rights blind zones and achieve its vision of 'realizing the happy management of human rights by all Koreans.'

## Establishing a system for the promotion of human rights management

The corporation is pushing ahead with a plan to apply the human rights management manual of the National Human Rights Commission. In 2018, the corporation established human rights management guidelines through an open management committee to stipulate matters necessary for the protection of human rights of executives and employees and stakeholders and established principles for the management of human rights management. In the future, we will establish a human rights management system that takes into account the characteristics of the corporation and the government's policies and internalizes the culture of respect for human rights within the organization.

A plan for the application of human rights management manual

Phase 1	Phase 2	Phase 3	Phase 4
2018	2019	2020	2021
<ul style="list-style-type: none"> <li>• Review the human rights management manual of the national human rights commission</li> </ul>	<ul style="list-style-type: none"> <li>• Review the human rights management system reflecting institutional characteristics and management conditions</li> </ul>	<ul style="list-style-type: none"> <li>• Internal sharing of the human rights management promotion system</li> <li>• Review the application of the corporation characteristics</li> </ul>	<ul style="list-style-type: none"> <li>• Application of manual and internal and external sharing on the results</li> <li>• The internalization of human rights management mind through continuous education</li> </ul>

## Strengthening the network of human rights management by forming an external consultative body

In order to strengthen its response to human rights management, the corporation signed business agreements with seven organizations, including the National Health Insurance Corporation and the Korea Tourism Organization, to establish consultative bodies for excellent ethical and human rights management institutions. In September 2018, we held a meeting to share the organization and operating system of each organization's response to human rights management, to share mutual data for joint responses, and to discuss future development directions. Through these external consultative bodies, the corporation will strengthen the network of transparent ethics and make efforts to create an environment that can spread a human rights culture.



# Appendix

K-eco will continue to take on new challenges instead of staying in the present to achieve its global sustainable management goals.

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# K-eco SDGs



## Clean & pleasant natural environment



### 1. Creating an air environment for comfortable breathing

- 1-1 Establish and operate diverse environments that accurately measure air pollution and emission levels and provide information in a timely manner and that are accessible to anyone.
- 1-2 Infrastructure that effectively manages emission sources that contribute to air pollution is established and operated.
- 1-3 Minimize air pollution caused by fuel consumption in the transportation sector.
- 1-4 Manage harmful air pollutants to reduce negative environmental effects and protect public health.

### 2. Healthy and safe water management

- 2-1 Preventing water pollution accidents by accurately measuring and managing river water diseases and providing water pollution conditions in real-time.
- 2-2 Expand the public's healthy and safe water rights by supplying tap water with no leakage.
- 2-3 Provide sufficient and equitable water and water services regardless of the area of residence.
- 2-4 Improve water quality and health of the water ecosystem through the improvement of water circulation and revitalization of water reuse and activate water industry clusters to strengthen national water industry competitiveness.

### 3. Environmental disaster prevention and restoration

- 3-1 Efforts are made to restore soil and sewage environments contaminated with industrialization and development.
- 3-2 Preventing pollution from aquatic ecosystems and activating conservation and restoration activities.
- 3-3 Reducing casualties and economic losses from water disasters such as floods.

### 4. Strengthening climate change response capabilities

- 4-1 Providing stable support for the implementation of the system to achieve the national greenhouse gas reduction target.
- 4-2 Reinforcing education and awareness activities concerning the response to climate change.
- 4-3 Increasing the actual number of teenagers and adults with the skills needed for employment, quality jobs, and start-up activities by training expert personnel on climate change.



## Safe & sustainable living environment



### 5. Promotion of environmental welfare of vulnerable groups

- 5-1 Improving the quality of people's lives by providing a close-to-life environment service that reduces living pollutants.
- 5-2 Protecting the health of vulnerable groups by minimizing exposure to Group 1 carcinogens (radon, asbestos, dioxin) in our daily lives.
- 5-3 Advancing chemical management to create a society safe from chemicals.

### 6. Ensuring the right to life and safety of the people and workers

- 6-1 Reducing casualties and economic losses from disasters and develop and implement a comprehensive disaster risk management system.
- 6-2 Protecting the rights of all workers and create a safe and healthy working environment.
- 6-3 Supporting the installation of safety facilities for small construction sites.

### 7. Responsible waste management

- 7-1 Achieving the goal of national resource circulation in order to realize a sustainable circular economy.
- 7-2 Reducing waste generation and expand recycling to improve resource sustainability and reduce negative environmental impacts.
- 7-3 Providing information on resource recycling and resource circulation to promote the public convenience and enhance public awareness.

### 8. Minimize the environmental impact inside the K-eco

- 8-1 Minimizing the environmental impact of the corporation's internal activities.
- 8-2 Utilizing our resources efficiently and control environmental damage caused by organizational operations.
- 8-3 Promoting sustainable green consumption through the expansion of green purchases.



## Cooperative & symbiotic social environment



### 9. Gain the public's trust through communication

- 9-1 Securing public trust by implementing effective and responsible policies and systems for the people and customers.
- 9-2 Expanding the disclosure of environmental and management information and provide convenience for the public to access information in a stable manner.
- 9-3 Conducting inclusive activities and strengthening public communication by ensuring citizen's decision-making at all levels of society.
- 9-4 Expanding opportunities for participation in environmental education so that all the people are aware of the environment and sustainable development.
- 9-5 Publishing our sustainability report and disclose our efforts and achievements in sustainability management.

### 10. Economic Development through Job Creation

- 10-1 Creating good jobs in the environmental field.
- 10-2 Increasing youth employment and expand the conversion of non-regular employees to regular employees.
- 10-3 Pursuing high resource-efficient industrialization through environment-friendly industrial activities and technological innovation.

### 11. Establishment of a fair economic foundation through co-prosperity

- 11-1 Strengthening our international competitiveness by promoting the capability of the company by shared growth with SMEs.
- 11-2 Supporting the revitalization of the social economy to establish a sustainable basis for the environmental industry and secure industrial competitiveness.
- 11-3 Reducing emission of pollutants and improving the environmental management level of a company by promoting the integrated environmental management system
- 11-4 Encouraging and promoting effective public, public-private, and civil-social partnerships.

### 12. Regional development through social contribution

- 12-1 Growing together with the community through active community participation.
- 12-2 Promoting South-North Korea cooperation for peace and prosperity.
- 12-3 Supporting strengthening the environmental industry's capacity to implement SDGs in developing countries.



## Transparent & respectful organizational environment



### 13. Creating a good work culture

- 13-1 Establishing a fair and socially acceptable employment process.
- 13-2 Providing a fair and equal opportunity and the environment by eliminating discriminative treatment based on age, gender, disability, etc.
- 13-3 Strengthening the system and support for enhancing the capacity of female employees.
- 13-4 Promoting the sustaining of a "work-life" balance among all employees and management.
- 13-5 Ensuring sufficient budget and manpower to provide quality education at all levels of education.

### 14. Establishing a culture of integrity without corruption

- 14-1 Reducing corruption and bribery.
- 14-2 Improving the level of integrity by establishing a transparent ethics management system.
- 14-3 Training for executives and employees and external communication are strengthened to establish a clean culture.

### 15. Building a human-oriented respect culture for human rights

- 15-1 Establishing and implement a policy to eliminate all discrimination by building an organizational culture that respects human rights.
- 15-2 Strengthening the education of human rights so that all learners can contribute to the sustainable development of organizations and societies.
- 15-3 Abolishing sexual violence in all areas against women and other sexual abuse.
- 15-4 Strengthening the protection of digital rights.

### 16. Establishment of harmony of labor relations

- 16-1 Seeking mutual benefit through smooth communication between labor and management.
- 16-2 Solving fair treatment and wage gap for work of equal value.
- 16-3 Activating communication channels to handle grievances of executives and employees and actively resolve and support them.

# Sustainability Performances

## Economic performance

### Summary statement of financial position

(Unit: KRW 1 million)

Category	2016	2017	2018	
Assets	Current assets	87,980	80,652	97,219
	Non-current assets	49,906	54,305	62,057
	Total assets	137,886	134,957	159,276
Debt	Current liabilities	170,148	172,546	189,404
	Non-current liabilities	33,029	37,564	50,470
	Total debt	203,177	210,110	239,874
Capital	Capital amount	78,719	78,719	78,719
	Etc.	(144,010)	(153,872)	(159,317)
	Total capital	(65,291)	(75,153)	(80,598)

### Summary comprehensive income statement

(Unit: KRW 1 million)

Category	2016	2017	2018
Revenue (Sales)	1,164,965	1,094,748	1,078,958
Net sales	1,164,965	1,094,748	1,078,958
Sales cost	1,145,384	1,088,639	1,063,032
Selling and administrative expenses	14,161	17,510	16,547
Operating profit	5,420	(11,401)	(621)
Extra profit	9,891	3,322	1,763
Extra expenses	5,778	2,478	93
Extra benefits	298	995	265
Financial profit	21,738	19,770	25,151
Financial cost	23,633	21,323	25,699
Profit-related to the companies subject to the equity law, etc.	-	-	-
Net income before corporate tax expense reduction	7,936	(11,115)	766
Corporate tax expense	3,324	(2,211)	(1,596)
Net profit	4,612	(8,904)	2,361
Other comprehensive income	2,795	(958)	(7,806)
Total comprehensive income	7,407	(9,862)	(5,445)
Net profit ratio of sales	0.4	(0.81)	0.22
Equity turnover rate	(1,784.27)	(1,456.69)	(1,338.69)

## Environmental performance

Category	Unit	2016	2017	2018	
Electric power	TJ	110,667	105,528	125,577	
	kWh	12,296,351.43	11,725,282.4	13,080,929.67	
Energy usage	Others	TJ	53,212	43,916	41,753
	Urban gas (LNG)	m <sup>3</sup>	209,575.823	81,196.665	80,319.64
	Heating oil	l	4,130	953.33	1,100
	Domestic fuel	l	506	1,149	247,222
	CNG (vehicles)	m <sup>3</sup>	1,993.59	2,876.03	2,239,593
	LPG (vehicles)	l	4,468.6	1,205	1,039,214
	Gasoline	l	290,706.3	292,851.528	273,858,488
	Diesel	l	892,350.79	621,172.688	564,120,612
Greenhouse gas emissions	Headquarters	tCO <sub>2</sub> eq	5,270.342	5,055.932	5,207.743
	Regional headquarters	tCO <sub>2</sub> eq	3,991.43	3,264.686	3,573.918
	Total purchase amount	KRW	9,151,844,300	10,230,158,230	23,584,537,000
Green product purchase amount	Green product purchase amount	KRW	3,944,444,900	7,467,504,000	18,084,278,000
	Green product purchase ratio	%	43.1	72.995	76.7

## Social performance

### Personnel status

[as of March 2019]

Category	Unit	2016	2017	2018	
<b>Gender</b>					
Male	Persons	1,762	1,759	1,940	
Female	Persons	530	529	710	
Female ratio	%	23.1	23.1	26.8	
<b>By ages</b>					
In 20's	Persons	365	324	429	
In 30's	Persons	780	771	898	
In 40's	Persons	639	641	685	
In 50's and above	Persons	508	552	638	
<b>By business locations</b>					
Headquarters	Persons	1,139	1,220	1,412	
Etc.	Persons	1,058	1,068	1,238	
<b>By positions</b>					
Board members	Total	Persons	7	7	6
	Male	Persons	7	7	6
	Female	Persons	0	0	0
1st class	Total	Persons	40	39	42
	Male	Persons	30	39	41
	Female	Persons	2	0	1
2nd class	Total	Persons	132	133	134
	Male	Persons	132	133	133
	Female	Persons	0	0	1
3rd class	Total	Persons	318	318	323
	Male	Persons	306	304	307
	Female	Persons	12	14	16
4th class	Total	Persons	448	457	470
	Male	Persons	376	379	383
	Female	Persons	72	78	87
Etc.	Total	Persons	1,036	1,047	1,042
	Male	Persons	681	685	673
	Female	Persons	355	362	369
Professional (Including job a separate fixed number of people in peak wage system)	Total	Persons	66	63	64
	Male	Persons	65	61	62
	Female	Persons	1	2	2
Indefinite contract workers	Total	Persons	249	224	569
	Male	Persons	161	151	335
	Female	Persons	88	73	234
<b>By employment type</b>					
Regular workers	Persons	2,043	2,064	2,016	
Indefinite contract workers	Persons	249	224	569	
Short term worker	Persons	336	326	159	
Indirect employment	Persons	44	76	0	
<b>Employment status of disabled people</b>					
Number of employments for disabled people	Persons	2	1	2	
Percentage of disabled employment	%	3.28	3.07	2.75	
<b>New employment</b>					
Total new full-time employment	Persons	116	89	98	
Young people	Persons	104	84	91	
Female	Persons	40	28	37	
Disabled people	Persons	2	1	2	
Non-capital area people	Persons	65	63	46	
High-school graduates	Persons	2	1	6	
New employment of contract workers	Persons	10	0	72	
Age group	Under 30 years old	Persons	90	66	71
	30-50 years old	Persons	22	22	23
	Over 50 years old	Persons	4	1	4

# Sustainability Performances

Category		Unit	2016	2017	2018
<b>Retirement</b>					
Total		Persons	45	52	51
Retirement rate		%	1.1	0.9	1.6
Regular retirement		Persons	14	34	26
Voluntary retirement		Persons	14	10	3
Gender	Male	Persons	17	8	22
	Female	Persons	5	10	10
Age group	Under 30 years old	Persons	10	5	14
	30-50 years old	Persons	9	13	16
	Over 50 years old	Persons	30	44	29

## Work-family compatibility

Category		Unit	2016	2017	2018
<b>Parental leave</b>					
Number of users	Total	Persons	94	111	128
	Male	Persons	9	17	32
	Female	Persons	85	94	96
Returning people after use of parental leave	Total	Persons	94	110	127
	Male	Persons	9	16	32
	Female	Persons	83	94	95
Number of employees working for more than one year after returning from parental leave	Total	Persons	92	108	126
	Male	Persons	9	16	32
	Female	Persons	83	92	94
Returning rate	Total	%	100	99.1	99.2
	Male	%	100	94.1	100
	Female	%	100	100	98.9
Rate of working for more than 12 months	Total	%	100	97.3	98.4
	Male	%	100	94.1	94.1
	Female	%	100	98.9	97.9

## Reinforcement of employees' competencies

Category		Unit	2016	2017	2018
<b>Training and education</b>					
Average training hours per person(sum)		Hours	115.1	123.12	127.37
Gender	Male	Hours	116.2	123.6	129.9
	Female	Hours	111.6	121.5	119.6
Employment type	Technological	Hours	127.1	120	135.5
	Office	Hours	125	117	121.4
	Operational	Hours	134.7	118	134.3
	Indefinite-term contract	Hours	88.8	85	107
Average cost of education per person(sum)		KRW 1,000	115.7	149.9	181.9
Training sessions on people by positions(sum)		Persons	25,145	34,882	42,935
<b>Ethical and human rights education</b>					
Avg. no. of hours for ethical management training per person		Hours	8	10	10
Total participation rate of ethical management		%	100	100	100
Number of training sessions to prevent sexual harassment (collection/cyber)		Frequency	1 / 1	1 / 1	10 / 1
Total hours for sexual harassment training		Hours	10,860	14,659	15,018
Total participation rate of sexual harassment prevention		%	99.1	92.4	94.2

## Labor union status

Category		Unit	2016	2017	2018
Labor union membership people		Persons	2,093	2,119	2,515
Labor union membership rate		%	96.6	98.7	99

## Board performance

Category		Unit	2016	2017	2018
Number of Board meetings		Times	13	12	16
Agenda of decisions		Number	32	22	30
Report agenda		Number	3	3	3
Non-executive director participation rate		%	71	65	69

## Shared growth

Category		Unit	2016	2017	2018
Small business purchase performance		KRW 1 million	590,280	579,677	610,777
Social enterprise and cooperative purchasing performance		KRW 1 million	3,043	3,291	4,405
Evaluation grade of shared growth in the environment sector		Grade	Excellent	Good	Good
Performance sharing system support scheme		Number	47	47	48
Performance sharing system patent registration		Number	8	9	14
Usage record of subcontracting guidance system		Number	6,826	7,148	9,271

## Industrial safety and information security

Category		Unit	2016	2017	2018
<b>Industrial Safety</b>					
Absentee rate (AR)	Male	%	1	2	2
	Female	%	18	20	15
Number of workplace disasters		Number	6	6	8
Mortality rate at the construction site		%	6.31	3.79	0
Industrial safety and health education		Persons	2,676	2,675	2,875
<b>Information Safety</b>					
Standard diagnosis of personal information management by the Ministry of Public Administration and Security		Score	82.67	86.54	96.73
Personal information leakage accident		Number	0	0	0

## Social contribution

Category		Unit	2016	2017	2018
Social contribution satisfaction		Score	30	30.5	32
Time for participation in social contribution		Hours	20	21	21
Execution amount of social contribution		KRW 1 million	148	182	183

## Diversity of governance bodies

Category		Unit	2016	2017	2018
<b>Organization's governance bodies</b>					
Gender	Male	Persons	13	13	13
	Female	Persons	1	1	0
Age	Under 30 years old	Persons	0	0	0
	30-50 years old	Persons	1	1	1
	Over 50 years old	Persons	13	13	12














# GRI Standards Content Index

Universal Standards							
Topic	No.	Disclosure	Description	ISO 26000	SDGs & Social value	Page	Assurance
<b>GRI 102: General Disclosure</b>							
Organization profile	102-1	Name of the organization	Korea Environment Corporation			10	●
	102-2	Activities, brands, products, and services	Greenhouse gas project to prevent environmental pollution, improve environment, promote resource circulation, and respond to climate change			10	●
	102-3	Location of headquarters	42, Hwangyeong-ro, Seo-gu, Incheon, Republic of Korea			10	●
	102-4	Location of operations	Six regional operations across the nationwide			10	●
	102-5	Ownership and legal form	Consignment execution type quasi-government agency under the Ministry of Environment			10	●
	102-6	Markets served	Environmental and related service businesses (climate change, water and soil resource circulation, environmental facilities)			10	●
	102-7	Scale of the organization	No. of executives and employees: 2,650 Sales: KRW 1,078,958 mil	6.3.10/6.4.1/ 6.4.2/6.4.3/ 6.4.4/6.4.5/ 6.8.5/7.8		10	●
	102-8	Information on employees and other workers	Refer to sustainability performance			95-96	●
	102-9	Supply chain	Promoting shared growth to strengthen the competitiveness of small and medium-sized businesses in the environment sector			64-71	●
	102-10	Significant changes to the organization and its supply chain	No significant changes			-	●
	102-11	Precautionary Principle or approach	Preventing environmental pollution and creating a sustainable environment throughout the business			30-53	●
	102-12	External initiatives	UN Global Compact, UN SDGs support			-	●
	102-13	Membership of associations	Refer to Award and Membership			105	●
Strategy	102-14	Statement from senior decision-maker	Refer to CEO messages	4.7/6.2/ 7.4.2		6-7	●
Ethics and integrity	102-16	Values, principles, standards, and norms of behavior	Refer to Transparent and respectful organizational culture	4.4/6.6.3	Responsibility /ethics	82-89	●
Governance	102-18	Governance structure	Operating the board of directors, the highest decision-making body	6.2/7.4.3/ 7.7.5	Responsibility /ethics	14-15	●
Stakeholder engagement	102-40	List of stakeholder groups	Executives and employees, labor unions, customers, business partners, Government, National Assembly, media, communities, people			22	●
	102-41	Collective bargaining agreements	99% of executives and employees are subject to a group agreement			77-97	●
	102-42	Identifying and selecting stakeholders	Refer to Communication with Stakeholders	5.3	Participation	22	●
	102-43	Approach to stakeholder engagement	Refer to Communication with Stakeholders			22	●
	102-44	Key topics and concerns raised	Refer to Communication with Stakeholders, Core sustainability Management Issues			20-25	●
Reporting practice	102-45	Entities included in the consolidated financial statements	Refer to Sustainability Performances			94	●
	102-46	Defining report content and topic boundaries	Refer to About This Report, Core Sustainability Management Issues	5.2/7.3.2/ 7.3.3/7.3.4		4, 20-21	●
	102-47	List of material topics	Refer to Core Sustainability Management Issues			20-21	●

Universal Standards							
Topic	No.	Disclosure	Description	ISO 26000	SDGs & Social value	Page	Assurance
<b>GRI 102: General Disclosure</b>							
Reporting practice	102-48	Restatements of information	Not applicable			-	●
	102-49	Changes in reporting	Refer to Core Sustainability Management Issues			20-21	●
	102-50	Reporting period	As of January 1, 2018, to December 31, 2018. (Including the part of the first half of 2019)			4	●
	102-51	Date of most recent report	April 2015			-	●
	102-52	Reporting cycle	Biennial publication			4	●
	102-53	Contact point for questions regarding the report	Korea Environment Corporation (Tel. +82-32-590-4000)			4	●
	102-54	Claims of reporting in accordance with the GRI Standards	Complying with GRI Standards Core Option			4	●
	102-55	GRI Content Index	Reporting at least one key indicator of a common topic and one or more indicators by important aspects of a particular subject			98-101	●
102-56	External assurance	Conducting third-party verification from the specialized agency, Korea Standards Association for public information and reliability			102-103	●	
<b>Topic-specific Standards</b>							
<b>GRI 200: Economic Disclosures</b>							
<b>Economic Performance</b>							
GRI 103: Management Approach 2017	103-1	Explanation of the material topic and its Boundary	Refer to Introduction of Korea Environment Corporation			10	●
Economic Performance	201-1	Direct economic value generated and distributed	[Unit: KRW 1 million]		6.8.1/ 6.8.2/ 6.8.3/ 6.8.7/ 6.8.9	Win-win cooperation	10, 94
			Turnover	1,078,958			
			Corporate tax payment	(1,596)			
Social contribution expenditure	183						
<b>Indirect Economic Impacts</b>							
GRI 103: Management Approach 2017	103-1	Explanation of the material topic and its Boundary	It is a quasi-governmental organization under the Ministry of Environment that conducts environmental projects such as air, water quality, and soil to contribute to the development of the environment-friendly country			30-53	●
Indirect Economic Impacts	203-1	Infrastructure investments and services supported	It generates indirect economic effects through various social value creating activities, including urban flood prevention project, the supply of water, reduction of national dioxin emissions, clean-up of contaminated soil		6.3.9/6.8.1/ 6.8.2/6.8.7/ 6.8.9	38-39, 50-51, 59-60	●
<b>Procurement Practices</b>							
GRI 103: Management Approach 2017	103-1	Explanation of the material topic and its Boundary	By playing a leading role in shared growth, the corporation is creating conditions for growth with small and medium-sized businesses and social enterprises to realize social value			64-70	●
Procurement Practices	204-1	Proportion of spending on local suppliers	Purchase performance in 2018 [Unit: KRW 1 million]		6.4.3/6.6.6/ 6.8.1/6.8.2/ 6.8.7	Win-win cooperation	64-70
			Small and medium-sized businesses	610,777			
Social enterprises and cooperatives	4,405						
<b>Anti-corruption</b>							
GRI 103: Management Approach 2017	103-1	Explanation of the material topic and its Boundary	In order to prevent corruption within the corporation and to secure public trust, the corporation has established a foundation for ethical management and practices related activities			82-97	●
Anti-corruption	205-2	Communication and training about anti-corruption policies	Implementation of a customized education program to internalize ethics and cleanliness of executives and employees		6.6.1/6.6.2/ 6.6.3	86	●
<b>Anti-competitive Behavior</b>							
GRI 103: Management Approach 2017	103-1	Explanation of the material topic and its Boundary	Efforts are being made to improve unfair trade practices and foster a culture of fair competition			70	●

# GRI Standards Content Index

Topic-specific Standards																								
Topic	No.	Disclosure	Description	ISO 26000	SDGs & Social value	Page Assurance																		
<b>GRI 300: Environmental Disclosures</b>																								
<b>Energy</b>																								
GRI 103: Management Approach 2017	103-1	Explanation of the material topic and its Boundary	Helps reduce energy consumption in the organization by operating energy reduction programs			94 ●																		
Energy	302-1	Energy consumption within the organization	(Unit: TJ) <table border="1"> <thead> <tr> <th>Category</th> <th>2016</th> <th>2017</th> <th>2018</th> </tr> </thead> <tbody> <tr> <td>Electricity</td> <td>110,667</td> <td>105,528</td> <td>125,577</td> </tr> <tr> <td>Others</td> <td>53,212</td> <td>43,916</td> <td>41,753</td> </tr> </tbody> </table>	Category	2016	2017	2018	Electricity	110,667	105,528	125,577	Others	53,212	43,916	41,753	6.5.4	Environment	94 ●						
Category	2016	2017	2018																					
Electricity	110,667	105,528	125,577																					
Others	53,212	43,916	41,753																					
<b>GRI 400: Social Disclosures</b>																								
<b>Employment</b>																								
GRI 103: Management Approach 2017	103-1	Explanation of the material topic and its Boundary	The corporation is striving to provide good jobs due to the growing demand for jobs created by public organizations			54-55, 61-62 ●																		
Employment	401-1	New employee hires and employee turnover	Number of new hires, transfers, and resignations in 2018 (Unit: Persons)	6.4.3		95 ●																		
			<table border="1"> <thead> <tr> <th>Category</th> <th>2016</th> <th>2017</th> <th>2018</th> </tr> </thead> <tbody> <tr> <td>Male</td> <td>61</td> <td>37</td> <td>71</td> </tr> <tr> <td>Female</td> <td>37</td> <td>23</td> <td>4</td> </tr> <tr> <td>Under 30 years old</td> <td>71</td> <td>4</td> <td>22</td> </tr> <tr> <td>30-50 years old</td> <td>23</td> <td>10</td> <td>14</td> </tr> <tr> <td>Over 50 years old</td> <td>4</td> <td>16</td> <td>29</td> </tr> </tbody> </table>				Category	2016	2017	2018	Male	61	37	71	Female	37	23	4	Under 30 years old	71	4	22	30-50 years old	23
Category	2016	2017	2018																					
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30-50 years old	23	10	14																					
Over 50 years old	4	16	29																					
Employment	401-3	Parental leave	Status of parental leave in 2018	6.4.4		96 ●																		
			<table border="1"> <tbody> <tr> <td>Number of male users (in numbers)</td> <td>32</td> </tr> <tr> <td>Number of female users (in numbers)</td> <td>96</td> </tr> <tr> <td>Returning persons after use of parental leave (in numbers)</td> <td>127</td> </tr> <tr> <td>Number of employees working for more than one year after returning from parental leave (in numbers)</td> <td>126</td> </tr> <tr> <td>Return Rate (%)</td> <td>99.2</td> </tr> <tr> <td>Percentage of working for more than 12 months</td> <td>98.4</td> </tr> </tbody> </table>				Number of male users (in numbers)	32	Number of female users (in numbers)	96	Returning persons after use of parental leave (in numbers)	127	Number of employees working for more than one year after returning from parental leave (in numbers)	126	Return Rate (%)	99.2	Percentage of working for more than 12 months	98.4						
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<b>Labor/Management Relations</b>																								
GRI 103: Management Approach 2017	103-1	Explanation of the material topic and its Boundary	By promoting communication between labor and management, the corporation is creating a cooperative and reasonable labor-management relationship			72-77, 81 ●																		
Labor/Management Relations	402-1	Minimum notice periods regarding operational changes	If a change in the status of the members, such as transfer, acquisition, or merger of the project, is expected, the union shall be notified 50 days in advance for prior consultation	6.4.3/6.4.5	Labor	- ●																		
<b>Occupational Health and Safety</b>																								
GRI 103: Management Approach 2017	103-1	Explanation of the material topic and its Boundary	The corporation is strengthening related activities to prevent accidents at old facilities and hazardous workplaces and to ensure a safe working environment for executives and employees			78-79 ●																		
Occupational Health and Safety	403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	Status of industrial safety	6.4.6/6.8.8		97 ●																		
			<table border="1"> <thead> <tr> <th>Category</th> <th>2016</th> <th>2017</th> <th>2018</th> </tr> </thead> <tbody> <tr> <td>Number of workplace disasters (case)</td> <td>6</td> <td>6</td> <td>8</td> </tr> <tr> <td>Percentage of deaths in construction sites (%)</td> <td>6.31</td> <td>3.79</td> <td>0</td> </tr> </tbody> </table>				Category	2016	2017	2018	Number of workplace disasters (case)	6	6	8	Percentage of deaths in construction sites (%)	6.31	3.79	0						
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*Due to the nature of business operations, additional data is not recorded as it is minimal																								

Topic-specific Standards																				
Topic	No.	Disclosure	Description	ISO 26000	SDGs & Social value	Page Assurance														
<b>GRI 400: Social Disclosures</b>																				
<b>Training and Education</b>																				
GRI 103: Management Approach 2017	103-1	Explanation of the material topic and its Boundary	In order to improve the professionalism of executives and employees, we are providing training to enhance our capabilities			76 ●														
Training and Education	404-1	Average hours of training per year per employee	2018 Executives & Staff Training (Unit: Time)	6.4.7		96 ●														
			<table border="1"> <thead> <tr> <th>Category</th> <th>2018</th> </tr> </thead> <tbody> <tr> <td>Avg. training per person</td> <td>127.37</td> </tr> <tr> <td>Gender</td> <td>129.9</td> </tr> <tr> <td>Male</td> <td>119.6</td> </tr> <tr> <td>Female</td> <td>135.5</td> </tr> <tr> <td>Technical</td> <td>121.4</td> </tr> <tr> <td>Type of employment</td> <td>134.3</td> </tr> <tr> <td>Business</td> <td>107</td> </tr> <tr> <td>Operational</td> <td></td> </tr> <tr> <td>Non-fixed-term contract</td> <td></td> </tr> </tbody> </table>				Category	2018	Avg. training per person	127.37	Gender	129.9	Male	119.6	Female	135.5	Technical	121.4	Type of employment	134.3
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Operational																				
Non-fixed-term contract																				
<b>Diversity and Equal Opportunity</b>																				
GRI 103: Management Approach 2017	103-1	Explanation of the material topic and its Boundary	Efforts are made to create a happy workplace with equal opportunity by expanding social equity recruitment			75 ●														
Diversity and Equal Opportunity	405-1	Diversity of governance bodies and employees	Refer to Sustainability Management Governance	6.2.3/6.3.7/6.3.10/6.4.3	Labor, Human rights, Jobs, Social assistance	95, 97 ●														
<b>Non-discrimination</b>																				
GRI 103: Management Approach 2017	103-1	Explanation of the material topic and its Boundary	We strive to create work without discrimination based on position, employment type, etc. and improve the quality of employment			75 ●														
Non-discrimination	406-1	Incidents of discrimination and corrective actions taken	New anti-discrimination clauses in group agreements to address unreasonable discrimination against high school graduates and contract workers, and an additional 1.6%p increase in contract workers compared to regular workers	6.3.6/6.3.7/6.3.10/6.4.3	Labor, Human rights, Jobs, Social assistance	- ●														
<b>Human Rights Assessment</b>																				
GRI 103: Management Approach 2017	103-1	Explanation of the material topic and its Boundary	In order to establish a culture of respect for human rights in the workplace, we provide human rights education and provide relief procedures for dealing with difficulties			88-89 ●														
Human Rights Assessment	412-2	Employee training on human rights policies or procedures	2018 Ethical & Human Rights Training	6.3.5		96 ●														
			<table border="1"> <thead> <tr> <th>Category</th> <th>2018</th> </tr> </thead> <tbody> <tr> <td>Ethical Management</td> <td>10</td> </tr> <tr> <td>Avg. training time per person (Hours)</td> <td>100</td> </tr> <tr> <td>Total no. of trainees (%)</td> <td>10</td> </tr> <tr> <td>Sexual Harassment Prevention</td> <td>15,018</td> </tr> <tr> <td>Group training frequency (No. of times)</td> <td>94.2</td> </tr> <tr> <td>Total no. of training hours</td> <td></td> </tr> <tr> <td>Total no. of trainees (%)</td> <td></td> </tr> </tbody> </table>				Category	2018	Ethical Management	10	Avg. training time per person (Hours)	100	Total no. of trainees (%)	10	Sexual Harassment Prevention	15,018	Group training frequency (No. of times)	94.2	Total no. of training hours	
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<b>Local Communities</b>																				
GRI 103: Management Approach 2017	103-1	Explanation of the material topic and its Boundary	In order to realize environmental welfare, social contribution related to the characteristics of business is implemented, and communication is promoted by encouraging the participation of the people			57-60, 63 ●														
Local Communities	413-1	Operations with local community engagement, impact assessments, and development programs	Participate in local communities through sharing activities such as bazaar and mural street creation, and establish communication channels such as contesting ideas and solving local problems with residents to encourage participation by local communities and stakeholders	6.3.9/6.5.1/6.5.2/6.5.3/6.8	Community restoration, Regional economy, Participation	57-60, 63 ●														
<b>Customer Health and Safety</b>																				
GRI 103: Management Approach 2017	103-1	Explanation of the material topic and its Boundary	To create a safe living environment, the corporation is responsible for the safety of the public by managing harmful chemicals, radon, and asbestos			45, 50-52 ●														
Customer Health and Safety	416-1	Assessment of the health and safety impacts of product and service categories	Reinforcement of safety consulting and management of first-class carcinogens such as radon, asbestos, and dioxin	6.7.1/6.7.2/6.7.4/6.7.5/6.8.8	Safety, Health welfare	45, 50-52 ●														
<b>Customer Privacy</b>																				
GRI 103: Management Approach 2017	103-1	Explanation of the material topic and its Boundary	The corporation has strengthened internal management guidelines and implemented protective measures for personal information security			80 ●														
Customer Privacy	418-1	Substantiated complaints regarding breaches of customer privacy and losses of customer data	Zero accident of personal information leakage in 2018 and information management level diagnosis by the Ministry of Public Administration and Security 96.73 points	6.7.1/6.7.2/6.7.7	Human rights	97 ●														

# Third Party Assurance Statement

## Dear Korea Environment Corporation Management and Stakeholders

### INTRODUCTION

The Korean Standards Association ("KSA") was commissioned by Korea Environment Corporation ("K-eco") to perform a Third-party Assurance Engagement of 2018 K-eco Sustainability Report' (the "Report"). KSA presents independent opinions to the result of feasibility of the data contained in this Report. K-eco has sole responsibility for contents and performance contained in this Report.

### INDEPENDENCE

As an independent assurance agency, KSA does not have any kind of commercial interest in businesses of K-eco apart from undertaking a third-party assurance on the Report. We have no other contract with K-eco that may undermine credibility and integrity as an independent assurance agency.

### ASSURANCE STANDARDS AND LEVEL

This Assurance Engagement followed AA1000 Assurance Standard with 2018 Addendum assurance standards to provide Moderate Level assurance. We checked the three principles of inclusivity, materiality, and responsiveness in combination with information credibility of the Report. We also verified whether the Report content was created in accordance with the GRI standard.

### ASSURANCE TYPE, SCOPE AND LIMITATIONS

We performed a Type 2 Assurance Engagement in accordance with AA1000AS. This implies that we verified the accuracy and quality of the statements made by K-eco and the sustainability performance data included in this Report. The scope of verification is a period from Jan 1, 2018 to Dec 31, 2018, and depending on the content, the assurance engagement primarily includes the systems and initiatives undertaken by K-eco including its system and action for sustainable management policies, goals, projects, standards and performance during the reporting period defined in the Report. While the company's environmental and social data as well as financial data was verified, the scope of review concerning stakeholder engagement was limited to the materiality test process.

### METHODOLOGY

The Assurers collected data, information, and evidence via following method.

- Media coverage on sustainable management of K-eco
- Verification of the management system and process implemented in sustainable management improvement and Report writing
- Crosscheck between financial performance data in the Report and the data in the Assurers' report on the Company's financial statements and disclosures
- Track and examine internal documents and basic data

### ASSURANCE RESULTS AND OPINIONS [On an assurance principle/process level]

The Assurers reviewed the draft version of this Report to present our opinions as an assurance provider. Modifications were made of the Report content if deemed necessary. Assurers were not aware of any significant errors or inappropriate descriptions in this Report during the Assurance Engagement. As such, we present our opinions of the 2018 K-eco Sustainability Report as follows.

#### Inclusivity

##### Did K-eco include the stakeholders in the process of strategic response on the sustainability?

The Assurers verify that K-eco is making full effort for stakeholders' participation in promoting sustainable management, and we assured procurement and operation of diverse stakeholder participation process. K-eco has selected stakeholders including public sector, employees, corporate customers, individuals, partner companies, local communities and local government body to receive diverse feedbacks and opinions.

#### Materiality

##### Did K-eco include material information in the Report for the stakeholders' fair judgement?

The Assurers are not aware of any significant omissions or exclusions of data that is material to stakeholders. We verified that K-eco conducted materiality test with issues identified from analyses of internal and external environments and reported accordingly to the result found.

#### Responsiveness

##### Did K-eco response in accordingly to the demand and interest of the stakeholders?

The Assurers have verified K-eco reflect and respond to various opinions collected through the stakeholders' communication channels such as CSR experts' meeting and partner meetings. The Assurers have found no evidence K-eco responses to material issues involving stakeholders were misrepresented or misstated in the Report.

#### Impact

##### Did K-eco properly monitor the impact on the stakeholders?

The Assurers have verified K-eco responded stakeholders' needs and interests through reflecting stakeholders' opinions in the Report. We are not aware of any evidence that K-eco's response to significant issues of stakeholders was reported inappropriately. We recommend that the Group establish a primary operating system in which the opinions of stakeholders of Daegu Bank and its seven affiliates included in the operating boundary of this Report are linked with the group-wise sustainability strategies, action plans, and KPI as well.

### GRI STANDARDS STANDARD APPLICATION

The Assurers have verified that the Report was prepared in accordance with the Core Option of GRI Standards. Based on the data provided by K-eco, contents in relation to Universal Standards and Topic-specific Standards are confirmed facts.

#### Universal Standards

The Assurers have verified that the Report complied with the requirements of Core Option of GRI Standard and the following indices

102-1 to 102-13 (Organizational profile), 102-14 (Strategy), 102-16 (Ethics and integrity), 102-18 (Governance), 102-40 to 102-44 (Stakeholder engagement), 102-45 to 102-56 (Report practice), 103 (Management approach).

#### Topic-specific Standards

The Assurers have verified that specified disclosure list on Material Aspect that was deduced disclosure list determination process, and the following indices.

- Economic: 201-1, 203-1, 204-1, 205-2
- Environmental: 302-1
- Social: 401-1, 401-3, 402-1, 403-2, 404-1, 405-1, 406-1, 412-1, 413-1, 416-1, 418-1

### OPINIONS AND RECOMMENDATIONS [Performance/Issues]

The Assurers offer the following proposal to implement strategies in sustainability management in response to the issues with coherence at an organizational level in K-eco.

#### Economic performance

K-eco is a professional environmental organization devoted for the future and coexistence of nature and human, perusing national development through environmental improvement and resource recycling with constant communication among the stakeholders. In addition, K-eco endeavor to achieve management goals is realized through mid and long-term goals such as respecting the principle management respecting principle, open management based on trust and faith and value management for realization of social value. The assurers recommend enhancing proactive comprehensive response to financial and non-financial risk management as well as the external fluctuation in management environment.

#### Environmental performance

Catastrophic environmental risk which entire world is facing is elevating awareness as well as the demands for better living environment based on enhanced civic consciousness thanks to the economic development. As a representative public organization on environment, effort and the achievements to improve nature and living environment on a domestic level is positive. Yet, it seems that K-eco's goals and roles on the achievements in regard to the implementation, development and achievements of environmental policies should be clearly distinguished based on the Report, considering the fact that the government is influential to the social and environmental lawmaking and implementation. For instance, the role of K-eco is unclear regarding to the GHG reduction achievement based on GHG emission trading system. It is also unclear on the air pollution reduction achievement. It is advised to implement a system in regards to the main policies on natural and living environment \*setting and sharing to the public on the following: task scope categorized by issue, \*publishing achieved level on the report \*management on achievement indices and report system.

#### Social performance

K-eco has established a roadmap for its original sustainable development goal in order to secure world-wide sustainability and contribute UN SDGS for realizing peoples' environmental well-being proving its strong will to become an organization creating sustainable social value. In the future, it is advised to present goals such as strategic plans for sustainable development for the coming year, future plans and forecast and quantitative goals for the long-term, so that it can become a spontaneous drive to realize sustainable development goals. In addition, we recommend to communicated continuously with the stakeholders through the report.



**AA1000**  
Licensed Assurance Provider  
000-70

April 2019  
**Sang-Jin Lee,**  
KSA Chairman & CEO

이 상진

Korean Standards Association (KSA), established as a special corporation in accordance with the Law for Industrial Standardization in 1962, is serving as a knowledge service provider who distributes and disseminates such services as industrial standardization, quality management, sustainability management, KS certification and ISO certification. KSA is committed to the sustainable development of Korean society as an ISO 26000 national secretary, certified GRI training partner, AA1000 assurance provider, KSI (Korea Sustainability Index) operator, UN CDM DOE (development operational entity), and assurance provider of the Korean government's greenhouse gas energy target management system

# ISO 26000 Progress & Results Evaluation

In order to achieve K-eco's global level of sustainable management goals, THE CSR diagnosed K-eco's ISO 26000 implementation level and identified management improvement recommendations.

## Diagnostic method

Based on the ISO 26000 diagnostic checklist published under the authority of the Korean Agency for Technology and Standards (KATS), we conducted document diagnoses and field diagnoses to assess the level of implementation of the eight social responsibility processes and 37 specific issues of the seven core subjects.

- **Period:** Dec. 03, 2018 - Dec. 21, 2018
- **Document diagnosis:** Reviewing documents such as media, management performance evaluation reports, business reports to top management, and sustainable reports, etc.
- **Field diagnosis:** Conducting interview with executives and employees in the management and major business sectors (25 people from 22 departments of the K-eco headquarters) such as media, management performance evaluation reports, business reports to top management, and sustainable reports, etc.

## Diagnosis result

As a result of K-eco's diagnosis of ISO 26000 response level, the social responsibility process achieved 78.9% and the 7 core subjects achieved 86.8%. The overall satisfaction rate was 82.9%, and the level of social responsibility fulfillment was "excellent".



	Diagnostic area	Implementation level	Evaluation
The 7 core subjects	Social responsibility process	78.9%	Average
	Organizational governance	90.0%	Very good
	Human rights	81.0%	Good
	Labor practices	90.6%	Very good
	Environment	83.8%	Good
	Fair operating practices	86.8%	Good
	Consumer issues	90.0%	Very good
	Community involvement and development	90.6%	Very good
	Sub Total	86.8%	Good
	<b>Grand Total</b>	<b>82.9%</b>	<b>Good</b>

## Recommendation for Management Improvement

Although K-eco recognizes the importance of fulfilling its social responsibility and provides a basis for implementation. However, we recommend the following management improvements for social value creation and social responsibility management system over the mid- to long-term.

- In order to unify the existing management system and social responsibility management system, we recommend that mid- and long-term management strategy should be improved to fully cover seven core subjects of ISO 26000 while establishing a unified management system for social responsibility management through R&R based on strategic priorities and clear performance indicators.
- As the top decision-making body for social responsibility, we recommend that the Board of Directors manage the foundation for promoting sustainable management strategy, implementation tasks, performance, and goals. In particular, we think that awareness training for managers and executives is needed about UN SDGs, social values, and other social responsibility initiatives.
- To enhance the integrity of the organization, we look forward to K-eco becoming a trusted public institution by introducing an anti-corruption management system (ISO 37001) and a human rights management system to manage the underlying factors that decrease credibility and by publishing an annual sustainable report to disclose all efforts for social responsibility.



April 2019  
CEO of THE CSR, Jung Se-woo

# Awards and Memberships

## Status of awards

Date	By	Award details
2018.02	Korea Blog Industry Association	Korea Blog Awards, public sector "Best Award"
2018.03	EBI (Environmental Business International)	Project for Land Purchase and Ecological Restoration of Iksan Palace congratulatory message, 2017 EBI Award Winner
2018.05	Environment Minister Award	Contribution to the normal construction of the facilities by pre-inspection of sewage treatment facilities and treatment of abandoned rural waste in the site when constructing the endangered species restoration center
2018.06	Korea VE Association	Environment facility VE team wins Value Engineer of the Year Award for VE activation in the construction industry
2018.06	Department of Defense (Minister)	Contribution to environmental conservation and development of military units
2018.08	National Statistical Office	Selected as the statistician of merit under the supervision of the National Statistical Office and awarded by the National Statistical Office Director
2018.09	Korea Institute for Statistical Promotion	Marking the 24th National Statistical day, awarded the Korea National Statistical Office Award
2018.09	45th IAH Organizing Committee	45th International Mathematical Geological Conference and the merit in operation
2018.10	Ministry of the Interior and Safety	2018 Prime Minister's Award on the selection of outstanding companies for sharing performance
2018.10	Presidential Citation Award	Promoting Value Improvement of Environment Facilities
2018.10	Small and Medium Venture Business Department	Commemorative ceremony of Shared Growth Week and Award of Minister of Small and Medium-Sized Venture Enterprises in Open Platforms for Shared Growth
2018.10	Korea Social Content Promotion Association	South Korea's SNS Awards, Public Sector's "Best Award"
2018.11	Seongnam City Youth Foundation	Excellent organization participating in youth career experience project, Blue jeans project
2018.11	Korea Internet Communication Association	South Korea Internet Communication Awards, Public Sector "Best Award"
2018.12	Association of Korean Company Magazine	South Korea's communications award (in planning and design) "Best Award"

## Membership group

Division	Name of associations and societies	
Associations	Association of Chimneys Automated Measuring Instruments	Korea Waste Association
	Korea Automobile Resource Circulation Association	Korea Association of Soil and Sewage Conservation
	Korea Water and Wastewater Works Association	Korea CRO Association
	Korea Living Environment Association	-
Societies	The Korean Academy of Tuberculosis and Respiratory Diseases	Korean Association for Particle and Aerosol Research
	Korean Society of Water and Wastewater	The Korean Association of Public Finance
	The Korean Society of Radiology	The Korean Association Policy Studies
	The Korean Association for Occupational and Environmental Medicine	Korean Association of Underground Water and Soil Environment
	Korea Lung Cancer Society	Korea Wastewater Recycling Association
	Korea Environmental Engineering Association	Korea Quality Management Association
	Sustainability Science Council	Korean Association of Public Administration
	Korea Climate Change Chemical Society	Korea Environmental Analysis Association
	Korean Society of Oder Research and Engineering	Korean Society for Environmental Policy
	Korea Atmospheric Environment Association	Korean Academy of Environmental Science
	Korean Society on Water Environment	Korean Society of Environmental Health and Toxicology
	Korean Society of Thermal Environmental Engineers	-

## Connecting Nature with You

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